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# GraybaR

ELECTRIC COMPANY

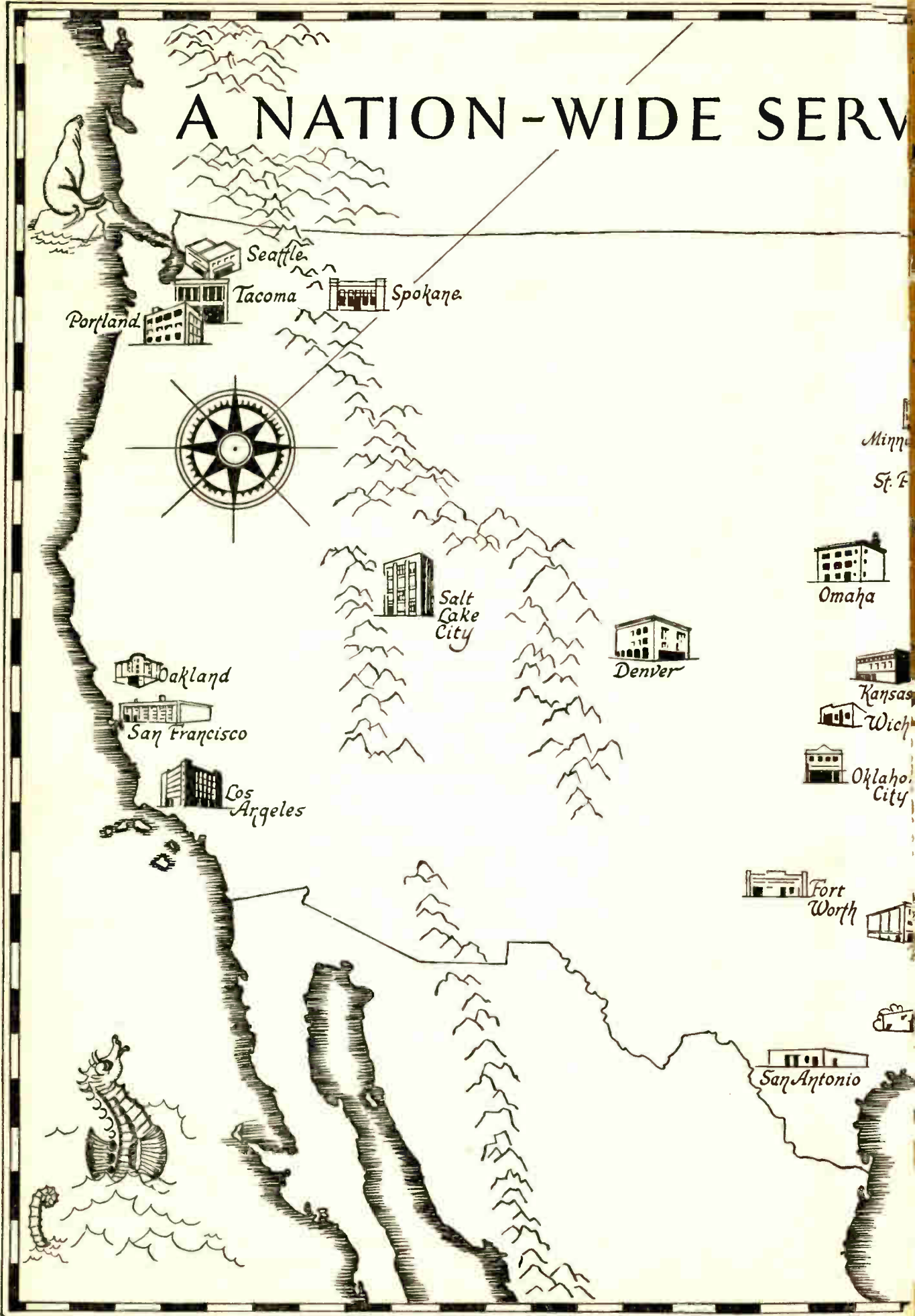
Catalog  
No 100



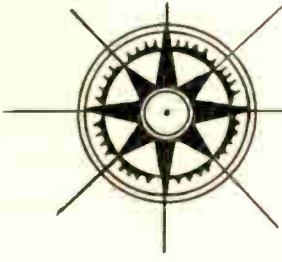
THE GRAYBAR TAG

SYMBOL OF DISTRIBUTION

# A NATION-WIDE SERV



Seattle  
Tacoma  
Spokane  
Portland



Salt Lake City

Denver

Oakland  
San Francisco

Los Angeles

Omaha

Kansas  
Wichita

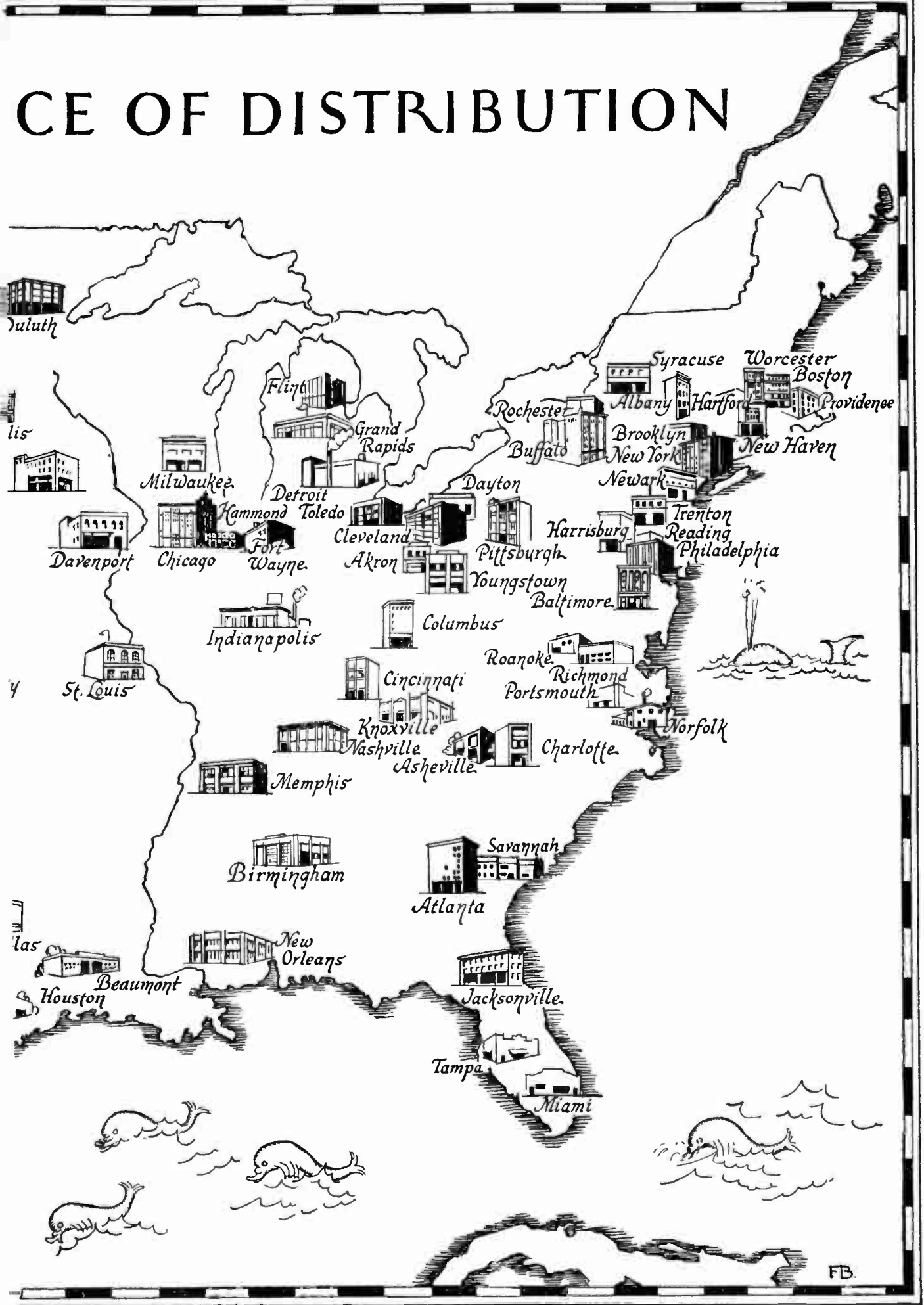
Oklahoma City

Fort Worth

San Antonio



# CE OF DISTRIBUTION

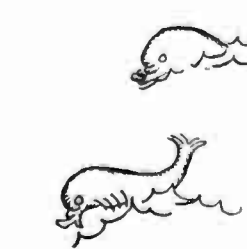


Duluth

St. Paul

St. Louis

Houston



Flint

Milwaukee

Detroit

Indianapolis

Birmingham

New Orleans

Grand Rapids

Hammond  
Fort Wayne

Toledo  
Cleveland

Akron

Cincinnati

Knoxville  
Nashville

Atlanta

Jacksonville

Tampa

Rochester

Buffalo

Dayton

Pittsburgh

Youngstown

Columbus

Roanoke

Richmond  
Portsmouth

Charlotte

Syracuse

Albany  
New York

Newark

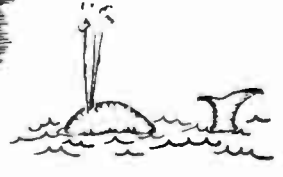
Harrisburg  
Trenton

Reading  
Philadelphia

Worcester  
Boston

Providence

New Haven



Norfolk

Savannah

Beaumont

Miami

## PRICES

Prices found in this catalogue are revised to agree with the latest lists at the time of issue. It is understood that they are subject to change without notice and are, therefore, not offered by us as a quotation. It is contemplated that all prices are for shipment from our warehouse unless otherwise specified, except such goods as are shipped regularly direct from factories, in which cases prices are for factory delivery unless otherwise specifically agreed upon.

## ORDERS

When possible, we have placed opposite each article a list number. When ordering material, kindly order by the list number and give a description of the article required.

You are requested to specify the routing over which you prefer shipments to be made. In the absence of specific instructions, we shall use our best judgment in selecting the route, but we are not responsible for extra drayage expenses at destination.

## TERMS

Our terms are 30 days net from date of invoice.

Payments may be made by check, bank draft, postal or express money order, drawn to the order of or endorsed to the order of the Graybar Electric Company, Inc.

Payments in currency through the mails even if registered are not recommended and are at sender's risk. We are not responsible for loss or miscarriage of the mails.

Receipts are not issued for remittances unless requested. Our endorsement on remittance is acknowledgement of the receipt of the funds.

We solicit new accounts on a credit basis, and in order to give prompt service, request that where you are not rated by the Commercial Agencies, references or other information of a credit character be forwarded with the order. These will be immediately acted upon, and the results held in strict confidence for our sole use and, when reasonably satisfactory, shipment will follow with all possible dispatch.

To avoid the delay incidental to communicating with references, etc., it would be mutually convenient, when immediate shipment is desired, to instruct us to ship C. O. D. by express, or parcel post (insured if so instructed) or by freight subject to sight draft through a local bank against bill of lading.

We shall advise the terms on future orders promptly after communications from references are received.

## RETURNED GOODS

To save transportation charges, and to facilitate the handling of goods upon receipt, you are requested not to return goods without having obtained shipping instructions from us.

## SHIPMENTS

As experienced packers are employed, and as reasonable care is used in packing, we cannot be held responsible for breakage in packages which are delivered in "good order" by the carrier.

Shipments of glassware are made at your risk.

Goods ordered to be shipped by parcel post will be sent only at the purchaser's risk of loss or damage.



## Now the Shoemaker can stick to his last

In the olden days, nearly every man who manufactured anything had also to do his own selling, often by trudging from village to village.

Nowadays, this job is done by the Distributor who, like Graybar Electric Company, makes a highly specialized business of bring-

ing products to users quickly and economically.

The dramatic growth of Graybar Electric—briefly summarized on the next two pages—is particularly interesting because it typifies the growth of this new economic era.



# FROM "GRAY AND BARTON" TO . . "GraybaR"

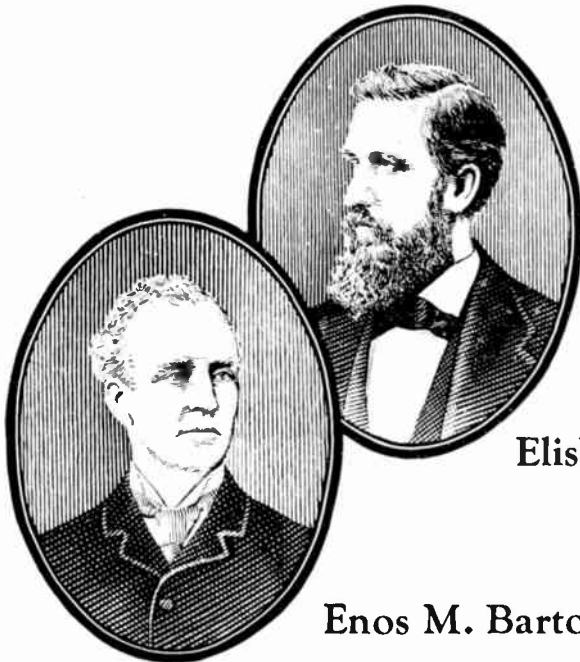
*the story of sixty years.*

THE story of the Graybar Electric Company as a distributor goes back to a day when folks had never heard of telephones, of washing machines, of electric lights or of many other electrical conveniences which are commonplace today. It goes back to a day when the electrical industry could hardly have been called an "industry."

Among the men of vision who in that day helped lay

the foundations of the electrical industry, history records two who were outstanding. They were Elisha Gray and Enos M. Barton, who in 1869 founded the Gray and Barton Company which was to become, over half a century later, the Graybar Electric Company.

From the very beginning the firm of Gray and Barton grew with the growing uses which were discovered for electricity. From a mere



**Elisha Gray**

*Founders in 1869 of Gray and Barton,  
now Graybar Electric Company.*

**Enos M. Barton**

handful of men and from its small workshop it expanded until it filled great warehouses and offices in all of the principal cities of the country. From the handling of the crude batteries, bells and buzzers of the early days, it eventually became headquarters the country over for everything electrical from signalling systems to street lights, from percolators to power line poles.

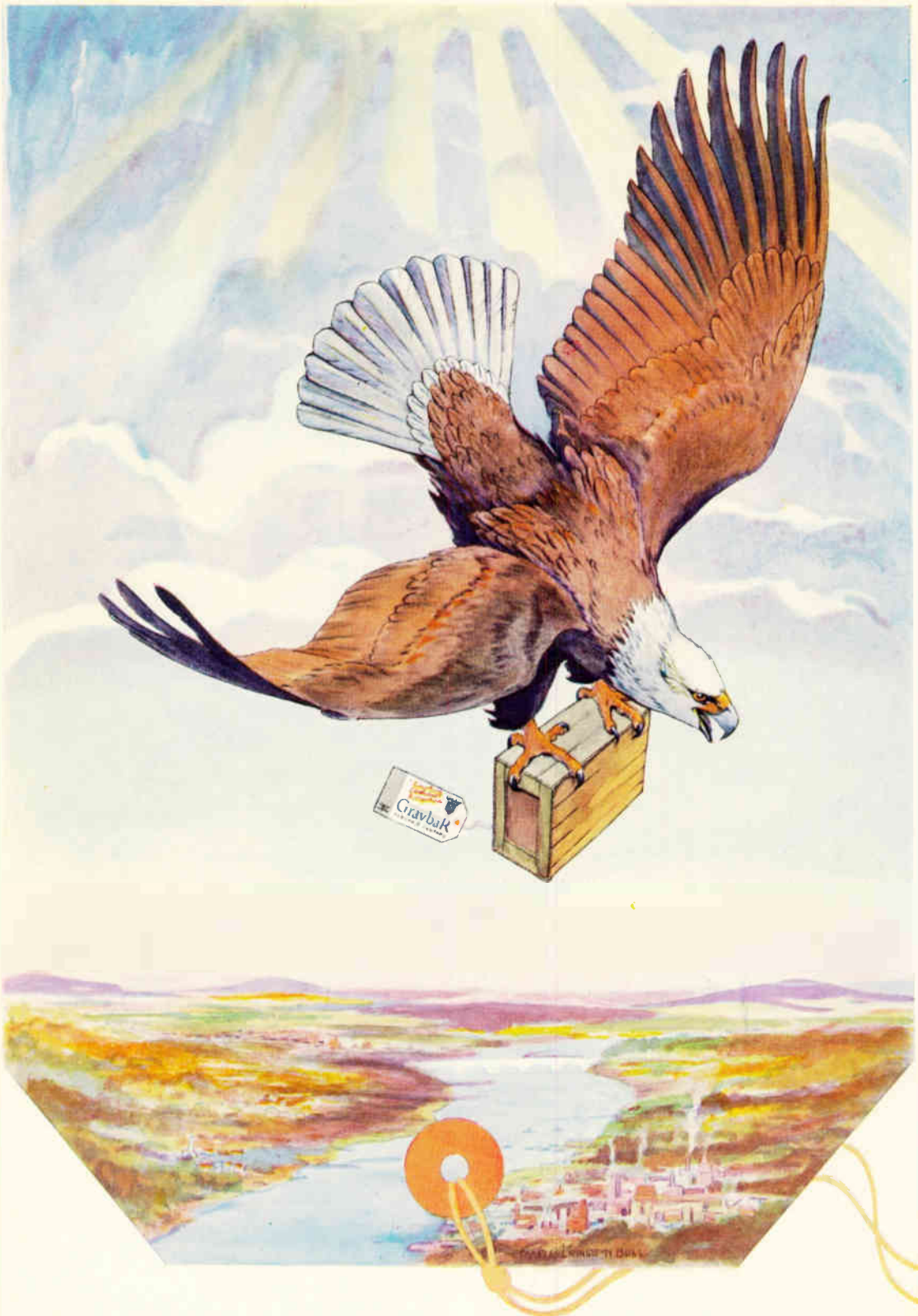
During these years of its development the firm name was changed twice. In 1872 it became the Western Elec-

tric Company and in 1925 the Supply Department of that company assumed its present name, the Graybar Electric Company, in honor of the founders Gray and Barton.

Thus, while the name Graybar is comparatively new in fact, it is old in association, in tradition and in experience. It represents the accumulated knowledge of 60 years of intensive electrical experience. And now, as in the old pioneering Gray and Barton days, it represents quality in everything electrical.



*A bronze tablet in the great hall of the Graybar Building in New York City.*



## **An All American electrical supply service**

Graybar service covers the continent . . . It crosses mountain ranges and rivers . . . It reaches into distant cities.

Through its own 71 well-stocked distributing houses, Graybar service

brings you your electrical supplies exactly as and when and where you want them . . . in all, some 60,000 items selected to meet the electrical requirements of all America.



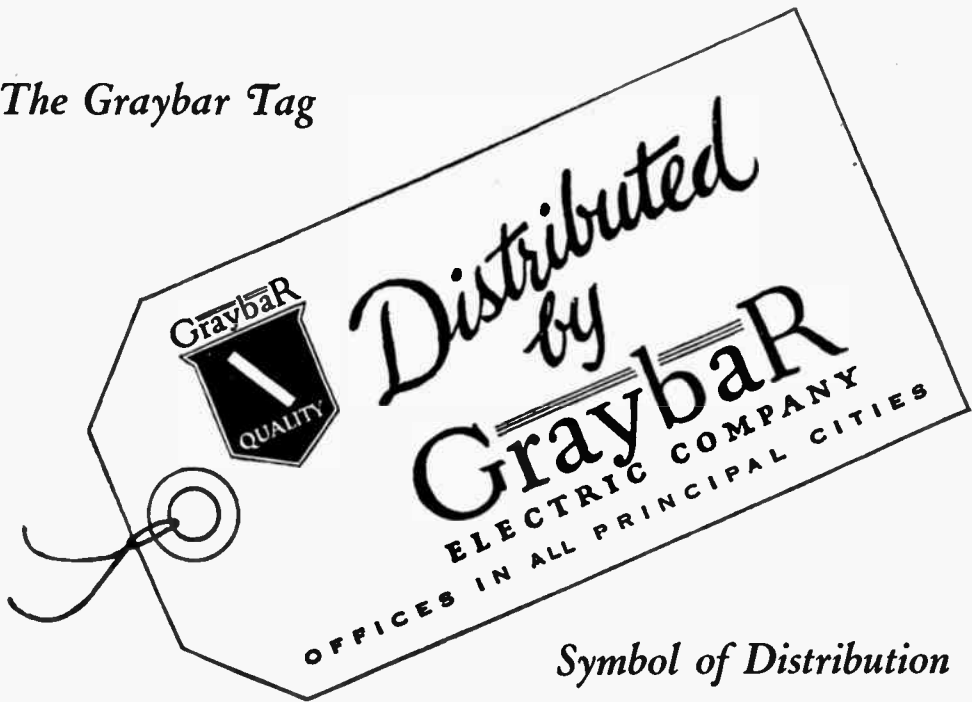
# Graybar

ELECTRIC COMPANY

CATALOG

No. 100

*The Graybar Tag*



*Symbol of Distribution*

## No. 12 Graybar Two-Speed Clothes Washers



**SIZE.**—Occupies a floor space 25 inches square. Capacity approximately 8 pounds.

**APPEARANCE.**—A combination of gleaming nickel and soft tones of gray, or black and white with nickel trimmings.

**TWO-SPEED AGITATOR.**—Fast and slow. The Fast speed for the average family wash. The Slow speed for the more particular things that require extra care in handling. At Fast speed the agitator oscillates approximately 1/2 revolution (at a speed of approximately 60 cycles per minute); at Slow speed 1/3 revolution. Action is controlled by positive clutches easily operated by a single selective control lever. The 4-vane aluminum agitator has a square base scientifically designed to give proper flow of water over the vanes and to throw clothes away from the center.

**WATER PUMP.**—2-bladed centrifugal type gear driven from the washer motor. Drains tank in 2 minutes. Operated by a small lever located on the outside of the machine. Rubber drain hose hangs securely on outside of washer. Tank is also self draining; no shut-off valves.

**PROTECTED PORCELAIN TANK.**—Made of one-piece Armco iron completely vitreous porcelain enameled, pure white on the inside. Completely supported and clamped between rubber mountings and protected from blows and injury by the steel shell which is 1/2 inch away from the outside of the tank. Tank is 14 1/2 inches deep and 22 inches in diameter. Cover is copper nickel-plated and polished on both sides.

**FRAME.**—Cylindrical steel shell 23 inches in diameter and 21 inches deep. Mounted on 3 braced pressed steel legs with self-lubricating Atlaslite casters.

**WRINGER.**—Pressed steel, cadmium plated then nickel-plated and highly polished. Top section is separable. Double drain board 13 1/2 inches long; has a slope of 15 degrees. Tilting water board; wringer swings and locks into any one of 8 operating positions. Soft rubber rolls 2 inches in diameter and 12 inches long, revolve in either direction. Simplified tension release, no gears—no oiling. Wringer can be operated while agitator is running.

**MECHANISM.**—Belt drive for first speed reduction and worm gearing for second speed reduction. Fully enclosed.

**CORD.**—8 feet; of waterproof cord and unbreakable attachment plug.

**MOTOR.**—1/4 h.p. Approximate rating, 300 watts. Furnished for any frequency of voltage. Operates agitator and wringer at the same time.

**LUBRICATION.**—Automatic oiling system for gear mechanism. Water pump lubricated by grease cup. Motor lubricated from oil pipes accessible from outside of machine.

Shipping weight, 250 pounds.

Price, No. 12.....each      East of Rockies      West of Rockies  
\$165.00      \$175.00

## Graybar Whirl-Dry Clothes Washers



This small practical washer has an unlimited field. It is used where the large clothes washer is impractical because of lack of space, or where there is not enough washing to warrant the purchase of a large washer.

The outstanding features of this washer are its portability and compactness, and the fact that it not only washes by electricity but rinses and dries as well and is self-emptying.

All parts touching clothes are nickel-plated copper.

Can be attached to any electric outlet.

Has a 1/6 h.p. universal motor. Controlled by a heavy duty switch conveniently located in base. Operates from a lamp socket and uses less than a cent's worth of electricity an hour.

Tank is 13 1/2 inches in diameter and 10 1/2 inches deep. Zinc coated steel. Feet, 8 3/4 inches in diameter pure gum rubber supports.

Spinner-basket, 12 1/2-inch diameter; 7 1/2 inches deep. Sheet copper—brass paddles.

Drive unit—gears—accurately machined and constructed of high grade materials.

Drive shafts are hardened and ground steel cadmium-plated. Gear case is of die castings. High grade bronze bearings. Seamless steel tubing spinner post, heavily zinc-coated.

Lubrication, semi-fluid oil by splash. Has an oil and water separator space between tank and gear case making it impossible to get oil in water or water in the gear case.

Ten-foot rubber-covered cord with rubber plug moulded integral with cord.

Washes 2 pounds of clothes at a time. Uses only 4 gallons of water.

Overall dimensions: diameter, 16 1/2 inches; height, 18 inches.

Complete washer, 37 1/2 pounds; shipping weight, 55 pounds.

Price.....each \$59.50

On this and following pages are shown  
GRAYBAR APPLIANCES AND RADIOS.

Comprising the only complete line of its kind and supported by strong national advertising, and by a comprehensive plan of dealer co-operation, the Graybar Quality Line becomes of unusual interest to enterprising dealers.

Detailed information on Radio and Appliances is available from your nearby Graybar House.



## No. 4 Graybar Table-Top Ironer



A combination ironer and kitchen table. Electrically heated and electrically driven—no extra wiring required.

**SIZE.**—Length of roll, 30 inches. When closed it is a handy little table 36 inches long, 18 inches wide, 32½ inches high.

**APPEARANCE.**—Black and white. Top is white porcelain enamel with black enamel edge; body is white enamel with nickel finished controls and trimmings. Legs are black enamel equipped with rubber tired casters.

**ROLL.**—30 inches long, steel shell, 5¼ inches in diameter; 6 inches when covered with a special knitted padding, a layer of light weight duck, and an outer covering of muslin with draw string fastenings at both ends. Makes 7 r.p.m. and irons at the rate of 11 feet per minute. Roll is free and revolves easily in either direction.

**SHOE.**—Full floating shoe swiveled at back to supporting arm, self aligning, full contact against roll. White nickel on special aluminum alloy. Electrically heated with single heat switch conveniently fitted in double receptacle with motor switch, located at right of receiving board. Entire surface of shoe is accessible for cleaning.

**CONTROLS.**—Power operated, selective, either by finger bar at top of gear case on right, or by knee lever, at left under receiving board. Knee control can be adjusted to suit convenience of operator. Folds up out of sight and out of the way when not in use.

**SAFETY RELEASE.**—If electric service fails while ironer is in operation, shoe can be released from roll by moving the emergency hand control.

**PRESSURE FEATURE.**—Rolls can be held stationary and shoe can be operated against roll for pressing.

**FEED BOARD.**—Made of wood, enameled white. May be swung away from roll when full open end is to be used.

**POWER TRANSMISSION.**—Direct connected from motor to worm and gear speed reduction. All mechanism fully enclosed and self lubricated.

**MOTOR.**—½ h.p. Motors rated as follows: 110 volts, 60, 50, 40, 30 and 25 cycles; 220 watts, 60 cycles; 110 and 220 volts d.c. Motors use about 175 to 250 watts.

**LUBRICATION.**—A can containing ½ pint of medium engine oil comes with each ironer. The entire contents of this can is poured into gear casing by removing screw plug at top of gear casing. No further attention need be given as pump on gearing circulates the oil automatically. Once a year a few drops of motor oil should be put in oil cups, on motor.

Shipping weight. 240 pounds.

## Graybar Portable Sewing Machines



Graybar Electric Sewing Machines all produce a lock stitch.

**PORTABILITY.**—Can be used wherever there is an electric outlet, and tucked away out of sight when not in use.

**EASE OF OPERATION.**—A slight pressure on the control starts the motor. It responds instantly and is always under full control.

**FOOT CONTROL.**

—A small foot pedal controls the motor on these portable types. A slight touch on the foot control starts the machine, increasing the pressure increases the speed, lessening it decreases the speed.



**MOTOR.**—A 1/20 h.p. universal motor. Machines are made from 110 to 120 volts d.c. or a.c. 25 to 60 cycle circuits. Machines for other voltages and frequencies, including 32 volts can be furnished at a slight additional cost. One cent's worth of electricity will operate a sewing machine for about 2 hours.

**FINISH.**—Models with genuine walnut veneer cabinets and covers that lock securely. One model with a metal base and rubberized cover.

**ATTACHMENTS.**—A set of attachments with each machine.

## No. 1 Shuttle—Wooden Base



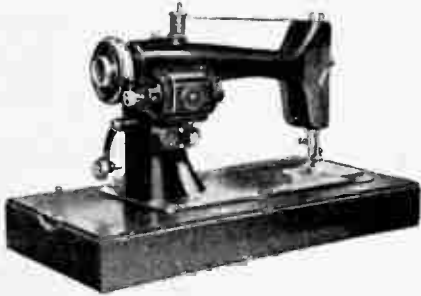
Has the conventional shuttle, ¾ size head, automatic tension release, automatic bobbin winder, enclosed needle bar. A round motor is attached to the back of the machine.

Shipping weight, 60 pounds.

		East of Rockies	West of Rockies
Price, No. 4 . . . . .	each	\$165.00	\$175.00

		East of Rockies	West of Rockies
Price, No. 1 . . . . .	each	\$57.50	\$60.00

## Graybar Portable Sewing Machines No. 2A Rotary with Built-In-Motor and Sewing Light

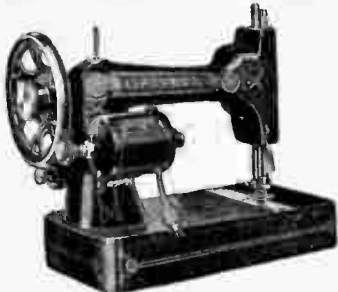


The motor is an integral part of this machine, encased in the arm, completely protected from dust or damage. Smooth running and silent. Small hand wheel adds to the symmetry of the machine. Electrical connections are simplified. Beneath the motor is the terminal box with two receptacles, one for the rheostat and one for the conductor cord. A 4-foot cord is attached permanently to foot control rheostat. There is a separate 6-foot conductor cord for current supply. A sewing light attached to front of machine throws a direct ray of light on work as it goes through machine. Electric current for lamp is taken from conductor cord. No extra connection is necessary. Tension automatically adjusts itself to thick or thin goods. Automatic bobbin winder, motor operated; improved stitch regulator.

Shipping weight, 65 pounds.

Price, No. 2A.....	each	East of Rockies	West of Rockies
		\$75.00	\$77.50

### No. 11 Shuttle—Metal Base



Same as the No. 1 except for the metal base and flexible rubberized cover instead of the wooden cabinet. This reduces both price and weight.

Shipping weight, 45 pounds.

Price, No. 11.....	each	East of Rockies	West of Rockies
		\$45.00	\$47.50

### No. 4 Two-Spool



Full size head; rotating principle; all improvements of Rotary; no bobbins to wind; sews direct from two spools; finish—dark walnut on oak.

Shipping weight, 70 pounds.

Price, No. 4.....	each	East of Rockies	West of Rockies
		\$80.00	\$82.50

## Graybar Console Type Sewing Machines



The console cabinet types of sewing machines fit in harmoniously with the furnishings of any room.

Equipped with rotary head with built-in-motor and sewing light. Have adjustable knee control located at right on the inside of the table. Operates as easily as the foot control. When not in use knee control folds out of the way of the closed door.

### No. 5A Console Type

Built of the best American walnut and walnut veneer with rubbed satin finish. When closed it measures 35 inches long, 18½ inches deep and 30 inches high.

The cover is hinged at the back and when opened for sewing is supported by a gate leg that swings to either side and is not visible when the cabinet is closed. The sewing surface provided by the table and cover is more than adequate. There are 2 pockets on the inner side of the door for instruction books and patterns; also a drawer in the cabinet and a shelf for the attachments.

Shipping weight, 145 pounds.

Price, No. 5A.....	each	East of Rockies	West of Rockies
		\$140.00	\$145.00

### No. 7A Cabinet Type



This model meets the demand for a quality cabinet at a popular price. It is of a simple pleasing design sturdily built of walnut and walnut veneer with a satin finish.

When closed it measures 24 inches long, 18½ inches deep and 30 inches high.

Hinged cover lifts and drops to the left, making a spacious working surface. Front of the cabinet is a hinged door which swings back and forms a support for cover. On the inside of the door are 2 compartments for attachments and instruction books.

Shipping weight, 119 pounds.

Price, No. 7A.....	each	East of Rockies	West of Rockies
		\$105.00	\$107.50

## Graybar Two-Fan Vacuum Cleaners

These Graybar Vacuum Cleaners embody the two fan principle—a development by which the speed of the motor and resultant noise are reduced, but not the volume of air necessary for efficient cleaning. The two fans are small in diameter and work in tandem. It is the simple principle of two fans working on the same job at a lower rate of speed and accomplishing the same results as one fan working away at a high speed. These cleaners are built unusually low. Convenient for cleaning under beds and large pieces of furniture. They take up exceptionally small storage space, because when handle is locked in horizontal position the cleaner can be stood on end against the wall.

### No. 20 Two-Fan Vacuum Cleaner



The No. 20 is a powerful cleaner—the Big Ben of the family.

Moves easily over the floor coverings. Body is of aluminum casting polished all over; supported on 3 molded rubber wheels. The 2 forward wheels are rubber tired and support the nozzle. They are made adjustable to regulate the nozzle height. There are 4 notches in which the nozzle adjustment lever may be regulated to clean efficiently different thicknesses of floor covering.

The motor-driven brush has Chinese bristles set in tufts in spiral formation in a steel spindle. As the bristles wear down an adjustment plate provides for lowering the brush accurately and evenly the entire length. There are 5 notches on this cleaner. Each notch lowers the brush a fraction of an inch.

Brush is held firmly in spring sockets and is driven by an endless flat rubber belt from a speed reducing pulley on motor

shaft. A spare belt is furnished with each cleaner.

Bag is equipped with a clip type emptying clamp. An extra flap of material at throat of bag prevents dust from dropping back into cleaner. Detachable support on handle. Breach type connection to fan outlet.

A flip of the trigger type control switch, conveniently located just below where the hand rests, turns the current on or off.

Tubular steel handle with curved grip, insulated at bottom by fibre sleeve, fits into socket at top of bail. Easily removed by loosening wing nut. Combination tilting and handle holding device operated by foot.

Twenty feet of conductor cord with unbreakable plug makes it convenient to clean several rooms from one outlet. Detachable plug at base of handle.

Horizontal 1/8-h.p. universal motor, approximately 8000 r.p.m. Can be used on 110 volts a.c. or d.c. and a.c. of 25 to 60 cycles frequency. Motors for higher voltage operation can be obtained. Fully enclosed, accurately fitted and protected from dust; air cooled. High grade, large size motor brushes. Double fan in tandem, steel blades.

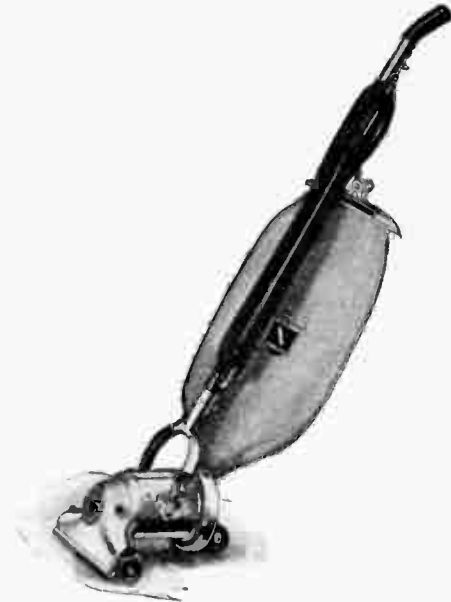
No oiling necessary. The rotating parts of both motor and brush are mounted on ball bearings which are packed in grease and sealed at the factory.

Cost of operation is approximately 2 cents an hour on a 10-cent rate.

Nozzle opening, 12 1/2 inches. Overall dimensions: width, 15 inches; length, 12 1/2 inches. Height at highest point of body, 6 1/2 inches. Weight, 14 pounds.

Price, No. 20	each	East of Rockies \$60.00	West of Rockies \$62.50
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### No. 25 Two-Fan Vacuum Cleaner



This cleaner is exceptionally easy to use. It is unusually light in weight, weighing only 10 pounds, easy running yet powerful enough to do the cleaning in the average home. It is of the same general construction as the No. 20 except that it has a permanently adjusted nozzle and the special brush adjustment provides for 3 adjustments instead of 5.

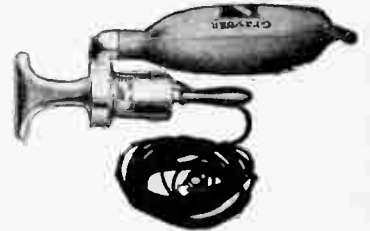
The nozzle opening measures 8 3/4 inches. Overall dimensions: width, 10 3/4 inches; length, 11 inches. Height at highest point of body, 6 inches.

Weight, 10 pounds.

Price, No. 25	each	East of Rockies \$40.00	West of Rockies \$42.00
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### No. 30 Handy Cleanerette

This cleaner takes the place of attachments and yet it is a complete cleaner consisting of a motor, short handle, self supporting bag, nozzle and brush that slips on nozzle, and 20 feet of cord. It weighs only 4 pounds, and from the front of the nozzle to the tip of the handle it measures only 14 1/2 inches. Nozzle opening is 4 5/8 inches.



Suction and shape of nozzle combine to make this a thoroughly efficient cleaner for stair runners, upholstered furniture, radiators, mattresses, clothing and automobiles.

Nozzle and fan housing are an integral part made of cast aluminum and polished. Motor is finished in gray enamel and the handle is of wood black enameled.

The gray dustproof bag is self-supporting by a contained spring wire loop; it runs parallel with the motor and handle. A black fibre tube with slot slides easily over large end of bag. Breach type connection to fan outlet makes it easy to detach bag. Bag may be removed and cleaner used as a blower.

A tumbler switch mounted in motor case is conveniently located. Universal motor, 100 watts. Ball bearings require no oiling.

Cost of operation is a cent an hour based on the 10-cent rate.

Price, No. 30	each	East of Rockies \$13.50	West of Rockies \$14.50
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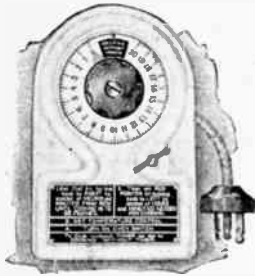
## Construction Features of Crawford Electric Ranges

## No. 18-93 Crawford Electric Ranges

### Crawford Automatic Controls

The operation of these ingenious labor-saving devices is simple, positive and accurate. They are mounted on the range itself with the plug-in feature. Each control is wired into the range in such a manner as to actuate at the point of setting a dependable solenoid switch. This switch locks itself on and off, eliminating the hums and chatters so prevalent in automatic controls, and insures a positive and reliable contact.

### Crawford Time Controls



A self-contained unit which may be added to any Crawford Automatic Electric Range, for turning the oven heat on and off at any predetermined time within a period of 20 hours. Can be placed at any convenient spot on top of the range, or it may be fastened to the back of shelf or oven top.

Finished in white enamel. Instructions for operation are placed just below the dial.

This timer is unique in the simplicity of the setting operation. There is only one hand: turn this first to the right, to the number of hours lapsing between the time of setting and the time it is desired to turn the oven heat off; then to the left, to the number of hours that it is desired to have the heat turned on. Operated by a standard clock mechanism. Can be removed for cleaning and oiling by pulling plug which attaches it to the control circuit.

The movement within the timer is an 8-day movement. One winding is sufficient for many weeks of ordinary cooking.

### Crawford Temperature Controls

The temperature control insures constant regulation of oven temperatures. It is mounted on the side of the oven nearest the cooking top and close to the front of the oven. Installed here, the actuating member is not affected by the radiant rays from heating units, so that the device operates only on true air temperatures of the oven.



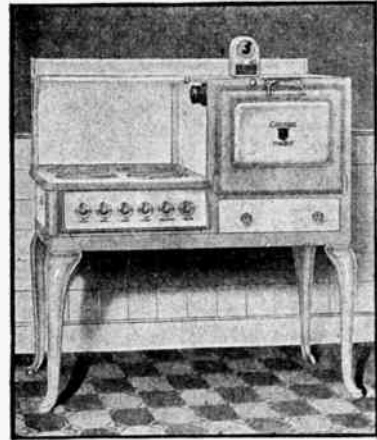
Control is positive in action, and when set at the desired temperature, the oven heat will be automatically maintained at that temperature so long as the oven switch is turned on. Its positive action is produced by the expansion and contraction of a copper tube within which is a carbon rod extending nearly across oven enclosure. For that reason its operation is not governed by heat at any spot in oven, but by true average oven temperature. Will maintain oven heat within a few degrees of temperature at which it is set. The current in the control circuit is on only momentarily.

Control is attached to oven with plug-in feature. Control does not break a circuit. Current is controlled by solenoid switch so that circuit is always made and never broken within thermostat itself, thus eliminating usual wear and tear from arcing.

### Calibration and Adjustment

The temperature control is sealed in such a manner that oven moisture, which would cause corrosion or interference with adjustments, cannot reach its operating parts.

Although thermostat is easily calibrated and adjusted, it is suggested that it be opened only by those familiar with its operation. Recalibration, if necessary, is done without removing or opening the temperature control. Loosen the slotted screws on the end of the thermostat and move the adjustment to the right or left to make the control agree with the thermometer to which it is being calibrated. The slotted screws are then tightened and the control is in proper adjustment.

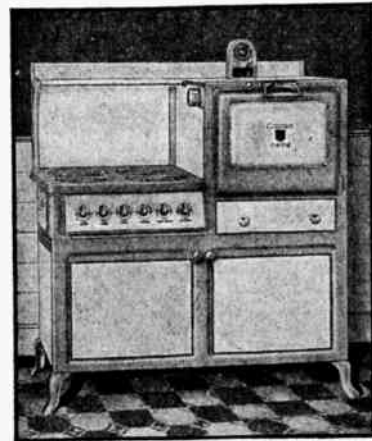


No. 18-93 RPA

A large oven, together with 4 top units, furnishes ample cooking capacity for large families, tea rooms or small clubs.

It is finished in 2-tone vitreous enamel. The sheet metal parts are white, and the cooking top, front, and door frame are light gray vitreous enamel.

Made with either right or left-hand oven. The Crawford Automatic Control is standard with this range.



No. 18-93 RPAU

### Dimensions

Oven Size.....	inches	18x18x15
Floor Space.....	inches	26x47½
Cooking Top.....	inches	23½x24
Height, Cooking Top.....	inches	33½
Shipping Weight, with Utility Base.....	pounds	465
Shipping Weight, without Utility Base....	pounds	390

### Units

Cooking Top, Two 8-Inch Units.....	each	1500	Watts
Cooking Top, Two 8-Inch Units.....	each	1000	Watts
Oven Top (Broiling).....		1500	Watts
Oven Bottom (Baking).....		1500	Watts
Convenience Outlet.....		1000	Watts
Total Wattage.....		9000	Watts

Prices upon application.

**Crawford Utility Bases**

The Crawford Utility Base is made in enamel finish only. Made in 3 sizes to fit the Nos. 14-61, 16-83 and 18-93 models of Crawford Electric Ranges. It not only enhances the beauty of those models, but it is a real utility.

Unique with Crawford is the base with the disappearing door—a patented feature with 5 distinct points of superiority in its favor.

**Disappearing Doors**

To open either of the 2 closet doors, simply pull the nickel knob at the top nearest the door to be opened. It operates easily and positively. No stooping is necessary. When opened, the door disappears from view like the door of a modern bookcase, making access convenient. The construction makes possible, if desired, the opening of both doors together. The doors do not come out into the room as they would if swung on hinges. There is no chance of the doors sticking. To close the door, push the nickel knob back, and the door adjusts itself again in the closed position.

At the back of the base is a wing nut for adjusting the tension of the opening and closing of the doors to the particular requirements of the housewife.

**Simple Construction**

The patented floor operating mechanism is sturdily and simply built—nothing to get out of order—no hinges to loosen—no sliding grooves to get out of alignment or adjustment.

**Integral Frame Construction**

The front frame of the Crawford Utility Base is one solid casting, finished in light gray vitreous enamel. When the range is set in place, it has the appearance of a solid enamel front, forming a complete assembly from the floor up.

**Heated Compartment**

Each compartment is arranged so that an electric heater may be installed in either or both compartments, converting the utility base into a practical warming closet. A special portable unit with control switch attached may be installed at any time.

**Easily Cleaned**

The base is set on cast iron legs, finished in gray vitreous enamel of ample height to allow for easy cleaning underneath.

**No. 16-83 RPAU Crawford Electric Ranges**



**Dimensions**

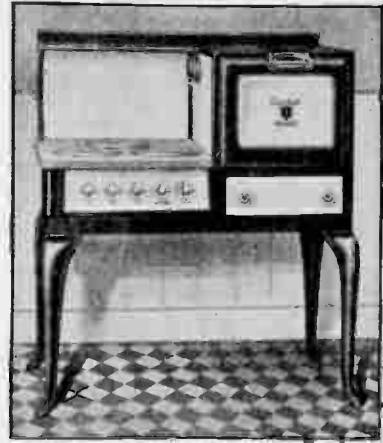
Oven Size.....	inches	16x17x14
Floor Space.....	inches	23x43
Cooking Top.....	inches	22x22
Height, Cooking Top.....	inches	33
Shipping Weight, with Utility Base.....	pounds	415
Shipping Weight, without Utility Base.....	pounds	295

**Units**

Cooking Top, Two 8-Inch.....	each	1500	Watts
Cooking Top, One 8-Inch.....	each	1000	Watts
Oven, Top, Grid Type.....		1500	Watts
Oven, Bottom, Grid Type.....		1500	Watts
Convenience Outlet.....		1000	Watts
Total Wattage.....		8000	Watts

Prices upon application.

**No. 16-83 Crawford Electric Ranges**



No. 16-83 RW

Ranges have ample capacity in both oven and surface units for cooking requirements of the average home.

These ranges are made with either right or left-hand ovens.

Non-automatic ranges are equipped with a side wall oven heat indicator. Can be furnished with the Crawford Automatic Control.

No. 16-83 RW has a black Japan finish, with white splashers, panels and utility drawer. Has an enameled cooking top.

No. 16-83 RPT is finished in 2-tone vitreous enamel of white and light gray.



No. 16-83 RPT

**Dimensions**

Oven Size.....	inches	16x17x14
Floor Space.....	inches	23x43
Cooking Top.....	inches	22x22
Height, Cooking Top.....	inches	33
Shipping Weight, with Utility Base.....	pounds	415
Shipping Weight, without Utility Base.....	pounds	295

**Units**

Cooking Top, Two 8-Inch Units.....	each	1500	Watts
Cooking Top, One 8-Inch Unit.....	each	1000	Watts
Oven, Top, Grid Type.....		1500	Watts
Oven, Bottom, Grid Type.....		1500	Watts
Convenience Outlet.....		1000	Watts
Total Wattage.....		8000	Watts

Prices upon application.

## No. 14-61 Crawford Electric Ranges

For bungalows, apartment houses, and small cottages Crawford has developed a range of unusual quality at a low price.

Ranges are made with either right or left-hand oven, as are all the other Crawford cabinet models. May be had in 3 distinct finishes, so that the No. 14-61 will satisfy adequately all demands for that type of range.

The No. 14-61 black has a black velvet japan finish with vitreous enamel splashers, door panel and switch panel.

The No. 14-61 RWO is a semi-enameled range, like the one described above, excepting that it has a white vitreous enamel oven top and gray vitreous enamel cooking top.

The No. 14-61 is also made in full enamel finish. The standard equipment for the No. 14-61 in full enamel finish is with an oven temperature control, to which may be added a time control, as with any Crawford Automatic Range.

Another attractive feature in the No. 14-61 range is the addition of the utility base.

All types of this range have the exclusive features and points of superiority found in the larger ranges. These ranges have large ovens, although the over all length is only 36 inches. Has the usual height cooking top.

Cast iron construction has been used wherever it increases the durability of the range. The front frame, cooking top, switchboard support, and legs are of cast iron.

The non-automatic types of this range are equipped with side wall oven heat indicators. All ranges have center heat top units—one of the units of high capacity for quick cooking. The oven units are of the removable grid type and are interchangeable. Broiling is done in the top of the oven.

Monel lead wires to top units, reciprocating switches, shelf-type door with adjustable spring all go to make this range the best value.

## No. 14-61 Crawford Electric Ranges



No. 14-61 RPT

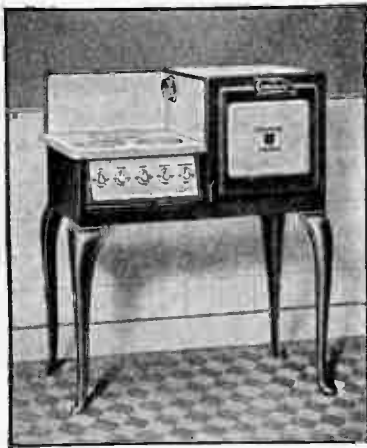
This range is a rare combination of beauty, quality and utility, at a moderate price.

It is designed for homes that are limited in kitchen space.

Finished in 2-tone vitreous enamel. The oven can be either on the right or left hand side.

This range has an automatic control and can also be supplied with a utility base, if desired.

## No. 14-61 RWO Crawford Electric Ranges



Particularly adapted to apartment house use. Has ample capacity for the requirements of the average family.

Has a cast iron frame construction and heavily insulated oven. A right or left-hand oven can be supplied. Also automatic control, if desired.

### Dimensions

Oven Size.....	inches	14x17½x14
Floor Space.....	inches	21½x36
Cooking Top.....	inches	18x19½
Height, Cooking Top.....	inches	33
Shipping Weight, with Utility Base.....	pounds	310
Shipping Weight, without Utility Base.....	pounds	205

### Units

Cooking Top, Two 6-Inch Units.....	each	1000	Watts
Cooking Top, One 8-Inch Unit.....	each	1500	Watts
Oven, Top (Broiling).....		1000	Watts
Oven, Bottom (Baking).....		1000	Watts
Total Wattage.....		5500	Watts
Convenience Outlet (On Special Order) Adds..	1000	Watts	

Prices upon application.



No. 14-61 RPTU

### Dimensions

Oven Size.....	inches	14x17½x14
Floor Space.....	inches	21½x36
Cooking Top.....	inches	18x19½
Height, Cooking Top.....	inches	33
Shipping Weight, with Utility Base.....	pounds	310
Shipping Weight, without Utility Base.....	pounds	205

### Units

Cooking Top, Two 6-Inch Units.....	each	1000	Watts
Cooking Top, One 8-Inch Unit.....	each	1500	Watts
Oven, Top (Broiling).....		1000	Watts
Oven, Bottom (Baking).....		1000	Watts
Total Wattage.....		5500	Watts
Convenience Outlet (On Special Order) Add..	1000	Watts	

Prices upon application.

**No. 16-51 Crawford Electric Ranges**

To provide an electric range with real cooking capacity, where there is limited kitchen space, Crawford has produced the No. 16-51 model.

This type of range is especially desirable for kitchenettes, small apartments or camps. If necessary, it can be placed in front of a window, where the sill is of average height, by using the range without the splasher and high shelf.

Made in 2 standard finishes—durable baked black japan and semi-enamel finish. Either may be had with high shelf and white enamel splasher. The castings on the semi-enamelled range are finished in light gray vitreous enamel, giving the appearance of an all-enamel range.

A side wall oven heat indicator is standard equipment on the left side of the oven.

This range is of high quality throughout, being of the same high standard and having the same features as the higher priced and more elaborate ranges.

**Shelf Type Doors**

The Crawford Adjustable Shelf Type Door has unique construction. Each door may be adjusted by the taking up of a wing nut, so that the tension is suited to the strength of the operator. The door is balanced so that it cannot drop from its own weight when the door catch is disengaged.

Not only does this patented construction allow ease of operation and adjustment, but the spring is so designed that it practically eliminates all door spring troubles. Should it be necessary at any time to remove the door, this is easily accomplished by the loosening of 2 bolts on the front frame casting. This allows the door to be taken off and replaced in a moment.

This door will withstand the abuses to which oven doors are usually subjected. It will hold any weight of food that may be placed upon it.

**No. 16-51 HS Crawford Electric Ranges**



**Dimensions**

Oven Size.....	inches	16x12x12½
Floor Space.....	inches	18x24
Height, Cooking Top.....	inches	32
Shipping Weight.....	pounds	170

**Units**

Cooking Top, One 8-Inch Unit.....	each	1000	Watts
Cooking Top, One 6-Inch Unit.....	each	1000	Watts
Oven, Top (Broiling).....		1000	Watts
Oven, Bottom (Baking).....		1000	Watts
Total Wattage.....		4000	Watts

Prices upon application.

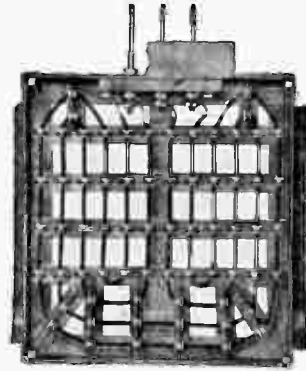
**Crawford Electric Ranges**

Particular attention is called to the simple construction and to the material used in the electrical assembly of Crawford Electric Ranges.

**Reciprocating Switches**

Reciprocating switches of ample capacity are standard equipment on all models.

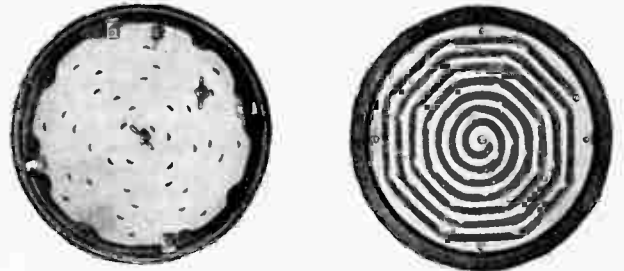
**Units**



**Oven Unit**

The oven unit is of the grid type, made of a heavy band iron frame of rust-resisting metal.

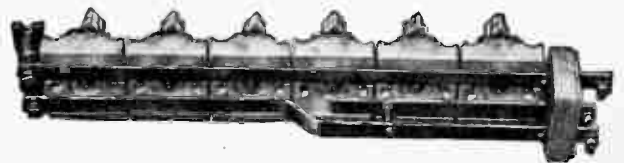
The terminal prongs are rigidly supported in a special insulated block, which is bolted securely to the band iron frame. The unit is constructed so as to eliminate warping entirely. The resistance wire is suspended in such a manner that a more efficient circulation of heat is obtained than from the usual oven unit.



**Top Unit**

The method of supporting and fastening the surface units in the cast iron frame not only gives the advantage of many points of support, but allows such freedom of motion to the unit itself that the danger of breakage from expansion and contraction is practically eliminated. Close examination of the unit will show the ease with which resistance wire may be replaced when necessary. All terminal bolts in Crawford units are of monel metal with monel nuts, thus preventing oxidization and corrosion from heat and moisture.

**Switchboard**



The Crawford Patented Switchboard has outstanding features that commend it. It has heavy bus construction, reciprocating switch equipment and a terminal designed to make it easy to connect to the supply circuit.

## Crawford Electric Ranges Ovens

Particular attention is called to the detail of oven construction, uniform in Crawford Electric Ranges.

The oven linings in all types are of vitreous enamel—inside and out—with the exception of the Nos. 14-61 and 16-51. In the Nos. 14-61 and 16-51 the oven linings are of coated metal. Both forms of construction are rust-resisting.

Crawford Electric Ovens are ventilated to provide for proper escape of moisture under various cooking conditions. They are equipped with rack guides, so built as to make possible any combination desired, within the oven enclosure.

The ovens are built with rounding corners, making cleaning an easy matter. Units, oven racks, and, in the larger ranges, oven rack guides are easily removed for cleaning.

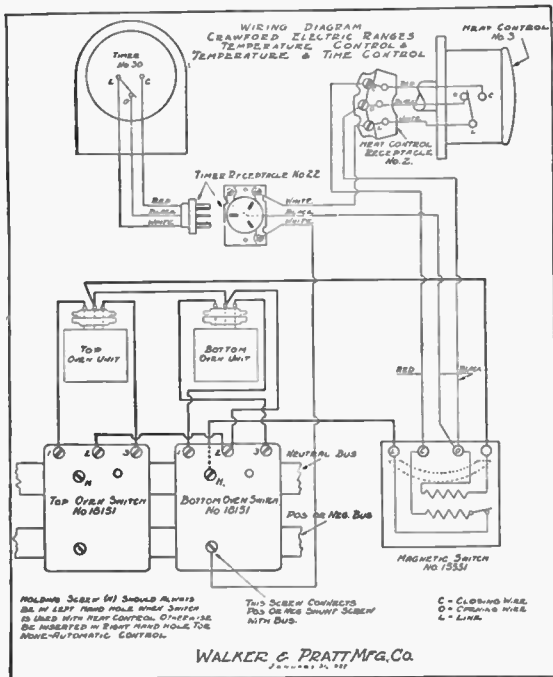
Crawford Electric Ovens are heavily insulated. The permanence and positiveness with which the oven door catch and latch engage, assure a tight door when closed properly.

Broiling is done in the top of the oven. Enameled broiling pans are standard equipment.

### Wiring

The wiring to the oven unit terminals and to the solenoid switch on automatic ranges is housed in one conveniently located chamber at the back of the range—readily accessible. The oven unit terminals are rugged and free from all possibility of trouble arising at that point. Clips on these terminals are also made of heavy monel metal. The connection between the unit terminals and the oven terminal plug is such that the unit slides in and out easily on guides provided to hold it in its proper place. All the lead wires from switches to the surface heating units are monel metal. This assures absence of trouble originating from oxidation or corrosion, under heat. Lead wires are fastened to units by large nuts, which are removed easily when servicing becomes necessary. Leads are supplied with friction washers permanently fastened to wires, assuring good contact at all times.

### Wiring of Automatic



The diagram shown is typical of the wiring for Crawford Automatic Temperature Control Ranges, and temperature and time control ranges. To examine or replace the thermostat, remove the 4 hold-on screws and pull the thermostat out of its plug-in socket. The timer is even easier to remove. When this is done, timer receptacle automatically closes the circuit, so that range may be operated with temperature control only, while timer is being cleaned or repaired.

## Type T Crawford Electric Water Heaters



An improved type of electric hot water storage heater. All vital parts are of lasting quality for continuous and economical duty. Once installed, the heater runs itself, turning on and off, as required, maintaining water at the temperature for which the automatic is set.

Crawford tank types, or complete storage systems, fill the requirements of home-owners desirous of a complete unit. They are also particularly adapted for use on the lines of electric service companies desiring a surplus night power load. The No. T-2442 storage system was designed for that use, and when used in conjunction with a synchronous motor time switch, installed so as to control the water heating circuit, this system will store ample hot water for a day's use. Installations of this type can also be metered on a kilowatt hour basis, as the circuit can be independently controlled, to utilize night power.

Tank is sufficiently insulated so that temperature of water, heated the previous night, will be maintained for use during the following day.

These heaters possess the following improvements:

Compact construction. Heating units are within tank, but do not come in contact with water or air.

Extra heavy galvanized steel tank and heavy piping.

Easy to install—a complete unit ready for use.

Internal circulation provided by means of insulated flow pipe, increasing materially the efficiency of operation.

A variable automatic temperature control provides hot water at any desired temperature.

Independent, hand-operated switch on connection box permits heater to be used non-automatically, if desired.

Entire system is designed to keep water hot economically.

System is insulated with proved insulation, encased in steel, finished in gray and is supported on gray vitreous enamel legs.

Heating units are removable without shutting off water or touching plumbing.

A safety link prevents accidental overheating. A faucet is provided for draining the system.

Made in 2 capacities: 20 and 42 gallons. The 42-gallon size is designed and adapted for surplus night power use with a low density, where such systems are desirable.

Crawford adjustable temperature, automatic control, plug-in type, is standard equipment built into the hot water storage systems.

No.	T-1220	T-2442
Capacity	20 gallons	42
Wattage	1200	2400
Voltage	110	220
Total Height	45 inches	56
Outside Diameter	18 inches	22
Size of Pipe Connections	3/4 inches	3/4

Also supplied: 2400-watt heater in 20-gallon tank, No. T-2420; 1200-watt heater in 42-gallon tank, No. T-1242.

Prices upon application.

**Crawford Outside Circulation Electric Water Heaters**

**Type W  
For A.C. Only**



Type W-5

An all cast iron heater of the non-rusting type. Porcelain enamel lining of the cylinder prevents formation of rust and insulates against accidental short circuits to ground. Heating units are of the open coil type, placed within the body of the heater. Heating units are so arranged that heater will continue to operate, when coils are connected in multiple, until both coils are burned out.

Heater is provided with safety links that melt and open circuit, should it for any reason become overheated.

Made in 2 sizes: 3 and 5 kilowatts.

An, on and off, double pole control switch furnished with each heater. Automatic temperature control is a separate attachment.

Type	Wattage	Voltage	Total Height Inches	Outside Diameter Inches	Pipe Connections, Inches	Capacity Gallons
W-3	3000	220	12 $\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{3}{4}$	30
W-5	5000	220	14 $\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{3}{4}$	40

**Type H**

Made of brass and can be readily taken apart for cleaning. All sizes above 1200 watts are of the multiple unit type.

Assembly consists of a deep-drawn, one-piece, brass shell with a flanged end, for bolting on head. Head is a brass casting, in which are inserted the inner tubes or sheaths for the heating units.

In assembly, head is bolted to shell, extending tubes into dome of shell. Heating units are inserted in inner tubes and cover is placed over head casting to shield electrical connections. This patented construction makes possible the removable unit feature. A burned-out heating unit can be as easily replaced without draining the heater.

Fusible patented safety links are used as a safeguard against overheating from any cause. Link is of special alloy, tested so that it will melt and open electric circuit, cutting off the source of heat before damage is done.

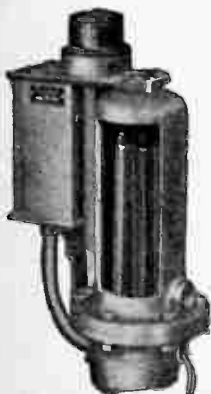


Type H-48

Type	Wattage	Voltage	Total Height Inches	Outside Diameter Inches	Pipe Connections, Inches	Capacity Gallons
H-12	1200	110	12 $\frac{3}{4}$	4 $\frac{7}{8}$	$\frac{1}{2}$	20
H-24	2400	220	12 $\frac{3}{4}$	4 $\frac{7}{8}$	$\frac{1}{2}$	30
H-48	4800	220	12 $\frac{3}{4}$	6 $\frac{3}{8}$	$\frac{1}{2}$	40
H-72	7200	220	12 $\frac{3}{4}$	7 $\frac{5}{8}$	$\frac{1}{2}$	60

Removable type heating units are all the same size (1200 watts) 110 volts. Automatic temperature control may be attached to Type H Heaters, the same as to Type W heaters.

**Crawford Automatic Controls**



Type W-5 Automatic

This is a separate unit which may be attached to the outside of any Crawford Type H or W Water Heater.

It is a self-contained unit with a thermostat, having adjustable setting, so that user may set it to obtain any given temperature of hot water. Dependable for water heater service.

The automatic control for hot water storage systems is built into the complete unit.

Made in 2 sizes: Type S fits W-3, H-12 and H-24; Type D fits W-5, H-48 and H-72. Control coils are wound for 110 volts and will be shipped that way unless otherwise specified.

Detailed instructions for installation are packed with each control.

**Crawford Electric Hot Plates**



Type 1-B



Type 2-E

Made in 2 finishes and in 3 sizes.

The black finish plates (B Type) are finished all over in a black japan finish. The enamel plates (E Type) have top, legs and switch front castings finished in gray enamel.

Reciprocating switches and durable electrical construction make these hot plates most serviceable.



Type 3-E

CAT. No.	HEATING UNITS		Total Wattage	DIMENSIONS, INCHES			
	Black	Enamel		1000	1500	Height	Width
1-B	1-E	1	1000		6 $\frac{1}{2}$	14	14
2-B	2-E	1 1	2500		6 $\frac{1}{2}$	14	23
3-B	3-E	2 1	3500		6 $\frac{1}{2}$	14	33

Prices upon application.

**Crawford Electric Ranges**

Prices and terms printed in Wholesale Price List.

**Model Code**

- R—Right-Hand Oven
- L—Left-Hand Oven
- S—High Shelf
- W—Enamel Cooking Top
- O—White Oven Top
- C—Warming Closet
- U—Utility Base
- X—One Side of Utility Base Heated
- H—Semi-Enamel
- P—All Enamel
- T—Temperature Control
- A—Time and Temperature Control

**Instructions for Ordering**

State size number of range and add code letters, to indicate particulars and equipment to be shipped with range. Example: An 18-inch oven range with oven on right, all enamel finish, time and temperature controls, warming closet and utility base with heater would be written, 18-93 RPACUX.

When ordering controls, specify whether a.c. or d.c. and cycles. Unless otherwise specified, heating units and controls will be furnished for connection to standard 3-wire service, 220 volt (110 volt units) a.c., 60 cycle. Special arrangements of units or voltages other than standard are furnished at an extra charge.

Specify whether shipment is to be by rail, water, express, parcel post. Give routing and lines to be used. In absence of instructions, goods will be shipped and routed at the discretion of the manufacturer.

**Guarantee**

Manufacturer guarantees these ranges and water heaters against mechanical and electrical defects, and is ready to exchange all parts which prove defective within a year.

**Claims for Breakage or Loss**

Claims for breakage or loss should be presented to the carrier, as the manufacturer's responsibility ends on delivery of shipment in good order to the carrier. The manufacturer is always ready to give assistance to secure settlement of claims.

**Repairs**

Refer to Repair Parts Catalogue for details of exchange, credit and orders for repairs.



## M-B Electric Coffee Services

32, 220 and 250 Volts

### No. K4470/9—Dunster Pattern

Aranium Plated



Decorated with a graceful hand-etched design. Handles are jade trimmed.

Cat. No.	Description	Price, Each	
		Butler Finish	Bright Finish
K4470/9	Set of 4 Pieces—Jade	\$135.00	\$125.00
K 447/9	9-Cup Percolator—Jade	57.50	55.00
K 126	Sugar and Cream	52.50	47.50
K3018	Tray	25.00	22.50

### No. K4160/9—Canterbury Pattern

Aranium Plated



Urn, sugar and cream attractively embossed. Ivory finished handles on urn and tray. Shipping weight, 13 pounds.

Cat. No.	Description	Price, Each
		Bright Finish
K4160/9	Set of 4 Pieces	\$60.00
K 416/9	9-Cup Percolator	29.00
K3991	Sugar and Cream	15.00
K2316	Tray	16.00

### No. K4370/9—Braeburn Pattern

Aranium Plated



Ebonized handles on urn. Shipping weight, 12 pounds.

Cat. No.	Description	Price, Each
	<th>Bright Finish</th>	Bright Finish
K4370/9	Set of 4 Pieces	\$45.00
K 437/9	9-Cup Percolator	26.50
K 127	Sugar and Cream	12.00
K2718	Tray, Oval, 14 1/2 x 9 Inches	6.50

## M-B Electric Coffee Services

32, 220 and 250 Volts

### No. K4491/9—Blarney Pattern

Bright Finish

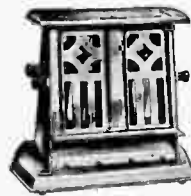


Made with genuine Catalin handles of the following colors: jade and moss agate. Specify color of handle desired when ordering.

Cat. No.	Description	Price, Each
		Bright Finish
K4491/9	Set of 4 Pieces—Jade, Agate or Onyx Trimmed	\$50.00
K 449/9	9-Cup Percolator—Jade, Agate or Onyx	28.00
K3391	Sugar and Cream	14.00
K3118	Tray	8.00

## No. K1228 M-B Electric Toasters

Aranium Plated  
220 and 250 Volts



This is a tip and turn style toaster.

Simply open the door and the bread turns ready to be toasted on the other side.

Approximate shipping weight, standard package of 6, 25 pounds.

Price, No. K1228.....each \$7.50

## No. K336/7 M-B Electric Percolators

Aranium Plated  
32, 220 and 250 Volts

No. K336/7 is a 7-cup percolator.

With ebonized handle and paneled sides with engraved decorations.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. K336/7.....each \$17.00



## No. K1617 M-B Electric Waffle Irons

Aranium Plated  
32, 220 and 250 Volts

This waffle iron makes a 7-inch waffle in about 2 minutes, evenly browned on both sides at the same time.

The paneled top and embossed design on the tray make this iron an attractive one.

Ivory finish handle.

Cast aluminum grids.

Approximate shipping weight, standard package of 6, 53 pounds.

Price, No. K1617.....each \$18.00



**M-B Electric Coffee Services**

32, 220 and 250 Volts



**Pembroke Pattern**

No. 4500/9  
Nickel-Plated

Made with genuine Catalin handles of the following colors: jade and moss agate.

Specify color handle desired, when ordering.

Cat. No.	Description	Price, Each Nickel-Plated
4500/9	Set of 4 Pieces—Jade, Agate or Onyx Trimmed.....	\$47.00
450/9	9-Cup Percolator—Jade, Agate or Onyx....	24.00
3991	Sugar and Cream .....	11.50
2316	Tray—Jade, Agate or Onyx.....	11.50

**Windemere Pattern**

No. 4300/9, Nickel-Plated

No. 4300/9S, Silver-Plated on Nickel Silver—Butler Finish



Shipping weight, 12½ pounds.

Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces.....	4300/9	\$45.00	4300/9S	\$72.50
9-Cup Percolator.....	430/9	25.00	430/9S	39.00
Sugar and Cream.....	125	12.50	125S	17.50
Tray, Oval, 14½x9 Inches.	2818	7.50	2818S	16.00

**Marlborough Pattern**

No. 4290/9,  
Nickel-Plated  
No. 4290/9S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

Decorated with flat chased design on urn, sugar, cream and tray.

Shipping weight, 12½ pounds.



Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces.....	4290/9	\$54.00	4290/9S	\$80.00
9-Cup Percolator.....	429/9	30.00	429/9S	43.00
Sugar and Cream.....	119	16.00	119S	21.00
Tray, Oblong, 16½x8½ In.	2918	8.00	2918S	16.00

**M-B Electric Coffee Services**

32, 220 and 250 Volts

**Blenheim Pattern**



No. 4350/9,  
Nickel Plated  
No. 4350/9S,  
Silver Plated on  
Nickel Silver—  
Butler Finish

Shipping weight, 12½ pounds.

Description	Nickel Plated		Silver Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces.....	4350/9	\$50.00	4350/9S	\$76.00
9-Cup Percolator.....	435/9	28.50	435/9S	41.50
Sugar and Cream.....	129	14.50	129S	19.50
Tray, Oblong, 16½x8½ In	3118	7.00	3118S	15.00

**Westchester Pattern**

No. 4340/9, Nickel Plated



Shipping weight, 11 pounds.

Cat. No.	Description	Price, Each Nickel Plated	
		Cat. No.	Price Each
4340/9	Set of 4 Pieces.....		\$26.00
434/9	9-Cup Percolator.....		17.00
128	Sugar and Cream.....		6.00
6214	Tray, Round, 14 Inches.....		3.00

**Arundel Pattern**

No. 4360/7, Nickel Plated



Urn, sugar and cream decorated with chased design.  
Shipping weight, 11 pounds.

Cat. No.	Description	Price, Each Nickel Plated	
		Cat. No.	Price Each
4360/7	Set of 4 Pieces.....		\$26.00
436/7	7-Cup Percolator.....		16.00
130	Sugar and Cream.....		7.00
3314	Tray.....		3.00

## M-B Electric Coffee Services

32, 220 and 250 Volts

### Ludlow Pattern

No. 4330/9, Nickel Plated



Ivory finish handles on urn.  
Shipping weight, 12½ pounds.

Cat. No.	Description	Price, Each Nickel Plated
4330/9	Set of 4 Pieces	\$33.00
433/9	9-Cup Percolator	19.00
127	Sugar and Cream	9.00
2718	Tray, Oval, 14½x9 Inches	5.00

### Studley Pattern



No. 4210/9,  
Nickel Plated  
No. 4210/9S,  
Silver Plated on  
Nickel Silver—  
Butler Finish

Decorated with attractive embossed design.

Shipping weight, 11 pounds.

Description	Nickel Plated		Silver Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	4210/9	\$32.50	4210/9S	\$55.00
9-Cup Percolator	421/9	20.00	421/9S	32.50
Sugar and Cream	4591	9.00	4591S	13.00
Tray, Round, 14 Inches	1914	3.50	1914S	9.50

### Rockingham Pattern

No. 4131/7,  
Nickel Plated  
No. 4131/7S,  
Silver Plated on  
Nickel Silver  
Butler Finish

Paneled design with embossed border decoration.

Shipping weight, 13 pounds.



Description	Nickel Plated		Silver Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	4131/7	\$44.00	4131/7S	\$63.00
7-Cup Percolator	413/7	24.50	413/7S	33.00
Sugar and Cream	3691	11.50	3691S	17.00
Tray, Oval, 14½x9 Inches	2618	8.00	2618S	13.00

## M-B Electric Coffee Services

32, 220 and 250 Volts

### Hastings Pattern

No. 4121/7,  
Nickel-Plated  
No. 4121/7S,  
Silver-Plated on  
Nickel Silver  
Butler Finish



Embossed border decoration.

Shipping weight, 13 pounds.

Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	4121/7	\$41.00	4121/7S	\$60.00
7-Cup Percolator	412/7	23.00	412/7S	31.50
Sugar and Cream	3591	10.50	3591S	16.00
Tray, Oval, 14½x9 Inches	2518	7.50	2518S	12.50

### Warwick Pattern

No. 3121/7,  
Nickel-Plated  
No. 3121/7S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

Embossed border decoration.

Shipping weight, 13 pounds.



Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	3121/7	\$37.00	3121/7S	\$56.00
7-Cup Percolator	312/7	19.00	312/7S	27.50
Sugar and Cream	3591	10.50	3591S	16.00
Tray, Oval, 14½x9 Inches	2518	7.50	2518S	12.50

### Shrewsbury Pattern

No. 3131/7,  
Nickel-Plated  
No. 3131/7S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

Attractive paneled design with embossed border decoration.

Shipping weight, 13 pounds.



Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	3131/7	\$40.00	3131/7S	\$59.00
7-Cup Percolator	313/7	20.50	313/7S	29.00
Sugar and Cream	3691	11.50	3691S	17.00
Tray, Oval, 14½x9 Inches	2618	8.00	2618S	13.00

**M-B Electric Coffee Services**

32, 220 and 250 Volts

**Scarborough Pattern**



No. 4190/9S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

Reposse  
chasing.

Shipping  
weight, 13  
pounds.

Cat. No.	Description	Price, Each Silver-Plated
4190/9S	Set of 4 Pieces	\$75.00
419/9S	9-Cup Percolator	38.00
3291S	Sugar and Cream	18.00
2420S	Tray	19.00

**M-B Electric Coffee Services**

32, 220 and 250 Volts

**Colchester Pattern**



No. 4150/9,  
Nickel-Plated

With ebonized  
handles.

Shipping weight,  
13 pounds.

Cat. No.	Description	Price, Each Nickel-Plated
4150/9	Set of 4 Pieces	\$42.00
415/9	9-Cup Percolator	22.50
3991	Sugar and Cream	11.50
2020	Tray, Oblong, 14x10½ Inches	8.00

**Kenilworth Pattern**

No. 4180/9S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

Shipping  
weight, 13  
pounds.



Cat. No.	Description	Price, Each Silver-Plated
4180/9S	Set of 4 Pieces	\$70.00
418/9S	9-Cup Percolator	36.50
3191S	Sugar and Cream	16.00
2120S	Tray, Oblong, 14½x10½ Inches	17.50

**Berkeley Pattern**

No. 4170/9,  
Nickel-Plated

With ebonized  
composition  
handles.

Shipping  
weight, 13  
pounds.



Cat. No.	Description	Price, Each Nickel-Plated
4170/9	Set of 4 Pieces	\$46.00
417/9	9-Cup Percolator	25.00
3091	Sugar and Cream	11.50
2120	Tray, Oblong, 14½x10½ Inches	9.50

**Canterbury Pattern**



No. 4160/9,  
Nickel-Plated  
No. 4160/9S,  
Silver-Plated on  
Nickel Silver  
Butler Finish

With ivory handles on  
urn and  
tray.  
Shipping weight,  
13 pounds.

Description	Nickel-Plated		Silver-Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces	4160/9	\$45.50	4160/9S	\$65.00
9-Cup Percolator	416/9	23.00	416/9S	32.50
Sugar and Cream	3991	11.50	3991S	16.00
Tray	2316	11.00	2316S	16.50

**Carlisle Pattern**



No. 4140/7,  
Nickel-Plated

Has metal handles with  
pierced border on tray.

Shipping weight, 11  
pounds.

Cat. No.	Description	Price, Each Nickel-Plated
4140/7	Set of 4 Pieces	\$27.50
414/7	7-Cup Percolator	17.50
691	Sugar and Cream	6.50
6314	Tray, Round, 14 Inches	3.50

**M-B Electric Coffee Services**

32, 220 and 250 Volts

**Wrexham Pattern**



No. 4111/9,  
Nickel Plated  
No. 4111/9S,  
Silver Plated on  
Nickel Silver  
Butler Finish

With mahoganite handles.

Shipping weight, 12½ pounds.

Description	Nickel Plated		Silver Plated	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces.....	4111/9	\$39.00	4111/9S	\$62.00
9-Cup Percolator.....	411/9	20.00	411/9S	32.50
Sugar and Cream.....	3391	11.00	3391S	15.50
Tray, Oblong, 14x10½ Inches	2020	8.00	2020S	14.00

**Stafford Pattern**

No. 4110/6,  
Nickel Plated  
No. 4110/9,  
Nickel Plated

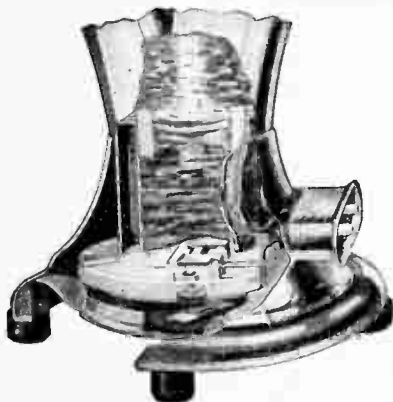
With mahoganite handles and pierced border on tray.

Shipping weight, No. 4110/6 set, 10½ pounds; No. 4110/9 set, 11 pounds.



Description	With 6-Cup Percolator		With 9-Cup Percolator	
	Cat. No.	Price Each	Cat. No.	Price Each
Set of 4 Pieces.....	4110/6	\$28.00	4110/9	\$30.00
Percolator.....	411/6	18.00	411/9	20.00
Sugar and Cream.....	691	6.50	691	6.50
Tray, Round, 14 Inches.....	6314	3.50	6314	3.50

**M-B Fuselink Protective Devices for Percolators**



Fuselink may be replaced without the use of tools.

An extra fuse is attached to inside of baffle plate.

Contacts are brass to brass, nickel plated and are made under pressure; there is no trouble from open circuits in percolator due to expansion and contraction of contacts under heat. Protective device

and electric element can be replaced using only a screwdriver. Fuse is made with brass ends, and when it operates the fuse metal drops away clean from these ends; it does not soften or melt in the middle, and cannot arc. The water-pump is simple and effective; easy to clean.

Price, No. 54.....	each \$1.10
Price, No. 540 Card, Containing 48 Fuselinks, Packed 2 Each in 24 Envelopes.....	each 4.80
Price, No. 539 Card, Containing 12 Fuselinks, Packed 2 Each in 6 Envelopes.....	each 1.20

**M-B Electric Urns**

32, 220 and 250 Volts

**Marlborough Pattern**

A 9-cup urn with ebony Bakelite handles.

No. 429/9, Nickel-Plated  
Shipping weight, 5½ pounds.

Price, No. 429/9.....each \$30.00

No. 429/9S, Silver-Plated on Nickel Silver—Butler Finish  
Shipping weight, 5½ pounds.

Price, No. 429/9S.....each \$43.00



**Ludlow Pattern**

No. 433/9, Nickel-Plated

A 9-cup urn with ivory handles.

Shipping weight, 5 pounds.

Price, No. 433/9.....each \$19.00



**Blenheim Pattern**

A 9-cup urn.

No. 435/9, Nickel-Plated

Shipping weight, 5½ pounds.

Price, No. 435/9.....each \$28.50

No. 435/9S, Silver-Plated on Nickel Silver—Butler Finish

Shipping weight, 5½ pounds.

Price, No. 435/9S.....each \$41.50



**Arundel Pattern**

No. 436/7, Nickel-Plated

A 7-cup urn, decorated with chased pattern.

Shipping weight, 4½ pounds.

Price, No. 436/7.....each \$16.00



**Westchester Pattern**

No. 434/9, Nickel-Plated

A 9-cup urn.

Shipping weight, 5 pounds.

Price, No. 434/9.....each \$17.00



**M-B Electric Urns**

32, 220 and 250 Volts



**Berkeley Pattern**

No. 417/9, Nickel Plated

A 9-cup urn.  
Shipping weight, 5½ pounds.  
Price, No. 417/9.....each \$25.00

**Windemere Pattern**

A 9-cup urn with ivory finished handles.

No. 430/9 Nickel Plated

Shipping weight, 5½ pounds.  
Price, No. 430/9.....each \$25.00

No. 430/9S, Silver Plated on Nickel Silver—Butler Finish

Shipping weight, 5½ pounds.  
Price, No. 430/9S.....each \$39.00



**Colchester Pattern**

No. 415/9, Nickel Plated

A 9-cup urn with embossed relief border and ebonized handles.  
Shipping weight, 5½ pounds.  
Price, No. 415/9.....each \$22.50

**Rockingham Pattern**

A 7-cup urn with embossed decoration and ebony Bakelite handles.

No. 413/7, Nickel Plated

Shipping weight, 5½ pounds.  
Price, No. 413/7.....each \$24.50

No. 413/7S, Silver Plated on Nickel Silver—Butler Finish

Shipping weight, 5½ pounds.  
Price, No. 413/7S.....each \$33.00



**Hastings Pattern**

A 7-cup urn with embossed decoration and ebony Bakelite handles.

No. 412/7, Nickel Plated

Shipping weight, 5½ pounds.  
Price, No. 412/7.....each \$23.00

No. 412/7S, Silver Plated on Nickel Silver—Butler Finish

Shipping weight, 5½ pounds.  
Price, No. 412/7S.....each \$31.50



**M-B Electric Urns**

32, 220 and 250 Volts



**Studley Pattern**

A 9-cup urn with embossed decoration and metal handles.

No. 421/9, Nickel Plated

Shipping weight, 5¾ pounds.  
Price, No. 421/9.....each \$20.00

No. 421/9S, Silver-Plated on Nickel Silver—Butler Finish

Shipping weight, 5¾ pounds.  
Price, No.421/9S.....each \$32.50

**Carlisle Pattern**

No. 414/7, Nickel Plated

A 7-cup urn with metal handles.  
Shipping weight, 5 pounds.  
Price, No. 414/7.....each \$17.50



**No. 409/7**

Nickel Plated

A 7-cup urn with ebonized handles.  
Shipping weight, 4¾ pounds.  
Price, No. 409/7.....each \$15.00



**Nos. 408/7 and 408/9**

No. 408/7, Nickel Plated

A 7-cup urn with ebonized handles.  
Shipping weight, 4¾ pounds.  
Price, No. 408/7.....each \$13.00

No. 408/9, Nickel Plated

A 9-cup urn with ebonized handles.  
Shipping weight, 5½ pounds.  
Price, No. 408/9.....each \$14.50



**Stafford Pattern**

No. 411/6, Nickel Plated

A 6-cup urn.  
Shipping weight, 5 pounds.  
Price, No. 411/6.....each \$18.00

No. 411/9, Nickel Plated

A 9 cup urn.  
Shipping weight, 5¼ pounds.  
Price, No. 411/9.....each \$20.00

No. 411/9S, Silver-Plated on Nickel Silver—Butler Finish

A 9-cup urn.  
Shipping weight, 5¼ pounds.  
Price, No. 411/9S.....each \$32.50





## M-B Electric Percolators

32, 220 and 250 Volts

### Nos. 334/6 and 334/9



#### No. 334/6, Nickel Plated

A 6-cup percolator.  
Approximate shipping weight, standard package of 3, 15 pounds.  
Price, No. 334/6.....each \$14.00

#### No. 334/9, Nickel Plated

A 9-cup percolator.  
Approximate shipping weight, standard package of 3, 16 pounds.  
Price, No. 334/9.....each \$15.00

### No. 336/7

#### Nickel Plated

A 7-cup percolator decorated with an attractive embossed design.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 336/7.....each \$14.00



### Nos. 305/2 and 305/4



#### No. 305/2, Nickel Plated

A 2-cup percolator.  
Approximate shipping weight, standard package of 3, 15 pounds.  
Price, No. 305/2..each \$8.50

#### No. 305/4, Nickel Plated

A 4-cup percolator.  
Approximate shipping weight, standard package of 3, 16 pounds.  
Price, No. 305/4..each \$9.50

### No. 311/6

#### Nickel Plated

A 6-cup percolator with ebonized handle.

Approximate shipping weight, standard package of 3, 15 pounds.

Price, No. 311/6.....each \$15.00



### No. 211/7 M-B Tea Ball Tea Pots

#### Nickel Plated



A 7-cup tea pot with ebonized handle.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 211/7.....each \$15.00

## M-B Electric Percolators

32, 220 and 250 Volts

### Nos. 312/7 and 312/7S



A 7-cup percolator with ebony Bakelite handle.

#### No. 312/7 Nickel Plated

Approximate shipping weight, standard package of 3, 21 pounds.

Price, No. 312/7.....each \$19.00

#### No. 312/7S, Silver Plated on Nickel Silver—Butler Finish

Approximate shipping weight, standard package of 3, 21 pounds.

Price, No. 312/7S.....each \$27.50

### No. 302/8

#### Aluminum

A 8-cup percolator.

Approximate shipping weight, standard package of 6, 25 pounds.

Price, No. 302/8.....each \$9.00



### No. 308/9

#### Nickel Plated

A 9-cup percolator.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 308/9.....each \$12.50



### No. 309/7

#### Nickel Plated

A 7-cup percolator.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 309/7.....each \$13.00



### Nos. 313/7 and 313/7S

A 7-cup percolator with ebony Bakelite handle.

#### No. 313/7, Nickel Plated

Approximate shipping weight, standard package of 3, 21 pounds.

Price, No. 313/7.....each \$20.50

#### No. 313/7S, Silver Plated on Nickel Silver—Butler Finish

Approximate shipping weight, standard package of 3, 21 pounds.

Price, No. 313/7S.....each \$29.00



### No. 301/8

#### Aluminum

A 8-cup percolator.

Approximate shipping weight, standard package of 6, 25 pounds.

Price, No. 301/8.....each \$7.50



**M-B Electric Appliances**

With Colored Handles and Cords to Match

32, 220 and 250 Volts

**No. 309/7 Percolators**

Nickel Plated

A 7-cup percolator.

Made with red, blue, green or yellow handles.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 309/7.....each \$13.50



**No. 308/9 Percolators**

Nickel Plated

A 9-cup percolator.

Made with red, blue, green or yellow handles.

Approximate shipping weight, standard package of 3, 16 pounds.

Price, No. 308/9.....each \$13.00



**No. 1601 Waffle Irons**

Nickel Plated  
645 Watts

Has cast aluminum grids.

Made with red, blue, green or yellow handles.

Approximate shipping weight, standard package of 6, 48 pounds.

Price, No. 1601.....each \$13.00



**6-Pound Household Irons**

These irons are built to give a lifetime of satisfactory service. Their perfect balance makes them easy to handle without tiring the wrist. They heat quickly and evenly with a little extra heat toward the point where it is most needed.

Non-heating handle and sturdy attaching plug stay cool. Made for use with separate stand or with an attached heel stand.

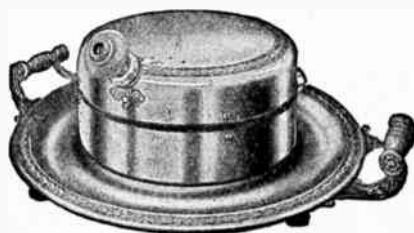
**No. 1618 M-B Waffle Irons**

This waffle iron is distinctly original in design. It is exceptionally low and especially attractive.

Turquoise handles and cord to match. Makes a 7-inch waffle.

Packed 6 in a box.

No.....	1618
Length, Handle to Handle.....	inches 14
Diameter Tray.....	inches 11½
Watts.....	660
Shipping Weight.....	pounds 64
Price.....	each



**M-B Electric Waffle Irons**

32, 220 and 250 Volts, 645 Watts

M-B Electric Waffle Irons make a thick waffle, 7 inches in size, which can be divided into 4 portions.

Waffle is evenly browned on both sides at once. Makes a waffle in 2 minutes.

An exclusive feature is the rough around the edge of the iron. This catches any over-run of batter and prevents it dripping down on the base.

Has cast aluminum grids.

Extreme diameter, 9½ inches.

Furnished complete with cord and switch plug.

**No. 1616**

Made of brass, nickel plated.

Approximate shipping weight, standard package of 6, 53 pounds.

Price, No. 1616...each \$15.00



**No. 1615**

Made of brass, nickel plated.

Approximate shipping weight, standard package of 6, 57 pounds.

Price, No. 1615.....each \$15.00



**No. 1601**

Nickel plated.

Approximate shipping weight, standard package of 6, 48 pounds.

Price, No. 1601.....each \$12.50



**No. 400 M-B Electric Pancake Cookers**

32, 220 and 250 Volts, 645 Watts

This pancake cooker bakes both sides of the pancake at once. An expanding hinge allows for the rise so that a pancake of even thickness is insured.

The cooker is insulated between the top and the base; thus the base never gets hot—allowing it to be lifted while the cooker itself is still hot. There is no danger of damaging the table or the table cloth.

The cooker is decorated by delicate chasing on the top and is finished in highly polished nickel. The grids are cast aluminum.

With the cooker, pancakes can be served deliciously hot just as they are baked—no running to the kitchen for a new batch. Cooks a pancake in a little over a minute.

Extreme diameter, 9½ inches. Diameter of pancake, approximately 7 inches.

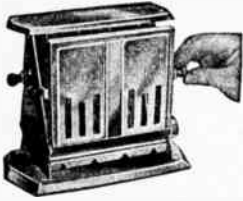
Full instructions furnished with each cooker.

Price, No. 400.....each \$12.50



## M-B Electric Toasters

## No. 1232 M-B Toastwatch Toasters



### No. 1229 Tip and Turn Toasters

32, 220 and 250 Volts, 600 Watts  
 Holds 2 full size slices of bread. Tip door open a little way, drop in slice of bread and close. Tip door all the way open and bread turns over.

Made of brass, nickel plated; chased design. Width base, 8½ inches; height, 7½ inches.  
 Shipping weight, standard package of 6, 25 pounds.  
 Price, No. 1229.....each \$6.75



A clock mechanism shuts off the current after the bread has toasted from ½ to 3 minutes as desired. This prevents burning.

The toaster is the tip and turn type—after the bread toasts on one side, simply lower the door and the bread turns ready for toasting on the other side.

Packed 6 in a carton.

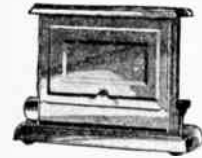
No. ....	1232
Size Base .....	inches 5¼x8½
Height .....	inches 8
Watts .....	600
Shipping Weight .....	pounds 34
Price .....	each .....

### No. 1228 Tip and Turn Toasters

32, 220 and 250 Volts, 600 Watts  
 Same as the No. 1229, except for design. Width base, 8½ inches; height, 7½ inches.  
 Shipping weight, standard package of 6, 25 pounds.  
 Price, No. 1228.....each \$5.00



### No. 1227 Double Unit Toasters



220 and 250 Volts, 550 Watts  
 Has 2 elements that toast bread on both sides at once. Makes a slice of toast in 52 seconds. Takes a full size slice of bread.

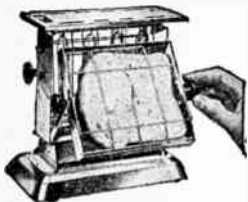
Drop a slice in toaster, wait less than a minute, press the button and the toast is ready.  
 Made of brass, nickel plated, with simple relief design.  
 Width base, 9 inches; height, 6¾ inches.  
 Shipping weight, standard package of 6, 25 pounds.  
 Price, No. 1227.....each \$8.50

### No. 1223 Toasters

32, 220 and 250 Volts, 550 Watts  
 Equipped with toaster rack. Nickel plated. With detachable plug and 6 feet of cord. Not equipped with reversible feature.  
 Width, 7¾ inches; height, 9¾ inches.  
 Shipping weight, standard package of 6, 25 pounds.  
 Price, No. 1223.....each \$5.00



### No. 1225 Reversible Toasters



32, 220 and 250 Volts, 600 Watts  
 Holds 2 full slices of bread. Toast holder has easy opening door which stays open while bread is inserted. Door is closed by a simple spring. Toast is turned by turning knob on either

side of toast holder. Nickel plated.  
 Width base, 7¾ inches; height, 7½ inches.  
 Shipping weight, standard package of 6, 25 pounds.  
 Price, No. 1225.....each \$6.50

### No. 1226 Reversible Toasters

32, 220 and 250 Volts, 600 Watts  
 Same as the No. 1225 toaster, except equipped with toaster rack.  
 Nickel plated. Width base, 7¾ inches; height, 9¾ inches.  
 Shipping weight, standard package of 6, 27 pounds.  
 Price, No. 1226.....each \$7.00



### No. 1412 Nickel-Plated Toaster Trays

Catches the crumbs and saves the table cloth.  
 Price, No. 1412, Oblong Tray, 7½x12 Inches.....each \$2.25

## M-B Electric Heating Pads

220 and 250 Volts  
 A soft, flexible pad covered with eiderdown. Can be used in any position. Gives a gentle heat that is soothing, because it is continuous and even.



When proper temperature is reached, thermostat automatically shuts off current, alternating between off and on while pad is in use.

Has 3 heats: high, low and medium.  
 Equipped with washable slip cover and 10-foot cord with detachable plug. Packed in attractive display cartons.  
 Shipping weight, standard package of 3, 6¼ pounds.  
 Price, No. 682/1, Pad, Coral Cover and Cord.....each \$8.00  
 Price, No. 682/2, Pad, Green Cover and Cord...each 8.00  
 Price, No. 682/3, Pad, Robin's Egg Blue Cover and Cord.....each 8.00

## M-B Electric Curling Irons

With swivel plug to prevent cord twisting. Clamp is removable. Finished in nickel plate. Handles finished in lustre enamel; furnished with a silk cord.

Shipping weight, standard package of 12, 10½ pounds.  
 Price, No. 110/1, Rose.....each \$3.50  
 Price, No. 110/2, Blue.....each 3.50  
 Price, No. 110/8, Ivory.....each 3.50

## DeLuxe Curling Irons

These irons are boxed in satin-lined containers harmonizing with the color of the iron. The plug as well as the cord and handle are furnished in 3 colors.  
 Price, No. 111/1, Rose.....each \$4.00  
 Price, No. 111/2, Blue.....each 4.00  
 Price, No. 111/8, Ivory.....each 4.00

## No. 120 M-B Electric Soldering Irons

Nickel Plated  
 55 Watts



This iron has a heating element that will stand up under continuous use. The ventilated handle will not get hot. The tip is adjustable for close or long reach work and can be easily removed. Heating element can be renewed easily.

Has ebonized wood handle.  
 Approximate shipping weight, 1½ pounds.  
 Price, No. 120, Iron Only.....each \$3.50  
 Price, No. 120/12, Iron with Set of 3 Tips.....each 5.00  
 Price, No. 12, Set of 3 Tips.....each 1.50

**No. L-82 Everhot High Speed Hot Plates**



A wall outlet type, 8-inch range burner.

When right hand burner is on full, left burner will not operate. Food may be started

cooking on right burner, then current cut down and left side turned to high, medium or low. Nickel chromium resistance wire distributes heat over burner surface. Nickel-plated top.

With 8-foot heater cord. In all voltages and higher than standard wattage when desired.

Length, 22 inches; width, 13 3/8 inches; height, 5 3/8 inches. Right-hand burner consumes 1100 watts on high, 400 watts on medium, 275 watts on low; left burner, 700 watts on high, 350 watts on medium, 175 watts on low.

Price, No. L-82, Shipping Weight, 16 1/2 Pounds. each \$15.00

**No. L-81 Everhot High Speed Hot Plates**

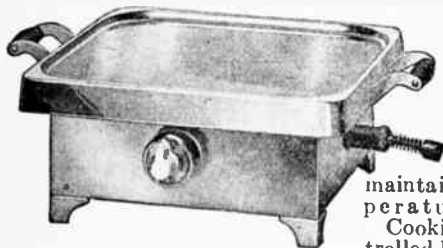
An 8-inch range burner; nickered top, 8-foot cord.

Length, 12"; width, 13 3/8"; height, 5 3/8". Maximum consumption: high, 1100; medium 500; low, 275 watts.



Shipping weight, 10 1/2 lbs. Price, No. L-81. each \$8.50

**No. G-12 Everhot Electric Griddles**



Makes 4 large pancakes. Fries steak, bacon, etc.

Heats up quickly, cooks fast or slow as desired, and maintains cooking temperature consistently.

Cooking may be controlled by a 3 heat Diamond H heater switch. Cooking surface, 12 inches square. Cast aluminum top, 3/8 inch thick, warp-proof. Sheet steel skirt, enameled a glossy black. Nickel-plated handles with baked ebonized grips. Height, 5 1/2 inches.

Maximum consumption at 110 volts, 1100 watts; on medium 700 watts; low, 275 watts. Furnished in all voltages.

Price, No. G-12, Shipping Weight, 12 3/4 Pounds. each \$16.50

**Everhot Jr. Combination Electric Cookers**

**Thermal Food Container and Fireless Cooker**

**No. EC-Jr. 8. Single Heat**

Nickered steel body trimmed in dull ebony enamel.

Five-quart aluminum cooking compartment. Has bail with wooden handle. With 2 No. 161 2-quart utensils with self-locking covers, No. 5A utensil hook, 6-foot cord with connector and 2-piece plug. Height, 13 3/8 inches; diameter, 10 inches.

Watts, 440.

Shipping weight, 15 pounds.

Price, Model No. EC-Jr. 8. each \$10.00

**No. EC-Jr. 10, 2 Heats**

Same as Model No. EC-Jr. 8, except this model has 2 heats: high heat, 400 watts; low heat, 100 watts.

Price, Model No. EC-Jr. 10, Ship. Wt., 17 Lbs. each \$12.50



**Everhot Wall-Outlet Electric Ranges**

**Model No. RA100**



Designed for use on a table.

Equipped with two 8-foot heater cords with connectors and plugs; one No. RP-112 broiler pan, No. RP-113 baffle, 2 No. RP-105 shelves, one No. RP-115 book of instructions.

Finished in French gray, aluminum, bronze and nickel trim.

Maximum current consumption, 1320 watts, 110 volts. Contains 3 elements:

hot plate, 660 watts; broiler, 660 watts and oven burner, 220 watts (low). Heat is regulated by plugging into the several terminals. There are 12 different variations of heat.

Height, 17 1/2 inches; width, 16 3/8 inches; length, 18 5/8 inches. Height of oven, 8 3/8 inches; width, 11 inches; depth, 12 1/4 inches.

Packed one in a carton. Shipping weight, 85 pounds. Price, Model No. RA100. each \$49.50

**Model No. RA101**

A warming oven designed for restaurant, hotel, institutional and laboratory use.

The heating element, located in the bottom of the oven, consumes 300 watts on high and 150 watts on low.

Furnished in any standard voltage and wattage desired. Inside of oven, height, 9 1/4 inches; width, 11 inches; length, 12 1/4 inches. Other dimensions same as No. RA100.

Finished in aluminum bronze lacquer. Packed one in a carton. Shipping weight, 65 pounds.

Price, Model No. RA101. each \$48.00

Model Nos. RA100 and RA101 may also be secured in higher wattages up to a maximum of 1100 watts for each element; also with 3-heat reciprocating switch control. Prices upon application.

**Everhot Cabinet Model Electric Cookers**

Models EC1 and EC2 cookers come in 1 and 2 compartment models. Each is neatly finished in a harmonious gray enamel with bright nickel trimmings.

They are equipped with the Everhot 4-Station Current Control Switch (may be turned either right or left to high, medium, low or off) and the Everhot Temperature Dial.

All the necessary utensils for complete cooking are furnished of heavy seamless aluminum.



Model No. EC1

**Model No. EC1**

Over all dimensions: height, 30 inches; length, 16 inches; width, 19 inches.

Equipped with 1 No. 234 4-quart utensil; 1 set No. 246C triplicate utensils; 2 No. 163 bake pans; 1 No. EC17 rack; 1 No. 5 tongs; 1 No. EC18 book of instructions and recipes; 10-foot heater cord with connector and separable plug.

Shipping weight, 105 pounds. Price, Model No. EC1. each \$39.50

**Model No. EC2**

Over all dimensions: height, 30 inches; length, 32 inches; width, 19 inches.

Equipped with 1 No. 234 4-quart utensil; 1 set No. 246C triplicate utensils; 2 No. 163 bake pans; 1 No. 48 double boiler combination; 2 No. EC17 racks; 1 No. 5 tongs; 1 No. EC18 book of instructions and recipes; two 10-foot heater cords with connectors and separable plugs.

Shipping weight, 175 pounds. Price, Model No. EC2. each \$74.50

## No. ECK-5 Everhot Cookerettes

110 to 120 Volts, 600 Watts



Designed to slip out of the way when not in use.

Cooks a complete meal at one time. The control, along with the temperature dial in the cover of the cooker, allows operator to cook as fast or as slow as wanted.

Steel body, gray enameled; blue handle, nicked hardware.

Diameter, 19 inches; height, 17½ inches; depth of compartment, 9¼ inches.

Equipped with 1 set No. 245C half-round utensils, 1 No. 234 4-quart utensil, No. 5 tongs, No. ECK-17 adjustable utensil rack. No. EC-18 book of directions and recipes, 10-foot heater cord with connector and separable plug.

Shipping weight, 45 pounds.  
Price, No. ECK-5.....each \$29.50

## Model No. RA200 Everhot Wall-Outlet Electric Ranges

110 Volts, 1320 Watts

The hot plate, broiler and oven of this range permit the preparation of an entire meal including steaming and roasting, at one time.

Has an even heat, either high or low as desired.

The removable parts allow ready access for cleaning.

Equipped with 1 set No. 245C half-round utensils, one roasting pan No. 13, two 8-foot heater cords with connectors and plugs, No. RP112 broiler pan, No. RP113 baffle, 2 No. RP105 wire shelves, No. RP115 book of instructions.

Finished in French gray, Nile green or delft blue, trimmed in nickel.

Contains 3 heating elements: hot plate, 660 watts; broiler, 660 watts; oven burner, 200 watts (low). Heat is regulated by plugging into the several terminals. There are 12 different variations of heat.

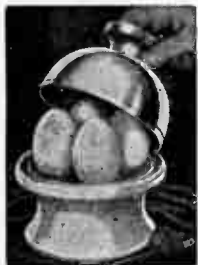
Height over all, 39¾ inches; length (front to back), 18½ inches; width, 18 inches; length of legs, 22 inches; width of steel skirt, 6 inches.

Shipping weight, 95 pounds.

Packed one to a carton; legs are detached for shipping.

Price, Model No. RA200.....each \$59.50

## No. 599 Hanksraft Automatic Electric Egg Cookers



The No. 599 egg cooker cooks 4 eggs at one time.

Starts in 5 seconds by pouring in 2 teaspoons of water. The degree of cooking is regulated by the amount of water used.

Stops when eggs are cooked just the way one wants them.

Has an attractively decorated porcelain base and top with a nickel-plated cover.

There are no wire coils to burn out; no moving parts.

For use on 110 volts a.c.

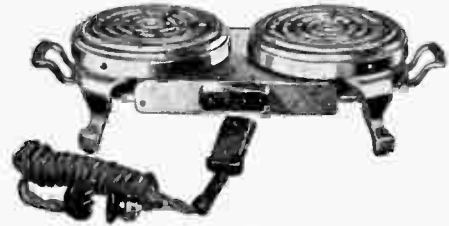
Standard package, 4.

Price, No. 599.....each \$5.50

## Everhot Electric Table Stoves

Model No. T-2, 2 Heats

110-120 Volts, 600 Watts



Model No. T-2

High and low heats. Burners may be operated separately or together, both burners operate together at low heat. Cooking may be started on full heat and continued on low.

Diameter of burner, 5¼ inches; length over all, 18¼ inches; width over all, 8½ inches; height, 4¾ inches.

Equipped with 6-foot heater cord.

Packed fully assembled in a carton.

Shipping weight, 9¼ pounds.

Price, Model T-2.....each \$8.50

Model No. S-1, Single Heat

110-120 Volts, 600 Watts

This single burner Everhot has separable handle which slips under frame at any point around stove (except under the connector guard) and holds it firmly. In this way the stove may be carried.

Diameter burner, 5¼ inches; length over all, 9¼ inches; height, 4¾ inches.

Equipped with 6-foot cord.

Shipping weight, 4¾ pounds.

Price, Model No. S-1.....each \$5.00

Model No. S-3, 3 Heats

110-120 Volts, 600 Watts

This model has 3 heats: high, medium and low. These heats are controlled by a reciprocating 4-station range switch. With separable handle and 6-foot heater cord.

Burner is 5¼ inches in diameter; length over all, 11½ inches; width over all, 9¼ inches; height, 4¾ inches.

Shipping weight, 5½ pounds.

Price, Model No. S-3.....each \$6.75

Model No. T-3, 3 Heats

110-120 Volts, 500 Watts



Model No. T-3

Has 3 heats in each burner: high, medium and low; controlled by a reciprocating 4-station range switch.

Medium heat consumes 300 watts, low heat, 150 watts.

Diameter burner, 5¼ inches; length over all, 18¼ inches; width over all, 11½ inches; height, 4¾ inches.

Equipped with one 6-foot heater cord.

Shipping weight, 11 pounds.

Price, Model No. T-3.....each \$13.50

Model No. T-4, 3 Heats

110, 120 or 220 Volts, 500 Watts

This model has a single switch control. Either burner can be operated separately on full, or both burners together. Burners operating separately consume 500 watts; both together consume 1000 watts.

Diameter burner, 5¼ inches; length over all, 18¼ inches; width over all, 11½ inches; height, 4¾ inches.

Equipped with 6-foot heater cord.

Shipping weight, 11 pounds.

Price, Model No. T-4.....each \$12.50

Everhot Special, Single Heat

The Everhot Special has the same high quality as the other models. The only difference between it and the No. S-1 is that the heater cord is attached permanently to the element.

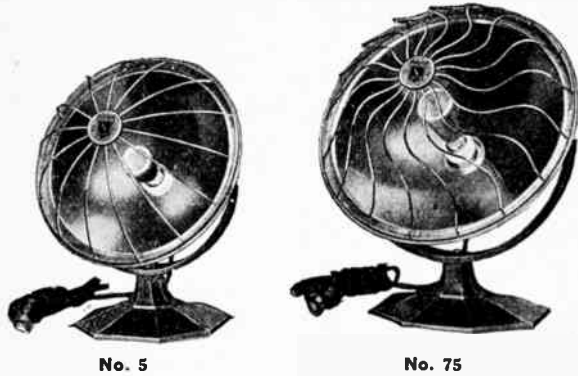
Diameter over all, 8¼ inches; height, 4¾ inches.

Shipping weight, 3 pounds.

Price.....each \$3.50



**Graybar Reflector Heaters**



Solid copper reflector highly polished, lacquered to prevent corrosion.

Has copper finished guard to protect element. Can be removed easily to facilitate cleaning of reflector bowl.

The handle is always cool, making the heater convenient to carry. Equipped with 7-foot cord.

The Reflector Heater gives even distribution of heat; no hot spots because of focusing of element. Element axial cone of nichrome wire on two-piece lava core. It screws into a receptacle of standard Edison type lamp socket design.

Has sturdy base. Friction joint permits it to be tilted to any angle.

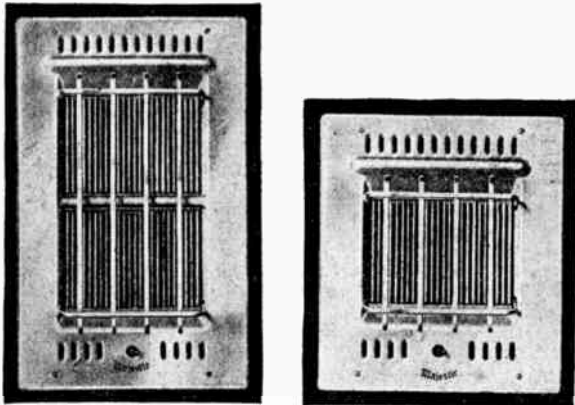
Radio bronze finish.

Packed 1 in a carton; 6 in a case.

Cat. No.	Diameter Reflector Inches	Height Inches	Watts	WEIGHT, POUNDS		Price Each
				Net	Shipping	
5	10	14 3/4	550	5	7 1/2	\$4.75
75	14	17 1/8	640	6 1/2	10	7.50

**Majestic Bathroom Wall Insert Heaters**  
With Single Heat Switch

110 or 220 Volts, 1000 or 2000 Watts



These heaters will give the bathroom a comfortable warmth in a few minutes. Will not catch dust or dirt. Water thrown on this heater while in operation will not injure it.

Made in 1000 and 2000-watt capacities.

Standard finish is vitreous white enamel.

Extra charges for baffle plate heaters and for heaters furnished in other than standard finishes or voltages. May be furnished in colors to match colored tile bathrooms at an extra charge.

Cat. No.	Watts	Volts	OVER ALL DIMENSIONS INCHES			Shipping Weight Pounds	Price Each
			Height	Width	Depth		
10B	1000	110	15 3/8	13 3/4	3	25	\$25.00
11B	1000	220	15 3/8	13 3/4	3	25	25.00
20B	2000	110	22 1/2	13 3/4	3	40	30.00
21B	2000	220	22 1/2	13 3/4	3	40	30.00

**No. 15 Majestic Wall Heaters**

110 or 220 Volts A.C. or D.C.

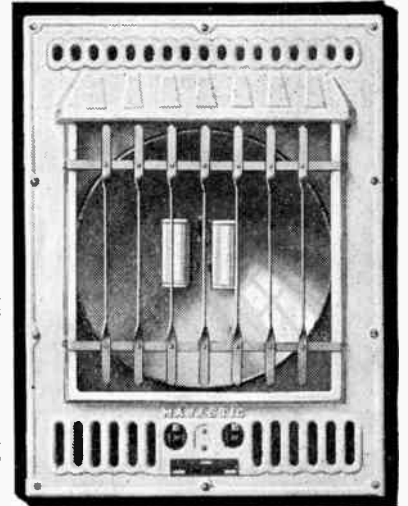
Two Elements—Each 500 Watts

With 2 heating elements of 500 watts each per hour and control switch.

Standard finish, white vitreous enamel. In colors to match colored tile bathrooms, at additional cost.

Height of front, 20 inches; width, 14 7/8 inches. Height of body, 18 1/8 inches; width, 12 1/4 inches; depth, 3 3/4 inches.

Packed one in a case. Shipping weight, 35 pounds.



Price, No. 15.....each \$30.00

**No. 18 Majestic Wall Heaters**

110 or 220 Volts A.C. or D.C., 650 Watts

With Single Heat Switch



With one heating element. Standard finish, white vitreous enamel. In colors to match colored tile bathrooms, at additional cost.

Height of front, 16 inches; width, 16 inches. Width of box or body which fits into wall opening, 12 1/2 inches; height, 13 3/8 inches; depth, 3 3/8 inches.

Shipping weight, 23 pounds.

Price, No. 18.....each \$18.00

**No. 20 Majestic Wall Heaters**

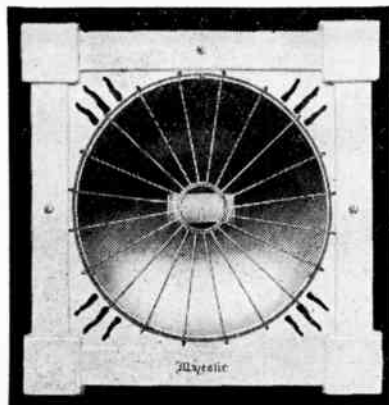
110 or 220 Volts, A.C. or D.C., 650 Watts

One heating unit. White vitreous enamel finish. May be furnished in colors to match tile at an additional cost.

Height of front, 15 1/2"; width, 15 1/2". Height of body, 12 1/4"; width, 12 1/4"; depth, 3 1/2".

One in a case. Weight 23 1/2 pounds.

Price, No. 20. ea. \$16.00



## Model 1H Utica Electric Portable Furnaces

Single Heat—1000 Watts

A quick, efficient miniature warm air furnace. Sides and base are always cool. Nothing to fill, spill or explode. Requires no care or cleaning. Operates on any wall or floor outlet.



Duco finished in antique gold and 4 popular 2-tone effects.

The element is of Nichrome JV wire.

Equipped with 8 feet of cord and attachment plug to fit floor or wall outlet.

Price, No. 1H, Complete... each \$12.50

Price, Case of 6 Containing Solid

Color or 2 Antique Gold and

1 Each of Other Colors. each 75.00

Price, Extra Elements. each 2.25

## Utica Electric Portable Furnaces

Made in 3 models.

All models furnished with 8-foot cord and attachment plug. Duco finished in antique gold and four 2-tone effects.

MODEL 3H.—1000 watts, 3-heat switch controlled at 3 stages: 300, 700 and 1000 watts. Combination element of Nichrome IV wire. After sufficient temperature rise is obtained it may be held by operating on lower stages of control.

Price, Model 3H..... each \$15.00

MODEL E.—660 watts, single heat.

Price, Model E... each \$10.00



## No. 1423 M-B Non-Automatic Irons

330 Watts

Convenient for traveling and desirable for ironing dainty clothing and children's garments.

Curling tongs may be heated by putting iron on its stand and inserting tongs in slot in stand.

Nickel plated finish.

Complete with cord and stand.

Weight, 3 pounds. Shipping weight of 6, 34 pounds.



Price, No. 1423..... each \$4.00

## No. 1456 M-B Automatic Irons

550 Watts

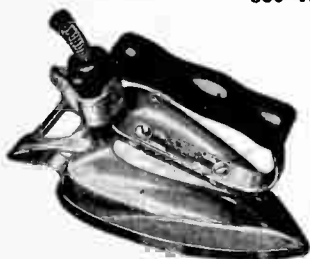
Equipped with a heat control that is designed to insure perfect operation. When iron heats up to suitable ironing temperature "snap" and automatically the electric current has shut off. While iron remains hot enough it is not using electricity. Before temperature has dropped so that iron is too cool to

use effectively "snap" the current is turned on again by the heat control.

Finished in nickel; body is paneled. Has round corners.

Weight, 6 pounds. Approximate shipping weight, standard package of 6, 51 pounds.

Price, No. 1456..... each \$7.75



## No. 10 Graybar Quick Heating Iron

A quality iron at an exceptionally low price.

Equipped with a 3-point heel rest design to give maximum stability.

This iron is rated at 550 watts and can be supplied in the following standard voltages: 95, 110, 220 and 250. Irons can be built for special voltages including a 32-volt iron, which has a permanently attached cord.

HEATING ELEMENT.—Nichrome wire hand-laced through mica sheets.

ASBESTOS Baffle.—A sheet of asbestos placed between heating element and pressure plate throws the heat downward and insures quicker heating.

CONTACT PINS.—Made of non-corroding material, removable without taking iron apart.

SHAPE.—Flared sole plate—extra heavy. Pointed nose slips easily into gathers and around buttons. Smooth rounded corners.

CORD.—High grade heater cord.

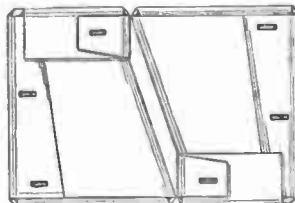
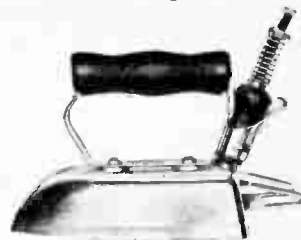
HANDLE.—Black enameled; stays cool. Placed to give even balance.

IRONING SURFACE.—Machined ground and polished smooth.

FINISH.—Highly polished nickel.

Weight, 6 pounds. Shipping weight, 7 pounds.

Price, No. 10..... each \$5.50



PACKING.—The carton for this new iron is designed to save space. Note from the sketch how two cartons fit together. There are six of these cartons in a standard package.

## No. 6 1/2 B American Beauty Irons

The 6 1/2-pound iron is the exact size, weight, and shape for general all around household and laundry use.

Extra large ironing surface. Has large, comfortable, always cool wood handle. Has round noncorroding contacts and a durable composition switch plug, always cool enough to handle.

Made in the following standard voltages: 95-104,

105-120, 121-130, 190-209, 210-240, 241-260.

Cat. No.	Size Inches	Watts	Net Wt., Lbs.	Approx. Shipping Wt., Lbs.	Case of Six Shipping Wt., Lbs.	Price Each
6 1/2 B	6 1/2 x 3 3/4	525	6 1/2	8 1/4	52 1/2	\$7.50



## No. 3B American Beauty Irons

The 3-pound Little Beauty Iron is ideal for light ironing, such as handkerchiefs and laces. Convenient for travelers.

Made in the following standard voltages: 95-104, 105-120, 121-130, 190-209, 210-240, 241-260.

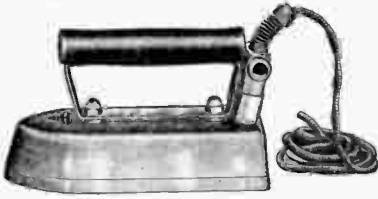
Furnished complete with stand and cord having detachable composition plug and attachment plug.

Cat. No.	Size Inches	Watts	Net Weight Pounds	Approx. Shipping Wt., Lbs.	Price Each
3B	5 7/8 x 3 1/4	350	3	5	\$6.75



**American Beauty Pressing Irons**  
12 and 16-Pound

Adapted for light pressing of all kinds, such as coat work or ladies' tailor work. They are not suitable for heavy pressing. Cannot be attached to lamp socket.



Made in the following standard voltage ranges: 95-104, 105-114, 115-125, 190-209, 210-229, 230-250.

Cat. No.	Weight Pounds	Size Inches	Watts Consumed	Shipping Wt., Lbs.	Price Each
12B, Single Heat	12	9 5/8 x 3 3/16	650	16	\$16.00
12-3-II, 3-Heat	12	9 5/8 x 3 3/16	650	16	20.00
16B, Single Heat	16	9 5/8 x 3 3/16	650	20	17.00
16-3-II, 3-Heat	16	9 5/8 x 3 3/16	650	20	21.00

**American Beauty Electric Glue Pots**



The outer body of these pots is cast iron, thoroughly galvanized before painting. The heating element is readily removable and is attached to the bottom of the inner cast iron receptacle, thus allowing all heat generated to be efficiently utilized. The inner vessel is of seamless copper, spun in one piece and is equipped with a bail and wiping rod.

Arranged for three heats, with multiple series winding. Full heat maximum wattage, intermediate one half maximum and low heat one quarter maximum. The latter is arranged to give just enough heat to keep the glue contents at a proper working temperature.

Made in the following standard voltages: 95-104, 105-114, 115-125, 190-209, 210-229, 230-250.

Cat. No.	Capacity Quarts	Max. Watts	Heats	Ship. Wt., Lbs.	Price Each
181	1	440	3	18	\$30.00
182	2	570	3	25	38.00
145	4	880	3	50	58.00

**American Beauty Soldering Irons**



Element core and shank of copper tip are heat treated

and will not readily corrode or oxidize. The heating element of nickel chromium ribbon, insulated with pure mica, is kept in intimate contact with core by means of a patented compression winding, preventing overheating of the element. With 6-foot cord and attachment plug. Copper tips of standard size drawn copper rod, 3/8, 5/8, 7/8 and 1 1/8 inches in diameter. Made in the following standard voltage ranges: 95-104, 105-120, 121-130, 190 209, 210 240, 241-260.

Cat. No.	Watts	Diam. Tip Inches	Length Over All Inches	Weight Pounds	Price Each	Extra Tips Price Each
S-76	50	1/16	11	6	\$4.50	\$ .30
3138	100	3/16	12 1/4	7 7/8	8.00	.60
3158	200	5/16	13	11 1/2	9.25	1.20
3178	300	7/8	13 3/4	25 5/8	11.50	1.90
3198	550	1 1/8	15 1/4	4	17.50	2.50

**Vulcan Electric Soldering Tools**

These heating devices can be connected to any lighting socket and will operate with identical results on either direct or alternating current. They are wound for standard voltages as follows: 104, 110, 115, 120, 125, 220 and 230 volts. An extra charge of \$1.00 is made for special voltages. Each tool has a one-piece wooden handle, which can be unscrewed and slid back to give access to the terminals, and is equipped with a 6-foot cord and a separable plug.

No. 100



Equal to 1 1/2-pound per pair soldering coppers. For telephone switchboards, electrical instruments, light manufacturing, fuses and radio.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
100	70	13 3/4	1/2	16	\$8.00

Price, Extra Tip.....each \$ .50

No. 200



Equal to 3-pound per pair soldering coppers. For fast telephone work, light tinware, automobile repairs, general home use.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
200	150	14 1/8	7/8	24	\$10.50

Price, Extra Tip.....each \$ .80

No. 300



Equal to 4 1/2-pound per pair soldering coppers. For medium tinware, general manufacturing, metal patterns and automobile work.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
300	250	14 3/8	1 1/8	35	\$13.00

Price, Extra Tip.....each \$ 1.25

No. 400



Equal to 6-pound per pair soldering coppers. For heavy tinware, sheet steel work, metal boat making, refrigerator work and automobile radiator work.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
400	350	14 3/4	1 3/8	47	\$15.00

Price, Extra Tip.....each \$ 1.70

No. 500



Equal to 2-pound per pair soldering coppers. For fast telephone work, light tinware, automobile repairs, general home use. Especially recommended when shortness is important.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
500	120	11 3/4	7/8	19	\$9.00

Price, Extra Tip.....each \$ .75

No. 600



Equal to 1-pound per pair soldering coppers. For extremely light soldering, radio apparatus and smallest fuses.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
600	44	13 3/4	1/16	14	\$7.50
602	44	24	1/16	16	9.50

Price, Extra Tips for the Above.....each \$ .30

No. 700



Equal to 1 1/2-pound per pair soldering coppers. Especially adapted for radio work. Also for bench and open work where light short tip is wanted. Excellent for telephone inspector's kit.

Cat. No.	Watts	Length In.	Diam. Tip In.	Wt., Oz. Each	Price Each
700	55	10	1/2	14	\$7.50

Price, Extra Tip.....each \$ .45

## Vulcan Electric Soldering Irons

No. 800



Equal to 10-pound per pair soldering coppers. For heavy sheet metal work, large patterns and all heavy soldering.

Cat. No.	Watts	Length Inches	Diam. Tip Inches	Wt., Oz. Each	Price Each
800	500	15 <sup>3</sup> / <sub>16</sub>	1 <sup>5</sup> / <sub>8</sub>	64	\$19.50
Price, Extra Tip.....					each \$2.65

No. 10



This soldering iron is used especially for radio and the home and for light factory soldering.

Its patented hermetically sealed case protects the winding from soldering flux, oxidation or water and makes possible the highest efficiency. Has replaceable hard forged pure copper tip. Has a ventilated adjustable handle by which the tool can be lengthened or shortened at will.

Maximum length, 12 inches.

Cat. No.	Watts	Length Inches	Diam. Tip Inches	Wt., Oz. Each	Price Each
10	44	12	<sup>7</sup> / <sub>16</sub>	10	\$3.75
Price, Extra Tip.....					each \$3.30

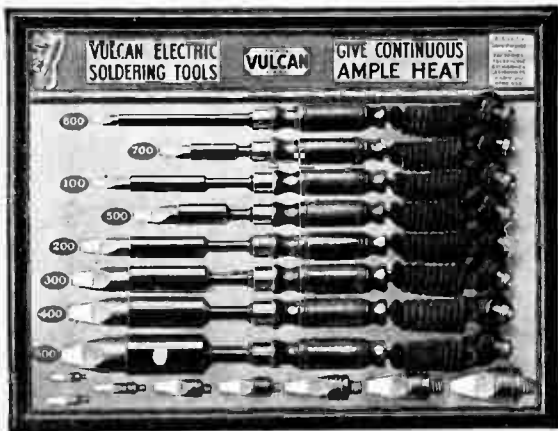
## Vulcan Rheostats



Allow the use of extra hot tools (devices wound for voltage lower than that of the circuit) by protecting them when not actively delivering heat. With 6-foot extension cord, plug and socket.

For Tool No.	Price Each	For Tool No.	Price Each
10, 100, 600, 700	\$8.50	300, 400	\$10.50
200, 500	9.50	800	12.00

## Vulcan Dealers' Display Selling Board



This display selling board permits the dealer to show the full assortment of 8 sizes. Each size helps to sell the others. The full assortment meets the requirements of the entire field of soldering.

There is a correct size of soldering iron for each class of soldering for the best results.

This handsome board is furnished with the purchase of 8 sizes of tools and tips mounted on same and one extra of each of the 4 smallest tools and tips (Nos. 600, 700, 100 and 500) for a small stock, making 1 dozen tools and 1 dozen tips.

## Jewell Automatic Temperature Regulators



Type J-8, Jeweled Clock Thermostat

Type J-8 has a jewelled balance clock especially developed for thermostatic control. Clock will automatically lower temperature to any degree at night and automatically raise the temperature at any predetermined time in the morning. Necessary only to wind periodically.

Type J-1 one-day has morning and evening control feature but it is necessary to wind clock and alarm once every 24 hours.

Type J-O plain pattern is like the other thermostats except it has no clock. Used where clock control is unnecessary. Indicator at all times is set by hand.

All are equipped with wall plate making it unnecessary to handle thermostat when connecting wires.

The Type J-E electric motor is the shaded pole type. It is simple in operation and silent and neat appearing.

It has no armature, armature windings, commutator, brushes, brush holders, brush holder springs or brush holder bearings. The rotor is the only primary moving part.

Line voltage is taken into the motor and is automatically reduced to low voltage for the thermostatic circuit.

The Type J-S spring motor is fitted with a spring of sufficient size to operate motor from 60 to 75 times on one winding. Two ordinary dry cells are required, or city lighting circuit reduced to 12 volts through special transformer, may be used to trip the motor. Easily wound from front and indicator shows whether winding is needed.

The type J-G gravity motor is similar in operation to the spring motor, except that the motive power is supplied by a 10-pound weight. Gives 20 to 25 operations, in average basement, to one weight adjustment.



Type J-S Spring Motor

### Limiting Devices

The use of a limiting device insures greater economy in heating plant operation and provides a safety device which prevents overheating and possible damage to the heating system. To obtain the best results from automatic heat regulation include a limiting device with the thermostat and motor. See price list for model numbers.

Model	Description	Shipping Wt., Lbs.	Price Each
J-8	8-Day Clock Thermostat.....	3	\$60.00
J-1	1-Day Clock Thermostat.....	2	42.00
J-O	No Clock Thermostat.....	1	31.00
J-E	110-Volts, 60-Cycle A.C. Electric Motor.....	8	60.00
J-S	Spring Type Motor.....	16	36.00
J-G	Gravity Type Motor.....	20	25.00
B-2	Immersion Type Aquastat—for Hot Water.....	4	30.00
A-1	Vaportrol—for Low Pressure Vapor.....	2	18.00
E-1	Surface Aquastat—for Hot Water.....	2	24.00
B-2-F	Aquastat—for Warm Air.....	4	22.00
C-1	Vaporstat—for Steam.....	4	30.00

To obtain the list price of a complete regulator, add the list prices of the units to be ordered; the necessary fittings for installation are included. State clearly that a regulator is wanted and list the models that are wanted by model number.

Extra charge of \$2.50 net for current specifications other than 110-volt, 60-cycle A.C. for the J-E motor.

Batteries not furnished. Any standard make of dry cell is satisfactory.

**No. 10 Hamilton Beach Drink Mixers**



For the fountain that wants speed, ease of operation, sanitation and durability, this mixer meets those requirements. Sanitary and easily operated.

Motor starts as cup slides into position, and stops when cup is removed. Motor is 110 volts universal. Motor case is splash-proof, nickel-plated and highly polished.

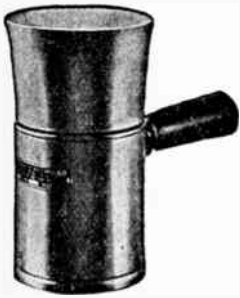
Upright is of sanitary white porcelain enamel.

Mixer comes complete with cord, plug and double-drink, nickel-silver cup.

Shipping weight, 16 pounds.  
Price, No. 10 .....each \$22.00

**Hamilton Beach Electric Drink Heaters**

110-120 Volts A.C. or D.C.



A new fountain convenience.

This heater heats drinks while they are being mixed. It fits on the drink mixer in place of the regular cup.

Makes hot fountain drinks in 2 minutes at a cost of only 1/8 cent a drink for electricity.

The patented separable cup and heater eliminates short circuits; allows cup to be washed on Rowe or other washers. Operates from light socket. Fits mixers: H-B No. 10, H-B No. 8, H-B No. 2, Gilchrist No. 22 and others.

Price .....each \$9.75

**Hamilton Beach Hair Dryers**

115 Volts, A. C. or D. C.

Ideal for professional use in barber shops and beauty parlors, or for hard service in a large family.

Handy in a drafting room for quick-drying blue prints, in photograph galleries for all drying, and for medical heat treatment.

The case is of finest solid aluminum, triple-buffed and polished.

The convenient button in the handle controls the motor, as well as the cold and hot blasts, which are evenly distributed, by the improved high velocity muzzle.

Fan is fully enclosed.

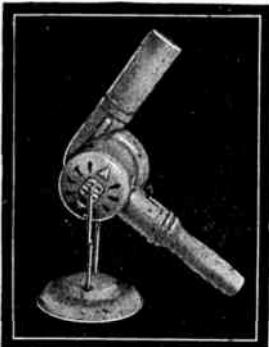
Weight packed, 5 pounds.

Price, No. 2 .....each \$22.50



**No. 3 Hamilton Beach Junior Hair Dryers**

115 Volts, A.C. or D.C.



Light, simple and powerful. Can be held in the hand or set in the stand at any desired angle, leaving hands free for scalp massage while hair is drying. Adjustment is instantaneous and automatic. Stays where it is put and stand is quickly detachable. Beautifully finished in old ivory.

Fan is fully enclosed, eliminating any chance of catching the hair. Dries the heaviest head of hair in a few minutes.

Gives hot or cold blast by simply turning the switch.

Price, No. 3 Junior Stand-Type .....each \$14.90

**Type A Hamilton Beach Vibrators**



For home use. Compact and strong. Consists of one vibrator, with cord and attachment plug for connecting to electric light fixture, and six applicators, all packed in a handsome carrying case of black leatherette lined with satin. A speed regulating switch permits motor to be run fast or slow.

The following applicators are furnished with this machine: Nos. 1 and 4 hard rubber for body; No. 2 soft rubber for face; No. 3 velvet sponge for face; No. 6 soft rubber for head; and No. 7 soft rubber with 12 prongs. Revised edition, library bound book, "Health and How to Get It" furnished free.

Price, Type A Complete .....each \$19.50

**Type C Hamilton Beach Vibrators**

Used by physicians, nurses and masseurs. Of heavier construction and has a more powerful motor than the vibrator for home use. For cases requiring energetic treatment. Packed in a black leatherette case, plush lined.

Following applicators are furnished with machine: Nos. 1 and 4 hard rubber for body; No. 2 soft rubber for face; No. 3 velvet sponge for face; No. 6 soft rubber for head; and No. 7 soft rubber with 12 prongs. Revised edition, library bound book, "Health and How to Get It" furnished free with vibrator.

Price, Type C Complete .....each \$28.50



**Type D Hamilton Beach Vibrators**



For family use and for the professional hair dresser and masseur who calls on patrons at their homes. Has no speed regulator. Instantly stopped or started by button in handle. Motor is universal and operates on either a.c. or d.c. Following applicators furnished with machine: Nos. 1 and 4 hard rubber for body; No. 2 soft rubber for face; No. 3 velvet sponge for face; No. 6 soft rubber for head; and No. 7 soft rubber with 12 prongs.

Revised edition, library bound book, "Health and How to Get It" furnished free with vibrator.

Price, Type D Complete .....each \$16.50

**Type F Hamilton Beach Vibrators**

Provided with a speed controlling device. It gives both the rubbing and percussion strokes and is guaranteed against electrical and mechanical defects. Packed in black leatherette carrying case, lined with satin.

Following applicators furnished with this machine: Nos. 1 and 4 hard rubber for body; No. 2 soft rubber for the face; No. 3 velvet sponge for face; No. 6 soft rubber for the head; and No. 7 soft rubber with 12 prongs. Revised edition, library bound book, "Health and How to Get It" furnished free with vibrator.

Price, Type F Complete .....each \$18.50





## Hamilton Beach Home Motors

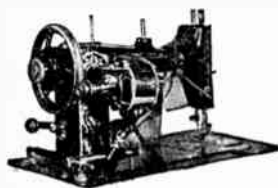


This motor can be attached to any sewing machine, old or new. Set the pulley of the motor underneath the handwheel of the machine and slight pressure of the

foot on the speed control starts the motor.

- Price, Motor with Speed Control, Cord and Plug. ea. **\$18.50**  
 " Fan Attachment..... " **3.00**  
 " Grinder and Polisher Attachment..... " **1.50**  
 " Cake Mixer Attachment.... " **5.00**

## Hamilton Beach Fit-All Sew E-Z Brackets



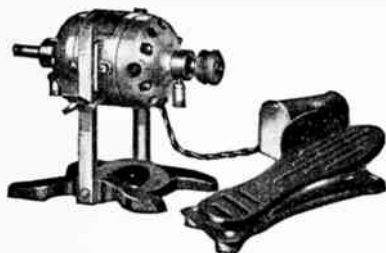
This bracket is readily adjustable to any make or model sewing machine. Attaches in belt holes very ingeniously and is permanent.

Swings under head. Sews fast or slow or speeds between. Controlled by a slight pressure on the speed pedal. Operates on both A.C. or D.C., 105 to 115 volts, 25 to 60 cycles.

Furnished with speed pedal, cord and plug.

Price ..... each **\$19.25**

## Hamilton Beach Tailor Type Sewing Motors



The tailor type motor fits and operates practically all types and models of light tailor machines.

Size of Motor.—Diameter, 3 1/4 inches; length, 5 1/2 inches, length of shaft, 7 3/4 inches. Size of pulley, 6 inches. Weight, 4 3/4 pounds.

Motor wound for 115 volts, a.c. or d.c., 25 to 60 cycles. Watts, 41 lowest speed, 70 at highest.

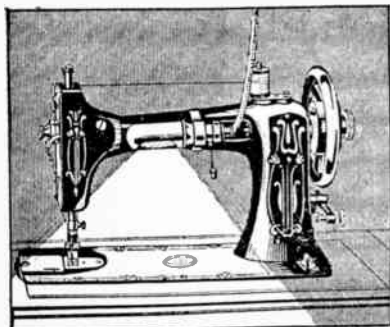
Shaft extension outside of motor is equipped with friction attachment for winding bobbins.

Furnished with speed control, cord and plug.

Price, Tailor Type Motor..... each **\$28.50**

## National Detachable Sewing Lamps

This lamp is so constructed that there is no glare to hinder the operator of the machine. There is a brilliant light on the needle and the work. Lamp fits all makes of treadle and electric sewing machines.



End of reflector is covered. A pull chain is provided.

Heavily nickel-plated finish.

With 6-foot cord and plug to fit any standard socket and wall outlet and Mazda lamp bulb.

Special voltage bulbs are extra.

Price, Complete with 110-Volt Bulb..... each **\$3.95**

## Sturtevant Ventilating and Exhaust Fans Design 5



Propeller fans are usually installed to exhaust directly to out-of-doors, and are effective for ventilating kitchens, bakeries, laundries, garages, lodge rooms, engine rooms, toilets, stores, small theatres, and all kinds of industries where ventilation is needed, and for drying many materials, such as photo plates, blue prints, plaster, etc. Sturtevant Design 5 Exhaust Fans will deliver nearly as much air when operating reversed, so they can readily be used for blowing in.

Kind of Room	No. of Minutes in Which Air Should Be Changed	Kind of Room	No. of Minutes in Which Air Should Be Changed
Bakeries.....	3-5	Garages.....	5-7
Kitchens.....	3-5	Engine Rooms.....	5-10
Smoking Rooms.....	3-5	Offices.....	6-10
Toilets.....	3-5	Lodge Rooms.....	7-10
Laundries and Dry Cleaning Plants.....	5-7	Plating and Galvanizing Rooms..	7-10
		Theatres.....	7-10

Theatres and Auditoriums are usually figured on the basis of 20 to 30 cubic feet per person per minute.

Do not use for installation with duct systems.

### D.C.—115-230 Volts

Size No.	Volume C.F.M. Free Discharge	Speed R.P.M.	Watts Input	Shipping Wt., Lbs.
3	1860	1150	90	80
4	3020	850	175	150
5	4075	612	190	225
6	6360	575	380	325
7	11350	575	540	460
8	13300	430	590	600
9	15450	420	820	700

### Single-Phase—110-220 Volts, 60 Cycles

3	1860	1150	90	80
4	3200	900	175	140
5	4890	750	270	200
6	6800	615	390	300
7	11250	570	640	450

### Polyphase—110-220-440-550 Volts, 60 Cycles

*3	1860	1150	80	80
*4	3020	850	175	140
5	4413	680	210	200
6	6200	560	310	300
7	11050	560	560	420
8	12850	425	590	550
9	15450	420	820	600

\*Furnished in 110 and 220 volts, 60 cycles only.

D.C. motor for 115-230 volts only. Sizes No. 5 and larger can be furnished for 550 volts at 10 per cent extra. D.C. motors are furnished with closed type starter and regulator for 50 per cent speed reduction.

Single-phase motors are thrown directly on the line. When required, regulator for speed reduction 30 per cent can be furnished for all sizes of single phase, except size No. 3, at an extra price. Polyphase motors are thrown directly on the line. The speed cannot be regulated. All motors enclosed type.

Prices of vertical fans upon application.

## Sturtevant Big Midget Portable Blowers



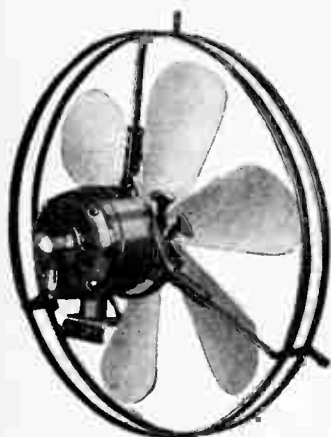
Delivers dry air for removing dust from machinery. Compressed air ordinarily contains moisture; this blower shoots dry air. Does away with air lines and lugging a

hose around, and work is reached from all sides. Has 1/2 h.p. universal motor, 110 or 220 volts; speed, open outlet, 9895 r.p.m., closed outlet, 11100 r.p.m.; volume delivered, 43.2 cubic feet per minute; air velocity, 14820 feet per minute; static pressure, outlet closed, 16.62 ins. water; inside diameter nozzle, 3/4 inch.

Furnished with 20 feet cord and plug; switch in handle. Weight, 7 Pounds.

Price..... each **\$44.00**

**Graybar 12 and 16-Inch 6-Blade Ventilating Fans**  
A.C. and D.C.



These fans are intended for mounting in walls or partitions to exhaust into free air. They are employed for removing fumes, odors and foul air.

The 12-inch fan will displace about 1000 cubic feet of air per minute, and the 16-inch fan about 1500 cubic feet per minute.

The fans are supported in a ring frame complete and ready for mounting in wall or ceiling.

Motors are designed with light weight drawn steel casings. The motor, brackets and supporting ring are finished in baked black enamel. The fan blades are polished brass.

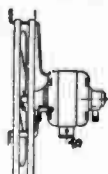
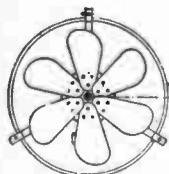
Where it is necessary to install ventilating fans for vertical operation special bearings can be furnished at \$1.00 net extra. Fans with these special bearings are not carried in stock.

Speed controllers with 4-position regulating switches providing 3 running speeds can be furnished when specified.

Controllers are not necessary unless speed control is required. The 25-cycle a.c. series commutator type requires no starter.



**3-Speed, 4-Position Speed Controller**



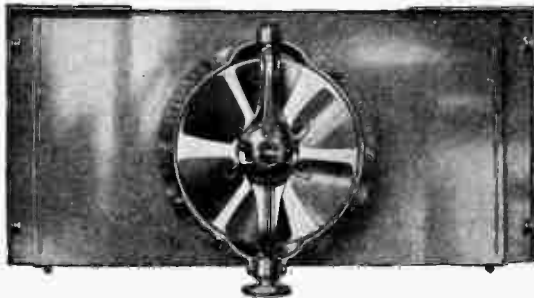
*Front and Side View of Ventilating Fan.*

Shipping weight, 42 and 50 pounds.

12-Inch		Cat. No.	High Speed Watts	Price Each	
Cat. No.	Volts				
*35G307	110	25 Cycles A. C.	106494	1700	\$26.50
35G308	120	40 Cycles A. C.	106495	1700	26.50
104G232	110	50 Cycles A. C.	106497	1350	25.00
104G234	220	50 Cycles A. C.	106499	1350	26.50
34G025	110	60 Cycles A. C.	106500	1600	25.00
34G026	220	60 Cycles A. C.	106501	1600	26.50
*218G172	32	D. C.	218174	1600	25.00
*34G009	110	D. C.	34034	1600	25.00
*34G010	220	D. C.	34035	1600	26.50
16-Inch		Cat. No.	High Speed Watts	Price Each	
Cat. No.	Volts				
*58G298	110	25 Cycles A. C.	106502	1250	\$28.50
58G299	120	40 Cycles A. C.	106503	975	28.50
104G236	110	50 Cycles A. C.	106505	1275	27.00
104G238	220	50 Cycles A. C.	106507	1275	28.50
34G029	110	60 Cycles A. C.	106508	1500	27.00
34G030	220	60 Cycles A. C.	106509	1500	28.50
*218G173	32	D. C.	218175	1600	27.00
*34G011	110	D. C.	34036	1600	27.00
*34G012	220	D. C.	34037	1600	28.50

\*Series commutator type; others are induction type.  
Price, 3-Speed, 4-Position Speed Controller.....each \$5.00

**Graybar Sturtevant Wind-O-Vane Ventilating Fans**



**Fan Mounted in Window Board**

This Wind-O-Vane draws the hot air, steam and fumes out of the kitchen. A simple turn of the knob at the bottom, reverses the blades and changes the fan into a cooling fan which sends refreshing breezes into the room.

Made of polished aluminum throughout; will not rust.

Easily installed in 20 minutes. An adjustable mounting board to fit window in which fan is to be installed is screwed fast to inside of window casing at top and inside of upper window sash. Then fan is bolted to window board. This done, the fan is ready for operation. Plug the cord into the nearest electric light socket or wall outlet and the fan starts.

Fan does not interfere with opening or closing of window.

Lubrication, wool packed bearings.

Fan hub is pierced so as to cool motor.

Fan wheel, 13 inches; thimble over all, 16 inches. Number of blades, 6; diameter of blades, 13 inches.

Current, a.c. or d.c.; voltage, 110; h.p., 1/70. Speed, 600 r.p.m. Capacity, 600 cubic feet per minute.

Motor for any current 110 volt can be supplied.

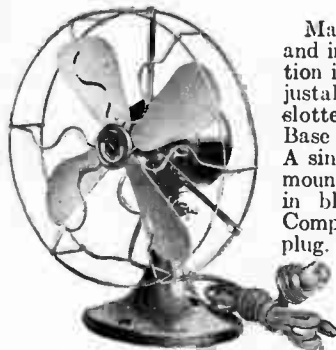
Weight, 15 pounds.

Price.....each \$53.25

Price, Window Panel.....each 8.00

**Graybar 9-Inch Non-Oscillating Fans**

A.C. and D.C.



Made in series commutator and induction types. Construction is of drawn steel, with adjustable pedestal for tilting and slotted bases for wall mounting. Base bottoms are felt-covered. A single-speed toggle switch is mounted in the base. Finished in black with brass blades. Complete with 6-foot cord and plug.

Can be furnished without pedestal, fitted with a swinging bracket. Can be mounted on window casing for drawing

in, exhausting, or circulating air, without removing screens or sash. Extra hinge brackets can be furnished if it is desired to move fan to different locations.

Shipping weight, 8 pounds.

Cat. No.	Volts	Current	Speed R.P.M.	Watts	Price Each
*257G594	110	25 Cycles A.C.	1800	22	\$10.00
*257G595	120	40 Cycles A.C.	1700	21	10.00
257G596	110	50 Cycles A.C.	1350	25	10.00
257G597	220	50 Cycles A.C.	1350	25	14.00
236G327	110	60 Cycles A.C.	1500	36	10.00
257G598	220	60 Cycles A.C.	1500	25	14.00
*257G600	32	D.C.	1700	22	15.00
*257G601	110	D.C.	1700	22	10.00
*257G602	220	D.C.	1750	26	16.00
272G119-1	110	60 Cycles A.C.	1500	36	12.50
2580316	Extra Brackets for Above.....				.50

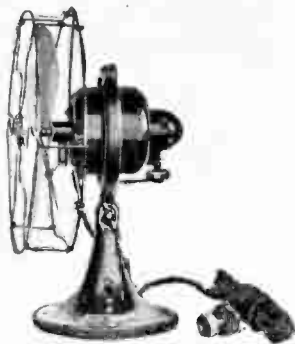
\*Series commutator type; others are induction type.  
Extra for Nickel Finishes.....each \$2.00

\*Prices for colored spray enamel finishes and electro-plating, upon application.

## Graybar 9-Inch Oscillating Fans

A.C. and D.C.

Fans are of series commutator and induction types. Construction includes a drawn steel motor base and pedestal which are adjustable for desk and wall mounting. Other features are a slotted base, a felt-covered bottom and a single-speed toggle switch in base. Ring mounted double bearings support oscillating trunnions. Double worm oscillating reduction gear is packed in grease. The 76-degree oscillating arc is constant. Equipped with 6-foot cord and plug.



Oscillation of these fans cannot be started or stopped while fan is running, neither can supporting ring be swivel adjusted to change direction range of oscillation.

Shipping weight, 9 pounds.

Cat. No.	Volts	Current	Speed R.P.M.	Watts	Price Each
*257G606	110	25 Cycles A.C.	1800	23	\$12.50
*257G607	120	40 Cycles A.C.	1700	22	12.50
257G608	110	50 Cycles A.C.	1350	26	15.00
257G609	220	50 Cycles A.C.	1350	26	18.50
257G599	110	60 Cycles A.C.	1500	37	12.50
257G610	220	60 Cycles A.C.	1500	26	18.50
*257G603	32	D.C.	1700	22	19.00
*257G604	110	D.C.	1700	22	12.50
*257G605	220	D.C.	1750	26	20.00

\*Series commutator type; others are induction type. Extra for Nickel Finishes.....each \$2.25  
Prices for colored spray enamel finishes and electroplating, upon application.

## Graybar 12-Inch Non-Oscillating Fans

A.C. and D.C.

These fans have drawn steel motor cases and pedestals. They are fully adjustable and have slotted bases for wall mounting. The a.c. motors are the induction type except the 110-volt, 25-cycle models. These and the d.c. models have series commutator type motors.

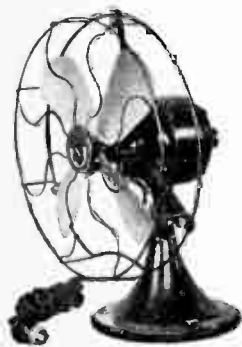
Speeds are regulated by a 4-position switch in the base.

The operating characteristics of these fans show a high degree of efficiency in design and construction.

Base bottoms are felt-covered to prevent scratching and creeping.

Finished in black enamel, with brass blades. Complete with 8-foot cord and plug.

Shipping weight, 31½ pounds.



Cat. No.	Volts	Current	SPEED			High Speed Watts	Price Each
			1	2	3		
* 34G267	110	25 Cycles A.C.	1600	1300	1000	42	\$24.50
33G594	120	40 Cycles A.C.	1050	900	750	48	24.00
78G716	110	50 Cycles A.C.	1325	1225	1075	54	23.00
78G718	220	50 Cycles A.C.	1325	1225	1075	54	24.50
34G017	110	60 Cycles A.C.	1525	1400	1250	52	23.00
34G018	220	60 Cycles A.C.	1525	1400	1250	52	24.50
*218G168	32	D.C.	1600	1250	950	33	23.00
* 34G003	110	D.C.	1600	1250	950	33	23.00
* 34G004	220	D.C.	1600	1250	950	37	24.50

\*Series commutator type; others are induction type. Extra for Nickel Finishes.....each \$3.50

Prices for colored spray enamel finishes and electroplating, upon application.

## Graybar 12 and 16-Inch Oscillating Fans

A.C. and D.C.

Oscillating gear is mounted at back of motor case and consists of a double worm reduction enclosed in a box. Connecting rod swings at one end on a stud fastened to supporting ring, and at the other end on the crank pin.

Motor is supported in ring by 2 diametrically opposite bearings, reducing friction and bearing load when operated in tilted position. Oscillation may be started or stopped while fan is running, by means of the knurled control knob on top of gear case. Universal swiveling provides complete lateral, and tilted adjustment. Full

sweep range is 90 degrees. Fan speed control is by a 4-position switch mounted in pedestal base.

Fan bottoms are felt-covered. Finished in black enamel with brass blades. Complete with 8-foot cord and plug.

Shipping weight, 12-inch fan, 36 pounds; 16-inch fan, 42 pounds.

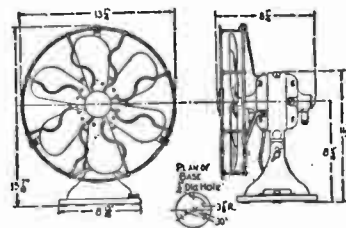
Cat. No.	Volts	Current	SPEED			High Speed Watts	Price Each
			1	2	3		
*75G433	110	25 Cycles A. C.	1600	1300	1000	43	\$31.50
75G431	120	40 Cycles A. C.	1050	900	750	48	31.00
78G734	110	50 Cycles A. C.	1325	1225	1075	55	30.00
78G736	220	50 Cycles A. C.	1325	1225	1075	55	31.50
75G423	110	60 Cycles A. C.	1510	1400	1250	53	30.00
75G424	220	60 Cycles A. C.	1510	1400	1250	53	31.50
*218G170	32	D. C.	1600	1250	950	33	30.00
*60G559	110	D. C.	1600	1250	950	33	30.00
*60G560	220	D. C.	1600	1250	950	37	31.50

### 12-Inch

Cat. No.	Volts	Current	SPEED			High Speed Watts	Price Each
			1	2	3		
*75G434	110	25 Cycles A. C.	1500	1275	975	75	\$36.50
75G432	120	40 Cycles A. C.	1000	850	650	87	36.00
78G738	110	50 Cycles A. C.	1300	1125	975	83	35.00
78G740	220	50 Cycles A. C.	1300	1125	975	83	36.50
75G425	110	60 Cycles A. C.	1500	1325	1100	91	35.00
75G426	220	60 Cycles A. C.	1500	1325	1100	91	36.50
*218G171	32	D. C.	1500	1275	975	62	35.00
*60G561	110	D. C.	1500	1275	975	66	35.00
*60G562	220	D. C.	1500	1275	975	66	36.50

\*Series commutator type; others are induction type.

### Special Types



Marine Type Fan.

The 12 and 16-inch fans can be furnished with enclosed motors, on special orders, for use in factories and industrial plants or other locations in which damp and dirty conditions prevail.

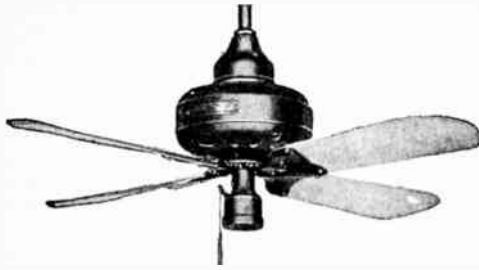
Special types of fans also furnished for marine and railway uses or for places where impregnated windings or enclosed motors are necessary for protection from atmospheric conditions. Such fans are built on special requisitions only, and are furnished only in non-oscillating models. Prices will be submitted on specifications.

Extra for Nickel Finishes.....each \$4.25

Prices for colored spray enamel finishes and electroplating, upon application.

Graybar 4-Blade Ceiling Fans

32-Inch



For installations not requiring the maximum of air circulation. The d.c. fan motors have a 2-pole, laminated field structure with drum wound armatures. The a.c. motor has universal wound field coils with series connection. Coil connections are protected by horn fibre tubing snapped in place after soldering. Wooden wedges hold coils in place.

A.C. fans have 3 metallic blades in unit assembly, finished in aluminum; d.c. fans have hardwood blades finished in natural oak. Other parts enameled in black. A snap switch for single speed is employed with d.c. fans. A pull cord 2-speed switch is standard with a.c. fans.

Prices are for standard fans in regular finish and include insulated hanger, canopy and 2 hooks (fixture stud and screw hook) but do not include hanger pipe. Enameled iron hanger pipe, 1/2 inch, threaded both ends, will be furnished when specified at 50 cents per foot.

Special finishes, to order.

Shipping weight, 38 to 48 pounds.

Cat. No.	Volts	Current	SPEED			High Speed Watts	Price Each
			1	2	3		
146G230	110	25 Cycles A.C.	375	275	87	\$41.50	
146G231	120	40 Cycles A.C.	350	250	85	41.00	
146G233	110	50 Cycles A.C.	350	250	70	40.00	
146G234	220	50 Cycles A.C.	350	250	70	41.50	
146G236	110	60 Cycles A.C.	350	250	80	40.00	
146G237	220	60 Cycles A.C.	350	250	80	41.50	
218G176	32	D.C.	400	...	75	40.00	
146G210	110	D.C.	400	...	75	40.00	
146G211	220	D.C.	400	...	75	41.50	

52-Inch



For heavy duty ceiling fan installations.

Regulating coils and motor terminals are inside the motor housing. Field coils are universal wound and series connected. Coil connections are protected by horn fibre tubing snapped in place after soldering. Field coils are held in place by wooden wedges.

Metal parts are enameled in black; hardwood blades finished in dull natural oak. Blades are arranged for downward discharge of air. Fans for upward discharge, on special order.

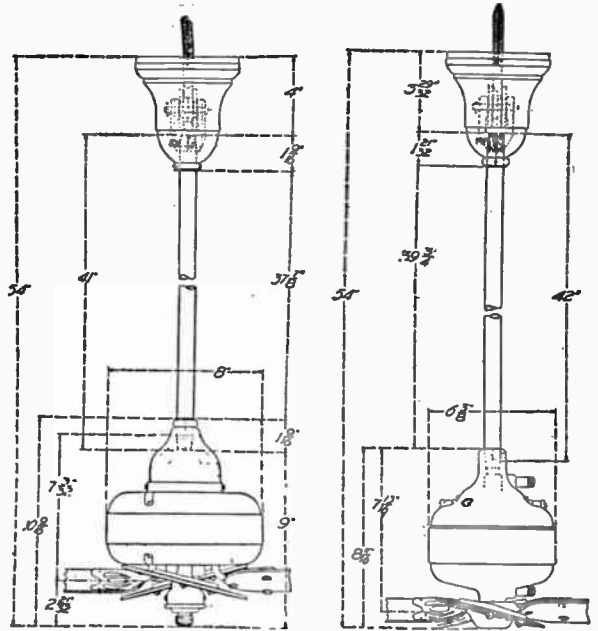
Prices are for fans complete with insulated hanger, canopy and 2 hooks (fixture stud and screw hook) but without hanger pipe; 3/4-inch iron pipe is required for hanging. Enameled hangers, threaded both ends, can be furnished when specified at 50 cents per foot.

Shipping weight, 65 to 69 pounds.

Cat. No.	Volts	Current	SPEED			High Speed Watts	Price Each
			1	2	3		
62G364	110	25 Cycles A.C.	200	150	115	140	\$55.00
62G365	120	40 Cycles A.C.	225	175	125	125	55.00
62G367	110	50 Cycles A.C.	220	170	120	130	52.00
62G368	220	50 Cycles A.C.	220	170	120	130	54.00
44G986	110	60 Cycles A.C.	225	175	125	145	48.00
44G987	220	60 Cycles A.C.	225	175	125	145	54.00
218G178	32	D.C.	230	175	125	120	54.00
34G007	110	D.C.	230	175	125	120	52.00
34G008	220	D.C.	230	175	125	120	54.00

Graybar 4-Blade Ceiling Fans

32 and 52-Inch

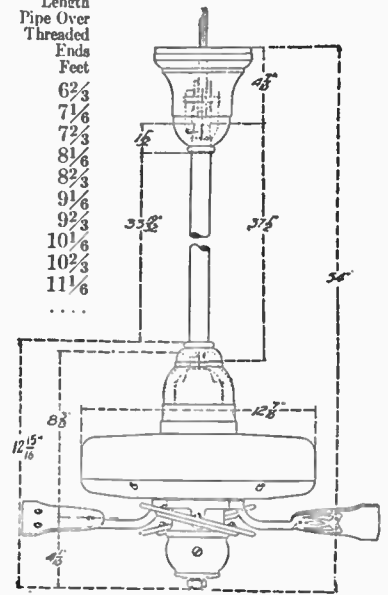


32-Inch A.C.

32-Inch D.C.

Ht. Ceiling Feet	Length Pipe Over Threaded Ends Feet	Ht. Ceiling Feet	Length Pipe Over Threaded Ends Feet
10	1 1/6	15 1/2	6 2/3
10 1/2	1 2/3	16	7 1/6
11	2 1/6	16 1/2	7 2/3
11 1/2	2 2/3	17	8 1/6
12	3 1/6	17 1/2	8 2/3
12 1/2	3 2/3	18	9 1/6
13	4 1/6	18 1/2	9 2/3
13 1/2	4 2/3	19	10 1/6
14	5 1/6	19 1/2	10 2/3
14 1/2	5 2/3	20	11 1/6
15	6 1/6	...	...

In providing pipe for suspending fans the above table will be found convenient for determining proper length pipe for a given ceiling height in order that under side of fan may be 7 1/2 feet from floor; 32-inch fans require 1/2-inch pipe; 52-inch fans, 3/4-inch pipe.



52-Inch

Lighting Combinations with Ceiling Fans



Specifications should signify if for: 1.—Wall switch for both fan and light. 2.—Wall switch for fan, pull switch for light. 3.—Wall switch for light, pull switch for fan. 4.—Pull switches for both fan and light.

Prices, less glassware and lamps, quoted upon receipt of specifications.

Wall Regulators

Regulators give approximately the same speed reductions as obtained with switch and regulating coil. Above combinations 1 and 2, contemplate the use of wall regulators where speed control is desired.

# RADIO

Graybar also distributes a complete line of Radio Receiving Sets, sold only through duly appointed agents.

Further details pertaining to these sets and their distribution will be sent upon request from your nearest Graybar house.



**GRAYBAR 330—Super-Heterodyne**—A single control, illuminated dial, eight-tube receiver with two stages of radio frequency amplification, oscillator, first detector, two stages of intermediate frequency amplification, second (power) detector and one stage of audio frequency amplification. Cabinet is 5-ply Walnut Veneer with fluted corner posts. Overhanging top and bottom. Uses seven UY-227, one UX-171-A and one UX-280 Radiotrons.

Overall dimensions—Width 29½ inches, Height 10½ inches, Depth 11 inches.

### No. 560AW Western Electric Loud Speaking Telephones



The No. 560AW loud speaking telephone is a portable sound projecting device mounted on a metal stand suitable for placing on the table of a living room.

The projector consists of 2 cones of specially selected material, having their bases cemented together. The apex of one cone is connected by a driving rod to an electro magnetic unit that responds to current impulses from the radio receiving set and thereby causes the cones to vibrate and reproduce the sound that is being sent out by radio telephony.

The design of the No. 560AW loud speaking telephone is such that the low notes of the 'cello, organ and piano and the brass instruments of the lower register are faithfully reproduced. This gives to the reproduction of instrumental music true depth and richness, thus making it satisfy the most exacting. But while particular stress has been laid on the reproduction of the low notes, because this is the more difficult, it should be borne in mind that the No. 560AW loud speaking telephone reproduces the high notes of the scale with great fidelity.



This telephone may be used in connection with any radio receiving set or audio-frequency amplifier capable of operating an ordinary type of loud speaker. As a rule 2 stages of audio-frequency amplification will be sufficient.

However, to obtain the best volume and quality of reproduction, it is advantageous to use a receiving set or amplifier which contains a power tube in the last stage.

The cones are approximately 24 inches in diameter and the distance between the apex of the front cone and the grating at the back is about  $6\frac{1}{2}$  inches. The whole assembly stands approximately  $26\frac{1}{2}$  inches high and weighs 8 pounds. No additional battery is required to operate this loud speaking telephone.

#### Replacement Parts

P-217555, Paper Cone.  
P-204895, Thumb Screw.  
No. 862 cord, 6 feet long unless otherwise specified.

#### No. 15B Bracket

Consists of the parts required for mounting the No. 560AW loud speaking telephone on a wall. Bracket mounts to the wall by means of 2 round head wood screws or 2 nails fastened in a vertical line approximately  $5\frac{1}{8}$  inches apart.

Prices upon application.

### No. 1002C Western Electric Telephone Head Sets



The No. 1002C head set is of the same design as those supplied to the U. S. Army and Navy during the war.

The cases of the individual receivers are of brass nickel-plated.

The inductance of each of the coil windings is held within exceedingly close limits by measurements made with a special type of alternating current Wheatstone bridge. The 2 coils employed in each receiver are each wound with copper wire to a direct-current resistance of approximately 550 ohms. This gives a total of approximately 2200 ohms D. C. resistance when the 2 receivers are connected in series. The alternating current impedance of the receivers connected in series when measured at voice frequencies is approximately 20000 ohms.

The pole pieces of the receiver are made of a special grade of silicon steel which insures the maximum alternating magnetic field with a minimum loss due to eddy currents.

Head band is made to fit comfortably. Head pieces are formed of non-corrosive phosphor bronze spring wire, covered with a heavy textile webbing and are equipped with adjustable yokes, slide rods and thumb screws to clamp the yokes in any desired position. Cord is covered with a black mercerized cotton braid and is equipped with tips which are concealed when attached at the receiver end, and with pin tips on the apparatus end. Cord is arranged to connect the receivers in series.

#### Replacement Parts

509W, Complete Receiver Units  
P-99768, Ear Cap  
P-98387, Diaphragm  
No. 1B, Head Band  
No. 763, Cord

Prices upon application.

### No. 6045A Graybar Amplifiers



For use with radio receiving sets and loud speakers in the home.

Reproduces the subtle differences of sounds of different frequencies and enables loud speakers to produce full volume without overloading the last stage of amplification.

This amplifier combines in one simple compact unit, a high quality amplifier and a current supply set which obviates the necessity of A, B and C batteries for the amplifier and B batteries for the radio receiver. The necessary energy is obtained from standard 100-120-volt, 50-60-cycle a.c. house lighting circuit. Batteries with their acids and other inconveniences are entirely unnecessary. When used in conjunction with a suitable radio receiver having at least one stage of audio frequency amplification, will furnish sufficient electrical energy to assure good loud speaker volume without perceptible distortion.

The advantages of this amplifier are: constant voltage, no B batteries to deteriorate, thereby frequently introducing battery noise; no additional space is required; much less weight than B batteries; tubes are long lived; sufficient power to provide good loud speaker volume without distortion.

Approved by the National Board of Fire Underwriters.  
For detailed information request bulletin No. T-826-A.



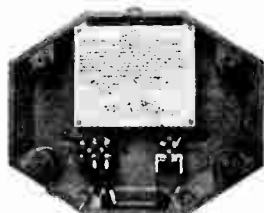
## No. 6025B Western Electric Amplifiers for Loud Speaking Telephones



A good loud speaking telephone requires more electrical energy for its proper functioning than most audio-frequency amplifiers in common use are able to deliver without overloading the vacuum tube in the last stage.

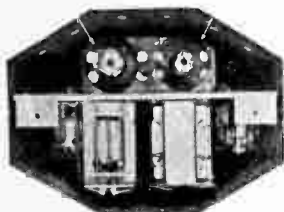
It is generally possible to secure ample volume with these amplifiers, but at the expense of the quality of reproduction due to the distortion which results from this overloading. The No. 6025B amplifier is intended for use as an adjunct to a loud speaking telephone to furnish sufficient undistorted electrical energy at audio-frequencies so that the loud speaking telephone may function at maximum capability.

It consists essentially of a single stage amplifier with a self-contained current supply set for both the vacuum tubes used in it. It employs 2 Western Electric No. 205D vacuum tubes, one as an amplifier and the other as a rectifier.



Bottom View Showing Connections

No batteries are required for the operation of this amplifier. The only current supply necessary is the ordinary 110-volt, 60-cycle A. C. house lighting current. No other form of house lighting can be used with this apparatus. The house lighting supply is transformed, rectified and filtered by the self-contained current supply set so as to properly energize the amplifier without the use of batteries. The amplifier consumes about 40 watts, that is, it takes about the same power as a medium sized incandescent bulb.



Top View with Cover Removed

When used in conjunction with a radio receiving set this amplifier is not intended to provide all the audio-frequency amplification necessary for proper loud speaking telephone operation, but only that portion of the amplification where there is most likely to be overloading, that is, the last stage. Thus if satisfactory volume is obtained in a headset from the detector tube of a radio receiving set one stage of ordinary audio-frequency amplification plus the No. 6025B amplifier will provide sufficient energy to operate a loud speaking telephone so as to be audible throughout a good sized room.

The amplifier is equipped with a cord to connect it to a radio receiving set and also a cord with a plug to connect it to the lighting circuit. A switch in the latter cord is furnished to turn the power on or off and is the only control on the amplifier. The apparatus is contained in a metal cabinet.

### Replacement Parts

No. 205D vacuum tubes (orders should state "intended for use in No. 6025B amplifier.")

No. 196 cord, 6 feet long.

If a complete cord, switch and plug assembled together for connecting the amplifier to the lighting circuit are required they may be obtained from a dealer or the nearest Western Electric House and should be ordered as follows:

P-168816 cord and plug assembly.

Prices upon application.

## Radiotron WD11 and WX12 Dry Cell Tubes



WD11



WX12

WD11 Dry Battery Radiotron has a special base designed for use in sets having special sockets. It is an excellent detector and audio frequency amplifier. The filament may be heated from a single dry cell.

WX12 and WD12 are identical electrically. WX12 has a standard large UX base to fit the Navy or new standard UX sockets, while WD11 fits only the WD11 socket.

Type	WD11	WX12
A Battery, Volts Supply	1.1	1.1
A Battery, Current Amperes	.25	.25
B Battery, Volts Detector	22½ to 45	22½ to 45
B Battery, Volts Amplifier	90 to 135	90 to 135
Negative C Battery Volts	4.5 to 10.5	4.5 to 10.5
Maximum Diameter Over All inches	1⅜	1⅜
Maximum Height Over All inches	4⅞	4⅞
Price	\$2.50	\$2.50

## Radiotron UV199 and UX199



UV199 and UX199 are the smallest Radiotrons made and are adaptable to portable or home dry battery operated sets. They are equally serviceable as detectors or as high-efficiency radio or audio frequency amplifiers. UV199 will fit only a UV199 socket and UX199 will fit only the standard UX socket.

Filament is 3.0-3.3 volts, .060-.063 amperes.

Type	AMPLIFIER			DIMEN., IN		Price Each
	Detect- or B Bat. Volts	Bat. Volts	C Bat. Volts	Max. Diam.	Max. Lgth.	
UV199	45	90	4½	1⅜	3½	\$2.25
UX199	45	90	4½	1⅜	4⅞	2.25

## RCA Radiotron UX-120

### Power Amplifier

UX-120 is a dry battery power amplifier tube for supplying a large volume of undistorted output to a loud speaker. It is suitable for use only in the last stage of an audio amplifier.

Owners of dry battery receivers will obtain improved quality at high volume by using this efficient amplifier.

It has the standard small UX base.

Length, 4⅞ inches. Diameter, 1⅜ inches.

Filament: 3-3.3 amperes, 125-132 volts. B battery, 135 volts. C battery, 22½ volts.

Price, Radiotron UX-120.....each \$2.50



**Radiotron UX200A**

The Radiotron UX200A is a super-sensitive detector tube and is particularly sensitive on weak signals.

The placing of this Radiotron in the detector socket of a storage battery set in most instances increases the volume on weak signals from distant stations to the extent of the addition of one stage of radio frequency amplification.

Filament voltage, 5; current, .25 ampere.

B Battery, 22½-45 volts.

Price, Type UX200A.....each \$4.00



**RCA Radiotron UX-210**

**Power Amplifier**

A high power amplifying tube capable of handling great volume without distortion. Due to the high plate current, some form of loudspeaker coupling device is required to prevent the high plate voltage from reaching the loudspeaker leads.

The filament may be operated from the 7.5-volt winding of a transformer or from an 8-volt storage battery. It may however be used at reduced output with a 6-volt battery. Plate voltage is usually obtained from a high voltage B-eliminator.

Fitted with standard large UX base.  
Filament: 7.5 volts, 1.25 amperes. B supply, 250-425 volts. C supply, 18 to 35 volts.  
Price, Radiotron UX-210.....each \$9.00



**RCA Radiotron UX-201-A**

**Detector Amplifier**

The UX201A is the standard all around, flexible storage battery tube of radio, good in detector or amplifier circuits, sure to give the best results at the lowest operating cost. It is recognized as the standard storage battery tube.

UX-201-A fits the Navy and standard UX sockets.

Maximum diameter over all, 1 13/16 inches. Maximum length over all, 4 11/16 inches.

FILAMENT: 5 volts, .25 amperes. DETECTOR: B battery, 45 volts. AMPLIFIER: B battery, 90-135 volts; C battery, 4½ to 9 volts.

Price, Radiotron UX-201-A...each \$1.50



**Radiotron UX240**

This Radiotron is a high Mu detector and voltage amplifier and is designed for use in resistance or impedance-coupled amplifier circuits.

Having an amplification factor (Mu) of 30, Radiotron UX240 is particularly suitable for set builders who prefer resistance coupled amplification. Where tubes of general purpose type have heretofore been used in resistance coupled circuits, improved amplification may now be obtained by the use of Radiotron UX240.

Radiotron UX240 employs the thoriated filament. Filament voltage, 5.0 volts. Filament current, 0.25 amperes. Recommended B voltage, 135 to 180 volts.

Price, Type UX240.....each \$2.00



**RCA Radiotron UX-112-A**

**Power Amplifier**

UX-112A is an improved general purpose storage battery tube. While it was designed as a power amplifier for use in the last audio stage, it may also be used for detection or amplification. It is extremely sensitive as a detector and gives excellent results as a radio-frequency or audio-frequency amplifier.

UX-112-A has a coated filament which operates at such a low temperature that only a dull red glow is visible.

Fitted with large standard UX base.  
Filament: 5 volts, .25 amperes. Detector: B battery, 45 volts. Amplifier: B battery, 90-180 volts; C battery, 4½ to 13½ volts.

Price, Radiotron UX-112-A...each \$2.75



**Radiotron UX226**

An amplifier tube that requires no A battery. It is operated from the a.c. lighting socket through a small step-down transformer.

Can be used for radio or transformer coupled audio frequency amplification.

Contains a plate, grid and a heavy filament of the oxide coated type designed to operate at a relatively low voltage.

Equipped with a standard UX base which fits both the push type and Navy type sockets.

Type	FILAMENT Volts RMS	Am- peres	B- Supply Volts	C- Supply Volts	Price Each
UX226	1.5	1.05	90-180	6-13½	\$2.50



**RCA Radiotron UX-171-A**

**Power Amplifier**

A power amplifier tube of low output impedance for use in last audio stage only.

Since the plate current is exceptionally high at maximum voltage, some form of loudspeaker coupling such as an output transformer or a choke coil and by-pass condenser should be used to prevent d.c. from passing through loudspeaker.

The output at 90 volts is exceptionally high, but at this voltage the usual direct connection to the loudspeaker may be used, omitting the loudspeaker coupling.

FILAMENT: 5 volts, .25 amperes. B battery, 90-180 volts. C battery, 16½ to 40½ volts.

Price, Radiotron UX-171-A.....each \$2.75



**RCA Radiotron UY-227**

**Detector**

A general purpose tube containing a heater element which permits operation from a.c. For detection in sets using Radiotron UX-226 in the radio and first audio stages of amplification. Chiefly used as a detector but may be employed in radio and audio frequency amplifier circuits.

Contains 4 elements: plate, grid, heater and a coated cathode electrically insulated from but heated by the heater element. Connections are made to these elements through a 5-prong base.

HEATER: 2.5 volts, 1.75 amperes. DETECTOR: B supply, 45 volts. AMPLIFIER: B supply, 90-180 volts; C supply, 4½ to 13½ volts.

Price, Radiotron UY-227.....each \$4.00



## Radiotron UX280

A full wave rectifying tube that contains a coated ribbon filament which is electrically and mechanically sturdy and which gives high emission with low power input. The plate has a specially treated surface, which causes rapid dissipation of heat.

This Radiotron may be used in any set designed for Radiotron UX213.

Filament voltage, 5 volts; filament current, 2 amperes. A.C. plate voltage (maximum per plate) 300 volts; d.c. maximum output current, 125 milliamperes.

Price, Type UX280.....each \$4.50



## RCA Radiotron UX-222 Radio Frequency Amplifier

A 4 element screen grid tube particularly designed for radio frequency amplification. Introduction of the shielding screen grid between the usual or control grid and plate not only decreases plate to grid feed-back capacity, but also increases the mutual conductance of the tube.

May also be used as an audio frequency amplifier in resistance coupled circuits.

The filament operates at 3.3 volts and .132 amperes, but with a series resistor of 15 ohms it can be connected in parallel with 5-volt filaments. Thus it may be used in either dry or storage battery receivers especially designed for it.

Price, Radiotron UX-222.....each \$6.50



## Radiotron UX281

A half wave rectifying tube that contains a coated ribbon filament which is electrically and mechanically sturdy and which gives a high emission with low power input. Plate has a specially treated surface, which causes rapid dissipation of heat.

Starts at any plate voltage. Noisy operation does not arise from this type of rectifier. It may be used in any set designed for Radiotron UX216B.

Filament voltage, 7.5 volts; filament current, 1.25 amperes. A.C. plate voltage (maximum) 700 volts, d.c. maximum output current, 85 milliamperes.

Price, Type UX281.....each \$7.50



## RCA Radiotron UX-874

### Voltage Regulator

UX-874 is a voltage regulating Radiotron for use in B eliminators in maintaining constant output voltage.

It is so made that when properly connected it maintains a potential of 90 volts to the radio receiver.

UX-874 is an automatic guard which sees to it that the proper plate voltage is always supplied under various loads. Such regulation is of utmost importance for the best operation of any radio set.

UX-874 requires a starting voltage of 125 volts and has an operating current of from 10 to 50 milliamperes.

Fitted with standard large UX base.

Price, Radiotron UX-874.....each \$4.75



## Radiotron UV876

UV876 is a current-regulator or ballast tube. It is used to maintain constant input to the power unit of a radio receiver.

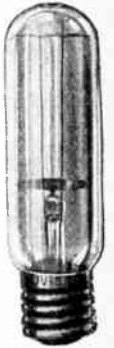
UV876 is a silent sentinel which is always on guard over the line voltage, assuring constant input under normal fluctuations in line voltages.

Unless the current is thus regulated the voltage to the receiver and therefore to its Radiotrons may vary considerably.

The UV876 operates at 1.7 amperes.

The UV876 is equipped with the Mogul screw base.

Price, Type UV876.....each \$6.50



## RCA Radiotron UX-250 Power Amplifier

A power amplifier tube designed for use in the last audio frequency stage of transformer coupled amplifiers. It will provide a far greater loud speaker volume, without distortion, than has heretofore been possible. The filament is of the coated ribbon type, assuring great strength and long life.

Due to the high plate current of Radiotron UX-250, it is essential to use some form of loud speaker coupling such as an output transformer or choke coil and by-pass condenser.

Filament, 7.5 volts, 1.25 amperes.

Maximum overall height, 6 1/4 inches; diameter, 2 1/8 inches.

Has large standard UX base.

Standard package quantity, 12; standard package weight, 24 pounds.

Price, Radiotron UX-250.....each \$11.50



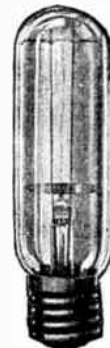
## RCA Radiotron UV-886 Ballast Tube (Current Regulator)

Radiotron UV-886 is a current regulator. It is used in the rectifier-power-amplifier unit of the Model 104 loud speaker and in Radiolas 30 and 30-A when operated from 40 to 45 cycle alternating current. It is also used in the Radiola 32 for operation from 60 cycle alternating current.

Operating current, 2.05 amperes. Mean voltage drop, 50 volts.

Standard package quantity, 25. Standard package weight, 22 pounds.

Price, Radiotron UV-886.....each \$6.50



## RCA Radiotron UX-852 Short Wave Transmitting Tube

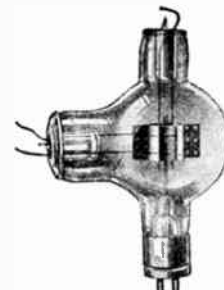
Special construction, with the plate and grid leads entering through different sides, reduces inter-element capacity, so this tube has a useful frequency range so wide it will oscillate readily and deliver power on wavelengths down to .7 of a meter. This makes it ideal for 5, 20 and 40-meter work.

Filament arm has standard UX base for use in either push or navy type socket.

Filament, 10 volts, 3.25 amperes. Normal plate voltage, 2000. Output, 75 watts.

Standard package, 4; package weight, 22 1/2 pounds.

Price, Radiotron UX-852.....each \$32.50



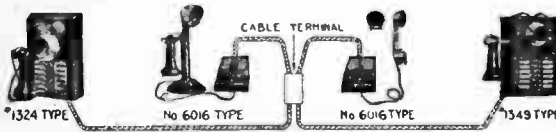
**Graybar Inter-Phones**

**Picture Index of Inter-Phone Systems**

These diagrams are intended to show the Ringing Service provided for the various Inter-Phone systems and should not be confused with the wiring diagrams, which are shown in a separate bulletin, "Installing and Maintaining Graybar Inter-Phones."

**System No. 1**

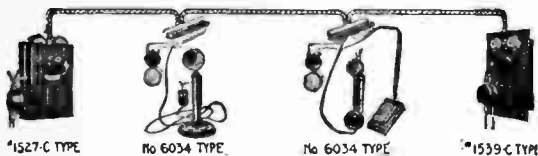
**Selective Ringing—Selective Talking Service  
For 3 up to 24 Stations**



1. Any station can ring selectively any other station.
  2. More than one conversation can take place simultaneously.
  3. Apparatus, operation and appearance, the highest grade obtainable.
- (For systems Nos. 7, 8, 9 and 10 see Apartment House Inter-Phones.)

**System No. 11**

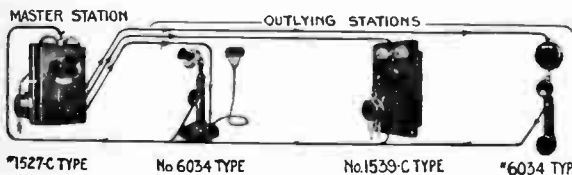
**Selective Ringing—Common Talking Service  
For 3 up to 8 Stations**



1. Any station can ring selectively any other station.
2. Only one conversation can be carried on at a time.
3. Apparatus pleasing in appearance and moderate in cost.

**System No. 12**

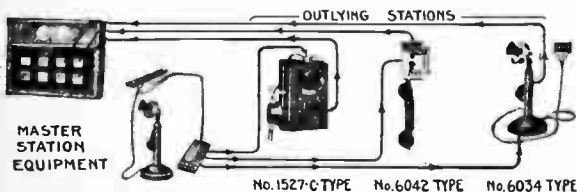
**Master and Outlying Stations—Common Talking Service  
For 3 up to 8 Stations**



1. The "master station" can call any one of the "outlying stations," selectively and the outlying stations can call the master station (but not each other).
2. Wall, desk or hand set Inter-Phones may be used interchangeably in this system for both the master and outlying stations.
3. Only one conversation can be carried on at a time.

**System No. 12A**

**Master Annunciator and Outlying Stations  
Common Talking Service  
For 3 up to 20 Stations**



1. Adapted for schools where the principal must call the teachers individually and teachers must call the principal but not each other.
2. Same as System No. 12 except master station is equipped with an annunciator for identifying calls from the outlying stations.
3. The master station annunciator is of the Electrical Reset type.
4. Only one conversation can be carried on at a time.

**Graybar Inter-Phones**

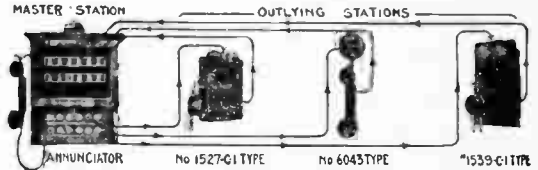
**Picture Index of Inter-Phone Systems**

Continued

These diagrams are intended to show the ringing service provided for the various Inter-Phone systems and should not be confused with the wiring diagrams, which are shown in a separate bulletin, "Installing and Maintaining Graybar Inter-Phones."

**System No. 12B and 12C**

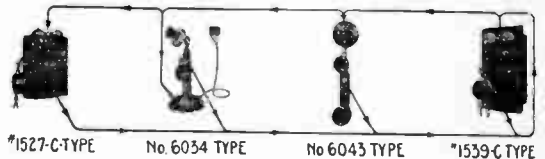
**Master Annunciator and Outlying Stations  
Common Talking Service  
For 3 up to 24 Stations**



1. The "outlying stations" can ring the "master annunciator" station but not each other.
2. Master annunciator station may or may not have push buttons for calling any one of the outlying stations.
3. This system is also designed for replacing existing ordinary annunciator and push button systems (where the wiring is suitable).
4. Only one conversation can be carried on at a time.

**System No. 15C**

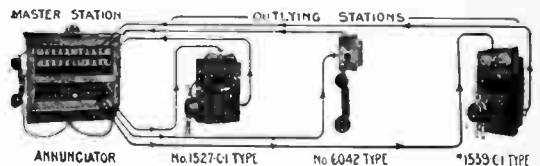
**Code Ringing—Common Talking Service  
For 2 up to 6 Stations**



1. A simple private line system (requires only 3 line wires between stations).
2. When a button is pressed at any station the bells of all other stations will ring simultaneously.
3. The various stations are called by signalling each one with a different code.
4. Only one conversation can be carried on at a time.

**System No. 18C**

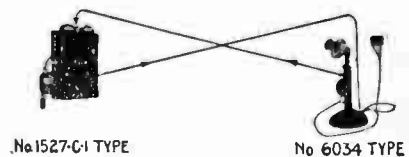
**Master Annunciator with Connecting Cords  
For 10 up to 70 Stations**



1. From the "master station annunciator" any one of the "outlying stations" can be called selectively, or the master station can be called from the outlying stations.
2. Communication can be established between any 2 outlying stations by means of connecting cords at the master station annunciator.

**System No. 14**

**Private Line  
For 2 Stations Only**



1. For connecting 2 points separated by a mile or less.
2. Only 2 line wires are required for connecting between the 2 stations.
3. Either station can ring and converse with the other.

## Graybar Inter-Phones

### Picture Index of Inter-Phone Systems

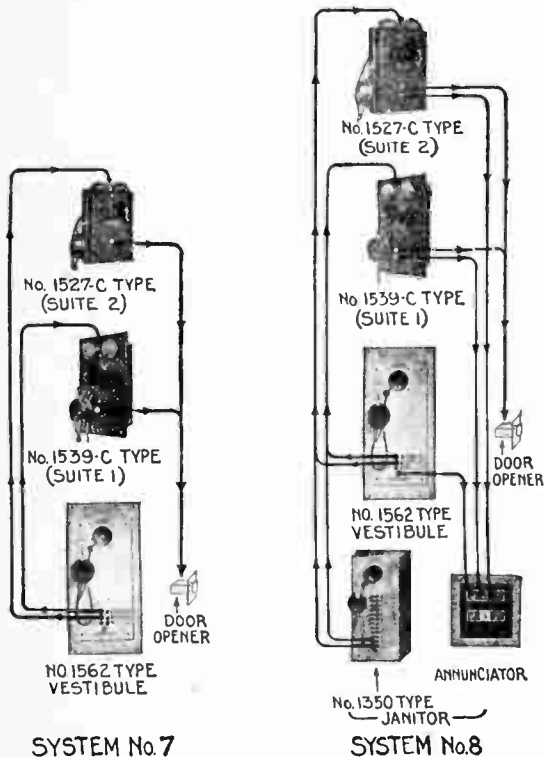
Continued

These diagrams are intended to show the ringing service only, and should not be confused with the wiring diagrams, which are shown in a separate bulletin, "Installing and Maintaining Graybar Inter-Phones."

### Apartment House Systems

#### Selective Talking—Non-Interfering Service

Systems Nos. 7 and 8 will furnish selective ringing and talking (or non-interfering) service, making it possible for a number of conversations to take place simultaneously.



#### System No. 7 Non-Interfering Service

One vestibule and up to 24 suite Inter-Phones.

1. Vestibule can call apartments.
2. Apartments can open door, if desired.

#### System No. 8 Non-Interfering Service

One vestibule, one janitor and up to 24 suite Inter-Phones.

1. Vestibule can call apartments and janitor.
2. Apartments can call janitor and open door, if desired.
3. Janitor can call apartments.

## Graybar Inter-Phones

### Picture Index of Inter-Phone Systems

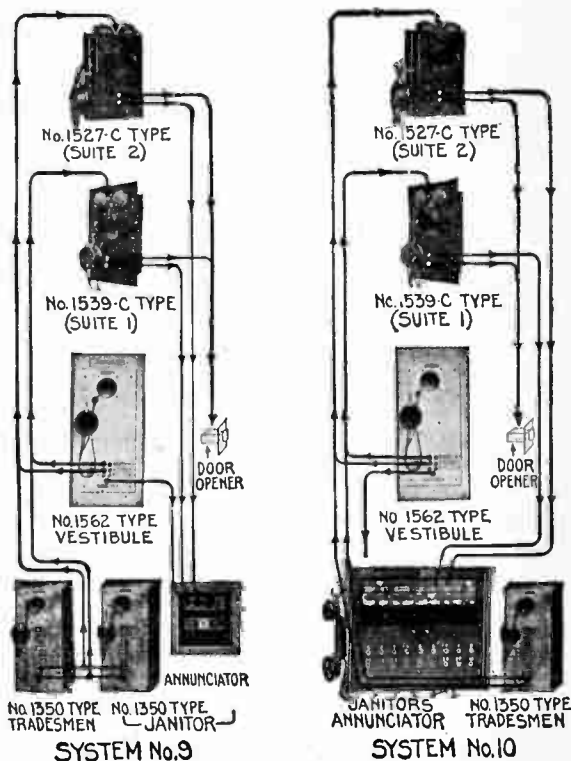
Continued

These diagrams are intended to show the ringing service only, and should not be confused with the wiring diagrams which are shown in a separate bulletin, "Installing and Maintaining Graybar Inter-Phones."

### Apartment House Systems

#### Selective Talking—Non-Interfering Service

Systems Nos. 9 and 10 will furnish selective ringing and talking (non-interfering) service, making it possible for a number of conversations to take place simultaneously.



#### System No. 9 Non-Interfering Service

One vestibule, one janitor, one tradesmen's and up to 24 suite Inter-Phones.

1. Vestibule can call apartments and janitor.
2. Apartments can call janitor and open door, if desired.
3. Janitor and tradesmen can call apartments.

#### System No. 10 Non-Interfering Service

One janitor's switchboard, 2 or more vestibule and tradesmen's Inter-Phones and any number of suite Inter-Phones up to 70. A maximum of 24 suite Inter-Phones can be connected to each vestibule set.

**Graybar Inter-Phones**

**Picture Index of Inter-Phone Systems**

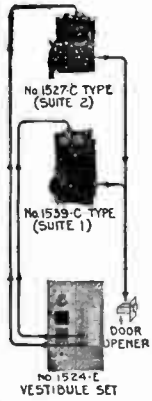
Continued

These diagrams are intended to show the ringing service only, and should not be confused with the wiring diagrams, which are shown in a separate bulletin.

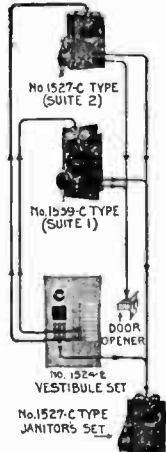
**System No. 20 and 21**

Selective Ringing—Common Talking Service

There are 6 combinations of the No. 20 and 21 System suitable for systems consisting of one vestibule and up to 24 suite Inter-Phones.



SYSTEM NO. 21-A



SYSTEM NO. 21-D

**System No. 20A and 21A**

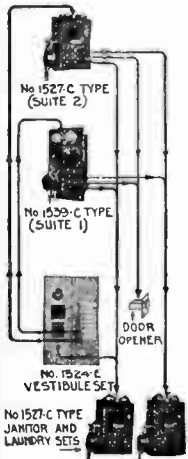
1. Vestibule can call apartments.
2. Apartments can open door.

**System No. 20C and 21C**

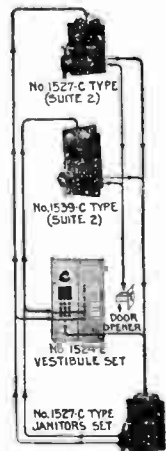
1. Vestibule can call apartments and janitor.
2. Apartments can open doors.

**System No. 20D and 21D**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor.



SYSTEM NO. 21-E



SYSTEM NO. 21-G

**System No. 20E and 21E**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor and laundry.

**System No. 20G and 21G**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor.
3. Janitor can call apartments.

**System No. 20H and 21H**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor and laundry.
3. Janitor and laundry can call apartments.

**Graybar Inter-Phones**

**Picture Index of Inter-Phone Systems**

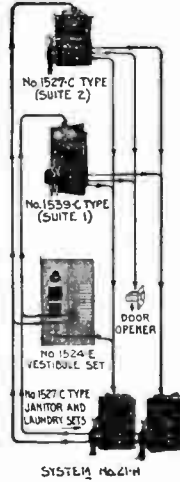
Continued

These diagrams are intended to show the ringing service only, and should not be confused with the wiring diagrams, which are shown in a separate bulletin.

**System No. 20 and 21**

Selective Ringing—Common Talking Service

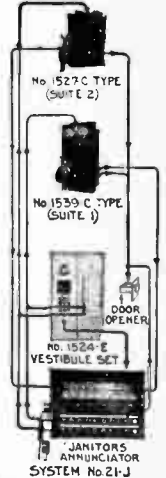
There are 6 combinations of the No. 20 and 21 System suitable for systems consisting of one vestibule and up to 24 suite Inter-Phones.



SYSTEM NO. 21-H

**System No. 20H and 21H**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor and laundry.
3. Janitor and laundry can call apartments.



SYSTEM NO. 21-J

**System No. 22**

Sectional Talking Service—Selective Ringing

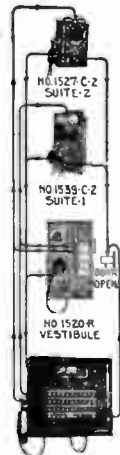
Sectional talking systems are recommended where the same janitor serves several buildings, each having one or more vestibule entrances or one building having several vestibule entrances.

This system consists of 2 or more common talking systems terminating at one janitor's station and connected so as to permit conversation taking place between each vestibule and apartment group without interference. These systems are coded as No. 22.

System No. 22 is arranged with the vestibule set having the usual hand receiver with flexible armored cord. This system is in turn divided into groups to conform with the service requirements between the vestibule, janitor or tradesmen and the apartment. They are known as Systems 22D, 22G and 22J.



JANITOR ANNUNCIATOR SYSTEM NO. 22-D



JANITOR ANNUNCIATOR SYSTEM NO. 22-G

**System No. 22D**

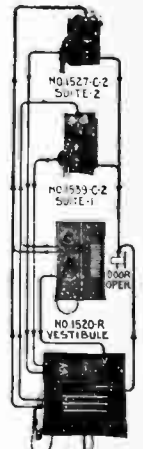
1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor.

**System No. 22G**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor.
3. Janitor can call apartments.

**System No. 22J**

1. Vestibule can call apartments and janitor.
2. Apartments can open door and call janitor.
3. Janitor can call apartments.



JANITOR ANNUNCIATOR SYSTEM NO. 22-J



## Graybar Inter-Phones

### Description of System No. 1

Selective Ringing—Selective Talking Service



### Inter-Phones for the No. 1 System

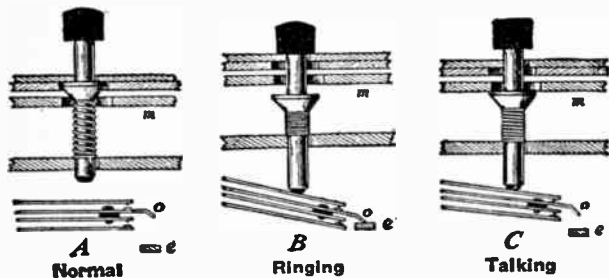
Represent the highest standards of design, engineering and refined manufacture. Four types of Inter-Phones are provided, namely, Surface Wall, Flush Wall, Desk and Hand Sets, and they may be used interchangeably in the same system. These sets all incorporate the same important refinements, as listed hereinafter.

### Transmitter and Receiver

The same type and high grade of construction as those used for public telephone exchange service. Due to their character, the transmission is pleasingly uniform and clear throughout the system with a minimum of battery consumption. These transmitters and receivers are familiar to telephone users throughout the world.

### Push Button Keys

The push button keys and their operating mechanism are mounted in a rigid metal frame. In designing this key two operations are arranged for (1) for ringing, and (2) for talking.



Each key consists of a hard rubber push button mounted on a metal plunger, which passes through a hole in a movable locking plate ("m"), (which is under the spring tension). When the button is completely depressed ("B") the spring ("o") makes contact with the ringing battery supply at ("e"), causing the ringing current to flow to the station to which this particular key is connected, and ringing the bell at that station. When the pressure is released, the plunger returns to an intermediate position ("C") breaking the contact and placing the Inter-Phone on the line of the station called ready for conversation. While the conversation is taking place, the plunger is automatically held in the talking position by the locking plate ("m") and held there until the plate is actuated by depressing another button. The pressing of another button causes the locking plate ("m") to release the key so that it assumes its normal position as shown in "A." Talking current for the Inter-Phone is cut off as soon as the receiver is placed back on the switchhook.

## Graybar Inter-Phones

### Description of System No. 1—Continued

Selective Ringing—Selective Talking Service

### No. 1324 Type Wall Inter-Phones

Surface Mounting



No. 1324 Type

The No. 1324 type Inter-Phone is an all metal set having a hinged face plate, movable transmitter and hand receiver. Finished black with nickel trimmings. The face being hinged, makes it possible to easily inspect all connections and apparatus, without disturbing the installation.

This Inter-Phone is furnished in 6, 12, 16, 20 and 24 button sizes.

Code No.	No. of Buttons	DIMENSIONS, INCHES		
		Height	Housing Width	Depth
1324C-6	6	10	6 $\frac{3}{8}$	3 $\frac{1}{8}$
1324C-12	12	10	6 $\frac{3}{8}$	3 $\frac{1}{8}$
1324C-16	16	14 $\frac{5}{16}$	7 $\frac{1}{8}$	3
1324C-20	20	14 $\frac{5}{16}$	7 $\frac{1}{8}$	3
1324C-24	24	14 $\frac{5}{16}$	7 $\frac{1}{8}$	3

### No. 1355 Type Wall Inter-Phones

Flush Mounting



No. 1355 Type

The No. 1355 type Inter-Phone is a flush mounting set having a steel face plate on which is mounted all of the talking and signalling apparatus and a sheet steel outlet box arranged for  $\frac{3}{4}$ -inch conduit. The outlet box can be separated from the set and built into the wall during the construction of the building. The face plate is hinged at the bottom, making all terminals easily accessible for installation or inspection. The set is compact but not crowded, and designed to meet the most exacting requirements. Furnished in 16, 20 and 24 button sizes.

Dull black finish with nickel trimmings.

Code No.	No. of Buttons	DIMENSIONS, INCHES		
		Height	Housing Width	Depth
1355C-16	16	14 $\frac{1}{2}$	6 $\frac{7}{8}$	...
1355C-20	20	14 $\frac{1}{2}$	6 $\frac{7}{8}$	...
1355C-24	24	14 $\frac{1}{2}$	6 $\frac{7}{8}$	...

**Graybar Inter-Phones**

**Description of System No. 1—Continued**

Selective Ringing—Selective Talking Service

**No. 6016 Type Desk Inter-Phones**



The No. 6016 type desk Inter-Phone consists of a desk stand and a metal key box which employ the same operating mechanism as described under "Push Button Keys."

It is the same type of desk stand that is generally used for public telephones, millions of which are in service, its efficiency and dependability being well known.

**Key Box**

The key box is finished in dull black with nickel trimmings and is provided with 4 rubber feet to keep the metal housing from scratching the table or desk. The connecting cord between the key box and the desk stand is 6 feet long. Cable entrances are provided at the bottom and ends of the box. Furnished in 6, 12, 16, 20 and 24 button sizes.

Code No.	No. of Buttons	Desk Stand	Cord Feet	INCLUDES			
				Key Box	DIMENSIONS, INCHES		
				Width	Length	Depth	
6016D-6	6	1140BE	6	328C-6	5	7½	2⅝
6016D-12	12	1140BE	6	328C-12	5	7½	2⅝
6016D-16	16	1140BE	6	328C-16	5¾	10¾	2⅝
6016D-20	20	1140BE	6	328C-20	5¾	10¾	2⅝
6016D-24	24	1140BE	6	328C-24	5¾	10¾	2⅝

**No. 6016 Type Hand Set Inter-Phones**



**No. 6016-H Type Hand Set Inter-Phone**

There are 3 main types of hand set inter-phones having the following general code numbers: 6016-H type, 6016-HR type and 6016-CH type. The selection of one of these 3 types depends upon the individual service requirements, as follows:

**No. 6016-H Hand Set Inter-Phones**

The No. 6016-H set consists of a hand set with hanger and a desk type key box.

**Hand Set**

Hand set is made of brass, nickel-plated, pleasing in appearance and of sturdy construction. This set is recommended for heavy duty and is designed to withstand the rough handling incidental to such service.

**Hand Set Hanger**

The hand set hanger is made of cast metal with black finish and is designed for supporting the hand set to the side of desk or wall when not in use.

**Key Box**

The key box is finished in dull black enamel and is provided with small rubber feet to keep the metal housing from scratching the table or desk. The connecting cord between the key box and the desk stand is 5½ feet long. Cable entrances are provided at the bottom and end of the box furnished in 6, 12, 16, 20 and 24-button sizes.

Code No.	No. of Buttons	Desk Stand	Cord, Feet	INCLUDES			
				Key Box	DIMENSIONS, INCHES		
				Width	Length	Depth	
6016H-6	6	1140BE	6	328C-6	5	7½	2⅝
6016H-12	12	1140BE	6	328C-12	5	7½	2⅝
6016H-16	16	1140BE	6	328C-16	5¾	10¾	2⅝
6016H-20	20	1140BE	6	328C-20	5¾	10¾	2⅝
6016H-24	24	1140BE	6	328C-24	5¾	10¾	2⅝

**Graybar Inter-Phones**

**No. 6016-HR Hand Set Inter-Phones**



The No. 6016-HR set consists of a hand set with hanger and a desk type key box.

**Hand Set**

This is a high efficiency type of hand set for regular inter-phone service. The set is finished in black with nickel trimmings and is recommended in place of the No. 6016-H type when not subjected to heavy service.

**Hand Set Hanger**

A simple nickel-plated hook for hanging the hand set to side of desk or wall.

**Key Box**

The key box is the same as described for the No. 6016-H type inter-phone.

Code No.	No. of Buttons	Hand Set	Cord Feet	Hand Set Hanger	Key Box	INCLUDES		
						DIMENSIONS, INCHES		
						Width	Lgth.	Dpth.
6016-HR-6	6	1003-R	6	141-A	328-C-6	5	7½	2⅝
6016-HR-12	12	1003-R	6	141-A	328-C-12	5	7½	2⅝
6016-HR-16	16	1003-R	6	141-A	328-C-16	5¾	10¾	2⅝
6016-HR-20	20	1003-R	6	141-A	328-C-20	5¾	10¾	2⅝
6016-HR-24	24	1003-R	6	141-A	328-C-24	5¾	10¾	2⅝

**No. 6016-CH Cradle Type Hand Set Inter-Phones**



The No. 6016-CH set consists of a hand set with a cradle type mounting and a desk type key box.

**Hand Set**

The hand set is made of black molded Bakelite and represents the most efficient cradle set available both from a standpoint of design and workmanship.

**Cradle**

The cradle or mounting for supporting the above hand set consists of a metal base finished in black with nickel trimmings. It is arranged for desk mounting for supporting the hand set when not in use. A switch is provided for operating purposes.

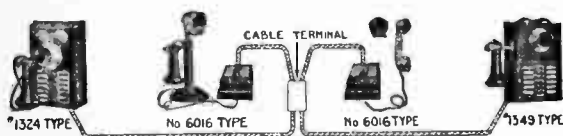
**Key Box**

The key box as used with this set is the same as described for the No. 6016-H type inter-phone.

Code No.	No. of Buttons	Hand Set and Cradle	Cord Feet	Key Box	INCLUDES		
					DIMENSIONS, INCHES		
					Width	Length	Depth
6016-CH-6	6	1016-CH	6	328-C-6	5	7½	2⅝
6016-CH-12	12	1016-CH	6	328-C-12	5	7½	2⅝
6016-CH-16	16	1016-CH	6	328-C-16	5¾	10¾	2⅝
6016-CH-20	20	1016-CH	6	328-C-20	5¾	10¾	2⅝
6016-CH-24	24	1016-CH	6	328-C-24	5¾	10¾	2⅝

## Graybar Inter-Phone Systems

**System No. 1**  
Selective Ringing—Selective Talking



System No. 1—Showing 4 Stations in One System

**SERVICE.**—For use in business organizations, industries, stores, institutions, etc., where frequently, more than one conversation will take place at the same time, where instantaneous connections without loss of time are necessary and where the highest grade of transmission is required.

**OPERATION.**—Each station can (by merely pressing a button) selectively ring and talk with any other station without disturbing the rest of the stations in the system and as many separate conversations can be carried on simultaneously as there are pairs of Inter-Phones. For example, in a system consisting of 6 Inter-Phones, 3 separate conversations can be carried on at the same time.

For each station in the system, one push button key is required in each Inter-Phone. For detail description of these keys and method of operation, refer to the general description.

**CAPACITY.**—The Inter-Phones are available in standard sizes of 6, 12, 16, 20 and 24 buttons.

**TYPES OF INTER-PHONES.**—Wall, desk or hand set Inter-Phones may be used interchangeably in this system.

No. of Buttons	WALL TYPE INTER-PHONES		Desk Set Inter-Phones	Hand Set Inter-Phones
	Surface Metal	Flush Metal		
6	1324C-6	.....	6016M	6016MH
12	1324C-12	.....	6016K	6016KH
16	1324C-16	*1355C-16	6016N	6016NH
20	1324C-20	*1355C-20	6016P	6016PH
24	1324C-24	*1355C-24	6016L	6016LH

\*NOTE.—Dimensions of outlet boxes for these Inter-Phones are outlined on another page.

### Accessories Cable

For connections between the various stations, cable specially designed for Inter-Phones can be supplied. A system requires a sufficient amount of cable for connection to each station, the cable being run by the shortest or most convenient route between the various station locations. This cable includes the necessary number of wire conductors (2 pairs for battery leads and one pair for each station in the system) and is furnished in 3 different types to suit various locations and conditions:

Type	6 Stations	12 Stations	16 Stations	20 Stations	24 Stations
Fireproof Braid	No. 134B	No. 141B	No. 157B	No. 158B	No. 136B
Green Cotton	.....	.....	.....	.....	.....
Braid	No. 155B	No. 156B	.....	.....	.....
Lead Covered	No. 134B	No. 141B	No. 157B	No. 158B	No. 136B

These cables are listed in detail elsewhere.

### Cable Terminals

A cable terminal should be used wherever a junction is to be made between cables. For example: Where an outside lead-covered cable is connected to an interior cable, or wherever a branch is taken off from the main cable. In cases where the cable can be run direct to the Inter-Phone, no cable terminal is necessary. The number of cable terminals required should be determined by the installer. For 6 and 12 button systems use the No. 19A cable terminals. For 16, 20 and 24 button systems use the No. 19B cable terminals.

Cable terminals are described in more detail elsewhere.

### Batteries

Not more than 1 dozen Blue Bell dry cells will be necessary for operating the system. (Five cells for the talking circuit; 4 to 7 cells for the ringing circuit, depending upon length of line.) The cells can be placed in the basement or any other accessible place.

Detailed information for installing, including wiring diagrams, battery requirements, cable connections, etc., are included in our bulletin, "Installing and Maintaining Graybar Inter-Phones," which will be furnished upon request.

## Graybar Inter-Phones

Description of Metal Wall Inter-Phones  
Nos. 1527C and 1539C Types

Selective Ringing—Common Talking Service



No. 1527C-2 Type



No. 1539C-1 Type

### General

The Nos. 1527C and 1539C Inter-Phones represent the highest development yet attained toward the standardization of design and construction of Common Talking Type Inter-Phones.

This result is due to the exceptional engineering skill employed in producing a universal Inter-Phone that is simple, yet pleasing in design; compact, yet with every part accessible for instant inspection; rugged, yet light in weight and efficient in operation.

### Construction and Flexibility

The principal features of these Inter-Phones are:

Surface and flush type Inter-Phones so wired as to be adaptable for use in any of our "Common Talking" Inter-Phone systems.

An interchangeable push button arrangement provides for readily furnishing Inter-Phones from stock in capacities of 1, 2, 3, 4, 6 and 8 buttons as required.

Circuit labels in each Inter-Phone together with an envelope containing strap wires and a diagram of connections give clear, concise instructions for universally connecting the completely equipped sets for any of our Common Talking Systems.

The push button arrangement provides for the future growth of an Inter-Phone system by simply ordering push button units of the required capacities without having to remove or dismantle the sets from the system. (This assumes that cable including spare wires is originally installed.)

### Finish of Inter-Phones

The metal parts of the Nos. 1527C and 1539C Inter-Phones with the exception of the transmitter and bells are treated with the Parker Rustproof Process. This consists of treating the parts in a hot chemical bath, which changes the surface of the metal to a non-rusting basic phosphate.

The protecting surface provided by the Parker Process does not add an additional coating of some other non-oxidizing material, but it is practically a part of the metal itself and prevents rust from spreading if it should start by the exposure of the bare metal at any spot.

Durable black enamel baked on (over the Parkerized surfaces) provides a tough elastic, non-chipping finish, 2 coats of the enamel being applied on surfaces exposed to view.

**Graybar Inter-Phones**

**Description of Metal Wall Inter-Phones**

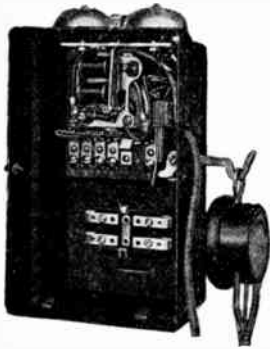
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**No. 1527C Type Wall Inter-Phones**

Surface Mounting



No. 1527-4 Type



Interior of Housing



Backboard

The No. 1527C Type Inter-Phone has a surface mounting metal housing which contains all of the talking and signalling apparatus, also a metal backboard, which is furnished for mounting the set to the wall.

The housing of the set is of rugged construction, being formed out of sheet steel and is equipped with hinge hooks which match up with slots in the base of the metal backboard. This arrangement permits fastening the backboard in place on the wall and then mounting the housing unit to it.

The hinge arrangement of this set enables the installer to swing down the housing unit from the backboard (see illustration), for making connections to the terminals; also to permit interior inspection of the set at any time after its installation.

The metal backboard is designed to permit the entrance of wires or cabling from either the top, bottom or center of the set; also, a metal guide ring is located near the cable entrance at the base of the backboard so that the connecting wires may be looped through this ring to hold them in place and provide a proper bending point when the housing is swung forward.

The finish is durable dull black enamel with nickel trimmings (see general notes on "Finish of Inter-Phones").

Code No.	No. of Buttons	For Systems	DIMENS. HOUSING, INCHES		
			Height	Width	Depth
1527C-0	0	7, 20 and 21	7½	5	2⅝
1527C-1	1	{7, 8, 9, 10, 12, 14, 15, 18, 20 and 21}	7½	5	2⅝
1527C-2	2	8, 9, 10, 20 and 21	7½	5	2⅝
1527C-3	3	11, 12, 20 and 21	7½	5	2⅝
1527C-4	4	11, 12, 20 and 21	7½	5	2⅝
1527C-6	6	11, 12, 20 and 21	7½	5	2⅝
1527C-8	8	11, 12, 20 and 21	7½	5	2⅝

**Graybar Inter-Phones**

**Description of Metal Wall Inter-Phones**

Continued

**No. 1539C Type Wall Inter-Phones**

Flush Mounting



No. 1539C-2 Type



Outlet Box



Back of Face Plate

The No. 1539C type Inter-Phone has a flush steel face plate on which is mounted all of the talking and signalling apparatus, also a metal outlet box which is furnished for mounting the set in the wall.

The outlet box is of unique design in that metal aligning strips are fastened at the top and bottom front of the box (see illustration), so as to properly align the set after the face plate unit is fastened to the outlet box (in case the outlet box is installed out of plumb). It is equipped with adjustable ears for mounting it in the wall, the same as are furnished on standard sectional outlet boxes. Knockouts are provided at both the top and bottom for the entrance of ½-inch conduit or connecting wires.

The face plate support for installer is an added feature of this set, consisting of a wire hook mounted on a small card with printed instructions for its use. This hook is for temporarily supporting the Inter-Phone face plate, of flush type sets, during installation, so that the wires may be readily connected to the terminals by the installer.

The finish is durable dull black enamel with nickel trimmings (see general notes on "Finish of Inter-Phones").

Code No.	No. of Buttons	For Systems	DIMENSIONS, INCHES				
			FACE PLATE Height	FACE PLATE Width	OUTLET BOX Height	OUTLET BOX Width	OUTLET BOX Depth
1539C-0	0	7 and 20	9	5⅝	7½	4	2⅝
1539C-1	1	{7, 8, 9, 10, 12, 14, 15, 18, 20}	9	5⅝	7½	4	2⅝
1539C-2	2	8, 9, 10 and 20	9	5⅝	7½	4	2⅝
1539C-3	3	11, 12, and 20	9	5⅝	7½	4	2⅝
1539C-4	4	11 and 12	9	5⅝	7½	4	2⅝
1539C-6	6	11 and 12	9	5⅝	7½	4	2⅝
1539C-8	8	11 and 12	9	5⅝	7½	4	2⅝

## Graybar Inter-Phones

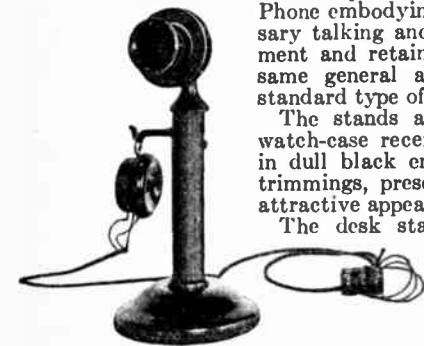
### Description of Inter-Phones

Selective Ringing—Common Talking Service  
No. 6034 Type Desk Set Inter-Phones

A compact type of desk Inter-Phone embodying all of the necessary talking and signalling equipment and retaining in design the same general appearance of the standard type of desk telephone.

The stands are equipped with watch-case receivers and finished in dull black enamel with nickel trimmings, presenting a neat and attractive appearance.

The desk stands of the Nos. 6034AP and BE Inter-Phones are each equipped with a push button and buzzer. The push button is



No. 6034 BE

mounted in a convenient position in the stem of the stand for signalling purposes and the buzzer is mounted in the base of the stand for receiver calls.

The 4 and 8-button types of Inter-Phones have the push buttons mounted in the base of the desk stands (including blank name plates) for signalling the various stations in a system, also a separate bell is furnished for receiving the calls.



No. 6034-BK

Code No.	No. of Buttons	DESK STAND		Apparatus Box Code No.	Connecting Block No.	Bell No.	For System
		Code No.	Cord Feet				
6034-AP	1	1044-BG	6	None	2 No. 11A	*	12
6034-BE	1	1444-BG	6	None	12A	*	14 & 15C
6034-BJ	4	1045-AS	6	31A	8G	11B	11, 12
6034-M	4	1045-AS	6	None	8G	11B	11, 12
6034-BK	8	1045-AT	6	34B	8H	11B	11, 12
6034-P	8	1045-AT	6	None	8G	11B	11, 12

\*Buzzer in base of stand.

### No. 6034 Type Hand Set Inter-Phones



No. 6034-BH

These Inter-Phones are for the same service as the 4 and 8 button desk types as described above except that a hand set and a separate push button block are furnished in place of the desk stand.

Code No.	No. of Buttons	HAND SET		PUSH BUTTON BLOCK		Apparatus Box Code No.	Connecting Block No.	Bell No.	For System
		Code No.	Cord Ft.	Code No.	Cord Ft.				
6034-BG	4	1003-AD	6	.....	.....	34A	8G	11B	11, 12
6034-AZ	4	1003-AD	6	.....	.....	None	8G	11B	11, 12
6034-BH	8	1003-AD	6	.....	.....	34B	8H	11B	11, 12
6034-BB	8	1003-AD	6	.....	.....	None	8H	11B	11, 12

## Graybar Inter-Phones

### Description of Inter-Phones

Selective Ringing—Common Talking Service

### Nos. 6042 and 6043 Types Hand Set Inter-Phones

The Inter-Phone transmitter and receiver are a part of the hand set, which can be held and operated with one hand, leaving the other free. A bar marked "Press to talk" mounted in the hand set handle is held down by the natural position of the hand while talking. When not in use, the hand set can be hung on a hook or laid down in any position. The hand set is finished in dull black.

Apparatus Unit (or Box). In connection with most "one button" hand sets it is necessary to use Apparatus Units containing terminals and other accessories. Two types can be furnished.



No. 383 Type

### Surface Mounting

Surface mounting apparatus Units (No. 383 type) are equipped with an insulated base, black finished round metal cover and nickel hook. Approximate size 3 1/16 inches in diameter by 1 3/16 inches deep.



No. 382 Type Apparatus Unit

### Flush Mounting



No. 12J07 Face Plate



Type AA Switch Box

Flush mounting apparatus Boxes (No. 382 type) are intended to be set in the wall and are equipped with a brush brass finished face plate. These boxes consist of three parts—a Gem A Union sectional switchbox, an apparatus unit and a face plate. The face plate is 4 1/2 x 2 3/4 inches, the wall box 2 x 3 x 3 inches deep.

An important point to be observed is that wall box and face plate are the same as those used in electric light wiring for push button switches. Sets furnished either complete, including wall box and face plate, or minus these parts.

### How Hand Sets Are Connected to Apparatus Units



With the surface apparatus unit the hand set cord is permanently attached to the hand set and apparatus unit.

With the flush apparatus box the hand set cord is permanently attached to the box. Except the Numbers 6042E and K (systems 12A and 12B). These cords are equipped with plugs. The plug can be inserted or removed from the receptacle located in the center of the face plate.

This feature makes it possible to discontinue telephone service at any point by simply removing the plug and the hand set.



### No. 6042 Type      No. 6042 Flush Types      No. 6043 Type

Code No.	No. of Buttons	HAND SET		APPARATUS (FLUSH TYPE)			For Systems
		Code No.	Cord Ft.	Code No.	Switchbox	Face Plate No.	
6042-E	1	*1003-G	3	382-E	None	None	12 & 12A
6042-K	1	**1003-G	3	382-EB	Gem A	12007	12 & 12A
6042-D	1	1003-K	3	382-J	None	None	12B & 18C
6042-M	1	1003-K	3	382-JB	Gem A	12007	12B & 18C
6042-AE	1	1003-AA	3	382-JB	None	None	14 & 15C
6042-AF	1	1003-AB	3	382-J	Gem A	12007	14 & 15C

\*Switch boxes 2 x 3 x 3 inches deep (standard).

\*\*Hand set cord equipped with plug.

### No. 6043 Surface Types

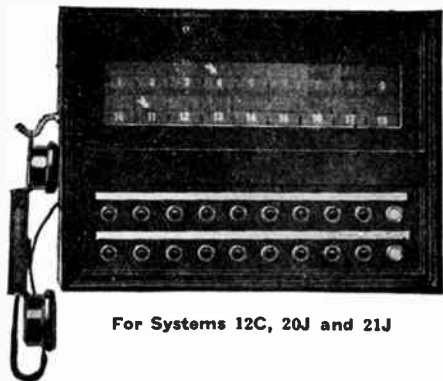
Code No.	No. of Buttons	HAND SET		Apparatus Box (Surface Type)	For Systems
		Code No.	Cord Ft.		
6043-E	1	1003-J	3	383J	12 & 12A
6043-D	1	1003-E	3	383J	12B & 18C
6043-P	1	1003-AB	3	383J	14 & 15C

## Graybar Inter-Phones

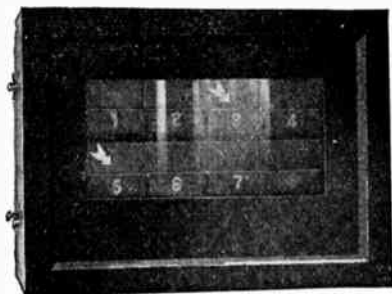
### Description of Annunciators

#### Annunciators for Systems 8, 9, 12A, 12B and 12C

These annunciators are equipped with electric reset drops. The drop indication is a white arrow which points directly at the name card. When reset, the arrow drops out of view behind the name card. The front of the annunciator protecting the drops is plain glass and as the arrow is between the glass and the dull black background, it can be easily seen from any angle.



For Systems 12C, 20J and 21J



For Systems 8, 9, 12A and 12B  
Janitor Annunciator—Nos. 8904 to 8925

No. of Drops	System 8 & 9 List No.	System 12-A List No.	System 12-B List No.	System 12-C List No.
4	8904	1204-B	1204-C	401-4
6	8906	1206-B	1206-C	401-6
7	8907	.....	.....	.....
8	8908	1208-B	1208-C	401-8
10	8910	1210-B	1210-C	401-10
12	8912	1212-B	1212-C	401-12
13	8913	.....	.....	.....
15	8915	.....	.....	401-15
16	.....	1216-B	1216-C	401-16
18	8918	.....	.....	401-18
20	8920	1220-B	1220-C	401-20
24	8924	1224-B	1224-C	401-24
25	8925	.....	.....	.....
30	.....	1230-B	1230-B	.....

Larger sizes furnished on order.

Systems 12B and 12C annunciators do not include the hand set which must be ordered separately as listed below.

#### Hand Set Inter-Phones for Annunciators

For Systems Nos. 12B and 12C. No. 1003-D hand set.

## Graybar Inter-Phones Annunciators for Systems 22D, 22G and 22J



#### System No. 22D

No. of Drops	For No. of Sections	No. of Jack and Door Buttons
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

System 22D—Janitor Annunciator

#### System No. 22G

No. of Drops	For No. of Sections	No. of Jack and Calling Door Buttons
2	2	12
3	3	18
4	4	24
5	5	30
6	6	36



System 22G—Janitor Annunciator

#### System No. 22J

No. of Drops	For No. of Sections	No. of Jack and Calling Door Buttons
12	2	12
18	3	18
24	4	24
30	5	30
36	6	36



System 22J—Janitor Annunciator

Larger sizes furnished on order.

Annunciators do not include the hand sets which must be ordered separately as listed.

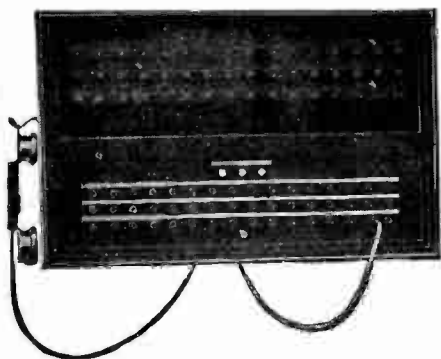
#### Hand Set Inter-Phones for Annunciators

FOR SYSTEM Nos. 22D, 22G and 22J.—No. 1003-K hand set.

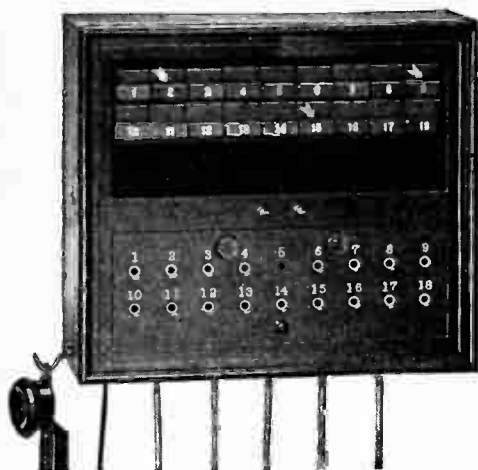


## Graybar Inter-Phones

Annunciators for Systems 10, 18C, 20J and 21J



For System No. 10  
Janitor Annunciator—Nos. 1010 to 1100



For System 18C

No. of Drops	System 10 List No.	System 18C List No.	Systems 20J & 21J List No.	No. of Drops	System 10 List No.	System 18C List No.	Systems 20J & 21J List No.
10	1010	1810-C	2010	42	1042	1842-C	2042
12	1012	.....	....	48	1048	.....	....
14	1014	1814-C	....	49	....	1849-C	2049
16	1016	1816-C	2016	50	1050	.....	....
20	1020	1820-C	2020	56	1056	1856-C	2056
25	1025	1825-C	2025	64	1064	1864-C	2064
26	1026	.....	....	72	1072	1872-C	2072
30	1030	1830-C	2030	81	1081	1881-C	2081
34	1034	.....	....	90	1090	1890-C	2090
36	1036	1836-C	2036	100	1100	1900-C	2100

Larger sizes furnished on order.

No. 18C system annunciators equipped with answering cord only. No connecting cords furnished unless ordered separately.

Annunciators do not include the hand sets which must be ordered separately as listed.

### Hand Set Inter-Phone for Annunciators

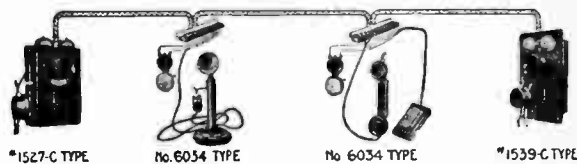
FOR SYSTEM No. 10.—Nos. 1003-K hand set or 1320-BF desk stand.

FOR SYSTEM Nos. 18C, 20J and 21J.—No. 1003-K hand set.

## Graybar Inter-Phone Systems

System No. 11

Selective Ringing—Common Talking



System No. 11—Showing 4 Stations in One System

SERVICE.—For use in establishments where conversations can be limited to one at a time.

OPERATION.—Each Inter-Phone in the system is equipped with a number of push buttons (one for each other station in the system). By depressing the button marked with the name or number of the station wanted, the bell at that station will ring and there only.

Any station in the system can selectively ring any other station. Only one conversation can be carried on at a time.

CAPACITY.—The wall type Inter-Phones can be furnished in capacities of 2, 3, 4, 6 and 8 buttons, accommodating 3, 4, 5, 7 and 9 stations respectively in a system.

The desk and hand set Inter-Phones are furnished in capacities of 4 and 8 buttons, accommodating 5 and 9 stations respectively in a system.

TYPES OF INTER-PHONES.—Wall, desk or hand type Inter-Phones may be used interchangeably in the same system. The Inter-Phones as coded below are described in detail elsewhere.

No. of Buttons	Wall Type Inter-Phones Surface	Inter-Phones Flush	Desk Set Inter-Phones	Hand Set Inter-Phones
2	1527C-2	*1539C-2	.....	.....
3	1527C-3	*1539C-3	.....	.....
4	1527C-4	*1539C-4	6034M or BJ	6034AZ or BG
6	1527C-6	*1539C-6	.....	.....
8	1527C-8	*1539C-8	6034P or BK	6034BB or BH

\*For dimensions of outlet boxes, refer to another page.

### Accessories

#### Retardation Coils

A No. 51H retardation coil must be ordered separately for installation near the battery of each system.

#### Cables

For connection between the various stations, cable especially designed for Inter-Phones can be furnished. This cable includes 3 common wires and one individual wire for each station.

Description	CODE, Nos.		
	With Fire-proof Braid	With Green Cotton Braid	With Lead Covering
For 3 and 4 Button Systems..	161	142	161
For 6 and 8 Button Systems..	162	...	162

NOTE.—Cables are described in detail elsewhere.

#### Connecting Blocks

Where a junction is to be made between cables, or wherever a branch is taken off the main cable, a connecting block should be used. In cases where the cable can be run direct to the Inter-Phone, the connecting block is not required.

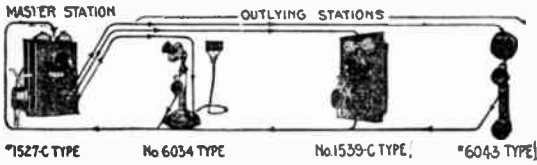
#### Batteries

Five Blue Bell dry cells are required for the operation of this system, when the distance between the 2 stations farthest apart is 750 feet or less, and Inter-Phone cable, listed above, is used. On lines of greater length it is recommended that instead of increasing the number of battery cells to more than 5, larger wire be used.

**Graybar Inter-Phone Systems**

**System No. 12**

**Master Station—Common Talking**



**SERVICE.**—Consists of one centrally located "Master Station" Inter-Phone to which are connected other "outlying station" Inter-Phones. The system provides for communication from a central point to different stations and vice versa.

**OPERATION.**—The Master Station Inter-Phone is equipped with a number of push buttons; one for each outlying station in the system. By depressing the button marked with the name or number of the outlying station wanted, the bell at that station will ring and there only.

The outlying stations are equipped with only one button which will ring the master station when depressed.

Only one conversation can be carried on at a time.

**CAPACITY.**—One Master Station and from 2 to 8 outlying stations.

**TYPE OF INTER-PHONES.**—Wall, desk and hand set Inter-Phones may be used in this system for either the master or outlying stations.

**Accessories**

**Retardation Coils**

A No. 51H retardation coil must be ordered separately with each master station Inter-Phone and installed near the battery of the system.

**Wiring**

For connections between the outlying stations and the master station either cable or insulated wires can be used, depending largely upon the layout of the system. Three common wires are required throughout the system, and in addition, one individual wire from the master to each outlying station. Where there is a long run of a large number of wires, it will be found economical to use cable, and at all distributing and junction points, to install connecting blocks. From these connecting blocks separate wires can be run to the Inter-Phones. The sizes of cable and the number of connecting blocks required should be determined in accordance with the installation instructions. Cables and connecting blocks are described elsewhere.

**Batteries**

Five Blue Bell dry cells are required for the operation of this system when the distance between the master station and most distant outlying station is 750 feet or less and No. 22 B. & S. gauge wire (as in the case of Graybar cable) is used.

On lines of greater length it is recommended that instead of increasing the number of battery cells to more than five, larger wire be used. This should be determined in accordance with the installation instructions.

The Blue Bell dry cells can be placed in the basement or any other accessible place.

**NOTE.**—Detailed information covering wiring diagrams, connection of wires and cables, connecting blocks, etc., can be found in our booklet, "Installing and Maintaining Inter-Phones," which will be furnished upon request.

No. of Metal Wall Type Inter-Phones		Desk Set Inter-Phones		Hand Set Inter-Phones	
Buttons	Surface	Flush			
2	1527C-2	*1539C-2	.....	.....	.....
3	1527C-3	*1539C-3	.....	.....	.....
4	1527C-4	*1539C-4	6034M or BJ	6034AZ or BG	
6	1527C-6	*1539C-6	.....	.....	.....
8	1527C-8	*1539C-8	6034P or BK	6034BB or BH	

**Outlying Station**

1	1527C-1	*1539C-1	6034AP	*6042K
.....	.....	.....	.....	**6042E
.....	.....	.....	.....	6043E

\*For dimensions of outlet boxes refer to separate listing of these Inter-Phones.

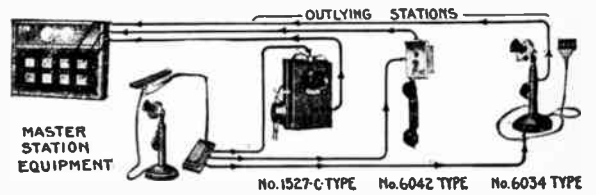
\*\*No. 6042E is same as No. 6042K, but without face plate and wall box. For details see listing elsewhere.

**Graybar Inter-Phone Systems**

**System No. 12A**

**Master Annunciator System**

**2-Way Ringing—Common Talking**



**SERVICE.**—Especially adapted for schools where the principal may call the teachers individually and the teachers can call the principal.

Similar to the No. 12 system except that the master station includes an annunciator for identifying the calls from the outlying stations.

Only one conversation can be carried on at a time.

**OPERATION.**—The master station Inter-Phone includes a push button block having as many buttons as there are outlying stations, also one extra button for electrically resetting the annunciator drops. To call an outlying station, the push button marked with the name or number of the party wanted is depressed. This rings the bell at the station selected and there only.

Each outlying station Inter-Phone is equipped with a push button which signals the master station when depressed. This call will also be registered at the master station by the operation of the annunciator drop corresponding to station calling.

**CAPACITY.**—One master station and 3 up to 20 or more outlying stations.

**Types of Inter-Phones**

**Master Stations**

To consist of the following:

1. A desk set Inter-Phone with a 5½-foot flexible conductor cord.
2. A push button block with or without weighted base and having a flexible conductor cord of any length desired.
3. A connecting block.
4. A surface type annunciator.

Each item must be ordered separately and in accordance with the following code numbers and capacities can be furnished.

No. of Outlying Stations	No. of Buttons	**PUSH BUTTON BLOCK			ANNUNCIATOR				
		LIST No.	Wood	Weighted	Des't Stand Code No.	Connecting Block Code No.	Wood of Type	No. of Drops	Metal Type
3	4	104A	7900	7900	1320BF	6G	401	4	407
5	6	106A	790	798	1320BF	6G	401	6	407
7	8	108A	7910	7990	1320BF	6G	401	8	407
10	12	.....	7921	79010	1320BF	6B	401	10	407
14	16	.....	7930	79020	1320BF	6B	401	14	407
17	20	.....	793	7902	1320BF	6F	401	18	407

\*One button of the push-button block is required for every 8 annunciator drops for electrically resetting drops.

\*\*Connecting cords for push-button blocks may be ordered separately in any length (6 feet of cord being the average length).

**Outlying Stations**

Wall, Desk or Hand Set Inter-Phones may be used. The Inter-Phones are the same as specified for the Outlying Stations of System No. 12.

**Accessories**

**Retardation Coils**

A No. 51H retardation coil must be ordered separately for installation near the battery of each system.

**Wiring**

Two common wires are required throughout the system and in addition 2 individual wires from the master to each outlying station. Cable or insulated wires may be used. Where there is a long run of a large number of wires, it will be found economical to use cable and at all distributing and junction points, to install connecting blocks. From these connecting blocks separate wires can be run to the Inter-Phones.

## Graybar Inter-Phone Systems

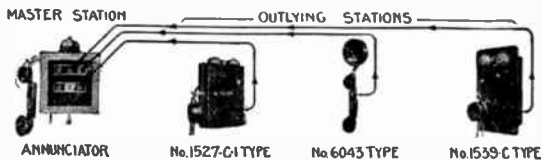
### Master Annunciator Systems Nos. 12B and 12C

#### 1-Way or 2-Way Ringing—Common Talking

SERVICE.—Provides for communication between a master station annunciator and a number of outlying stations.

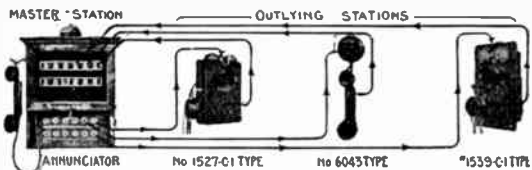
The master annunciator is equipped with a hand set Inter-Phone, and can be obtained with or without push buttons.

#### System No. 12B—One-Way Ringing



(Annunciator without push buttons) enabling the outlying stations to ring the master station but the master station cannot ring the outlying stations.

#### System No. 12C—2-Way Ringing



(Annunciator equipped with push buttons, one for each outlying station) enabling the outlying stations to ring the master station and the master station to ring the outlying stations individually.

OPERATION.—Each outlying station is equipped with a push button which signals master station when depressed. Call will also be registered at master station by operation of annunciator drop corresponding to station calling.

#### Master Stations

This consists of a black finished hand set with a 3-foot cord and an annunciator with hook for holding hand set.

Annunciator and hand set must be ordered separately.

Finish of annunciator is golden oak. Light or dark oak finish can be furnished without additional charge.

No. of Drops	System 12B List No.	System 12C List No.	No. of Drops	System 12B List No.	System 12C List No.
4	1204-B	1204-C	16	1216-B	1216-C
6	1206-B	1206-C	20	1220-B	1220-C
8	1208-B	1208-C	24	1224-B	1224-C
10	1210-B	1210-C	30	1230-B	1230-C
12	1212-B	1212-C	.....	.....	.....

#### Hand Sets

A No. 1003D hand set must be ordered separately with each annunciator.

#### Outlying Stations

Wall or hand set Inter-Phones may be used.

No. of Buttons	METAL WALL TYPE INTER-PHONE		HAND SET INTER-PHONES	
	Surface	Flush	Surface	Flush
1	1527C-1	*1539C-1	6043D	6042M *6042D

\*Same as No. 6042M, without face plate and wall box.

#### Accessories

##### Wiring

For one-way ringing service (annunciator without push buttons) one wire, common to all stations in the system and in addition, one individual wire from master station to each outlying station. For 2-way ringing service (annunciator equipped with push buttons) one-wire common to all stations in the system also 2 individual wires from master to each outlying station.

##### Batteries

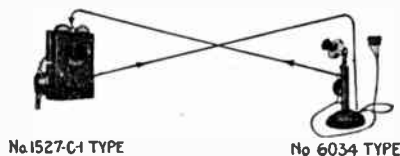
Only one battery is required for the operation of the system. This should consist of 3 or 4 Blue Bell dry cells, where the distance between the master station and the farthest outlying station is 250 feet or less and No. 22 B. & S. gauge copper wire is used. On lines of greater length it is recommended that instead of increasing the number of dry cells to more than 4, larger wires be used as follows:

- 250 to 400 ft. use 20 B. & S. gauge copper wire.
- 400 to 600 ft. use 18 B. & S. gauge copper wire.
- 600 to 1000 ft. use 16 B. & S. gauge copper wire.

## Graybar Inter-Phone Systems

### System No. 14

#### 2-Station Private Line



SERVICE.—For use where only 2 stations are required and where the sets are distantly located from each other.

Only 2 wires are used for connecting the Inter-Phones; dry cells being required at each station.

NOTE.—Refer also to other pages for description of Inter-Phone outfits composed of 2 wall or hand set Inter-Phones and the necessary installing material complete.

OPERATION.—Either station can ring the other by simply depressing the push button of the set.

TYPE OF INTER-PHONES.—Wall, desk or hand set Inter-Phones may be used interchangeably.

The Inter-Phones listed below are described in detail where listed separately.

No. of Buttons	METAL WALL TYPE INTER-PHONES		Desk Set Inter-Phones	HAND SET INTER-PHONES	
	Surface	Flush		Surface	Flush
1	1527C-1	*1539C-1	603413E	6043P	6042AE *6042AF

\*No. 6042AF is same as No. 6042AE but without face plate and wall box.



No. 1527C-2 Type



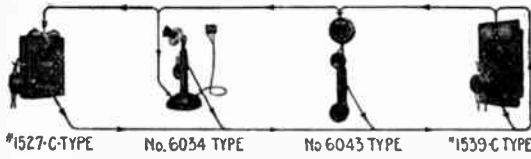
No. 1539C-1 Type

#### Wiring and Battery Requirements

A battery of 3 Blue Bell dry cells is required at each station to furnish current for talking and ringing if the length of line is less than 750 feet. If the length of the line is increased, additional dry cells are required at each station to insure satisfactory ringing. The following list indicates the additional dry cells required at each station:

Length of Line Between Stations	ADDITIONAL NUMBER OF CELLS FOR EACH STATION B. & S. GAUGE COPPER WIRE			
	No. 12	No. 14	No. 16	No. 18
750 to 1000 ft.	1	1	1	2
1000 to 1500 ft.	1	1	1	3
1500 to 2000 ft.	1	2	3	..
3000 to 4000 ft.	2	3	..	..
4000 to 5000 ft.	2	..	..	..
5000 to 6000 ft.	3	..	..	..

**Graybar Inter-Phone Systems**  
**System No. 15-C**  
**Code Ringing—Common Talking**



Showing 4 Stations in One System

**SERVICE.**—A simple and inexpensive system for small residences, warehouses, stores or mercantile establishments, where only a few stations are required and the number of calls between the stations are not frequent.

Requires only 3 line wires throughout the system for 2 or more stations.

Only one conversation can be carried on at a time.

**OPERATION.**—Each station is equipped with one push button which, when depressed rings the bells at all the other stations.

The various stations are called by signalling each one with a different code ring; for instance: 2 rings for Station No. 2, 3 rings for Station No. 3, etc.

If more than 6 stations are in service, signalling code mistakes are likely to occur, due to the possibility of misunderstood signals. System No. 11 is recommended where the initial installation comprises more than 4 or 6 stations.

**NOTE.**—In case only 2 stations are required (wall or hand set Inter-Phones), complete equipment ready for installation can be obtained by referring to Inter-Phone outfits.

**CAPACITY.**—Two to 6 stations may be operated in this system. More stations can be added but at the expense of ease and certainty in signalling.

**TYPE OF INTER-PHONE.**—Wall, desk or hand set Inter-phones may be used in the system. The Inter-Phones coded below are described in detail elsewhere.

No. of Buttons	METAL WALL TYPE INTER-PHONES		Desk Set Inter-Phones	HAND SET INTER-PHONES	
	Surface	Flush		Flush	Surface
1	1527C-1	*1539C-1	6034BE	*6042AE	6043P
..	.....	.....	.....	**6042AF	.....

\*For dimension of outlet boxes refer to separate listings elsewhere.

\*\*No. 6042AF is same as 6042AE, but without face plate and wall box, see separate listing of Hand Sets.

**Accessories**  
**Retardation Coils**

A No. 51H retardation coil must be ordered separately and installed near the battery of the system.

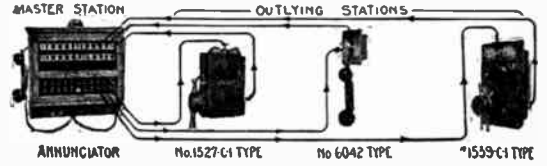
**Wiring**

Three wires are required for connecting the Inter-Phones for 2 or more stations.

**Batteries**

Five Blue Bell dry cells are required for the operation when the length of the line is 750 feet or less, and not more than 4 stations are to be used, connected by Nos. 20 or 22 B. & S. gauge copper wire. If more than 4 Inter-Phones are required or if the line is longer than 750 feet, larger wires should be used in accordance with the installation instructions. The Blue Bell dry cells can be placed in the basement or any other accessible place.

**Graybar Inter-Phone Systems**  
**Master Annunciator System No. 18C**  
**Non-Interfering**



Showing Master and 3-Outlying Stations

**SERVICE.**—For use in hotels, clubs, schools, hospitals, etc., to provide for communication between a central or master station and a larger number of outlying stations, as follows:

1. The Master Station can selectively ring and talk with any of the outlying stations and the outlying stations can call the Master Station.

2. Communication can be arranged between any two outlying stations through the medium of one or two connecting cords at the Master Station.

No connection can be made between this system and a public telephone system.

**OPERATION.**—The Master Station Annunciator consists of a number of drops and jacks (one for each outlying station in the system), a push button for ringing, a hand set Inter-Phone and a cord and plug for calling and answering.

1. To call an outlying station, the Master Station operator inserts the plug into the jack corresponding to the station wanted and depresses the ringing button of the annunciator. The operator converses with the outlying station by pressing the talking lever of the Hand Set Inter-Phone.

2. Each outlying station Inter-Phone is equipped with a push button for ringing the Master Station and at the same time operating one of the annunciator drops, thereby registering the call. The Master Station operator answers by inserting the answering plug into the jack corresponding to the drop operated and pressing the talking lever of the hand set.

3. If one outlying station wishes to converse with another outlying station, a connection can be established by means of a pair of connecting cords (equipped as part of the annunciator when so specified), each cord terminating in separate plugs. This connection is effected as follows:

The Master Station operator withdraws the answering plug from the jack of the station calling, inserting in its place one of the connecting cord plugs, and proceeds to call the station wanted as explained above, in item 1. Having secured an answer from the station wanted, the operator again withdraws the answering plug and inserts in its place the other plug end of the connecting cord. This completes the connection between the two outlying stations.

An annunciator supervisory feature is provided to indicate the termination of a conversation between outlying stations. Where a large number of connections are required between outlying stations, our No. 1801 lamp signal, Private Exchange Switchboard, is recommended.

**Master Station Annunciators**

Annunciators regularly equipped with answering cord only. No connecting cords furnished unless ordered separately. Connecting cords, when ordered, will be shipped with supervisory signals to indicate termination of the conversation.

Code No.	No. of Drops and Jacks	DIMENSIONS, INCHES		
		Height	Width	Depth
1810-C	10	15 1/8	11 1/4	5 1/4
1814-C	14	15 1/8	14 1/4	5 1/4
1816-C	16	15 1/8	17 1/4	5 1/4
1820-C	20	15 1/8	18 3/4	5 1/4
1825-C	25	19 3/8	17 1/4	5 1/4
1830-C	30	19 3/8	18 3/4	5 1/4
1836-C	36	19 3/8	21 3/4	5 1/4
1842-C	42	23 3/4	20 1/4	5 1/4
1849-C	49	23 3/4	23 3/4	5 1/4
1856-C	56	23 3/4	24 3/4	5 1/4
1864-C	64	28 1/8	23 1/4	5 1/4
1872-C	72	28 1/8	26 1/4	5 1/4
1881-C	81	32 3/8	24 3/4	5 1/4
1890-C	90	32 3/8	26 1/4	5 1/4
1900-C	100	32 3/8	29 1/4	5 1/4

## Graybar Inter-Phone Systems

### Master Annunciator System No. 18C—Continued Non-Interfering

#### Outlying Stations

Wall or hand set Inter-Phones may be used. The Inter-Phones as coded below are described in detail elsewhere.

No. of Buttons	METAL WALL INTER-PHONES		HAND SET INTER-PHONES	
	Surface	Flush	Flush	Surface
1	1527C-1	1539C-1	6042D	6043G
			*6042M	

\*No. 6042M is same as No. 6042D, but with face plate and wall box.

#### Hand Set Inter-Phone for Annunciator

This consists of a No. 1003K hand set.

#### Connecting Cords

If Inter-communication between outlying stations is desired, one or two pairs of connecting cords may be ordered as described under Operation (Item 3).



No. 6042 Type



No. 6043 Type

#### Accessories Wiring

One wire, common to all stations in the system is required, and, in addition, two individual wires between the master and each outlying station. Where there is a long run of a large number of wires, it will be found economical to use cable and install cable terminals or connecting blocks at all distributing and junction points. From there, the installation can be continued by means of separate wires to the various outlying stations. The size of cable and number of connecting blocks should be determined by the installer in accordance with the installation requirements.

Cables, cable terminals and connecting blocks are listed elsewhere in detail.



No. 1527C-2 Type



No. 1539C-1 Type

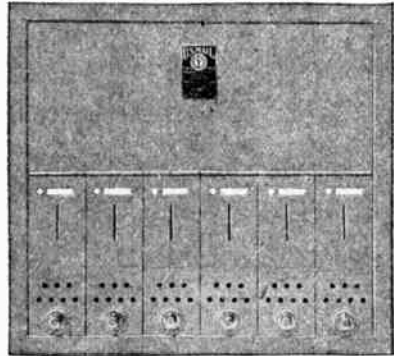
#### Batteries

Five or more Blue Bell dry cells are required for operating the system. The cells can be placed in the basement or any other accessible place.

Detailed information for installing, including wiring diagrams, battery requirements, cable connections, etc., are included in our bulletin, Installing and Maintaining Graybar Inter-Phones, which will be furnished upon request.

## Graybar Inter-Phones

### Description of Apartment House Inter-Phones Selective Talking—Non-Interfering Service Vestibule Inter-Phones for Systems Nos. 7, 8, 9, and 10

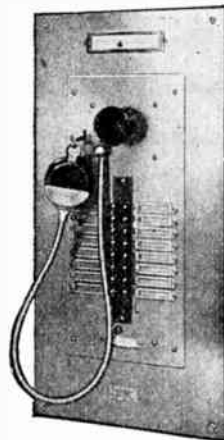


The vestibule equipment for Systems Nos. 7, 8, 9 and 10 consists of the No. 1562 type Inter-Phone and any number of letter boxes.

#### No. 1562 Type Vestibule Inter-Phones With Armored Receiver Cord

The No. 1562 type vestibule Inter-Phone has a metal case with bronze brass finish, arranged for flush mounting. This Inter-Phone is provided with the same type of push button keys as the No. 1 System Selective Ringing—Selective Talking System and permits the Vestibule and Suites as well as the Janitor and Suite Inter-Phones to carry on conversations at the same time without interference with each other.

The Inter-Phones are furnished in 7, 13, 17, 21 and 25 button keys, each button representing one apartment, except the last or odd button which represents the Janitor. The function of each of these keys, when operated, is to establish connections between the Vestibule and the called Station. When a push button is pressed all the way down the bell on the corresponding station is rung. When the pressure is released, the key assumes an intermediate position, thereby breaking the ringing contact and connecting the called line for conversation. The key is automatically held in this intermediate position by a locking plate until the operation of another button releases the key and restores it to its normal position. Talking current is cut off when the receiver is replaced on the switchhook. The lower or odd button (for calling the janitor) is non-locking in the operating position. This provides a means for releasing the other buttons in the set should some one maliciously operate all of them at one time. The Vestibule Inter-Phone is provided with a watchcase receiver and flush type transmitter. The receiver is equipped with a flexible armored cord for its protection.



No. 1562 Type

#### Brush Brass Finished Face Plate and Metal Outlet Box

Code No.	No. of Buttons	DIMENSIONS, INCHES		Code No.	No. of Buttons	DIMENSIONS, INCHES	
		FACE PLATE Height	FACE PLATE Width			FACE PLATE Height	FACE PLATE Width
1562C-7	7	19½	10	1562C-21	21	19½	10
1562C-13	13	19½	10	1562C-25	25	19½	10
1562C-17	17	19½	10				

The armored receiver cord complete with receiver is coded as "No. 524W receiver."

#### Vestibule Mail Boxes

The mail boxes may be obtained in groups of 3 to 16, being assembled complete in units and master-locked for mounting in single or double rows. The boxes are finished in bronze brass, other finishes are special.

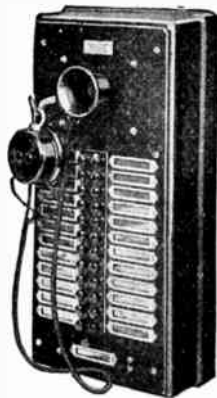
The overall dimensions of the individual mail boxes are 5 inches in width and 19½ inches in height.

**Graybar Inter-Phones**

**Description of Apartment House Telephones—Cont.**

Selective Talking—Non-Interfering Service

**Janitors' and Tradesmen's Inter-Phones**



No. 1350C-25 Type

**No. 1350 Inter-Phones—Surface Type**

The No. 1350 type janitor's and tradesmen's wall Inter-Phone has a surface mounting metal case with black finish. No bell is provided in this set as it is used with an annunciator when calls are to be received at this station. These Inter-Phones are made in 7, 13 and 25 button sizes, the construction and operation being the same as outlined under Vestibule Inter-Phones. The lower or odd button in each Inter-Phone is non-locking in operation and provides connection with the vestibule Inter-Phone.

No. of Buttons	Code No.	SYSTEM No.		DIMENSIONS OF HOUSING INCHES		
		For Janitor	For Tradesmen	Height	Width	Depth
7	1350C-7	8 and 9	9 and 10	14 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3
13	1350C-13	8 and 9	9 and 10	14 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3
25	1350C-25	8 and 9	9 and 10	14 <sup>5</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>	3

JANITOR'S ANNUNCIATORS.—Annunciators for systems 8, 9 and 10 are described elsewhere.

**Coil and Condenser Box**



The coil and condenser box is required for each vestibule, janitor's (either wall Inter-Phone or annunciator) or tradesmen's station. This apparatus is necessary in order that separate conversations may be carried on simultaneously between the vestibule, janitor and tradesmen's Inter-Phone and 3 apartments, without having the conversations interfere with each other. The condenser provides a path for the high frequency talking currents, which cannot pass through the high impedance retardation coil.

Wooden case furnished in golden oak.

Code No.	Containing	System No.
295BC	1 Coil and 1 Condenser	7
295AS	2 Coils and 2 Condensers	8
295BD	3 Coils and 3 Condensers	9 and 10

**Graybar Inter-Phones**

**Description of Apartment House Inter-Phones**

Common Talking Service

**Vestibule Inter-Phones for No. 20 Systems**

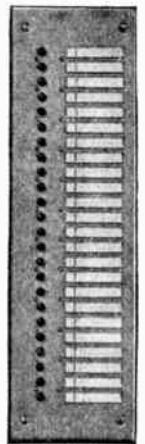


No. 1520-R



No. 1520-R Vestibule Inter-Phone

With Armored Receiver Cord



No. 424-A Push Button Plate

The No. 1520-R Inter-Phone consists of a flush mounting brush brass finish face plate with a push-button for signalling the janitor. The transmitter unit is mounted on the back of the face plate and an embossed metal mouthpiece is provided. The receiver used is of the watch-case type and the cord of the receiver is protected with a flexible armor. The switch-hook is mounted in the center of the face plate, supporting the receiver in the most convenient position. The receiver and armored cord complete is coded as the No. 524W receiver.

**Vestibule Push-Button Plates**

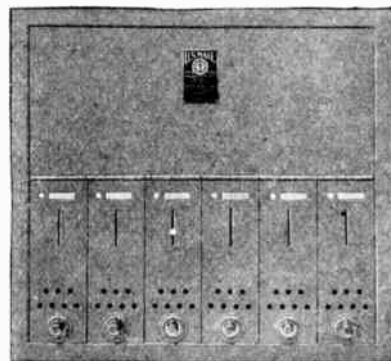
Push-button plates are furnished to mount on either side of the No. 1520-R Vestibule Inter-Phone.

A card holder is provided opposite each button. The face plate has a brass lacquered finish, other finishes will be considered special.

The over all dimensions of the push-button plate are 5<sup>3</sup>/<sub>8</sub> inches in width and 12<sup>7</sup>/<sub>8</sub> inches in height.

Code No.	No. of Buttons	Face Plate Inches	Code No.	No. of Buttons	Face Plate Inches
400-A	Blank	5x16 <sup>1</sup> / <sub>2</sub>	416-A	16	5x16 <sup>1</sup> / <sub>2</sub>
406-A	6	5x16 <sup>1</sup> / <sub>2</sub>	420-A	20	5x16 <sup>1</sup> / <sub>2</sub>
412-A	12	5x16 <sup>1</sup> / <sub>2</sub>	424-A	24	5x16 <sup>1</sup> / <sub>2</sub>

**Vestibule Mail Boxes**



Mail boxes may be obtained in groups of 3 to 16, being assembled complete in units and master-locked for mounting in single or double rows. Boxes are furnished in bronze, other finishes being considered special.

Overall dimensions of individual letter boxes are 5 inches in width and 16<sup>1</sup>/<sub>2</sub> inches in height.

Double and Single Row Code No.	Single Row No. of Boxes	Double and Single Row Code No.	Single Row No. of Boxes	Double and Single Row Code No.	Single Row No. of Boxes
303	3	308	8	313	13
304	4	309	9	314	14
305	5	310	10	315	15
306	6	311	11	316	16
307	7	312	12	...	..



## Graybar Inter-Phones

Description of Apartment House Inter-Phones  
Common Talking Service

### Vestibule Inter-Phones for No. 21 Systems

Continued

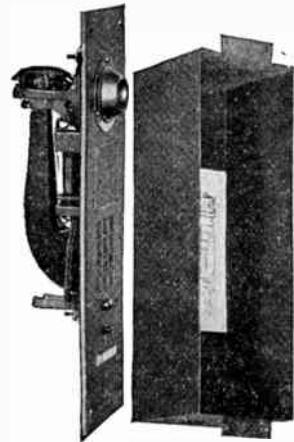
#### Vestibule Equipment

The vestibule equipment consists of the following units, each of which must be ordered separately.

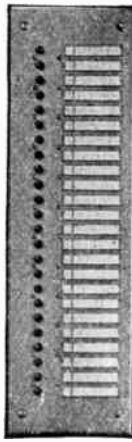
A No. 1524-E type loud speaking Inter-Phone.

A push-button plate.

Mail boxes (as required).



No. 1524-E



No. 424-A  
Push Button  
Plate

The apparatus to be selected from the following groups.

#### No. 1524-E Type Loud Speaking Vestibule Inter-Phone System No. 21

Eliminates, as far as possible, all projecting and removable parts, such as the transmitter, receiver and switch-hook; also to safeguard theft of receiver and the cords.

The set consists of a flush mounting face plate. A push button is mounted at the bottom of the plate for talking and listening purposes. The transmitter and receiver units mount on the back, and an embossed metal transmitter mouthpiece is located on the upper section of the face plate. The receiver unit contains a loud speaking horn; the flare end of the horn is attached to the lower part of the face plate which is perforated and covered with a protecting screen. An outlet box is furnished for mounting the set in the wall.

Bronze brass finish. Face plate, 5x16½ inches.

Above set is equipped with a janitor call button.

#### Vestibule Push-Button Plates

Designed to mount on either side of the vestibule Inter-Phone. A card holder is provided opposite each button.

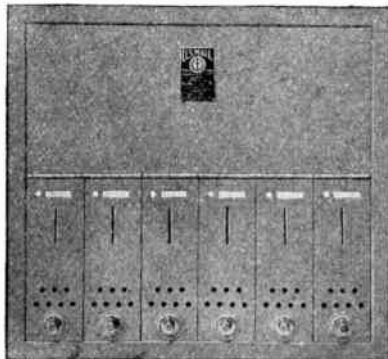
Push button plates can be obtained in 2 different sizes.

Code No.	No. of Buttons	Face Plate Inches	Code No.	No. of Buttons	Face Plate Inches
400-A	.....	5x16½	416-A	16	5x16½
406-A	6	5x16½	420-A	20	5x16½
412-A	12	5x16½	424-A	24	5x16½

#### Vestibule Mail Boxes

Mail boxes may be obtained in groups of 3 to 16, being assembled complete in units and master-locked for mounting in single or double rows. The boxes are finished in bronze, other finishes being considered special.

The overall dimensions of the individual letter boxes are 5 inches in width and 16½ inches in height.



Double and Single Row Code No.

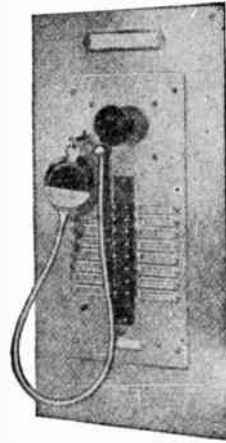
- 303
- 304
- 305
- 306
- 307
- 308
- 309
- 310
- 311
- 312
- 313
- 314
- 315
- 316

Single Row No. of Boxes

- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16

## Graybar Apartment House Inter-Phones Systems 7, 8, 9 and 10

Selective Ringing—Selective Talking—Non-Interfering Service



No. 1562 Type

**SERVICE.**—Provides service between the vestibule apartments, janitor and tradesmen. The systems are planned throughout with the utmost care to give the most reliable service.

Systems Nos. 7, 8, 9 and 10 cover requirements of most apartment houses. One system may be expanded into another at any time by the use of additional apparatus.

These systems are designed for selective ringing and talking or non-interfering service, making it possible for the master station, such as the vestibule, the tradesmen and the janitor to communicate with different apartments simultaneously without interference with each other.

**OPERATION.**—The vestibule, janitor's and tradesmen's Inter-Phones are equipped with push button keys (one for each apartment station). By depressing the button marked with the name or number of the apartment desired, the bell at that station will ring and there only.

Can be provided with one or two push buttons for ringing the janitor's station or operating an electric door opener.

Separate conversation may take place simultaneously between the vestibule, janitor or tradesmen and different apartments.

**TYPE OF INTER-PHONES.**—Wall type Inter-Phones are specified throughout for the various systems.

Accessories for Systems Nos. 7, 8, 9 and 10.

#### Coil and Condenser Box

One retardation coil and one condenser are required for each vestibule, janitor's (either wall Inter-Phone or master annunciator) or tradesmen's station.

#### Cable

For connecting the various stations, either cable or insulated wires can be used, depending largely upon the layout of the building. Where there is a long run of a large number of wires (for instance, between the janitor, vestibule, and tradesmen Inter-Phones or for the vertical riser from floor to floor) it will be found economical to use cable, and to install cable terminals or connecting blocks at all of the distributing and junction points.

For connecting the Inter-Phones of the various apartments to these distributing points, insulated wires (No. 22 B. & S. gauge) can be used. This data should be used when selecting the cable.

#### Cable Terminals

Cable terminals and connecting blocks are described in detail elsewhere.

#### Batteries

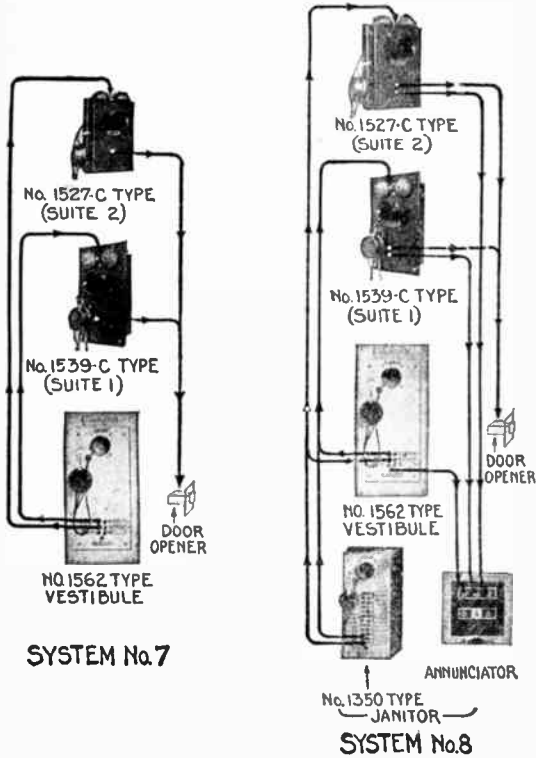
Not more than 12 Blue Bell dry cells will be necessary for operating any of the above systems (5 cells for the talking circuits and 4 to 7 cells for the ringing circuits, depending upon the length of the line). The cells can be placed in the basement or any other accessible place.

#### Door Opener

If a door opener is included in the system, additional dry cells will be required. Generally 2 or 3 cells have been found sufficient for this purpose.

Any standard type of door opener may be used.

**Graybar Apartment House Inter-Phones**  
Systems 7, 8, 9 and 10—Continued  
Non-Interfering Service



**System No. 7**

**SERVICE.**—Vestibule can call apartments. Apartments can open door, if desired.

**CAPACITY.**—One vestibule and any number of suite Inter-Phones up to 24.

**Inter-Phone Apparatus Required for System No. 7**

- Vestibule**
- 1 No. 1362 type Inter-Phone and letter boxes as required.
- Apartments**
- 1527C-0 Surface type Inter-Phones or
- 1527C-1 Surface type Inter-Phones, 1 button (for door) or
- 1539C-0 Flush type Inter-Phone or
- 1539C-1 Flush type Inter-Phone, 1 button (for door).
- Miscellaneous**
- 1 No. 295BC coil and condenser box.
- Wiring and Battery Requirements**
- \*2 wires common to entire system.
- 1 wire for each suite Inter-Phone.
- Battery to furnish operating current.
- 1 door opener and miscellaneous installing material.

**System No. 8**

**SERVICE.**—Vestibule can call apartments and janitor. Apartments can call janitor and open door, if desired. Janitor can call apartments.

**CAPACITY.**—One vestibule, one janitor and any number of suite Inter-Phones up to 24.

**Inter-Phone Apparatus Required for System No. 8**

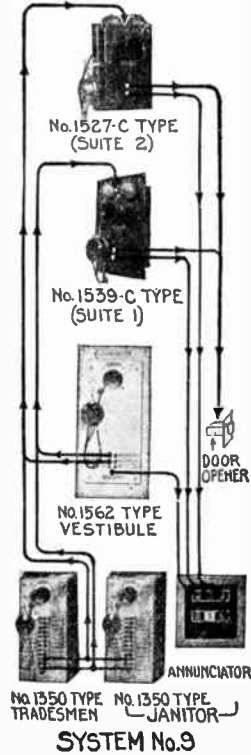
- Vestibule**
- 1 No. 1362 type Inter-Phone and letter boxes as required.
- Apartments**
- 1527C-1 Surface wall Inter-Phone, 1 button (for janitor) or
- 1527C-2 With 2 buttons (for janitor and door).
- 1539C-1 Flush wall Inter-Phone, 1 button (for janitor) or
- 1539C-2 With 2 buttons (for janitor and door).
- Janitor**
- 1 No. 1350 Type Inter-Phone, 1 janitor's annunciator and
- 1 No. 295AS Coil and condenser box.
- Wiring and Battery Requirements**
- \*2 wires common to entire system.
- 2 wires for each suite Inter-Phone.
- 4 wires for connecting vestibule to janitor and coil and condenser box. Battery to furnish operating current.
- 1 door opener and miscellaneous installing material.
- \*1 common wire to be omitted when opener is not required.

**Graybar Apartment House Inter-Phones**

Systems 7, 8, 9 and 10—Continued

Selective Ringing—Selective Talking  
Non-Interfering Service

**System No. 9**



**SYSTEM No.9**

**SERVICE.**—Vestibule can call apartments and janitor. Apartments can call janitor and open door, if desired. Janitor and tradesmen can call apartments.

**CAPACITY.**—One vestibule, one janitor, one tradesman and any number of suite Inter-Phones up to 24.

**Inter-Phone Apparatus Required for System No. 9**

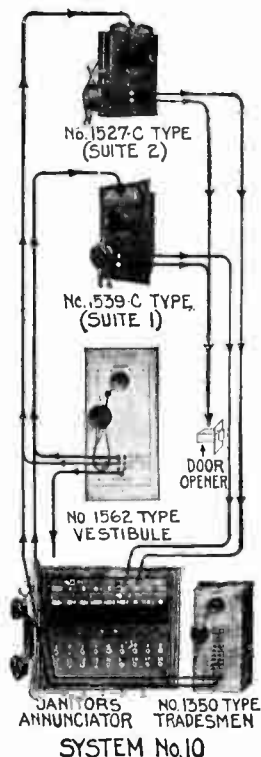
- Vestibule**
- 1 No. 1362 Type Inter-Phone and letter boxes as required.
- Apartments**
- 1527C-1 Surface Wall Inter-Phone, 1 button for janitor
- 1527C-2 Surface Wall Inter-Phone, 2 buttons for janitor and door, or
- 1539C-1 Flush wall Inter-Phone, 1 button for janitor, or
- 1539C-2 Flush wall Inter-Phone, 2 buttons, for janitor and door.
- Tradesmen**
- 1 No. 1350 Type Inter-Phone.
- Janitor**
- 1 No. 1350 Type Inter-Phone, 1 janitor's annunciator and
- 1 No. 295BD coil and condenser box.
- Wiring and Battery Requirements**
- \*2 wires common to entire system.
- 2 wires for each suite Inter-Phone.
- 4 wires for connecting vestibule to janitor, tradesmen's set and coil and condenser box.
- Battery to furnish operating current.
- 1 door opener and miscellaneous installing material.

## Graybar Apartment House Inter-Phones

Systems 7, 8, 9 and 10—Continued

Selective Ringing—Selective Talking  
Non-Interfering Service

### System No. 10



SYSTEM No. 10

**SERVICE.**—Provides the same service as outlined under System No. 9, but on a larger scale, intended for use where several vestibules in the same or adjoining apartment houses are to be served by one janitor. The janitor's equipment consists of a master annunciator.

**CAPACITY.**—One janitor's switchboard, two or more vestibule and tradesmen's Inter-Phones and any number of suite Inter-Phones up to 70.

#### Inter-Phone Apparatus Required for System No. 10

##### Vestibule

2 or more No. 1362 type Vestibule Inter-Phones and letter boxes as required.

##### Apartments

- 1527C-1 Surface wall Inter-Phone, 1 button for janitor or
- 1527C-2 Surface wall Inter-Phone, 2 buttons, for janitor and door or
- 1539C-1 Flush wall Inter-Phone, 1 button for janitor or
- 1539C-2 Flush wall Inter-Phone, 2 buttons, for janitor and door.

##### Tradesmen

2 or more No. 1350 type Inter-Phones.

##### Janitor

- 1 annunciator switchboard and
- \*\*1 or more No. 295 type coil and condenser boxes.

##### Wiring and Battery Requirements

- \*2 wires common to entire system.
- 2 wires for each suite Inter-Phone.
- 5 wires for connecting each vestibule to janitor, tradesmen's sets and coil and condenser box.

Battery to furnish operating current.  
1 door opener and miscellaneous installing material.

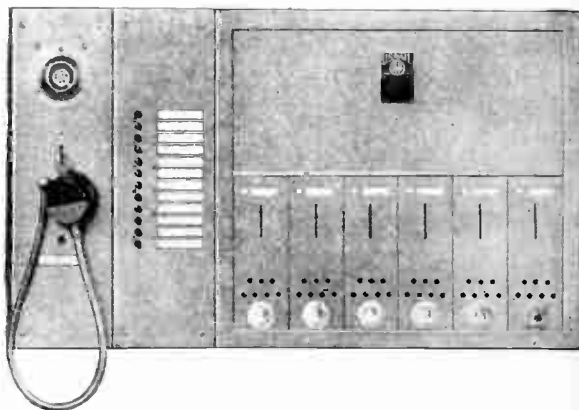
**NOTE.**—\*\*One retardation coil and one condenser are required for the janitor's annunciator and each vestibule and tradesmen's Inter-Phone.

\*One common wire can be omitted if door opener is not required.

## Graybar Apartment House Inter-Phones

System No. 20

Selective Ringing—Common Talking



**SERVICE.**—The No. 20 Inter-Phone Systems are designed to provide an inexpensive and reliable means of communication between vestibule, apartments, janitor's quarters, laundry and tradesmen's entrance. This system differs from Systems Nos. 7, 8, 9 and 10 (as described on the preceding pages) in that only one conversation can be carried on at a time, as all sets are connected to one talking circuit.

There are 6 combinations of the No. 20 System, differing from each other in the number of locations in the apartments which are to be connected for inter-communicating service. The operation of each of these combinations, however, is the same.

**OPERATION.**—The vestibule Inter-Phone is equipped with a push button for calling the janitor. Each letter box is provided with 2 or 3 compartments and below each compartment a push-button is mounted. To call an apartment, the push-button having the name of the apartment wanted is depressed; this rings the bell at the apartment selected and there only.

The apartment Inter-Phones can be provided with push-buttons for operating the door opener, calling the janitor, laundry or any other station in accordance with the combination selected.

The janitor's, laundry and tradesmen's Inter-Phones can be arranged either for receiving calls from the other stations without being able to signal back, or for receiving calls and for signalling back to any one of the apartments.

Only one conversation can be carried on at a time.

**TYPES OF INTER-PHONES.**—Wall type Inter-Phones are specified throughout for the No. 10 Systems.

**TYPES OF SYSTEMS.**—(See descriptions on following pages.)

#### Accessories for No. 20 Systems

The cabling, terminals, door opener (if required) for these systems are the same as outlined for Systems 7, 8, 9 and 10.

#### Battery Requirements

For the operation of each system a battery of not more than five Blue Bell dry cells is required. These can be placed in the basement or any other accessible place.

#### System No. 20A

**SERVICE.**—Vestibule can call apartments; apartments can open door.

##### Vestibule

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

##### Apartments

- 1527C-0 Surface Wall Inter-Phone, or
- 1527C-1 Surface Wall Inter-Phone (button for door), or
- 1539C-0 Flush Wall Inter-Phone, or
- 1539C-1 Flush Wall Inter-Phone (button for door).

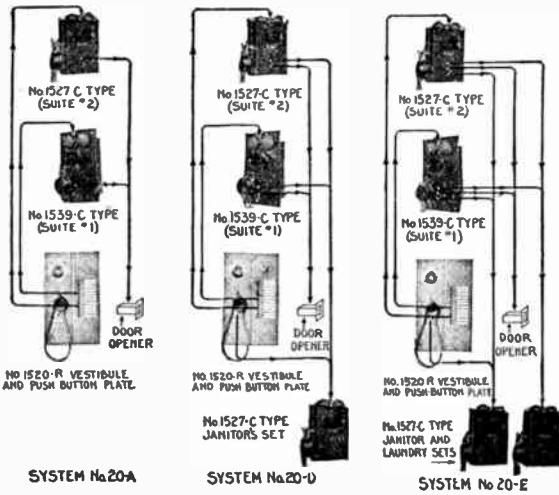
##### Wiring and Batteries

\*3 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

\*One wire may be omitted if door opener is not used.

**Graybar Apartment House Inter-Phones**

**System No. 20—Continued**  
 Selective Ringing—Common Talking



**System No. 20D**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor.

**Vestibule**

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

Code No.

**Apartments**

- 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or
- 1527C-2 Surface Wall Inter-Phone 2 buttons (for janitor and door), or
- 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor or Laundry**

1 No. 1527C-0 Surface Wall Inter-Phone.

**Wiring and Batteries**

\*4 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**System No. 20E**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor and laundry

**Vestibule**

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

**Apartments**

- Code No.
- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1527C-3 Surface Wall Inter-Phone, 3 buttons (for janitor, laundry and door), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1539C-3 Flush Wall Inter-Phone, 3 buttons (for janitor, laundry and door)

**Janitor or Laundry**

2 No. 1527C-0 Surface Wall Inter-Phone.

**Wiring and Batteries**

\*5 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**System No. 20G**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor, and janitor can call apartments.

**Vestibule**

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

Code No.

**Apartments**

- 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or
- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or
- 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor and Laundry**

1 Nos. 1527C-2 to 1527C-6 surface wall Inter-Phones (depending upon number of push buttons required).

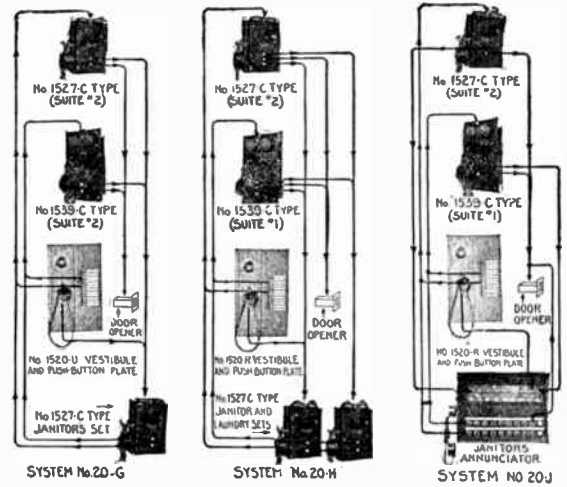
**Wiring and Batteries**

\*4 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

\*One wire may be omitted if door opener is not used.

**Graybar Apartment House Inter-Phones**

**System No. 20—Continued**  
 Selective Ringing—Common Talking



**System No. 20H**

**SERVICE.**—Vestibule can call apartments and janitor, apartments can open door and call janitor and laundry, janitor and laundry can call apartments.

**Vestibule**

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

Code No.

**Apartments**

- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1527C-3 Surface Wall Inter-Phone, 3 buttons (for janitor, laundry or door), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1539C-3 Flush Wall Inter-Phone, 3 buttons (for janitor, laundry and door).

**Janitor and Laundry**

1 Nos. 1527C-2 to 1527C-6 surface wall Inter-Phones (depending upon number of push buttons required).

**Wiring and Batteries**

\*5 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**System No. 20J**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor, and janitor can call apartments.

**Vestibule**

1 No. 1520R Inter-Phone, push button plate and mail boxes as required.

Code No.

**Apartments**

- 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or
- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or
- 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor**

1 Nos. 2010 to 2100 annunciator, depending on number of drops and push buttons required; 1 No. 1003K hand set Inter-Phone.

**Wiring and Batteries**

\*3 wires common to all Inter-Phones. 2 wires for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

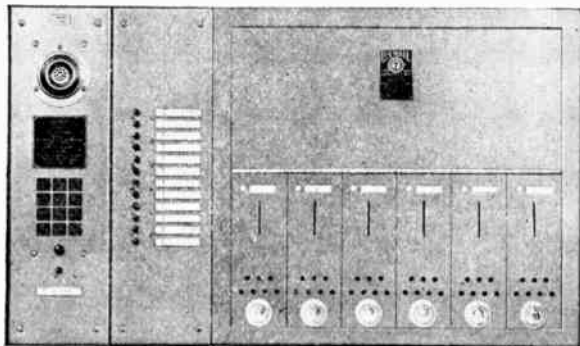
\*One wire may be omitted if door opener is not used.

## Graybar Inter-Phone Systems

### Apartment House Service

#### System No. 21

##### Selective Ringing—Common Talking



### General Information

The No. 21 Inter-Phone Systems are designed to provide communication between vestibule, apartments, janitor's quarters, laundry and tradesmen's entrance.

This system has the same service requirements as system No. 20, except that the vestibule equipment consists of a loud-speaking, cordless type Inter-Phone which eliminates all projecting parts and provides against theft of receivers and cords.

There are 6 combinations of the No. 21 system, differing from each other in the number of locations in the apartments which are to be connected for inter-communicating service. The operation of each of these combinations, however, is the same.

To call one of the apartments from the vestibule, the box push-button (under the name of the party wanted) is depressed, which rings the bell of that apartment. The vestibule party next depresses the button at the bottom of the telephone set, and keeps it depressed while awaiting reply, and while conversing with the apartment party.

The apartment Inter-Phones can be provided with push-buttons for operating the door opener, calling the janitor, laundry, or any other station in accordance with the combination selected.

The janitor's, laundry, and tradesmen's Inter-Phones can be arranged either for receiving calls from the other stations without being able to signal back, or for receiving calls and for signalling back to any one of the apartments.

Only one conversation can be carried on at a time.

Wall type Inter-Phones are specified throughout for the No. 21 systems.

### Accessories for No. 21 Systems

The cabling, terminals, and door opener, if required, for these systems are the same as outlined for systems 7, 8, 9 and 10.

### Battery Requirements

For the operation of each system 3 sets of dry batteries are required, each set to consist of 3 dry cells. The batteries can be placed in the basement, or any other accessible place.

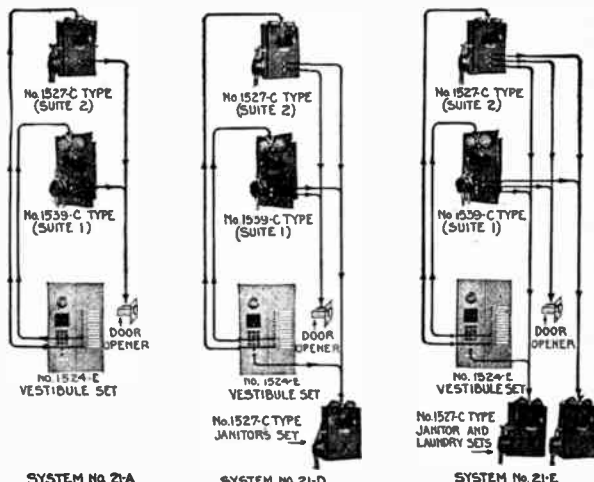
Detailed information covering wiring diagrams, connections of wires and cables, connecting blocks, etc., can be found in our booklet, "Installing and Maintaining Graybar Inter-Phones," which will be furnished upon request.

## Graybar Inter-Phone Systems

### Apartment House Service—Continued

#### System No. 21A

##### Selective Ringing—Common Talking



SYSTEM No. 21-A

SYSTEM No. 21-D

SYSTEM No. 21-E

#### System No. 21A

SERVICE.—Vestibule can call apartments; apartments can open door.

##### Vestibule

1 No. 1524E Inter-Phone, push button plate and mail boxes as required.

##### Apartments

Code No.

- 1527C-0 Surface Wall Inter-Phone, or
- 1527C-1 Surface Wall Inter-Phone (button for door), or
- 1539C-0 Flush Wall Inter-Phone, or
- 1539C-1 Flush Wall Inter-Phone (button for door).

##### Wiring and Batteries

\*3 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

#### System No. 21D

SERVICE.—Vestibule can call apartments and janitor; apartments can open door and call janitor.

##### Vestibule

1 No. 1524E Inter-Phone, push button plate and mail boxes as required.

##### Apartments

Code No.

- 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or
- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or
- 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

##### Janitor or Laundry

1 No. 1527C-0 Surface Wall Inter-Phone.

##### Wiring and Batteries

\*4 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

#### System No. 21E

SERVICE.—Vestibule can call apartments and janitor; apartments can open door and call janitor and laundry.

##### Vestibule

1 No. 1524E Inter-Phones, push button plate and mail boxes as required.

##### Apartments

Code No.

- 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1527C-3 Surface Wall Inter-Phone, 3 buttons (for janitor, laundry and door), or
- 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and laundry), or
- 1539C-3 Flush Wall Inter-Phone, 3 buttons (for janitor, laundry and door).

##### Janitor and Laundry

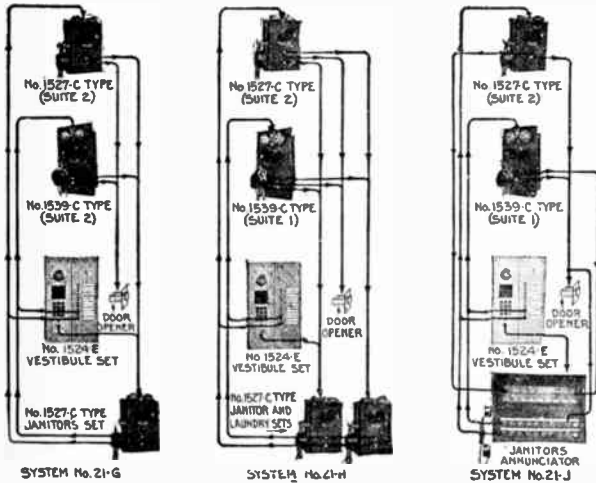
2 No. 1529C-0 Surface Wall Inter-Phones.

##### Wiring and Batteries

\*5 wires common to all Inter-Phones. A wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

\*One wire may be omitted if door opener is not used.

**Graybar Inter-Phone Systems**  
**Apartment House Service—Continued**  
**System No. 21E**  
**Selective Ringing—Common Talking**



**System No. 21G**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor, and janitor can call apartments.

**Vestibule**

1 No. 1524E Inter-Phone, push button plate and mail boxes as required.

**Code No.**

- Apartments**  
 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or  
 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or  
 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or  
 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor and Laundry**

1 Nos. 1527C-2 to 1527C-16 Surface Wall Inter-Phones (depending upon number of push buttons required).

**Wiring and Batteries**

\*4 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**System No. 21H**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor and laundry; janitor and laundry can call apartments.

**Vestibule**

1 No. 1524E Inter-Phone, push button plate and mail boxes as required.

**Code No.**

- Apartments**  
 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and laundry), or  
 1527C-3 Surface Wall Inter-Phone, 3 buttons (for janitor, laundry and door), or  
 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and laundry), or  
 1539C-3 Flush Wall Inter-Phone, 3 buttons (for janitor, laundry and door).

**Janitor and Laundry**

1 Nos. 1527C-2 to 1527C-16 Surface Wall Inter-Phones (depending upon number of push buttons required).

**Wiring and Batteries**

\*5 wires common to all Inter-Phones. 1 wire for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**System No. 21J**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can open door and call janitor, and janitor can call apartments.

**Vestibule**

1 No. 1524E Inter-Phone, push button plate and mail boxes

**Code No.**

- Apartments**  
 1527C-1 Surface Wall Inter-Phone, 1 button (for janitor), or  
 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or  
 1539C-1 Flush Wall Inter-Phone, 1 button (for janitor), or  
 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

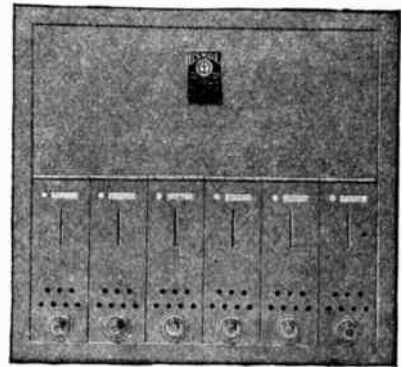
**Janitor**

1 No. 2010 to 2100 annunciators, depending upon the number of drops and push buttons required.

**Wiring and Batteries**

\*3 wires common to all Inter-Phones. 2 wires for each apartment Inter-Phone, batteries to furnish operating current, 1 door opener and miscellaneous installing material.

**Graybar Inter-Phone Systems**  
**Apartment House Service**  
**System No. 22**  
**Sectional Common Talking Systems**



These systems consist of 2 or more common talking systems, each section terminating at one janitor's annunciator and connected so as to permit conversation taking place between each vestibule and apartment group without interference. Vestibule equipment consisting of No. 1520R armored cord type Inter-Phone.

**System No. 22D**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can call janitor and open door. Janitor can open doors.

**Vestibule**

2 or more No. 1520R Inter-Phones, push button plates and mail boxes.

**Code No.**

- Apartments**  
 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor), or  
 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor**

1 No. 2202D to 2206D annunciator, depending upon number of drops, jacks and push buttons required; No. 1003K hand set Inter-Phone.

**Wiring and Batteries**

\*4 wires common to all Inter-Phones, 1 individual wire for each apartment Inter-Phone, batteries to furnish operating current, door openers and miscellaneous installing material.

**System No. 22G**

**SERVICE.**—Vestibule can call apartments and janitor; apartments can call janitor and open door. Janitor can call each apartment and open doors.

**Vestibule**

2 or more No. 1520R Inter-Phones, push button plates and mail boxes.

**Code No.**

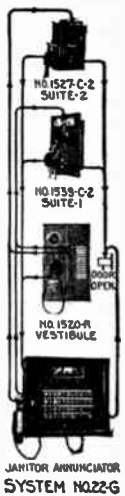
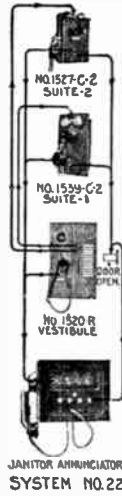
- Apartments**  
 1527C-2 Surface Wall Inter-Phone, 2 buttons (for janitor and door), or  
 1539C-2 Flush Wall Inter-Phone, 2 buttons (for janitor and door).

**Janitor**

1 No. 2202G to 2206G annunciator, depending upon the number of drops, jacks and push buttons required and 1 No. 1003K hand set Inter-Phone.

**Wiring and Batteries**

\*4 wires common to all Inter-Phones, 1 individual wire for each apartment Inter-Phone, batteries to furnish operating current, door openers and miscellaneous installing material.



JANITOR ANNUNCIATOR SYSTEM NO. 22-D

JANITOR ANNUNCIATOR SYSTEM NO. 22-G

\*One wire may be omitted if door opener is not used.

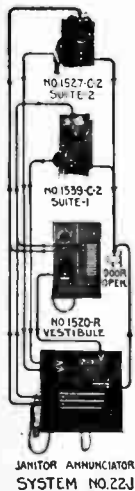


## Graybar Inter-Phone Systems Apartment House Service—Continued

### System No. 22

#### Sectional Common Talking Systems

#### System No. 22J



**SERVICE.**—Vestibule can call apartment and janitor; apartments can call janitor (individual drops) and open door. Janitor can call each apartment and open doors.

#### Vestibule

2 or more No. 1520R Inter-Phones, push button plates and mail boxes.

#### Apartments

- Code No. **1527C-2** Surface Wall Inter-Phone, 2 buttons (for janitor and door), or  
**1539C-2** Flush Wall Inter-Phone, 2 buttons (for janitor and door).

#### Janitor

1 No. 2202J to 2206J annunciator, depending upon the number of drops, jacks and push buttons required and 1 No. 1003K hand set Inter-Phone.

#### Wiring and Batteries

\*3 wires common to all Inter-Phones, 2 individual wires for each apartment Inter-Phone, batteries to furnish operating current, door openers and miscellaneous installing material.

\*One wire may be omitted if door opener is not used.

## Graybar Inter-Phone Accessories

For Use with Inter-Phone Systems Nos. 12A, 20G and 20H, Private Installations and Call Bell Service

### Wood Push Button Blocks



Stock finish is dark golden oak with nickel trimmings. The directory plate is backed with a strip of transparent celluloid to protect the director list.

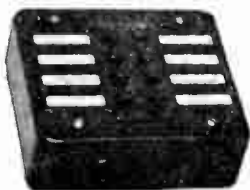
Green mercerized cord per foot, per button and attaching cord per button, are furnished at extra charge.

Code Nos.	Wood Base	Weighted Base	No. of Buttons
	7900	7980	4
	790	798	6
	7910	7990	8
	7921	79010	12
	7930	79020	16
	793	7902	20

### Metal Push Button Blocks

A black finished metal box, bushed for entrance of connecting cord or wires. Base plate has 2 punched holes for mounting if desired. Felt pads are attached to bottom of plate. Size of box,  $3\frac{3}{4} \times 4\frac{1}{4} \times 1\frac{3}{8}$  inches.

Without Cords			
Code No.	No. of Buttons	Code No.	No. of Buttons
101A	1	104A	4
102A	2	106A	6
103A	3	108A	8
With 6-Foot Length Cords			
104AC	4	108AC	8



## Graybar Inter-Phone Accessories

For Use with Inter-Phone Systems Nos. 12A, 20G and 20H, Private Installations and Call Bell Service  
Continued

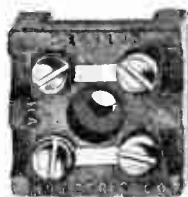
### No. 8 Type Connecting Blocks



Consists of bridge type connectors, mounted on a black finished maple base, equipped with a screw eye for fastening stay cord.

Code No.	No. of Terminals	DIMENSIONS, INCHES		
		Length	Width	Depth
8G	8	$5\frac{5}{8}$	$1\frac{3}{8}$	$\frac{5}{8}$
8H	12	$8\frac{1}{8}$	$1\frac{3}{8}$	$\frac{5}{8}$

### Nos. 11 and 12 Type Connecting Blocks



These consist of a composition base in which the screw terminals are embedded. Each terminal consists of 2 screw bushings electrically connected by means of a metal strip, and provided with screws and washers.

Code No.	No. of Terminals	Size In.	Code No.	No. of Terminals	Size In.
11A	2	$1\frac{1}{8} \times 1\frac{5}{32}$	12C	3	$1\frac{11}{16} \times 1\frac{5}{32}$
*11B	2	$1\frac{1}{8} \times 1\frac{5}{32}$	*12D	3	$1\frac{11}{16} \times 1\frac{5}{32}$

No. 11A

\*Equipped with a cover.

### No. 30 Type Connecting Blocks



These consist of brass studs embedded in a hard composition base. Studs fitted with 2 nuts (one a split check nut) and 2 washers.

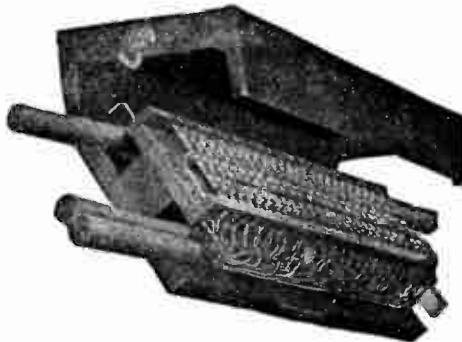
Code No.	Capacity in Pairs	DIMENSIONS, INCHES		
		Length	Height	Width
30A	6	$4\frac{3}{16}$	$1\frac{3}{16}$	$1\frac{1}{2}$
30B	11	$7\frac{5}{16}$	$1\frac{3}{16}$	$1\frac{1}{2}$
30C	16	$10\frac{1}{16}$	$1\frac{3}{16}$	$1\frac{1}{2}$
30D	26	$16\frac{11}{16}$	$1\frac{3}{16}$	$1\frac{1}{2}$

### No. 141A Hand Set Hooks

A hook to be screwed into wall for holding No. 1003 type hand set.



### No. 19 Type Cable Terminals



For interior distributing work. Made of hardwood, numbered and shellacked; with sheet steel cover, treated with Parker Rust-Proof Process, finished in black enamel.

Illustration shows 4 cables attached.

Code No.	Capacity in Pairs	DIMENSIONS, INCHES		
		Length	Width	Depth
19A	14	8	$5\frac{7}{8}$	$2\frac{1}{2}$
19B	26	14	$5\frac{7}{8}$	$2\frac{1}{2}$

### Graybar Inter-Phone Outfits

**GENERAL.**—Where intercommunication is desired between two points in the home or in business, Western Electric Inter-phones can be furnished in "a-pair-in-a-package" outfit; that is, two Inter-phones complete with all the installing materials and instructions necessary to put them up. The outfits do not, however, include batteries, which must be ordered separately. For average conditions four or five dry cells will be sufficient.

**SERVICE.**—Consists of two wall or hand set type Inter-phones suitable for a private telephone line between house and barn or garage, or for a line that is wholly within a house, also for use in offices or shops between two buildings or in one building.

**OPERATION.**—Either station can ring and talk to the other.

#### Outfit No. 17



This outfit consists of 2 No. 1003 type hand sets with all material required to install a simple intercommunicating system between 2 points not over 80 feet apart, and where the wire will be wholly indoors and not exposed to weather conditions or moisture. The material, in addition to the hand sets, consists of 2 connecting blocks with mounting screws, 80 feet of insulated twisted pair copper wire, 60 insulated nails for fastening wire, 2 hooks for holding hand sets, 2 bells, 2 battery connectors and illustrated installing instructions.

#### Outfit No. 30



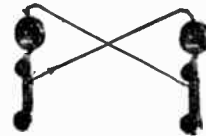
No. 1527C-1 Inter-phones

This outfit includes 2 surface wall No. 1527C-1 inter-phones and 1 No. 51H retardation coil in one box but no installing or wiring material.

### Graybar Inter-Phone Outfits

Continued

#### Outfit 31



No. 6043P  
Inter-phones

This outfit includes 2 hand set type No. 6043P inter-phones and No. 51H retardation coil in one box but no installing or wiring material.

#### Outfits Nos. 30A and 31A

These outfits are for use where the wiring is to be run entirely under cover and not exposed to moisture or weather.

Outfit No. 30A includes one No. 30 outfit in one box and another box containing installing material (described below).

Outfit No. 31A includes one No. 31 outfit in one box and another box containing installing material (described below).

The wiring material furnished with the No. 30A and No. 31A outfits consists of 75 feet of insulated 3-conductor copper wire, 2 battery connectors, insulated nails for fastening wires and illustrated installing instructions.

#### Outfits Nos. 30B and 31B

These outfits are for use where the wiring is to be run in the open between or outside of buildings, and exposed to weather and moisture.

Outfit No. 30B includes one No. 30 outfit in one box and another box containing installing material (described below).

Outfit No. 31B includes one No. 31 outfit in one box (described above) and another box containing installing material (described below).

The wiring material furnished with the No. 30B and No. 31B outfits consists of 150 feet of outside 3-conductor copper wire, 2 brackets with screws, hooks and knobs to attach wires to building, 2 porcelain tubes to insulate wires when entering building, 2 battery connectors, 25 insulated nails for fastening wires inside building, and illustrated installing instructions.

This standard package idea for Inter-phones has been devised as a means of assisting purchasers in selecting the proper equipment for their needs without requiring them to make a study of the subject. At the same time it assures them of getting uniformly good materials, and in the proper amounts. The outfits are packed in a box ready to be sold over the counter or mailed by parcel post.

## Edwards Annunciators

### Special Annunciator Features



### No. 80 Hand Reset Drops

Schedule T

Used in all hand reset annunciators. Price, No. 80..... each \$4.00

### No. 4 Electric Reset Drops

Schedule T

Used in all electric reset annunciators. The indication is a white arrow which points directly at the



name card. When reset, arrow drops out of sight behind name card. Front is of plain glass and as arrow is between glass and a dull black background, it can be seen from any angle.

Cannot shank or jar out of adjustment. Locked in normal position; cannot indicate until current is passed through magnets. Price, No. 4..... each \$6.00

### Automatic Reset Annunciators

Add to List of Annunciator..... \$12.00

All standard electric reset annunciators may be arranged so that any drop in indicating will reset any previous indication.

### Closed Circuit Annunciators

Add to List of Hand Reset Annunciator....per drop \$10.55

### Special Voltage

Up to 24 volts d.c. or a.c. no charge.

Add, 25 to 40 Volts.....per drop \$1.00

### Special Commercial Finishes

Other than standard add per annunciator:

- 4 to 10 Drop..... \$6.00
- 12 to 24 Drop..... 8.00
- 26 to 52 Drop..... 12.00
- Over 52 Drop..... 16.00

### Solid Bronze or Brass Cases

Add per annunciator:

- 4 to 10 Drop..... \$12.00
- 12 to 24 Drop..... 24.00
- 26 to 52 Drop..... 30.00
- Over 52 Drop..... 50.00

### Individual Reset

With Pushes on Case..... per push \$4.00

With Terminals Only for Remote Control..... per terminal .60

### Special Arrangement

Arrangement of drops, same addition as for special finishes above.

### Special Markings

Other than number, per drop, .30 cents.

### Bell Instead of Buzzer

Price.....each \$3.00

### Switch

Price, Switch on Case, 1 or 2 Point.....each \$3.50

## No. 1993 Edwards Watertight Annunciators

### Electric Reset

6 Volts D.C. or

16 Volts A.C.

Schedule T

Surface type, cast iron case; standard finish is black.



Mounting feet provide a space of 1/4 inch between back of case and wall on which it is to be mounted. Outside bosses will be drilled and tapped to receive 1/2 or 3/4-inch pipe.

Prices include 3-inch No. 1740 watertight bell.

PRICE, EACH		PRICE, EACH	
No. of Drops	Weight Pounds	No. of Drops	Weight Pounds
2	7 3/4	5	10 3/4
3	8	6	11
4	8 1/4		
	Up to 30 Volts		Up to 30 Volts
	80 to 125 Volts		80 to 125 Volts
	\$73.00		\$90.90
	\$75.00		\$97.50
	\$78.75		\$105.00
	\$82.50		\$105.00
			Larger Sizes, per Drop, 15.00
			20.00

## No. 81 Edwards Dixie Annunciators

### Hand Reset

6 Volts D.C. or 8 Volts A.C.

Schedule E

All metal case, surface type. Standard finish is black; oak at no extra charge. No. 80 drop is used. Indication is black on a white background; cards are changeable.

Audible signal is a specially designed buzzer.

One in a carton. Standard package, 5 assorted.

Weight is for annunciator in shelf package.



No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
2	2	1	4 3/4	6 7/8	2 7/8	3	\$9.96
3	3	1	4 3/4	6 7/8	2 7/8	3	11.58
4	4	1	4 3/4	6 7/8	2 7/8	3	13.18
6	3	2	7	6 7/8	2 7/8	4	16.56
8	4	2	7	6 7/8	2 7/8	4	19.58
10	5	2	7	8 3/8	2 7/8	5	22.96
12	6	2	7	9 7/8	2 7/8	5	26.16

13 to 55 Drops, Add for Each Drop Over 12..... 2.20

56 and Over, Add for Each Drop Over 12..... 2.84

## No. 91 Edwards San Fer Ann Annunciators

### Hand Reset

6 Volts D.C. or 8 Volts A.C.

Schedule E



An all metal case, surface type. Standard finish is white enamel; mahogany at no extra charge. No. 80 drop is used. Indication is black on white background; cards are changeable.

Audible signal is a specially designed buzzer.

Packed 1 in a carton. Standard package, 5 assorted.

Weight is for annunciator in shelf package.

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
2	2	1	4 3/4	6 7/8	2 7/8	3	\$13.16
3	3	1	4 3/4	6 7/8	2 7/8	3	14.94
4	4	1	4 3/4	6 7/8	2 7/8	3	16.56
6	3	2	7	6 7/8	2 7/8	4	19.58
8	4	2	7	6 7/8	2 7/8	4	22.96
10	5	2	7	8 3/8	2 7/8	5	26.26
12	6	2	7	9 7/8	2 7/8	6	29.44

13 to 55 Drops, Add for Each Drop Over 12..... \$3.00

56 and Over, Add for Each Drop Over 12..... 6.40

**No. 215 Edwards Flush Annunciators**

Hand Reset

6 Volts D.C. or 8 Volts A.C.

Schedule T



A flush type annunciator with metal trim. Standard finish is black; mahogany or oak at no extra charge. Special finishes upon application.

No. 80 drop is used. The audible signal is a Lungcn buzzer. Mechanism is in a metal case to which metal trim is securely fastened.

Weight is for annunciator in shelf package. Prices include steel wall box.

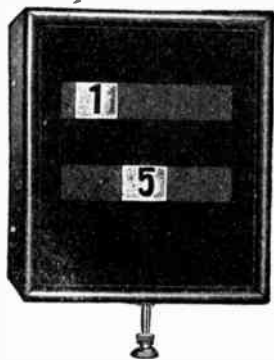
No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
4	4	1	6 <sup>3</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>16</sub>	5	\$60.00
6	3	2	8 <sup>5</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>16</sub>	6	66.00
8	4	2	8 <sup>5</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>16</sub>	7	72.00
10	5	2	8 <sup>5</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	7	78.00
12	4	3	8 <sup>5</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>16</sub>	9	86.00
16	6	3	10 <sup>7</sup> / <sub>8</sub>	12 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	13	102.00
20	5	4	14 <sup>1</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	15	118.00
24	6	4	14 <sup>1</sup> / <sub>8</sub>	12 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	17	134.00
Additional Drops.....							5.00

**No. 83 Edwards Sprinkler Annunciators**

Hand Reset

6 Volts D.C. or 8 Volts A.C.

Schedule T



Metal case, black finish.

Special drops are used in this annunciator, having a double set of contact clips, one set to short the drop magnet out of the circuit in operation and the other set to act as a relay to give current a free path to bells. With this arrangement the supervisory system may be laid out so that the operation of certain sprinkler heads will operate individual bells, section bells or any arrangement desired.

No. 156 Monitor bell mounted on case, if desired. Weight is for annunciator in shelf package.

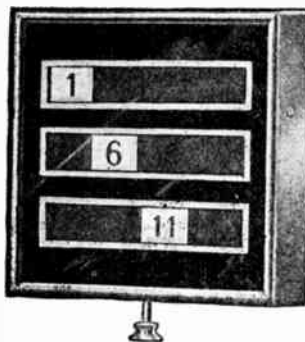
No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
4	4	1	5 <sup>1</sup> / <sub>4</sub>	8 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	3	\$35.34
6	3	2	8	7	2 <sup>7</sup> / <sub>8</sub>	4	45.60
8	4	2	8	8 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	4	56.50
10	5	2	8	11	2 <sup>7</sup> / <sub>8</sub>	5	69.72
12	6	2	8	12 <sup>3</sup> / <sub>4</sub>	2 <sup>7</sup> / <sub>8</sub>	5	82.96
13 to 55 Drops, Add per Drop.....							6.72
56 and Over, Add per Drop.....							7.34

**No. 807 Edwards High Voltage Annunciators**

Hand Reset

110 and 220 Volts, A.C. or D.C.

Schedule T



Has metal case with double micarta backboard on which are mounted No. 80 drops.

Care has been given to insulation of all current carrying parts, eliminating all materials affected by heat or moisture.

Prices include a No. 100 3-inch Recti bell which may be installed adjacent to the annunciator or where desired. Annunciator is wired with marked connectors for this purpose. For central stations there are usually con-

ditions requiring special features. Photographs and descriptions of annunciators for this service will be sent upon request.

Surface type metal case; standard finish is black.

The 110 and 220 volts a.c. or d.c. are standard; other voltages on application.

Special finishes, upon application.

Prices shown are for 110 volts a.c. or d.c.

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
4	4	1	5 <sup>5</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	7	\$62.00
6	3	2	7 <sup>7</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	8	74.00
8	4	2	7 <sup>7</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	10	91.00
10	5	2	7 <sup>7</sup> / <sub>8</sub>	9 <sup>3</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	12	102.00
12	4	3	7 <sup>7</sup> / <sub>8</sub>	10 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	14	124.00
Additional Drops, Add per Drop.....							16.16
For 220 Volts, Add per Drop.....							2.00

\*Approximate, per article in shelf package.

**No. 403 Edwards Surface Type Annunciators**

Electric Reset

8 Volts D.C. or 16 Volts A.C.

Schedule T



An all metal case with best quality of grained wood finish. Standard finish, black; mahogany or oak at no extra charge; special finishes, upon application.

The No. 4 drop is used. The current consumption of the drop for indicating and resetting is below the average. The audible signal is a new type double adjustment buzzer. Reset buttons are regularly furnished on case. Connectors only can be furnished without extra charge.

Weight is for annunciator in shelf package.

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
4	2	2	6 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	3	3 <sup>1</sup> / <sub>4</sub>	\$26.00
6	3	2	6 <sup>1</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	3	4	32.00
8	4	2	6 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>8</sub>	3	5 <sup>1</sup> / <sub>2</sub>	38.00
10	4	3	8 <sup>3</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>8</sub>	3	6	44.00
12	4	3	8 <sup>3</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>8</sub>	3	6 <sup>1</sup> / <sub>2</sub>	52.00
16	6	3	8 <sup>3</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>8</sub>	3	8 <sup>3</sup> / <sub>4</sub>	68.00
20	5	4	10 <sup>1</sup> / <sub>4</sub>	9 <sup>5</sup> / <sub>8</sub>	3	10	84.00
24	6	4	10 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>8</sub>	3	12	100.00
Additional Drops.....							5.00

## No. 409 Edwards Flush Type Annunciators

Electric Reset

8 Volts D.C. or 16 Volts A.C.

Schedule T

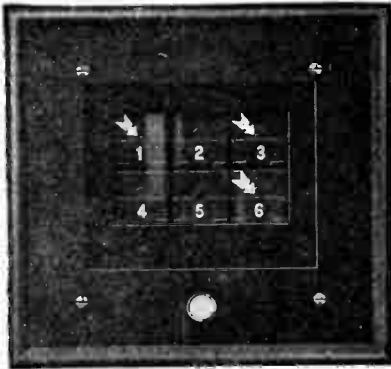
An all metal case. Standard finish is black; mahogany or oak at no extra charge; special finishes, upon application.

No. 4 drop is used. The current consumption of the drop both for indicating and resetting is below the average.

The audible signal is a new type double adjustment buzzer. Reset buttons are regularly furnished on case. Connectors only can be furnished without extra charge.

Add 3 inches to height and width for trim. Six-foot cord included if specified.

Weight is for annunciator in shelf package. Prices include steel wall box.



No. of ARRANGEMENT			DIMENSIONS, INCHES			Weight Pounds	Price Each
Drops Across	Down	Height	Width	Depth			
4	2	2	8 <sup>7</sup> / <sub>8</sub>	7	3 <sup>7</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>4</sub>	\$60.00
6	3	2	8 <sup>7</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	3 <sup>7</sup> / <sub>16</sub>	5	66.00
8	4	2	8 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	72.00
10	4	3	10	10 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>2</sub>	78.00
12	4	3	10	10 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	7 <sup>3</sup> / <sub>4</sub>	86.00
16	6	3	10	13 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	102.00
20	5	4	12	11 <sup>3</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	11	118.00
24	6	4	12	13 <sup>1</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>16</sub>	12 <sup>1</sup> / <sub>2</sub>	134.00

Additional Drops..... 5.00

## No. 413 Edwards Desk Type Annunciators

Electric Reset

8 Volts D.C. or 16 Volts A.C.

Schedule T

Standard finish black. No. 4 drop. Felt-covered bottom. Six-foot cord included if specified.



No. of ARRANGEMENT			DIMENSIONS, INCHES			Weight Pounds	Price Each
Drops Across	Down	Height	Width	Depth			
3	3	1	4	6	3 <sup>1</sup> / <sub>8</sub>	3	\$44.00
4	4	1	4	7 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	52.00
5	5	1	4	9	3 <sup>1</sup> / <sub>8</sub>	4	60.00
6	6	1	5 <sup>1</sup> / <sub>2</sub>	6	3 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	68.00
8	8	1	5 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>	84.00

Additional Drops. Add per Drop..... 8.00

## No. 813 Edwards Railway Annunciators

Hand Reset

6 Volts D.C. or 8 Volts A.C.

Schedule T

Metal case, surface type; mahogany finish unless otherwise specified. No. 156 Monitor bell for mounting.

No. of ARRANGEMENT			DIMENSIONS, INCHES			Weight Pounds	Price Each
Drops Across	Down	Height	Width	Depth			
10	5	2	5 <sup>1</sup> / <sub>2</sub>	10 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	\$42.98
12	6	2	5 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	5	51.60
14	7	2	5 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	6	60.18
16	8	2	5 <sup>1</sup> / <sub>2</sub>	14 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	7	68.82
18	9	2	5 <sup>1</sup> / <sub>2</sub>	16 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	77.40
20	10	2	5 <sup>1</sup> / <sub>2</sub>	17 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	10	85.90
22	11	2	5 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>4</sub>	94.50
24	12	2	5 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	102.84

Additional Drops, per Drop..... 5.50

## Nos. 130 and 130D Edwards Elevator Annunciators

Hand Reset

6 Volts D.C. or 8 Volts A.C.

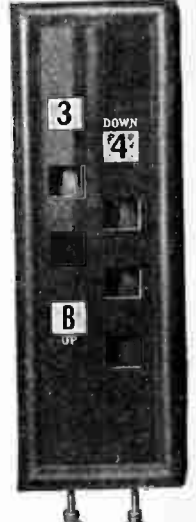
Schedule T

All metal cases of symmetrical design with best quality grained wood or plain color finishes. Audible signal is a new buzzer specially designed for the purpose.

Standard finish, black; mahogany or oak, no extra charge; special finishes, upon request.

In ordering the No. 130D, give number of drops, not number of floors and correct marking for the drops.

Weight is for annunciator in shelf package.



No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
3	1	3	11 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>8</sub>	\$13.94
4	1	4	13 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	15.74
5	1	5	15 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	17.16
6	1	6	17 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	18.70
7	1	7	20 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>4</sub>	4	20.26
8	2	4	13 <sup>1</sup> / <sub>2</sub>	5	3 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	21.92
10	2	5	15 <sup>3</sup> / <sub>4</sub>	5	3 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	24.92
12	2	6	17 <sup>3</sup> / <sub>4</sub>	5	3 <sup>1</sup> / <sub>4</sub>	7	28.12

**No. 130—Standard Type**

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
6	1	6	12 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	\$28.50
8	2	4	14 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	31.72
10	2	5	16 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	34.70
12	2	6	18 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	7	37.92

**No. 130D—Up and Down Type**

Additional Drops, Add per Drop..... 4.12

## Nos. 414 and 414D Edwards Elevator Annunciators

Electric Reset

8 Volts D.C. or 16 Volts A.C.

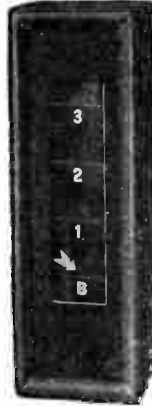
Schedule T

Standard finish, black.

Arrangement: Up to 10 drops single column of drops; over 10, 2 columns of drops; No. 414D in 2 columns, Up and Down.

In ordering No. 414D, give number of drops and marks for drops.

Flush type add \$30.00.



No. 414

No. 414D

### No. 414—Standard Type

No. of Drops	DIMENSIONS, INCHES			Weight Pounds	Price Each
	Height	Width	Depth		
4	9 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	3	2 <sup>1</sup> / <sub>2</sub>	\$36.00
5	11 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3	3	39.00
6	13 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3	3 <sup>1</sup> / <sub>2</sub>	42.00
7	15 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3	4	45.00
8	16 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3	4 <sup>1</sup> / <sub>4</sub>	48.00
10	20 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	3	5 <sup>1</sup> / <sub>2</sub>	54.00
12	23 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	6	62.00
14	25 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	7 <sup>1</sup> / <sub>2</sub>	70.00
16	26 <sup>1</sup> / <sub>4</sub>	5	3	8 <sup>1</sup> / <sub>2</sub>	78.00
18	28 <sup>1</sup> / <sub>4</sub>	5	3	8 <sup>3</sup> / <sub>4</sub>	86.00
20	29 <sup>1</sup> / <sub>4</sub>	5	3	9 <sup>1</sup> / <sub>4</sub>	94.00

### No. 414D—Up and Down Type

No. of Drops	DIMENSIONS, INCHES			Weight Pounds	Price Each
	Height	Width	Depth		
6	8 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	3 <sup>3</sup> / <sub>4</sub>	\$52.00
8	9 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	5	58.00
10	11 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	5 <sup>3</sup> / <sub>4</sub>	64.00
12	13 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	6 <sup>1</sup> / <sub>4</sub>	72.00
14	15 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	7 <sup>3</sup> / <sub>4</sub>	80.00
16	16 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	8 <sup>1</sup> / <sub>2</sub>	88.00
18	18 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	9	96.00
20	20 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	3	9 <sup>1</sup> / <sub>4</sub>	104.00

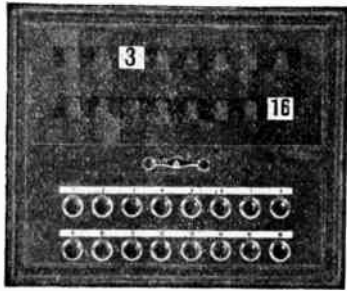
Additional Drops..... 7.00

**No. 10 Edwards Return Call Annunciators**

**Hand Reset**

6 Volts D.C. or 8 Volts A.C.

*Schedule T*



Used in hotels, institutions, etc., for the purpose of calling the room and acknowledging from the room that the call has been heard, or vice versa.

This type of annunciator is designed to eliminate the large number of wires necessary if the standard annunciator bells, and pushes are used.

An all metal case, surface type. Standard finish is black; mahogany or oak at no extra charge. Special finishes, upon application.

Weight is for annunciator in shelf package.

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
10	5	2	12 <sup>5</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	10	\$44.12
12	6	2	12 <sup>5</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	11	54.44
16	8	2	12 <sup>5</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	13	70.98
20	7	3	16 <sup>5</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	17	88.24
24	8	3	16 <sup>5</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	21	103.30

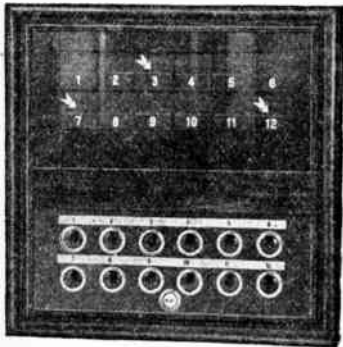
Additional Drops, per Set of 2 ..... 9.25  
For flush type, add \$10.00 per annunciator.

**No. 415 Return Call Annunciators**

**Electric Reset**

8 Volts D.C. or 16 Volts A.C.

*Schedule T*



Used for the purpose of calling the room and acknowledging from the room that the call has been heard and vice versa. With No. 4 drop.

The standard arrangement is one reset for every 10 drops. This annunciator allows the individual resetting of each drop where desired.

Surface type. Standard finish is black; mahogany or oak at no

extra charge. Special finishes, upon application.

No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
12	6	2	12 <sup>5</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	12	\$115.00
16	8	2	12 <sup>5</sup> / <sub>8</sub>	15 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	14	130.00
20	7	3	16 <sup>5</sup> / <sub>8</sub>	14 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	16	145.00
25	9	3	16 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	23	170.00
30	10	3	16 <sup>5</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	25	190.00
36	9	4	20 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	28	218.00
42	11	4	20 <sup>5</sup> / <sub>8</sub>	20 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	33	255.00
49	10	5	24 <sup>5</sup> / <sub>8</sub>	18 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	37	290.00
56	12	5	23 <sup>15</sup> / <sub>16</sub>	21 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	41	320.00
64	13	5	23 <sup>15</sup> / <sub>16</sub>	23 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	46	360.00
72	15	5	23 <sup>15</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	52	394.00
81	14	6	27 <sup>1</sup> / <sub>4</sub>	24 <sup>3</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	57	436.00
90	15	6	27 <sup>1</sup> / <sub>4</sub>	26 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	62	476.00
100	15	7	30 <sup>1</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>4</sub>	3 <sup>5</sup> / <sub>8</sub>	69	520.00

Additional Drops ..... 5.40  
For flush type add \$10.00 per annunciator.

**Edwards Lamp Annunciators**

Standard Operating Voltage, 16 to 24 Volts A.C or D.C.

*Schedule T*

OPERATION.—If locking pushes, toggle or push button switches are used, the lamps will remain lighted while the switch is on, and will be extinguished while the switch is off. If standard momentary contact pushes are used, relays are supplied in a separate case with the reset button on the annunciator. If specified, relays can be mounted in the annunciator case, which, however, adds greatly to its size and does not improve its appearance.

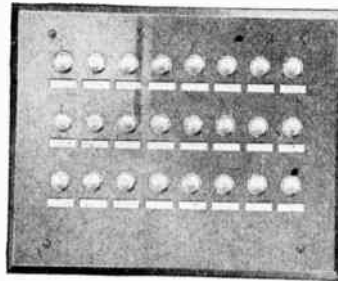
In ordering, specify operating voltage, finish, with or without relays; if with relays, whether they are to be in separate case or in annunciator; if opaque glass type, whether 7/8 or 1 1/4-inch numerals.

**Bull's Eye Type**

No. 421, For Surface Wall Mounting

No. 422, For Flush Wall Mounting

No. 423, For Desk



Equipped with 3/8-inch opal signals arranged over card racks. Lamps are easily changed from front by removing opals. All metal case and trim.

Standard finish, brush brass or bronze for flush type; black or mahogany for surface types.

Illustration shows standard method of construction with all mech-

anism on back of front plate, which is mounted directly on metal wall box. In larger size annunciators it is advisable for easier installation to have front plate hinged to a trim which fastens directly to metal wall box. This method of construction can be followed if specified.

No. of Signals	Price Each	No. of Signals	Price Each	No. of Signals	Price Each
2	\$40.00	12	\$116.00	24	\$215.00
4	46.00	14	136.00	28	234.00
6	66.00	16	156.00	32	253.00
8	81.00	18	176.00	..	.....
10	96.00	20	196.00	..	.....

Add for Additional Signals, Sets of 2 ..... \$9.50  
Add for Hinged Front, 2 to 25 Signals ..... 25.00  
Add for Hinged Front, Over 25 Signals ..... 40.00  
Add for Relays, per Signal ..... 8.00

**Opaque Glass Type**

No. 424, For Surface Wall Mounting

No. 425, For Flush Wall Mounting

For use where it is advisable to have indications readable from a distance.

The lamps are in individual shield units, and when lighted cause the numerals to show plainly through the opaque glass.

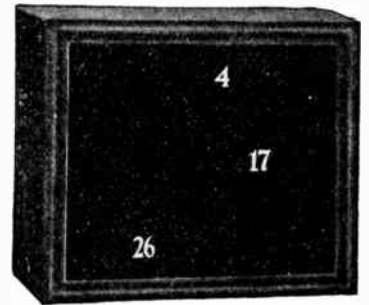
All metal case and trim. Standard finish, black or mahogany.

Made in 2 styles: for 7/8 or 1 1/4-inch numerals.

Prices shown are for 7/8-inch numerals.

No. of Signals	Price Each	No. of Signals	Price Each	No. of Signals	Price Each
4	\$48.00	12	\$120.00	20	\$200.00
6	69.00	14	140.00	24	240.00
8	85.00	16	160.00	28	280.00
10	100.00	18	180.00	32	320.00

Add for Additional Signals, per Set of 2 ..... \$10.00  
Add for 1 1/4-Inch Numerals, per Signal ..... 1.00  
Add for 110 Volts, per Signal ..... 1.00  
Add for Relays, per Signal ..... 8.00



No. 424



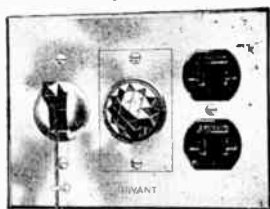
## Bryant Silent Call Hospital Signal Systems

The Bryant Silent Call Hospital Signal Systems are the result of 15 years of effort and experience. Over 19,000 Bryant calling stations with their associated signal equipment have been installed in over 400 hospitals in America and foreign countries.



No. 102

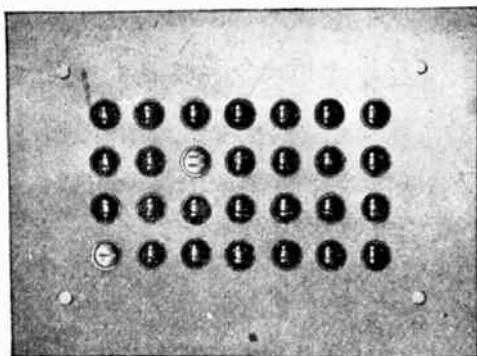
The Bryant System is especially designed for summoning nurses in hospitals and similar institutions. It provides a means for transmitting a signal of one or as many patients as desired, using lights instead of bells, reducing noise and confusion and aiding in efficient management. In the wall adjacent to the patient's bed is installed a calling station like No. 102 or 162 here illustrated. A linen cord connected to the lever of the control switch in the calling station is placed where the patient can easily reach it. A gentle pull on the cord operates the control switch and lights the signal lamps. There is a "door light" in the corridor, over the room door of the patient who has placed the call. This signals the nurse, she attends the patient and cancels the call at the bedside by restoring the lever of the control switch to its original position.



No. 162

Other lights called "pilot lights" are placed at intersections of hallways, in diet kitchens and other desirable places. Annunciators showing by numbered light signals the exact rooms from which the calls originate are often placed at nurses' stations and in Superintendent's offices.

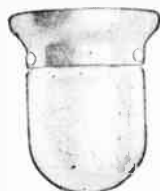
The Bryant System includes annunciator signals, bells or buzzers when specified.



No. HSA-28

Plug receptacles for current consuming devices such as fan motors, heating pads, reading lamps, etc. are made a part of the calling system as desired.

This system is instantaneous, quiet and dependable.



No. HS-40

In this column are illustrated some of the units which are assembled to meet the simplest requirements of the smallest hospital and the most comprehensive needs of the largest institutions.

This system operates on standard lighting voltage and for this reason costs less to install and operate properly.

A complete catalogue No. H.S. 622 illustrating and describing this equipment—how to lay out, specify and install a complete system for any hospital—will be sent promptly on request.

## Bryant Magnetic Control Switch Type Hospital Signal Systems

The convenience of any hospital signal system is to enable the patient to summon a nurse and for the nurse to call a doctor. The Bryant System insures that each patient's wants are attended to by a system that is positive in operation. Simplicity, low cost and low maintenance charges are obvious advantages.

The Bryant Magnetic System embraces all these features in the following ways:

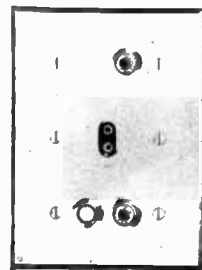
In the wall adjacent to the patient's bed is installed a calling station like Nos. 10, 11, 13 and 17 illustrated in this column, and cord with a push button attached is placed where the patient can reach it. The patient's slightest touch on the push button operates the magnetic control switch. Instantly colored lights appear at strategic points to notify the nurses. The light appears in the corridor over the patient's door. Wherever nurses may be they will see the signal which will guide them to the proper patient.

The nurse must visit the patient in order to cancel the call, which she does by pushing the button of the control switch in the patient's room. Only those signals operated by that particular switch are extinguished by the cancellation of that call.

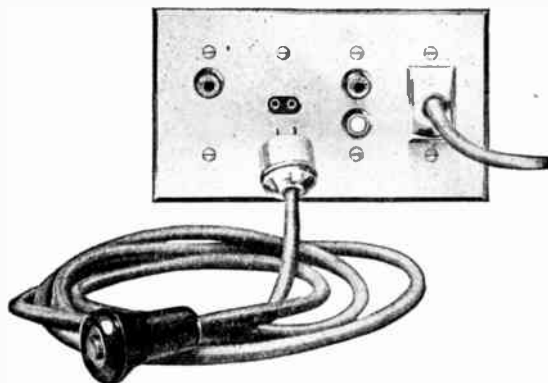
The system is complete in itself and is connected to the regular electric service supply. There are no other parts—no motor-generators, transformers or batteries.



No. 10

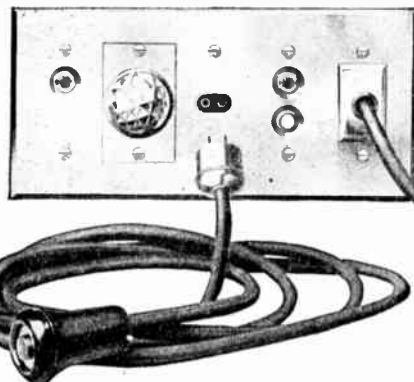


No. 11



No. 13

This magnetic control type system is also suited to large or small hospitals and is so flexible that it will adapt itself to any hospital's needs.



No. 17

The bulletin No. H. S. 1023 illustrating and describing this system will be forwarded immediately upon application.

**Edwards Nurses' Call Systems**

The system provides an efficient method of calling nurses to the patient's bedside by silent visual signals or a combination of silent and audible signals, as desired.

When a ward patient operates the station, it lights a lamp in the station, over the ward door, in the corridors, diet kitchens, utility rooms, nurses' stations, etc.; as many or as few signals at the necessary points for quick response to the call.

In private rooms the operation is the same except that it is unnecessary to have a lamp in the bedside station.

When the nurse responds to the call, she extinguishes all signals at the bedside controlled by that station.

The system is so arranged that the failure of one lamp at any location does not affect the operation of any of the other lamps.

There are 2 types of stations: pendant push or pull cord.

All bedside or other stations are furnished in either type desired. The pendant push type consists of necessary length of cord with a plug on one end to fit the station receptacle and on the other end a pendant push of the locking type. The patient sends in the call by pressing the push button, which remains locked. The nurse resets the call by depressing a collar which allows push button to return to its normal position.

The pull cord station has a toggle type mechanism in the station, and the patient is equipped with the necessary length of cord. Station is operated by simply pulling the cord, and the nurse resets it by pushing toggle back to its normal position.

The operation of either type station causes any desired buzzer signals to sound momentarily. After once operated, continued operation by the patient will not affect any of the lamp signals, but will cause any buzzer signals to sound again.

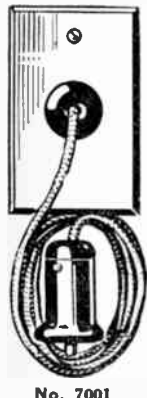
The information given here is necessarily brief. A complete bulletin is available giving full details on calling systems for all type installations.

**Private Room Calling Stations**

Used in private rooms or in wards where no bed lamp signal is necessary. When patient operates station, various lamps are lighted and buzzer sounded as previously described.

Provided with a mounting bridge and a separate finished face plate. Fits any standard single gang switch box or outlet box, with single gang cover with opening  $2\frac{7}{8} \times 1\frac{7}{64}$  inches. Supplied in pendant push or pull cord types.

One station can be made to serve 2 beds through the use of 2 cord stations. Standard finishes are brush brass or white enamel. No outlet box is supplied.



No. 7001

No.	Type	Description
7001	Pendant Push	For 1 Bed
7002	Pendant Push	For 2 Beds
7301	Pull Cord	For 1 Bed
7302	Pull Cord	For 2 Beds

**Ward Calling Stations**

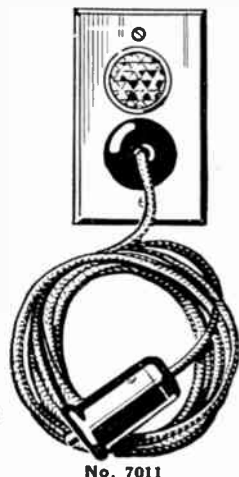
Used in wards of more than 2 beds. Provided with pilot light. Fits any standard outlet box with single gang cover with opening  $2\frac{7}{8} \times 1\frac{7}{64}$  inches.

Can also be supplied in pull cord toggle switch type. One station can be made to serve 2 beds through the use of a 2-cord station.

Standard finish of plate, brush brass or white enamel.

No outlet box is supplied.

No.	Type	Description
7011	Pendant Push	For 1 Bed
7012	Pendant Push	For 2 Beds
7311	Pull Cord	For 1 Bed
7312	Pull Cord	For 2 Beds



No. 7011

**Edwards Nurses' Call Systems**

Continued

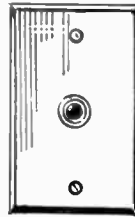
**Wall Calling Stations**

Designed for use in bathrooms, toilets, operating or examining rooms.

Operating mechanism is mounted directly on the station; no cord or plug required. Will fit any deep type outlet box with a single gang cover with opening  $2\frac{7}{8} \times 1\frac{7}{64}$  inches.

No outlet box is supplied.

Standard finish is brush brass or white enamel.



No. 7003

No.  
7003  
7303

Type  
Push Button  
Toggle

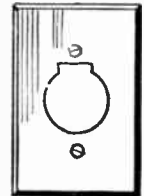
**Balcony Calling Stations**

For use in open balconies.

Face plate is provided with a hinged cover to protect the receptacle when not in use. A rubber basket to mount between the wall and face plate is supplied. Station is complete with 12 feet of cord.

One station can be made to serve 2 beds through the use of a 2-cord station. Will fit any standard outlet box with single gang cover with opening  $2\frac{7}{8} \times 1\frac{7}{64}$  inches.

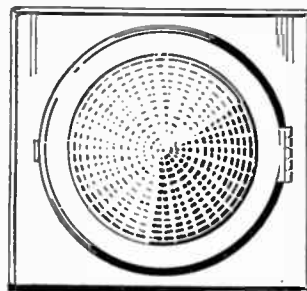
Standard finish is black Duco. No outlet box is supplied. Can also be furnished with pull cord toggle switch.



No. 7021

No.	Type	Description
7021	Pendant Push	For 1 Bed
7022	Pendant Push	For 2 Beds
7321	Pull Cord	For 1 Bed
7322	Pull Cord	For 2 Beds

**No. 7031 Corridor Lamp Stations**



No. 7031

This station is mounted in corridor over room doors.

It is equipped with a neat glass dome lamp signal held in place by a mounting ring which is hinged to the plate and kept closed by means of a snap catch.

Will fit any standard outlet box with 2-gang cover having an opening  $2\frac{7}{8} \times 3\frac{3}{64}$  inches.

Standard finish is brush brass or white enamel.

No outlet box is supplied.

**No. 7037 Flush Buzzer Stations**

For diet kitchens, utility and work rooms, where no lamp signals are required or as extension audible signals. Equipped with a mild toned buzzer mounted behind face plate and with a cutout switch.

Fits any standard outlet box with single gang cover with opening  $2\frac{7}{8} \times 1\frac{7}{64}$  inches.

Standard finish is brush brass or white enamel. No outlet box is supplied.

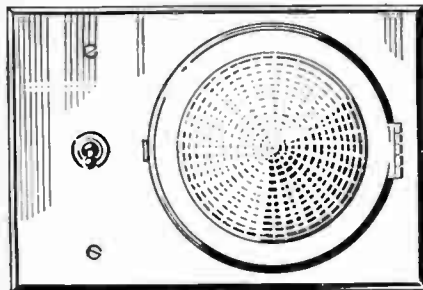


No. 7037

## Edwards Nurses' Calling Systems

Continued

### No. 7033 Single Dome Pilot and Buzzer Stations



For diet kitchens, utility rooms, work rooms, etc. where individual room signal is not required.

Equipped with neat glass dome lamp signal and a low-toned buzzer mounted behind station and a buzzer cutout switch. Will fit

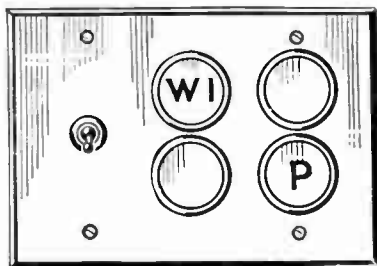
any deep type outlet box with a 3-gang cover with opening  $2\frac{7}{8} \times 5\frac{3}{4}$  inches.

Standard finish is brush brass or white enamel. No outlet box is supplied.

### No. 7035 Bull's Eye Type Multiple Lamp and Buzzer Stations

Used in diet kitchens, utility rooms and work rooms where ward and private indications are desired.

Furnished marked for as many indications as necessary. No outlet box supplied up to 8 lamps. Eight lamp stations or over, special outlet box supplied. Standard 2-lamp station requires



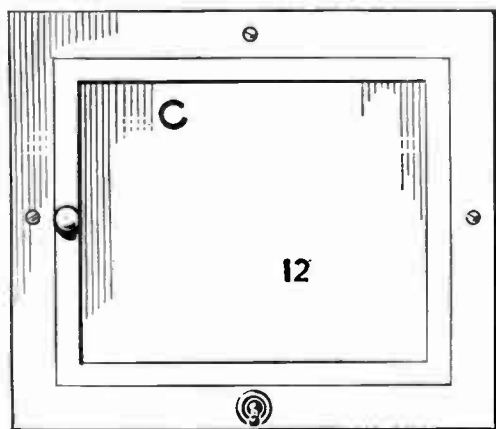
No. 7035

an outlet box with 2-gang cover with opening  $2\frac{7}{8} \times 3\frac{35}{64}$  inches.

Each additional pair of lamps increases size of plate by one gang. Stations having over 8 lamps require special arrangement and standard outlet boxes cannot be used.

Standard finish is brush brass or white enamel.

### No. 7041 Nurses' Flush Annunciators



No. 7041

Used at the nurses' station to indicate the individual room calling. Equipped with a mild toned buzzer inside of case with a cutout switch mounted in trim. It is of flush metal type with hinged glass door. Glass marked as ordered with blocked out figures or letters on back of glass which are not visible until lamp is lighted. Special flush outlet boxes are supplied.

Standard finish is white enamel.

Due to long experience in the signaling field, the engineering departments can offer many helpful suggestions. Service is always available to architects and hospital officials, for which no charge is made.

Prices upon application.

## Edwards Fire Alarm Systems

Detailed information with complete data and wiring diagrams is available in the Edwards Fire Alarm catalogue, which will be sent upon request.

### Open Circuit Systems

These systems consist of simple break glass stations and standard vibrating bells. Various types of bells are adaptable to fire alarm systems, the choice depending on the type and quality of bell desired and the operating current that is to be used for the system.

In open circuit systems the operation of a station causes the bell to sound continuously until system is turned off, and thereby gives a general alarm of fire only. These systems must be tested regularly. A fire alarm annunciator may be used to show the location of the station operated; but if this feature is desired, the closed circuit coded alarm system is much more efficient and little higher in price when the cost of the annunciator and necessary wiring for it is considered.

### Coded Closed Circuit Systems

These systems give maximum protection in that lines and devices are continually supervised with a small current, and should there be an open circuit a trouble bell will ring immediately. Code type stations are used and the operation of any station causes the single stroke bells to sound a coded alarm, giving the location of the station operated.

The most common practice is to operate the system directly from the lighting circuit, either d.c. or a.c. Battery operated systems of this type use electro-mechanical bells to reduce the current consumption. There is less trouble and chance of failure with systems operated from lighting circuit than with battery operated systems. Batteries must be watched and cared for by some competent person. Charging apparatus must be provided.

### Pre-Signal Coded Systems

Recommended for hospitals, hotels, institutions and places where it is not advisable to sound a general alarm of fire until an investigation has been made and such action is deemed necessary. Pre-signal type stations are used in these systems, the operation of which causes a coded alarm to sound on one circuit of bells only, known as the pre-signal or pilot circuit, these bells being located in the engineer's office, manager's office, etc. Fire can be investigated immediately and if it is serious the general alarm can be turned in from any station by an authorized person possessing a key. The key is inserted in the station and the station operated in the usual way, which will cause a general coded alarm to sound on all bells.

### Apparatus

Code stations for all systems are made in flush and surface type and also in 2 styles: one where to sound the alarm the door is opened and the lever pulled and the other where it is necessary to break a glass before door can be opened.

## Edwards Standard Code Fire Alarm Stations

For Use in Closed Circuit Fire Alarm Systems

Schedule T

### No. 1275



Mechanical movement is simple in design; gear wheels are cut. Separable conduit attachment. Code signal sounded 4 times at each operation. When lever is released it automatically disengages. No winding necessary.

Cover of box provided with spring hinge. Silent or bell tests may be made, using key supplied with station.

Depth,  $7\frac{5}{8} \times 4 \times 5$  inches. Weight, 8 pounds. Price, No. 1275, for Surface Conduit, each \$38.00

### No. 1275-2

Same as No. 1275; locked door with glass window is substituted, making 2 operations to sound alarm. Breaking glass opens door; pulling lever sounds alarm.

Weight, 8 pounds. Price, No. 1275-2, for Surface Conduit, each \$55.00

**Edwards Standard Code Fire Alarm Stations**

For Use in Closed Circuit Fire Alarm Systems

Schedule T



**No. 1276**

Gears wheels are cut, not stamped. Separable conduit attachment. Code signal sounded 4 times at each operation. When lever is released it automatically disengages. No winding necessary.

Cover of box provided with spring hinge. Silent or bell tests may be made, using key supplied with station.

Height, 8 1/2 inches; width, 7 5/8 inches including flange back. Height of box, 7 3/8 inches; width, 5 1/4

inches; depth, 3 3/8 inches. Weight, 9 pounds.  
Price, No. 1276, For Concealed Conduit.....each \$46.00

**No. 1276-2**

Same as No. 1276; locked door with glass window is substituted, making 2 operations to sound alarm. Breaking glass opens door; pulling lever sounds alarm.

Weight, 9 pounds.  
Price, No. 1276-2, For Concealed Conduit.....each \$63.50

**Edwards Pre-Signal Code Fire Alarm Stations**

For Use in Pre-Signal, Closed Circuit Fire Alarm Systems

Schedule T

Same construction as the Nos. 1275 and 1276, except that signal is sounded at pre-determined place only, allowing investigation, after which general alarm can be sounded by inserting key and pulling lever at any station.

- No. 1275-DO.....each \$52.00
- No. 1276-DO.....each 60.00
- No. 1275-2-DO.....each 62.00
- No. 1276-2-DO.....each 70.00

**For Sirens**

Standard code and pre-signal code stations can be arranged with slow movement, for which add to list \$20.00. Because of the heavy current demand of most sirens, it is advisable to use the No. 240 relay. Full information as to intended use should be given in ordering this type station.



No. 1276-2

**Edwards Non-Code Fire Alarm Stations**

6 to 110 Volts

Schedule T

**No. 224 Flush Break-Glass Station**



No. 224

With hinged front so test operation is same as actual alarm operation. Size, 3 1/16 x 4 3/8 inches, to fit standard single switch box. Test key, hammer and chain with each station. Open circuit type furnished if not specified. Finish, red enamel.

Weight, 1 pound.

Price, No. 224, Open Circuit.....each \$6.25  
Price, No. 224C, Closed Circuit....each 10.00

**No. 225 Surface Break-Glass Station**

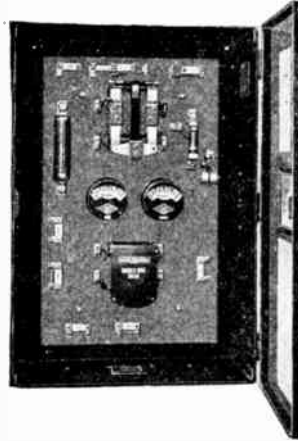
Same as above but with cast fitting for surface wiring. Fitting can also be mounted on standard switch box for use with concealed wiring but where it is desired to have stations protrude from wall to be visible from a distance.

Weight, 3 1/4 pounds.

Price, No. 225 Open Circuit.....each \$7.25  
Price, No. 225C Closed Circuit.....each 11.00

**Edwards Fire Alarm Control Boxes**

Schedule T



**S.S. Control Panels**

For direct connection of fire alarm system to 110-volt d.c. lighting service. Where 220-volt, 3-wire service is available, trouble bell operates directly on 110-volt service, but if this is not available, battery operation of same is arranged. All instruments, etc., mounted on slate panel, which is enclosed in a steel cabinet.

Door is secured with lock and has a glass panel.

Price includes trouble bell. Knockouts provided on 2 sides and bottom of case for conduit.

Price, Single Circuit System.....each \$250.00  
Price, Additional Circuits.....each 45.00

**S.S.A. Control Panels**

For a.c., otherwise same construction and price as S.S.

**P.S.S. Pre-Signal Panels**

For d.c., same as S.S. panel. For dual operation.  
Price, Single Circuit System.....each \$350.00  
Price, Additional Circuits.....each 45.00

**P.S.S.A. Pre-Signal Panels**

For a.c., otherwise same construction and price as P.S.S.

**E.M.B. Control Panels**

For use with systems operated by primary battery. Panel provides means of supervising with a low current. Operating current is automatically switched in and out of alarm system as required. Construction of panel, same as above.  
Price includes trouble bell.

Price, Single Circuit System.....each \$250.00  
Price, Additional Circuits.....each 45.00

**Edwards Central Control Fire Alarm Stations**

Schedule T

**No. 229**

Used to sound coded alarms or signals and for location at headquarters or telephone central in localities where fire alarms are telephoned.

With 6 code wheels. Code wheel desired is placed on shaft. Pulling lever automatically winds movement and releases it, sounding code 4 times. Weight, 26 pounds.

Price, No. 229.....each \$150.00  
Price, Extra Wheels.....each 5.00



**No. 229S**

Similar to No. 229 except for operation of motor-driven sirens, the code being sounded twice only. In ordering, give make of siren, operating current, code, etc.

Price, No. 229S, Weight, 26 Pounds.....each \$190.00  
Price, Extra Wheels.....each 5.00

**No. 1290 Edwards Weatherproof Fire Alarm Cases**

Schedule T



For protection of fire alarm stations for outside installation.

Drilled to receive 1/2 or 3/4-inch conduit. Vault handle latch or lock. Size, 12x10x6 1/2 inches.

Weight, 32 pounds.

\*Price, No. 1290 each \$35.90

Price, Strap Key for Return Tests each 3.75

Price, Glass in Door.....each 5.80

\*When used with No. 1275 type of station, cover of latter is omitted, for which an allowance of \$2.90 is made.

## Edwards Non-Code Fire Alarm Stations

Schedule T

### No. 2240 Semi-Flush Break-Glass Stations 6 to 220 Volts



Of heavier construction than the No. 224 with slate insulation as required by some fire prevention authorities. Test key, hammer and chain furnished with each station.

Weight, 2 pounds.

No. 2240, Open Circuit... each \$15.50

Price, No. 2240C, Closed Circuit... each 19.25

### No. 2241 Surface Break-Glass Stations 6 to 220 Volts

Same construction as the No. 2240 but with separable conduit fitting drilled top and bottom for 1/2-inch conduit unless otherwise specified. Finish, red enamel.

Test key, hammer and chain with each station.

Weight, 4 pounds.

No. 2241 Open Circuit... each \$15.50

Price, No. 2241C, Closed Circuit... each \$19.25



### No. 77 Surface Break-Glass Stations Low Voltage Only

No test. Open circuit only. Diameter, 3 3/4 inches. Standard finish, polished brass rim, red center.

Weight, 7 ounces.

Price, No. 77... each \$2.45

Price, Glass for Any Station... each .44

Price, Hammer and Chain for Any Station... each .60



### No. 114 Edwards Fire Alarm Annunciators Hand Reset

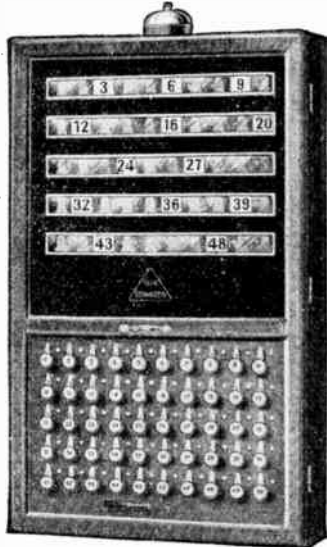
6 Volts D.C. or 8 Volts A.C.

Schedule T

For use in local open circuit fire alarm systems using break-glass stations. The operation of the station causes the corresponding drop in the annunciator to indicate and bell on annunciator to ring. By the master switch on annunciator all bells in building can then be rung, or by individual switches can be rung singly or in certain sections of building.

Surface type, metal case.

Standard finish is mahogany, oak or black. Special finishes, upon application.



No. of Drops	ARRANGEMENT		DIMENSIONS, INCHES			Weight Pounds	Price Each
	Across	Down	Height	Width	Depth		
10	5	2	17 1/2	12 3/8	5	10 1/2	\$45.98
12	6	2	17 1/2	13 3/4	5	11 1/2	55.16
14	5	3	22	12 3/8	5	13	65.54
16	6	3	22	13 3/4	5	14 1/4	74.02
18	6	3	22	13 3/4	5	14 1/2	83.00
20	7	3	22	15 1/8	5	15 3/4	91.92
22	6	4	26 1/2	13 3/4	5	17 1/4	105.78
24	6	4	26 1/2	13 3/4	5	17 1/2	110.30
Additional Drops, per Set of 2.....							13.42

## Edwards Bells for Coded Fire Alarm Systems

Schedule T

### No. 23F, For A.C. Lighting Circuit

### No. 24F, For D.C. Lighting Circuit



These bells are correctly designed for series operation on the various types of closed circuit systems. They are neat in appearance and of excellent construction.

Size Inches	Weight Pounds	Price Each	Size Inches	Weight Pounds	Price Each
4	4	\$19.25	10	8	\$38.50
6	5	24.75	12	11	42.60
8	6	28.90	..	..	.....

## Edwards Electro Mechanical Bells

### For Battery Systems Nos. 133 and 1331

Schedule T

Operated by a strong spring mechanism which is released by an exceptionally small flow of current. The mechanism is entirely insulated from the case. The binding posts are on the side. The hammer, when released, makes a full revolution, passing under the gong to an inclined plane and strikes the gong with the great force gathered in the revolution. Recoil causes it to drop and become locked in its original position.

Finish: red frame, black gong; all black if desired.



Size Inches	Weight Pounds	Price Each	Size Inches	Weight Pounds	Price Each
6	22	\$82.40	10	27	\$87.97
8	24	84.95	12	30	95.75

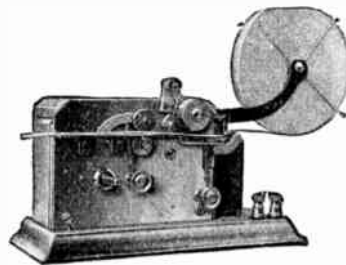
## Edwards Bells For Non-Coded Fire Alarm Systems

Non-code systems use the standard type of vibrating bell the choice of which depends entirely upon the operating current, 110 volts a.c. or d.c., battery or transformer and also on the type of bell construction preferred.

For battery use Nos. 100, 222 or 17; for transformer use Nos. 510 or 551; for a.c. lighting circuit use Nos. 551 or 100; for d.c. lighting circuit use No. 100.

## No. 2197 Edwards Pen Registers

This automatic register registers in ink on paper the number of the fire alarm box operation. Indication consists of a number of short dashes and forms a permanent record of the system. Self starting and stopping. Resistance, 20 ohms; open circuit only. Can be used



with relay for closed circuit.

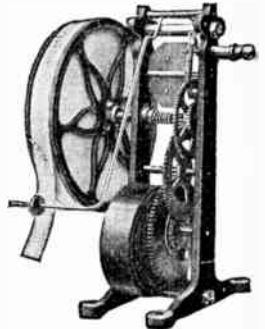
Price, No. 2197, Single Pen, Weight 7 Pounds... each \$168.50

Price, No. 2197, Double Pen, Weight, 1 3/4 Lbs. .... each 180.00

## No. 5985 Edwards Paper Winders

This automatic paper winder is for use with the No. 2197 register. It winds and holds paper neatly as delivered by the register.

Price, No. 5985... each \$13.50





**Edwards Tank Sentinels**

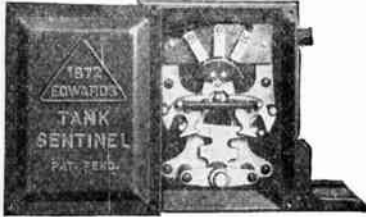
**For House Tanks, Fire Standpipe and Sprinkler Systems**

Used where a supply of water is maintained for sanitary or fire purposes. The closed circuit equipment is recommended for installation in all buildings where automatic or manually controlled pumping systems are employed.

Open circuit alarms employ current only during the period that alarm is registering. Failure of current or trouble in wiring system are not supervised.

Open and closed circuit alarms can be used in industrial and chemical plants, where liquids are stored in tanks.

**Non-Supervised House Tank Systems**

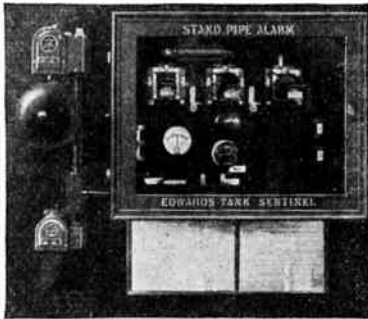


**Gravity Tank Switch**

An open circuit, audible and visual alarm indicating high and low water in gravity or pressure tanks. Operates from a.c. or d.c. lighting service mains. System requires the following control panel with High and Low relays, signal lamps, control switch, alarm bell, etc.: for d.c., No. 1206; for a.c., No. 1207; gravity tank switch with weatherproof housing and copper ball float, No. 1202, or pressure gauge switch, No. 1203.

**Supervised Fire Standpipe or House Tank Systems**

A closed circuit, audible and visual alarm indicating high and low water in fire standpipe or house tanks. Operates from lighting service mains. System requires the following units: control panel with High, Low and Trouble indicating relays, milliammeter, control switch, fuses, signal lamps and test keys.



**Standpipe Alarm**

Mounted in a steel cabinet with locked door having a glass face: for d.c., No. 1208; for a.c., No. 1209; 6-inch alarm bell: for d.c., No. 1001 d.c.; for a.c., No. 1001 A.C.; 4-inch trouble bell: for d.c., No. 1001 T.D.; for a.c., No. 1001 T.A.; gravity tank switch with weatherproof housing and copper ball float, No. 1200, or pressure gauge switch, No. 1201.

**Supervised Sprinkler Systems**



**Sprinkler Alarm**

A closed circuit, audible and visual alarm indicating high and low water in gravity or pressure tanks and water flow through sprinkler piping. Operates from a.c. or d.c. lighting service mains. System requires the following: control panel with High, Low and Trouble indicating relays, milliammeter, control switches, test keys and fuses. Indicating relays with each tank and water flow valve. Panel mounted in steel cabinet with locked door having a glass face: for d.c., No. 1210; for a.c., No. 1211; gravity tank switch with weatherproof housing and copper ball float for each gravity tank, No. 1200; pressure gauge switch for pressure tank, No. 1201; 6-inch alarm bell: for d.c., No. 1001 D.C.; for a.c., No. 1001 A.C.; 4-inch trouble bell: for d.c., No. 1001 T.D.; for a.c., No. 1001 T.A.; 8-inch water flow bell: for d.c., No. 1001 D.C.; for a.c., No. 1001 A.C.

Specify current and voltage. Prices upon application.

**Faraday Fire Alarm Control Cabinets**

*N.E.C. Standard—Schedule T*

**For Regular, Pre-Signal, or Dual-Operated Fire Alarm Systems**



Designed for the control and supervision of Faraday Fire Alarm Circuits. They consist of ebony-asbestos or slate panels having mounted thereon necessary controller-relays. Trouble-relays, time-limit-cutouts, meters, terminals, fuses, etc., all being enclosed in heavy pressed steel fireproof cabinets with Yale locked doors. Glass windows are provided in doors to permit ready reading of meters without opening the doors.

Cabinets are finished in glossy vermilion, and all instruments and control mechanisms are back connected, mounted on ebony-asbestos or slate panels.

Gong-circuits are equipped with variable resistance permitting them to be easily and accurately balanced with regard to the number of gongs on each circuit up to their individual limit, 8 to 10 gongs on 100-110-volt A.C. circuits and 14 gongs on 110-125-volt D.C. circuits.

Terminals on panels are latest type Underwriters' pattern, with each terminal plainly marked so that the connections of circuit wires to mains, boxes, gongs and trouble bells can be readily made by any good electrical man.

Designed for surface-wall mounting but may be supplied for flush mounting, if required, at a slight additional charge.

Standard package is one.

**For Regular Systems**

Cat. No.	To Operate From	No. of Gongs	No. of Circuits	Price Each
1A	110-125 Volts D.C.	1 to 14	1	\$250.00
2A	110-125 Volts D.C.	1 to 28	2	295.00
3A	110-125 Volts D.C.	1 to 42	3	340.00
4A	110-125 Volts D.C.	1 to 56	4	385.00
1F	100-110 Volts A.C.	1 to 10	1	250.00
2F	100-110 Volts A.C.	1 to 20	2	295.00
3F	100-110 Volts A.C.	1 to 30	3	340.00
4F	100-110 Volts A.C.	1 to 40	4	385.00
1K	Storage Battery	1 to 12	1	390.00
2K	Storage Battery	1 to 24	2	435.00
3K	Storage Battery	1 to 36	3	480.00
4W	Storage Battery	1 to 48	4	485.00

**For Pre-Signal or Dual-Operated Systems**

Cat. No.	To Operate From	No. of Pilot	No. of General	No. of Circuits Pilot	No. of Circuits General	Price Each
11C	110-125 Volts D.C.	1-14	1-14	1	1	\$350.00
12C	110-125 Volts D.C.	1-14	1-28	1	2	395.00
13C	110-125 Volts D.C.	1-14	1-42	1	3	440.00
14C	110-125 Volts D.C.	1-14	1-56	1	4	485.00
11H	100-110 Volts A.C.	1-10	1-10	1	1	350.00
12H	100-110 Volts A.C.	1-10	1-20	1	2	395.00
13H	100-110 Volts A.C.	1-10	1-30	1	3	440.00
14H	100-110 Volts A.C.	1-10	1-40	1	4	485.00

Prices on larger control boards on application.



## Condensed Information Index of Faraday Industrial Fire Alarm Systems

For Use In →	System "A"	System "C"	System "F"	System "H"	System "J"	System "K"	System "L"
	Factories Warehouses Lofts Schools etc.	Hotels Apartment Houses Hospitals Dep't Stores etc.	Factories Warehouses Lofts Schools etc.	Hotels Apartment Houses Hospitals Dep't Stores, etc.	Schools Colleges and Similar Institutions	Industrial Plants Hospitals Institutions and Other Group or Unit System Bldgs.	Small Hotels Lodging Houses Small Public Institutions, etc.
Source of Energy . . .	Dependable 110-125 Volt D.C.	Dependable 110-125-Volt D.C.	Dependable 100-110 Volt A.C.	Dependable 100-110 Volt A.C.	Storage Battery	Storage Battery	Transformer or Patterson Battery Set
Type of System . . . . .	Regular Closed- Circuit Electrically- Supervised Code-Ringing	Pre-Signal Closed- Circuit Electrically- Supervised Code-Ringing	Regular Closed- Circuit Electrically- Supervised Code-Ringing	Pre-Signal Closed- Circuit Electrically- Supervised Code-Ringing	Regular Closed- Circuit Electrically- Supervised Code-Ringing	Closed-Circuit Doubly- Electrically- Supervised Code-Ringing	Open-Circuit Non-Super- vised Non- Code-Ringing
Boxes per Circuit . . .	20	20	20	20	20	20	12
Gongs per Circuit . . .	14	14	8 to 10	8 to 10	12	12	15
Volts per Gong . . . . .	8	8	14	14	2	2	..
Add Volts for Line . .	0	0	0	..	4	4	..
Storage Battery Re- quired . . . . .	Not Used	Not Used	Not Used	Not Used	Single Set or Duplicate	Single Set or Duplicate	Patterson Battery Set or Trans- former
Storage Battery Ca- pacity . . . . .	Not Used	Not Used	Not Used	Not Used	12 Amp. Hrs.	24 Amp. Hrs.	Not Used
Motor-Generator Ca- pacity . . . . .	Not Used	Not Used	Not Used	Not Used	100 or 240 Watts	100 Watts	Not Used
Boxes Used . . . . .	Positive- Non-Interfer- ing Plain Type	Pre-Signal Type	Plain Type	Pre-Signal Type	Open-Circuit Type	Plain Type	Open-Circuit Type
Gongs Used . . . . .	Faraday D.C. Single- Stroke Solenoid Plunger-Type	Faraday D.C. Single- Stroke Solenoid Plunger-Type	Faraday A.C. Single- Stroke Solenoid Plunger-Type	Faraday A.C. Single- Stroke Solenoid Plunger-Type	Faraday Electro- Mechanical	Faraday Electro- Mechanical	Faraday A.C. or D.C. Vibrating
Control-Cabinets . . .	Regular	Pre-Signal	Regular	Pre-Signal	Regular	Regular	None
Trouble-Bells . . . . .	To Operate on Battery or 110-Volt D.C.	To Operate on Battery or 110 Volt D.C.	To Operate on Battery or 110 Volt D.C.	To Operate on Battery	To Operate on Battery or 110 Volt A.C.	To Operate on Battery	None
Annunciators . . . . .	None	None	None	None	None	None	Faraday F. A. Annunciator Model No. 3008-16

## Faraday Industrial Fire Alarm Systems

N.E.C. Standard

### System A Electrically Supervised Code-Ringing, Closed-Circuit

For 110-125-Volt D.C. Circuits  
Using Non-Clockwork Single-Stroke D.C. Gongs



Used where several floors are under one roof rather than several isolated buildings.

Plain type code-ringing fire alarm boxes are used.

Positive non-interfering type boxes may be used; consult the engineering department.

Circuits, instruments and apparatus are constantly

under electrical test. Trouble of any nature on any part of the system, or failure of operative current is automatically indicated by ringing of trouble bell.

### System C—Pre-Signal or Dual-Operated Type

For 110-125-Volt D.C. Circuits  
Using Non-Clockwork Single-Stroke D.C. Gongs

Used where several floors are under one roof rather than many isolated buildings.

For installation where it is desired not to alarm all the occupants of the building immediately upon a fire being discovered, but to first notify the members of the fire brigade. The operation of the box sounds the code on certain gongs called pilots located where they may be heard by the fire brigade. Should it be deemed necessary to sound a general alarm, this may

be done by any member of the fire brigade from any box by means of a special key, the signal then sounding on the general gongs as well as the pilots.

All circuits, instruments and apparatus are constantly under electrical test. Trouble of any nature on any part of the system, or failure of operative current is automatically indicated by ringing of trouble bell.

### System F

For 100-110-Volt A.C. Circuits  
Using Non-Clockwork Single-Stroke A.C. Gongs

For factories, warehouses, lots, schools, etc., where several floors are under one roof rather than several isolated buildings.

Standard is 50-60 cycles; 25, 30 and 40 cycles to order.

For use where a dependable supply of a.c. is available at all hours.

Main circuits, box circuits and gong circuits are constantly under electrical test.

Trouble of any nature on any part of the system, or failure of operative current is automatically indicated by ringing of trouble bell.



## Faraday Industrial Fire Alarm Systems

N. E.C. Standard

### System H—Pre-Signal or Dual-Operated Type

For 100-110-Volt A.C. Circuits  
Electrically Supervised, Code-Ringing, Closed-Circuit  
Using Non-Clockwork Single-Stroke A.C. Gongs



Used where several floors are under one roof rather than many isolated buildings. For installations where it is desired not to alarm all the occupants of the building immediately upon a fire being discovered, but to first notify the fire brigade. Operation of the box sounds the code on certain gongs called pilots located where they may be heard by the fire brigade. When it is necessary to sound a general alarm, this may be done

by any member of the fire brigade from any box by means of a special key, sounding signal on general gongs as well as pilots. Standard, 50-60 cycles; 25, 30 and 40-cycle to order.

### System J—For Storage Battery Operation

Electrically Supervised  
Single-Code-Ringing  
Closed-Circuit, Using  
Electro-Mechanical  
Gongs and Non-Code Boxes

Used where one standard code 4-4, or similar, indicating Fire is desired—the announcement of exact location being unnecessary.

When glass on non-code-ringing break-glass box is broken, it trips a pre-wound pre-set master code box which transmits its signal on the gongs, and when finished, rings a trouble bell which calls attention to necessity of resetting master-code-box, also replacing glass in non-code-ringing break-glass box.

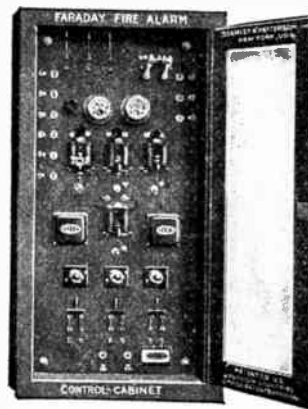


### System K—For Storage Battery Operation

Doubly-Electrically Supervised, Code-Ringing, Closed-Circuit  
Using Electro-Mechanical Gongs

Used where code-ringing systems are desired which indicate point of origin of alarm. Circuits, instruments and apparatus are constantly under electrical test, and special circuits are provided so that batteries themselves are supervised. Trouble of any nature on any part of the system, or failure of operative current is automatically indicated by ringing of trouble bell.

Operated from same storage batteries as are used for clock systems in schools, provided these batteries are of sufficient capacity and voltage for both systems.



### System L—For Patterson Battery Set or Transformer Operation

Open-Circuit, Non-Supervised, Non-Code-Ringing  
Using Vibrating Straight Electric Gongs

Used where open-circuit, non-supervised fire alarm systems must be installed because of limited funds available.

Employs 2 types of gongs, depending on the source of current; if primary battery is to be used, battery gongs must be ordered; if transformer is used, transformer gongs must be ordered.

## Faraday Municipal Fire Alarm Systems

### System M

For Storage Battery Operation—Electrically-Supervised, Code-Sending, Closed Circuit

For cities, towns and large industrial plants, desiring high class equipment.

For convenience in wiring, the circuits may be divided into as many as 4, if necessary. It employs positive non-interfering or succession Faraday Fire Alarm Boxes in weatherproof cases, electro-mechanical gongs and single-stroke tappers, punch registers and for the automatic sounding or broadcasting of alarms, Faraday Compressed Air Horns or Steam Whistles are used. Manual transmitters may also be used with this system—these devices being designed for installation in police headquarters, telephone exchanges where permitted, etc., for the purpose of sounding coded signals on fire alarm circuits without the necessity of transmitting them from the fire alarm boxes, they permit the sounding of a fire alarm which may have been telephoned to police headquarters or a telephone exchange. Circuits, instruments and apparatus are under electrical test.

### System T

For Storage Battery Operation—Electrically-Supervised, Code-Sending, Closed Circuit

For cities, small towns and smaller industrial plants where the keeping down of initial cost is of first consideration. Where not more than 20 boxes would be used.

Used in places where protection afforded by a closed-circuit code-sending fire alarm system is desired, but where, because of limited funds available, a medium-cost system must be installed. Employs plain type code-sending fire alarm boxes in weatherproof cases, electro-mechanical gongs and single-stroke tappers for sounding signals transmitted from boxes, and compressed air horns, steam whistles, etc. for sounding of general alarm. Compressed air horns and steam whistles may be coded and thus the same signal, transmitted by boxes or manual transmitters may be sounded rapidly and clearly. All circuits, instruments and apparatus are constantly under electrical test.

Complete catalogue on fire alarm apparatus, on request.

## No. 2040 Faraday Surface Type Fire Alarm Boxes

Open-Circuit, Non-Code-Ringing—For Systems J and L



For systems where it is not required that location of box from which signal originates be indicated by automatic code-ringing of gong and where failure of operative current or derangement of circuits or apparatus is not required to be automatically indicated. With phosphor bronze springs and plunger contacts.

A break-glass box, finished in English vermilion, for 1/2-inch conduit. Height, 5 1/4 inches; width, 3 1/4 inches; projects 3 1/8 inches from wall.

Price, No. 2040.....each \$15.50  
Can be furnished for Closed Circuit at \$19.25. Specify  
Cat. No. 20400.

Extra glasses, 44 cents; chain and hammer, 60 cents.

## No. 2042 Faraday Flush Type Fire Alarm Boxes

Open-Circuit, Non-Code-Ringing—For Systems J and L

A break-glass box, finished in English vermilion, for concealed work, made for 1/2-inch conduit. Height, 5 1/4 inches; width, 3 1/4 inches; projects 1 inch from wall.

For systems where it is not required that the location of box from which the signal originates be indicated by automatic code-ringing of the gong.

Heavy phosphor bronze springs and plunger contacts.

Price, No. 2042.....each \$15.50

Can be furnished for Closed-Circuit at \$19.25. Specify  
Cat. No. 20420.

Extra glasses, 44 cents; chain and hammer, 60 cents.



## Faraday Code-Ringing Fire Alarm Boxes

N.E.C. Standard-Schedule T

Positive Non-Interfering Type—Large Size For Fire Alarm System A



Nos. 3124 and 3125

Positive non-interfering boxes are so designed that, should more than one box be pulled at the same time, a clear signal will be transmitted from the first box that takes the line. Jumbling of signal or interference between boxes is impossible.

All types are equipped with local non-interference pulls so that after the lever has once been pulled down and released, the signal cannot be intentionally or unintentionally disarranged by manipulation of the lever.

Mechanisms are protected by dustproof glass cases under seals and inner shells made of aluminum to assure dependability, etc.

Boxes are finished in glossy vermilion and are supplied with conduit entrances for 1/2 or 3/4-inch conduit as specified

Cat. No.	Description	Price Each
3122	Enclosed Pull-Lever, Surface.....	\$92.00
3123	Enclosed Pull-Lever, Semi-Flush.....	96.00
3132	Break-Glass Pull-Lever, Surface.....	112.00
3133	Break-Glass Pull-Lever, Semi-Flush.....	116.00
3124	Weatherproof Pull-Lever, No Test.....	176.00
3125	Weatherproof Pull-Lever, With Test.....	186.00
3134	Weatherproof Break-Glass Pull-Lever, No Test	196.00
3135	Weatherproof Break-Glass Pull-Lever, With Test	206.00

## Plain Type—Large and Small Sizes

For Fire Alarm Systems A, F and K

Plain type boxes, although possessing all the features designed for perfect timing of code-signals and impossibility of sending any but the pre-arranged signal from any box will, under certain circumstances, interfere with each other and cause a jumbled code to be transmitted.

Boxes should only be used where the chances of more than one box being pulled are comparatively remote, or where, from lack of available funds, the lowest price box must be used.

Standard package is one.

Cat. No.	Large Size		No. 2032	Each
	Description			
4022	Enclosed Pull-Lever, Surface.....			\$56.00
4023	Enclosed Pull-Lever, Semi-Flush.....			60.00
4032	Break-Glass Pull-Lever, Surface.....			76.00
4033	Break-Glass Pull-Lever, Semi-Flush.....			80.00
4024	Weatherproof Pull-Lever, Surface.....			140.00
4034	Weatherproof Break-Glass Pull-Lever, Surface			150.00
	<b>Small Size</b>			
2022	Enclosed Pull-Lever, Surface.....			\$38.00
2023	Enclosed Pull-Lever, Semi-Flush.....			46.00
2032	Break-Glass Pull-Lever, Surface.....			55.00
2033	Break-Glass Pull-Lever, Semi-Flush.....			63.00
2025	Weatherproof Pull-Lever, Surface.....			71.00
2035	Weatherproof Break-Glass Pull-Lever, Surface			77.00

All plain type boxes, except small size semi-flush, will be furnished tapped top and bottom for 1/2 or 3/4-inch conduit, as specified.

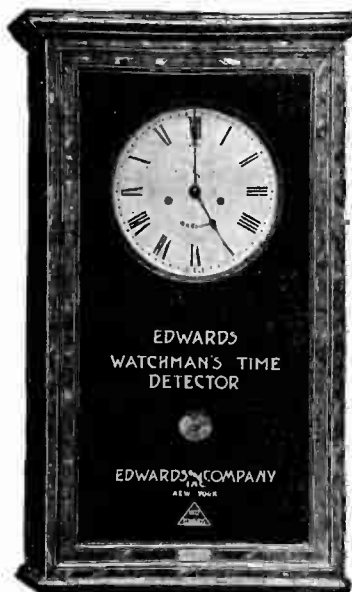
Small size semi-flush plain type boxes are provided with knockouts in top, bottom, sides and back for 1/2 and 3/4-inch conduits.





## Edwards Watchman's Time Detectors

Magneto or Battery Type—With or Without Clock



The Edwards Watchman's Time Detector records accurately and indelibly (by puncture on a paper dial) every visit of the watchman to every station, and the time of the visit.

The magneto type is approved by the National Board of Fire Underwriters and by the Associated Factory Mutual Fire Insurance Companies. No battery type is approved, irrespective of make.

Insurance rates are materially reduced by the installation of a Watchman's Time Detector.

The advantages of the system are:

1.—A record cannot be made unless the

watchman has visited the station.

2.—The record cannot be changed. It is a puncture on paper.

3.—A special device registers the opening and closing of door. The record cannot be tampered with.

4.—The dial cannot be torn as there is a cut-out system preventing prolonged contact of point and paper.

5.—Installation is facilitated by plainly marked connections. Wiring is simplest possible, one common wire from instrument to all stations, and an individual wire from each station to the instrument.

6.—All factory made connections are soldered.

The apparatus consists of heavy brass plate on which are mounted:

1.—An arm indicator (Magnets and armature) at the end of which is a pin for making record. One for each station in plant.

2.—An eight-day clock.

3.—Metal disc with guides for holding paper.

4.—A guide arm with opening for each pin.

5.—Special device which records opening and closing of door.

6.—Binding posts.

Case is simple in design and constructed of heavy oak.

### No. 75 Magneto Type—With Clock

No. of Stations	DIMENSIONS, INCHES			Price Each
	Height	Width	Depth	
4	31 3/4	17 1/2	5 1/2	\$280.00
6	31 3/4	17 1/2	5 1/2	290.00
8	31 3/4	17 1/2	5 1/2	305.00
10	31 3/4	17 1/2	5 1/2	315.00
12	31 3/4	17 1/2	5 1/2	345.00
15	31 3/4	17 1/2	5 1/2	360.00
20	35 1/2	21 1/4	5 1/2	390.00
25	35 1/2	21 1/4	5 1/2	425.00

### No. 76 Magneto Type—Without Clock

No. of Stations	DIMENSIONS, INCHES			Price Each
	Height	Width	Depth	
4	18	17 1/2	5 1/2	\$129.00
6	18	17 1/2	5 1/2	139.00
8	18	17 1/2	5 1/2	158.50
10	18	17 1/2	5 1/2	168.50
12	18	17 1/2	5 1/2	202.00
15	18	17 1/2	5 1/2	217.00
20	18	17 1/2	5 1/2	251.00
25	18	17 1/2	5 1/2	281.00

No. 97 battery type, same prices and dimensions as No. 75.

No. 98 battery type, same prices and dimensions as No. 76.

Prices include a year's supply of dials, but do not include magneto or battery stations.

## Edwards Magneto Stations



No. 161

Wood case with removable handle.

Cat. No.	Description	Price Each
161	Magneto Station	\$18.85

Handles, one for every three stations, additional, \$1.25 each.

No. 161P

Wood case portable type with carrying strap. No. 72 plug and three feet of cord.

Cat. No.	Description	Price Each
161P	Magneto Station	\$28.25

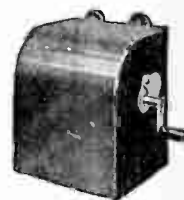
Handles, one for every three stations, additional, \$1.25 each.

No. 162

Metal case, weatherproof for outdoor use, with removable handle.

Cat. No.	Description	Price Each
162	Magneto Station	\$21.95

Handles, one for every three stations, additional, \$1.25 each.



No. 163

Flush metal case, with removable handle.



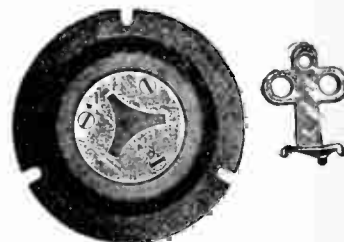
Cat. No.	Description	Price Each
163	Magneto Station	\$22.50

Handles, one for every three stations, additional, \$1.25 each.

## Edwards Battery Stations

Standard finish is nickel. Old or polished brass can be furnished, if specified.

Keys, one with every three stations, furnished at \$.50 each, additional.



No. 211

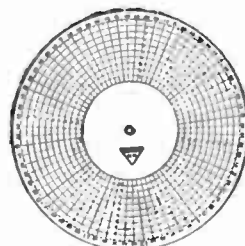
No. 211

Flush type, fits standard push button switch box. Price, No. 211

No. 211A

Surface type, 2 3/4 inches in diameter. Price, No. 211A

## Edwards Paper Dials



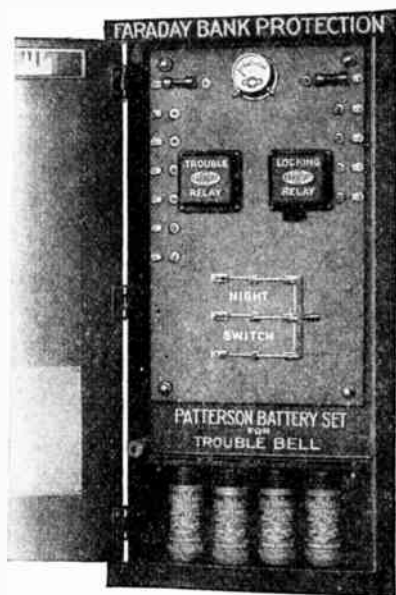
A year's supply is furnished with every instrument. Additional dials will be supplied as follows:

Price, 1-10 Stations	per 1000	\$20.00
" 11-15 "	"	28.00
" 16-20 "	"	28.00
" 21-25 "	"	28.00



**Faraday Hold-up Protection Systems**

*N.E.C. Standard*



These systems are designed to reduce to a minimum, not only the liability of financial losses through day hold-ups or night robberies of banks, jewelers, payroll departments, cashier's departments, etc., but also prevent, to a large extent, loss of life among officials and employees.

Electrically supervised, closed-circuit, Faraday Hold-Up Protection Systems are slightly higher in price than some types of open-circuit, non-supervised systems but are dependable at all times as all parts are under constant electrical test. The use of these systems is strongly recommended over the use of open-circuit, non-supervised systems.

Electrically supervised, closed-circuit types are made in 6 systems:

DHU for 110 volt D.C. lighting circuits for day hold-up only.

DHUN for 110 volt D.C. lighting circuits for day hold-up and night burglary protection.

AHU for 110 volt A. C. lighting circuits for day hold-up only.

AHUN for 110 volt A.C. lighting circuits for day hold-up and night burglary protection.

WBHU for primary battery for day hold-up only.

WBHUN for primary battery for day hold-up and night burglary protection.

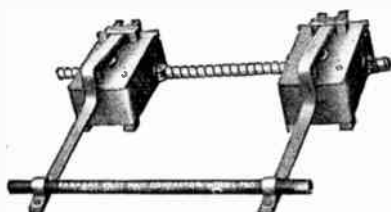
**Faraday Hold-Up Protection Control Cabinets**

**Open-Circuit Non-Supervised Systems**

Protection systems are also supplied in open-circuit non-supervised type. They are not as dependable as closed-circuit constantly supervised systems and are not recommended except where the cheapest type system must be installed.

**Faraday Foot-Rail Contactors**

For Use with Hold-Up Protection Systems

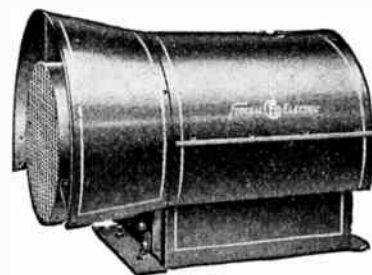


Send for complete catalogue on Faraday Hold-Up Protection Systems.

**Type B Federal Sirens**

**Single Head**

An electrically operated sound signaling device for very small villages and communities. The ideal starting and quitting signal for electrically operated mines, quarries, ranches, plants, factories, etc. The distance penetration is about 3/4 to one mile, depending on wind and surroundings.

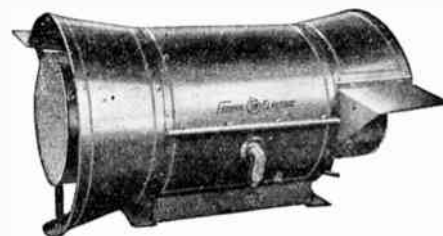


Price, 3-H.P. Single-phase, 60-cycle, A.C. 110 or 220 Volts ..... each \$330.00  
 Price, 3-H.P. 2 or 3-phase, 60-cycle A.C. 110, 220, 440 or 550 Volts.....each 300.00  
 Price, 3-H.P. D.C., 110 to 600 Volts..... " 300.00

**Type B Federal Sirens**

**Double Head**

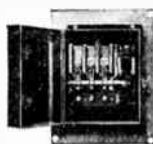
For use as a general alarm in small towns and cities having volunteer fire department. Has a sound penetration radius of 1 1/2 to 2 miles under ordinary conditions.



Has two 15-inch diameter revolving fans, or cylinders, in the sounding mechanism. Size, 38 inches long, 21 inches high, 19 inches wide. Weight, boxed, 400 to 500 pounds.

Price, 5-H.P. Single-Phase, 60-Cycle, A.C. 110 or 220 Volts ..... each \$455.00  
 " 5-H.P. 2 or 3 " 60 " A.C. 110, 220, 440 or 550 Volts. " 400.00  
 " 5-H.P., D.C. 110 to 600 Volts ..... " 400.00

**Remote Control Switches**

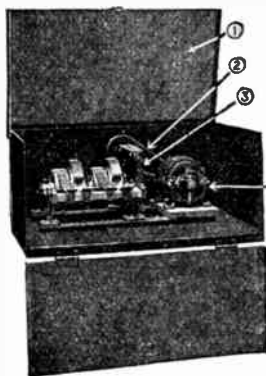


Permits operation of sirens from distant localities. Two push buttons included.

Price, D.C. or A.C., Any Frequency up to 550 Volts, with Steel Case. .each \$50.00  
 Price, Extra Buttons. .... each 5.00  
 Price, Boxes with Glass Fronts for Buttons.....each 10.00

**Federal Automatic General Alarm Control**

For Operating Electric Sirens



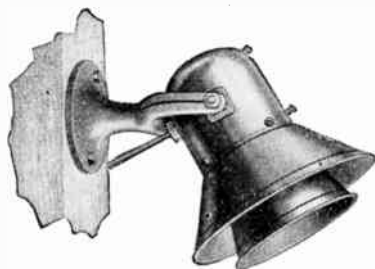
This device automatically performs the "on and off" function of a knife switch. It is invaluable in places where there is no one to operate the knife switch after an alarm has been received. Can be used in conjunction with remote control device. Consists of a motor driven rotary switch mounted in a heavy steel, weatherproof case. Complete as shown in illustration.

The use of this device insures the proper tone effect from the siren.

1—Weatherproof steel case.  
 2—Belt drive from motor or direct connected if desired.  
 3—Worm gear reduction.  
 4—1-20 H. P. motor, in any class current up to 440 volts.  
 Price.....each \$55.00  
 Price, Same but with Automatic Stop .....each 90.00



**Type A Federal Sirens**



This outdoor Type A Siren takes the place of bells, gongs, whistles, etc., wherever electricity is available. There are no gears or vibrating parts. This siren with double horn gives increased efficiency, greater volume, and pleasing tone.

Length over all, 17 inches; diameter of

horn, 10 inches; diameter of body, 5 3/4 inches.

Weight, packed in carton, 18 pounds.

Price, Type A, with Universal Motor, 1/2 H.P., A.C. or D.C., 6 to 250 Volts. Duco Finish.....each \$37.50

Price, with Brass Brushed and Lacquered or Nickel-Plated Finish.....each 50.00

**Federal Triple-A Electric Sirens**



Used as village fire alarms; serves also as a signal in industrials, factories and mines.

Consists of 3 Type A sirens mounted on a triangular steel base. These 3 sirens are connected in parallel and operate from one push-button switch. Each siren has approximately 1/3 h.p. making a total of 1 h.p.

The tone of each of the 3 sirens is different from that of the other 2, giving a pleasing combination of 3 tones. Has a sound radius of from 3/8 to 1/2 mile under normal conditions.

Entirely enclosed; nothing to rust or corrode. Motor housings, stators and rotors are die cast from aluminum. Horns and weatherproof housings over motor cascs are seamless deep spun. Entire unit is finished in red Duco.

Easy to operate and requires little or no attention. Perfect lubrication is assured by oiling 2 or 3 times a year.

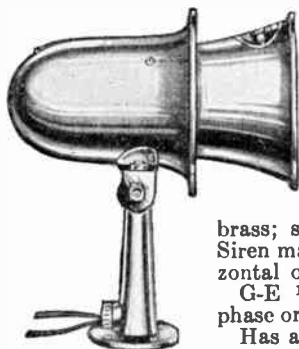
The 3 universal G-E Motors total 1 h.p. and operate on either a.c. or d.c., any phase or cycle. Voltage, 6 to 250.

Length, one side of base, 19 inches. Diameter of largest horn, 10 inches.

Shipping weight, 85 pounds.

Price, Including Push Button.....each \$125.00

**Type C Federal Electric Sirens**



Used on fire and police motor vehicles, ambulances, motor boats and yachts.

Streamline design; visible parts including bracket and base are nickel-plated; may be furnished in brass finish, buffed, brushed or lacquered.

Motor housing and horn are of spun brass; base of cast brass; stator and rotor of aluminum. Siren may be adjusted in either a horizontal or vertical position.

G-E 1/2-h.p. motor, a.c. or d.c. any phase or cycle. Voltage, 6 to 250.

Has a sound radius of 1/4 mile.

Length over all, 11 1/2 inches. Diameter horn, 7 inches. Price, Type C, Shipping Weight, 12 Pounds.....each \$40.00

**Pyrene Fire Extinguishers**



With Bracket



1-Pint

(Auto)

Pyrene Extinguishers are safest for use on electrical fires of all kinds and for fires starting in oil, paint or other highly inflammable materials. The liquid is non-conductive and will not injure electrical equipment.

The contents will not freeze at 50° below zero. Needs no recharging until used.

The 1-pint size is made especially for the modern car. It contains enough liquid to extinguish any incipient automobile fire.

The 1 and 1 1/2-quart sizes (not pint size) are labeled by the Underwriters' Laboratories.

The 1-quart extinguishers are packed 6 to a carton; liquid, 1-quart can, 20 to carton; 1 1/2-quart can, 10 to a case; 1-gallon can, 4 to a case; 1-pint extinguishers, in unit packages of 6, 2 packages of 12 to a carton.

Prices below include black bracket.



In Metal Box

Size Extinguisher	Price, Each		
	Brass Extinguisher	N.P. Extinguisher	Extra Brackets
1-Pint	\$9.00	\$10.00	\$ .75
1-Quart	12.00	13.00	1.00
1 1/2-Quart	15.00	16.00	*1.50

**Pyrene Fire Extinguishing Liquid**

Size Can	1-Pt.	1-Qt.	1 1/2-Qt.	1-Gal.
Price.....each	\$ .90	1.80	2.70	7.20

**Metal Boxes**

Price, Metal Boxes with Glass Front.....each	\$3.00
Price, Glass Fronts.....each	.25

**Weatherproof Double Projector Howlers**



No. 8788

The Projector Howler offers an effective and economical means of projecting sound from a central point up and down a passageway or platform.

This howler has cast iron body, with 2 mounting lugs and is tapped at side for 1/2-inch pipe connection. Two drawn brass, bell type sound projectors are attached to pressed steel front cover.

The sounding mechanism for the Double Projector Howler is of the vibrator type, furnished for d.c. or a.c. circuits, and is standard Benjamin Industrial Howler construction. All joints in case are gasketed to make mechanism weather-proof. Finish is baked black enamel. Red enamel finish will be furnished at \$1.00 advance in list price.

Cat. No.	Connection Inches	Voltage	Wt., Lbs. Each	Price Each
8788	1/2 Conduit	†D.C.	8	\$18.75
8790	3/2 Conduit	*A.C.	7	16.25

\*110 volts, 60 cycles is standard on Benjamin a.c. horns. However, any voltage from 6 to 250, and any frequency from 25 to 60 cycles, may be specified at an advance of 50 cents list. Voltages and frequencies must be specified when ordering.

†110 volts is standard for all Benjamin d.c. horns. However, any voltage from 6 to 250 may be specified at an advance of 50 cents list. Specify voltage when ordering.

**Benjamin Industrial Signals**

**No. 8326-A Heavy Duty Non-Weatherproof Howlers**

Has pressed steel body with approved insulated side entrance for open wiring. The one-piece, drawn brass, bell type sound projector is rigidly attached to a heavy pressed steel cover which also carries the mounting bracket. Wire connections are easily accessible by loosening two screws and removing back. Finished in baked black enamel.

Cat. No.	Type of Projector	Connection	Voltage	Wt. Lbs.	Price Each
8326-A	Brass Bell	Open Wiring	*	2 1/4	\$12.50

\*Standard voltage is 110 volts d.c., but any voltage from 6 to 250 d.c., inclusive, may be specified at an advance of 50 cents. Specify voltage when ordering.

**Alternating Current Industrial Howlers For Series or Multiple Operation**

These howlers may be operated on either multiple or series circuits and will work well even in connection with vibrator or single stroke gongs, etc.

When used in series with other electrical devices special windings are furnished which allow passage of sufficient current to operate the other devices on same line. A 10 per cent variation in voltage will not affect the satisfactory working of the howler. Weatherproof types are recommended when signals are to be used outdoors. Sounding mechanism is of the vibrator type. The vibrations are the result of the alternating current cycles and no make-and-break contacts are required. No adjustments are needed.

**Heavy Duty Weatherproof Howlers**



No. 8346-H

Has a.c. mechanism; construction and finish same as for Cat. No. 8326-H.

Cat. No.	Type of Projector	Connection	Voltage	Wt. Lbs.	Price Each
8346-H	Brass Bell	1/2-In. Conduit	**	4 3/4	\$12.50
8357-A	14-In. Conical	1/2-In. Conduit	**	5 1/4	13.75

\*\*Standard winding is for 60 cycles, 110 volts a.c., but any voltage from 6 to 250 a.c., inclusive, may be specified at an advance of 50 cents. Specify voltage and frequency when ordering.

**Factory Non-Weatherproof Howlers**



No. 8152-L

Has a.c. mechanism; construction and finish same as for Cat. No. 8326-A. Cat. No. 8152-L is exactly like No. 8355-A except that it is equipped with a 9-inch conical sound projector which tends to confine the volume of tone in one direction.

Cat. No.	Type of Projector	Connection	Voltage	Wt. Lbs.	Price Each
8355-A	Brass Bell	Open Wiring	**	2 1/4	\$10.00
8152-L	9-In. Conical	Open Wiring	**	2	8.75

\*\*Standard winding is for 60 cycles, 110 volts a.c., but any voltage from 6 to 250 a.c., inclusive, may be specified at an advance of 50 cents. Specify voltage and frequency when ordering.

**No. 8152-S Mine Type Weatherproof Howlers**

Has pressed steel body and front cover with mounting bracket attached to front cover and a one-piece, drawn brass bell type sound projector. Electrical connections are made to insulated wire leads entering front cover. Made weatherproof by gasket and by sealing wire entrance. Finished in baked black enamel.

Cat. No.	Type of Projector	Connection	Voltage	Wt. Lbs.	Price Each
8152-S	Brass Bell	Open Wiring	**	2 1/4	\$12.50

\*\*Standard winding is for 60 cycles, 110 volts a.c., but any voltage from 6 to 250 a.c., inclusive, may be specified at an advance of 50 cents. Specify voltage and frequency when ordering.

**Benjamin Weatherproof Fire Alarm Howlers**



No. 8360

Specially built for use on fire alarm systems operating under stringent regulations. The Industrial Commission of the State Department of Labor, New York City, has approved them for use with standard fire alarm boards.

In series, without condenser, eight 14-volt or fourteen 8-volt howlers may be used, but where fourteen 14-volt howlers are used a condenser must be supplied on the panel board. The 110-volt howlers may be used for open circuit work where a time limit fuse or switch is inserted in the circuit. The use of 8-volt and 14-volt signals on one circuit is permitted. D.C. howlers are for use on multiple circuits only. The sounding mechanism for Benjamin Fire Alarm Howlers is of the vibrator type. These signals have cast iron body tapped for 1/2-inch pipe connection. A one-piece, drawn brass, bell type sound projector is rigidly attached to a pressed steel front cover. Signal is made weatherproof by gasket. Finished in red enamel.

Cat. No.	Type of Projector	Connection	Std. Voltage	Wt. Lbs.	Price Each
8360	Brass Bell	1/2-In. Conduit	*110 D.C.	5 3/4	\$16.00
8864	Brass Bell	1/2-In. Conduit	8 A.C.	4 3/4	15.25
8865	Brass Bell	1/2-In. Conduit	14 A.C.	4 3/4	15.25
8866	Brass Bell	1/2-In. Conduit	*110 A.C.	4 3/4	15.25

\*Standard voltage is 110 volts, D.C. or A.C., but any voltage from 6 to 250 inclusive, D.C. or A.C., may be specified at an advance of 50 cents. Specify voltage when ordering.

**Benjamin A.C. Industrial Buzzers**

The sounding mechanism of these buzzers is of the vibrator type. The vibrations are the result of the alternating current cycles and no make-and-break contacts are used. These buzzers will operate indefinitely without adjustment or attention, under all commercial conditions on either multiple or series circuits. Mine buzzer No. 8299-M may be used outdoors as well as indoors.

**Heavy Duty Mine Buzzers**

Open wiring type No. 8299-A has heavy stamped steel enameled case and 8-inch wire leads sealed in for outside connection.

Conduit type No. 8299-M has cast brass cover and is tapped for 1/2-inch pipe connection.

Finish, baked black enamel.



No. 8299-M

Cat. No.	Type Body	Connection	Std. Voltage	Wt. Lbs.	Price Each
8299-A	Stamped	Open Wiring	†110 A.C.	1 3/4	\$7.50
8299-M	Cast	1/2-In. Conduit	†110 A.C.	1 3/4	11.25

**No. 8279-A Office and Factory Buzzers**

One-piece pressed steel front cover has side opening with approved insulated wire entrance for open wiring.

Back plate is pressed steel, with mounting brackets top and bottom. This is an effective and reliable signal for offices, stock rooms, shipping rooms, etc., where a weatherproof signal is not necessary. Finished in black enamel.

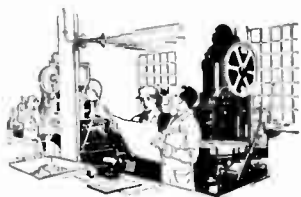


Cat. No.	Type Body	Connection	Std. Voltage	Wt. Lbs.	Price Each
8279-A	Stamped	Open Wiring	†110 A.C.	1 3/4	\$5.75

†May be wound for voltages as high as 250 volts a.c. when specified, at no advance in price.

## Benjamin Industrial Signals

For Calls and Warnings in Factories, Yards, Warehouses, Etc.



In Use in a Machine Shop

In the routine of business, getting men when needed at the office or telephone, is frequently difficult.

A well-installed calling system with the right signals in the line, however, makes it possible to reach any executive at once and without disturbance or loss of time to employees.

Benjamin Industrial Howlers have a peculiar pitch and penetrating tone which makes them most effective and satisfactory signals.

They are ruggedly made and perfectly assembled so that daily performance may be expected for years; their maintenance is less than other forms of signals.

Benjamin Howlers are made for either indoor or outdoor use on direct current or alternating current circuits.

These howlers are satisfactory for use as factory superintendent's and foreman's calls; tell-tale or warning, for water tank levels, steam or gas pressures, sprinkler systems, etc.; burglar alarms; traffic warnings for street crossings; draw bridge signals; in mines, municipal fire stations; at railroad crossings; for signaling the opening and closing hours of labor.

### Direct Current Industrial Howlers For Multiple Circuits

These howlers may be employed successfully on circuits as high as 250 volts.

When six or eight direct current howlers are to be used on one circuit, not less than 32 volts should be used.

Sounding mechanism, vibrator type, has silver make-and-break contact points. An especially constructed condenser across contact points prevents arcing.

Vibrator springs of the best grade spring material are mounted independently of the armature.

Self-locking adjusting screw, reached through projector, regulates tone volume and pitch of note.

### No. 8326-H Heavy Duty Weatherproof Howlers



Has cast iron body, tapped for 1/2-inch pipe connection.

The one-piece, drawn brass, bell type sound projector is rigidly attached to a heavy pressed steel cover.

A gasket between cover and body makes the signal weatherproof.

Finished in baked black enamel.

Cat. No.	Type of Projector	Connection	Voltage	Weight Pounds	Price Each
8326-H	Brass Bell	1/2-in. Conduit	*	5 3/4	\$15.00
8358-A	14-in. Conical	1/2-in. Conduit	*	6 1/2	16.25

\*Standard voltage is 110 volts, direct current, but any voltage from 6 to 250 direct current, inclusive, may be specified at an advance of 50 cents.

Specify voltage when ordering.

## Benjamin Motor Driven Signals

For Multiple Circuits



A weatherproof signal of unusual tone and penetration. Used indoors or out where service requirements are exacting. For use in steel mills, railroad shops, foundries and all locations where noise is excessive.

Pitch of signal is correct for cutting through conflicting noise. Suited for coding as there is no lag or coasting of motor to blur the coded signal.

Signal has heavy cast body, weatherproof rubber gaskets, drop-forged, heat-treated alloy steel ratchet and diaphragm anvil, phosphor bronze armature bearings and automatic wick-feed lubrication. Motor is series wound for starting power and has correct r.p.m. to produce penetrating tone. A set screw at rear of housing controls volume and pitch.

Standard voltage: 110 volts, 60 cycles a.c. or 110 volts, d.c. Special voltages up to 250 volts d.c. and 210 volts a.c. and frequencies from 25 to 50 cycles available at advances over prices. Power consumption, 55 watts.

Finished in baked black enamel. Red enamel furnished at an advance of \$1.25.

The double projector type motor-driven signal is used where sound is to be projected in opposing directions from a central location.

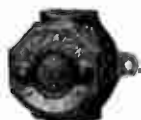
Conduit connection, 1/2 inch.

Net weight, 14 1/2 pounds.

Cat. No.	Projector	Voltage	Price Each
8175	Single Cast	110 A.C.	\$35.00
8176	Single Cast	110 D.C.	35.00
8180	Double Bell	110 A.C.	38.75
8181	Double Bell	110 D.C.	38.75

## Benjamin Heavy Duty High Voltage Push Buttons

Rating: 5 Amperes, 125 Volts



No. 8493



No. 8734

For use with industrial signals. Quick, positive make-and-break mechanism is mounted on base of high heat molded insulating material.

Brass casing with mounting lugs. Casing will be tapped for 1/2 or 3/4-inch pipe, 1 or 2-way, if specified, without extra charge.

Finished in dead black.

### Non-Locking—Single Button

Cat. No.	Description	Weight Pounds	Price Each
8493	Open Circuit Type	1 1/8	\$3.60
8874	Closed Circuit Type	1 1/8	3.60

### Non-Locking—2-Gang Button

8495	Open Circuit Both Buttons	1 3/8	\$5.00
8884	Open Circuit One Button, Closed Circuit One Button	1 3/8	5.00

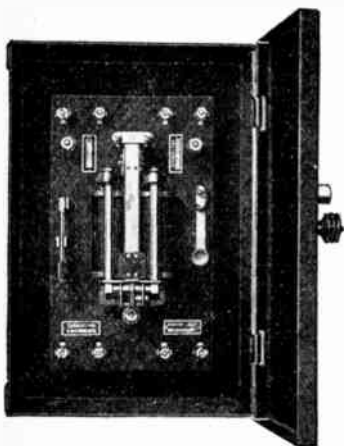
### Locking Type—Watertight

8733	Closed Circuit Type	1 1/8	\$4.00
8734	Open Circuit Type	1 1/8	4.00

When ordering, specify size and number of outlets required.

**Benjamin Master Relay Panels**

**For Controlling 110 to 250-Volt Current to Industrial Signals**



No. 8301C

slate panel and encased in a heavy sheet steel box with cover and lock.

Standard windings of relay coil are for 4 to 6 volts d.c. Special windings for other d.c. voltage can be furnished when specified.

Finish of box is black enamel.

Weight, 18 pounds.

Cat. No.	Magnet Winding for Primary Circuit of	Price Each
8301C	4 to 6 Volts D.C. Only	\$45.00
8301D	Special Voltage, D.C. Only	47.50

**Benjamin Name Plates for Water-tight Push Buttons**



No. 8501



No. 8502

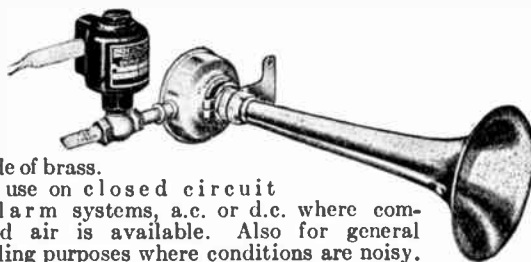
These name plates are regularly supplied blank, but standard markings (list of which is shown on another page.) may be specified.

Cat. No.	Type	For Use on	Price Each
8501	Curved	Single Buttons	\$.18
8502	Straight	Two-gang "	.18

Either style of name plate may be obtained with special markings.

Prices upon application.

**Signal Eng. Air Horns with Electric Valves**



Made of brass. For use on closed circuit fire alarm systems, a.c. or d.c. where compressed air is available. Also for general signalling purposes where conditions are noisy.

In ordering, give type designation, volts and cycles.

Type AEA1 for A.C., Polished Finish	each	\$100.00
Type DEA1 for D.C., Polished Finish	each	100.00
Type FAEA for A.C., Fire Red Enamel Finish	each	105.00
Type FDEA for D.C., Fire Red Enamel Finish	each	105.00

**Signal Eng. Air and Steam Whistles with Electric Valves**

Used on closed circuit fire alarm systems a.c. or d.c. where compressed air is available; also for general signalling purposes where conditions are noisy.

Whistle chambers 1 and 1½ inches in diameter require ¾-inch air or steam line; 2 inches in diameter require ½-inch air or steam line.



Air Whistles		Diam. Chamber, In.	Price Each
A.C. TYPE	D.C.		
AWA1	DWA1	1	\$45.00
AWA2	DWA2	1½	50.00
AWA3	DWA3	2	55.00
Steam Whistles			
AWS1	DWS1	1	\$70.00
AWS2	DWS2	1½	75.00
AWS3	DWS3	2	100.00

**Klaxon Industrial Horns**

An electric motor driven signal sounding device. Types shown can be furnished to operate on electrical current of 5 to 230 volts d.c. and 10 to 460 volts a.c. A series resistance is supplied with the 220-volt d.c. instrument for adapting it to 240 or 250 d.c. circuits. Should be operated only on circuits of voltage for which instrument is intended. Weatherproof housings are fitted with brackets for wall mounting and are tapped for conduit. Instruments are finished in fire red enamel and are identical in all respects except their projectors.

In ordering, specify the type desired, voltage and if a.c. or d.c. and cycles if current is a.c.



Type WS

**Type WS**  
Has a short projector, producing a harsh, piercing note. Especially fitted for indoor use under severe noise conditions. Length, 7½ inches.

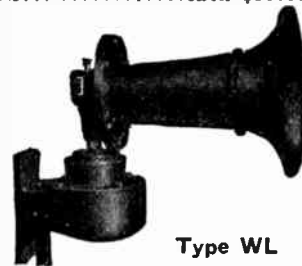
Shipping weight, 25 pounds.  
Price, Type WS... each \$30.00



Type W

Furnished with a ram's horn shaped projector which directs its deep tone downward. Suitable for overhead or outdoor use. Length, 12 inches.

Shipping weight, 25 pounds.  
Price, Type W... each \$30.00



Type WL

Has a long bell projector. Deep penetrating note of great carrying power. Recommended where long distances are to be covered. Length, 14¼ inches.

Shipping weight, 25 pounds.  
Price, Type WL... each \$30.00

GraybaR  
Symbol of Distribution  
from GraybaR  
ELECTRIC COMPANY

## Jefferson Wizard Bell Ringing Transformers



For residences or small flat buildings. Will operate door bells, buzzers, annunciators, and door openers. For 100-120 volts; 25 watts. Secondary, 10 volts. Size, 2 3/8 x 2 3/8 x 2 3/8 inches. Weight, 1 pound. Price, No. 230-101, 50-133 Cycles...each \$1.25 Price, No. 230-102, 25-40 Cycles...each 1.50

## Jefferson Nucode Bell Ringing Transformers With Round or Square Cover

Mounted on an outlet box cover. Round cover fits 3 1/4 and 4-inch octagon boxes; square cover fits 3 1/4 and 4-inch octagon and 4-inch square boxes.

Knockout in cover permits hanging a drop cord from same outlet box. Transformer wires do not interfere with lighting wires. Grounded to prevent shocks and possibility of fires.

Depth, 2 1/4 inches; width, 2 3/8 inches; height, 2 1/4 inches.

Cat. No.	Capacity Watts	Volts	PRIMARY Cycles	Secondary Voltages	Wt. Lbs.	Price Each
230-111	25	100-120	50-133	10	1 1/8	\$1.50
230-112	25	100-120	25-40	10	1 1/8	2.00
230-141	25	100-120	50-133	10	1 1/8	1.50
230-142	25	100-120	25-40	10	1 1/8	2.00



No. 230-141

## Jefferson Heavy Duty Bell Ringing Transformers

When the current demand is greater than the capacity permitted with the small transformers, the heavy duty types should be used. Examples of such uses are large apartment buildings, hotels, factories, schools, etc.

The core and windings are hermetically sealed in a heavy metal case. Standard winding will operate on 100 to 120 volts a.c., 50 to 133 cycles.

### Type A

Type A is designed for heavier signal work and installations that require more power than is generated by the Micode or Tri-volt Type. Three secondary voltages; 6, 14 and 20.

Capacity Watts	Dimensions Inches	Weight Pounds	Cat. No.	Price, Each 60 Cycles	Cat. No.	Price, Each 25 Cycles
50	3x3 3/4 x 4	4	231-101	\$5.00	231-102	\$6.00

### Type B

Type B Heavy Duty is designed primarily to take care of large installations and operate a greater number of bells and other signal devices than the smaller type transformers. Three secondary voltages; 6, 14 and 20.

75	3 3/4 x 4 1/8 x 6	7 1/2	231-111	\$7.00	231-112	\$9.00
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### Type C

Type C will operate large a.c. bells, bells on installations up to 20 bells ranging in size from 2 1/2 to 16 inches in diameter. Suitable for schools, factories, mines, etc. Delivers four voltages; 6, 12, 18 and 24.

125	3 3/4 x 4 1/8 x 6	9	231-121	\$9.00	231-122	\$11.00
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### Type D

Type D delivers 15, 25 and 40 volts and is designed to take care of large bells, where extra long lines are used, and to operate the old-style d.c. bells which require a higher voltage than the transformer bell.

125	3 3/4 x 4 1/8 x 6	9	231-131	\$10.00	231-132	\$12.50
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### Type E

Type E is designed for unusually large installations. Secondary voltages, 6, 12, 18 and 24. Can be supplied with any desired secondary voltages at slight additional cost.

250	5 1/2 x 5 1/4 x 4 1/2	15	231-141	\$18.00	231-142	\$22.00
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### Type F

Type F has an output of 500 watts, secondary voltages, 6, 12, 18 and 24. This transformer can be furnished with any desired secondary voltages at slight additional cost.

500 7 1/4 x 6 1/4 x 5 23 231-151 \$28.00 231-152 \$35.00 For 220-volt 50 to 133 cycle transformers, add 15 per cent to list prices.

## No. 230-131 Jefferson Porcelain Klad Bell Ringers

This transformer has the combined advantages of all-steel and all-porcelain construction. It is especially adapted to basements and other rooms which are finished and decorated and where a black metal case transformer might be out of harmony.

May be installed using either nails or screws without danger of chipping the case. No projecting lugs to break off.

For 100 to 120 volts. Cycles, 50 to 133. Capacity, 25 watts. Secondary, 10 volts.



Price, No. 230-131.....each \$1.50

## Jefferson Universal Toy Transformers For Use on A.C. Only

Little Jeff No. 535-111 delivers 6 secondary voltages from 5 1/2 to 9 1/4 volts in 3/4-volt steps, and is recommended for all American Flyer, Borgfeldt, and Dorfan 0-gauge outfits.

Little Jeff No. 535-101 delivers 6 secondary voltages from 5 1/2 to 13 volts in 1 1/2-volt steps. For all Bing, Ives or Lionel 0-gauges, outfits.



Type No. 3

Midget No. 535-121 delivers 18 secondary voltages from 5 1/2 to 22 1/2 volts in 1-volt steps with permanent voltages of 6 and 12 volts. Will operate all Ives 0-gauge and Nos. 691, 692, 705, 710 and 711 standard gauge outfits; American Flyer trains, standard or 0-gauge outfits; Lionel trains, all 0-gauge trains and Nos. 342, 347, 350, 351 and 352 standard gauge outfits.

No. 2 delivers 30 secondary voltages from 5 1/2 to 23 volts in 3/4-volt steps. Permanent voltages from 4 1/2, 9 and 13 1/2 volts. Will operate all standard gauge Lionel trains, and Ives Nos. 703, 704, 705, 706 and 710 train outfits; Christmas tree lighting outfits up to sixteen 14-volt lamps.

No. 3 delivers 30 secondary voltages from 1 to 30 volts in 1-volt steps. Permanent voltages 6, 12, 18 and 24 volts. Operates all types of trains up to the largest and most expensive; recommended for standard gauge outfits when extra cars and accessories are to be used. Will operate Christmas tree lighting outfits up to thirty-two 14-volt lamps.

Cat. No.	Type	Cap. Watts	No. of Volts	Range Volts	Dimensions Inches	Wt. Lbs.	Price Each
535-111	Little Jeff	50	6	5 1/2 to 9 1/4	2 1/2 x 2 3/4 x 3 1/2	3 1/2	\$3.00
535-101	Little Jeff	50	6	5 1/2 to 13	2 1/2 x 2 3/4 x 3 1/2	3 1/2	3.00
535-121	Midget	75	18	5 1/2 to 22 1/2	3 1/2 x 3 1/2 x 2 3/4	5	4.50
535-131	No. 2	100	25	5 1/2 to 23	5 x 4 x 3 3/4	6 1/2	6.00
535-141	No. 3	150	25	1 to 30	5 3/8 x 5 x 4	11 3/4	8.00

110 volts, 25 cycles or 220 volts, 60 or 25 cycles, prices upon application.

## Edwards Enclosed and Fused Bell Ringing Transformers

Primary 110 Volts, 25-40 or 60 Cycles

### Schedule E

Correctly designed for proper operation of all signaling devices.

### No. 860, Double Pole

Cycles	Watts	Std. Pkg.	Wt. Lbs.	Price Each
60	25	26	60	\$2.50
25-40	25	25	60	2.70

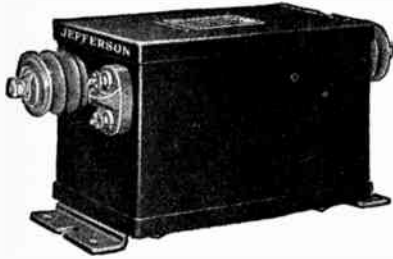
### No. 860P, Single Pole

60	25	25	60	\$2.50
25-40	25	25	60	2.70

For 220-volt primary add 15 per cent to price.



**Jefferson Gaseous Tube Transformers**

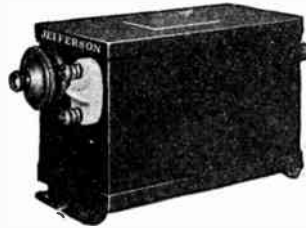


No. 938-103

the length depending upon the pressure of the gas in the tubing. It will deliver 25 milliamperes to any range of tubing within its capacity. This information also applies to transformers Nos. 933-102, 938-104, 933-108, 938-109 which are the same except for the primary voltage and frequency.

No. 933-151 is for tubing from 18-20 millimeters in diameter and where a little stronger brilliancy is desired. This transformer will deliver 50 milliamperes within its capacity.

No. 933-121 is used mainly for the portable type of sign or those incorporating the use of small size tubes. Their narrow cases make them especially adaptable to narrow frames. One high tension terminal is placed at each end to facilitate wiring. Liberally designed for coolness of operation.



No. 938-121

No. 933-123 delivers 25 M.A. output and where short lengths of tubing are desired, will operate at the same brilliancy as No. 938-103.

No. 933-131 is for signs using tubing from 8 to 10 millimeters in diameter. Has a capacity of 15 milliamperes.

No. 938-161 is for operating short lengths of tubing.

No. 933-171 is similar in design to No. 933-161 except that it has a narrower case and is recommended for specialties in tubes where short lengths are desired.

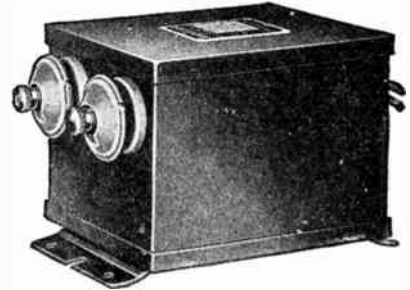
No. 938-111 is used mainly for aeroplane beacon lights, decorative effects, etc. Has a capacity of 3000 volt amperes, a secondary voltage of 6000 volts and a milliamperage rating of 300. Will operate tubes from 3/4 to 1 inch, or from 25 to 34 millimeters in diameter.

Cat. No.	Capacity V.A.	PRIMARY		SECONDARY		SIZE TUBE OPERATED	
		Volts	Cycles	Volts	M.A.	Inches	M.M.
938-103	450	110	60	14000	25	1/2	12-15
938-102	450	110	25	14000	25	1/2	12-15
938-104	450	200	60	14000	25	1/2	12-15
938-108	450	50-75	60	14000	25	1/2	12-15
938-109	450	130-150	60	14000	25	1/2	12-15
938-151	500	110	60	10000	50	5/8	18-20
938-121	250	110	60	12000	20	3/8	10-12
938-123	250	110	60	9000	25	1/2	12-15
938-131	250	110	60	12000	15	1/4	8-10
938-161	125	110	60	5000	25	3/8	10-12
938-171	100	110	60	3500	25	3/8	10-12
938-111	3000	110	60	6000	300	3/4-1	25-34

Cat. No.	DIMENSIONS, INCHES				Weight Pounds	Price Each
	Length Over All	Length Case Only	Width	Height Including Brackets		
938-103	12 1/4	8 1/2	5 1/8	5 15/16	23 1/2	\$22.00
938-102	12 1/2	9	5 1/16	7 3/16	38	32.00
938-104	12 1/4	8 1/2	5 1/8	5 15/16	23 1/2	24.00
938-108	12 1/4	8 1/2	5 1/8	5 15/16	23 1/2	24.00
938-109	12 1/4	8 1/2	5 1/8	5 15/16	23 1/2	24.00
938-151	12 1/4	8 1/2	5 1/8	5 15/16	24	23.00
938-121	10 1/2	7 5/8	4 1/8	5 15/32	15	18.00
938-123	10 1/2	7 5/8	4 1/8	5 15/32	15	18.00
938-131	10 1/2	7 5/8	4 1/8	5 15/32	15	18.00
938-161	7 3/8	4 1/4	4 1/16	4 1/32	8 1/2	12.00
938-171	7	4	2 3/8	4 1/4	5 1/2	10.00
938-111	.....	.....	.....	.....	135	150.00

**Jefferson Constant Duty Oil Burner Transformers**

Nos. 638-221 and 638-222, 12000 Volts—24 M.A.  
Nos. 638-231 and 638-232, 14000 Volts—20 M.A.



No. 638-221 is a 12000-volt transformer designed for constant operation of the insulated electrode assembly only. It delivers a hot and powerful spark.

The secondary is grounded to the case mid-point to equalize stress on electrode insulators. Special construction reduces radio interference.

Nos. 638-221 and 638-231: Length, 8 5/8 inches; height, 5 1/8 inches; width, 5 1/8 inches. Nos. 638-222 and 638-232: Length, 12 1/4 inches; height, 5 1/16 inches; width, 5 1/8 inches.

The primary end is furnished with female fitting for straight conduit attachment and a porcelain bushing for open wiring, or with a box and cover attached for connection to rigid conduit. Cover is plain; box has one 1/2-inch knockout in each end and bottom and 3 in each side.

Cat. No.	Volts	Cycles	SECONDARY		Weight Pounds	Price Each
			Volts	Output Capacity M.A. Watts		
638-221	100-120	50-133	12000	24 120 15	15	\$16.00
638-222	100-120	25-40	12000	24 120 23 1/2	23 1/2	26.00
638-231	100-120	50-133	14000	20 120 15	15	17.00
638-232	100-120	25-40	14000	20 120 23 1/8	23 1/8	28.00

**Nos. 638-161 and 638-171 Jefferson Oil Burner Transformers**  
10000 Volts—23 M.A.—Intermittent Duty



Nos. 638-161 and 638-171

No. 638-161, insulated type, and No. 638-171 grounded type, are small in size; produce a hot, fat spark, powerful enough to operate the burner at 30 per cent drop in voltage.

Length, 8 5/16 inches; height, 4 5/8 inches; width, 4 5/16 inches.

Cat. No.	PRIMARY		SECONDARY		Wt. Lbs.	Price Each
	Volts	Cycles	Volts	Output Capacity M.A. Watts		
638-161	100-120	50-133	10000	23 105 11 1/2	11 1/2	\$14.00
638-171	100-120	50-133	10000	23 105 11 1/2	11 1/2	14.00

**No. 638-997 Jefferson Gas Igniters**  
5000 Volts—15 M.A.—Intermittent Duty

A 5000-volt transformer for igniting gas. Built for intermittent operation with a spark gap at 1/16 inch. Adapted to grounded systems only.

Cat. No.	PRIMARY		SECONDARY		Wt. Lbs.	Price Each
	Volts	Cycles	Volts	Output Capacity M.A. Watts		
638-997	100-120	50-133	5000	15 50 5 3/4	5 3/4	\$11.00

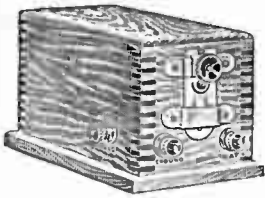
**No. 638-191 Jefferson Gas Igniters**  
5000 Volts—15 M.A.—Constant Duty

Furnished only in the insulated type; can be connected and used as a grounded unit.

Cat. No.	PRIMARY		SECONDARY		Wt. Lbs.	Price Each
	Volts	Cycles	Volts	Output Capacity M.A. Watts		
638-191	100-120	50-133	5000	51 25 5 1/4	5 1/4	\$12.00



## Jefferson Box Type Vibrating Coils



Designed to light gas pilots or for direct ignition of the atomized oil.

### No. 105

An intermittent coil for operating on 110-volt a.c. or d.c. line. Must not be used unless protected by being cut out of circuit at end of 30-second period.

Oak case is 3 inches high; base is 5 1/2 inches long and 3 1/4 inches wide. With two 12-inch leads for connection.  
Price, No. 105.....each \$6.00

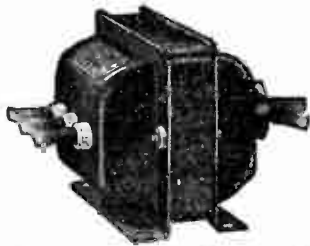
### No. 51

A 6-volt type coil. Can be operated from a 6-volt battery or coupled with low-voltage transformer. Equipped with 3 binding posts.  
Price, No. 51.....each \$4.00

## Jefferson Low Voltage Transformers

Designed for service wherever low voltage a.c. is necessary, such as the operation of electrically controlled valves, thermostatic circuits, thermostats, magnetic relays, etc.

Five different transformers supply a type for every requirement. Capacities range from 35 to 150 watts and are furnished with any desired secondary voltage. Built in accordance with the requirements of the Underwriters' Laboratories covering such transformers.

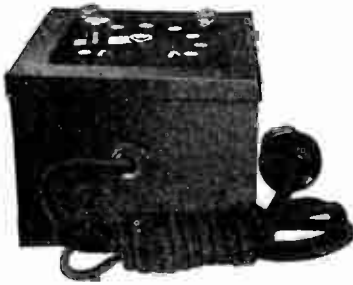


Can be furnished for 110 or 220-volt a.c. systems.  
Prices upon application.

## Edwards Toy Transformers

For 110-120 Volts, 60 Cycles, A.C.

### Schedule T



Packed in attractive cartons.

### No. 870, 50 Watt

Fifty watt capacity with a secondary voltage of 3 to 18 in 3-volt steps. Voltage is controlled at will by moving switch lever, without change of binding posts. Will operate 0 gauge small trains, and smaller airplanes, motors, etc.  
Price, No. 870, Weight 3 1/2 Pounds.....each \$4.25

### No. 871, 75 Watt

Same design as No. 870 but has twice the capacity and greater voltage range (3 to 24 in 3-volt steps). Operates the average toy train on both 0 and standard tracks. Recommended for use where No. 870 might lack in capacity.  
Price, No. 871, Weight 6 Pounds.....each \$7.10

### No. 872, 101 Watt

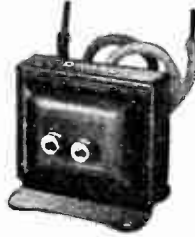
Has a variable secondary voltage from 2 to 30 in 2-volt steps which is controlled without changing binding post connections. Permanent voltage for lights, signals, etc., 6 and 14.  
Price, No. 872, Weight 7 1/2 Pounds.....each \$10.60

Add 20 per cent to price for 25 and 40 cycles.

## No. 86 Edwards Steel Case Bell Ringing Transformers

Primary 110 Volts, 25-40 or 60 Cycles

### Schedule E



Correctly designed for the proper operation of all signaling devices.

Cycles	Watts	Std. Pkg.	Wt. Lbs.	Price Each
60	25	50	54	\$1.28
25-40	25	50	54	1.48

For 220-volt primary add 15 per cent to price.

## No. 87 Edwards Porcelain Case Bell Ringing Transformers

Primary 110 Volts, 25-40 or 60 Cycles

### Schedule E

For average door bell and door opener installations.

Cycles	Watts	Std. Pkg.	Wt. Lbs.	Price Each
60	25	50	97	\$1.55
25-40	25	50	97	1.75

For 220-volt primary add 15 per cent to price.



## No. 86ER Edwards Bell Ringing Transformers

Fits on 3/4 and 4-Inch Octagon and Square Boxes

Primary 110 Volts, 25-40 or 60 Cycles

### Schedule E



Correctly designed for the proper operation of all signaling devices.

This transformer is of the exact wattage, voltage and other characteristics necessary to eliminate guess work on the part of the contractor or jobber.

For 220-volt primary add 15 per cent to price.

Cycles	Watts	Standard Package	Weight Pounds	Price Each
60	25	50	60	\$1.55
25-40	25	50	60	1.75

## No. 86T Edwards Steel Case Bell Ringing Transformers

Primary 6-8-14 Volts, 60 Cycles or 110 Volts, 25-40 Cycles

### Schedule E



These transformers are of the exact wattage, voltage and other characteristics necessary to eliminate guesswork on the part of the contractor and jobber.

Cycles	Watts	Std. Pkg.	Wt. Lbs.	Price Each
60	25	50	56	\$1.55
25-40	25	50	56	1.75

For 220-volt primary add 15 per cent to price.

**No. 86ES Edwards Bell Ringing Transformers**

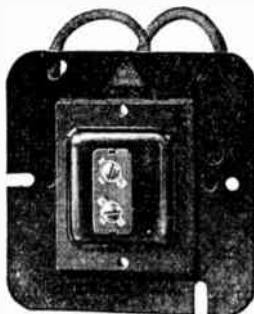
Fits On 3/4 or 4-Inch Octagon and Square Boxes  
Primary 110 Volts, 25-40 or 60 Cycles

Schedule E

Correctly designed for the proper operation of all signaling devices.

Cycles	Watts	Std. Pkg.	Wt. Lbs.	Price Each
60	25	50	35	\$1.55
25-40	25	50	65	1.75

For 220-volt primary add 15 per cent to price.



**Edwards Heavy Duty Type Transformers**

Primary 110 Volts, 25-40 or 60 Cycles  
Secondary 8-16-24 Volts

Schedule T

These transformers adequately cover the signaling device field with a greater range of capacities.

Cat. No.	Cycle	Watts	Wt. Lbs.	Price Each
88	60	50	3	\$5.15
88	25-40	50	3	5.66
89	60	75	5	7.73
89	25-40	75	5	8.50
90	60	100	7	9.00
90	25-40	100	7	9.90
93	60	150	10	11.00
93	25-40	150	10	12.10
94	60	250	12	22.50
94	25-40	250	12	24.75



**No. 13 Lungen Bells**

3 Ohms

Schedule E

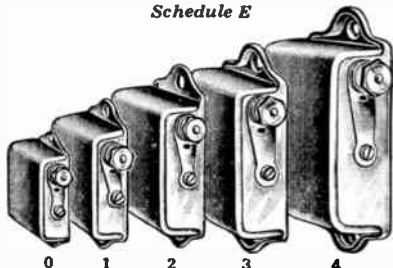


Made of brass heavily nicked; ribbed edges, spring cover. Cast base, screw and locknut adjustment. Price for special finish upon request.

Size In.	Std. Pkg.	Price Each	Size In.	Std. Pkg.	Price Each
1	6	\$2.00	4	6	\$2.20
1 3/4	6	1.80	5	1	8.40
2 1/2	12	1.90	6	1	9.45
3	12	2.00	.	.	.....

**No. 15 Lungen Buzzers**

Schedule E



Cover and base sheet steel; pivoted armature; ribbed edge spring cover. All nickel finish.

Size No.	Dimensions Inches	Std. Pkg.	Price Each	Size No.	Dimensions Inches	Std. Pkg.	Price Each
0	1 5/8 x 1 1/8	25	\$1.85	3	3 x 2	25	\$1.95
1	2 1/8 x 1 1/8	25	1.45	4	3 1/2 x 2 1/4	25	2.20
2	2 3/8 x 1 3/4	25	1.70	.	.....	..	.....

**No. 730 Edwards Buz-a-bels**

Schedule E

A combination bell and buzzer on one frame, under one cover.

One binding post is for the common battery supply, the other two being, one for the buzzer and one for the bell.

The cost is half as much as a single bell or buzzer of quality.

Operates equally well on battery or transformer.

Tested to 40000 operations on 15 volts A. C. which is more than 15 years of actual experience.

Standard package, 100.

Price, No. 730.....each \$1.20



**Edwards Nubels**

Schedule Q

**No. 735 Nubel**

The No. 735 Nubel is a double magnet bell that operates perfectly on battery or transformer. It has phosphor bronze springs, silver contacts and new code binding posts. Grey enamel finish.

Standard package, 100. Shipping weight, standard package, 45 pounds. Price No. 735.....each \$6.64

**No. 736 Buzzer**

The No. 736 Edwards Buzzer is of the same construction as the No. 735 Nubel.

Standard package, 100. Shipping weight, standard package, 32 lbs.

**No. 737 Combrel**

The No. 737 Edwards Combrel is a double magnet bell and double magnet buzzer on one frame with the complete mechanism except the binding posts under a neat cover. For the apartment and flat. Has grey enamel finish that may be repainted. Gives excellent operation on battery or transformer.

Standard package, 50.

Shipping weight, standard package, 56 pounds.

Price, No. 737.....each \$1.12

**No. 738 Tubel**

The No. 738 Edwards Tubel consists of 2 double magnet bells of different tone on one frame with the complete mechanism except the binding posts under a neat cover. For small residence work, apartments and flats. Has grey enamel finish that may be repainted to match surroundings if desired. Gives excellent operation on battery or transformer.

Standard package, 50.

Shipping weight, standard package, 64 pounds.

Price, No. 738.....each \$1.20

**No. 26 Edwards Constant Ringing Drops**

Schedule T



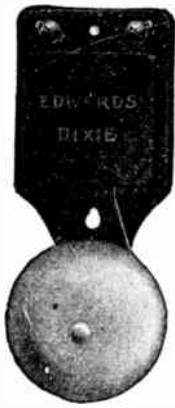
Nos. 26B and 26C are attached to the main line; closing of circuit drops plunger, closing local circuit and causes bell to ring continuously until plunger is pushed into place. Standard drop is the No. 26B. When it is desirable to have drop in operation cut its own magnets out of the circuit the No. 26C is used. Either type operates on transformer.

No. 26T is wound to a resistance of 1250 ohms for connection across ringer terminals of a standard magneto or common battery telephone operating on a.c. ringing current of 75 to 90 volts at 16 to 20 cycles. This drop closes a circuit to an auxiliary loud ringing bell.

Price, No. 26B.....each \$2.70  
Price, No. 26C.....each 3.92  
Price, No. 26T.....each 5.00

## Edwards Iron Box Bells and Buzzers

Schedule E



Dixie Bell

Hammer rod, ball and armature are all 1 piece. Rod is swaged to prevent bending in operation. Hammer ball is under the gong to prevent disarrangement. The armature is pivoted at the nearest point to the cover where there is practically no side motion.

Class C bell is non-adjustable; resistance, 2 ohms only.

Class B bell is adjustable; resistance, 2 ohms only.

Finish, black enamel, nickel trimmings.



Dixie Buzzer

### Dixie, Class C Bell—2 Ohms

Cat. No.	Size In.	Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Price Each
720	2½	100	\$ .92	*725	...	100	\$ .89

### Cadet, Class B Bell—2 Ohms

Cat. No.	Size In.	Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Price Each
710	2½	100	\$1.04	*715	...	100	\$1.02
712	3	100	1.18	**	...	50	1.83
714	4	50	1.53	...	...	...	....

\*Buzzer. \*\*Fancy Gong.

## No. 222 Edwards D.C. Buzzers

6 to 8 Volts D.C.

Schedule E



Constructed on the vibrating reel principle. A heavy duty, adjustable d.c. buzzer. Carbon contacts are used. Black enamel finish.

Cat. No.	Size In.	Std. Pkg.	Price Each
222	3x3	5	\$7.15

## No. 156 Edwards Monitor Bells

Battery or Transformer Operation

Schedule T



An entirely self-contained bell that presents a neat appearance.

The hammer rod moves on a straight line and strikes the inside of the gong. This allows the bell to be made weather, bug and dust proof.

The springs are phosphor bronze, the contacts pure

hard-drawn silver. Has a 3-inch gong, nickel, base is finished in black.

Weight, 1¼ pounds.

Price, No. 156, Vibrating.....each \$1.80

Price, No. 156, Single Stroke.....each 2.30

## No. 182 Edwards Street Car Signals

Battery or Transformer Operation

Schedule T



A self-contained bell.

The hammer rod strikes the cast iron case.

The noise given is distinctly different from the usual type of buzzer.

This signal is mounted on a gasket and is entirely waterproof.

Finished in black enamel.

Diameter, 3 inches.

Weight, 1¼ pounds. Weight of rubber gasket, 1 ounce.

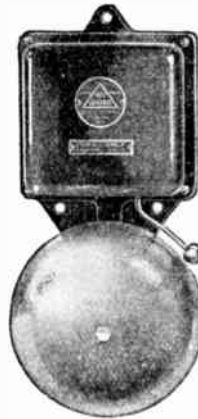
Price, No. 182.....each \$3.00

Price, Rubber Gasket.....each .40

## No. 222 Edwards Clapper Type Bells

For 6-48 Volts D.C.

Schedule E



No. 222 Standard

For use in schools, etc.

The vibrating unit gives power and long life. Its construction is arranged to allow full operation of the armature spring over its entire length with a mechanical breaking of the circuit entirely independent of spring action. When circuit is broken, and armature returns to normal position, it is not stopped abruptly but continues past the normal point of contact and gains momentum for the repetition of the operation.

Two wire entrances are provided; one at the top for surface wiring and one at the back for concealed wiring. Both are sealed with wax which may be knocked out.

Conduit fittings are made so that they may be installed with conduit and bell placed thereon after wires are pulled through. Fittings are drilled top and bottom for ½-inch conduit unless ¾-inch is specified. A pipe plug is furnished for use when bell is on end of line.



Conduit Type

### No. 222 Standard

Size In.	Weight Pounds	Price Each	Size In.	Weight Pounds	Price Each
3	2	\$8.85	10	12½	\$25.55
4	2¼	10.55	12	16	31.25
6	8½	14.10	Buzzer	1¾	7.15
8	11½	19.50	..	....	....

For weatherproof gasket add \$2.00 list.

Conduit attachment: add \$1.00 list for separable conduit fitting for flush or surface conduit.



Buzzer

### No. 222 P.G. Part Grid Type

Add to Standard bell:

Size Inches	Weight Pounds	Price Each
6	¾	\$7.50
8	1	8.00
10	1⅞	9.00
12	2½	10.50



No. 222 P.G.

### No. 222 F.G. Full Grid Type

Add to Standard bell as follows:

Size Inches	Weight Pounds	Price Each
6	2¼	\$8.00
8	3¼	8.75
10	5½	10.00
12	7	12.00



No. 222 F.G.

### No. 222Y Yard Type With Protective Hood

Add to Standard Bell for No. 222Y.....each \$25.00

Special voltage up to 30 volts at no charge.

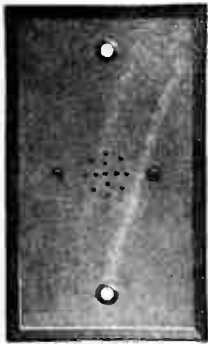


No. 222Y

**No. 16 Edwards Flush Buzzers**

Battery or Transformer Operation

*Schedule T*



Used in offices, hospitals, residences, where the appearance of the usual surface type buzzer is objectionable. Buzzer is mounted on back of a standard switch plate to fit standard switch box. Operates on transformer.

Standard finish, brush brass; nickel at no extra charge. Special finishes, upon application.

Weight, metal plate, 3/4 pound; bakelite plate, 9 ounces.

Price, No. 16, Metal Plate, each \$2.50

Price, No. 16, Bakelite Plate ..... each 2.75

**No. 160 Edwards Loud Signal Buzzers**

*Schedule T*

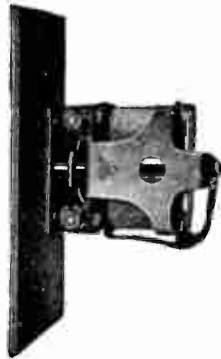
Consists of the movement of the No. 156 monitor bell mounted on a bracket so that hammer strikes against the solid brass plate. This produces a loud sound distinctly different from a bell or buzzer and is particularly adaptable for alarm systems where a distinctive sound is desired.

It is made to fit a standard switch box.

Price does not include switch box.

Standard finish, brush brass or nickel plate.

Price, No. 160 ..... each \$5.50



**No. 136 Edwards Surface Return Call Stations**

*Schedule T*

Designed for installation in existing buildings. Provides a neat appearing plate mounted on a shallow cast box which provides entrance for conduit or open wires as desired. The audible signal is an Edwards Double Adjustment Lungen Buzzer, and the station is completely wired for installation with the special Edwards No. 265 Return Call Push.

The cast box is rubberoid black, the plate is brushed brass or nickel. Special finishes, upon application.

Bakelite plate can be furnished if desired at an additional charge of 25 cents. Weight, 1 1/2 pounds.

Price, No. 136 ..... each \$4.50

**No. 137 Edwards Flush Return Call Stations**

*Schedule T*

A flush plate of pleasing design for mounting on a standard single gang switch box. The audible signal is an Edwards Double Adjustment Lungen Buzzer, and the station is completely wired for installation with the special Edwards No. 265 Return Call Push

Standard finish is brushed brass or nickel plate. Special finishes, upon application.

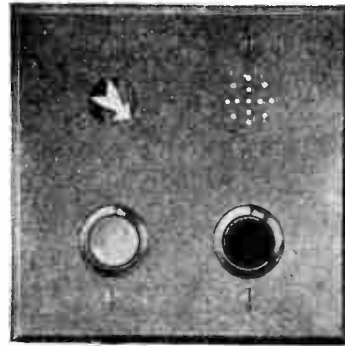
Bakelite plate can be furnished if desired at an additional charge of 25 cents.

Weight, 1/2 pound.

Price, No. 137 ..... each \$4.00



**No. 138 Edwards Indicating Return Call Station—Schedule T**



For use where it is desirable to indicate that a call has been made to the room during the occupant's absence.

It fits a standard 2-gang switch box. The audible signal is a Double Adjustment Lungen Buzzer. The visible signal is a white arrow outlined through a small round glass window. One push button is for the return call, the other to reset the indicating arrow.

Price, No. 138, Push and Buzzer, Wt. 1 Lb. .... each \$12.00

**No. 242 Edwards Relays**

For Alternating Current Only

*Schedule T*

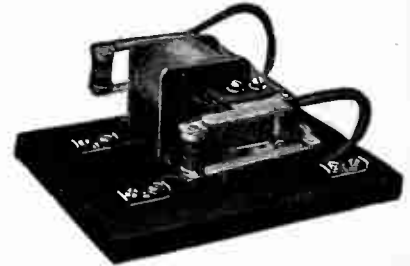
Open or closed circuit.

Multiple carbon contacts with a capacity up to 15 amperes.

Magnets have laminated core and may be wound for operation on 6 to 250 volts A. C.

Each relay on slate base mounted in iron box with hinged cover and knockouts.

Price, No. 242 ..... each \$40.00



**No. 1238 Edwards Dixie Relays**

*Schedule T*

Meets the requirements of service. Has all the necessary features of a pony relay. Can be used for open or closed circuit by merely reversing contact screws.

Adjustment is simple and positive. Arrangement has been made so that adjustment, length of break, etc., may be easily observed. Contacts are pure hard drawn silver.

Standard resistance, 20 ohms.

Weight, 1 1/4 pounds.

Price, No. 1238 ..... each \$6.00



**No. 240 Edwards D.C. Relays**

For Operation on 6 to 250 Volts D.C.  
Open or Closed Circuits

*Schedule T*

Carbon contacts, capacity, 25 amperes. Can be arranged to open or close up to 4 separate circuits at once with current capacity of not over 10 amperes per circuit, (prices upon application).

Mounted on slate base in iron box with knockouts.

Used in fire alarm control panels and for handling heavy loads where push button or remote

control is desired. Weight, 9 1/2 pounds.

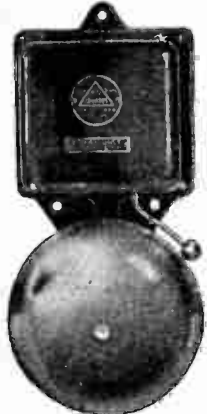
Price, No. 240 ..... each \$70.00



## No. 510 Edwards Clapper Type Bells For Transformer and 110-Volt A.C. Lighting Circuits

### Schedule E

These bells are designed with laminated magnets and specially constructed armature for efficient operation on transformer where a bell with contacts is desired. The contacts are silver, having a large area and excellent current carrying capacity. They are easily replaceable.



**No. 510 Standard**  
Conduit fittings are made so that they may be installed with conduit and bell placed thereon after the wires are pulled through. Fittings are drilled top and bottom for 1/2-inch conduit unless 3/4-inch is specified. A pipe plug is furnished for use when bell is on end of line.  
Standard package, 5 assorted.



Conduit Type



Buzzer

### No. 510 Standard

Size Inches	Weight Pounds	PRICE, EACH	
		Transformer 6 24-Volts A.C.	110 Volts A.C.
3	2	\$9.50	\$17.75
4	2 1/4	10.25	19.50
6	8 1/2	19.10	31.80
8	11 1/2	23.70	38.65
10	12 1/2	42.35	60.30
12	16	48.55	66.50
Buzzer	1 3/4	7.15	15.40

## No. 551 Edwards Plunger Type Bells

For All A.C. Voltages  
Schedule E

A no-contact, polarized bell. For traffic signals, mines, warehouses and all standard signaling purposes.

Binding posts and all parts are completely covered; as hammer rod operates in a straight line, the hole in the cover is but little larger than the rod itself, which makes the bell bug and dust proof. Rustproof gongs are standard equipment, and with the addition of a rubber gasket the bell is weatherproof.

There are no contacts to wear, stick or replace. No pivots, coil springs or points of friction.

No adjustment. The only wearing part is where the hammer strikes the gong and the mechanism automatically adjusts itself to this.

Approved by the National Board of Fire Underwriters.  
Standard package, 5 assorted.



No. 551, Single

### No. 551 Single Gong Type

Size Inches	Weight Pounds	PRICE, EACH		
		8-16 Volts	110-125 Volts	220-250 Volts
3	2 1/2	\$9.50	\$12.33	\$14.52
4	3	10.25	13.10	15.20
6	5	17.00	19.43	20.30
8	12	21.30	23.68	24.50
10	14	30.32	32.83	33.60
12	16 1/2	39.60	45.28	50.93
Buzzer	1 1/2	7.10	9.00	13.00



Buzzer

### No. 552 Double Gong Type



Size Inches	Weight Pounds	PRICE, EACH		
		8-16 Volts	110-125 Volts	220-250 Volts
3	3	\$9.92	\$13.20	\$19.20
4	4	10.70	13.95	19.70
6	8	24.10	27.35	33.05
8	16	28.90	31.55	37.25
10	19	34.20	37.50	43.20

Weatherproof gaskets, add \$2.00 list for rubber gasket.  
Conduit attachment, add \$1.00 list for separable conduit fitting for flush or surface conduit.

### No. 510 P.G. Part Grid Type

Size Inches	Weight Pounds	Price Each
3	5/16	\$6.75
4	5/16	6.75
6	3/4	7.50
8	1	8.00
10	1 7/8	9.00
12	2 1/2	10.50



No. 510 P.G.

### No. 510 F.G. Full Grid Type

Add to Standard bell:

Size Inches	Weight Pounds	Price Each
3	.....	.....
4	1	\$7.25
6	2 1/4	8.00
8	3	8.75
10	5 1/2	10.00
12	7 3/4	12.00



No. 510 F.G.

### No. 510Y Yard Type With Protective Hood

Add to Standard Bell for No. 510Y  
..... each \$25.00



No. 510 Y

### No. 551 P.G. Part Grid Type

Add to Standard bell:

Size Inches	Weight Pounds	Price Each
6	3/4	\$7.50
8	1	8.00
10	1 1/8	9.00
12	2 1/2	10.50



No. 551 P. G.

Double for No. 552.

### No. 551 F.G. Full Grid Type

Add to Standard bell:

Size Inches	Weight Pounds	Price Each
6	2 1/4	\$8.00
8	3 1/4	8.75
10	5 1/2	10.00
12	7	12.00



No. 551 F.G.

**No. 551Y Yard Type with Protective Hood**  
Add to Standard Bell for No. 551Y..... each \$25.00  
Special voltages up to 30 volts at no charge.

**Edwards Plunger Type Recti Bells**  
For Battery, A.C. and D.C. Lighting Voltages

Battery Bells—Schedule E  
Lighting Circuit Bells—Schedule T

Brass hammer rod is so suspended at the armature that easy operation with no side motion is assured. The striking end of the rod is suspended by the case itself.

Springs of phosphor bronze act as demagnetizer between magnet head and armature when stroke has been made.

Contacts are carbon (except in 3 and 4-inch sizes where they are silver). Made from standard 10 mm. headlight rod. Iron case, japanned; with felt gasket, oil treated.

Bell metal gong, finished in black to match the case.



No. 100

**No. 100, Standard Type**

Size In.	Wt. Lbs.	For Battery Price Each	PRICE, EACH			
			For D.C.		For A.C.	
			110 Volts	220 Volts	110 Volts	220 Volts
3	3	\$8.85	\$17.90	\$25.80	.....	.....
4	4	10.85	19.10	27.30	\$17.45	\$25.65
6	6	17.80	30.50	43.25	31.80	44.55
8	9	22.00	37.00	51.90	37.35	52.30
10	15	37.00	54.90	72.90	60.00	77.95
12	18	49.90	67.85	85.80	80.25	98.25
14	23	61.60	82.50	103.50	.....	.....
16	27	129.30	159.20	189.10	.....	.....
18	31	146.95	176.90	206.80	.....	.....

No. 1001, Conduit Attachment for Use on All Type Bells, Add.... \$10.00

No. 100Y, Yard Type, with Protective Hood, Add to Standard Bell. 25.00

**No. 100 P.G.**

**Part Grid Type**

Add to Standard bell:

Size In.	Wt. Lbs.	Price Each	Size In.	Wt. Lbs.	Price Each
4	1 1/3	\$5.50	12	2 1/2	\$10.50
6	3/4	6.50	14	4	24.70
8	1	7.75	16	5 1/2	35.00
10	2	9.00	18	6 1/2	45.00



No. 100 P.G.



No. 100 F.G.

**No. 100 F.G. Full Grid Type**

Add to Standard bell:

Size In.	Wt. Lbs.	Price Each	Size In.	Wt. Lbs.	Price Each
4	1	\$6.00	12	7 3/4	\$12.00
6	2 1/4	7.00	14	12	34.50
8	3	8.50	16	16	45.00
10	5 1/2	10.00	18	20	56.00

**No. 217 High Voltage Type**

Schedule T

High voltage Recti bell for 300-600 volts d.c.

Has binding posts and contact mechanism on slate. Long, quick break. Operates only with gong up.

Size In.	Wt. Lbs.	Price Each	Size In.	Wt. Lbs.	Price Each
6	6	\$68.30	14	23	\$130.85
8	14	73.25	16	27	193.40
10	15	91.35	18	31	227.50
12	18	107.00	..	..	.....



No. 217

**Nos. 220A and 220B Recti Buzzers**

No. 220A has same movement as 3-inch bell; No. 220B, same movement as 6-inch.

No.	Wt. Lbs.	For Battery Price Each	PRICE, EACH			
			For D.C.		For A.C.	
			110 Volts	220 Volts	110 Volts	220 Volts
220A	2	\$7.90	\$10.45	.....	.....	.....
220B	4	11.90	17.95	\$24.10	\$19.95	\$25.10



Buzzer

**Edwards Single Stroke Bells**

For Fire and Signaling Systems

Schedule T



No. 23 (D.C.)  
No. 24 (A.C.)



Showing Movement and Compact Construction

Solenoid type construction, giving a loud, clear ring. Operation is quick and precise, ideal for all coded signaling purposes. The construction eliminates springs and pivots. Entire mechanism is under gong. For surface conduit work a separable box is furnished with knockouts on all sides. Box can be mounted flush and an extension cover is furnished for mounting bell.

Operated either in series or multiple, but will be furnished for the latter unless specified. When conduit type is ordered, flush fitting is supplied unless otherwise specified.

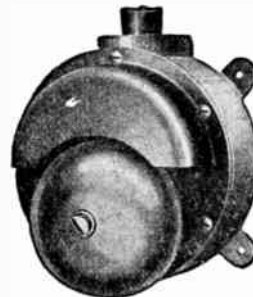
For signaling systems: No. 23 (d.c.); No. 24 (a.c.).

For fire alarms: No. 23F (d.c.); No. 24F (a.c.).

Size Inches	Weight Pounds	PRICE, EACH		
		6-48 Volts	110-125 Volts	220-250 Volts
4	4	\$15.10	\$19.25	\$20.60
6	5	20.65	24.75	26.15
8	6	24.75	28.90	30.25
10	8	31.60	38.50	41.25
12	11	35.75	42.60	45.40

**No. 1740 Edwards Watertight Vibrating Bell and Buzzers**

6 to 30 Volts D.C.  
Schedule T



Used in mines, shipyards, and places where chemical gas is present, in addition to its standard use on ships.

Iron case, drilled to receive 1/2 or 3/4-inch conduit.

Case and mechanism are assembled to withstand heavy shocks and vibrations.

Price, Buzzer, Weight 4

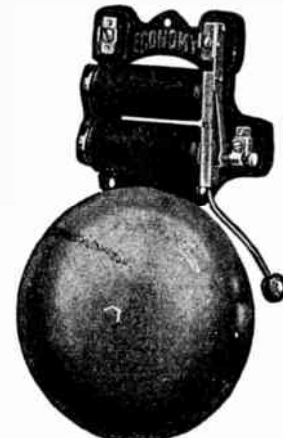
Size.....inches	3	4	6	8
Weight.....pounds	5	5	6	7
Price, No. 1740.....each	\$19.50	22.20	32.10	39.50

**No. 17 Edwards Economy Skeleton Bells**

Schedule E

A fully insulated, loud ringing bell for all ordinary purposes.

The outstanding feature of the Economy is the intensified stroke armature.



Size Inches	Std. Pkg.	Price Each
3	8	\$5.55
4	8	6.58
5	8	7.80
6	12	8.82
8	6	14.37
10	4	21.34
12	4	27.50



## Edwards Electro-Mechanical Bells For Fire Alarm and Other Systems Requiring Low Current Consumption

### Schedule T

Operated by a strong spring mechanism which is released by an exceptionally small flow of current. The mechanism is entirely insulated from the case. The binding posts are on this side.



No. 133



No. 1330

The hammer, when released, makes a full revolution, passing under gong to an inclined plane and strikes gong with great force gathered in revolution. Recoil causes it to drop and become locked in its original position.

**VOLTAGE.**—Battery, 110 volts d.c., 110 volts a.c. for open circuit; closed circuit bells can be furnished for battery and 110 volts, d.c. only.

**NUMBER OF STROKES.**—500 strokes per winding are guaranteed and this number is generally exceeded.

**WINDING KEYS.**—Furnished with each order. One for every 6 balls or less. Additional keys, \$3.00 list.

**FINISH.**—Red frame, black gong. All black if desired.

**RUN DOWN SIGNAL.**—Indicates when bell needs winding. Add to list, \$6.00.

### Standard Types

**TYPE S, SINGLE STROKE.**—Open or closed circuit d.c. Open circuit only a.c.

**TYPE A.**—Constant ringing as long as circuit is closed.

**TYPE B.**—Constant ringing as long as circuit is open.

**TYPE C.**—Constant ringing when circuit is closed, even though it be opened again. Add to list \$10.00.

**TYPE D.**—Constant ringing when circuit is opened, even though it be closed again. Add to list \$10.00.

The above types are furnished in 3 styles of bells as follows:  
**SURFACE CONDUIT TYPE.**—No. 1330 for 3/4 or 1/2 inch if specified.

**CONCEALED CONDUIT TYPE.**—No. 1331, same as above.

**NON-CONDUIT TYPE.**—No. 133.

Size Inches	Weight Pounds	PRICE, EACH		Add to List for Full Grid	*Add to List for 110 Volts
		No. 133	Nos. 1331 and 1330		
6	22	\$72.40	\$82.40	\$7.00	\$18.00
8	24	74.95	84.95	8.50	18.00
10	27	77.97	87.97	10.00	18.00
12	30	85.75	95.75	12.00	18.00
14	33	100.00	110.00	.....	18.00
16	37	114.75	124.75	.....	18.00
18	42	147.50	157.50	.....	18.00

\*A.C. bells furnished for open circuit only.

## No. 750 Bronx Watchcase Buzzer

### Schedule E

A brass case, heavily nickel plated; phosphor-bronze springs, silver-contacts.

Cat. No.	Height Inches	Diam. Inches	Std. Pkg.	Price Each
750	3/8	1 3/4	20	\$1.25



## No. 5006 Graybar Pull Cord Switches



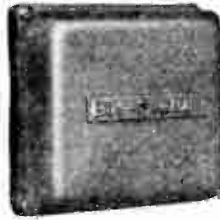
Generally used in parlor ear coaches.

Operates bus signal buzzers; also used as a stop light switch.

Overall block dimensions, 1 3/8 x 2 3/16 x 1 3/32 inches deep.

Prices and specifications upon application.

## No. 5003 Graybar Bus Signal Buzzers



Graybar Bus Signal Buzzers are of the totally enclosed type. A steel cover mounted over the mechanism, houses the unit and protects it from dirt and the weather.

All buzzers are thoroughly insulated and tested at a high voltage breakdown. The magnets are wound with enameled wire, assuring protection from moisture and short circuited turns.

For battery operation, either 6 or 12 volts. In ordering, state voltage required. The resistance of the buzzers is made high to utilize a minimum amount of current when operating. For other voltages, prices upon application.

Overall dimensions, 3 3/16 x 3 3/16 x 1 1/8 inches

Resistance, 15 ohms; voltage, 12. Dry or storage battery.

Prices and specifications upon application.

## No. 5000 Graybar Combination Vibrating and Single Stroke Bells

This bell makes it possible to combine 2 signals in one bell. Adaptable for double deck buses, the vibrating action being used for passenger's signal while single stroke action is for conductor's signal.

Guard extends partially over the gong. Supplied with 4-inch diameter gongs; stainless steel covers finished in black.

Over all dimensions, 8 3/4 x 4 inches.

Resistance, 15 ohms; voltage, 6 or 12. Dry or storage battery.

Weight, 2 3/4 pounds.

Specify voltage when ordering.

Prices and specifications upon application.



## No. 5004 Graybar Door Step Light Switches

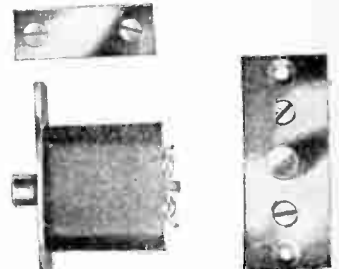
For operating step lights. Heavy gauge bronze face plate, nickel finish. Plunger head is of stainless steel. Electrical contacts are enclosed in bakelite base.

Can be used to make and break circuits carrying as high as 10 amperes.

Dimensions: 2 1/2 inches high; 1 inch wide; 1 1/2 inches deep.

Packed in individual cartons containing switch, mounting screws and bumper plate.

Prices and specifications upon application.



## No. 5005 Graybar Bus Signal Push Buttons

For bus service requirements.

Formed to permit mounting on narrow window posts or installing on moulding. The cover of highly polished nickel finish is fastened to the bakelite base by 2 binding screws.

Mechanism is completely insulated. Contact springs are made of genuine phosphor bronze of the double-break, self-cleaning type, insuring positive action at all times.

Buttons are easily wired as terminal screws have large heads with upset ends to prevent their locking out when connections are looped. Connection permits looping of signaling circuit, eliminating splicing and soldering at each push button station. Overall dimensions, 1 1/2 x 1 inch.

Prices and specifications upon application.



**Faraday Vibrating D.C. Signal Gongs**

*N.E.C. Standard—Schedule E*

**Enclosed Type, Weatherproof**  
For Battery and D.C. Light and Power Circuits  
**Neck Patterns**

Recommended wherever d.c. and battery gongs are to be exposed to dust, dampness or mechanical injury.

Equipped with high-power armatures. Breakage of tension springs does not disable gong. Contacts are regularly Platinoid but pure platinum will be furnished at an additional price, when so ordered. Bauer-barff finished gongs.

Gongs must be wired in multiple.

Specify model number and voltage when ordering.

\*Standard packages: Battery non-guarded gongs, 5 assorted. All other gongs in this column, 1.

**Model A Non-Guarded Gongs**



Cat. No. and Size Gong	Std. Pkg.	Battery Circuit	PRICE, EACH	
			110-125 Volts D.C.	220-250 Volts D.C.
A-1 3/4	*	\$6.60	Not Made	Not Made
A-2	*	7.25	Not Made	Not Made
A-2 1/2	*	7.80	Not Made	Not Made
A-3	*	8.85	Not Made	Not Made
A-4	*	10.85	\$19.05	\$27.30
A-5	*	15.80	27.30	40.00
A-6	*	17.80	30.50	43.25
A-8	*	22.00	36.95	51.90
A-10	*	36.95	54.90	72.85
A-12	*	49.90	67.80	85.80
A-14	*	61.60	82.50	103.50
A-16	*	129.25	159.15	189.10
A-18	*	146.90	176.85	206.75

**Model B Half-Grid-Guarded Gongs**

Cat. No. and Size Gong	Std. Pkg.	Battery Circuit	PRICE, EACH	
			110-125 Volts D.C.	220-250 Volts D.C.
B-4	1	\$17.60	\$25.80	\$34.05
B-5	1	22.95	35.10	47.20
B-6	1	25.00	37.70	50.40
B-8	1	31.70	46.70	61.60
B-10	1	49.65	67.60	85.55
B-12	1	67.10	85.05	103.00
B-14	1	101.20	122.15	143.10



**Model C Full-Screen-Guarded Gongs**



Cat. No. and Size Gong	Std. Pkg.	Battery Circuit	PRICE, EACH	
			110-125 Volts D.C.	220-250 Volts D.C.
C-4	1	\$28.80	\$37.00	\$45.20
C-5	1	36.75	48.85	60.95
C-6	1	38.75	51.45	64.20
C-8	1	48.15	63.15	78.10
C-10	1	69.85	87.70	105.75
C-12	1	91.80	109.75	127.70
C-14	1	128.85	149.80	170.75

**Model Y Yard-Type Gongs**

With Protective Hood

Cat. No. and Size Gong	Std. Pkg.	Battery Circuit	PRICE, EACH	
			110-125 Volts D.C.	220-250 Volts D.C.
Y-4	1	\$35.85	\$44.05	\$52.30
Y-5	1	40.80	52.90	65.00
Y-6	1	42.80	55.50	68.25
Y-8	1	47.00	61.95	76.90
Y-10	1	61.95	79.90	97.85
Y-12	1	74.90	92.80	110.80
Y-14	1	86.60	107.50	125.50



Full cast iron grid can be furnished for Model C at same prices as screen-guarded gongs when so specified; when ordering, designate by adding "Cast-Grid," to Cat. Nos.

For surface and flush-conduit installations, neck patterns shown above will be furnished with separable conduit-box backs having combination 1/2 and 3/4-inch knockouts. Specify "Conduit-Box Pattern," and add \$10.00 to prices.

Rectangular or cow gongs can be furnished on Model A. Add \$5.00 to list price of A-6 for 3 1/2x5-inch gong and add "35" to model number. Add \$10.00 to list price on A-8 for 4 1/2x6-inch gong and add "46" to model number.

**Faraday Vibrating D.C. Signal Gongs**

*N.E.C. Standard—Schedule E*

**Enclosed Type, Weatherproof**  
For Transformer and A.C. Light and Power Circuits  
**Neck Patterns**

These gongs are designed for operation on 12-18-volt a.c. bell-ringing transformers, and 100-110-volt and 220-250-volt a.c. light and power circuits, 50-60 cycles standard—25, 30 and 40 cycles to order.

Mechanisms are dust and weatherproof; they have renewable carbon-contacts, laminated magnet-cores, and sturdy pivoted armatures with substantial double-locked back-tension adjustments. All insulation is bakelite.

Specify model number, voltage and cycles when ordering.

\*Standard packages: 12-18-volt transformer non-guarded gongs, 5 assorted. All other gongs in this column, 1.

**Model AT Non-Guarded Gongs**



Cat. No. and Size Gong	Std. Pkg.	12-18 Volt Trans.	PRICE, EACH	
			100-110 Volts A.C.	220-250 Volts A.C.
AT-4	*	\$13.40	\$23.45	\$32.75
AT-5	*	22.10	36.00	49.20
AT-6	*	24.20	38.85	52.75
AT-8	*	29.55	56.75	63.05
AT-10	*	51.00	70.60	88.55
AT-12	*	58.15	77.80	95.75

**Model BT Half-Grid-Guarded Gongs**

Cat. No. and Size Gong	Std. Pkg.	12-18 Volt Trans.	PRICE, EACH	
			100-110 Volts A.C.	220-250 Volts A.C.
BT-4	1	\$20.15	\$30.15	\$39.50
BT-5	1	29.30	43.20	56.40
BT-6	1	31.40	46.05	59.90
BT-8	1	39.25	56.45	72.80
BT-10	1	64.75	83.35	101.30
BT-12	1	75.30	95.00	112.95



**Model CT Full-Screen-Guarded Gongs**



Cat. No. and Size Gong	Std. Pkg.	12-18 Volt Trans.	PRICE, EACH	
			100-110 Volts A.C.	220-250 Volts A.C.
CT-4	1	\$31.35	\$41.40	\$50.70
CT-5	1	43.05	56.95	70.15
CT-6	1	45.15	59.80	73.70
CT-8	1	55.70	72.90	89.25
CT-10	1	83.95	103.50	121.50
CT-12	1	100.00	119.70	137.65

**Model YT Yard-Type Gongs With Protective Hood**

Cat. No. and Size Gong	Std. Pkg.	12-18 Volt Trans.	PRICE, EACH	
			100-110 Volts A.C.	220-250 Volts A.C.
YT-4	1	\$38.40	\$48.45	\$57.75
YT-5	1	47.10	61.00	74.20
YT-6	1	49.20	63.85	77.75
YT-8	1	54.55	71.75	88.05
YT-10	1	76.00	95.60	113.55
YT-12	1	83.15	102.80	120.75



Full cast iron grid can be furnished for Model CT at the same prices as screen-guarded gongs when so specified; when ordering, designate by adding the word "Cast-Grid" to the catalogue numbers.

For surface and flush-conduit installations, neck patterns shown above will be furnished with separable conduit-box backs having combination 1/2 and 3/4-inch knockouts. Specify "Conduit-Box Pattern," and add \$10.00 to above list prices.

Rectangular or cow gongs can be furnished on Model AT. Add \$5.00 to list price of AT-8 for 3 1/2x5-inch gong and add "35" to model number. Add \$10.00 to list price of AT-8 for 4 1/2x6-inch gong and add "46" to model number.

## Faraday Polarized Vibrating Steel-Clad Signal Gongs and Buzzers

N.E.C. Standard—Schedule E

### No Contact—Non-Sparking

For 18-24-30-Volt Transformer and 100-110-Volt and 220-250-Volt A.C. Light and Power Circuits

### Neck Patterns

Designed for operation on 18-24-30-volt a.c. heavy duty transformers, and 100-110-volt and 220-250-volt a.c. light and power circuits; 50-60 cycles standard—25, 30 and 40 cycles to order. 18-24 volt (or 30 volt) taps of heavy duty transformers must be used.

May be wired in series, as well as multiple.

These gongs and buzzers have no contacts and are non-sparking; adaptable for places where gases or dust might cause explosions.

Mechanisms and binding posts are completely enclosed and protected. Furnished weatherproof for outside use at an addition to price of \$2.00.

For surface or flush conduit installation provided with separable conduit-box-backs, having 1/2 or 3/4-inch knockouts, as specified at an addition to price of \$1.00.

Standard package: 18-24-30-volt transformer ATL gongs, 5 assorted; all other gongs, 1.

## Faraday Polarized Vibrating Steel-Clad Signal Gongs and Buzzers

N.E.C. Standard—Schedule E

### No Contact—Non-Sparking

For 18-24-30-Volt Transformer and 100-110-Volt and 220-250-Volt A.C. Light and Power Circuits

Mechanisms and binding posts are completely enclosed and protected. Furnished weatherproof for outside use at an addition to price of \$2.00.

For surface or flush conduit installation provided with separable conduit-box-backs, having 1/2 or 3/4-inch knockouts, as specified at an addition to price of \$1.00. Packed 1 in a standard package.

### Monitor Patterns

#### Model MTL Non-Guarded Gongs

Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
MTL-6	\$17.00	\$19.45	\$20.30
MTL-8	21.30	23.70	24.50
MTL-10	30.30	32.85	33.60
MTL-12	39.60	45.30	50.95

#### Model MBTL Half-Grid-Guarded Gongs

Cat. No. and Size Gong	PRICE, EACH			Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.		18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
MBTL-6	\$24.50	\$26.95	\$27.80	MBTL-10	\$39.30	\$41.85	\$42.60
MBTL-8	29.30	31.70	32.50	MBTL-12	50.10	55.80	61.45

#### Model MCTL Full-Grid-Guarded Gongs

Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
MCTL-6	\$25.00	\$27.45	\$28.30
MCTL-8	30.05	32.45	33.25
MCTL-10	40.30	42.85	43.60
MCTL-12	51.60	57.30	60.95

### Double-Gong Patterns

#### Model ATLD Non-Guarded Gongs



Cat. No. and Size Gong	PRICE, EACH			Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.		18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
ATLD-3	\$9.90	\$13.20	\$19.20	ATLD-8	\$28.90	\$31.55	\$37.25
ATLD-4	10.70	13.95	19.70	ATLD-10	34.20	37.50	43.20
ATLD-6	24.10	27.35	33.05				

#### Model BTLD Half-Grid-Guarded Gongs

BTLD-3	\$24.50	\$27.35	\$29.50	BTLD-8	\$44.90	\$47.55	\$53.25
BTLD-4	25.25	28.10	30.20	BTLD-10	55.20	58.50	64.20
BTLD-6	39.10	42.35	48.05				

#### Model CTLD Full-Grid-Guarded Gongs

CTLD-3	\$25.50	\$28.35	\$30.50	CTLD-8	\$48.90	\$51.55	\$57.25
CTLD-4	26.70	29.95	35.70	CTLD-10	58.20	61.50	67.20
CTLD-6	41.60	44.85	50.55				

### Model ATLB Buzzers

Price, 18-24-30-Volt Transformer	each \$7.10
Price, 100-110-Volt A.C.	each 9.00
Price, 220-250-Volt A.C.	each 13.00

#### Model ATL Non-Guarded Gongs



Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
ATL-3	\$9.50	\$12.35	\$14.50
ATL-4	10.25	13.10	15.20
ATL-6	17.00	19.45	20.30
ATL-8	21.30	23.70	24.50
ATL-10	30.30	32.85	33.60
ATL-12	39.60	45.30	50.95

Furnished yard type with protective hood, if so specified, at an addition to price of \$25.00.

#### Model BTL Half-Grid-Guarded Gongs

Cat. No. and Size Gong	PRICE, EACH			Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.		18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
BTL-3	\$17.00	\$19.85	\$22.00	BTL-8	\$29.30	\$31.70	\$32.50
BTL-4	17.75	20.60	22.70	BTL-10	39.30	41.85	42.60
BTL-6	24.50	26.95	27.80	BTL-12	50.10	55.80	61.45

#### Model CTL Full-Grid-Guarded Gongs

Cat. No. and Size Gong	PRICE, EACH		
	18-24-30 V. Trans.	100-110 Volts A.C.	220-250 Volts A.C.
CTL-3	\$17.50	\$20.35	\$22.50
CTL-4	18.25	21.10	23.20
CTL-6	25.00	27.45	28.30
CTL-8	30.05	32.45	33.25
CTL-10	40.30	42.85	43.60
CTL-12	51.60	57.30	60.95



Rectangular or cow gongs can be furnished on Model ATL. Add \$5.00 to price of ATL-6 for 3 3/8 x 5-inch gong and specify Model No. ATL-35. Add \$10.00 to price of ATL-8 for 1 1/2 x 6-inch gong and specify Model No. ATL-46.

**Faraday-Marlo A.C. Transformer Signal Gongs**

*N.E.C. Standard—Schedule E*

**Vibrating, Weatherproof and Non-Weatherproof Patterns**

For Transformer and A.C. Light and Power Circuits

Furnished for regular (non-conduit) as well as conduit work. For operation on 12-18-volt a.c. bell-ringing transformer (or battery) and 100-110-volt and 220-250-volt a.c. light and power circuits, 50-60 cycles standard; 25, 30 and 40 cycles to order.

Black enameled cases with bauer-barff finished gongs, polished nickel binding posts.

Non-guarded gongs, standard package, 5 assorted; other gongs, standard package, 1.

Specify model number and voltage when ordering.



**Model ATN Non-Guarded Gongs Non-Weatherproof**

Cat. No. and Size Gong	PRICE, EACH		
	12-18 V. Trans. Circuit	100-110 Volts A.C.	220-250 Volts A.C.
ATN- 3	\$9.50	\$17.75	.....
ATN- 4	10.25	19.50	.....
ATN- 5	17.20	29.30	\$41.25
ATN- 6	19.05	31.80	44.50
ATN- 8	23.70	38.65	53.65
ATN-10	42.35	60.30	78.25
ATN-12	48.55	66.50	84.45

Furnished weatherproof, \$2.00 extra.

**Model CTN Full-Grid-Guarded Gongs, Non-Weatherproof**

Cat. No. and Size Gong	PRICE, EACH		
	12-18 V. Trans. Circuit	100-110 Volts A.C.	210-250 Volts A.C.
CTN- 3	\$16.75	\$25.00	.....
CTN- 4	17.50	26.75	.....
CTN- 5	25.20	37.30	\$49.25
CTN- 6	27.05	39.80	52.50
CTN- 8	32.45	47.40	62.40
CTN-10	52.35	70.30	88.25
CTN-12	60.55	78.50	96.45

Furnished weatherproof, \$2.00 extra.



**Model BTN Half-Grid-Guarded Gongs, Non-Weatherproof**

Cat. No. and Size Gong	PRICE, EACH		
	12-18 V. Trans. Circuit	100-110 Volts A.C.	220-250 Volts A.C.
BTN- 3	\$16.25	\$24.50	.....
BTN- 4	17.00	26.25	.....
BTN- 5	24.70	36.80	\$48.00
BTN- 6	26.55	39.30	52.00
BTN- 8	31.70	46.65	61.65
BTN-10	51.35	69.30	87.25
BTN-12	59.05	77.00	94.95

Furnished weatherproof, \$2.00 extra.



**Model YTN Yard Type with Protective Hood Weatherproof**

Cat. No. and Size Gong	PRICE, EACH		
	12-18 V. Trans. Circuit	100-110 Volts A.C.	220-250 Volts A.C.
YTN- 3	\$34.50	\$42.75	.....
YTN- 4	35.25	44.50	.....
YTN- 5	42.20	54.30	\$66.25
YTN- 6	44.05	56.80	69.50
YTN- 8	48.70	63.65	78.65
YTN-10	67.35	85.30	103.25
YTN-12	73.55	91.50	109.45



Rectangular or cow gong can be furnished on Models ATN-6, ATN-8, YTN-6, YTN-8, as follows: Add \$5.00 to price of ATN-6 or YTN-6 for 3 1/2 x 5-inch gong and specify Model No. ATN-35 or YTN-35, respectively. Add \$10.00 to price of ATN-8 or YTN-8 for 4 1/2 x 6-inch gong and specify Model No. ATN-46 or YTN-46, respectively.

For conduit patterns add letter P to Model Nos. and \$4.00 to price of 3 and 4-inch gongs; \$5.00 to price of 6 and 12-inch gongs.

**Faraday Single-Stroke Solenoid A.C. Signal Gongs**

*N.E.C. Standard—Schedule T*

**Enclosed Type, Weatherproof**

For Transformer and A.C. Light and Power Circuits

**Neck Patterns**

Faraday Single-Stroke Solenoid A.C. Gongs follow in design and construction the latest engineering practice. Mechanisms will not hum or lag; double strokes are impossible; blows on the gong are loud and unmuffled. The top opening through which the solenoid plunger operates is closed by a patented spring-cap, keeping out all dust.

Made regularly for multiple operation on 12-18-volt, 100-110-volt and 220-250-volt 50-60 cycle circuits (25, 30 and 40-cycle to order); also made for operation in series up to 10 gongs on 110-volt 60-cycle only, at the same price as 100-110-volt gongs, but must be specified when ordered.

Specify model number, voltage and cycles when ordering.



**Model ATS Non-Guarded Gongs**

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		12-18 Volt Trans.	100-125 Volts A.C.	220-250 Volts A.C.
ATS- 6	1	\$26.80	\$39.50	\$52.20
ATS- 8	1	33.20	48.15	63.10
ATS-10	1	54.90	72.85	90.80
ATS-12	1	70.85	88.80	106.75

**Model BTS**

**Half-Grid-Guarded Gongs**

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		12-18 Volt Trans.	100-125 Volts A.C.	220-250 Volts A.C.
BTS- 6	1	\$33.95	\$46.65	\$59.35
BTS- 8	1	42.95	57.90	72.85
BTS-10	1	67.50	85.55	103.50
BTS-12	1	88.05	106.00	123.95



**Model CTS**

**Full-Screen-Guarded Gongs**

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		12-18 Volt Trans.	100-125 Volts A.C.	220-250 Volts A.C.
CTS- 6	1	\$47.70	\$60.40	\$73.10
CTS- 8	1	59.40	74.35	89.30
CTS-10	1	88.10	106.05	124.00
CTS-12	1	112.70	130.65	148.60



Full cast iron grid can be furnished for Model CTS at the same prices as screen-guarded gongs when so specified; when ordering, designate by adding the word "Cast-Grid" to the model number.

Neck patterns listed above will be furnished, when so ordered, with separable conduit-box-backs with combination 1/2 and 3/4-inch knockouts, adaptable to both surface and flush-conduit installations. Specify "Conduit-Box-Pattern" and add \$5.00 to above list prices.

Rectangular or cow gongs can be furnished on Model ATS. Add \$5.00 to list price of ATS-6 for 3 1/2 x 5-inch gong and add "35" to model number. Add \$10.00 to list price of ATS-8 for 4 1/2 x 6-inch gong and add "46" to model number.

Made also in Underdome and Monitor Patterns.

## Faraday Vibrating A.C. Signal Gongs

N.E.C. Standard—Schedule E

Enclosed Type, Weatherproof

For 18-24-30-Volt Transformer and A.C. Light and Power Circuits

Underdome Patterns

No contact, floating-on-line, non-sparking.



**Model UTX**  
Non-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
UTX-8	1	\$46.30	\$61.25	\$76.20
UTX-10	1	68.70	86.65	104.60
UTX-12	1	88.15	106.10	124.05

**Model UCTX**

Full-Screen-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
UCTX-8	1	\$72.45	\$87.45	\$102.40
UCTX-10	1	101.60	119.55	137.50
UCTX-12	1	130.05	148.05	165.95



Underdome patterns are regularly furnished, without extra charge, with 1/2-inch conduit-entrance (3/4-inch if so specified) in frame-casting for surface-conduit-installation. Will be furnished, when so ordered, with separable conduit-box-backs, adaptable to flush conduit installation, with 1/2 or 3/4-inch knockouts, as specified. Specify conduit-box-pattern and add \$10.00 to above prices.

## Faraday Single-Stroke Solenoid A.C. Signal Gongs

N.E.C. Standard—Schedule T

Enclosed Type, Weatherproof

For Transformer and A.C. Light and Power Circuits

Underdome Patterns

The top opening through which the solenoid plunger operates is closed by a patented spring-cap, keeping out dust.

Made for multiple operation on 18-24 or 30-volt, 100-110-volt and 220-250-volt, 50-60-cycle standard (25, 30 and 40-cycle to order) also made for operation in series up to 10 gongs on 110-volt 50-60-cycle only, at same price as 100-110-volt gongs, but must be specified when ordered; 18-24 or 30-volt taps of heavy duty transformers must be used.

Specify model number, voltage and cycles when ordering.

**Model UTS**  
Half-Grid-Guarded Gongs



Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		12-18 Volt Trans.	100-125 Volts A.C.	220-250 Volts A.C.
UTS-5	1	\$38.60	\$51.10	\$76.60
UTS-8	1	52.30	67.25	82.20
UTS-10	1	74.70	92.65	110.60
UTS-12	1	94.15	112.10	130.05

**Model UCTS**

Full-Screen-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		12-18 Volt Trans.	100-125 Volts A.C.	220-250 Volts A.C.
UCTS-5	1	\$59.55	\$72.05	\$97.55
UCTS-8	1	78.50	93.45	108.40
UCTS-10	1	107.60	125.55	143.50
UCTS-12	1	136.05	154.00	171.95



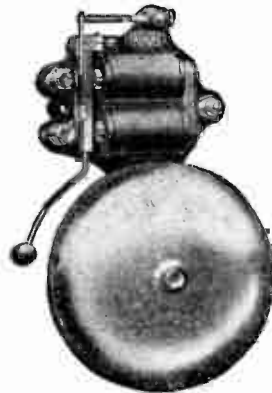
Furnished with 1/2 or 3/4-inch conduit entrance in frame-casting for surface conduit installation. Can be furnished with separable conduit box backs, with 1/2 or 3/4-inch knockouts, adaptable to flush-conduit-installations, at \$10.00 additional.

## Faraday Skeleton Bells

Schedule E

Model O Vibrating Type

For Battery Circuits Only



Faraday Model O Skeleton Bells meet the requirement of a good signal gong with exposed mechanism.

They have high-power patented pivoted-armatures giving twice the volume of sound that ordinary construction affords; full-insulated mechanisms, back-tension adjustments, non-turning contact and binding posts, adjustable locking side-contacts and cylindrical trunnion bearings.

Breakage of tension springs cannot disable gong.

Contacts regularly platinum, but will be furnished pure platinum, if specially ordered, at additional price.

Wound to any special resistance at standard list additions; also furnished converted-single-stroke when specially ordered at \$2.50 net additional, but for important single-stroke work multiple gear single-stroke bells are recommended.

Cat. No. and Size Gong	Resistance Ohms	Std. Pkg. Ass't	Price Each	Cat. No. and Size Gong	Resistance Ohms	Std. Pkg. Ass't	Price Each
O-2 1/2	3	5	\$5.70	O-10	5	5	\$24.85
O-3	3	5	6.05	O-12	5	5	31.00
O-4	3	5	7.10	O-14	5	5	62.00
O-5	4	5	9.35	O-16	8	5	123.70
O-6	4	5	10.55	O-18	8	5	143.25
O-8	5	5	16.00				

## Faraday-Ekla Skeleton Bells

Schedule E

Model Z Vibrating Type

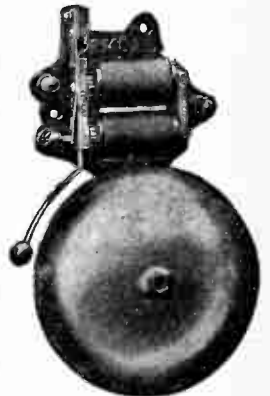
For Battery Circuits Only

Faraday-Ekla Skeleton Bells are slightly lower in price than Faraday and admittedly not as desirable for important signal work.

They have reed-type armatures with substantial back-tension adjustments, side-contacts and non-turning binding posts.

Frames finished in dull black enamels, gongs polished nickel.

Pure silver contacts, wound to any special resistance, at standard list additions shown elsewhere in the catalogue; will be furnished converted-single-stroke, when specially ordered at \$2.50 net additional but for important single-stroke work, multiple-gear single-stroke gongs are recommended.



Cat. No.	Size Gong Inches	Resistance Ohms	Std. Pkg. Assorted	Price Each
Z- 2 1/2	2 1/2	3	5	\$5.25
Z- 3	3	3	5	5.55
Z- 4	4	3	5	6.60
Z- 5	5	4	5	7.80
Z- 6	6	4	5	8.85
Z- 8	8	5	5	14.35
Z-10	10	5	5	21.30
Z-12	12	5	5	27.50



**Faraday Signal Bells with Fancy Gongs**

N.E.C. Standard—Schedule T

Vibrating, Enclosed Type

Weatherproof and Non-Weatherproof

For Transformer and A.C. Light and Power Circuits



Cow Gong



Sleigh Gong



Dome Gong

For operation on 12-18-volt a.c. bell-ringing transformers, and 100-110-volt and 220-250-volt a.c. light and power circuits, 50-60 cycles standard; 25, 30 and 40 cycles to order. With nickel-plated fancy gongs in place of round gongs, desirable where a different sounding or a particularly penetrating sound is required.

Specify model number, voltage and cycles when ordering. Standard package, 1.

Cat. No.	Frame No.	Kind of Gong	Size Gong, Inches	PRICE, EACH		
				12-13 Volts Trans.	100-110 Volts A.C.	220-250 Volts A.C.
AT-112	1	Rect. or Cow	1 3/4 x 2 1/2	\$15.90	*	*
AT-23	1	Rect. or Cow	2 x 3	15.90	\$25.95	\$35.25
AT-35	2	Rect. or Cow	3 1/8 x 5	29.20	43.85	57.75
AT-46	3	Rect. or Cow	4 1/4 x 6	39.55	56.75	73.05
AT-111	1	Sleigh.....	1 1/2 x 1 3/4	15.90	25.95	35.25
AT-21	1	Dome.....	2 1/2 x 1 1/4	15.90	25.95	35.25



Models A-46 and AT-46

**For Battery and D.C. Light and Power Circuits**

High-power armatures make it possible to keep armature in magnetic field up to the moment hammer-rod ball strikes gong. Breakage of springs cannot disable gong.

All terminals are mounted on bakelite pads, completely insulating same from the frame.

Standard package is 1 gong.

Cat. No.	Frame No.	Kind of Gong	Size Gong Inches	PRICE, EACH		
				Battery	100-110 Volts D.C.	220-250 Volts D.C.
A-112	1	Rect. or Cow	1 3/4 x 2 1/2	\$11.35	*	*
A-23	1	Rect. or Cow	2 x 3	13.35	\$21.55	\$29.80
A-35	2	Rect. or Cow	3 1/8 x 5	22.80	35.50	48.25
A-46	3	Rect. or Cow	4 1/4 x 6	32.00	46.95	61.90
A-111	1	Sleigh.....	1 1/2 x 1 3/4	13.35	21.55	29.80
A-21	1	Dome.....	2 1/2 x 1 1/4	13.35	21.55	29.80

\*Not made.

**Vibrating, Skeleton Type**

Not N.E.C. Standard

For Battery Circuits Only

Practically the same construction as the enclosed type, listed above, except that mechanism is not covered.

Standard package is 1 gong.



Model O-46

Cat. No.	Frame No.	Kind of Gong	Size Gong Inches	Price Each	
				Regular	Resistance
O-112	1	Rectangular or Cow.....	1 3/4 x 2 1/2	\$9.05	
O-23	1	Rectangular or Cow.....	2 x 3	9.20	
O-35	2	Rectangular or Cow.....	3 1/8 x 5	15.55	
O-46	3	Rectangular or Cow.....	4 1/4 x 6	26.00	
O-111	1	Sleigh.....	1 1/2 x 1 3/4	9.05	
O-21	1	Dome.....	2 1/2 x 1 1/4	9.05	

**Faraday Signal Buzzers**

N.E.C. Standard—Schedule E

Enclosed Type with Covers

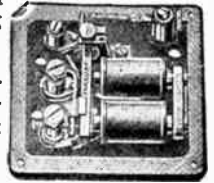
Open Type without Covers



**Enclosed Type**

Enclosed types Nos. 91-T and 94 are extra-loud. Nos. 89 and 91 are the same as enclosed type except that they are furnished without gaskets and covers; designed for interior mounting in annunciators, telephone apparatus, etc.

Contacts regularly platinum. For platinum contacts, add \$1.90 per buzzer; triplex platinum contacts, \$3.75; triplex pure platinum contacts, \$5.60. Nos. 89, 91 and 93 not furnished with triplex contacts.



**Open Type**

For Transformer and A.C. Light and Power Circuits

Cat. No.	Type	Dimensions Inches	Std. Pkg. Ass't.	PRICE, EACH		
				12-18 V. Trans.	100-110 Volt A.C.	220-250 Volt A.C.
93-T	Enclosed	2 5/16 x 2 5/16 x 1 1/4	5	\$12.50	.....	.....
99-T	Enclosed	3 3/16 x 3 1/2 x 1 3/4	5	13.40	.....	.....
101-T	Enclosed	3 1/16 x 4 1/16 x 2 1/16	5	14.80	\$23.00	\$31.20
94-T	Enclosed	4 1/4 x 1 3/4 x 2 1/4	5	16.65	24.85	33.05
89-T	Open	2 x 2 x 1 1/8	5	12.00	.....	.....
91-T	Open	2 5/16 x 2 5/16 x 1 1/8	5	12.00	.....	.....

**For Battery and D.C. Light and Power Circuits**

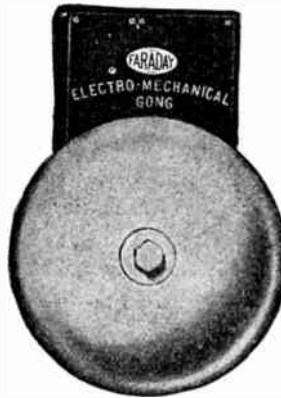
Cat. No.	Type	Dimensions Inches	Std. Pkg. Ass't.	PRICE, EACH	
				110-125 Volt D.C.	220-250 Volt D.C.
93	Enclosed	2 5/16 x 2 5/16 x 1 1/4	5	\$7.05	.....
99	Enclosed	3 3/16 x 3 1/2 x 1 3/4	5	7.95	.....
101	Enclosed	3 5/16 x 4 1/16 x 2 1/16	5	9.35	\$17.55
94	Enclosed	4 1/4 x 1 3/4 x 2 1/4	5	11.20	19.40
89	Open	2 x 2 x 1 1/8	5	6.60	.....
91	Open	2 5/16 x 2 5/16 x 1 1/8	5	6.60	.....

**Faraday Electro-mechanical Signal Gongs**

Schedule T

Enclosed Type, Vibrating or Single Stroke

Open and Closed Circuit Types for Battery, D.C. and A.C. Circuits



Electro-mechanical gongs are designed to give a very loud, powerful signal, with a minimum of current. The blow itself on the gong is struck by a heavy ball on the end of a lever, released by the electric current, but operated by a powerful clock spring.

Faraday Electro-mechanical gongs give approximately 700 blows with one winding, and at \$6.00 net additional per gong they will be furnished, when specially ordered, with reliable rewind signal contactor to which may be connected a tell-tale bell to give notification whenever a gong needs re-

winding. It will also give warning if, from any cause, the main spring of the mechanism should break.

Regularly furnished with knockouts for 1/2 or 3/4-inch conduit, as specified, in four sides of the box.

STANDARD FINISH.—Dull black enamel with gunmetal gongs. Cases, when specially ordered, will be furnished without additional charge, in English vermilion finish.

Size Gong Inches	Regular Resistance Ohms	Model E, for Regular Installations without Conduit		Model EP, with Conduit Box Back for Exposed Conduit	
		Cat. No.	Price Each	Cat. No.	Price Each
8	20	E-8	\$ 74.95	EP-8	\$ 84.95
10	20	E-10	78.00	EP-10	88.00
12	20	E-12	85.75	EP-12	95.75
14	20	E-14	100.00	EP-14	110.00
16	20	E-16	114.75	EP-16	124.75
18	20	E-18	147.50	EP-18	157.50



## Faraday Vibrating A.C. Signal Gongs

N.E.C. Standard—Schedule T

### Enclosed Type, Weatherproof

For 18-24-30-Volt Transformers and A.C. Light and Power Circuits

#### Neck Patterns

No contact, floating-on-line, non-sparking.

Most powerful no-contact gong in Faraday line.



### Model ATX Non-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
ATX-6	1	\$30.00	\$42.70	\$55.40
ATX-8	1	34.60	49.55	64.50
ATX-10	1	53.25	71.20	89.15
ATX-12	1	59.45	77.40	95.35
ATX-14	1	73.80	94.70	115.70

### Model BTX

#### Half-Grid-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
BTX-6	1	\$37.20	\$49.90	\$62.60
BTX-8	1	44.30	59.30	74.20
BTX-10	1	65.95	83.80	101.85
BTX-12	1	76.65	94.60	112.55
BTX-14	1	98.50	119.40	140.40



### Model CTX

#### Full-Screen-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
CTX-6	1	\$50.95	\$63.65	\$76.40
CTX-8	1	60.75	75.75	90.70
CTX-10	1	86.15	104.10	122.05
CTX-12	1	101.35	119.35	137.25
CTX-14	1	108.30	129.20	150.20



Model ATX can be furnished with Protective Hood at an addition of \$25.00. Specify Model YTX.

Full cast-iron grid can be furnished for Model CTX at same prices as screen-guarded gongs when so specified; when ordering designate by adding the word "cast grid" to model number.

Neck patterns listed above are regularly furnished, at no extra charge, with 1/2-inch conduit-entrance in frame casting, for surface-conduit-installations. Will be furnished, when so ordered, with separable conduit-box-backs with combination 1/2 and 3/4-inch knockouts, adaptable to both surface and flush-conduit installations. Specify conduit-box-pattern and add \$10.00 to above prices.

When specified for traffic signals gongs will be supplied with hardened steel bearings, lubricating oil cups, etc., at an additional cost of \$10.00 net per gong.

Rectangular or cow gongs can be furnished on Model ATX.

Add \$5.00 to price of ATX-3 for 3 1/8x5-inch gong and specify Model No. ATX-35.

Add \$10.00 to price of ATX-8 for 4 1/4x6-inch gong and specify Model No. ATX-46.

## Faraday Vibrating A.C. Signal Gongs

N.E.C. Standard—Schedule E

### Enclosed Type, Weatherproof

For 18-24-30-Volt Transformers and A.C. Light and Power Circuits

#### Monitor Patterns

No contacts—floating-on-line—non-sparking.

### Model MTX

#### Non-Guarded Gongs



Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
MTX-8	1	\$34.60	\$49.55	\$64.50
MTX-10	1	53.25	71.20	89.15
MTX-12	1	59.45	77.40	95.35

### Model MBTX

#### Half-Grid-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
MBTX-8	1	\$44.30	\$59.30	\$74.20
MBTX-10	1	65.95	83.80	101.85
MBTX-12	1	76.65	94.60	112.55



### Model MCTX

#### Full-Screen-Guarded Gongs

Cat. No. and Size Gong	Std. Pkg.	PRICE, EACH		
		18-24 Volts Trans.	110-125 Volts A.C.	220-250 Volts A.C.
MCTX-8	1	\$60.75	\$75.75	\$90.70
MCTX-10	1	86.15	104.10	122.05
MCTX-12	1	101.35	119.30	137.25

With standard separable conduit-box-backs adaptable to both surface and flush-conduit installations. With 1/2-inch knockouts, but when specially ordered, will be furnished with 3/4-inch.

## No. 2502 Faraday Fire Alarm Trouble Bells

N.E.C. Standard—Schedule T

### With Special Toned Gongs

Used with fire alarm control cabinets to indicate by continuous ringing, breaking of circuit-wires, failure of operative current, etc. Conduit box backs; with high power armatures. Mechanisms are enclosed and have rubber gaskets protecting them from dust and dampness.

One bell is required for each closed circuit fire alarm system, except System K which requires 2 bells.

Specify whether bell is to operate from batteries or from light and power circuits. Standard package is one.



For Systems	To Operate On	Price Each
A, C, F, H, K	Battery	\$20.00
A, C	110-125 Volts D.C.	27.00
F	100-110 Volts A.C.	27.00

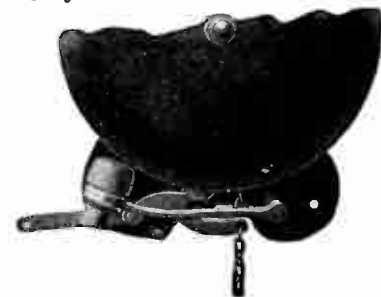
## No. 200 Edwards Hand Trips

### For All Types of Bells

Schedule T

For mines and installations where an alarm signal cannot be dependent on electricity.

May be furnished on any bell over the 6-inch size, so mechanical operation is assured if operating current fails.

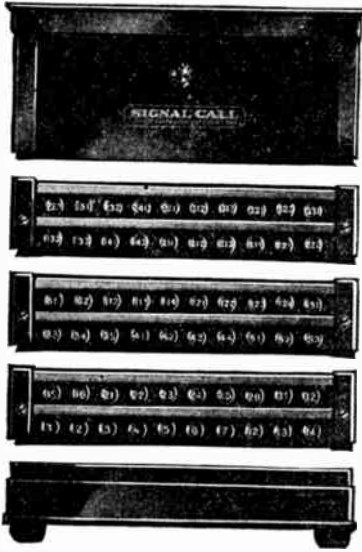


Add to price of bell as follows:

Size In.	Wt. Lbs.	Price Each
6	2 1/2	\$10.00
8	2 1/2	15.00
10	5	25.00
12	5	36.00
14	8	56.00
16	8	65.00
18	8	75.00

**Signal Call Systems**

24, 110 or 220 A.C. or D.C.



Signal call service is primarily an addition to telephone service, providing an efficient means of completing telephone calls by promptly locating all important members of an organization regardless of their whereabouts—calling them to the nearest branch telephone.



**Chime Signal**

The Signal Call sending station may be furnished with sectional key units giving either 10, 20, 40 or 60 code numbers.

The unit system of design makes possible the changing from 10 to 20 code numbers and additions of units of 20 numbers with the same ease as in adding units to a sectional bookcase. All connections are made automatically.

The designated "call" sounds three times and automatically stops, allowing the maximum number of "calls" in a given time. The red jeweled lamp remains lighted while a call is being sounded.

The case is of solid brass, finished in black enamel.

Special finish upon request.



**Soft Tone Bell**

Voltagess, 24, 110 or 220 A.C. or D.C.

The 10 and 20 call is 7¼ inches long, 7½ inches wide and 6½ inches deep; 40 call, 7½ inches high; 60 call, 9¾ inches high.

In ordering, state number of code numbers; voltage; and, if A.C., number of cycles.

Write the nearest Graybar Electric Branch for Bulletin A-50 covering this service in detail.

At the same time is provided a code signal system for broadcasting special messages.

The Signal Call is usually placed on the switchboard. Pressing one of the keys starts the mechanism, operating the code number corresponding on signal devices distributed so as to be heard anywhere on the premises.

The operating unit is a magnetic movement (no motor) with jeweled bearings and centralized make and break.

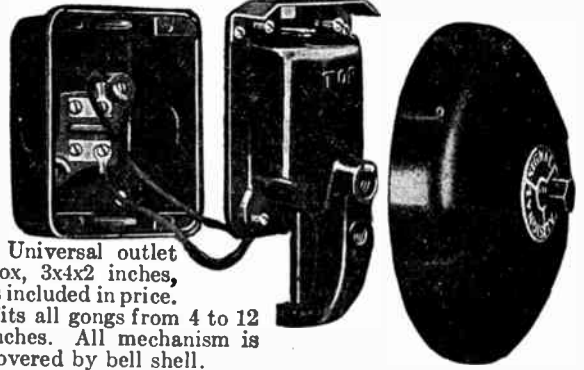


**Musical Tone Bell**

**Signal Eng. Single Stroke Bells**

18 to 250 Volts A.C.—6 to 250 Volts D.C.

For calling systems, fire alarm systems, etc. Use type designation and specify volts and cycles. For fire alarm with red finish prefix "F" to type designation. **Non-Weatherproof**



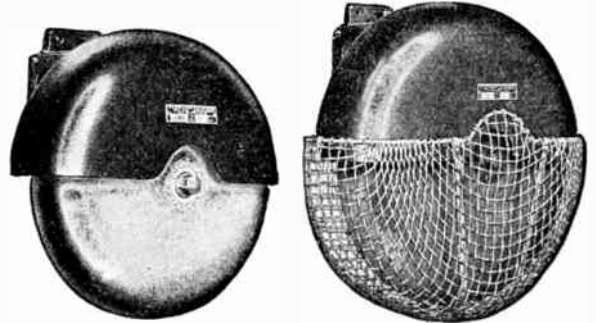
Universal outlet box, 3x4x2 inches, is included in price. Fits all gongs from 4 to 12 inches. All mechanism is covered by bell shell.

**Black Parkerized Special Steel Gong Shells**

Size.....inches	4	6	8	10	12
Type AS for A.C. each	\$12.00	\$16.00	\$20.00	\$24.00	\$28.00
Type DS for D.C. each	12.00	16.00	20.00	24.00	28.00
Size (Special).....inches	14	18	20	24	.....
Type AS for A.C. each	\$75.00	\$85.00	\$95.00	\$105.00	.....
Type DS for D.C. each	75.00	85.00	95.00	105.00	.....

**Polished Cast Metal Gong Shells**

Size.....inches	4	6	8	10	12
Type ASB for A.C. each	\$13.00	\$18.00	\$23.00	\$28.00	\$34.00
Type DSB for D.C. each	13.00	18.00	23.00	28.00	34.00



**Types ASW and DSW**

**Types ASG and DSG**

Furnished with cast bell metal gong shells only.

**Weatherproof**

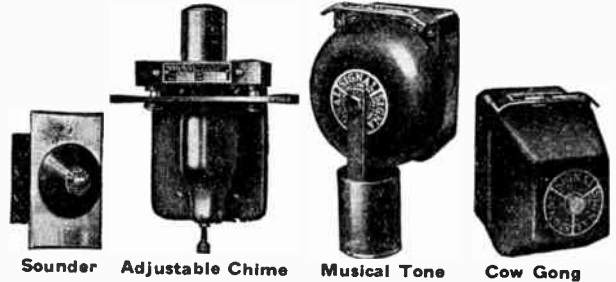
Size.....inches	4	6	8	10	12
Type ASW for A.C. each	\$23.00	\$28.00	\$33.00	\$38.00	\$44.00
Type DSW for D.C. each	23.00	28.00	33.00	38.00	44.00

**Weatherproof Guarded**

Type ASG for A.C. each	.....	\$37.00	\$43.00	\$52.00
Type DSG for D.C. each	.....	37.00	43.00	52.00

**Signal Eng. Special Tone Signals**

18 to 250 Volts A.C.—6 to 250 Volts D.C.



**Sounder**

**Adjustable Chime**

**Musical Tone**

**Cow Gong**

TYPE		Signal	Price Each
A.C.	D.C.		
AS1	DS1	*Sounder.....	\$6.00
AS5	DS5	†Adjustable Chime.....	18.00
AS4-3	DS4-3	†Musical Tone.....	14.00
AS4-4	DS4-4	†Cow Gong.....	14.00

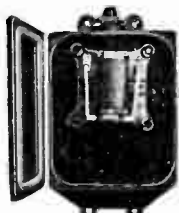
\*Fits standard rectangular switch box (not furnished).  
†Fits universal outlet box (included in price).

## Model 2 Signal Eng. Relays or Magnetic Switches

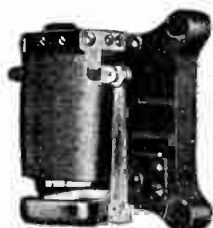
Back Contact  
Contacts Opened When Coil is Energized  
A.C. to 440 Volts; D.C. to 250 Volts



Style H Housing  
(Stamped Steel)  
6½x8x3 Inches



Style W Housing  
(Watertight)  
6¼x9½x3½ Inches



Class R  
1 Circuit (Series J) Relay  
(Less Housing)  
4x4x2¼ Inches Overall



Class R  
2 Circuit (Series U) Relay  
(Less Housing)  
4x4x2¼ Inches Overall

Use type designations and specify operating voltage and cycles of coil; also load on contacts.

### Series J—1 Circuit

A.C.

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Watertight Housing	
			Type	Price Each	Type	Price Each
L	Silver	5	ALJ2-H	\$22.00	ALJ2-W	\$32.00
R	Silver	15	ARJ2-H	24.00	ARJ2-W	34.00

D.C.

L	Silver	3	DLJ2-H	\$20.00	DLJ2-W	\$30.00
R	Silver	6	DRJ2-H	22.00	DRJ2-W	32.00

### Series U—2 Circuit

A.C.

L	Silver	5	ALU2-H	\$26.00	ALU2-W	\$36.00
R	Silver	15	ARU2-H	28.00	ARU2-W	38.00

D.C.

L	Silver	3	DLU2-H	\$24.00	DLU2-W	\$34.00
R	Silver	6	DRU2-H	26.00	DRU2-W	36.00

\*Contact capacity at 110 volts. Contact ratings on Series U relays apply only when right and left contacts control same circuit.

†Without housing: omit letter H and deduct \$1.00 from price.

## Signal Eng. Duplex Horns



For general industrial signalling and a. c. closed circuit for fire alarm systems.

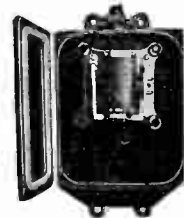
In ordering, give type designation, volts and cycles.  
Type AC1 for A.C., Black Enamel Finish. . . . . each \$20.00  
Type DC1 for D.C., Black Enamel Finish. . . . . each 25.00  
Type FAC1 for A.C., Fire Red Enamel Finish. . . . . each 20.00  
Type FDC1 for D.C., Fire Red Enamel Finish. . . . . each 25.00

## Model 1 Signal Eng. Relays or Magnetic Switches

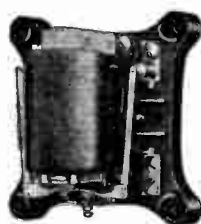
Front Contact  
Contacts Closed When Coil is Energized  
A.C. to 440 Volts; D.C. to 250 Volts



Style H Housing  
(Stamped Steel)  
6½x8x3 Inches



Style W Housing  
(Watertight)  
6¼x9½x3½ Inches



Class L  
1 Circuit (Series J) Relay  
(Less Housing)  
4x4x2¼ Inches Overall



Class E  
2 Circuit (Series U) Relay  
(Less Housing)  
4x4x2¼ Inches Overall

Use type designations and specify operating voltage and cycles of coil; also load on contacts.

### Series J—1 Circuit

A.C.

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Watertight Housing	
			Type	Price Each	Type	Price Each
L	Silver	5	ALJ1-H	\$18.00	ALJ1-W	\$28.00
P	Carbon	10	APJ1-H	19.00	APJ1-W	29.00
R	Silver	15	ARJ1-H	20.00	ARJ1-W	30.00
E	Carbon	20	AEJ1-H	21.00	AEJ1-W	31.00

D.C.

L	Silver	4	DLJ1-H	\$16.00	DLJ1-W	\$26.00
P	Carbon	10	DPJ1-H	17.00	DPJ1-W	27.00
R	Silver	8	DRJ1-H	18.00	DRJ1-W	28.00
E	Carbon	10	DEJ1-H	19.00	DEJ1-W	29.00

### Series U—2 Circuit

A.C.

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Watertight Housing	
			Type	Price Each	Type	Price Each
L	Silver	5	ALU1-H	\$22.00	ALU1-W	\$32.00
P	Carbon	10	APU1-H	23.00	APU1-W	33.00
R	Silver	15	ARU1-H	24.00	ARU1-W	34.00
E	Carbon	20	AEU1-H	25.00	AEU1-W	35.00

D.C.

L	Silver	4	DLU1-H	\$20.00	DLU1-W	\$30.00
P	Carbon	10	DPU1-H	21.00	DPU1-W	31.00
R	Silver	8	DRU1-H	22.00	DRU1-W	32.00
E	Carbon	10	DEU1-H	23.00	DEU1-W	33.00

\*Contact capacity at 110 volts. Contact ratings on Series U relays apply only when right and left contacts control same circuit.

†Without housing: omit letter H and deduct \$1.00 from price.

**Signal Eng. Vibrating Bells**

18 to 250 Volts A.C.—6 to 250 Volts D.C.

Use type designation and specify volts and cycles. For fire alarm with red finish, prefix "F" to type designation.

**Non-Weatherproof**



Universal outlet box, 3x4x2 inches, is included in price. Fits all gongs from 4 to 12 inches. Has silver contacts. Mechanism covered by shell.

**Black Parkerized Special Steel Gong Shells**

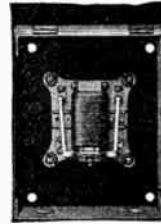
Size.....inches	4	6	8	10	12
Type AV for A.C. each	\$14.00	\$18.00	\$22.00	\$26.00	\$30.00
Type DV for D.C. each	14.00	18.00	22.00	26.00	30.00
Size (Special).inches	14	18	20	24	.....
Type AV for A.C. each	\$80.00	\$90.00	\$100.00	\$110.00	.....
Type DV for D.C. each	80.00	90.00	100.00	110.00	.....

**Polished Cast Metal Gong Shells**

Size.....inches	4	6	8	10	12
Type AVB for A.C. each	\$15.00	\$20.00	\$25.00	\$30.00	\$36.00
Type DVB for D.C. each	15.00	20.00	25.00	30.00	36.00

**Signal Eng. Telephone Extension Ringing Relays and Relay Sets**

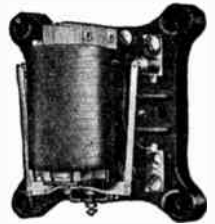
Contact Rating: Maximum Watts, 400; Maximum Voltage, 250  
Telephone Type Relays



Style H  
5x7x3 Inches



Style W  
6 1/4 x 9 1/2 x 3 1/2 Inches



Telephone Relay  
4x4x2 1/4 Inches

Operates on standard telephone central office ringing current (75 volts 16 2/3 cycles to 90 volts 20 cycles). Operates in conjunction with signal engineering bells and horns.

**Non-Weatherproof**

**Weatherproof**

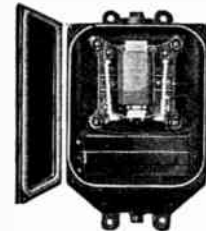
Description	Type	Price Each	Type	Price Each
1000-Ohm Coil.....	ATJ1-H	\$18.00	ATJ1-W	\$28.00
1700-Ohm Coil.....	ATJ12-H	18.00	ATJ12-W	28.00
Battery Type.....	DTJ1-H	16.00	DTJ1-W	26.00

For 2-circuit substitute letter U for J and add \$4.00. Without housing: omit letter H and deduct \$1.00.

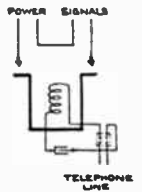
**Telephone Type Relay Sets**



Style H  
6 1/2 x 8 x 3 Inches



Style W  
6 1/4 x 9 1/2 x 3 1/2 Inches



Wiring Diagram

Same as above with condenser in series with coil.

**Non-Weatherproof Weatherproof**

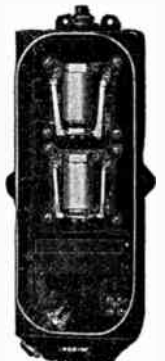
Description	No.	Price Each	No.	Price Each
1000-Ohm Coil, 1-MF Condenser	1-H	\$22.00	1-W	\$32.00
1000-Ohm Coil, 2-MF Condenser	2-H	22.00	2-W	32.00
1700-Ohm Coil, 1-MF Condenser	3-H	22.00	3-W	32.00
1700-Ohm Coil, 2-MF Condenser	4-H	22.00	4-W	32.00



Style H  
6 1/2 x 13 1/2 x 4 Inches

**Telephone Locking Relay Sets for Police and Taxi-Cab Signalling, Etc.**

Set consists of 2 relays wired for connection to telephone, signal and lighting circuits. During ringing at local telephone station telephone relay (lower) is energized, closing contacts of circuit to local lamp or bell until opened by manually operated push button. Specify voltage and cycles.



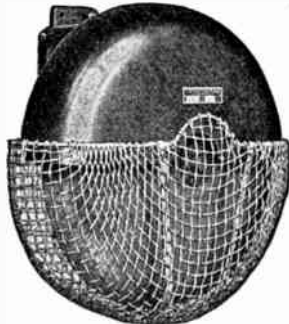
Style W  
7 x 17 x 4 Inches

**Non-Weatherproof Weatherproof**

Description	No.	Price Each	No.	Price Each
1000 Ohms, 2-MF Con., A. C. Lock.....	20-H	\$50.00	20-W	\$60.00
1700 Ohms, 1-MF Con., A. C. Lock.....	21-H	50.00	21-W	60.00
1000 Ohms, 2-MF Con., D. C. Lock.....	22-H	48.00	22-W	58.00
1700 Ohms, 1-MF Con., D. C. Lock.....	23-H	48.00	23-W	58.00
Battery Type, A. C. Locking..	24-H	46.00	24-W	56.00
Battery Type, D. C. Locking..	25-H	44.00	25-W	54.00



Types AVW and DVW



Types AVG and DVG

Furnished with cast bell metal gong shells only.

**Weatherproof**

Size.....inches	4	6	8	10	12
Type AVW for A.C. each	\$25.00	\$30.00	\$35.00	\$40.00	\$46.00
Type DVW for D.C. each	25.00	30.00	35.00	40.00	46.00

**Weatherproof Guarded**

Type AVG for A.C. each	.....	\$39.00	\$45.00	\$54.00
Type DVG for D.C. each	.....	39.00	45.00	54.00

**Signal Eng. Special Tone Signals**

6 to 250 Volts D.C.  
18 to 250 Volts A.C.



Buzzer



Cow Gong



Musical Tone

TYPE		Signal	Price Each
A.C.	D.C.		
AV1	DV1	*Buzzer.....	\$8.00
AV4-2	DV4-2	††Cow Gong.....	16.00
AV4-3	DV4-3	†Musical Tone.....	16.00

\*Fits standard rectangular switch box (not furnished).

†Fits universal outlet box (included in price).

††Used for trouble signal.

## Signal Eng. Thermostatic Relays

For operation by temperature control thermostats, 3 wire (common high and low). Designed to eliminate sparking at contacts of control instrument. Used on oil burners, refrigerators, ovens, pyrometers, etc.

When voltage of coil and contact load is same, use Series J or 1 circuit relay. When voltage of coil and contact load differ, use Series U or 2 circuit relay.

Use type designations and specify operating voltage and cycles of coil: also load on contacts.



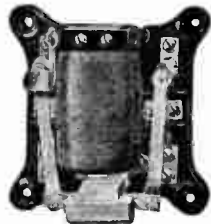
Style H Housing (Stamped Steel) 6½x8x3 Inches



Style W Housing (Cast Iron Weatherproof) 6¼x9½x3½ Inches



1 Circuit (Series J) Relay (Model 1) 4x4x2¼ Inches Overall



2 Circuit (Series U) Relay (Model 3) 4x4x2¼ Inches Overall

### Model 1 Thermostatic Relays

#### Front Contact

Contacts Closed When Coil is Energized

#### Series J—1 Circuit

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Cast Iron W.P. Housing	
			Type	Price Each	Type	Price Each
A.C.						
M	Carbon	20	AMJ1-H	\$21.00	AMJ1-W	\$31.00
D.C.						
M	Carbon	5	DMJ1-H	\$19.00	DMJ1-W	\$29.00

#### Series U—2 Circuit

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Cast Iron W.P. Housing	
			Type	Price Each	Type	Price Each
A.C.						
M	Carbon	20	AMU1-H	\$23.00	AMU1-W	\$33.00
D.C.						
M	Carbon	5	DMU1-H	\$21.00	DMU1-W	\$31.00

### Model 3 Thermostatic Relays

#### Front and Back Contact

Front Contacts Closed and Back Contacts Opened When Coil is Energized

#### Series J—1 Circuit

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Cast Iron W.P. Housing	
			Type	Price Each	Type	Price Each
A.C.						
M	Front.. Back..	15	AMJ3-H	\$24.00	AMJ3-W	\$34.00
D.C.						
M	Front.. Back..	5	DMJ3-H	\$22.00	DMJ3-W	\$32.00

#### Series U—2 Circuit

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Cast Iron W.P. Housing	
			Type	Price Each	Type	Price Each
A.C.						
M	Front.. Back..	15	AMU3-H	\$26.00	AMU3-W	\$36.00
D.C.						
M	Front.. Back..	5	DMU3-H	\$24.00	DMU3-W	\$34.00

\*Contact capacity at 110 volts.

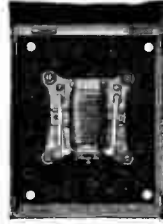
†Without housing: omit letter H and deduct \$1.00.

## Model 3 Signal Eng. Relays or Magnetic Switches

### Front and Back Contact

Front Contacts Closed and Back Contacts Opened When Coil is Energized

A.C. to 440 Volts; D.C. to 250 Volts



Style H Housing (Stamped Steel) 6½x8x3 Inches



Style W Housing (Watertight) 6¼x9½x3½ Inches



Class P 1 Circuit (Series J) Relay (Less Housing) 4x4x2¼ Inches Overall



Class P 2 Circuit (Series U) Relay (Less Housing) 4x4x2¼ Inches Overall

Use type designations and specify operating voltage and cycles of coil; also load on contacts.

### Series J—1 Circuit

#### A.C.

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Watertight Housing	
			Type	Price Each	Type	Price Each
L	Front, Silver. Back, Silver..	5	ALJ3-H	\$24.00	ALJ3-W	\$34.00
P			APJ3-H	25.00	APJ3-W	35.00
R	Front, Carbon Back, Silver..	15	ARJ3-H	26.00	ARJ3-W	36.00

#### D.C.

L	Front, Silver. Back, Silver..	4	DLJ3-H	\$22.00	DLJ3-W	\$32.00
P			DPJ3-H	23.00	DPJ3-W	33.00
R	Front, Carbon Back, Silver..	6	DRJ3-H	24.00	DRJ3-W	34.00

### Series U—2 Circuit

#### A.C.

Class	Kind of Contacts	*Contact Capacity Amperes	†Stamped Steel Housing		Watertight Housing	
			Type	Price Each	Type	Price Each
L	Front, Silver. Back, Silver..	5	ALU3-H	\$28.00	ALU3-W	\$38.00
P			APU3-H	29.00	APU3-W	39.00
R	Front, Carbon Back, Silver..	15	ARU3-H	30.00	ARU3-W	40.00

#### D.C.

L	Front, Silver. Back, Silver..	4	DLU3-H	\$26.00	DLU3-W	\$36.00
P			DPU3-H	27.00	DPU3-W	37.00
R	Front, Carbon Back, Silver..	6	DRU3-H	28.00	DRU3-W	38.00

\*Contact capacity at 110 volts. Contact rating on Series U relays apply only when right and left contacts control same circuit.

†Without housing: omit letter H and deduct \$1.00 from price.

**No. 620 Dixie Jr. Edwards Push Buttons**

Fully insulated, frame not grounded and at no time carries current. Phosphor bronzed scraping contacts. Self-forming binding posts take any size wire and facilitate connecting. Non-turnable pearl center. Standard finish, nickel. For 5/8-inch hole.



Standard package, 50.  
Price, No. 620.....each \$ .39

**No. 59 Midget Edwards Push Buttons**



Frame is not insulated. Non-turnable pearl center. Self-forming binding posts take any size wire.

Standard finish, nickel. For 3/4-inch hole.

Standard package, 50.

Price, No. 59.....each \$ .77

**No. 625 Edwards Colored Center Push Buttons**

*Schedule E*

For 5/8-inch hole. Has a raised center of white, black, red or blue. White is standard. Center protrudes and spring is softened. Nickel finish; brass at no extra charge.



Luminous centers, .50 cents extra.  
Price, No. 625, Wt., 1 Lb.....each \$ .45

**No. 621 Dixie Jr. Edwards Push Buttons**



Turned from brass rod, a high grade push of heavy construction. The center is condensite and protrudes 3/8 inch.

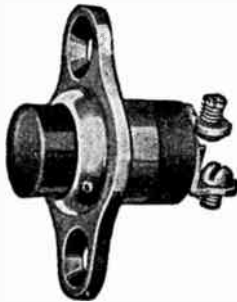
For 5/8-inch hole. Standard finish, nickel. Standard package, 1.

Price, No. 621.....each \$ 1.40

**No. 622 Dixie Escutcheon Edwards Push Buttons**

Turned from brass rod, of heavy construction. The center is condensite and protrudes 3/8 inch. Equipped with a retaining escutcheon. Side springs are unnecessary.

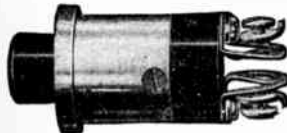
Fully insulated, frame not grounded and at no time carries current. Phosphor bronzed scraping contacts. Self forming binding posts take any size wire and facilitate connecting. For 1/2-inch hole. Standard finish, nickel. Standard package, 1.



Price, No. 622.....each \$ 1.45

**Edwards High Voltage Push Buttons**

*Schedule E*



A quick break push with heavy contacts.

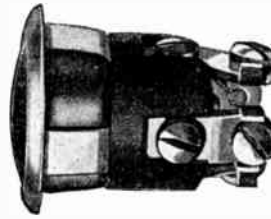
Standard finish, nickel; brush brass at no extra charge.

Cat. No.	Voltage	Description	Std. Pkg.	Wt. Oz.	Price Each
85	110	Standard Type, Fits 3/4-Inch Hole....	10	1	\$ 2.40
85A	220	Standard Type, Fits 1 1/4-Inch Hole...	1	3	6.20
85P	110	Escutcheon Type, Fits 3/4-Inch Hole..	1	3	3.15
85AP	220	Escutcheon Type, Fits 1 1/4-Inch Hole	1	5	6.95
85L	110	Locknut Type, Fits 1/2-Inch Hole.....	10	3	2.65
85C	110	Closed Circuit Type, Fits 1 1/8-Inch Hole	1	3	7.85
850	...	Hard Rub. Bushing for No. 85.....	1	1	1.40
850A	...	Hard Rub. Bushing for No. 85A.....	1	1	1.65

**Edwards 4-Contact Push Buttons**

*Schedule E*

**No. 260**



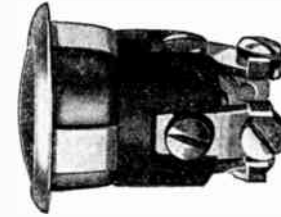
Will close 3 circuits at once. For use where annunciators, bells and other devices are to be operated at same time but it is not desirable to operate them in multiple. By strapping contacts it is often used on single circuits to obtain additional current carrying capacity of multiple contacts. Fits 3/4-inch hole. Phosphor bronze springs.

Standard finish, nickel; brush brass, no extra charge.  
Price, No. 260, Weight 2 Ounces.....each \$ 1.40

**No. 260C**

Same as No. 260. Closed circuit; for 3/4-inch hole.  
Price, No. 260C, Weight 2 Ounces.....each \$ 2.05

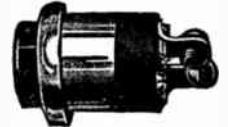
**No. 265 Return Call Edwards Push Buttons**



The frame is not grounded. A return signal to signify that call has been heard may be installed, using three wires instead of the usual four. For 3/4-inch hole. Std. pkg., 1.  
Price, No. 265.....each \$ 1.90

**No. 116 Slow Break Edwards Push Buttons**

Used in automobile controller handles, etc. Turned from brass rod. Wiping phosphor bronze contacts. Phosphor bronze springs. Condensite center. Contact member molded into condensite. For 1/2-inch hole. Standard finish, nickel. Standard package, 1.  
Price, No. 116.....each \$ 1.30



**Edwards Flush Push Escutcheons**

*Schedule E*

For use on plaster or where larger than the midget push is required. The iron plate is first secured to the wall. There being a number of screw holes, it is always possible to engage a lath. The brass plate is then placed over the iron plate and the push button pressed into place.

The spring clips on side of button grip the iron plate securely, holding the button and top plate in place.

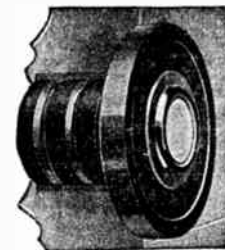
Standard finish, nickel; brass at no extra charge.

Standard package, 25. Weight, 12 ounces.



Price, No. 60, For 5/8-Inch Push.....each \$ .30  
Price, No. 61, For 3/4-Inch Push.....each .30

**No. 261 Edwards Flush Push Stone Escutcheons**



No. 261 Stone Escutcheon is a plain flanged casting for cementing into stone or tile work.

Drilled for 3/4-inch push. The No. 260 is recommended.

On this escutcheon the standard finish is Bauer Barff.

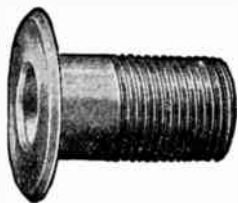
Standard package, 1.

Price, No. 261.....each \$ 3.50



## No. 262 Edwards Conduit Push Buttons

Furnished complete with attachment as illustrated, to fit 1/2-inch conduit. The attachment is so made as to allow the installation to be vapor proof and is used by hotels and apartment houses for bathrooms, etc. Inside the threaded brass pipe is a vertical rod which enables the attachment to be screwed on to conduit with a pair of pliers, piece of slotted pipe, etc., eliminating the use of a Stilson wrench. A special adaptation of the No. 621 push, with a wider flange and other features arranged for this attachment, is used. This is numbered 621C.



Standard finish, nickel. Standard package, 1.

Price, No. 262, Complete.....each \$3.70  
 " " 621C, Push Button Only..... " 2.00

## Edwards Push Button Plates

Schedule E

### No. 157 Plates



Diamond or square. For 5/8 or 3/4-inch push. Bevel edge, drilled for one button.

No. 157D (diamond) size between points is 2 1/8 x 3 1/8 inches. No. 157S (square) size, 1 7/8 inches.

When ordering, state size of push to be used.

Assortment permitted to make standard package.

A 5/8-inch hole is furnished unless otherwise specified.

Standard finish is nickel; brass at no extra charge.

Standard package, 10. Weight, 1 1/8 pounds.

Price, No. 157.....each \$5.50

### No. 158 Switch Box Plates

For standard switch box.

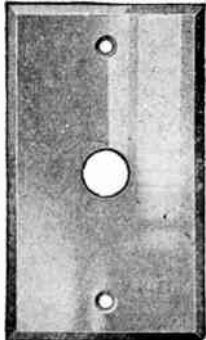
Drilled for 1, 2 or 3 buttons, 5/8-inch and 1 or 2 buttons 3/4 inch. Screw hole centers, 3 3/4 inches.

Machine screws furnished. Price does not include buttons.

In ordering, state size of buttons to be used. A 5/8-inch hole will be drilled unless otherwise specified.

Standard finish of metal plate is nickel; brass at no extra charge.

Standard package, 1. Weight, 2 ounces.



Metal Plates

No. 158

Price, 1-Button.....each \$3.55  
 Price, 2-Button.....each .50  
 Price, 3-Button.....each .75  
 Add for Bakelite Plate..... .25

## No. 600 Edwards Bronx Push Buttons

The No. 600 is 2 1/4 inches in diameter with a black composition center. The mechanism is insulated and is recessed to allow the use of No. 14 wire. Standard finish, satin brass. Standard package, 100.



Price, No. 600 Bronx.....each \$1.18

## No. 603 Edwards Bronx Push Buttons



The No. 603 is 1 3/4 inches in diameter with a black composition center. The mechanism is insulated and is recessed to allow the use of No. 14 wire. Standard finish, satin brass. Standard package, 100.

Price, No. 603, Bronx.....each \$1.18

## No. 606 Edwards Bronx Push Buttons

Schedule E

A one-piece type, all metal button. Size, 1 3/8 x 2 3/8 inches.

Finished in satin brass. Other finishes add .02 cents each net.

In individual boxes. Standard package, 50; weight, 3 1/2 pounds.



Price, No. 606.....each \$.25

## No. 605 Edwards Bronx Pushes

This is an all-metal 1-piece type push, of excellent construction, well insulated.

Size, 1 1/4 x 3 1/2 inches.

Standard finish is satin brass. For all other commercial finishes, add 2 cents net.

Packed, with screws, in individual boxes for convenient shelf use.

Standard package, 50.

Weight, standard package, 4 3/4 pounds.



Price, No. 605.....each \$.35

## Edwards Bronx Card Holder Push Buttons



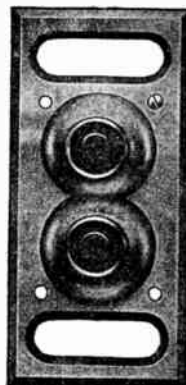
No. 601

An all-metal, one-piece type push button. Packed with screws in individual boxes.

Card racks are arranged so that a slot for inserting card is at

each end of rack. Push can be mounted any way desired without card falling out.

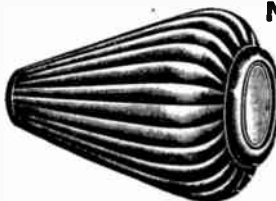
Mechanism is insulated and recessed to allow use of No. 14 wire and still leave room between screws and wall, there being no chance of grounding. Wire is fastened directly to same screw that holds one side of contact spring; pushing the button makes a contact on one screw only. Fiber is recessed so wire cannot slip out of place. Standard finish, satin brass.



No. 602

Cat. No.	Description	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
601	Single Card Holder.....	2 1/4 x 2 1/4	50	5	\$3.55
602	Double Card Holder.....	2 x 4 1/2	50	8 1/2	1.00

## No. 68 Edwards Pendant Push Buttons



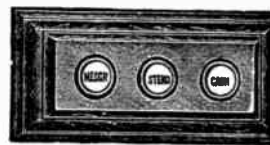
Equipped with 620 Dixie Jr. button. Metal with pearl finish.

Cat. No. 68 Std. Pkg. 10 Price Each \$.70

## No. 147 Wood Compound Push Buttons

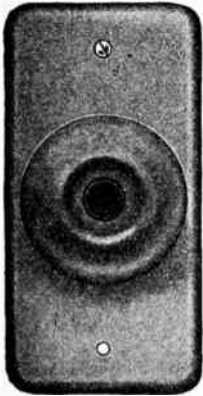
Push buttons not included in prices.

No. of Buttons	Std. Pkg.	Price Each
2	10	\$1.70
3	10	2.05
4	10	2.40
5	10	3.45
6	10	4.15



**No. 608 Edwards Bronx Push Buttons**

*Schedule E*



An all-metal, one-piece type push button. This push button is well insulated.

Finished in satin brass. All other commercial finishes add .02 cents each net. Satin brass and oxidized copper can be shipped from stock.

Size, 2x4 $\frac{1}{8}$  inches.

Packed in individual boxes, with screws.

Standard package, 50. Weight, 8 pounds.

Price, No. 608.....each \$ .40

**No. 609 Edwards Bronx Push Buttons**

*Schedule E*

This push button is of excellent construction and is well insulated. All-metal, one-piece type.

Standard finish is satin brass. Other commercial finishes add .02 cents each net. Satin brass and oxidized copper can be shipped from stock.

Size, 2x4 $\frac{1}{2}$  inches.

Packed in individual boxes, with screws.

Standard package, 50. Weight, 8 pounds.

Price, No. 609.....each \$ .40



**No. 604 Edwards Bronx Plate Type Push Buttons**



The dimensions of the No. 604 push are small enough to allow its use in many places where the common plate type of push is too large to be adaptable. It is 3 $\frac{3}{8}$  inches long and 1 $\frac{1}{8}$  inches wide.

The mechanism is entirely insulated and is recessed to allow the use of No. 14 wire and still leave plenty of room between the screws and the wall, there being no chance of grounding. The wire is fastened directly to the same screw that holds one side of the contact spring; pushing the button makes a contact on one screw only, thereby assuring a positive contact. Standard finish, satin brass. Standard package, 50.

Price, No. 604, Bronx .....each \$ .35

**No. 610 Edwards Bronx Pushes**

*Schedule E*



This push is of the all-metal, one-piece type. It is of excellent construction, well insulated.

Packed, with screws, in individual boxes for convenient shelf use.

Standard finish is satin brass. For oxidized copper, add 5 cents each list. For all other commercial finishes, add 10 cents each to list. Satin brass and oxidized copper can be shipped from stock.

Size, 1 $\frac{1}{8}$ x6 $\frac{3}{4}$  inches. Standard package quantity, 10. Weight of standard package, 1 pound.

Price, No. 610 .....each \$1.75

**No. 235 Edwards Floor Push Buttons**



The No. 235 Floor Push Button is of an entirely new construction, more substantial, smaller and neater than previous designs.

Equipped with removable plug and extension attachment for connecting flexible cord with lamp, etc. Nickel finish.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Each Price
235	25	..	\$ .78

**Edwards Push Button Plates**

*Schedule E*

**No. 158-235 Wall Plate and Plug**



No. 158-235

Fits a standard switch box. Standard finish is brush brass; nickel at no extra charge. Standard package, 1. Weight, 5 ounces.

Price, No. 158-235.....each \$1.60

**No. 204 Wall Plate**

With plug and push. Fits a standard switch box. Equipped with No. 620 push and No. 235 detachable extension plug.

Six feet of flexible cord with pear push attached, furnished if specified, for which add to price, \$1.75.

Standard finish is brush brass; nickel at no extra charge. Standard package, 1.

Price, No. 204, Weight 6 Ounces .....each \$3.00



No. 204

**No. 1786 Edwards Watertight Pushes**

*Schedule E*

For surface mounting. Cast case, polished bronze finish. Slow break type, for low voltage. Rubber gaskets make case watertight; pigskin diaphragm covers center. Silver contacts. Standard package, 1.

Price, No. 1786, Weight 8 Ounces.....each \$3.50



**No. 1785 Edwards Watertight Push Buttons**

For 125 Volts or Less  
*Schedule E*

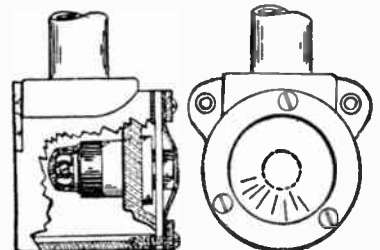
Conduit type.

Cast case, black finish. Rubber gaskets between box and case and top ring. Pigskin diaphragm covers center. Drilled and tapped for  $\frac{1}{2}$  or  $\frac{3}{4}$ -inch conduit if specified.

Has cast mounting feet.

Standard package, 1. Weight, 1 $\frac{1}{2}$  pounds.

Price, No. 1785.....each \$7.50



## No. 290 Dixie Floor Treads

Schedule E



Doubleheavy brass contact plates, felt covered bottom

Standard package, 25.

Price, No. 290.....each \$1.50



## No. 206 Edwards Table Clamps

May be used in connection with floor push or wall plug. Button and contact built in to spring clamp base. Wire connections easily made. Nickel finish.

Cat. No.	Std. Pkg.	Price Each
206	25	\$1.05



## No. 67 Edwards Bakelite Pear Pushes

Schedule E

Keeps its finish indefinitely, will not warp, check or crack. With No. 620 push.

Standard package, 10, one color.

No. 67, Black, Oak or Mahogany each \$.50

No. 67, White Enamel.....each .65

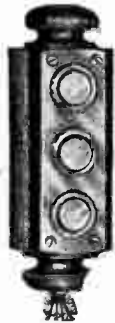
Add for Protruding Center Push.....each .05

## No. 173 Edwards Multiple Push Buttons

Schedule E

Equipped with No. 63 push,

Standard finish is oak; mahogany at no extra charge.



No. of Buttons	Std. Pkg.	Wt. Oz.	Price, Each	
			Without Cord	With 6-Foot Cord Attached
2	1	3	\$4.45	\$5.77
3	1	4	5.80	7.56
4	1	4	7.20	9.40
5	1	5	9.25	11.89
6	1	5	11.55	14.63
7	1	6	14.00	17.52
8	1	6	16.35	20.31

## No. 197 Edwards Bakelite Desk Pushes

Schedule E

Directory pushes furnished in individual boxes, with or without cord. When ordered with 6-foot cord already attached, coded cord is used and each push plainly tagged with the color code.

Standard color, black; mahogany or oak can be furnished Standard package, 5 assorted.



No. of Buttons	Std. Pkg.	Wt. Oz.	Price, Each	
			With-out Cord	With 6-Foot Cord Attached
1	3	3	\$3.50	\$4.04
2	3	4	4.75	6.07
3	4	6	6.00	7.76
4	5	7	7.25	9.45
5	6	8	8.50	11.14
6	7	9	9.75	12.83

## No. 190 Edwards Wood Desk Pushes

Schedule E

Weighted, felt-covered base. Standard finish, oak and nickel; mahogany and brass, no extra charge. Black buttons.

Standard package, 5.



No. of Buttons	Wt. Oz.	Price, Each		No. of Buttons	Wt. Oz.	Price, Each	
		With-out Cord	With 6-Foot Cord Attached			With-out Cord	With 6-Foot Cord Attached
1	6	\$3.90	\$4.44	6	13	\$10.80	\$13.88
2	8	5.30	6.62	8	16	13.70	17.66
3	10	6.60	8.36	10	19	16.40	21.24
4	11	8.10	10.30	12	21	20.25	25.97
5	12	9.40	12.04	..	..	..	..



## No. 191 Edwards Directory Plates

Furnished without wood mat.

For flush mounting in desk or wall.

Standard finish is nickel-plate; brush brass at no extra charge.

Standard package, 5 assorted.

No. of Buttons	Wt. Oz.	Price, Each		No. of Buttons	Wt. Oz.	Price, Each	
		With-out Cord	With 6-Foot Cord Attached			With-out Cord	With 6-Foot Cord Attached
1	6	\$3.90	\$4.44	6	13	\$10.80	\$13.88
2	8	5.30	6.62	8	16	13.70	17.66
3	10	6.60	8.36	10	19	16.40	21.24
4	11	8.10	10.30	12	21	20.25	25.97
5	12	9.40	12.04	..	..	..	..

## No. 195 Edwards Combination Desk Pushes and Buzzers

Schedule T

A buzzer is included within the push itself. Standard finish is black; mahogany or oak, at no extra charge.

There must be 2 more conductors than buttons.



No. of Buttons	With-out Cord	Price, Each		No. of Buttons	With-out Cord	Price, Each	
		With 6-Ft. Cord Attached	With 6-Ft. Cord Attached			With 6-Ft. Cord Attached	
1	7.85	\$8.39	6	14.75	\$17.83		
2	9.25	10.57	8	17.65	21.61		
3	10.55	12.31	10	20.35	25.19		
4	12.05	14.25	12	24.10	29.82		
5	13.35	15.99	..	..	..	..	

For Larger Sizes, Add per Button..... \$5.95

For Flexible Cord Only, per Foot per Conductor..... .08

Over 100 Feet, per Foot per Conductor..... .06

## No. 193 Edwards Dial Desk Pushes

Schedule E



A hollowed wood block, round, with removable weighted base, felt-covered to protect polished surfaces. Flush midget pushes are used with numbers directly at side of each.

Oak or mahogany finish; metal parts nickel; dial silver finish with black numbers.

No. of Buttons	Std. Pkg.	Wt. Oz.	Price Each	*Price Cord Attached	No. of Buttons	Std. Pkg.	Wt. Oz.	Price Each	*Price Cord Attached
2	5	8	2.30	3.62	6	5	12	3.90	6.98
3	5	12	2.60	4.36	8	5	16	4.80	8.76
4	5	12	3.05	5.25	10	5	16	6.50	11.34

\*Six feet of silk covered cable.

**No. 147 Edwards Push Button Blocks**

*Schedule E*

A 2-piece separable wood block, front hollowed out to provide space for connections.

Prices do not include push buttons. No. 620 should be ordered for  $\frac{5}{8}$ -inch hole (size A); No. 59 for  $\frac{3}{4}$ -inch hole (size B). When not specified size A hole will be drilled. Oak or mahogany finish.



No. of Buttons	Wt. Oz.	Price Each	No. of Buttons	Wt. Oz.	Price Each	No. of Buttons	Wt. Oz.	Price Each
1	2	\$1.25	4	5	\$2.40	8	8	\$4.85
2	3	1.70	5	6	3.45	10	9	6.10
3	4	2.05	6	7	4.15	12	10	7.40

Larger Sized, Add per Button..... \$ .62  
Weighted, Add per Button..... .46

**No. 159 Edwards Elevator Call Buttons**

*Schedule T*



No. 159

Designed for use with Edwards Annunciators or any standard make annunciator.

Case is iron, finished in black, for surface mounting.

Other commercial finishes, add 50 per cent.

No.	Description	Weight Pounds	Price Each
159	Up and Down...	1 $\frac{5}{8}$	\$6.00
159U	Up Only.....	1 $\frac{5}{8}$	5.00
159D	Down Only.....	1 $\frac{5}{8}$	5.00
159X	Plain.....	1 $\frac{5}{8}$	5.00

**No. 9 Edwards Door Openers**

**Economy, Mortise Type, Solid Nose**



Made of heavy pressed steel, heavily brass plated. Used extensively for apartments.

Fits same size mortise as same shape openers of other manufacturers. Width, 3 $\frac{5}{8}$  inches; depth, 1 $\frac{3}{4}$  inches; thickness, 1 inch; nosing opening, 1 $\frac{1}{8}$  inches; face plate, 5 $\frac{7}{8}$ x1 $\frac{1}{4}$  inches.

Price includes No. 89 pushout spring. May be used on either right or left hand doors. Regular resistance is two ohms.

Special resistance up to 20 ohms, add to price \$1.00; 21 to 50 ohms, \$1.25; 51 to 75 ohms, \$1.50.

Standard package, 50.

Price, No. 9..... each \$2.70

**No. 154 Edwards Door Openers**

**Mortise Type, Roller Nose**

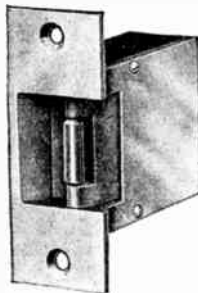
This type is suitable for heavy doors. It requires a smaller mortise than the Economy.

Width, 2 inches; depth, 2 $\frac{7}{8}$  inches; thickness, 1 $\frac{1}{8}$  inches. Nosing opening, 1 $\frac{1}{4}$  inches. Face plate, 1 $\frac{1}{4}$ x3 $\frac{3}{8}$  inches. Brass finish.

Price includes No. 79 pushout spring. Can be supplied with a release check permitting the use of door opener where air checks are employed; add to price, \$2.00.

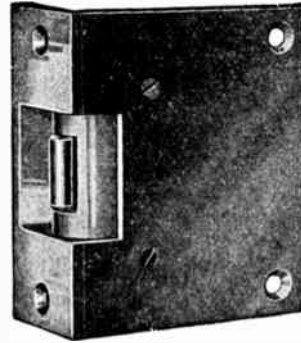
May be used on either right or left hand doors. Regular resistance is two ohms. Special resistance up to 20 ohms, add to price, \$1.00; 21 to 50 ohms, \$1.25; 51 to 75 ohms, \$1.50. Standard package, 10.

Price, No. 154..... each \$5.65



**No. 153 Edwards Door Openers**

**Plate Type, Roller Nose**



Designed for doors too thin to take a mortise. Brass finish.

Width 2 inches. Depth 3 $\frac{7}{8}$  inches. Thickness 1 $\frac{1}{4}$  inches. Nosing opening 1 $\frac{1}{4}$  inches. Face plate 1 $\frac{1}{4}$  x 3 $\frac{3}{8}$  inches. Side plate 3 $\frac{3}{8}$  x 2 $\frac{3}{4}$  inches.

Price includes No. 79 Push-out Spring.

Standard package, 1.

Price, No. 153..... each \$7.00

**No. 1541 Edwards Mortise Type Door Openers**

*Schedule E*



Has roller nose. Face plate is extended to provide space for mortise for dead bolt.

When ordering, a sketch or template must be furnished to show exact location of dead bolt and screw holes. There cannot be less than  $\frac{3}{16}$  inch space between nosing and dead bolt openings. If no sketch is sent, standard door opener, as illustrated, will be furnished.

Height, 2 inches; depth, 2 $\frac{7}{8}$  inches; thickness, 1 $\frac{1}{8}$  inches. Nosing opening, 1 $\frac{1}{4}$  inches; face plate, 1 $\frac{1}{2}$ x6 $\frac{3}{8}$  inches.

Finish, brass.

Standard package, 1. Weight, 1 $\frac{1}{4}$  pounds.

Price, No. 1541..... each \$10.30

**No. 48 Edwards Door Openers**

**Mortise Type, Roller Nose**

Extra heavy, of solid bronze. For places where unusually reliable and durable openers are needed.

Width 2 $\frac{1}{4}$  inches. Depth 2 $\frac{5}{8}$  inches. Thickness 1 $\frac{1}{8}$  inches. Nosing opening 1 $\frac{1}{2}$  inches. Face plate 1 $\frac{1}{2}$  inches x 3 $\frac{3}{8}$  inches.

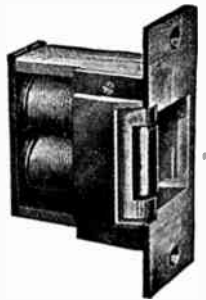
Price includes No. 89 Pushout Spring. Standard package, 1.

Price, No. 48..... each \$31.00

No. 48A, same as above only dimensions are: Width 2 $\frac{5}{8}$  inches. Depth 2 $\frac{5}{8}$  inches. Thickness 1 $\frac{1}{8}$  inches. Nosing opening 1 $\frac{1}{2}$  inches. Face plate 1 $\frac{1}{2}$  x 4 inches.

Standard package, 1.

Price, No. 48A..... each \$34.00



**Edwards Plate Type Door Openers**

*Schedule E*

**No. 51**

Roller nose. For frames too thin to take a mortise. Bronze finish.

Height, 2 $\frac{1}{4}$  inches; depth, 2 $\frac{5}{8}$  inches; thickness, 1 inch. Nose opening, 1 $\frac{1}{8}$  inches. Face plate, 3 $\frac{3}{4}$ x1 $\frac{1}{2}$  inches. Side plate, 3 $\frac{3}{4}$ x2 $\frac{7}{8}$  inches.

Standard package, 1. Weight, 1 $\frac{3}{4}$  pounds.

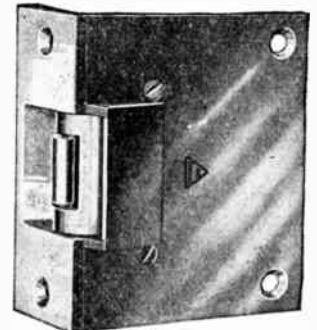
Price, No. 51..... each \$34.00

**No. 51A**

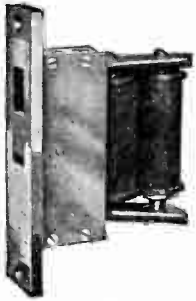
Height, 2 $\frac{1}{2}$  inches; depth, 2 $\frac{1}{2}$  inches; thickness, 1 inch. Nose opening, 1 $\frac{1}{2}$  inches. Plate same as No. 51.

Standard package, 1. Weight, 1 $\frac{3}{4}$  pounds.

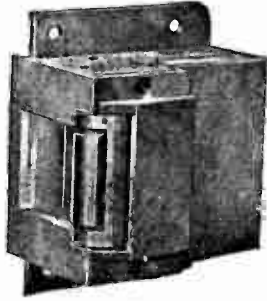
Price, No. 51A..... each \$35.00



## Nos. 52 and 50 Edwards Door Openers



No. 52



No. 50

### No. 52 Mortise Type—For Sliding Door

Solid nose. Width  $3\frac{1}{4}$  inches. Depth  $3\frac{1}{4}$  inches. Thickness  $\frac{7}{8}$  inch. Nosing opening  $\frac{1}{2} \times \frac{3}{4}$  inches. Face plate  $1 \times 4\frac{3}{4}$  inches. Price includes No. 79 Pushout Spring.  
 Price, No. 52, Bronze Finish..... each \$38.00  
 " " 239, Latch for No. 52..... " 3.50

### No. 50 Rim Type

For surface or rim locks, thin door, etc. Price includes No. 89 Pushout Spring. Width  $2\frac{1}{4}$  inches. Depth  $2\frac{5}{8}$  inches. Thickness 1 inch. Nosing opening  $1\frac{1}{2}$  inches.  
 Price, No. 50, Cast Bronze..... each \$31.00

### No. 50A Rim Type

Same as No. 50 but with nosing opening  $1\frac{1}{2}$  inches.  
 Price, No. 50A..... each \$34.00

## No. 26 Edwards Constant Ringing Drops

Schedule T



Nos. 26B and 26C are attached to the main line; closing of circuit drops plunger, closing local circuit and causes bell to ring continuously until plunger is pushed into place. Standard drop is the No. 26B. When it is desirable to have drop in operation cut its own magnets out of the circuit the No. 26C is used. Either type operates on transformer.

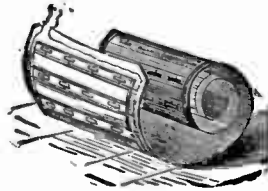
No. 26T is wound to a resistance of 1250 ohms for connection across ringer terminals of a standard magneto or common battery telephone operating on a.c. ringing current of 75 to 90 volts at 16 to 20 cycles. This drop closes a circuit to an auxiliary loud ringing bell.

Price, No. 26B..... each \$2.70  
 Price, No. 26C..... each 3.92  
 Price, No. 26T..... each 5.00

## Burglar Alarm Matting

If placed at the entrance to an apartment, no person can enter without sounding an alarm.

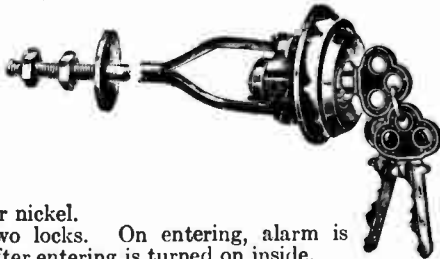
Full roll, 10 feet long. Cut any length to order.



Cat. No.	Width of Rolls, Ft.	Price per Sq. Ft.
1604	2	\$2.00

## Edwards Burglar Alarm Lock Switches

No. 95.—Lock switches to be placed on the outside of the door so persons having key may enter without giving alarm. Polished brass or nickel.



No. 95A.—Two locks. On entering, alarm is turned off and after entering is turned on inside.

No. 95B.—Same as No. 95, with rod to go through door, fastened by nuts inside.

Price, No. 95, Standard Package,	1	each	\$6.50
" " 95A	1	"	13.00
" " 95B	10	"	7.95
" Extra Keys,"	1	"	.80

## Edwards Burglar Alarm Springs

Schedule E

Window springs should be placed in the frame several inches above the lower end of the upper sash—and the same distance below the upper end of the lower sash. Each sash should be mortised so that the nosing of the spring will be set in the recess when the window is closed. The mortise should be continued (beyond the necessary point) to permit the opening of the window for ventilation. It is advisable (although not necessary) that this system of installation be followed. Without the mortise anyone trying to enter the house and knowing of the window springs can easily open the window gradually, and hold the spring depressed with the finger.

The Edwards Springs when used properly as described are classified as follows:

Open circuit window springs—nosing in normal position contact is broken.

Closed circuit window springs—nosing in normal position contact is established.

Open circuit door springs—plunger in normal position contact is established.

Closed circuit door springs—plunger in normal position contact is broken.

### Open Circuit Springs



No. 28



No. 30

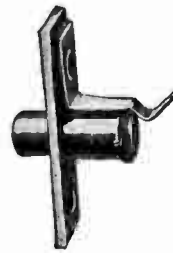


No. 32

No.	Description	Size Plate Inches	Standard Package	Weight Pounds	Price Each
28	Window.....	$2\frac{1}{2} \times 2\frac{1}{2}$	50	$2\frac{3}{4}$	\$.54
30	Window.....	$3\frac{3}{8} \times \frac{5}{8}$	50	$5\frac{1}{2}$	.85
32	Transom.....	$2\frac{1}{2} \times 1$	25	$3\frac{1}{2}$	1.55



No. 34



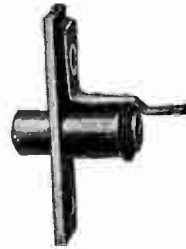
No. 38



No. 236

No.	Description	Size Plate Inches	Standard Package	Weight Pounds	Price Each
34	Door.....	$2 \times \frac{5}{8}$	50	3	\$ .35
38	Make and Break.....	$2 \times \frac{5}{8}$	50	3	.46
236	Door Trip.....	$2 \times \frac{5}{8}$	25	2	1.03

### Closed Circuit Springs



No. 39



No. 42



No. 42A

No.	Description	Size Plate Inches	Standard Package	Weight Pounds	Price Each
30C	Window.....	$3\frac{3}{8} \times \frac{5}{8}$	50	$5\frac{1}{2}$	\$1.03
39	Door.....	$2 \times \frac{5}{8}$	50	3	.46
32C	Transom.....	$2\frac{1}{4} \times 1$	50	$3\frac{1}{2}$	1.95
42	Safe (No Plate).....	.....	50	$2\frac{1}{2}$	.48
42A	Plate for No. 42.....	$1\frac{3}{4} \times \frac{3}{4}$	50	$1\frac{1}{4}$	.20

Assortment of 100, all styles to make standard package.



**Eveready Tubular Flashlights**



No. 2631

Bulls-eye lens; octagonal lens ring with safety lock switch. All Eveready Flashlights are equipped with ring hanger. Price includes lamp but no batteries.

**Black Metal Case**

No.	No. of Unit Cells	Size In.	No. of BULB Eveready Mazda	Unit Pkg.	Std. Pkg.	Price Each
2602	2-No. 935	1 1/4 x 5 1/2	1197 11	3	20	\$1.05
*2604	2-No. 950	1 1/2 x 6 1/2	1198 16	3	10	1.25
2612	3-No. 950	1 1/2 x 8 1/2	1193 17	2	20	1.70

**Nickel-Plated Case**

2630	2-No. 935	1 1/4 x 5 1/2	1197 11	3	20	\$1.30
2631	2-No. 950	1 1/2 x 6 1/2	1198 16	3	20	1.05

\*Sold only in special assortment No. 04, complete with batteries.

**Eveready Miners' Flashlights**



No. 2619

Beveled lens; octagonal lens ring with safety lock switch. All Eveready Flashlights are equipped with ring hanger. Price includes lamp but no batteries.

**Black Metal Case**

No.	No. of Unit Cells	Size Inches	No. of BULB Eveready Mazda	Unit Pkg.	Std. Pkg.	Price Each
2660	2-No. 935	1 1/4 x 5 3/4	1197 11	3	30	\$1.30
*2615	2-No. 950	1 1/2 x 6 1/2	1198 16	2	20	1.75
2619	3-No. 950	1 1/2 x 8 1/2	1193 17	2	20	2.20

**Nickel-Plated Case**

2634	2-No. 950	1 1/2 x 6 1/2	1198 16	2	20	1.80
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\*Sold only in special assortment No. 16 complete with batteries.

**Eveready Focusing Flashlights  
500-Foot Range**



No. 2642

Equipped with focusing device and parabolic silvered reflector, non-rolling lens ring. Heavy nickel-plated fittings. Mazda lamp has permanent and flash contact.

All Eveready Flashlights are equipped with ring hanger. Price includes lamp but no batteries.

**Black Metal Case**

No.	No. of Unit Cells	Size In.	No. of BULB Eveready Mazda	Unit Pkg.	Std. Pkg.	Price Each
2642	3-No. 950	1 1/2 x 10	1162 13	1	20	\$4.20

**Nickel-Plated Case**

2644	3-No. 950	1 1/2 x 10	1162 13	1	20	4.20
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**Eveready Focusing Flashlights  
300-Foot Range**



No. 2672

Beveled lens; octagonal lens ring with safety lock switch. Equipped with a focusing device. The light can be focused to as sharp a point as desired merely by turning the end cap.

All Eveready Flashlights are equipped with ring hanger. Price includes lamp but no batteries.

**Black Metal Case**

No.	No. of Unit Cells	Size In.	No. of BULB Eveready Mazda	Unit Pkg.	Std. Pkg.	Price Each
2672	3-No. 950	1 1/2 x 9 1/4	1162 13	1	20	\$3.20

**Nickel-Plated Case**

2674	3-No. 950	1 1/2 x 9 1/4	1162 13	1	20	3.20
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**No. 2695 Eveready Special Safety Flashlights**



For use in mines, oil fields, around gasoline filling stations, etc.

Bulb is spring mounted and is so arranged that if the bulb glass is shattered the electric circuit will be instantly opened before the lamp filament can ignite inflammable or explosive mixtures of gases in the surrounding atmosphere. Fitted with a special lens made of extra heavy glass and a special projecting lens ring. Nickel finish.

Price includes lamp but no cells or batteries.

No.	No. of Unit Cells	Size Inches	No. of Bulb	No. of Battery	Unit Pkg.	Price Each
2695	3-No. 950	9 1/4 x 1 1/2	1162	705	1	\$3.50

**No. 2645 Eveready Flashlights  
5-Cell, Focusing**



Used by hunters, firemen, fishermen, inspectors, etc., or wherever exceptional power and range must be combined with portability.

A few turns of the end cap make the light suitable for close up work, the beam changing from a narrow, penetrating shaft of light to a diffused and wide-spread ray.

Has beveled plate-glass lens, octagonal non-rolling lens ring, safety-lock switch, ribbon-design case and new ring hanger. Made in nickel-plated finish only.

Price includes lamp but no cells.

No.	No. of Unit Cells	Size Inches	No. of Bulb	Standard Package	Price Each
2645	5-No. 950	14 1/2 x 1 1/2	1163	20	\$5.50

**No. 6993 Eveready Vest Pocket Flashlights**

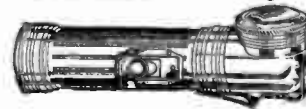


Nickel-plated, side opening. Size 3x2 1/4 inches. No. of bulb, Eveready No. 1182, Mazda No. 1. Two No. 935 unit cells. Unit package, 3. Standard package, 20.

Price, No. 6993.....each \$2.05

Prices includes lamp but no batteries.

**No. 2694 Eveready Industrial Flashlights  
Nickel-Plated Case**



Equipped with ring hanger. Price includes lamp but no batteries. Battery or unit cells must always be ordered separately.

Cat. No.	No. of Unit Cells	Size Inches	No. of BULB Eveready Mazda	Unit Pkg.	Std. Pkg.	Price Each
2694	2-No. 950	1 1/2 x 7	1198 16	1	20	\$4.00

**No. 2697 Eveready Boy Scout Flashlights**



A 2-cell focusing light finished in olive drab and equipped with ring hanger, belt clip and safety-lock switch. It carries the official Boy Scout insignia.

Cat. No.	No. of Unit Cells	Size Inches	Bulb No.	Price Each
2697	2-No. 950	7x1 1/2	1161	\$2.30



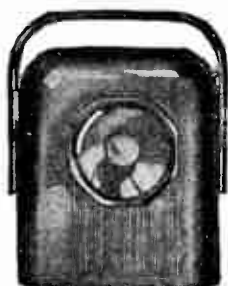
## No. 2696 Eveready Shot Firing Units



A small, compact, light-weight, battery-powered shot firing device approved by the U. S. Bureau of Mines for use in mining. Also suitable for use on the surface, in quarries, in stump blasting, in fact wherever blasts are to be fired one at a time. The unit is safe, as the blast cannot be fired accidentally. The wires leading from the cap are fastened to a special plug and, to fire, it is necessary to insert this plug in a small socket in the end of the device and hold it there against the pressure of a spring. Nickel finish. Price does not include cells.

Cat. No.	Size Inches	Standard Package	Price Each
2696	8½x1½	20	\$2.25

## No. 4753 Eveready Unit Cell Lanterns



A sturdy and thoroughly practical general utility flashlight.

Equipped with extension type bail handle, beveled lens, octagonal lens ring and positive switch.

Finished in gun metal.

As the light stands on its own base, it is ideal for campers, farmers and general use around a house.

Size 3½x4¼ inches. Unit package, one. Three unit cells are required per case.

Price, No. 4753, Case, Including Lamp but not Cells or Battery.....	each	\$4.20
Price, No. 950, Unit Cells.....	"	.10
" " 1193, Lamp Only.....	"	.09

## Model H Federal Electric Lanterns



Opened

light from reflector. Equipped with 6-volt, 4-cell battery and 5-volt, 0.15 ampere white Mazda bulb.

Lighted and extinguished by means of a switch so placed as to be out of the way of accidental operation or injury. Doubly insulated against shorting and protected from freezing. No exposed metal parts which come in contact with the ground are in contact with either pole of the battery at any time.

The Federal Battery is recognized for steady strength and long-life illumination. When used with Mazda 5-volt bulb it will give 28 to 35 hours of intermittent service.

Will fit the coat pocket when the three folding legs are clustered. Compact for the autoist's tool box.

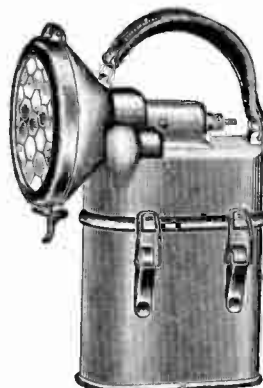
Built with high polish aluminum body.

Net weight, 2¼ pounds; shipping weight, 3 pounds. Height over all, handle up, 14¼ inches; folded, 9½x7x4 inches.	
Price, Model H, Complete.....	each \$6.00
Price, Bulbs, Clear, 5 and 6-volt.....	each .20
Price, No 409C, Dry Batteries.....	each .60



Folded

## Excellight Hand Lanterns



The Excellight is constructed of aluminum.

Wire re-enforced glass door.

Two spare bulbs for emergency carried in a special compartment. Focusing device to spread or concentrate beam.

No tools required to open up lantern to get at batteries.

Parabolic silver plate reflector. Flexible all leather handle with steel reinforcements. Enamel finish in Brown, Red and Blue. Has two No. 6 dry cells.

Price, Lantern.....	each	\$13.00
" Shoulder Strap.....	each	.75
Price, Bulb.....	"	.30

## Eveready Unit Cells



No. 935

The Eveready Unit Cell produces an unusually large amount of electrical energy in view of its size.

The hours of service are definitely guaranteed.

Cat. No.	No. of Cells	Size of Cells Inches	No. In Unit. Pkg.	Price Each
935	1	1¼x1	12	\$.10
950	1	2⅜x1¼	36	.10

Two unit cells No. 950, equivalent of one No. 790 battery.

Three unit cells No. 950, equivalent of one No. 705 battery.

Two unit cells No. 935, equivalent of one No. 791 battery.

## Western Electric Blue Bell Batteries



This dry cell is specially made for telephone work, and for this purpose is the most satisfactory cell on the market.

It is a reliable, highly efficient and long lived cell.

Size over all, 2⅝ inches by 6¾ inches.

Weight per cell, 2 pounds.

Fahnestock clip top.

STANDARD PKG.	Wt., Lbs.	Std. Pkg.	Price
Boxes of	Boxes	Barrels	Each
50	125	300	\$.40

## No. 6 Eveready Columbia Ignitor Batteries With Screw Connections



A special high grade cell designed for all heavy service. It is particularly adapted for motor ignition. A set of ignitors will keep the engine running smoothly until every bit of current is exhausted.

Equally satisfactory for motor boats, gas engines, and in fact, any service where a reliable, long life battery is needed.

These batteries are carefully packed and from fresh stock, guaranteed to reach their destination in perfect condition.

Voltage, 1½.

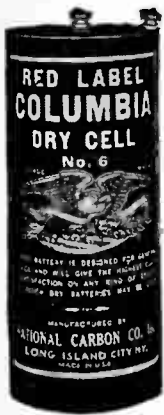
Width, 2½ inches.

Height, 6 inches.

Packed 50 to a standard package. Weight of standard package 120 pounds.

Price, No. 6.....	each	\$.45
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**No. 6 Columbia Red Label Batteries**



Where steady service is demanded over a considerable period of time, Columbia Red Label Batteries prove reliable, efficient and economical. This is particularly true where the current drain is small, such as in telephone, bell, burglar alarm and toy service.

Columbia batteries will, however, stand up under hard service. They are satisfactory ignition batteries.

Equipped with either screw or Fahnestock connections, as desired.

These cells come from fresh stock, are carefully packed and guaranteed to reach their destination in perfect condition.

Size.....inches 2½x6  
Price, No. 6.....each \$ .45

**Columbia Gray Label Batteries**



This battery is especially designed for telephone work and light-drain service.

Fahnestock spring binding posts are furnished without extra charge when requested.

Voltage, 1½.  
Diameter, 2½ inches.  
Height, 6 inches.

Quantity in standard package, 50.

Approximate weight of standard package, 120 pounds.

Price.....per cell \$ .40  
Price, in Broken Packages...per cell .34  
Price, in Standard Packages...per cell .30

**No. 7111 Eveready Dry Cell Radio A Batteries**

Vertical Type, 1½ Volts



A single 6-inch dry cell battery having 2 screw knurls and put up in an attractive round paper jacket.

Connected in various combinations to meet the requirements of WD-11, UV-199 and all other dry cell tubes.

Furnished in round jackets and with screw knurls.

Initial voltage of 1½ volts.  
Width, 2½ inches; height, 6 inches.  
Standard package, 50.

Weight, standard package, 120 pounds.  
Price, No. 7111.....each \$ .50

**Eveready Columbia Hot Shot Batteries**



Cells are connected by soldered copper strips and encased in a single metal container. The advantages of this new type covering are the ability to withstand rough usage, water-proof, thoroughly insulated to prevent internal short circuits and a woven fabric handle for convenience in carrying.

Cat. No.	Voltage	DIMENSIONS, INCHES			Std. Pkg. Quantity in Box	Approx. Wt., Lbs. Std. Pkg.	Price Each
		Lgth.	Wdth.	Ht.			
1461	6	10¾	2¾	7½	12	128	\$2.30
1561	7½	13¼	2¾	7½	8	116	2.70
1562	7½	8	5	7½	8	115	2.70
1662	9	8	5¾	7½	8	136	3.25

**No. 485 Eveready Layerbilt Radio B Batteries**

Vertical Type, 45 Volts, Medium Size

Made of flat layers of current producing elements compressed one against another, so that every cubic inch inside the battery case is completely filled with electricity-producing material. For sets of 4 tubes or more.

Equipped with 3 Fahnestock clips giving voltages of 22½ and 45.

This battery is 8¾ inches long, 3¼ inches wide and 7½ inches high.

Weight, 9½ pounds.

Price, No. 485.....each \$2.95



**No. 486 Eveready Layerbilt Radio B Batteries**

Vertical Type, 45 Volts, Heavy Duty



Made of flat layers of current-producing elements compressed one against another, so that every cubic inch inside the battery case is completely filled with electricity-producing material. For sets of 4 tubes or more.

Equipped with 3 Fahnestock Clips giving voltages of 22½ and 45.

Length, 8¾ inches; width, 4¾ inches; height, 7¾ inches.  
Weight, 14¼ pounds.

Price, No. 486.....each \$4.25

**No. 770 Eveready B Batteries**

Vertical Type, 45 Volts, Heavy Duty



For use on multi-tube sets having 4 tubes operating at 90 or more volts without a C battery, and on practically all sets with 5 or more tubes using 90 volts or over, with or without a C battery.

With 3 Fahnestock Spring Clip Connectors giving voltages of 22½ and 45.

Length, 8¾ inches; width, 4¾ inches; height, 7¾ inches.

Weight, 13¾ pounds.

Price, No. 770.....each \$4.00

**No. 772 Eveready B Batteries**

Vertical Type, 45 Volts



A 45-volt vertical B battery. Variable voltage taps omitted.

For sets having 3 tubes or less, and for self-contained multi-tube receivers where there is not sufficient space for installing heavy duty batteries.

Length, 8¾ inches; width, 3¼ inches; height, 7½ inches.

Weight, 9 pounds.

Price, No. 772.....each \$2.75

## No. 768 Eveready B Batteries

Horizontal Type, 22½ Volts

Suitable for portable sets where light weight and small size are essential, and for self-contained sets having battery compartments too small to permit the installation of a larger B battery.



It has plus 6, plus 18 and plus 22½-volt taps, which permit of its use as a C battery in connection with power tubes.

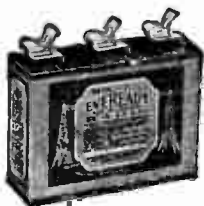
Length, 4⅞ inches; width, 2⅞ inches; height, 2¾ inches.

Weight, 1 pound, 9 ounces.

Price, No. 768.....each \$1.75

## No. 771 Eveready Radio C Batteries

Vertical Type, 4½ Volts



A 4½-volt unit, containing 3 cells, provided with 3 Fahnestock Spring Clip Terminals.

May be used in either the filament or A circuit, the plate or B circuit or the grid or C circuit.

A 4½-volt C battery is sufficient with most tubes when B battery voltages of not over 80 or 90 volts are used, and the signal is ordinarily loud.

For B battery voltages up to 120 volts from 6 to 9 volts of C battery gives better results.

Length, 4 inches; width, 1⅜ inches; height, 3 inches. Weight, 14 ounces.

Price, No. 771.....each \$0.60

## Other Eveready Radio Batteries

### Voltage and Type

Cat. No.	Description	Std. Pkgs	Price Each
*763	22½-Volt, Portable.....	5	\$1.50
766	22½-Volt, Medium Size, Horizontal.....	5	2.00
*779	22½-Volt, Medium Size, Vertical.....	5	2.00
767	45-Volt, Medium Size, Horizontal.....	5	2.75

\*Special batteries not regularly carried in stock.

## No. 155 Fahnestock Battery Connectors



Slip this connector over any type of screw binding post. Broken and loose connections are thus eliminated. Flexible wire is soldered to spring clip.

Will not corrode.

Fig. 3566

Price, No. 155.....each \$0.05

## Edison Primary Cells

Edison Primary Cells are furnished in capacities ranging from 75 to 1000-ampere hours. The sizes best adapted for telephone work are 75, 250, 400 and 500-ampere hour types, for average conditions, and the 1000-ampere hour cells for heavy duty service or when it is desirable to bring the renewal periods far apart.

The characteristics of this battery, which make it particularly well suited for telephone service, are: Uniform voltage under continuous discharge; extremely low and constant internal resistance; freedom from depreciation when the circuit is open; long life, with no attention between renewals; indicator panels in plates, which accurately show the approach of exhaustion in ample time to arrange for renewal and suitability for either open circuit (intermittent discharge) or closed circuit (continuous discharge) work.

The initial open circuit voltage of all Edison Primary Cells is 0.95. The closed circuit voltage averages 0.60 to 0.65 depending on the rate at which the cells are discharged.

### Use of Cells

Edison Primary Cells are used extensively for the following purposes: Local battery telephone exchange switchboards; telephone train dispatching (talking circuits); intercommunicating telephone systems; small common battery telephone systems; private branch exchange switchboards; pole changers, supervisory lamps and relays; telegraph work (local sounder and main line circuits); railway signals and crossing bells; railway interlocking plants; gas and gasoline engine ignition; low voltage motors; battery dental engines; fire, police and burglar alarms; auxiliary fire alarm systems (closed circuit); mine signals, bell systems and annunciators; program and self-winding clocks; electroplating; highway beacon lighting; chemical analysis and other school work.

## Type 75 Edison Primary Cells

Capacity, 75-Ampere Hours



Well suited for telephone work. Adapted to all classes of service where dependable capacity, uniform voltage and reliability are necessary requisites.

With round glass jar. Size overall, 3x7½ inches.

At a continuous discharge of 100 milliamperes this cell will deliver 80 ampere hours to a cut-off voltage of .6. It is capable of sustained discharges up to 750 milliamperes or intermittent up to 1 ampere.

When the battery exhausts it is customary to replace with new cells and discard the entire exhausted battery; expensive jars or heat-resisting glass are not used with this type.

Price, Type 75.....each \$0.90

## Type S-202 Edison Primary Cells

Capacity, 200-ampere Hours

With rectangular heat-resisting glass jar. Size over all, 3⅜x6x11 inches. Inside dimensions, 2⅞x5¼x9 inches.

Adapted for intercommunicating telephone systems, railway train dispatching systems, stationary gas or gasoline motors, electric clock systems, small motors, etc.

Use 5 cells for stationary gas or gasoline motors having make and break ignition and 8 cells for jump spark.



Type	Description	Price, Each
S-202	Complete Cell.....	\$3.75
S-200	Renewal.....	1.50
Separate Parts		
202	Jar.....	\$1.75
202	Cover.....	.45
	Wing Nuts and Washers.....per set	.20
S-200	Element, Assembled.....	1.35
200	Caustic Soda.....per can	.24
200	Battery Oil.....per bottle	.09

GraybaR

Symbol of  
Distribution

from GraybaR

ELECTRIC COMPANY

**Type S-208 Edison Primary Cells**

Capacity, 200-ampere Hours

With heat-resisting glass jar. Size over all, 5 $\frac{3}{4}$ x9 inches. Inside dimensions of jar only, 5x7 $\frac{1}{2}$  inches.

Adapted for stationary gas or gasoline engines, electric motors, burglar alarms, bell systems, program and self-winding clocks, annunciators, electric time stamps, mine signals, intercommunicating telephone systems, etc. Use 5 cells for stationary engines having jump spark ignition.

Type S-208 supersedes old Type Q cell.



Type	Description	Price, Each
S-208	Complete Cell	\$3.75
S-200	Renewal	1.50
<b>Separate Parts</b>		
208	Jar	\$1.75
208	Cover	.40
	Wing Nuts and Washers...per set	.20
S-200	Element, Assembled	1.35
200	Caustic Soda...per can	.24
200	Battery Oil...per bottle	.09

**Type S-252 Edison Primary Cells**

Capacity, 250 Ampere Hours

With rectangular heat resisting glass jar. Size over all, 3 $\frac{1}{2}$ x6x12 $\frac{1}{2}$  inches. Inside dimensions of jar only, 2 $\frac{7}{8}$ x5 $\frac{1}{4}$ x10 inches.



The Type S-252 Cell is the most perfectly balanced of any of the cells of less than 500 ampere hours capacity. The other low capacity cells were designed to meet certain requirements, with definite specifications as to size, etc. In developing this cell, no restrictions were placed on the laboratory and the result is a cell with the zinc, copper-oxide and electrolyte nicely

proportioned and the element suspended high in the solution where its action is not interfered with by the dense solution at the bottom of the cell.

This cell is recommended for railway telephone dispatching transmitters; intercommunicating telephones; self winding and program clocks; fire and burglar alarm systems; radio "A" batteries, etc.

Initial open circuit voltage, 0.95. Average closed circuit voltage, 0.6 to 0.65 per cell. Maximum recommended continuous current 1 ampere. Maximum recommended intermittent current, 1.5 amperes.

Type	Description	Price Each
S-252	Cell Complete	\$4.00
S-250	Renewal Complete	1.70
<b>Separate Parts</b>		
252	Jar	\$2.00
252	Cover	.45
	Wing Nuts and Washers...per set	.20
S-250	Element	1.55
250	Caustic Soda...per can	.27
250	Oil...per bottle	.09

**Type S-302 Edison Primary Cells**

Capacity, 300-Ampere Hours

For railway telephone dispatching transmitters, intercommunicating telephones, self-winding and program clocks, fire and burglar alarm systems, radio A batteries, etc.

With rectangular heat-resisting jar. Size overall, 3 $\frac{1}{2}$ x6x12 $\frac{1}{2}$  inches.

Type	Description	Price Each
S-302	Complete Cell	\$4.25
S-302	Complete Renewal	1.90

**Separate Parts**

302	Jar	\$2.00
302	Cover	.45
	Wing Nuts and Washers...per set	.20
S-300	Element, Assembled	1.75
300	Caustic Soda...per can	.30
300	Battery Oil...per bottle	.09

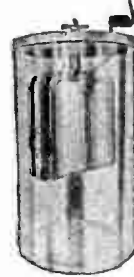


**Type S-401 Edison Primary Cells**

Capacity, 400-ampere Hours

With round heat-resisting glass jar. Size over all, 6 $\frac{3}{4}$ x12 $\frac{1}{2}$  inches. Inside dimensions of jar only, 6x10 $\frac{1}{2}$  inches.

Adapted for railway signals, battery motors, intercommunicating telephone circuits, telephone pole changers, telegraph sounder and main line circuits, fire alarms, burglar alarms, program and self-winding clocks, etc.



Type	Description	Price, Each
S-401	Complete Cell	\$4.60
S-400	Renewal	2.05
<b>Separate Parts</b>		
401	Jar	\$2.10
401	Cover	.55
	Wing Nuts and Washers...per set	.20
S-400	Element, Assembled	1.80
400	Caustic Soda...per can	.36
400	Battery Oil...per bottle	.09

**Types S-402 and S-404 Edison Primary Cells**

Capacity, 400-ampere Hours

These are the popular types in the 400-ampere hour cells. In capacity and operating characteristics they are the same. Therefore, it is only a question of which shape of jar is preferred and while the barrel shaped jar has the greater mechanical strength, the rectangular is particularly well suited for locations where space is limited.

The cells are adapted for telephone transmitter, inter-rupter and pole-changer operation, private branch exchanges, intercommunicating systems, fire and burglar alarm systems, self-winding and program clock systems, railway signaling, etc.

The maximum recommended continuous current is 2 amperes and the maximum intermittent current is 3 amperes. The initial open circuit voltage is 0.95 and the average closed circuit voltage 0.6 to 0.65 per cell.

**Type S-402**

With rectangular heat-resisting glass jar. Size over all, 5 $\frac{1}{2}$ x6 $\frac{1}{2}$ x12 $\frac{1}{4}$  inches. Inside dimensions of jar only, 5x6x10 inches.



Type	Description	Price, Each
S-402	Complete Cell	\$4.60
S-400	Renewal	2.05
<b>Separate Parts</b>		
402	Jar	\$2.20
402	Cover	.45
	Wing Nuts and Washers...per set	.20
S-400	Element	1.80
400	Caustic Soda...per can	.36
400	Oil...per bottle	.09

**Type S-404**

With barrel-shaped heat-resisting glass jar. Size over all, 7 $\frac{1}{8}$ x12 $\frac{1}{4}$  inches. Inside dimensions of jar only, diameter at top, 6 inches; depth, 10 inches.

Type	Description	Price, Each
S-404	Complete Cell	\$4.60
S-400	Renewal	2.05

**Separate Parts**

404	Jar	\$2.10
404	Cover	.55
	Wing Nuts and Washers...per set	.20
S-400	Element	1.80
400	Caustic Soda...per can	.36
400	Oil...per bottle	.09



## Type S-403 Edison Primary Cells

Capacity, 400-ampere Hours



With cylindrical heat resisting glass jar. Size over all, 7 1/4 x 11 inches. Inside dimensions of jar only, 6 1/8 x 8 3/4 inches.

The Type S-403 is the successor of the old Edison Lalande Type RR Cell which was used extensively for telephone work, gas engine ignition, etc. The older type was converted into the Type S-403 several years ago, by the use of Type 403 covers, which were furnished with the improved style renewals. The S-403 is still furnished for the benefit of custom-

ers who wish to keep their cells uniform, when making additions to or changes in their battery. However, the S-402 and S-404 are the more efficient cells and should be used when an entire new battery is purchased.

The 400-ampere hour cells are suitable for telephone transmitter, interrupter and pole-changer operation, private branch exchanges, intercommunicating systems, fire and burglar alarm systems, self winding and program clock systems, railway signaling, etc.

The maximum recommended continuous current is 2 amperes and the maximum intermittent current is 3 amperes. The initial open circuit voltage is 0.95 and the average closed circuit voltage 0.6 to 0.65 per cell.

Type	Description	Price Each
S-403	Cell Complete	\$4.60
S-400	Complete Renewal	2.05
<b>Separate Parts</b>		
403	Jar	\$2.00
403	Cover	.60
...	Wing Nuts and Washers	per set .20
S-400	Element	1.80
400	Can Caustic Soda	.36
400	Bottle Battery Oil	.09

## Types S-502 and M-502 Edison Primary Cells

Capacity, 500-ampere Hours

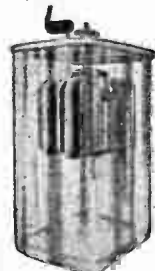
The 500-ampere hour cells are furnished with either multiple or single plate elements. The letter M before the reference number indicates multiple plate, 2 copper-oxide and 3 zinc plates. The letter S indicates single plate, 1 copper-oxide and 2 zinc plates.

The cells are used for telephone and telegraph service; railway signal, fire and burglar alarm systems, highway beacons, and in many other fields where a high capacity cell is desirable.

For service in which the load frequently goes to 3 amperes, or where the cells are exposed to low temperature, the multiple plate cells are recommended. For service in which the load does not go over 2 1/2 amperes and the cells are protected from the cold, the single plate type will fully meet the requirements. Initial open circuit voltage, 0.95. Average closed circuit voltage 0.6 to 0.65 per cell. Maximum recommended continuous current for single plate types, 2 amperes; for multiple plate types, 2.5 amperes. Maximum recommended intermittent current for either types, 3 amperes.

### Type S-502 Single Plate Element

With rectangular heat-resisting glass jar. Size over all, 5 1/2 x 6 1/2 x 12 1/4 inches. Inside dimensions of jar only, 5 x 6 x 10 inches.



M-502

Type	Description	Price, Each
S-502	Complete Cell	\$4.80
S-500	Renewal	2.15
<b>Separate Parts</b>		
502	Jar	\$2.20
502	Cover	.45
...	Wing Nuts and Washers	per set .20
S-500	Element	1.90
500	Caustic Soda	per can .42
500	Oil	per bottle .09
For Type M-502 cell, renewal and element, add 20 cents. Prices of the other parts are the same.		

## Types S-504 and M-504 Edison Primary Cells

Capacity, 500-Ampere Hours

For telephone and telegraph service, railway signal, etc. With barrel-shaped heat-resisting glass jar. Size over all, 7 x 12 1/4 inches; inside dimensions of jar, 6 x 10 inches.



Type	Description	Price Each
S-504	Complete Cell	\$4.80
S-500	Complete Renewal	2.15
<b>Separate Parts</b>		
504	Jar	\$2.10
504	Cover	.55
...	Wing Nuts and Washers	per set .20
S-500	Element	1.90
500	Caustic Soda	per can .42
500	Oil	per bottle .09
For Type M-504, cell, renewal and element, add 20 cents.		

## Types S-507 and M-507 Edison Primary Cells

Capacity, 500-Ampere Hours

For traffic signals and other classes of work where there is a possibility of rough usage. Has cylindrical enameled-steel jar. Size overall, 7 1/4 x 12 inches.

Type	Description	Price, Each
S-507	Complete Cell	\$5.00
S-500	Complete Renewal	2.15

### Separate Parts

S-507	Jar	\$2.50
S-507	Cover	.55
S-507	Rubber Gasket	.25
S-507	Clamps	set of 3 .75
...	Wing Nuts and Washers	per set .20
S-500	Element	1.90
500	Caustic Soda	per can .42
500	Oil	per bottle .09
For Type M-507 cell, renewal and element, add 20 cents.		



## Type M-1002 Edison Primary Cells

Capacity, 1000 Ampere Hours

The 1000 ampere hour cells are furnished with either rectangular or cylindrical jars. Type M-1001 is the specification for the cell with the cylindrical jar and M-1002 for the rectangular. The prices are the same.

This size was developed to meet demand for a battery that would operate efficiently in classes of service where heavy discharges are required for long periods. In railway signaling these cells are used for operating remote controlled switch movements, color light signals and track circuits. In the general trade for any heavy duty work or where it is desirable to bring the renewal periods as far apart as possible.

Initial open circuit voltage, 0.95 per cell; the average closed voltage, 0.6 to 0.65. The cells can be discharged continuously up to 4 amperes and intermittently up to 6 amperes.

### Type M-1002

With rectangular heat-resisting glass jar. Size over all, 6 1/2 x 8 3/8 x 14 inches. Inside dimensions of jar only, 5 x 6 x 12 3/4 inches.

Type	Description	Price, Each
M-1002	Cell Complete	\$8.50
M-1000	Renewal	4.25
<b>Separate Parts</b>		
1002	Jar	\$4.80
1002	Cover	.55
...	Wing Nuts and Washers	per set .20
M-1000	Element	3.50
1000	Caustic Soda	per can .85
1000	Oil	per bottle .09

### Type M-1001

With cylindrical heat-resisting jar. Prices same as for Type M-1002.





**G-E Tungar Battery Chargers**

For Charging All Radio A and B and Auto Storage Batteries

Form B—25 to 133 Cycles—115 to 230 Volts

The 2-ampere charger will take care of all radio and auto battery charging requirements at home. Has combination trickle charge and full rate feature. The 5-ampere will charge larger radio and auto batteries. Both have insulating transformer.



2-Ampere Tungar

**2-Ampere Chargers**

Will charge 6-volt battery at 2 amperes or trickle rate of 3/4 ampere; 12-volt battery at 1 ampere; 2 or 4-volt battery at 1 ampere; 24 to 96-volt B battery at 1/10 to 1/4 amp.

Cycles	DIMENSIONS, INCHES			Ship. Wt. Lbs.	A.C. Volts: Normal 115 Limits 105/125		A.C. Volts: Normal 230 Limits 210/250	
	Ht.	Width	Depth		Cat. No.	Price Each	Cat. No.	Price Each
60	7 1/2	5 1/2	7 1/4	11 1/2	277153	\$14.00	279173	\$20.00
40/50	8	5 1/2	7 1/4	14	279171	16.00	279174	22.00
25/30	9	5 1/2	7 1/4	17	279172	18.00	279175	24.00

**5-Ampere Chargers**

Will charge 6-volt battery at 5 amperes; 12-volt battery at 3 amperes; 2, 4 or 6-volt battery at 1 ampere; 24 to 96-volt B battery at 1/10 to 1/4 ampere.

60	8 1/4	7	8 3/4	30	3049323	\$24.00	3049326	\$32.00
40/50	8 1/4	7	8 3/4	35	3049324	28.00	3049327	36.00
25/30	8 1/4	7	8 3/4	37	3049325	32.00	3049328	40.00

Prices on above outfits include one bulb.

**Renewal Tungar Bulbs**

Cat. No.	For Charger Amperes	Ship. Wt., Lbs.	Price Each
277465	2	1/2	\$4.00
189048	5	3	8.00

**G-E Tungar Bulbs**



2-Ampere



5-Ampere

No. 195528 is designed for renewal purposes in the old design 2-ampere Tungars. Also adapted for other chargers which are not equipped to use Cat. No. 277465 bulb which has 3 points of contact in base. Wire adapter permits making connection to plate at tip of bulb. Maximum voltage capacity, 60 volts at current not over .25 ampere.

In the No. 277465 all 3 contacts are made through base. Charges a 6-volt A storage battery at 2 amperes and a 120-volt B storage battery at not over .25 ampere.

No. 189048 should not be used where voltage requirements are over 30 volts except when charging B storage batteries at not over .25 ampere.

No. 189049 bulb is used with larger Tungars having a charging capacity of 75 volts at not over 6 amperes.

**Old Design, 2-Ampere**

Cat. No.	D.C. Amperes	D.C. Volts	Length Tip to Base Inches	Diameter Tube Inches	Ship. Wt. Lbs.	Price Each
195528	2/0.25	7.5/60	4 1/2	2 1/4	1/2	\$4.00

**New Design, 2-Ampere**

277465	2/0.25	7.5/120	4	2 1/4	1/2	4.00
189048	5/0.25	7.5/120	6 1/2	3	3	8.00
189049	6	75	6 1/2	3	3	8.00

**G-E Tungar Battery Chargers**

6-Battery Type



This 6-battery Tungar is a real profit maker for the smaller shop. It will charge the average battery in a day and a night.

Repair shops, filling stations and tire dealers can bring in extra profits with a 6-battery Tungar in addition to giving customers charging service.

Car dealers and fleet truck owners will find that a 6-battery Tungar greatly reduces up-keep expense by keeping batteries in first class condition at the lowest possible cost. It does away with the trouble and delay of sending batteries out to be charged.

Five outstanding features of this charger are:

Increased capacity—6 batteries—6 amperes.

Economical on 1 or 6 batteries.

Can be operated from a lamp socket—no special wiring is necessary.

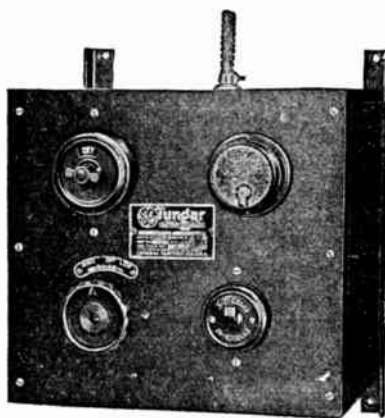
New simplified regulating control.

Takes up little space. Weighs only 29 pounds.

Cat. No.	A.C. Volts	Frequency	Net Weight Pounds	Price Each
16x871	115	60/50	29	\$60.00
16x872	115	25/40	35	72.00

**G-E Tungar Battery Chargers**

15-Battery Type for Public Garages and Battery Service Stations



Will charge 1 to 15 three-cell auto or radio batteries (or their equivalent) at 6 amperes. Will also charge radio B batteries in 48-volt sections.

This Tungar provides increased capacity at lower cost. Bulbs give long uniform life. There are no moving parts.

It is equipped with a current regulating switch, a meter, snap switch controlling both a.c. and d.c. circuits and a 2-position tap switch. A 9-inch length of BX cable is provided for connection to the a.c. supply.

Form A—A.C. Volts: Normal 115—Limits 105/125

Cat. No.	Cycles	Height	Depth	Width	Shipping Weight Pounds	Price Each
9X641	50/60	14 1/8	11 3/4	12 1/4	75	\$100.00
9X642	25/40	14 3/8	11 3/4	12 1/4	90	116.00

Form B—A.C. Volts: Normal 230—Limits 210/250

9X645	50/60	14 1/8	11 3/4	12 1/4	100	\$120.00
9X646	25/40	17 1/2	14 7/8	12 3/8	115	140.00

Above prices include one No. 189049 Tungar bulb.

**Renewal Tungar Bulbs**

Shipping weight, 3 pounds.

Price, No. 189049.....each \$8.00



## G-E Double Duty Tungar Battery Chargers

For Large Garages and Battery Service Stations

Capacity, 1 to 30 three-cell auto or radio batteries (or equivalent) at 6 amperes; 1 to 15 three-cell batteries or equivalent at 12 amperes. Will also charge radio B storage batteries in 48-volt sections.



The double duty Tungar provides one-day charging service at the lowest possible cost. It will charge 15 batteries in an average of 20 hours at a rate starting at 12 amperes which taper automatically to a low safe finishing rate of 4 to 5 amperes.

It has two charging circuits, each having an ammeter, current regulating switch and tap switch. The snap switch controls both the a.c. and d.c. circuits. A 9-inch length of BX cable is provided for connection to the a.c. supply.

Form B—A.C. Volts: Normal 115—Limits 105/125

Cat. No.	Cycles	DIMENSIONS, INCHES			Shp. Wt., Lbs.	Price Each
		Height	Depth	Width		
9X648	50/60	17½	14⅞	12½	130	\$180.00
*9X648	25/40	17½	14⅞	12½	145	180.00

Form B—A.C. Volts: Normal 230—Limits 210/250

9X649	50/60	17½	14⅞	12½	130	\$180.00
*9X650	25/40	17½	14⅞	12½	145	180.00

Above prices include two No. 189049 Tungar bulbs.

The No. 9X649, 230-volt outfit is considered standard.

### Renewal Tungar Bulbs

Shipping weight, 3 pounds.

Price, No. 189049.....each \$8.00

\*Maximum capacity, twenty 3-cell batteries.

## G-E Tungar Trickle Chargers

For Continuous Operation with Low Capacity 4 or 6-Volt Radio A Storage Batteries

Form B—60 Cycles—115 Volts



Designed to be permanently connected with a low capacity A battery in the radio set. Can be safely installed in the radio cabinet or console. There is nothing that requires frequent attention. Cannot overheat and damage battery or set, and is approved and listed as standard by National Board of Fire Underwriters. Insulating transformer makes it impossible to damage Radiotrons.

Sturdy construction is assured as the transformer is embedded in compound and the charger completely encased.

Four terminals provide capacity for all requirements with either 2 or 3-cell batteries.

### Charging Rates

Terminal	CHARGING RATE IN AMPS.		Terminal	CHARGING RATE IN AMPS.	
	2 Cells	3 Cells		2 Cells	3 Cells
1	.110	.100	3	.385	.350
2	.220	.200	4	.550	.500

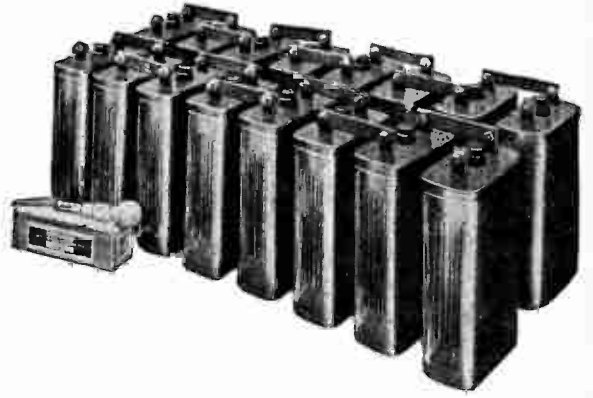
Cat. No.	Cycles	DIMENSIONS, INCHES			Shipping Weight Pounds	Price Each
		Height	Width	Depth		
3049336	60	6	6¼	2½	5½	\$10.00

### Renewal Tungar Bulbs

One bulb is included with each charger.

Price, No. 289881, Shipping Weight, ¾ Pound .each \$4.00

## Storage Batteries



### 32-volt Sealed Glass Jar Batteries

Type	Watt Hour Capacity Intermittent Ratings 16 Cells	Normal Charging Rate Amperes	SINGLE CELL		16 CELLS	
			Net. Wt. Lbs.	Price Each	Shp. Wt. Lbs.	Price Each
WEG-70	2100	6.25	20½	\$8.10	530	\$115.00
WEG-125	3750	11.25	26½	10.03	670	151.00
WEG-185	5550	16.85	36	13.16	900	195.00
WEG-250	7500	22.50	47½	16.29	1264	241.00
WEG-315	9450	28.10	52	18.54	1340	282.00
WEG-375	11250	33.75	65	22.47	1440	343.00
WEG-500	15000	45.0	78	27.64	1760	427.00

### 110-volt Sealed Glass Jar Batteries

Type	Watt Hour Capacity Intermittent Ratings 56 Cells	Normal Charging Rate Amperes	56 CELLS		62 CELLS AND 8 COUNTER CELLS	
			Shp. Wt. Lbs.	Price Each	Shp. Wt. Lbs.	Price Each
WEG-125	13750	11.25	2345	\$459.00	2904	\$543.00
WEG-250	27500	22.50	4424	731.00	5310	896.00
WEG-315	34650	28.10	4690	854.00	5628	1031.00
WEG-375	41250	33.75	5040	1042.00	6108	1265.00
WEG-500	55000	45.0	6160	1290.00	7464	1567.00
WEG-565	62150	50.6	6400	1428.00	7800	1736.00

### Ratings, Dimensions, Etc.

Type	RATINGS				SPECIFIC GRAVITY			Normal Charge Rate	No. of Plates
	*INTERMITTENT RATINGS Amperes Hours	8-HOUR RATINGS Amperes		Fully Charged	Dis-charge	Normal			
		Amperes	Hours				Continuous Discharge		
WEG-70	2.9	70	50	6.25	1250	1210	6.25	5	
WEG-125	3.7	125	90	11.25	1250	1170	11.25	7	
WEG-185	5.6	185	135	16.85	1250	1150	16.85	7	
WEG-250	7.5	250	180	22.50	1250	1170	22.50	9	
WEG-315	9.4	315	225	28.10	1250	1150	28.10	11	
WEG-375	11.2	375	270	33.75	1250	1170	33.75	13	
WEG-500	15.0	500	360	45.0	1250	1170	45.0	17	
WEG-565	16.9	565	405	50.6	1250	1170	50.6	19	

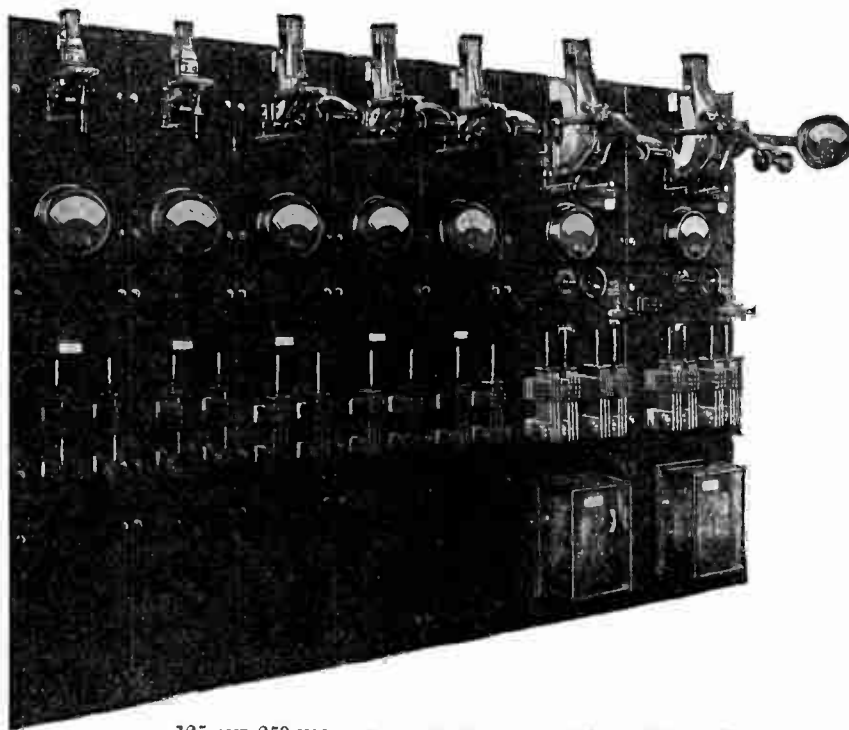
Type	SIZE OF PLATE, INCHES			DIMENSIONS, INCHES			Net Weight of Cells Complete in Pounds
	Width	Height	THICKNESS Positive Negative	OUTSIDE OF JAR			
				Width	Length	Height	
WEG-70	5⅞	5⅞	⅜	7⅞	3¼	10½	20.5
WEG-125	5¾	7⅞	⅜	7½	3⅞	12⅞	26.5
WEG-185	7¾	7¾	⅜	9⅞	3⅞	13⅞	36.0
WEG-250	7¾	7¾	⅜	9¾	5¼	13½	47.5
WEG-315	7¾	7¾	⅜	9¾	5¼	13½	52.0
WEG-375	7¾	7¾	⅜	9¼	6¾	13⅞	65.0
WEG-500	7¾	7¾	⅜	9⅞	8	13⅞	78.0
WEG-565	7¾	7¾	⅜	9⅞	8¾	13⅞	87.0

\*The intermittent rating in amperes is the current the battery will give discharging 4 hours resting 16 hours, discharging 8 hours resting 16 hours, discharging 8 hours resting 16 hours, and discharging 4 hours to 1.7 volts per cell. This ampere rate multiplied by 24 gives the intermittent ampere hours.

†Negative plates are ⅝-inch thick inside and ⅜-inch thick outside, except 70 and 125 ampere hour sizes which are ⅝-inch throughout.

Negative group has one more plate than positive.

## POWER SWITCHBOARDS



125 AND 250-VOLT TWO-WIRE, DIRECT CURRENT STANDARD UNIT  
CENTRAL STATION SWITCHBOARD

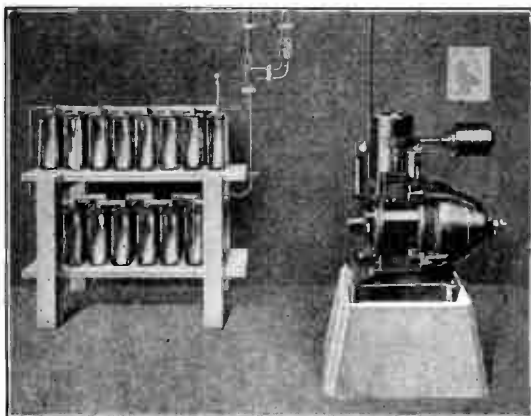
Whenever you are interested in the purchase of any type of switchboard, either for light or power, or both, let us submit figures on our product.

We feel that this catalogue will be in the hands of persons familiar with the electrical line generally and therefore that you are competent to make up a layout of practically any board you may wish a figure on.

With this in mind, we are soliciting your inquiries, asking that you give us detailed information when you submit your drawing, showing sizes of switches, etc.

## 8DC Power and Light Outfits

32-Volt, Direct Connected Type



Typical Installation 8DC Outfit

This outfit consists of a direct connected generator and engine, together with a glass cell battery. It has many of the features listed under the larger 15-DC outfit. The battery rack does not form a part of the outfit as regularly supplied, but can be furnished if desired.

The 8-DC outfit is conservatively rated 750 watts, but actually develops more on battery charging run.

### Specifications

#### Engine

PRINCIPLE.—Single cylinder, vertical, 4 cycle type.

HORSEPOWER.—1½ H. P.

FUEL.—Kerosene or gasoline.

GOVERNOR.—Special design. Centrifugal governor holds uniform speed under all loads.

IGNITION.—Jump spark ignition.

COOLING.—Air cooled. A special protected fan of high efficiency mounted on crankshaft between the engine and generator draws air over the cylinder of engine, keeping temperature of set within proper limits.

BORE AND STROKE.—2¾ by 4 inches.

SPEED.—Approximately 125 R. P. M.

OILING.—A positive splash feed oiling system supplies the lubrication.

#### Generator

VOLTS AND WATTS, AMPERES.—Volts, 36. Watts, 750. Amperes, 21.

DESIGN.—Shunt wound with series winding for starting.

MOUNTING.—Built into the engine, armature mounted on crankshaft of engine.

#### Control Panel

STARTING.—Set starts electrically by pressing button.

STOPPING.—Set automatically stops when batteries are charged. Button provided to stop set manually when desired.

#### Batteries

NUMBER.—16 glass jar cells fully charged.

CAPACITY.—Intermittent rating, 125 ampere hours.

#### Approximate Dimensions

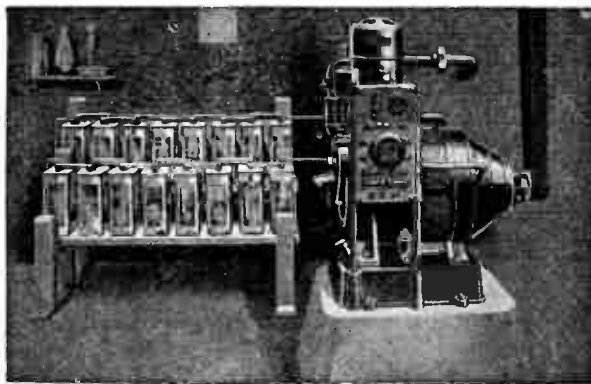
Overall width, 18 inches. Overall length, 28 inches. Overall height, including base, 29 inches.

Type and Size	Intermittent Battery Rating	Approximate Shipping Weight Pounds
8DC-125	3750 Watt Hours	900

Prices upon application.

## 15DC Power and Light Outfits

32-volt, Direct Connected Type



Typical Installation 15DC Outfit

These Power and Light Outfits are time and labor savers. They make it practical for anyone, no matter how remote from central service, to use electricity on farm or country estate or in villages and towns.

The 15DC outfit is one where the gas engine and electrical generator are built on the same shaft. That means steady electric power and electric light three hundred and sixty-five days of the year.

By simply pressing a button you can have electric power and electric light any time and anywhere you want it—electric power to run all the machines you now turn by hand, separator, churn, feed grinder, grindstone, etc. Electric power to do housework too, such as sweeping, washing, ironing, sewing and dishwashing. It will automatically pump the water to the house, barn, dairy, garage and garden. Running water where and when you want it saves countless steps and makes the conveniences of a modern bathroom possible. Electric light makes night work easy; enables you to use all your daylight hours for outdoor work. Eliminates the disagreeable task of filling and trimming kerosene lamps and lanterns. Electric lights are safe.

Electric light in hen houses increases egg production. Tests made by agricultural stations have proved this.

Power and Light takes the drudgery out of farm and country life, adds to their attractiveness and substitutes comfort for discomfort.

The 15DC outfit is economical. It runs on kerosene—very often less than was used to keep oil lamps burning. The kerosene is poured into a tank on the base of the outfit. The capacity of this tank is such that it does not need to be filled during charging period. Easy to operate. A slight pressure on the lever starts it; it stops itself when the battery is charged. It gives the tapering charge which makes the battery last longer.

Has a circulating splash system of lubrication. Simply pour oil into the crank case and the engine does the rest. Oil is sprayed up on the cylinder walls and conveyed by pipe to the main bearing. Runs in a steady stream over the crank pin bearing and keeps every moving part in a bath of oil.

15DC Power and Light Outfits

32-volt, Direct Connected Type

Continued

Every part of the outfit is easy to get at. By taking off four nuts the crank case cover is easily removed, making easy access to every part.

The engine cannot get out of time as the timing gears come off with the crank case plate, and when that is put back, the question of timing is taken care of automatically.

The engine is air cooled and equipped with a throttle governor so that, irrespective of load carried, the speed is always the same.

The outfit is ruggedly built, durable and dependable. With it the user is always sure of plenty of power and plenty of light.

The outfit as supplied under this code number consists of a direct-connected generator and engine, together with a glass cell battery. The battery rack does not form a part of the outfit as regularly supplied, but can be furnished if desired.

Specifications  
Engine

PRINCIPLE.—4 cycles.

FUEL.—Kerosene or gasoline.

FUEL CONSUMPTION APPROX.—1.6 gallons to charge WE G-125; 2 gallons to charge WE G-250.

GOVERNOR.—Special design of throttling governor insuring a uniform speed at all loads.

IGNITION.—Jump spark ignition.

COOLING.—Air-cooled. A fan mounted on flywheel draws air over the cylinder of engine, keeping temperature of set within proper limits.

BORE AND STROKE.—Cylinder bore 3½ inches; stroke 4½ inches.

SPEED.—Speed Engine and Generator, approximately 1000 r.p.m.

OILING.—A splash feed oiling system supplies the lubrication.

PULLEY.—A pulley 4 inches in diameter and 3 inches face is provided on the main shaft to drive auxiliary line shafting or other machinery.

Generator

VOLTS AND AMPERES.—Volts 35-42. Amperes maximum 40.

DESIGN.—Special design of generator to give batteries a "tapering charge."

MOUNTING.—Built up on crank shaft of engine.

Control Panel

STARTING.—Set starts on its own power by pressing starting switch.

STOPPING.—Special regulator provided for automatically stopping set when batteries are fully charged.

OVERCHARGE SWITCH.—Provision is made for occasional overcharging of batteries.

POWER SWITCH.—Provision is made for opening electrical circuits when set is operated for engine power only.

PROTECTION.—Fuses and line switch are provided.

Batteries

NUMBER.—16 glass jar cells fully charged.

CAPACITY.—Intermittent ratings: 125, 185, 250 ampere hours.

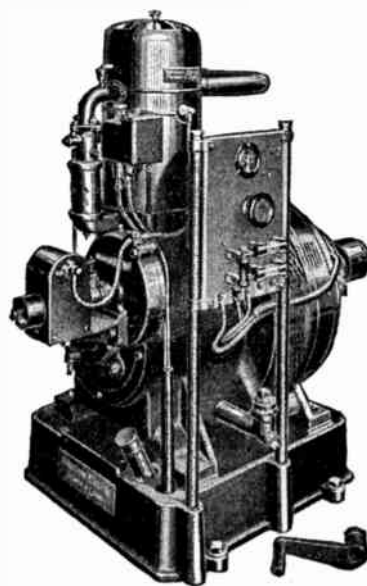
Type and Size	Intermittent Battery Rating	Approximate Shipping Weight Lbs.
15DC125	3750 Watt Hours	1300
15DC185	5550 " "	1600
15DC250	7500 " "	1800

Prices upon application.

Information on larger size plants for 110 volts furnished upon request.

Power and Light Outfits

32-volt 15-DC Magneto Type Outfit



The 15-DC Magneto type outfit is designed and built to generate 32-volt current for a wide variety of applications, notable examples being schools, churches, road building work, dredges, traveling shows, service stations, pumping stations, pavilions, summer camps, signal battery charging stations, depots and for use in any place where utility, limited space and dependability are the real factors.

The special features of this outfit are: Unit construction, easily started and stopped, magneto equipped, runs on kerosene, special fueling system, exclusive oiling system, accessibility, air cooled, equipped with power pulley, constant speed, occupies small space and is easily transported.

Specifications  
Engine

PRINCIPLE.—4 cycles.

FUEL.—Kerosene or gasoline.

FUEL CONSUMPTION.—The following quantity of kerosene will be required to charge the batteries when completely discharged:

Approximately 1.6 gallons for WE G-125  
Approximately 2 gallons for WE G-250

GOVERNOR.—Special design of throttling governor insuring a uniform speed at all loads.

IGNITION.—Jump spark ignition.

COOLING.—Air cooled. A fan mounted on flywheel draws air over the cylinder of engine, keeping temperature of set within proper limits.

BORE AND STROKE.—Cylinder bore, 3½ inches.  
Stroke, 4½ inches.

SPEED.—Speed engine and generator, approximately 1000 R. P. M.

OILING.—A splash feed oiling system supplies the lubrication.

PULLEY.—A pulley 4-inch diameter and 3-inch face is provided on the main shaft to drive auxiliary line shafting or other machinery.

Generator

VOLTS AND AMPERES.—Volts 35-42. Amperes, maximum 40.

DESIGN.—Special design to give batteries a "tapering charge."

MOUNTING.—Built into engine, armature mounted on main shaft of engine.

Magneto

High Tension magneto.

Type	Approximate Shipping Weight Pounds	Price Each
15-DC Magneto	700	.....

## Paul Self-Priming Suction Pumps

A pump capable of drawing water through a suction pipe from a level below same without having any working parts extended into the water is called a suction pump. The height or vertical distance from the water level to the pump is the suction lift against which it works. The lift is theoretically limited by laws of nature and practically by resistance to the flow of water in the pump itself and in the piping, also by priming considerations. Suction pumps are not used under normal conditions on lifts over 20 to 24 feet, according to size, with moderate lengths of suction pipes installed air-tight.

On high lifts small pumps of conventional design cause much trouble by becoming unprimed due to air leaks and by being unable to reprime themselves even on moderate lifts. The Paul Pumps are self-priming, and when started up dry they will also reprime themselves under ordinary conditions. For the same reason they will positively charge air into their air chamber and into pneumatic tanks if admitted into the suction side. These valuable features together with extreme simplicity and strength of design, automatic lubrication, absence of wear, accessibility and unusually high efficiency insure dependable service with the least amount of attention.

Paul Pumps are built in two types, according to size, each type in several capacities. All have the same characteristic general features. They are driven by pulleys. The pumps with motors are mounted on rigid cast iron bed plates supported on brackets and form complete, self-contained units.

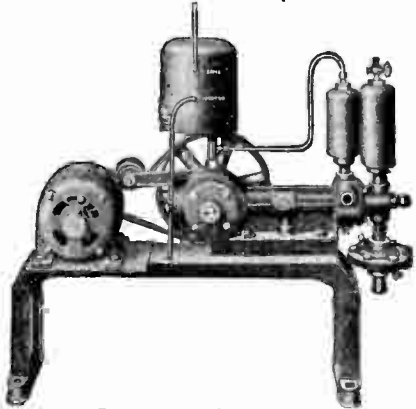
Pumps driven by electric motors must always be wired through a properly fused hand-switch near the pump. This switch is used for starting and stopping the pump when hand control is desired.

In case of pneumatic tank systems automatic service is obtained by means of a pressure controller connected to the discharge side of the pump or to the tank. The controller automatically closes the circuit and starts the pump at the low pressure and stops the pump by opening the circuit at the high pressure for which it is set.

## Type K Paul Self-Priming Suction Pumps

### Motor Driven

Capacities: 125-360 Gallons per Hour



**SPECIFICATIONS.**—Each complete unit listed below consists of a standard Paul Self-Priming Suction Pump, Type K, mounted on a cast iron bed plate with electric motor, belt, idler, automatic controller wired to motor and connected to discharge pressure, air chambers, air charger, strainer and floor or wall-brackets, as ordered.

Water-direct-from-wall attachments, water relief valves, float switches, extra air chambers, unions and other accessories are described and listed on another page.

Cat. No.	Cap. Gal. per Hour	Max. Suction Lift Feet	Motor H.P.	Pressure Range Lbs.	PIPE SIZES		Floor Space In.	Ht. In.	Ship. Wt. Lbs.
					Suction	Discharge			
97KM	125	22	1/8	20-40	1/2	1/2	27x 9 1/2	26	100
92KM	150	22	1/6	20-40	1/2	1/2	27x 9 1/2	26	120
95KM	200	22	1/6	20-40	3/4	3/4	31x11	25	150
96KM	200	22	1/4	30-50	3/4	3/4	31x11	25	155
93KM	225	22	1/4	20-40	3/4	3/4	31x11	25	155
80KM	300	22	1/4	20-40	1	1	51x20	28	240
81KM	360	22	1/3	15-30	1	1	51x20	28	240
82KM	360	22	1/2	30-50	1	1	51x20	28	250

## Paul Complete Water Systems

With Paul Type K Self-Priming Suction Pumps

Capacities: 125-60 Gallons per Hour



**SPECIFICATIONS.**—Each complete Unit System listed below consists of a standard Paul Type K Self-Priming Suction Pump mounted on a cast iron bed plate with electric motor, belt, idler, automatic pressure controller wired to motor and piped to discharge pressure, air chambers, air charger, strainer and floor brackets, bolted to a cast-iron sub-base, a pneumatic tank with water gauge and pressure gauge, mounted on the sub-base, piping between pump and tank with stop valve and water relief valve.

With Assembled Systems a complete set of fittings is furnished but no piping between pump and tank.

Water-direct-from-well attachments and other accessories are described and listed on another page. Any of these which can be applied

may be added or omitted in the specification to order.

### Unit Systems

Cat. No. of System	Cap. Gal. per Hour	No. of Pump	Size	PNEUMATIC TANK		Service Pipe In.	Floor Space In.	Ht. In.	Ship. Wt. Lbs.
				Cap. Gal.	Style				
970MA	125	97	16"x4'	42	Galv.	1/2	27x28	54	220
970MB	125	97	20"x5'	80	Galv.	1/2	27x32	66	270
920MA	150	92	16"x4'	42	Galv.	1/2	27x28	54	225
920MB	150	92	20"x5'	80	Galv.	1/2	27x32	66	275
950MA	200	95	18"x4'	52	Galv.	3/4	27x32	54	325
950MB	200	95	22"x5'	100	Galv.	3/4	27x34	66	415
950MC	200	95	24"x5'	120	Galv.	1	30x36	66	435
950MD	200	95	24"x5'	120	Black	1	30x36	66	435
960MA	200	96	18"x4'	52	Galv.	3/4	27x32	54	335
960MB	200	96	22"x5'	100	Galv.	3/4	27x34	66	425
960MC	200	96	24"x5'	120	Galv.	1	30x36	66	445
960MD	200	96	24"x5'	120	Black	1	30x36	66	445
930MA	225	93	18"x4'	52	Galv.	3/4	27x32	54	340
930MB	225	93	22"x5'	100	Galv.	3/4	27x34	66	430
930MC	225	93	24"x5'	120	Galv.	1	30x36	66	450
930MD	225	93	24"x5'	120	Black	1	30x36	66	450

### Assembled Systems

950ME	200	95	24"x5'	120	Black	1	32x40	64	390
960ME	200	96	24"x5'	120	Black	1	32x40	64	400
930ME	225	93	24"x5'	120	Black	1	32x40	64	405
930MF	225	93	30"x6'	220	Black	1	32x46	79	730
800KMA	300	80	24"x5'	120	Vert.	1	51x44	60	490
800KMB	300	80	30"x6'	220	Vert.	1	51x50	72	615
800KMC	300	80	36"x6'	315	Vert.	1 1/4	51x56	72	1090
800KMD	300	80	36"x8'	420	Horiz.	1 1/4	51x56	96	1250
800KME	300	80	36"x12'	630	Horiz.	1 1/4	51x56	144	1540
810KMA	360	81	24"x5'	120	Vert.	1	51x44	60	500
810KMB	360	81	30"x6'	220	Vert.	1	51x50	72	625
810KMC	360	81	36"x6'	315	Vert.	1 1/4	51x56	72	1100
810KMD	360	81	36"x8'	420	Horiz.	1 1/4	51x56	96	1260
810KME	360	81	36"x12'	630	Horiz.	1 1/4	51x56	144	1550
820KMA	360	82	24"x5'	120	Vert.	1	51x44	60	500
820KMB	360	82	30"x6'	220	Vert.	1	51x50	72	625
820KMC	360	82	36"x6'	315	Vert.	1 1/4	51x56	72	1100
820KMD	360	82	36"x8'	420	Horiz.	1 1/4	51x56	96	1260
820KME	360	82	36"x12'	630	Horiz.	1 1/4	51x56	144	1550

Over-all dimensions of assembled systems are approximate for pumps and tanks located conveniently close to each other.

**Type US Paul Water Systems**

Capacities 100 to 360 Gallons per Hour

For Shallow Wells



The system may be placed directly upon a level cement floor or it may be raised above the floor upon a cement pier or other convenient sub-structure capable of supporting its weight and eliminating vibration. All that is needed in the way of installation is to connect the suction pipe to the pump and the discharge opening in the tank to the service pipe of the house.

There is one condition that requires a little additional attention of installation and that is when the water level in the cistern or at the supply stands higher than the pump.

The pump is then without a natural suction lift and has a negative suction head, which makes it impossible to charge air and sometimes causes knocking due to lack of air in the air chambers. To avoid such conditions, when installing, place a riser with a stop valve in the suction pipe, formed by a piece of piping, having an air cock at the highest point. By throttling the suction until the pump draws air when running the riser and the air chambers can be charged with air which will make the operation of the pump smooth and quiet for a considerable length of time. The stop valve is left in the throttled position and need not be touched when additional air is required, and the riser should extend to a point above the highest water level to prevent flooding in case the air cock is left open.

The Paul Type US Systems consist of a standard Paul Type K suction pump, a special heavy duty pump motor (all a.c. motors are of the repulsion-induction type), extra heavy galvanized tank (galvanized inside and out), and a standard Paul Type G pressure controller.

Assembled complete with pressure gauge, water gauge, relief valve and all fittings between pump and tank.

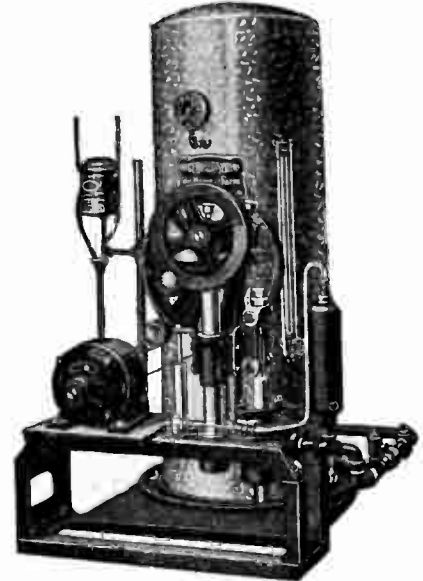
Each system shipped completely assembled in one crate.

Cat. No.	Capacity Pump Gallons per Hour	Capacity Tank Gallons	Motor H.P.	SERVICE PRESSURE POUNDS		PRICE, EACH	
				Start	Stop	A.C. 1-Phase 110 or 220-Volt 60-Cycle or D.C. 32-Volt 110 or 220-Volt	A.C. 1-Phase 25 or 40-Cycle 110 or 220-Volt
970-US	125	30	1/8	20	40	\$110.00	\$120.00
971-US	125	40	1/8	20	40	115.00	125.00
920-US	150	30	1/8	20	40	115.00	125.00
921-US	150	40	1/8	20	40	118.00	128.00
950-US	200	30	1/6	20	40	125.00	135.00
951-US	200	50	1/6	20	40	139.00	149.00
960-US	200	30	1/4	30	50	128.00	140.00
961-US	200	50	1/4	30	50	140.00	152.00
930-US	225	30	1/4	20	40	130.00	142.00
931-US	225	50	1/4	20	40	140.00	154.00
800-US	300	30	1/4	20	40	162.00	174.00
801-US	300	50	1/4	20	40	173.00	185.00
818-US	360	30	1/2	15	30	180.00	195.00
819-US	360	50	1/2	15	30	196.00	211.00
820-US	360	50	1/2	30	50	200.00	220.00
821-US	360	30	1/2	30	50	189.00	209.00

**Paul Complete Water Systems**

With Paul Type J Deep Well Pumps

Capacities: 120-160 Gallons per Hour



SPECIFICATION.—Each complete system listed below consists of a standard Paul Type J Cushion Stroke Deep Well Pump mounted on a cast iron bed plate with electric motors belt idler, automatic pressure controller wired to motor and connected to discharge chamber, air compressor piped to discharge chamber, floor brackets and a pneumatic tank with water gauge and pressure gauge, tapped for discharge pipe from pump and service pipe.

Well cylinders, pump rods, drop pipe, frost-proof attachments, water-direct-from-well attachments, "shifter carriage" mountings, float switches and other accessories are described and listed on another page. Any of these which can be applied may be added or omitted in the specification to order.

**Unit Systems**

With Galvanized Vertical Tank

No. 48-JM Pump

Cat. No. of System	PNEUMATIC TANK Size	Service Pipe		OVERALL DIMENS. FEET		Ship Wts. Lbs.
		Cat. Gal.	Tapping Inches	Floor Space	Height	
480MA	16 in. x 4 ft.	42	3/4	2x2 1/2	4 1/2	220
480MB	20 " x 5 "	80	3/4	2x3	5 1/2	240
480MC	24 " x 5 "	120	1	2x3 1/4	5 1/2	270

No. 49-JM Pump

490MA	16 in. x 4 ft.	42	3/4	2x2 1/2	4 1/2	230
490MB	20 " x 5 "	80	3/4	2x3	5 1/2	250
490MC	24 " x 5 "	120	1	2x3 1/4	5 1/2	280

**Well Parts and Capacities**

No 48-JM Pump

Motor H.P.	WELL CYLINDER Artesian Inches	FLUSH-cap Inches	Cap. Gal. per Hour	Prop Pipe Inches	Smallest Well Casing Inches	PUMP Ash Inches	Rod Round Steel Inches	Disch. Pipe Inches	Greatest Depth to Water Feet
1/4	1 3/4 A	...	120	2	3	1 1/8	...	3/4	80
1/4	...	1 3/4 F	120	1 1/4	2	...	1/2	...	50

No 49-JM Pump

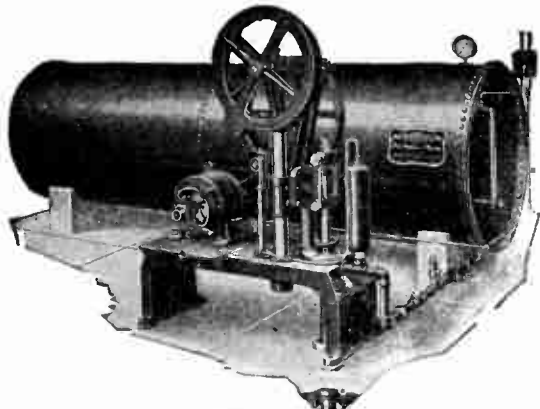
1/8	1 3/4 A	...	120	2	3	1 1/8	...	3/4	120
1/8	...	1 3/4 F	120	1 1/4	2	...	1/2	3/4	80
1/8	...	2 F	160	1 1/4	2 1/2	...	1/2	3/4	50

NOTE.—Pressure range of automatic controllers is 30-50 pounds.

Stroke of well cylinders listed is 10 inches. Stroke of pump is 3 inches.



## Paul Complete Water Systems With Paul Type J Deep Well Pumps



### No. 540-M Systems

Capacities: 680-1260 Gallons Per Hour  
With Vertical Tank and No. 54-JM Pump

Cat. No. of System	Size	PNEUMATIC TANK			Service Pipe Tap. In.	OVER ALL DIMENS. FEET		Approx. Ship. Wt. Lbs.
		Cap. Gal.	Finish	Black		Floor Space	Hgt.	
540MA	30 in. x 6 ft.	220	Black	1	5x5½	7	1440	
540MB	36 " x 6 "	315	"	1¼	5x6	7	1600	
With Horizontal Tank and No. 54-JM Pump								
540MC	36 in. x 8 ft.	420	Black	1¼	9x6	5½	1700	
540MD	36 " x12 "	630	"	1¼	13x6	5½	2100	
540ME	48 " x10 "	940	"	2	11x7	5½	2900	
540MF	48 " x16 "	1500	"	2	17x7	5½	3600	

NOTE.—Above are all "Assembled" Systems. Approximate dimensions are for pumps and tanks located conveniently close to each other.

### Well Parts and Data

Mo- Arter- sian H. P. In.	WELL CYLINDER Flush Cap In.	Cap. Gals. per Hour	Drop Pipe In.	No. 54-JM Pump			Rod Round In.	Disch. Pipe to Water In.	Greatest Depth to Water In.
				Smallest Well Casing In.	PUMP Octagon Ash In.	ROD Steel In.			
2	2¾A	680	3	4	1½	..	1¼	150	
2	3¼A	950	3½	4½	1¾	..	1½	100	
2	3¾A	1260	4	6	1¾	..	2	75	
2	2¾F	680	1½	3½	..	½	1¼	120	
2	3¼F	950	2½	4	..	5/8	1½	80	
2	3¾F	1260	3	4½	..	5/8	2	60	

NOTE.—Pressure range of automatic controllers is 30-50 pounds.

Stroke of well cylinders listed is 16 inches. Stroke of pump is 10 inches.

### No. 560-M Systems

Capacities: 815-1950 Gallons Per Hour  
With Horizontal Tank and No. 56-JM Pump

Cat. No. of System	Size	PNEUMATIC TANK			Service Pipe Tap. In.	OVER ALL DIMENS. FEET		Approx. Ship. Wt. Lbs.
		Cap. Gals.	Finish	Black		Floor Space	Height	
560MA	36 in. x 8 ft.	420	Black	1¼	9x6½	5½	1700	
560MB	36 " x12 "	630	"	1¼	13x6½	5½	2200	
560MC	48 " x10 "	940	"	2	11x7½	5½	3000	
560MD	48 " x16 "	1500	"	2	17x7½	5½	3700	
560ME	48 " x20 "	1880	"	2	21x7½	5½	5100	
560MF	48 " x24 "	2260	"	2	25x7½	5½	5800	

### Well Parts and Data

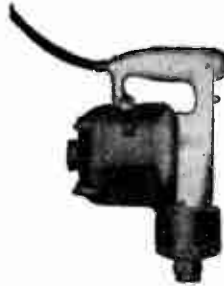
Mo- Arter- sian H. P. In.	WELL CYLINDER Flush Cap In.	Cap. Gals. per Hour	Drop Pipe In.	No. 56-JM Pump			Rod Round In.	Disch. Pipe to Water In.	Greatest Depth to Water Feet
				Smallest Well Casing In.	PUMP Octagon Ash In.	ROD Steel In.			
3	2¾A	815	3	4	1½	..	1¼	200	
3	3¼A	1140	3½	4½	1¾	..	1½	140	
3	3¾A	1515	4	6	1¾	..	2	100	
3	2¾F	815	1½	3½	..	½	1¼	160	
3	3¼F	1140	2½	4	..	5/8	1½	110	
3	3¾F	1515	3	4½	..	5/8	2	80	
3	4¼F	1950	3½	5	..	5/8	2	50	

NOTE.—Pressure ranges of automatic controllers is 30-50 pounds.

Stroke of well cylinders listed is 16 inches. Stroke of pump is 12 inches.

## Speedway Portable Hammers

110 Volts



Type No. 2

uncommon for a tool to save its cost in a week. Every tool is controlled by a switch mounted in the handle and equipped with flexible cord and plug. They may be attached to any lamp socket.

A man drilling by hand strikes from 40 to 65 blows per minute, these hammers from 1000 to 3000. Power cost is negligible, about 15 cents a day for ordinary work. The hammer, when it strikes the blow, is free from the motor and the strength of the blow is constant. Cannot overload the machine, no burning out of armatures.

Speedway Hammers are primarily built for drilling into concrete, stone, brick, etc. Light chipping, channeling, scaling and one hundred and one other uses where a great number of blows is required.

These hammers operate at about 15 per cent of the power cost of operating air tools and without the expenses and inconvenience of compressor, air piping hose, etc. Over handwork, the economy is from 80 to 90 per cent, and it is by no means



Types 4 and 6

### Type No. 2

APPROX. CAPACITY CONCRETE OR LIMESTONE

Type	Current	Drill In. per Min.	Power Consum. Watts	Blows per Min.	Net Wt. Lbs.	Price Each
2	A.C.-D.C.	½	2 150	3000	16	\$150.00
Types 6 and 4						
6	A.C.-D.C.	1	2 240	1800	26	\$185.00
4	D.C.	1	2 240	1800	25	150.00

### Type D-9 Heavy Series

D-9	D.C.	1½	2 660	1100	75	\$240.00
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Add \$3.00 for 220 volts.

For drilling speed in brick multiply by 2. For drilling speed in granite divide by 2 and use diamond drills.

### Electric Hammer Stands

Useful for Ceiling Drilling, Taking the Strain Off the Operators

For Use with Hammer Type	Stand. No.	Length Feed In.	Minimum Height	Maximum Height	Price Each
2	23	6	4 ft. 6 in.	6 ft. 6 in.	\$10.00
6 and 4	46-s	8	5 ft.	7 ft. 8½ in.	20.00
6 and 4	46	8	7 ft. 6 in.	12 ft.	35.00
D-9	79	20	Post Type as Required		60.00

### Steels for Hammers

The Star drill is especially adapted for working in concrete, brick and soft stone and is regarded as the standard tool for practically all purposes.

### Star Drills

For Types D-4, 2 and 6 Hammers

These sizes are standard.

Diam. Inches	PRICE, PER DOZEN DRILLING LENGTH					
	5 In.	8 In.	12 In.	18 In.	24 In.	36 In. 48 In.
¾ or Under	\$16.00	.....	*\$21.00*	\$24.00	.....	.....
7/16	17.00	.....	*21.00*	*24.00	.....	.....
1/2	19.00	.....	22.00	*25.00	.....	.....
9/16	20.00	.....	*22.00*	*25.00	.....	.....
5/8	20.00	.....	22.00	*25.00	.....	.....
¾	.....	\$22.00	23.00	*26.00*	\$30.00	.....
7/8	.....	22.00	24.00	27.00	31.00	.....
1	.....	23.00	25.00	28.00	32.00*	\$39.00
1 1/8	.....	24.00	26.00	29.00	34.00	*\$46.00
1 1/4	.....	25.00	27.00	30.00	35.00	*\$47.00

\*Special—Not in stock.

Prices on water-flushed hollow drills, bull points, bush hammers, mill picks, etc., on application.

**Type 49 Speedway Portable Drills**

**1/4-Inch Capacity  
Universal Motor**



Because of its extremely light weight, Type 49 is adapted to use around the home, repair work, tinner's shops, wood-working shops, etc.

Has automatic 3-jaw, self-tightening chuck. Releases by quick wrist snap.

When ordering, specify voltage.

Type	Capacity Steel, In.	Full Load Speed, R.P.M.	Weight Pounds	Price Each
49	1/4	1250	3 1/2	\$16.00

**Type 53 Speedway Portable Drills**

**1/4-Inch Capacity  
Universal Motor**

This drill is used in garages, factories and on installation and maintenance jobs where rugged drilling up to 1/4-inch in steel is demanded.

Has special drawn steel housing to prevent breaking when dropped, to add strength and decrease weight.

Has automatic, self-tightening 3-jaw chuck that opens by quick wrist snap.

Specify voltage.  
Add \$3.00 for 32 to 220 volts.



Type	Capacity Steel, In.	Full Load Speed, R.P.M.	Weight Pounds	Price Each
53	1/4	1000	5	\$25.00

**Type 56 Speedway Portable Drills**

**5/16 Inch Capacity  
Universal Motor**



Type 56 features its great power and comfortable grip. Drawn steel housings.

It has ample power to take care of all drilling in steel up to its rated capacity.

Switch is under constant control of operator.

Has automatic 3-jaw, self-tightening chuck. Releases by quick wrist snap.

Specify voltage.

Type	Capacity Steel, In.	Full Load Speed, R.P.M.	Weight Pounds	Price Each
56	5/16	750	6	\$30.00

Add \$3.00 for 32 or 220 volts.

**Type 60 Speedway Portable Drills**

**Capacity 1/2 Inch  
Universal Motor**

This drill is compact and unusually light in weight.

Castings have given way to drawn steel tubing for motor housing, adding greater strength and at the same time reducing weight.

Equipment includes breast plate, extra side handle, self-tightening 3-jaw chuck, 8-foot rubber lead cord.

Used by garages, repair and machine shops, contractors, installers and maintenance men.

Specify voltage. Add \$3.00 for 32 or 220 volts.

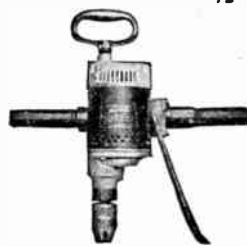


Type	Cap Inches	Full Load Speed, R.P.M.	Weight Pounds	Price Each
60	1/2	400	12	\$48.00

**Type 74 Speedway Heavy Duty Portable Drills**

**1/2-Inch Capacity**

**Universal Motor**



This drill is built to last a lifetime.

Equipment includes breast plate or D handle. Extra side handle, key chuck for straight shank drill bits or No. 1 Morse taper socket and 8-foot lead cord.

Specify voltage.  
Add \$3.00 for 32 or 220 volts.

Type	Cap Inches	Full Load Speed R. P. M.	Weight Pounds	Price Each
74	1/2	400	18	\$75.00

**Type 76 SpeedWay Portable Electric Slate and Marble Drills**

**Universal Motor**

Slate or marble drilling with a portable electric drill can only be accomplished at such a slow speed as is shown in this drill. Disastrous results in burned drill bits will follow the use of the ordinary electric drill designed for metal or wood drilling.

Equipment includes: D handle, or breast plate; lead cord and plug; convenient switch; one diamond point marble drill bit; chuck for drill bits, with key. Voltage must be specified in ordering.

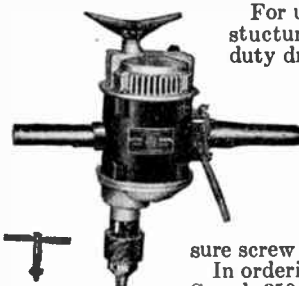
Speed, 105 r.p.m. Weight, 8 pounds.  
Price, Type 76, 110-115 Volts

.....each \$85.00  
Price, Type 76, 220 or 32 Volts.....each \$88.00



**Type 78 SpeedWay Portable Electric Drills**

**5/8-Inch Capacity—Heavy Duty—Universal Motor**



For use in car and boiler shops, on structural work and general heavy duty drilling jobs. Equipment includes: Breast plate (D handle substituted if specified); extra side handle; chuck for straight shank drill bits 0 to 5/8 inch capacity, or Morse taper socket, on specification; chuck wrench; 8-foot lead cord with plug. Pressure screw furnished at extra charge.

In ordering, voltage must be specified.  
Speed, 350 r.p.m. Weight, 21 pounds.

Price, Type 78, 110-115 Volts.....each \$80.00  
Price, Type 78, 220 or 32 Volts.....each \$83.00

**Type 80 SpeedWay Portable Electric Drills**

**1 1/4-Inch Capacity—Heavy Duty—Universal Motor**

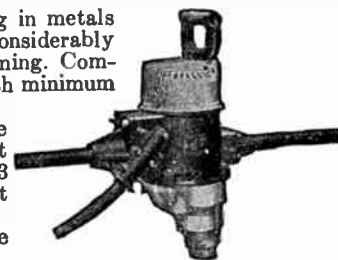
For heavy duty drilling in metals up to 1 1/4 inches, and considerably larger in wood and for reaming. Combines maximum power with minimum weight.

EQUIPMENT.—Pressure screw and choice of breast plate or D handle; No. 3 morse taper socket; 8-foot lead cord with plug.

In ordering, voltage must be specified.

Speed, 175 r.p.m. Weight, 45 pounds.

Price, Type 80, 110-115 Volts.....each \$130.00  
Price, Type 80, 220 or 32 Volts.....each \$133.00



## Speedway Portable Drills—Heavy Duty Universal Motor



This is a light, small, heavy duty type of drill. The use of drawn steel tubing has been employed for motor housings.

Drill develops a full 1/2 h.p. at the spindle. Construction features include alloy steel, heat treated and ground gears, ball and thrust spindle, double pole type of switch, key chuck and convenient control switch in a comfortable type handle.

Specify voltage.

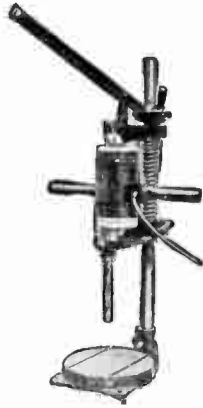
Add \$3.00 for 32 or 220 volts.

Type	Cap Inches	Full Load Speed, R.P.M.	Weight Pounds	Price Each
90	5/16	850	7 1/4	\$45.00
92	3/8	750	7 1/2	50.00

## Speedway Portable Drill Stands

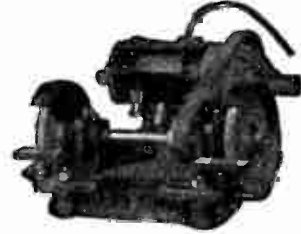
The usefulness of a portable drill is greatly increased with the added equipment of a drill stand as shown here.

This stand insures perfect alignment and makes drilling a much easier job. A type for each drill is available.



Type	Class	For Use with Drills Types	Wt. Lbs.	Price Each
210	C	49, 53, 56, 90, 92	9	\$10.00
214	C	60	40	20.00
216	C	72, 74, 78	65	35.00
219	C	82, 83, 84	65	35.00
218	C	80	70	50.00

## Type 114 Speedway Grinding Attachment for Type 60 Drills



A practical and sturdy grinder may be had for the Type 60 drill with this attachment. To operate, remove chuck from drill and in its place quickly screw on belt pulley and fasten drill in place.

Two 5-inch grinding wheels are included.

Price, Type 114 ..... each \$20.00

## Speedway Bench Grinders



All the undesirable features of direct drive have been eliminated in the construction of this grinder.

Belt drive practically eliminates overloading as belt will slip if crowded too fast. Belt drive also eliminates bearing troubles.

Split bearings in grinding shaft can be taken up as wear develops.

Motor is 1/4 h.p.

Standard equipment includes two 4 1/2 x 1/2-inch grinding wheels. Speed is 3600 r.p.m.

Price, Type 116-AC.....each \$42.50

Price, Type 118-DC.....each 47.50

Add \$3.00 for 32 or 220 volts.

## Speedway Portable Electric Screwdriver and Bolt and Nut Tightener Universal Motor



Equipped with Screw Slot Finder

Will drive in maple all size screws from No. 2 to No. 16.

Standard equipment: Lead cord and plug; one finder, driving tang or socket wrench. Extra equipment: Finders for

any size screw; bare driving bits or tangs; chuck for straight shank drill bits.

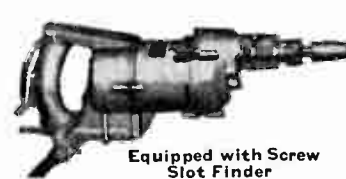
Price, Type 108.....each \$35.00

Add \$3.00 for 32 or 220 volts.

### Extra Equipment for Types 108 and 110 Grinders

Price, A, Arm for 3-Inch Internal 30000 R.P.M. each	\$20.00
Price, D, Arm for 5-Inch Internal 10000 R.P.M. each	20.00
Price, B, Arm for 10-Inch Internal 10000 R.P.M. each	30.00
Price, E, Arm for 15-Inch Internal 10000 R.P.M. each	35.00
Price, C, Arm for Button Die Grinding. .... each	35.00

## Speedway Portable Electric Screwdriver and Bolt and Nut Tightener Universal Motor



Equipped with Screw Slot Finder

Will drive in maple all size screws from No. 2 to No. 16.

Standard equipment: Lead cord and plug; one finder, driving tang or socket wrench. Extra equipment: Finders for

any size screw; bare driving bits or tangs; chuck for straight shank drill bits.

Price, Type 108.....each \$35.00

Add \$3.00 for 32 or 220 volts.

### Extra Equipment for Types 108 and 110 Grinders

Price, A, Arm for 3-Inch Internal 30000 R.P.M. each	\$20.00
Price, D, Arm for 5-Inch Internal 10000 R.P.M. each	20.00
Price, B, Arm for 10-Inch Internal 10000 R.P.M. each	30.00
Price, E, Arm for 15-Inch Internal 10000 R.P.M. each	35.00
Price, C, Arm for Button Die Grinding. .... each	35.00

## Type 157 Speedway Portable Screwdriver and Nut Tightener Universal Motor

This is a light and compact driver for small and medium screws and nuts.

Drawn steel housings are used.

Standard equipment includes positive clutch; a slip clutch can be included for \$10.00 extra. Special types of gear trains to produce varying speeds for special requirements can also be furnished at \$3.00 extra.

Specify voltage.

Add \$3.00 for 32 or 220 volts.

Price, Type 157.....each \$55.00



## Type 110 Speedway Tool Post Grinders

This grinder is built for external, center and internal grinding.

Cross-feed has been eliminated.

Speed is 10000 r.p.m. heavy duty type. Universal motor, 1/8 h.p. Has 4 1/2-inch diameter grinding wheel. Specify voltage. Add \$3.00 for 32 or 220 volts.

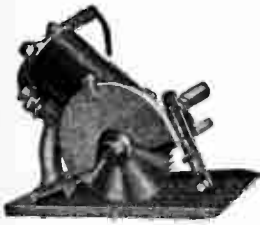
Price, Type 110. each \$27.50

### Extra Equipment for Types 108 and 110 Grinders

Price, A, Arm for 3-Inch Internal 30000 R.P.M. each	\$20.00
Price, D, Arm for 5-Inch Internal 10000 R.P.M. each	20.00
Price, B, Arm for 10-Inch Internal 10000 R.P.M. each	30.00
Price, E, Arm for 15-Inch Internal 10000 R.P.M. each	35.00
Price, C, Arm for Button Die Grinding. .... each	35.00



**Type 176 Speedway Portable Electric Saws**



The Speedway Portable Electric Saw with 6 or 7-inch blade will cut wood, bone, wall or plaster-board, Plymetal, fibre, linoleum, hard rubber, light-gauge soft metal, bakelite and other materials.

It operates from any lighting socket. Has adjustable depth gauge and slipper plate guard for operator's protection. Is

equipped with a return-spring switch in the handle and a dust shield. An 8-foot cord with split plug is furnished; also a 6-inch blade with a maximum cut of 1 5/8 inches.

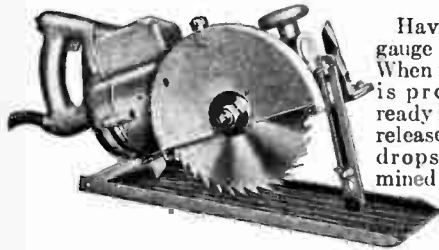
Voltage, 110 or 220, as specified when ordering.

No load speed, 3600 r.p.m. Weight, 15 pounds.

Price, Type 176, 110-Volt..... each \$75.00

Price, Type 176, 220-Volt..... each 78.00

**SpeedWay Portable Electric Saws**



Have combined depth gauge and saw guard. When not sawing, blade is protected; when ready for work, catch is released, slipper plate drops to a predetermined depth and saw is ready to cut.

Equipment includes switch,

lead cord and plug, wrench and one saw blade.

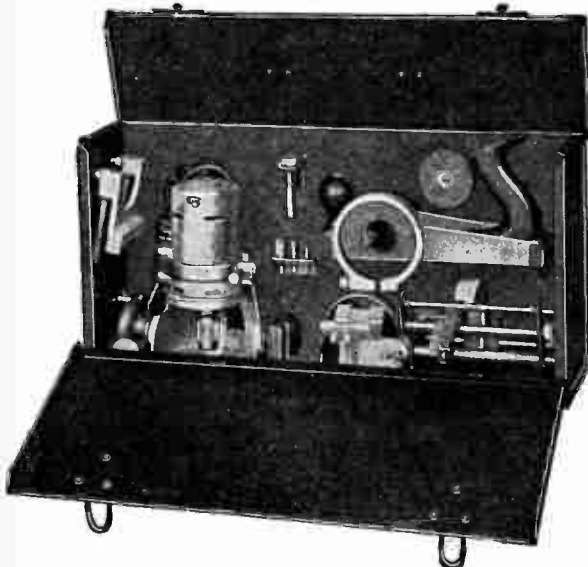
Universal motor operated on a.c. or d.c., 110 or 220 volts.

Voltage must be specified in ordering.

Type	Blade Inches	Capacity Inches	Speed R.P.M.	Weight Pounds	Price, Each	
					110-115 Volts	32 or 220 Volts
179	8	2 5/8	1500	25	\$165.00	\$168.00
180	10	3 5/8	1500	26	175.00	178.00

**Type 300 Speedway Electric Planer and Router Kit**

Universal Motor



For the wood-working trade. Electric planer planes up to 2 3/8 inches wide and from 1/32 to 3/32 inch deep. Electric router cuts up to 1/8 inch deep. Set has its own grinding rig so that planer blades can be re-sharpened right on the job.

Kit includes motor, planer and cutter, grinding rig, router and cutter, grinding wheel, 1/4-inch chuck for wood-drilling, 2 wrenches and steel carrying case. Specify voltage.

Add \$3.00 for 32 or 220 volts.

Price, Complete..... each \$85.00

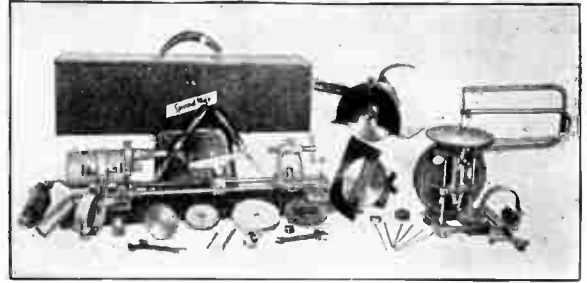
Price, Router and Motor Alone..... each 45.00

Price, Planer and Motor Alone..... each 50.00

**Speedway Combination Shops**

The Portable Home Work Shop

Universal Motor



This shop equipment includes portable saw, portable drill portable buffer, etc. The lathe also packs away for carrying in its convenient steel case. Operates from any light socket.

**Model 260-D**

Capacity is 6-inch diameters, 12-inch centers; 30-inch centers optional at \$2.50 extra. Has high torque series wound motor. Operates on both a.c. and d.c. Motor may be removed and converted into portable drill, saw, grinder, etc.

Screw feed type tail stock for quick adjustment.

Tool rest is rigidly constructed; quickly adjusted to all positions. Capacity of face plate is 6 inches in diameter. May also be used to support disk sanders.

Spur center has 3 long, sharp teeth which provide strong grip on work. Accessory arbor supports buffer, grinder and scratchbrush; may be used either in portable or permanent position of motor. Base of thoroughly seasoned wood. Bench saw mounts on lathe rails direct. Useful for cabinet making. Jig saw has tilting top, 10-inch throat. Spring tension on blade. Six extra blades included. Motor may be removed from lathe and attached to portable saw. Handle is included for converting lathe motor into convenient 1/4-inch portable electric drill. Carrying case is of pressed steel construction with carrying handle.

Tool assortment includes the following items:

- 1/8" Carbon Steel Drill Bit
- 1/4" Carbon Steel Drill Bit
- 5" Circular Saw
- 1/4" Keyless Drill Chuck
- Saw Centering Collar and Nut
- 4" Rag Buffing Wheel
- 3" Grinding Wheel
- 4" Wire Scratchbrush
- Gouge Chisel
- Parting Tool
- Leatherette Tool Case

Price, Model 260-D (as shown above)..... each \$95.00

**Model 260-C**

This outfit is the same as Model 260-D above but does not include the Jig-saw or portable saw.

Price, Model 260-C..... each \$75.00

**Model 260-B**

This outfit includes jig saw, motor, portable saw, buffer, grinder, drill handle, chuck, wrench and drill-stand.

Price, Model 260-B..... each \$64.50

**Model 260-A**

This outfit contains 4 tools. It includes jig-saw, portable drill, buffer and grinder.

Price, Model 260-A..... each \$42.50

Specify voltage.

Add \$3.00 for 32 or 220 volts.

**Type 281 Speedway Combination Drill and Saw Kit**

Universal Motor

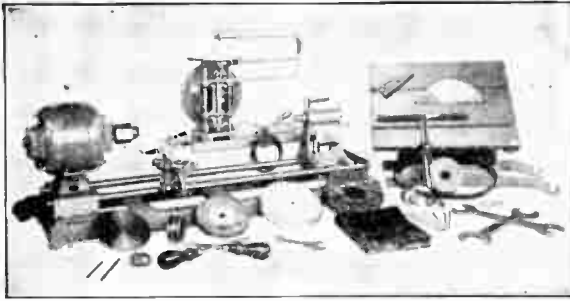


Five power driven portable electric tools are built into this kit. One power unit is adapted to all 5 to make an attractive price for so practical a set.

The set includes a portable saw, grinding wheel, buffer, scratch brush, motor stand, accessory arbor and steel carrying case. Specify voltage. Add \$3.00 for 32 or 220 volts.

Price, Type 281 ..... each \$42.50

## Speedway Combination Shops 1/4 H.P. Motor



This is a practical wood and metal working combination shop of sufficient capacity that it is even being used in the manual training classroom. It is profitably used by carpenters, cabinet-makers, radio builders and the Home Shop Worker.

### Model 265-D

Capacity is 10-inch diameters, 18-inch centers; 36-inch optional at \$3.00 extra. Noiseless direct drive 1/4 h.p. guaranteed motor. Lubricated by automatic waste packed bearings. Speed is 1750 r.p.m. Switch is in base at the finger tips.

Tail stock is the adjustable screw feed taper socket type with ring and 60 centers. Tool rest is adjustable to all positions. Unusually heavy construction affords rigidity. Nickel-plated.

Capacity of face plate is 10 inches in diameter. Has heavy construction. There are 3 screw holes for attaching work.

Spur center is of machined steel. Has 4 rugged teeth which provide positive non-failing grip. Accessory arbor supports pulleys, grinder, buffer, drill chuck, etc.

Base is single-piece of heavy ribbed, cast iron construction. It provides rigidity, enabling operator to turn down 1/4-inch diameters without chatter.

Assortment of 3 wrenches to provide for all requirements.

Two pulleys for driving bench saw and jig saw.

Jig saw has tilting top, 10-inch throat. It opens up field of curved line design in both wood and light gauge metals. Six extra blades included. Exclusive pressure screw mounting arrangement eliminates vibration.

No. 268 bench saw equipped with 8-inch blade, rip and cut-off fence, mitre gauge, removable filler block for accommodating various makes of cutters or dado heads. A 12x16-inch top tilts 45 degrees for bevel cuts and raises for grooving. Has bronze bearings; heavy casting construction insures lifetime of service.

Tool assortment includes the following items:

- 6" Buffer                    1/4" Carbon Steel Drill Bit
- 6" Scratchbrush        1/4" Carbon Steel Drill Bit
- 5" Grinding Wheel      1/4" Keyless Drill Chuck
- Gouge Chisel            Leatherette Tool Case
- Parting Tool

Price, Model 265-D (As Shown Above) ..... each \$145.00

### Model 265-C

Same as Model 265-D at top of page but does not include the jig saw.

Price, Model 265-C ..... each \$128.00

### Model 265-B

Same as Model 265-D at top of page but does not include bench saw.

Price, Model 265-B ..... each \$112.00

### Model 265-A

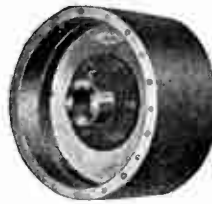
This assembly is stripped of all accessories. It includes lathe, motor, face plate, spur center, tool rest, tail stock, wrenches.

Price, Model 265-A ..... each \$70.00

Specify a.c. or d.c.

Add \$3.00 for 32 or 220 volts.

## Rockwood Paper Pulleys



A paper pulley overcomes in a large degree the annoyance and loss caused by a slipping belt. The lighter tension on the belt permits lighter shafting, hangers, etc., reduces consumption of oil and loss from hot bearings. Tighteners are not necessary.

Rockwood Pulleys are used extensively on dynamos, motors, etc.

Prices on larger sizes furnished upon request.

Diam. Inches	Face Inches	Price Each	Diam. Inches	Face Inches	Price Each	Diam. Inches	Face Inches	Price Each
2	2	\$2.00	7	7	\$3.80	12	14	\$11.70
2	3	2.05	7	8	4.15	12	15	12.75
2	4	2.10	7	9	4.50	12	16	13.85
2	5	2.20	7	10	4.95	12	17	15.10
2	6	2.35	7	11	5.45	12	18	16.35
2 1/2	2	2.05	7	12	6.00	13	3	4.50
2 1/2	3	2.10	8	3	3.40	13	4	4.75
2 1/2	4	2.15	8	4	3.45	13	5	5.05
2 1/2	5	2.25	8	5	3.55	13	6	5.45
2 1/2	6	2.40	8	6	3.75	13	7	5.90
3	2	2.10	8	7	4.00	13	8	6.40
3	3	2.15	8	8	4.30	13	9	6.95
3	4	2.20	8	9	4.70	13	10	7.55
3	5	2.30	8	10	5.10	13	11	8.25
3	6	2.45	8	11	5.60	13	12	9.00
3	7	2.65	8	12	6.20	13	13	9.90
3 1/2	2	2.15	8	13	6.90	13	14	12.80
3 1/2	3	2.20	9	3	3.55	13	15	13.95
3 1/2	4	2.25	9	4	3.65	13	16	15.20
3 1/2	5	2.35	9	5	3.75	13	17	16.45
3 1/2	6	2.50	9	6	3.95	13	18	17.60
3 1/2	7	2.70	9	7	4.20	13	19	19.20
3 1/2	8	2.95	9	8	4.50	14	3	4.75
4	2	2.20	9	9	4.90	14	4	5.00
4	3	2.25	9	10	5.30	14	5	5.30
4	4	2.30	9	11	5.80	14	6	5.70
4	5	2.40	9	12	6.40	14	7	6.10
4	6	2.55	9	13	7.50	14	8	6.60
4	7	2.75	10	3	3.75	14	9	7.20
4	8	3.00	10	4	3.80	14	10	7.80
4 1/2	2	2.25	10	5	3.95	14	11	8.50
4 1/2	3	2.30	10	6	4.15	14	12	9.25
4 1/2	4	2.35	10	7	4.40	14	13	10.50
4 1/2	5	2.45	10	8	4.70	14	14	13.15
4 1/2	6	2.60	10	9	5.05	14	15	14.25
4 1/2	7	2.80	10	10	5.50	14	16	15.50
4 1/2	8	3.05	10	11	6.00	14	17	16.75
4 1/2	9	3.35	10	12	6.55	14	18	17.75
5	2	2.30	10	13	8.10	14	19	19.50
5	3	2.35	10	14	9.45	14	20	21.00
5	4	2.40	10	15	10.35	14	21	22.60
5	5	2.50	10	16	11.35	15	3	5.00
5	6	2.65	11	3	4.00	15	4	5.30
5	7	2.85	11	4	4.15	15	5	5.70
5	8	3.10	11	5	4.30	15	6	6.10
5	9	3.40	11	6	4.55	15	7	6.60
5	10	3.75	11	7	4.90	15	8	7.20
5 1/2	2	2.35	11	8	5.25	15	9	7.80
5 1/2	3	2.40	11	9	5.70	15	10	8.50
5 1/2	4	2.45	11	10	6.20	15	11	9.25
5 1/2	5	2.55	11	11	6.75	15	12	10.05
5 1/2	6	2.70	11	12	7.40	15	13	11.20
5 1/2	7	2.90	11	13	8.70	15	14	14.30
5 1/2	8	3.15	11	14	10.55	15	15	15.45
5 1/2	9	3.45	11	15	11.55	15	16	16.75
5 1/2	10	3.80	11	16	12.60	15	17	18.10
6	3	3.05	11	17	13.75	15	18	19.20
6	4	3.15	11	18	14.95	15	19	21.00
6	5	3.25	12	3	4.25	15	20	22.60
6	6	3.45	12	4	4.45	15	21	24.25
6	7	3.70	12	5	4.70	15	22	25.95
6	8	4.00	12	6	5.00	16	3	5.30
6	9	4.40	12	7	5.40	16	4	5.70
6	10	4.80	12	8	5.80	16	5	6.10
6	11	5.30	12	9	6.30	16	6	6.60
7	3	3.20	12	10	6.90	16	7	7.20
7	4	3.25	12	11	7.50	16	8	7.80
7	5	3.40	12	12	8.20	16	9	8.50
7	6	3.55	12	13	9.30	16	10	9.25

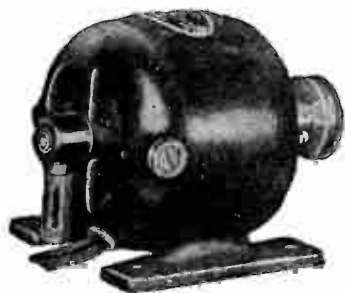
## Some Facts About G-E Motors Distributed by Graybar

For every power application there is a G-E motor and a control to assure the economical, safe and satisfactory operation of that motor. Graybar's 71 distributing houses bring these motors within easy reach.

In matters of research, engineering knowledge and electrical experience the reputation of the General Electric Company needs no comment; it is accepted as a fact that this company stands second to none. In manufacturing facilities, in choice of materials, in the selection and training of workmen, in the inspection of every motor manufactured; in short, in all the factors that go to make up a satisfactory motor for every power job, G-E stands high.

Representative Graybar dealers throughout the country are at your service backed up by power apparatus specialists at our distributing houses. From meter to motor Graybar offers quick service, full information and advice and a reputation for satisfactory dealing on all power apparatus items.

### G-E Type SDA A. C. and D. C. Motors



#### 110 Volts, 60 Cycles, A. C., Series Wound

Model No.	Horse-power	Speed R. P. M.	Frame No.	Shipping Wt., Lbs.
*27307	1/200	2200	300	6
*27309	1/100	2200	305	7
*27312	1/50	1800	315	8
32393	1/25	1800	325	15
*24651	1/15	1800	335	25

#### 110 Volts, D. C., Series Wound

*27308	1/200	2200	300	6
*27311	1/100	2200	305	7
*27314	1/50	1800	315	8
32395	1/25	1800	325	15
*24653	1/15	1800	335	25

Prices upon application. \*Can be furnished for 220 volts.

### G-E Type SA A.C. Small Power Motors

Protected Type—Constant Speed  
60, 50, 40 and 25 Cycles, Single-Phase



Revolving primary Type SA motors should be selected as closely as possible for the frequency and voltage on which they are intended to operate, but successful operation may be expected on circuits where the variation of either the frequency or voltage from normal does not exceed 5 per cent. Where both the frequency and voltage vary, the sum of the variations must

not exceed 10 per cent. The starting torque and maximum torque will vary as the square of the voltage, the speed varying directly as the frequency.

Standard direction of rotation is counter-clockwise. Specify direction of rotation when ordering.

#### 50 Per Cent Overload Start

H. P.	*Frame	Full Load Speed R.P.M.	Volts	Cycles	†Model No.
1/20	1135	1725	110	60	29329
			220	60	29538
1/20	1135	1425	110	50	30838
			220	50	30839
1/20	1135	1140	110	40	29660
			220	40	29685
1/20	135	1425	110	25	26079
			220	25	28062
1/10	1135	1725	110	60	26137
			220	60	29014
1/10	1135	1425	110	50	29015
			220	50	29016
1/12	1137	1140	110	40	29527
			220	40	29627
1/8	1137	1725	110	60	26133
			220	60	29017
1/8	145	1140	110	40	29970
			220	40	30901
1/8	1137	1425	110	50	29018
			220	50	29019
1/8	1145	1425	110	25	30023
			220	25	30065
1/6	145	1725	110	60	26135
			220	60	28018
1/6	145	1425	110	50	28208
			220	50	28209
1/6	147	1140	110	40	29972
			220	40	30903
1/6	1147	1425	110	25	29424
			220	25	29471
1/4	147	1725	110	60	26136
			220	60	28019
1/4	147	1425	110	50	27598
			220	50	28205
1/4	149	1140	110	40	29974
			220	40	30905
1/4	1149	1425	110	25	28814
			220	25	28964
1/12	1137	1140	110	60	29463
			220	60	29464
1/6	147	1140	110	60	29966
			220	60	29967

\*All frames have waste-packed bearings. Feet are cast integral with end shields. †Model No. does not include pulley or connecting cord with plug.

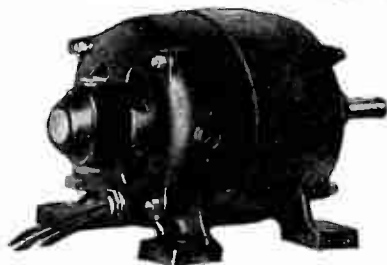
The waste-packed bearing protected type motors are mechanically interchangeable with the wick-oiled bearing open type motors of the corresponding frames for either A.C. or D.C. types. Footless motors in all frames listed can be furnished in the same ratings at same prices as with feet.



## G-E Type RSA Motors

Form D

110-220 Volts, 25 and 60 Cycles, Single-Phase, A. C.



A constant speed high torque motor. The motor starts as a repulsion motor and at a predetermined speed, a centrifugal device short circuits the commutator and the motor then runs as an induction motor.

Motor does not include pulley or cord and plug. Motors can be furnished wound for 50 and 40 cycles.

### 60 Cycles

Cat. No.	Horsepower	Speed R.P.M.	Frame No.	Shipping Wt., Lbs.
*27664	1/12	1140	1437	24
26154	1/8	1725	1435	22
*27665	1/4	1140	1447	33
27303	1/4	1725	1437	24
26155	1/4	1725	1445	30
*27666	1/2	1140	1455	52
26156	1/2	1725	1455	52
*30182	1/2	1140	1465	72
30176	3/4	1725	1465	72
*30184	3/4	1140	1469	97

### 25 Cycles

26176	1/8	1425	1439	29
26177	1/4	1425	1449	40
26178	1/2	1425	1459	77
26179	3/4	1425	1469	97

\*Motors are rated for continuous duty—50 degrees C. temperature rise. Other motors for 40 degrees rise.

Prices upon application.

## G-E Type SD Direct Current Motors



1/4-H.P., 1725 R.P.M. Motor

### Shunt Wound

Model No.	H.P.	Volts	Speed R.P.M.	Frame No.	Model No.	H.P.	Volts	Speed R.P.M.	Frame No.
20033	1/20	110	1725	325	20034	1/20	220	1725	325

### Compound Wound

29861	1/12	32	1140	1236	29876	1/3	32	1140	1256
29862	1/12	115	1140	1236	29877	1/3	115	1140	1256
29863	1/12	230	1140	1236	29878	1/3	230	1140	1256
29864	1/8	32	1725	1236	29879	1/2	32	1725	1256
29865	1/8	115	1725	1236	29880	1/2	115	1725	1256
29866	1/8	230	1725	1236	29881	1/2	230	1725	1256
29867	1/6	32	1725	1238	27583	1/2	32	1140	1261
29868	1/6	115	1725	1238	29882	1/2	115	1140	1261
29869	1/6	230	1725	1238	29883	1/2	230	1140	1261
29870	1/6	32	1140	1246	26216	3/4	32	1725	1261
29871	1/6	115	1140	1246	29884	3/4	115	1725	1261
29872	1/6	230	1140	1246	29885	3/4	230	1725	1261
29873	1/4	32	1725	1246	27584	3/4	32	1140	1266
29874	1/4	115	1725	1246	29886	3/4	115	1140	1266
29875	1/4	230	1725	1246	29887	3/4	230	1140	1266

Frame 325 motor has wick oiled bearings; others waste packed. Frame 325 has feet cast integral with frame; others cast integral with end shields. All 1725 r.p.m. motors rated for continuous duty, 40 deg. C. temperature rise; all 1140 r.p.m. motors for continuous duty, 50 deg. C. temperature rise. Cat. Nos. do not include pulleys.

## G-E Types RKT and RKQ Fractional Horse Power Motors

Continuous Duty

Constant Speed, Squirrel-cage Rotor

3 and 2-Phase 60, 50, 40 and 25 Cycles  
Waste-packed Bearings



Rating Type RKT, 1/4-H.P.  
1725 R.P.M.

OPERATING CHARACTERISTICS.—Standard 60-cycle polyphase motors should not be operated on 50-cycle circuits on account of increased heating.

ENCLOSED MOTORS.—Can be furnished when desired.

2-PHASE MOTORS.—Type RKQ, 2-phase, open type motors furnished only on order.

STARTING TORQUE.—175 to 200 per cent of full-load torque with full normal voltage.

STARTING CURRENT.—600 per cent of full-load current with full normal voltage.

MAXIMUM TORQUE.—200 to 250 per cent of full-load torque. SPEED.—Speed regulation or slip is approximately 4 to 7 per cent.

HEATING.—Temperature rise of standard polyphase motors as listed below when operated under normal voltage, frequency and rated output continuously will not exceed 40° C.

VOLTAGE AND FREQUENCY.—Type RKT motors will operate successfully when the combined variation of voltage and frequency does not exceed 10 per cent above or below that given by the name plate stamping, but not necessarily in accordance with the standards established for operation at the normal rating. 440 and 550-volt motors can be furnished in the 60-cycle, 1140 r.p.m., 50, 40 and 25-cycle ratings.

### 60 Cycles

H.P.	Full Load Speed R.P.M.	Frame No.	Volts	*Model No.	Approximate Shipping Wt., Lbs.
1/4	1725	1435	110	27428	22
			220	28001	22
1/4	1725	1445	440	27787	33
			550	27788	33
1/2	1725	1445	110	27755	33
			220	27756	33
1/2	1725	1455	440	28321	52
			550	28147	52
3/4	1725	1455	110	27757	52
			220	27758	52
3/4	1725	1455	440	27789	52
			550	27790	52
1/3	1140	1445	110	27761	33
			220	27762	33
1/2	1140	1455	110	27763	52
			220	27764	52
3/4	1140	1465	110	27765	72
			220	27766	72

### 50 Cycles

1/4	1425	1425	110	27767	22
			220	27768	22
1/2	1425	1445	110	27769	33
			220	27770	33
3/4	1425	1455	110	27771	52
			220	27772	52

### 40 Cycles

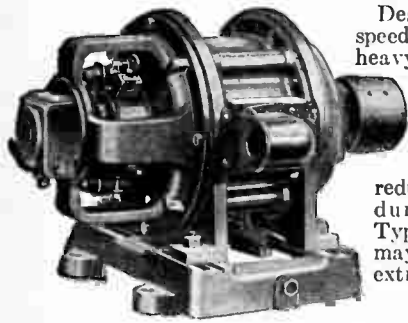
1/3	1140	1445	118	27773	35
			236	27774	35
1/2	1140	1455	118	27775	52
			236	27776	52
3/4	1140	1465	118	27777	72
			236	27778	72

### 25 Cycles

1/4	1425	1439	110	27779	29
			220	27780	29
1/2	1425	1449	110	27781	40
			220	27782	40
3/4	1425	1459	110	27783	77
			220	27784	77

Prices upon application.

**G-E Type SCR Single-Phase Repulsion Induction Motors**



**Constant Speed**  
 Designed for constant speed, with moderate or heavy starting torque. In starting direct from line, motors take current approximately in proportion to torque. To reduce current values during acceleration Type CR1026 rheostats may be ordered at an extra charge.

**110-220 Volts**

Frame No.	H.P. 40° C.	SPEED, R.P.M.			Frame No.	H.P. 45° C.	SPEED, R.P.M.		
		Sync.	Full Load	No. Load			Sync.	Full Load	No. Load
806	1 1/2	1800	1760	1885	823	1 1/2	1800	1760	1840
821	1 1/2	1200	1170	1270	836	1 1/2	1200	1160	1240
827	1 1/2	900	870	920	822	2	3600	3500	3750
*114	3/4	1800	1760	1900	*126	2	1800	1760	1860
812	3/4	1800	1760	1890	827	2	1800	1760	1840
822	3/4	1200	1170	1270	836	2	1200	1165	1265
832	3/4	900	875	925	845	2	900	880	925
812	1	3600	3540	3700	827	3	3600	3500	3700
*116	1	1800	1760	1900	836	3	1800	1755	1860
816	1	1800	1760	1900	845	3	1200	1160	1220
827	1	1200	1160	1255	853	3	900	880	925
836	1	900	880	925	845	5	1800	1750	1835
816	1 1/2	3600	3530	3750	853	5	1200	1160	1220
*124	1 1/2	1800	1760	1860	856	5	900	880	925

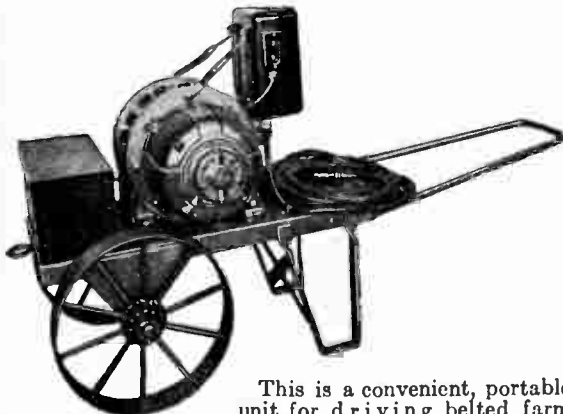
**220-440 Volts**

853	7 1/2	1800	1755	1830	856	10	1800	1755	1820
858	7 1/2	1200	1160	1220					

\*Motors in new 100 series square-punching frames furnished with waste-packed bearings only.

**G-E Portable Farm Motors**

3, 5, or 7 1/2 H. P. at 220 Volts for Single or 3-Phase with 3 Belt Speeds—Push Button Control



This is a convenient, portable unit for driving belted farm machinery. Portable and fixed motors, both a.c. and d.c. can be furnished with control devices, over a wide range of horsepowers, for a variety of applications on the farm.

Each equipment includes a motor, with ball bearings, mounted on a 2-wheel truck and the following accessories: 2 extra pulleys, 1 pulley box, 1 pulley puller, 1 CR7006 starter with relay and push button, 1 plugging receptacle and cable. Single-phase motors have enclosed covers over top and bottom of commutator.

**Type SCR, Single-Phase**

Frame No.	H.P.	Speed R.P.M.	Volts	Motor, Truck and Accessories Wt., Lbs.
836	3	1800	220	490
845	5	1800	220	600
853	7 1/2	1800	220	700

**Type KT, 3-Phase**

932	3	1800	220	425
936	5	1800	220	440
944	7 1/2	1800	220	500

**Types KT and KQ G-E Standard Polyphase Induction Motors**



**Types KT or KQ Riveted Frame Induction Motor**

The following is a partial list of General Electric Constant Speed, Belt Drive, Standard and Semi-Standard Induction Motors for use on two and three-phase circuits of the voltages and frequencies given. Further data and prices may be obtained upon application; other ratings and speeds are also available.

Types KT and KQ have squirrel cage rotors and are designed for constant speed service.

**60 Cycles**

H.P.	Speed R.P.M.	Volts	H.P.	Speed R.P.M.	Volts
1/2	1200	110-220-440-550	10	1200	220-440-550
3/4	1200	110-220-440-550	10	1800	220-440-550
3/4	1800	110-220-440-550	15	900	220-440-550
1	1200	110-220-440-550	15	1200	220-440-550
1	1800	110-220-440-550	15	1800	220-440-550
1 1/2	1200	110-220-440-550	20	900	220-440-550-2200
1 1/2	1800	110-220-440-550	20	1200	220-440-550-2200
2	1200	110-220-440-550	20	1800	220-440-550
2	1800	110-220-440-550	25	900	220-440-550-2200
3	1200	220-440-550	25	1200	220-440-550-2200
3	1800	220-440-550	30	900	220-440-550-2200
5	1200	220-440-550	30	1200	220-440-550
5	1800	220-440-550	40	900	220-440-550-2200
7.5	1200	220-440-550	40	1200	220-440-550-2200
7.5	1800	220-440-550	50	900	220-440-550-2200
10	900	220-440-550	50	1200	220-440-550-2200

**25 Cycles**

H.P.	Speed R.P.M.	Volts	H.P.	Speed R.P.M.	Volts
1/4	750	110-220-440-550	7.5	1500	220-440-550
1/4	1500	110-220-440-550	10	500	220-440-550
1/2	750	110-220-440-550	10	750	220-440-550
1/2	1500	110-220-440-550	15	500	220-440-550
1	750	110-220-440-550	15	750	220-440-550
1	1500	110-220-440-550	20	500	220-440-550
1 1/2	750	110-220-440-550	20	750	220-440-550
2	750	110-220-440-550	25	500	220-440-550
2	1500	110-220-440-550	25	750	220-440-550
3	750	220-440-550	30	500	220-440-550
3	1500	220-440-550	40	750	220-440-550-2200
5	750	220-440-550	50	500	220-440-550-2200
5	1500	220-440-550	50	750	220-440-550-2200
7.5	500	220-440-550	...	...	...
7.5	750	220-440-550	...	...	...

**40 and 50 Cycles**

A complete line of 40 and 50-cycle motors can be furnished. Information furnished upon request.

Information on other types and sizes furnished upon application. Prices upon application.

## G-E Type MT 3-Phase Slip Ring Induction Motors

Constant Speed, 60 Cycles, 40 Degrees C.



**Type MT Slip Ring Induction Motor**

## G-E Type MT 3-Phase Slip Ring Induction Motors

Constant Speed, 60 Cycles, 40 Degrees C.

H.P.	Frame No.	Speed R.P.M. Approx. Full Load	Volts	Ship. Wt. Lbs. Motor with Pulley Base and Starter	H.P.	Frame No.	Speed R.P.M. Approx. Full Load	Volts	Ship. Wt. Lbs. Motor with Pulley Base and Starter
3/4	926	825		205	25	536	675	220	2105
1	926	1100		205			440-550	2085	
1	932	845	110	245	25	542	570	220	2415
1 1/2	932	845	220	245			440-550	2395	
2	926	1700	440	205			2200	2510	
2	934	1115	550	250	30	523	1740	220	1480
2	936	850		265			440-550	1385	
3	932	1690		245			1730	2200	1500
3	938	1140		275	30	526	1145	220	1575
3	944	855		365			440-550	1480	
5	936	1700		270	30	532	1155	2200	1955
5	946	1140	220	375	30	532	850	220	1935
5	952	855	440	485			440-550	1840	
7 1/2	944	1700	550	415	30	536	860	2200	2210
7 1/2	952	1145		510	30	542	690	220	2500
7 1/2	958	870		600			440-550	2105	
10	948	1725		460			2200	2520	
10	956	1145		575	30	546	570	220	2840
10	510	840		905			440-550	2745	
10	522	665		1190			2200	2860	
15	501	1700	220	745	40	527	1735	220	1625
			440-550					440	1550
15	502	1125	220	795				550	1530
			440-550					2200	1445
15	512	840	220	995	40	532	1140	220	1965
			440-550					440	1890
15	532	675	220	1670				550	1870
			440-550				1145	2200	1985
15	532	550	220	1670	40	536	850	220	2220
			440-550					440	2145
20	503	1720	220	800				550	2125
			440-550	780				2200	2240
20	512	1145	220	1015	40	542	675	220	2500
			440-550	995				440	2425
20	522	835	220	1210				550	2105
			440-550	1190	40	546	685	2200	2890
20	536	680	220	1945	40	552	575	220	3140
			440-550	1925				440	3065
20	536	560	220	1945				550	3045
			440-550	1925				2200	3140
25	512	1720	220	1175	50 †	527	1720	220	1505
			440-550	1155				440	1430
25	522	1130	220	1370				550	1430
			440-550	1350	50 †	533	1740	2200	1845
25	526	1140	2200	1585	50	536	1150	220	2230
25	526	840	220	1490				440	2155
			440-550	1470				550	2155
25	532	855	2200	1945			1160	2200	2250

†Not recommended for belt drive.

Complete specifications and prices upon application.

H.P.	Frame No.	Speed R.P.M. Approx. Full Load	Volts	Ship. Wt. Lbs. Motor with Pulley Base and Starter	H.P.	Frame No.	Speed R.P.M. Approx. Full Load	Volts	Ship. Wt. Lbs. Motor with Pulley Base and Starter	
50	542	860	220	2540	75	556	690	220	3835	
			440	2465				440	3760	
			550	2465				550	3760	
50	546	865	2200	2900				2200	3780	
50	546	690	220	2880	75	558	575	220	4350	
			440	2805				440	4275	
			550	2805				550	4275	
50	552	695	2200	3170				580	4295	
			220	3150	100	556	870	220	3900	
			440	3075				440	3825	
			550	3075				550	3825	
			2200	3170				2200	3845	
60	533	1720	220	1830	100	558	695	220	4415	
			440	1830				440	4340	
			550	1755				550	4340	
			2200	1850				2200	4360	
60	536	1160	220	2235	100	15	585	220	5000	
			440	2235				440	4850	
			550	2160				550	4850	
			1155	2200				580	2200	4580
60	546	860	220	2885	125	558	880	440	4350	
			440	2885				550	4350	
			550	2810				875	2200	4370
			2200	2905	125	15	700	440	4850	
60	552	690	220	3155				550	4850	
			440	3155	125	15A	585	440	5415	
			550	3080				550	5415	
60	556	695	2200	3710				2200	5300	
60	556	575	220	3690	150	15	875	440	4825	
			440	3690				550	4775	
			2200	3710	150	15A	880	2200	5300	
			550	3615	150	15A	705	440	5485	
			2200	3710				550	5435	
*75	537	1745	220	2255				2200	5320	
			440	2180				440	6780	
			550	2180	150	16	580	550	6730	
			2200	2200				2200	6615	
75	547	1160	220	3125	200	17	585	440	7985	
			440	3050				550	7985	
			550	3050				2200	7820	
			2200	3070	200	†17A	435	440	9905	
75	552	870	220	3300				550	9905	
			440	3225				2200	9740	
			550	3225	200	17B	345	440	14545	
			865	2200				550	14545	

\*Not recommended for belt drive.

†Frame 17A when belted (BD-2) has a larger size bearing and shaft.

For 2200 volts 3-phase or 4-wire, 2-phase, FK-20 (3 or 4-pole) oil circuit breaker with magnetic lock and potential transformer instead of CR7006.

Vertical motors are designed with short shaft extended downward for coupling. The oiling system is self-contained. Operating characteristics will in general be somewhat different from those of corresponding horizontal motors.

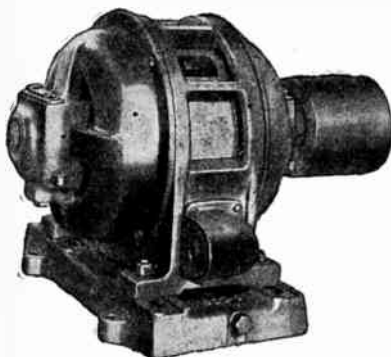
Enclosed terminal box for conduit wiring is regularly furnished except with Frames 15 to 17B, but will be supplied with these sizes without extra charge if ordered with motor. No allowance for omission.

**G-E Normal-Torque General Purpose Squirrel Cage A.C. Motors**

**High-Reactance**

**Type FT, 3-Phase; Type FQ, 2-Phase**

**60 Cycles Continuous Duty, 220, 440 and 550 Volts  
40° C. Rise**



The Types FT and FQ General Purpose Motors are in general suitable for application wherever a Type KT motor with compensator is used. They are designed to start on full voltage, giving slightly higher torque but approximately the same starting current as the KT motor with a compensator. Therefore, they

can be considered for general purpose applications.

These motors are completely automatic; no internal switches or brushes are required—just throw the line. They meet N.E.L.A. starting current recommendations except above 30 h.p.

The motors are simple in construction—there is only one insulated winding. The cast rotor winding is enduring and practically indestructible. The dust-proof bearings insure minimum maintenance costs.

Furnished with sleeve or ball bearings.

**G-E Double Squirrel Cage A.C. Motors**

**Type FTR 3-Phase 60 Cycles, 220, 440 and 550 Volts**

**Type FQR 2-Phase 60 Cycles, 220 and 440 Volts**

*Constant Speed, Continuous Duty, 40° C.*

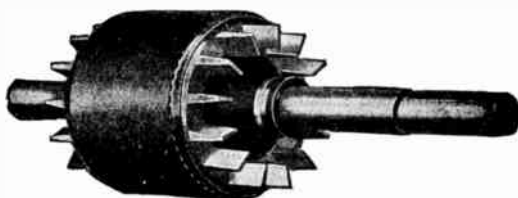


**Type FTR Motor**

The FTR and FQR motors give high starting torque with low starting current. They provide quick and positive acceleration with good overload capacity. They operate without internal switches or centrifugal devices. No compensator is required; for start, run and stop use a magnetic starting switch (CR7006). They have across-the-line starting currents (900 series frames) within National Electric Light Association recommendations. They can be furnished with either sleeve or ball bearings.

The high starting and accelerating torque of types FTR motors are produced through the unique reaction taking place in the double-wound rotor.

The complete rotor winding being essentially a one-piece structure gives a maximum of rigidity, mechanical strength, and freedom from deterioration by age or abnormal operating conditions.



**Rotor—Type FTR Motor**

In addition to the quick, positive acceleration resulting from inherently high starting and accelerating torque, the type FTR is admirably adapted for automatic, semi-automatic, or remote control and for use on machines where portability, weight, or space limitations demand compact and simple control accessories.

- |                           |                                     |
|---------------------------|-------------------------------------|
| Conveyors and Elevators   | Agitators                           |
| Crushers and Grinders     | Bakery Machinery                    |
| Pulverizers               | Farm Machinery                      |
| Flour Mill Machinery      | Reciprocating Pumps and Compressors |
| Candy Machinery           | Portable Machinery                  |
| Canning Factory Machinery | Milling Machines                    |
| Refrigerating Machines    | Revolving Screens                   |

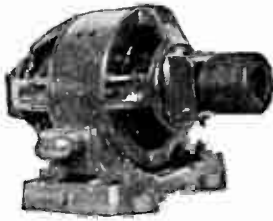
Frame No.	H.P. 40 Deg. C.	Approx. Full-Load Speed R.P.M.	Volts
944	7½	1740	220-440-550
952		1155	220-440-550
958		870	220-440-550
948	10	1740	220-440-550
956		1170	220-440-550
502		875	220-440-550
954	15	1760	220-440-550
502		1170	220-440-550
512		880	220-440-550
501	20	1760	220-440-550
512		1170	220-440-550
522		875	220-440-550
503	25	1760	220-440-550
522		1170	220-440-550
526		870	220-440-550
512	30	1755	220-440-550
526		1170	220-440-550
532		870	220-440-550
523	40	1745	220-440-550
532		1160	220-440-550
536		870	220-440-550
527	50	1760	220-440-550
536		1160	220-440-550
542		870	220-440-550

H.P.	Frame	Speed R.P.M.	Full Load Amp. 220-Volt 3-Phase	Approx. Weight Pounds Motor Only
3	932	1800	8.4	140
3	938	1200	9.2	165
3	944	900	10.1	235
5	936	1800	13.3	160
5	946	1200	14.2	240
5	952	900	16	330
7½	944	1800	20	235
7½	952	1200	20.3	330
†7½	958	900	23.6	330
10	948	1800	25	265
10	956	1200	27.2	360
15	954	1800	40	345

†Temperature rating for 2-phase motor in this rating is 50 degrees C.

## G-E Types BD (2-Pole) and CD (4-Pole) D.C. Motors

Constant Speed, Commutating Poles



Iron sliding bases and starting rheostats are included with standard belted motors. Semi-enclosing covers will be furnished on special order. The use of solid enclosing covers increases the temperature rise of motors to which they are applied and therefore modifies the open ratings. Belt tightener attachments, consisting of cast iron ring adjustable idler on pulley end, may be furnished on order.

Motors will operate successfully at normal rated load at any voltage not more than 10 per cent above or below normal, but not necessarily in accordance with the standards of performance established for operation at normal rated voltage.

All standard Types BD and CD shunt wound motors may have speeds increased by field adjustments 25 per cent above normal, maintained rated output.

Frame No.	H.P.	Volts	Rated Full Load Speed R.P.M.	Frame No.	H.P.	Volts	Rated Full Load Speed R.P.M.
BD-23	1/2	115/230	1750	CD- 75	15	550	2100
BD-25	3/4	115/230	1750	CD- 83	15	115/230	1150
BD-25	3/4	550	2100	CD- 83	15	550	1375
BD-27	1	115/230	1750	CD- 85	15	115/230	850
BD-27	1	550	2100	CD- 85	15	550	1050
BD-33	1	115/230	1150	CD- 85	20	115/230	1150
BD-33	1	550	1375	CD- 85	20	550	1375
BD-33	1 1/2	115/230	1750	CD- 95	20	115/230	850
BD-33	1 1/2	550	2100	CD- 95	20	550	1050
BD-43	1 1/2	115/230	1150	CD- 93	25	115/230	1150
BD-43	1 1/2	550	1375	CD- 93	25	550	1375
BD-35	2	115/230	1750	CD- 95	30	115/230	1150
BD-35	2	550	2100	CD- 95	30	550	1375
BD-45	2	115/230	1150	CD-103	25	115/230	850
BD-45	2	550	1375	CD-103	30	550	1000
BD-45	3	115/230	1750	CD-105	30	115/230	850
BD-45	3	550	2100	CD-103	40	115/230	1150
CD-55	3	115/230	1150	CD-105	40	550	1000
CD-55	3	550	1375	CD-113	40	115/230	850
CD-55	5	115/230	1750	CD-103	50	550	1375
CD-55	5	550	2100	CD-105	50	115/230	1150
CD-65	5	115/230	1150	CD-113	50	550	1000
CD-65	5	550	1375	CD-115	50	115/230	850
CD-73	5	115/230	850	CD-105	60	550	1375
CD-73	5	550	1050	CD-113	60	115/230	1150
CD-65	7 1/2	115/230	1750	CD-115	60	550	1000
CD-65	7 1/2	550	2100	CD-123	60	115/230	850
CD-73	7 1/2	115/230	1150	*CD-113	75	550	1375
CD-73	7 1/2	550	1375	CD-115	75	230	1150
CD-75	7 1/2	115/230	850	CD-123	75	550	1000
CD-75	7 1/2	550	1050	CD-125	75	115/230	850
CD-73	10	115/230	1750	*CD-115	100	550	1375
CD-73	10	550	2100	*CD-123	100	230	1150
CD-75	10	115/230	1150	*CD-125	100	550	1000
CD-75	10	550	1375	*CD-123	125	550	1375
CD-83	10	115/230	850	*CD-125	125	230	1150
CD-83	10	550	1050	*CD-125	150	550	1375
CD-75	15	115/230	1750	.....	.....	.....	.....

\*For direct connection only.  
Prices upon application.

## G-E D.C. Adjustable Speed Motors

Intermittent or Continuous Duty

Shunt Wound

Commutating Poles

Type BD-Frame 33 to 47

Type CD-Frame 55 to 147

Frame	Int. 1-Hr. Duty 50 Degrees C	Cont. 40 Degrees C	SPEED, R.P.M.			Volts	Type CH3105 Drum Contr. Incl. No.	Approx. Ship. Wt., Lbs. Motor Only
			Minimum	MAXIMUM 3:1	4:1			
33	1/2	....	600	1800	2400	115	R-301-B	150
							R-301-B	150
35	3/4	....	600	1800	2400	115	R-301-B	180
							R-301-B	180
47	1	....	500	1500	2000	115	R-301-B	230
							R-301-B	230
55	1 1/2	1	500	1500	2000	115	R-301-B	290
							R-301-B	290
55	2	1 1/2	700	2100	....	115	R-301-B	290
							R-301-B	290
65	....	....	500	1500	2000	115	R-301-B	400
							R-301-B	400
65	3	2	650	1950	....	115	R-301-B	400
							R-301-B	400
73	....	....	500	1500	2000	115	R-301-B	500
							R-301-B	500
73	5	3	650	1950	....	115	R-301-B	500
							R-301-B	500
75	....	....	450	1350	1800	115	R-301-B	600
							R-301-B	600
75	7 1/2	5	600	1800	....	115	R-182-A	600
							R-301-B	600
83	....	....	450	1350	1800	115	R-182-A	780
							R-301-B	780
83	10	7 1/2	600	1800	....	115	R-182-A	780
							R-301-B	780
85	....	....	400	1200	1600	115	R-182-A	860
							R-301-B	860
95	....	....	300	900	1200	230	R-301-B	1150
85	15	10	550	1650	....	115	R- 98-B	860
							R-182-A	860
95	....	....	400	1200	1600	230	R-182-A	1150
105	....	....	300	900	1200	230	R-182-A	1530
95	20	15	500	1500	....	....	R-182-A	1150
105	....	....	400	1200	1600	....	R-182-A	1530
115	....	....	300	900	1200	....	R-182-A	2240
105	25	20	500	1500	....	....	R- 98-B	1530
115	....	....	400	1200	1600	....	R- 98-B	2000
123	....	....	300	900	1200	....	R- 98-B	2240
115	35	25	500	1500	....	....	R- 98-B	2200
123	....	....	400	1200	1600	....	R- 98-B	2240
125	....	....	300	900	1200	230	R- 98-B	3180
123	50	35	500	1500	....	....	R-166-A	2970
125	....	....	400	1200	....	....	R-166-A	3180
135	....	....	300	900	1200	....	R-166-A	....
125	65	50	500	1500	....	....	R-166-A	....
135	....	....	400	1200	....	....	R-166-A	....
147	....	....	300	900	1200	....	R-166-A	....
135	80	60	500	1500	....	....	.....	....
147	100	80	400	1200	....	....	.....	....

\*R-301-B has 18 running points. Where 10 running points are sufficient R-302-B may be substituted up to and including 3 h.p., making a price allowance of \$18.00 on controller only.

†For 115-volt ratings not listed, add 10 per cent to 230-volt motor only prices.

‡Temperature rise 40-degree C. over a speed range from 150 per cent of base speed to maximum speed. From 150 per cent down to base speed, motors will operate at rated capacity without injurious heating.

Enclosed terminal box for conduit wiring is regularly furnished; no allowance for omission.

If enclosed non-ventilated ratings are required, refer to the company.

G-E Back Geared Motors



Type KT, 3-phase Motor on Reduction Gear Base

Direct or alternating current motors for use with back geared features, employing steel or fabroil pinions, should be selected so that the horse power rating at any speed does not exceed the limits indicated below.

H.P.	Speed R.P.M.	H.P.	Speed R.P.M.	H.P.	Speed R.P.M.
10	1800	30	1000	60	750
15	1500	40	900	50	720
30	1200	60	800	40	600

If side wall or ceiling installation is desired, platform suspension with standard horizontal equipment is recommended.

Reduction Gear Bases  
For A.C. and D.C. Motors

SINGLE-PHASE TYPE SCR		2 AND 3-PHASE TYPES KT, KQ, MT AND MQ	
Motor Frame No.	Gear Base No. WF	Motor Frame No.	Gear Base No. WF
803 } 806 }	15	914 } 916 }	20
812 } 816 }	20	924 } 926 }	30
821 } 822 } 827 }	30	932 } 934 }	40
832 } 836 }	40	936 } 938 } 944 } 946 }	45
843 } 845 }	45	948 } 952 }	50
853 } 856 } 858 }	50	954 } 956 } 958 }	60

Direct Current

TYPE RC		TYPE RA		TYPE RF	
Motor Frame No.	Gear Base No. WF	Motor Frame No.	Gear Base No. WF	Motor Frame No.	Gear Base No. WF
21A } 21B }	15	4 } 4-B }	25 } 30 }	7 } 8 }	50 } 60 }
22	20	5	35	9	65
23B	25	6	45	10A	75
24	30			10 } 11 }	90
25 } 26A }	45				
27A } 27B }	50				
49A } 49 }	65				
50	75				
51 } 51B }	90				

Prices upon application.

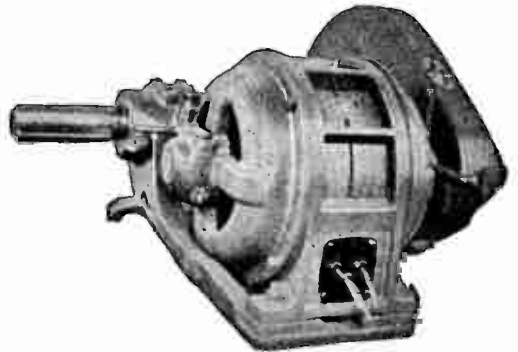
G-E Back Geared Motors

Gear Base No. WF	GEAR RATIOS		*APPROX. COMPLETE BASE Net	Additional Net or Ship. Wt., Lbs. for Ship. Slide Rails
	With Steel Pinion	With Fabroil Pinion		
10			35	50
15			45	70
20	6.94 to 1	4 to 1	60	90
25			75	110
30	6.875 to 1	4.04 to 1	100	140
35			110	155
40	6.875 to 1	4.04 to 1	140	185
45	7.07 " 1	4.04 " 1	170	225
50	7.06 " 1	3.96 " 1	230	300
60	6.75 " 1	3.96 " 1	350	460
65			410	530
75			550	750
80			660	875
90			1050	1300

\*The weights listed are in addition to the regular weight of the motor.

Cradle Type

Including Pinion, Gear and Gear Case for Types KT and KQ Motors



The cradle type back-gear attachment is a device which is designed for use with standard motors, with or without standard base. When standard base is used, the back-gear attachment is fitted between the motor and base and dowelled to the motor to ensure alignment being maintained. Ring oiling bearings are used. Gear cases are oil tight, except at the joints and around the shaft.

Frame No.	GEAR RATIO		Approx. Ship. Wt. Lbs. Back-gear Mot. Compl. Less Pulley and Base
	With Steel Pinion	With Fabroil Pinion	
302			1040
303			1100
312	6.42 to 1	3.73 to 1	1190
313			1250
322			1800
323			1810
326	6.53 to 1	4.05 to 1	1950
327			1960
332			2500
333	6.57 to 1	3.70 to 1	2560
336			2800
337	6.2 to 1	3.73 to 1	2900
342			3900
343			3960
346	6.05 to 1	3.76 to 1	4200
347			4250

For addition to the net retail price of standard motor. Sliding base not included, but if wanted, use standard sliding base and price.

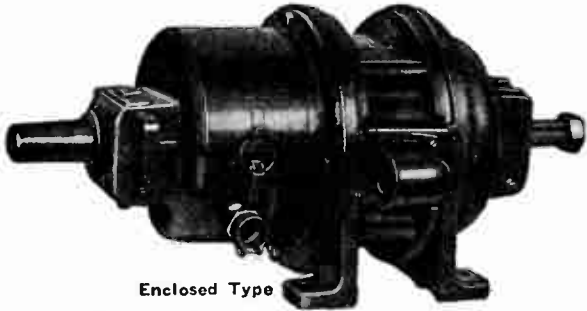
Gear case not furnished unless called for on the requisition.

Prices upon application.



## G-E Alternating Current Crane and Hoist Motors

Open or Enclosed  
 Type MTC, 3-Phase Type MQC, 2-Phase  
 220, 440 or 550 Volts



Enclosed Type

Types MTC and MQC are varying speed induction motors for intermittent service; they are of the slip-ring type. Although primarily intended for all classes of work in the broad range of crane and hoist duty these motors are successfully used for many applications outside this field.

### 60-Cycle, with 2 Bearings

30 Min. 55 Deg. C. (Totally Enclosed)

*Frame	H.P.	SPEED, R.P.M.		Volts	†Lb. TORQUE AT 1-FT. RADIUS		SHIP. WT., LBS.		
		Sync.	Full Load		Start-ing	Full Load	Motor Running	Motor Control and Brake Only	
5932	2	1200	1130	220 440 550	19	9.3	20	605	35
5932	2	900	855		35	12.5	40	605	35
5936	3	900	850		41	18.7	49	650	35
5934	4	1200	1120		38	18.7	41	635	35
5938	5	1200	1130		47	23.2	52	650	35
5944	5	900	845		63	31.1	70	730	75
5946	7½	1200	1155		69	34.1	78	745	75
5952	7½	900	855		92	46	103	1010	150
5952	10	1200	1165		123	45.5	140	1010	150
5958	10	900	865		122	60.8	130	1080	150
5956	15	1200	1150		147	68.8	157	1045	150

30 Min. 50 Deg. C. (Open)

5502	15	900	810	190	95	209	1190	150
5502	20	1200	1110	184	92	202	1190	150
5512	20	900	835	255	126	280	1375	225
5526	25	720	670	400	196	460	1815	500
5532	25	600	560	470	234	520	2450	500
5512	30	1200	1140	280	138	310	1450	225
5522	30	900	845	380	187	420	1775	500
5536	35	600	565	660	325	725	2745	500
5522	40	1200	1125	375	187	410	1890	500
5526	40	900	840	500	250	550	2000	500

60 Min. 50 Deg. C. (Open)

5526	50	1200	1140	470	230	520	2055	500	
5532	50	900	855	615	307	690	2690	500	
5542	50	600	565	935	465	1030	3255	700	
5536	60	900	855	745	368	820	3010	700	
5546	60	600	570	1110	553	1220	3480	700	
5542	80	900	860	1000	489	1100	3490	700	
5542	80	900	860	440-550	1000	489	1100	3165	700
5552	80	600	570	220	1480	738	1610	4600	1200
5552	80	600	570	440-550	1480	738	1610	4470	1200
5546	100	900	865	220	1240	610	1380	3915	700
5552	100	720	685	440-550	1550	767	1700	4800	1200

### 60-Cycle, with 3 Bearings

60 Min. 50 Deg. C. (Open)

5556	100	600	575	1830	913	2000	5350	1200
5556	125	720	690	1900	950	2100	5650	1200
5558	135	600	580	2450	1220	2725	\$3595	1200
5558	175	720	695	2650	1320	2950	\$3595	1200
5562	175	600	575	3200	1600	3600	\$4800	2500
5564	225	600	580	4100	2040	3700	\$5450	2500
5566	300	600	580	5500	2720	6700	\$5900	2500

\*Frames 5932 to 5958 inclusive are riveted; 5502 to 5566 inclusive, skeleton frame construction.

†For ampere ratings, refer to the company.

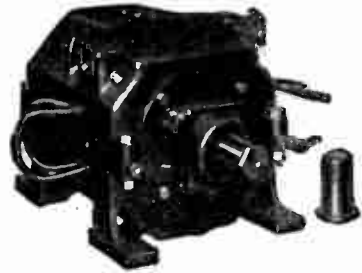
‡Maximum running torque and minimum maximum starting torque for quarter-phase motors are 90 per cent of values given for corresponding 3-phase motors.

§These weights are for motor less control and brake.

## G-E Crane and Hoist Type Motors

D.C.—CO1820 Form A

Series Wound



115 Volts

Frame No.	30 Min. 55 Deg. C.		15 Min. 55 Deg. C.	
	H.P.	Speed	H.P.	Speed
1822	3	875	3¾	700
1823	5	875	6¼	750
1824	7½	750	10	600
1825	10	725	13½	600
1826	15	650	19	575
1827	20	600	26	525
1828	25	550	33	475
1829	35	550	45	500
1830	50	525	65	450
1822	3	875	3¾	700
1823	5	1450	6½	1275
1823	5	875	6¼	750
1824	7½	1350	10	1175
1824	7½	750	10	600
1825	10	1000	13½	875
1825	10	725	13½	600
1826	15	1000	20	875
1826	15	650	19	575
1827	20	875	26	775
1827	20	600	26	525
1828	25	775	33	700
1828	25	550	33	475
1829	35	750	50	650
1829	35	550	45	500
1830	50	750	65	675
1830	50	525	65	450
1831	65	700	85	650
1831	75	500	100	450
1832	100	675	130	600
1832	100	475	130	425
1832	125	625	165	575
1822	3	1000	3¾	850
1823	5	1000	6¼	900
1824	7½	825	10	700
1825	10	775	13½	650
1826	15	675	19	600
1827	20	675	26	600
1828	25	600	33	525
1829	35	600	45	550
1830	50	550	65	475
1831	75	525	100	475
1832	100	500	130	450

550 Volts

**G-E Continuous Rated Medium Speed A.C. Generators**

Types ATB, ATI, AQB and AQI  
For Belt Drive or Direct Connection

60-Cycle, 2 and 3-Phase, 240, 480, 600 or 2300 Volts

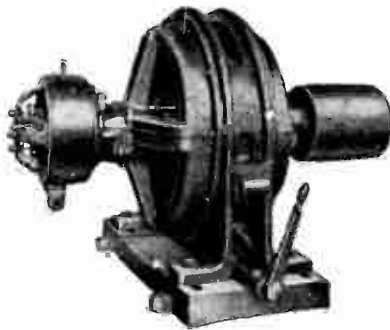


Type TS Synchronous Motor  
7500 Series

These generators are designed for direct connection or belting to prime movers. Generators are of the revolving-field, salient-pole, separately excited type, with optional direct connected exciters. A chain-operated, generator field rheostat and a field-discharge resistor are included with each generator; foundation bolts are not furnished.

Types ATB or AQB are not provided with amortisseur windings; generators furnished with amortisseur windings are designated as Type ATI or AQI generators.

Rotor spider and pole pieces are of laminated steel. Poles are held to spider by dovetails.



Type TS Synchronous Motor  
7600 Series

**2 Bearings**

Frame No.	KW. RATING 50 DEG. C. RISE		Speed R.P.M.	APPROXIMATE SHIPPING WEIGHT, POUNDS	
	1.0 P-f.	0.8 P-f.		Generator Complete	Exciter
7522	15	12	1200	1160	145
7532	25	20	1200	1600	145
7536	37.5	30	1200	1900	145
7541	56.3	45	1200	2180	145
7545	75	60	1200	2500	190
7556	112.5	90	1200	3300	400
7558			900	3800	400
*7558	150	120	1200	3300	400
7632			900	5740	550
7641			720	6000	640
7651			600	6700	640
†7635	180	180	900	7120	550
†7644			720	7860	640
†7653			600	8100	970

**3 Bearings**

7635	225	180	900	9100	550
7644			720	11200	610
7653			600	13400	970
7646	300	240	720	13150	640
7656			600	14900	970
7656			514	14900	970
7647	400	320	720	14300	970
7657			600	16250	970
7657			514	16500	1200
7658			450	18100	1260
7658	500	400	600	17400	1200
7659			514	19000	1260
.....			450	19500	1500
.....			360	23000	2020
.....	600	480	450	21850	1500
.....			360	23000	2020

\*Direct connected only, with shaft and 2 bearings.

†This machine for direct connection can be given a rating of 225 kw. at 1.0 p-f., and 180 kw. at 0.8 p-f.

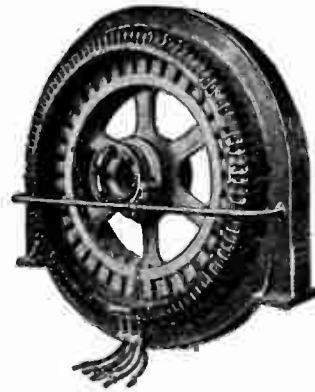
Prices upon application.

**G-E Slow Speed Synchronous A.C. Generators**

Types ATB and ATI—Continuous Rated

60 Cycles, 3-Phase, Separately Excited

For Direct Connection to Steam and Internal Combustion Engines



Standard generators are supplied without base, shaft, bearings, foundation bolts or shaft keys, but with brush-holder support, foundation caps and rheostats. Also supplied with shaft, one or two bearings and with or without base.

Direct-connected or belted exciters can be supplied for all sizes.

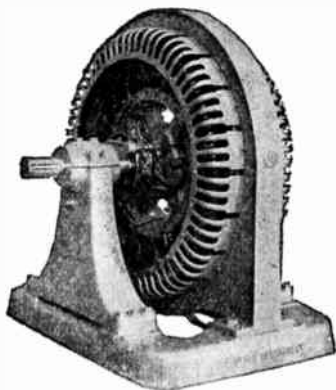
Data on 2-phase generators on request.

Frame No.	Poles	KW. CAPACITY 50 DEG. C.		Speed R.P.M.	Volts Full Load	SHIP. WT., LBS.	
		1.0 P-f.	0.8 P-f.			Heaviest Part	Total Gen. Only
6184D	20	31.3	25	360		1180	2430
6214B	22			327		1100	2270
6214B	24			300		1100	2290
6214B	26			277		1100	2310
6214B	28			257		1100	2290
6184D	20	43.8	35	360		1190	2450
6214D	22			327		1450	2900
6214D	24			300		1450	2980
6244B	26			277		1870	3480
6244B	28			257		1870	3540
6214B	18	62.5	50	400		1190	2430
6244B	20			360		1970	3630
6244B	22			327		1920	3620
6244B	24			300		1900	3520
6244B	26	62.5	50	277		1900	3430
6274B	28			257		2210	4240
6274B	30			240	240	2270	4300
6274B	32			225	480	2270	4350
					600		
6244B	18	93.8	75	400	2300	1930	3700
6244B	20			360		1890	3690
6244B	22			327		2060	4320
6244D	24			300		2330	4240
6244D	26	93.8	75	277		2340	4500
6274B	28			257		2260	4400
6274D	30			240		2760	5400
6274D	32			225		2760	5500
6244D	18	125	100	400		2370	4520
6244D	20			360		2390	4590
6244D	22			327		2390	4360
6274D	24			300		2770	5420
6274D	26			277		2790	5500
6274D	28	125	100	257		2770	5400
6274D	30			240		2770	5550
6304D	32			225		3140	6200
6304D	36			200		3140	6050
6274D	18	156	125	400	2300	2850	5430
6274D	20			360		2850	5530
6274D	22			327		2820	5450
6274D	24			300	240	2810	5450
6274D	26			277	480	2810	5580
					600		
6304D	28	156	125	257	2300	3210	6350
6304D	30			240		3180	6310
6304D	32			225		3180	6310
6334D	36			200		2970	6830
6274D	18	187	150	400	600, 2300	2860	5470
6274D	20			360		2860	5580
6274D	22			327		2840	5530
6304D	24			300		3180	5130
6304D	26	187	150	277	240	3230	6500
6304D	28			257	480	3230	6440
6304D	30			240	500	3270	6450
6334D	32			225	2300	3660	7040
6364D	36	187	150	200		3790	7770
6364D	40			180		4270	8250
6404D	44			164		4320	8900

Prices upon application.

## G-E Horizontal Water Wheel Driven A.C. Generators

3-Phase, 60 Cycles, Separately Excited



**Water Wheel Driven Generator with  
Pedestal Bearing Mounted on Sub-Base**

These water driven generators combine the highest electrical operating characteristics with a most rugged mechanical construction presenting effective guarantee of uninterrupted service and perfect safety at relatively high speeds. They have proven exceptionally satisfactory during their many years of actual service, and embody in their design and construction the most improved features, resulting in a low cost of operation and a minimum cost of maintenance.

Standard kw. capacities:

At .8 P.F.—50-60-75-100-125-150-175-200

At 1.0 P.F.—62.5-75-93.8-125-156-187-219-250

Standard voltages (for all ratings): 240-480-600-2300

Standard speeds (for all ratings) r.p.m.:

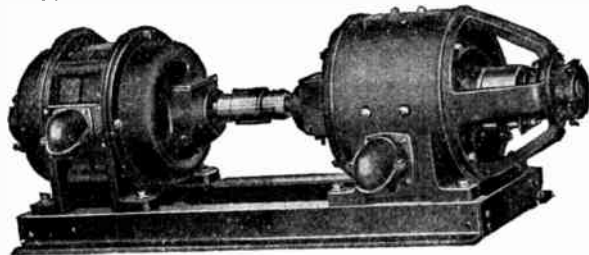
180-200-225-240-257-277-300-327-360-400

Data and prices upon application.

## G-E Small Motor Generator Sets

**Motors, 60 Cycles, 110-2200 Volts, 3 or 2-Phase**

Generators 125 and 250 Volts D.C. Compound Wound



**Induction 4-Bearing Motor-Generator Set  
on Common Iron Subbase**

### 50 Degrees Centigrade

Kw.	Rated Speed R.P.M.	VOLTS		FRAME		H.P. of Motor
		Gen.	Mot.	Gen.	Mot.	
1 1/8	1800			BD-33	926	2
1 3/4	1800		110	BD-43	932	3
2 1/4	1800	125	220	BD-45	932	3
3 1/2	1800	or	440	CD-55	936	5
5 3/4	1800	250	or	CD-65	944	7 1/2
9	1800		550	CD-73	954	15
<b>40 Degrees Centigrade</b>						
12	1800	125	220	CD-75	501	20
16	1800	or	440	CD-83	503	25
		250	550			
		125	220			
21	1800	or	440-550	CD-85	512	30
		250	2200			
		125	220			
30	1800	or	440-550	CD-93	527	50
		250	2200			
		125	220			
35	1800	or	440-550	CD-95	527	50
		250	2200			
		125	220			

Prices upon application.

## G-E Continuous Rated D.C. Belt-Driven Generators and Exciters

Compound Wound—Commutating Poles

Type BD, Form CL (Frames 33 to 45)

Type CD, Form AL (Frames 55 and Above)

### 50 Degrees C.

Frame	Kw.	Speed R.P.M.	Volts	Approx. Ship. Wt. Pounds Complete
35	3/8	1150		220
33	1 1/8	1750		210
45	1 1/4	1150		270
43	1 3/4	1750		250
55	2	1150		350
45	2 1/4	1750		270
65	2 1/2	900		470
73	3	750		600
55	3 1/8	1750	125	350
65	3 1/2	1150	or	470
			250	
73	3 3/4	900		600
*75	4 1/8	750		700
73	5 1/2	1150		600
65	6	1750		470
75	6	900		700
83	7	750		870
75	7 1/2	1150		700
83	8 1/2	900		870
73	9	1750		600
85	9	750		980

### 40 Degrees C.

85	10 1/2	900		980
83	11	1150		870
75	12	1750		700
93	12	750		1260
103	12 1/2	575		1580
85	13 1/2	1150		980
93	14	900		1260
95	14	750		1320
105	15	575	125	1730
83	16	1750	or	870
95	16 1/2	900	250	1320
93	19	1150		1260
103	20	900		1580
105	20	750		1730
113	20	575		2290
85	21	1750		980
95	22	1150		1320
103	25	1150	575	1580
105	25	900	125	1730
113	25	750	or	2290
115	25	575	250	2550
93	30	1750	250	1260
103	30	1150		1580
105	30	1150	575	1730
115	30	750		2550
123	30	575	250	3400
95	35	1750		1320
105	40	1150		1730
113	40	1150	575	2290
123	40	750		3400
125	40	575	250	3620
113	50	1150		4290
115	50	1150	575	2550
125	50	750	250	3620
115	60	1150		2550
123	60	1150	575	3400
123	75	1150	250	3400
125	75	1150	575	3620
145	75	725	125	4580
145	75	725	250	4580
125	100	1150	250	3620
155	100	725	125	5390
155	100	725	250	5390
155	100	800	575	5390
145A	125	1000	125	4580
145	125	1000	250	4580
145	125	1150	575	4580
165A	125	725	125	6710
165	125	725	250	6710
165	125	800	575	6710
155A	150	1000	125	5390
155	150	1000	250	5390
155	150	1150	575	5390
165A	175	1000	125	6710
165A	175	1000	250	6710
165	200	1150	575	6710

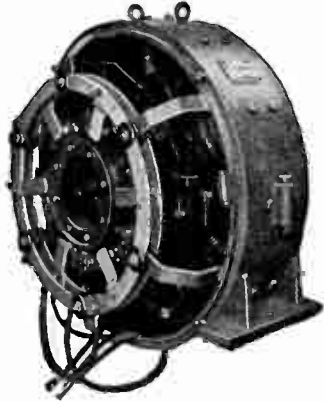
\*Rated 4 1/2 kw. at 125 volts; 4 kw. at 250 volts.  
Prices upon application.

**G-E Slow Speed Engine-Driven  
D.C. Generators**

Types LDR and LDRS—Commutating Pole Type

125 and 250 Volts 2-Wire, 125/250 Volts 3-Wire  
40° C. Rise

For Direct Connection to Steam and Internal  
Combustion Engines



Supplied for either 2 or 3-wire service, shunt or compound-wound for any voltage. Three-wire generators are furnished with 2 collector rings and external auto-transformer for obtaining 3-wire neutral.

Regularly supplied without base, shaft, bearings, foundation bolts or shaft keys. Can also be furnished with shaft, 1 or 2 bearings and with or without base.

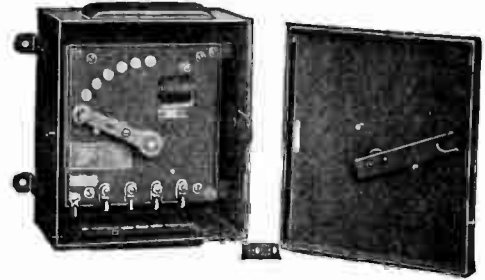
Frame No.	Poles	Kw.	Speed R.P.M.	Volts	AMPERES		Armature	NET WT., LBS.	
					Line	Neutral		Machine Complete	Auto. Transformer
3	6	25	300/310	125	200		640	2300	
				250	100		650	2310	
				125/250	100	10	675	2345	100
4	6	35	300	125	280		765	2720	
				250	140		780	2735	
				125/250	140	14	810	2775	108
5	6	50	290/300	125	400		1100	3700	
				250	200		1070	3650	
				125/250	200	20	1110	3715	135
6	6	75	290/300	125	600		1490	5000	
				250	300		1435	4920	
				125/250	300	30	1490	4985	185
6	6	75	275	125	600		1535	5120	
				250	300		1480	5050	
				125/250	300	30	1535	5115	190
6	6	75	250/260	125	600		1600	5375	
				250	300		1545	5300	
				125/250	300	30	1600	5365	205
7	6	100	250/260	125	800		2105	7080	
				250	400		2035	6965	
				125/250	400	40	2100	7045	260
7	6	100	225/235	125	800		2215	7365	
				250	400		2135	7295	
				125/250	400	40	2200	7375	280
8	6	125	250	125	1000		2625	8300	
				250	500		2450	8125	
				125/250	500	50	2540	8240	310
8	6	125	225	125	1000		2750	8675	
				250	500		2600	8500	
				125/250	500	50	2690	8615	340
9	8	150	225	125	1200		3200	9800	
				250	600		3000	9550	
				125/250	600	60	3100	9680	310
9	8	150	200	125	1200		3325	10225	
				250	600		3150	10000	
				125/250	600	60	3250	10130	340
9A	8	200	200	125	1600		3800	11875	
				250	800		3600	11550	
				125/250	800	80	3700	11700	550

Prices upon application.

**G-E CR1003 Enclosed Heavy Duty Starting  
Rheostats**

Under-Voltage Protection—For Direct Current

For Series, Shunt or Compound-Wound Motors



CR1003 rheostats are suitable for use with series, shunt or compound-wound direct current motors that do not require more than 150 per cent full load torque to start or longer than 30 seconds to attain full speed. They comply with American Standard Resistor Classification Nos. 34 and 35.

When ordering state CR No. and Cat. No. of rheostat.

**32 Volts**

Cat. No.	H. P. of Motor	Approx. Ship. Wt. Lbs.	Price Each	Cat. No.	H. P. of Motor	Approx. Ship. Wt. Lbs.	Price Each
2021100G15	1/4	20	\$8.00	2021000G31	1 1/2-2	40	\$13.00
2021100G17	1/2	20	8.00	2042441G7	3	120	28.00
2021000G29	3/4-1	40	13.00	2042441G8	5	120	31.00

**115 Volts**

2021100G3	1/8-1/2	20	\$8.00	2042441G2	10	90	\$34.00
2021100G7	3/4-1	20	8.00	2042441G3	15	90	34.00
2021000G3	1 1/2-2	40	13.00	2042593G2	20	175	42.00
2021000G7	3	40	13.00	2042593G3	25	175	42.00
2021000G11	5	50	15.00	2042593G4	30	175	43.00
2042440G2	7 1/2	80	27.00	2042593G6	35	175	43.00

**230 Volts**

2021100G5	1/8-1/2	20	\$8.00	2042593G7	35	175	\$44.00
2021100G9	3/4-1	20	8.00	2042593G8	40	175	44.00
2021000G5	1 1/2-2	40	13.00	2042593G9	50	175	44.00
2021000G9	3	50	13.00	2091686G3	55	400	147.00
2021000G13	5	50	15.00	2091686G4	60	400	147.00
2021000G15	7 1/2	50	16.00	2091686G5	75	400	147.00
2042440G3	10	105	30.00	2091686G6	85	400	147.00
2042441G4	15	105	35.00	2091687G6	100	550	189.00
2042441G5	20	105	35.00	2091687G7	125	550	195.00
2042441G6	25	105	36.00	2091687G8	150	550	195.00
2042593G5	30	175	44.00				

**440 Volts**

2046400G3	1/8-1/2	45	\$5.00	2091688G4	35	350	\$110.00
2046400G5	3/4-1	45	15.00	2091688G5	40	350	110.00
2046400G7	1 1/2-2	45	15.00	2091689G2	50	350	116.00
2046400G9	3	50	15.00	2091689G3	55	350	116.00
2046400G11	5	50	16.00	2091690G2	60	400	142.00
2046400G13	7 1/2	50	20.00	2091690G3	75	400	142.00
2046828G2	10	80	54.00	2091691G2	85	400	158.00
2046828G4	15	80	55.00	2091691G3	100	400	158.00
2046828G6	20	90	59.00	2091691G4	125	400	163.00
2091688G2	25	350	110.00	2091691G5	150	400	163.00
2091688G3	30	350	110.00				

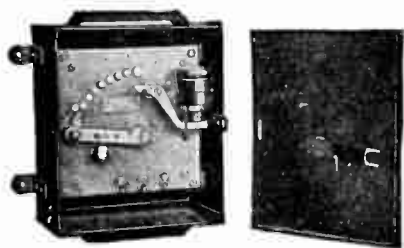
**550 Volts**

2046402G3	1/8-1/2	45	\$15.00	2091688G8	35	350	\$116.00
2046402G5	3/4-1	45	15.00	2091688G9	40	350	116.00
2046402G7	1 1/2-2	45	15.00	2091689G4	50	350	121.00
2046402G9	3	50	15.00	2091689G5	55	350	121.00
2046402G11	5	50	16.00	2091690G4	60	400	147.00
2046402G13	7 1/2	50	20.00	2091690G5	75	400	147.00
2046828G3	10	80	54.00	2091690G6	85	400	147.00
2046828G5	15	80	55.00	2091690G7	100	400	147.00
2046828G7	20	80	59.00	2091691G6	125	400	158.00
2091688G6	25	350	116.00	2091691G7	150	400	158.00
2091688G7	30	350	116.00				

## G-E CR1026 A.C. Enclosed Starting Rheostats

For Type SCR Repulsion Induction Motors

40, 50 and 60 Cycles, Single-phase



These starters may be used with motors that do not require more than 150 per cent torque to start or longer than 30 seconds to attain full speed. They comply with Amer. Std. Resistor Classification No. 35. They are primarily for use with the single-phase repulsion-induction motors (Type SCR) where the inrush of current resulting from throwing the motor directly upon the line is objectionable. When these motors are started by being thrown directly upon the line they require from 250 to 300 per cent full-load current. While in many cases this starting current may not be objectionable, it is recommended that a starter be installed in every case with the 7½ and 10 h.p. motors and with the smaller motors when it is desired to reduce the starting current.

Starters for use with motors up to and including 5 h.p. 110 volts and 7½ h.p. 220 volts are provided with button contacts. Larger sizes have renewable segments.

The switch, base, and resistor comprise a self-contained unit which may be removed bodily from the enclosing case.

The retaining magnet coil is connected across the line.

Off, Start and Run markings on the cover correspond to the respective switch position.

Starters are operated by an external handle.

Conduit knockouts are provided in the top and bottom of the enclosing case near the back, permitting a straight run of conduit.

### 110 Volts

Cat. No.	H.P. of Motor	Ship. Wt., Lbs.	Price Each
2021941G3	Up to 1	40	\$15.00
2021941G7	1½	40	17.00
2021941G7	2	40	17.00
2021941G11	3	45	17.00
2021941G15	5	50	19.00

### 220 Volts

Cat. No.	H.P. of Motor	Ship. Wt., Lbs.	Price Each
2021941G5	Up to 1	45	\$15.00
2021941G9	1½	45	17.00
2021941G9	2	45	17.00
2021941G13	3	45	17.00
2021941G17	5	50	19.00
2021941G19	7½	60	26.00
2042563G4	10	120	38.00

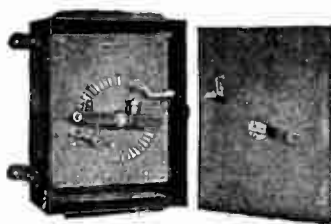
### 440 Volts

Cat. No.	H.P. of Motor	Ship. Wt., Lbs.	Price Each
2209364G2	7½	60	\$28.00
2209364G3	10	60	28.00

ORDERING DIRECTIONS.—State CR No. and Cat. No. of rheostat and horsepower, voltage and frequency of motor.

## G-E CR1028 A.C. Enclosed Starting Rheostats

For Slip-Ring Induction Motors



Size No. 2

These rheostats are totally-enclosed in a case provided with convenient conduit knockouts, and are operated by a lever outside the case, thus conforming to safety regulations.

The starting arm is spring-retracted and is held in the running position by a latch, which can be tripped from outside. The secondary circuit is not opened on the dial switch which, to avoid overheating the resistor must be operated to bring the motor up to speed as soon as the primary switch is closed.

### 60 Cycles

Cat. No.	Size No.	Motor Frame	H.P.	Sync. Speed R.P.M.	Primary Voltage	Approx. Ship. Wt. Lbs.	Price Each
2091300G10	1	926	¾	900		27	\$22.00
2091300G10	1	926	1	1200	110	27	22.00
2091300G10	1	932	1	900	220	27	22.00
2091300G5	1	932	1½	900	440	27	22.00
2091300G5	1	926	2	1800	and 550	27	22.00
2091300G5	1	934	2	1200		27	22.00
2091300G5	1	936	2	900		27	22.00
2091300G5	1	932	3	1800		27	22.00
2091300G5	1	938	3	1200		27	22.00
2091300G5	1	944	3	900		27	22.00
2091300G11	1A	936	5	1800		32	24.00
2091300G11	1A	946	5	1200		32	24.00
2091300G11	1A	952	5	900		32	24.00
2218173G8	2	944	7½	1800		80	42.00
2218173G8	2	952	7½	1200		80	42.00
2218173G2	2	958	7½	900		80	42.00
2218173G4	2	948	10	1800	220	80	42.00
2218173G4	2	956	10	1200	440	80	42.00
2218173G5	2	510	10	900	and 550	80	42.00
2091303G5	3	522	10	720		100	60.00
2218173G7	2	501	15	1800		80	42.00
2218173G5	2	502	15	1200		80	42.00
2091303G2	3	512	15	900		100	60.00
2091303G6	3	532	15	720		100	60.00
2091303G6	3	532	15	600		100	60.00
2091303G3	3	503	20	1800		100	60.00
2091303G3	3	512	20	1200		100	60.00
2091303G4	3	522	20	900		100	60.00
2091303G3	3	536	20	720		100	60.00
2091303G4	3	536	20	600		100	60.00

### 25 Cycles

2091300G3	1	926	¾	750	110	27	\$22.00
2091300G4	1	932	1	750	220	27	22.00
2091300G3	1	936	1½	750	440	27	22.00
2091300G10	1	944	2	750	and 550	27	22.00
2091300G10	1	948	3	750		27	22.00
2091300G11	1A	954	5	750	220	32	24.00
2218173G3	2	512	7½	750	440	80	42.00
2218173G5	2	523	10	750	and 550	80	42.00
2218173G5	2	527	15	750		80	42.00
2091303G3	3	527	20	750		100	60.00
2091303G4	3	536	20	500		100	60.00

Order by catalogue number when the complete motor rating including horse power, revolutions per minute and frame number with which the rheostat is to be used, corresponds to the motor rating listed opposite the catalogue number of the rheostat.

Orders or requests for quotations on rheostats differing from those listed above, should give the full name plate rating of the motor and the amperes secondary current per phase at full load, or the secondary volts per phase at standstill. The secondary volts per phase should be measured with full voltage on the primary, and with all secondary phases open-circuited.

These rheostats control the secondary circuit of the motor only. A primary switch is required in addition for the primary circuit. Push button stations are not required.

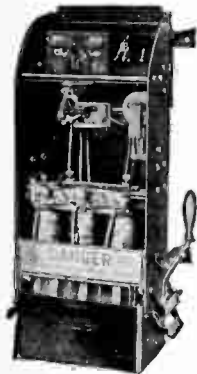
**G-E Type CR1034 A.C. Hand-Starting Compensators**

For Squirrel Cage Induction Motors  
With Undervoltage and Overload Protection  
Form K1

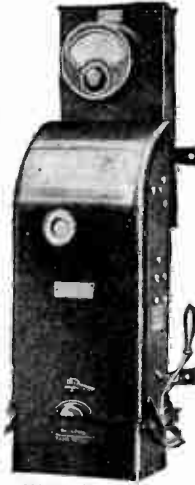
**G-E CR1034 A.C. Hand Starting Compensators**

For Squirrel Cage Induction Motors  
Overload Protection by Hand-Reset Temperature Relay  
Undervoltage Protection  
Form K1 Size No. 1  
3-Phase—60 Cycles

Shipping weight, 200 pounds.



CR2824-TC-121  
Relay Mounted



With Ammeter  
Attachment

The CR1034-K1 Compensator consists of an auto-transformer winding with taps, a switching device, an undervoltage protective device, and a 2-coil hand reset temperature overload relay, all self-contained within a sheet metal case. A handle, on the outside of the case, is provided for operating the switch. Compensators are for wall mounting. Pipe supports should be ordered if compensator is to be mounted on the floor.

Auto-transformer starting coils are suitable for heavy and frequent duty starting. Up to and including 50 h. p., 2 taps are provided for 65 and 80 per cent of the line voltage, giving respective line currents equal to 42 and 64 per cent of the across-the-line starting current. Above 50 h.p. taps are provided for 50, 65 and 80 per cent of the line voltage, giving respective line currents equal to 25, 42 and 64 per cent of the across-the-line current.

**Auto-Transformer**

Compensators shipped connected to 65 per cent tap.

**Switching Mechanism**

Oil-immersed; has 3 definite positions: off, starting and running. Necessary oil is furnished.

**Undervoltage Protection**

Provided by retaining magnet which holds switch in running-position. Upon failure of voltage, it releases switch, which automatically returns to off-position. Magnet is energized from full line potential for circuits of 600 volts or less.

**Overload Protection**

Compensator has double acting push-button in front cover. The stop feature—when the button is pressed, it opens the undervoltage release circuit, tripping the switch if it is in the running-position. The double acting mechanism of the push button also opens the contacts and insures that the switch, if in the running-position, will be tripped upon starting to remove the front cover of the compensator.

**Stop-Reset Button**

Reset feature—designed so that in case the overload relay trips due to overload on the motor, by pressing the button the overload relays will be reset.

**Ammeter Attachment**

Consists of a dead-beat indicating ammeter mounted on a pressed steel box. Knockouts for conduit wiring are provided in the top, bottom and sides of the box, and in addition there are four 1/4-inch knockouts in the bottom of the box at the corners for bolting the attachment to the conduit wiring box of the compensator and 4 in the top at the corners that can be used for attaching a similar box containing other accessories such as a disconnecting switch.

Primary ammeters operating directly from the line are furnished for compensators of 600 volts and less.

**Ordering Directions**

Order a CR1034 compensator by size number and catalogue number. Order a CR2824-TC-121 temperature overload relay for size No. 1 compensators only. Relay is included with larger sizes.

MOTOR RATING H.P.	Volts	Cat. No.	COMPENSATOR (Size No. 1)	AMMETER ATTACHMENT (INCLUDES AMMETER)	
			*Price (Com- pensator and Relay)	Cat. No.	Price Each
5	110	2019014G2	\$67.00	2019325G6	\$30.00
	220	2019014G3	67.00	2019325G4	28.00
	440	2019014G4	67.00	2019325G2	26.00
	550	2019014G5	67.00	2019325G1	26.00
7 1/2	110	2019014G2	67.00	2019325G7	30.00
	220	2019014G3	67.00	2019325G5	30.00
	440	2019014G4	67.00	2019325G3	26.00
	550	2019014G5	67.00	2019325G2	26.00
10	110	2019014G2	67.00	2019325G8	32.00
	220	2019014G3	67.00	2019325G6	30.00
	440	2019014G4	67.00	2019325G4	28.00
	550	2019014G5	67.00	2019325G3	26.00
15	110	2019014G2	67.00	2019326G1	32.00
	220	2019014G3	67.00	2019325G7	30.00
	440	2019014G4	67.00	2019325G5	30.00
	550	2019014G5	67.00	2019325G4	28.00
20	220	2019014G6	69.00	2019325G8	32.00
	440	2019014G7	69.00	2019325G6	30.00
	550	2019014G8	69.00	2019325G5	30.00
	220	2019014G6	69.00	2019326G1	32.00
25	440	2019014G7	69.00	2019325G6	30.00
	550	2019014G8	69.00	2019325G6	30.00
	220	2019014G9	73.00	2019326G1	32.00
	440	2019014G10	73.00	2019325G7	30.00
30	550	2019014G11	73.00	2019325G6	30.00
	440	2019014G12	77.00	2019325G8	32.00
	550	2019014G13	77.00	2019325G7	30.00
	440	2019014G12	77.00	2019326G1	32.00
40	550	2019014G13	77.00	2019325G8	32.00
	550	2019014G13	77.00	2019325G7	30.00
	440	2019014G12	77.00	2019326G1	32.00
	550	2019014G13	77.00	2019325G8	32.00

**CR2824-TC-121-C Temperature Overload Relay**

MOTOR RATING H.P.	Speed	CATALOGUE No.			
		110 Volts	220 Volts	440 Volts	550 Volts
5	3600 to 1200	2019557G18	2019557G15	2019557G12	2019557G11
	900 to 600	2019557G19	2019557G16	2019557G13	2019557G12
	3600 to 1200	2019557G20	2019557G17	2019557G14	2019557G13
7 1/2	900	2019557G20	2019557G18	2019557G14	2019557G13
	720, 600	2019557G21	2019557G18	2019557G15	2019557G14
	3600 to 900	2019557G21	2019557G18	2019557G15	2019557G14
10	720	2019557G21	2019557G19	2019557G16	2019557G14
	600	2019557G22	2019557G19	2019557G16	2019557G15
	3600	2019557G22	2019557G20	2019557G17	2019557G16
	1800	2019557G22	2019557G19	2019557G17	2019557G16
15	1200 to 720	2019557G22	2019557G20	2019557G17	2019557G16
	600	2019557G22	2019557G20	2019557G18	2019557G17
	3600 to 720	.....	2019557G21	2019557G18	2019557G17
20	600	.....	2019557G22	2019557G19	2019557G18
	3600 to 600	.....	2019557G22	2019557G19	2019557G18
25	1800	.....	2019557G22	2019557G19	2019557G19
	1200 to 600	.....	2019557G22	2019557G20	2019557G19
30	1800 to 600	.....	.....	2019557G21	2019557G20
	1800 to 720	.....	.....	2019557G22	2019557G21
40	600	.....	.....	2019557G22	2019557G21
	1800 to 600	.....	.....	2019557G22	2019557G22

\*Price is for compensator and temperature overload relay. Overload relay may be omitted or additional ones supplied at \$6.00 each.



## G-E CR1034 A.C. Hand Starting Compensators

Continued

For 40-Degree C. Squirrel Cage Induction Motors

With Undervoltage and Overload Protection

### Form K1 Size No. 1 3-Phase—50 Cycles

MOTOR RATING H.P.	Volts	COMPENSATOR (SIZE No. 1)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
		Cat. No.	Price Each	Cat. No.	Price Each
5	110	2019014G14	\$67.00	2019325G6	\$30.00
7½	110	2019014G14	67.00	2019325G7	30.00
10	110	2019014G14	67.00	2019325G8	32.00
15	110	2019014G14	67.00	2019326G1	32.00
5	220	2019014G15	67.00	2019325G4	28.00
7½	220	2019014G15	67.00	2019325G5	30.00
10	220	2019014G15	67.00	2019325G6	30.00
15	220	2019014G15	67.00	2019325G7	30.00
20	220	2019014G18	69.00	2019325G8	32.00
25	220	2019014G18	69.00	2019326G1	32.00
30	220	2019014G21	73.00	2019326G1	32.00
5	440	2019014G16	67.00	2019325G2	26.00
7½	440	2019014G16	67.00	2019325G3	26.00
10	440	2019014G16	67.00	2019325G4	28.00
15	440	2019014G16	67.00	2019325G5	30.00
20	440	2019014G19	69.00	2019325G6	30.00
25	440	2019014G19	69.00	2019325G6	30.00
30	440	2019014G22	73.00	2019325G7	30.00
40	440	2019014G24	77.00	2019325G8	32.00
50	440	2019014G24	77.00	2019326G1	32.00
5	550	2019014G17	67.00	2019325G1	26.00
7½	550	2019014G17	67.00	2019325G2	26.00
10	550	2019014G17	67.00	2019325G3	26.00
15	550	2019014G17	67.00	2019325G4	28.00
20	550	2019014G20	69.00	2019325G5	30.00
25	550	2019014G20	69.00	2019325G6	30.00
30	550	2019014G23	73.00	2019325G6	30.00
40	550	2019014G25	77.00	2019325G7	30.00
50	550	2019014G25	77.00	2019325G8	32.00

### CR2824-TC-121 Temperature Overload Relay

MOTOR RATING H.P.	Speed	CATALOGUE NUMBERS			
		110 Volts	220 Volts	440 Volts	550 Volts
5	1500	2019557G18	2019557G15	2019557G12	2019557G11
	1000	2019557G19	2019557G15	2019557G12	2019557G11
7½	1500	2019557G20	2019557G17	2019557G14	2019557G13
	1000	2019557G20	2019557G17	2019557G14	2019557G13
10	1500	2019556G21	2019557G18	2019557G15	2019557G14
	1000	2019557G22	2019557G19	2019557G16	2019557G15
	750	2019557G22	2019557G19	2019557G16	2019557G15
15	1500	2019557G22	2019557G20	2019557G17	2019557G16
	1000	2019557G22	2019557G20	2019557G17	2019557G16
	600	2019557G22	2019557G20	2019557G17	2019557G16
20	1500, 600	2019557G21	2019557G18	2019557G17	2019557G16
	750	2019557G21	2019557G18	2019557G17	2019557G16
	1500 to 750	2019557G21	2019557G19	2019557G18	2019557G17
25	1500 to 600	2019557G22	2019557G19	2019557G18	2019557G17
	750	2019557G22	2019557G19	2019557G18	2019557G17
30	1500 to 600	2019557G22	2019557G20	2019557G19	2019557G18
	600	2019557G22	2019557G20	2019557G19	2019557G18
40	1500 to 600	2019557G21	2019557G21	2019557G20	2019557G19
	600	2019557G21	2019557G21	2019557G20	2019557G19
50	1500 to 500	2019557G22	2019557G22	2019557G21	2019557G20
	500	2019557G22	2019557G22	2019557G21	2019557G20

## G-E CR1034 A.C. Hand Starting Compensators

Continued

For 40-Degree C. Squirrel Cage Induction Motors  
With Undervoltage and Overload Protection

### Form K1 Size No. 1 3-Phase—40 Cycles

MOTOR RATING H.P.	Volts	COMPENSATOR (SIZE No. 1)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
		Cat. No.	Price Each	Cat. No.	Price Each
5	110	2019014G34	\$67.00	2019325G6	\$30.00
7½	110	2019014G34	67.00	2019325G7	30.00
10	110	2019014G34	67.00	2019325G8	33.00
15	110	2019014G34	67.00	2019326G1	32.00
5	220	2019014G35	67.00	2019325G4	28.00
7½	220	2019014G35	67.00	2019325G5	30.00
10	220	2019014G35	67.00	2019325G6	30.00
15	220	2019014G35	67.00	2019325G7	30.00
20	220	2019014G38	73.00	2019325G8	32.00
25	220	2019014G38	73.00	2019326G1	32.00
30	220	2019014G38	73.00	2019326G1	32.00
5	440	2019014G36	67.00	2019325G2	26.00
7½	440	2019014G36	67.00	2019325G3	26.00
10	440	2019014G36	67.00	2019325G4	28.00
15	440	2019014G36	67.00	2019325G5	30.00
20	440	2019014G39	73.00	2019325G6	30.00
25	440	2019014G39	73.00	2019325G6	30.00
30	440	2019014G39	73.00	2019325G7	30.00
40	440	2019014G41	77.00	2019325G8	32.00
5	550	2019014G37	67.00	2019325G1	26.00
7½	550	2019014G37	67.00	2019325G2	26.00
10	550	2019014G37	67.00	2019325G3	26.00
15	550	2019014G37	67.00	2019325G4	28.00
20	550	2019014G40	73.00	2019325G5	30.00
25	550	2019014G40	73.00	2019325G6	30.00
30	550	2019014G40	73.00	2019325G6	30.00
40	550	2019014G42	77.00	2019325G7	30.00

### CR2824-TC-121 Temperature Overload Relay

MOTOR RATING H.P.	Speed	CATALOGUE NUMBERS			
		110 Volts	220 Volts	440 Volts	550 Volts
5	1200	2019557G18	2019557G15	2019557G12	2019557G11
7½	1200	2019557G20	2019557G17	2019557G14	2019557G13
	800	2019557G20	2019557G17	2019557G14	2019557G13
10	1200	2019557G21	2019557G18	2019557G15	2019557G14
	800	2019557G22	2019557G19	2019557G16	2019557G15
15	1200	2019557G22	2019557G20	2019557G17	2019557G16
	800	2019557G22	2019557G20	2019557G17	2019557G16
20	1200	2019557G21	2019557G18	2019557G17	2019557G16
	800	2019557G21	2019557G18	2019557G17	2019557G16
25	1200	2019557G22	2019557G19	2019557G19	2019557G18
	800	2019557G22	2019557G19	2019557G19	2019557G18
30	1200	2019557G22	2019557G20	2019557G20	2019557G19
	800	2019557G22	2019557G20	2019557G20	2019557G19
40	1200	2019557G21	2019557G21	2019557G21	2019557G20
	800	2019557G21	2019557G21	2019557G21	2019557G20

### 3-Phase—25 Cycles

MOTOR RATING H.P.	Volts	COMPENSATOR (SIZE No. 1)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
		Cat. No.	Price Each	Cat. No.	Price Each
5	110	2019014G26	\$69.00	2019325G6	\$30.00
7½	110	2019014G26	69.00	2019325G7	30.00
10	110	2019014G26	69.00	2019325G8	32.00
15	110	2019014G30	73.00	2019326G1	32.00
5	220	2019014G27	69.00	2019325G4	28.00
7½	220	2019014G27	69.00	2019325G5	30.00
10	220	2019014G27	69.00	2019325G6	30.00
15	220	2019014G31	73.00	2019325G7	30.00
5	440	2019014G28	69.00	2019325G2	26.00
7½	440	2019014G28	69.00	2019325G3	26.00
10	440	2019014G28	69.00	2019325G4	28.00
15	440	2019014G32	73.00	2019325G5	30.00
5	550	2019014G29	69.00	2019325G1	26.00
7½	550	2019014G29	69.00	2019325G2	26.00
10	550	2019014G29	69.00	2019325G3	26.00
15	550	2019014G33	73.00	2019325G4	28.00

### CR2824-TC-121 Temperature Overload Relay

MOTOR RATING H.P.	Speed	CATALOGUE NUMBERS			
		110 Volts	220 Volts	440 Volts	550 Volts
5	1500, 750	2019557G18	2019557G15	2019557G12	2019557G11
7½	1500, 750	2019557G20	2019557G17	2019557G14	2019557G13
	500	2019557G20	2019557G18	2019557G15	2019557G14
10	1500, 750	2019557G21	2019557G18	2019557G15	2019557G14
	500	2019557G22	2019557G19	2019557G16	2019557G15
15	1500 to 500	2019557G22	2019557G20	2019557G17	2019557G16

**G-E CR1034 A.C. Hand Starting Compensators**

Continued

**For 40-Degree C. Squirrel Cage Induction Motors**

With Undervoltage and Overload Protection

Form K1 Size No. 1

2-Phase, 60 Cycles

MOTOR RATING H.P.	Volts	COMPENSATOR (Size No. 1)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
		Cat. No.	Price Each	Cat. No.	Price Each
5	110	2019013G2	\$67.00	2019325G6	\$30.00
7½	110	2019013G2	67.00	2019325G6	30.00
10	110	2019013G2	67.00	2019325G7	30.00
15	110	2019013G2	67.00	2019326G1	32.00
5	220	2019013G3	67.00	2019325G3	26.00
7½	220	2019013G3	67.00	2019325G5	30.00
10	220	2019013G3	67.00	2019325G5	30.00
15	220	2019013G3	67.00	2019325G6	30.00
20	220	2019013G6	69.00	2019325G7	30.00
25	220	2019013G6	69.00	2019325G8	32.00
30	220	2019014G9	73.00	2009326G1	32.00
5	440	2019013G4	67.00	2019325G1	26.00
7½	440	2019013G4	67.00	2019325G2	26.00
10	440	2019013G4	67.00	2019325G4	28.00
15	440	2019013G4	67.00	2019325G5	30.00
20	440	2019013G7	69.00	2019325G5	30.00
25	440	2019013G7	69.00	2019325G6	30.00
30	440	2019013G10	73.00	2019325G6	30.00
40	440	2019013G12	77.00	2019325G7	30.00
50	440	2019013G12	77.00	2019325G8	32.00
5	550	2019013G5	67.00	2019325G1	26.00
7½	550	2019013G5	67.00	2019325G2	26.00
10	550	2019013G5	67.00	2019325G3	26.00
15	550	2019013G5	67.00	2019325G4	28.00
20	550	2019013G8	69.00	2019325G5	30.00
25	550	2019013G8	69.00	2019325G5	30.00
30	550	2019013G11	73.00	2019325G6	30.00
40	550	2019013G13	77.00	2019325G6	30.00
50	550	2019013G13	77.00	2019325G7	30.00

**G-E CR1034 A.C. Hand Starting Compensators**

Continued

**For 40-Degree C. Squirrel Cage Induction Motors**

With Undervoltage and Overload Protection

Form K1—Size No. 1

2-Phase—40 Cycles

Use 2-Phase, 25-Cycle Prices. Do Not Specify N R Number but Give Complete Motor Rating

2-Phase—25 Cycles

MOTOR RATING H.P.	Volts	COMPENSATOR (Size No. 1)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
		Cat. No.	Price Each	Cat. No.	Price Each
5	110	2019013G14	\$69.00	2019325G6	\$30.00
7½	110	2019013G14	69.00	2019325G6	30.00
10	110	2019013G14	69.00	2019325G7	30.00
15	110	2019013G17	73.00	2019326G1	32.00
5	220	2019013G15	69.00	2019325G3	26.00
7½	220	2019013G15	69.00	2019325G5	30.00
10	220	2019013G15	69.00	2019325G5	30.00
15	220	2019013G18	73.00	2019325G6	30.00
5	440	2019013G16	69.00	2019325G1	26.00
7½	440	2019013G16	69.00	2019325G2	26.00
10	440	2019013G16	69.00	2019325G4	28.00
15	440	2019013G19	73.00	2019325G5	30.00

**CR2824-TC-121 Temperature Overload Relay**

MOTOR RATING H.P.	Speed	CATALOGUE NUMBERS			
		110 Volts	220 Volts	440 Volts	550 Volts
5	1500	2019557G17	2019557G14	2019557G11	2019557G10
	750	2019557G18	2019557G14	2019557G11	2019557G10
7½	1500	2019557G19	2019557G16	2019557G13	2019557G12
	750	2019557G20	2019557G17	2019557G13	2019557G12
10	1500	2019557G20	2019557G17	2019557G14	2019557G13
	750	2019557G21	2019557G18	2019557G15	2019557G14
15	1500	2019557G21	2019557G19	2019557G16	2019557G15
	750	2019557G22	2019557G19	2019557G16	2019557G15

Form K1—Sizes Nos. 2 and 3—3-Phase—60 Cycles

**CR2824-TC-121 Temperature Overload Relay**

MOTOR RATING H.P.	Speed	CATALOGUE NUMBERS			
		110 Volts	220 Volts	440 Volts	550 Volts
5	3600	2019557G18	2019557G14	2019557G11	2019557G10
	1800 to 720	2019557G18	2019557G15	2019557G12	2019557G11
7½	3600 to 1200	2019557G19	2019557G16	2019557G13	2019557G12
	900 to 600	2019557G20	2019557G17	2019557G14	2019557G13
10	3600 to 1200	2019557G20	2019557G17	2019557G14	2019557G13
	900 to 600	2019557G21	2019557G18	2019557G15	2019557G14
15	3600 to 900	2019557G21	2019557G19	2019557G16	2019557G14
	720 to 600	2019557G22	2019557G19	2019557G16	2019557G15
20	3600 to 1200	.....	2019557G20	2019557G17	2019557G16
	900 to 600	.....	2019557G21	2019557G18	2019557G17
25	3600 to 1800	.....	2019557G21	2019557G18	2019557G17
	1200 to 600	.....	2019557G21	2019557G18	2019557G18
30	1800 to 900	.....	2019557G21	2019557G18	2019557G18
	720 to 600	.....	2019557G22	2019557G19	2019557G18
40	1800 to 600	.....	.....	2019557G20	2019557G19
	1800 to 600	.....	.....	2019557G21	2019557G20
50	1800 to 720	.....	.....	2019557G22	2019557G21
	600	.....	.....	2019557G22	2019557G21

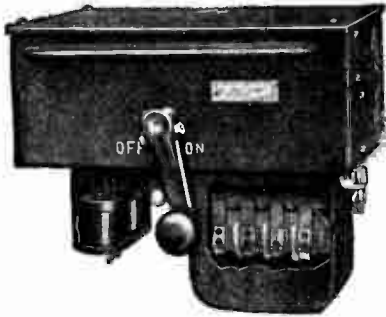
COMPENSATOR (SIZES NOS. 2 AND 3)

MOTOR RATING H.P.	Volts	Cat. No.	COMPENSATOR (SIZES NOS. 2 AND 3)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
			Cat. No.	Price Each	Cat. No.	Price Each
40	220	2	2019079G2	\$124.00	2019328G2	\$35.00
50	220	2	2019079G3	128.00	2019329G1	45.00
	220	2	2019079G4	132.00	2019329G1	45.00
60	440	2	2019079G5	132.00	2019328G1	35.00
	550	2	2019079G6	132.00	2019327G3	33.00
75	220	2	2019079G7	137.00	2019330G1	45.00
	440	2	2019079G8	137.00	2019328G2	35.00
100	550	2	2019079G9	137.00	2019328G1	35.00
	220	3	2019085G2	186.00	2019337G1	50.00
125	440	2	2019079G10	137.00	2019329G1	45.00
	550	2	2019079G11	137.00	2019328G2	35.00
150	220	3	2019085G3	195.00	2019338G1	52.00
	440	2	2019079G12	149.00	2019329G1	45.00
200	550	2	2019079G13	149.00	2019329G1	45.00
	440	2	2019079G14	149.00	2019330G1	45.00
250	550	2	2019079G15	149.00	2019329G1	45.00
	440	3	2019085G4	205.00	2019337G1	50.00
300	550	3	2019085G5	205.00	2019330G1	45.00
	440	3	2019085G6	214.00	2019338G1	52.00
350	550	3	2019085G7	214.00	2019337G1	50.00

3-Phase—50 Cycles

MOTOR RATING H.P.	Volts	Cat. No.	COMPENSATOR (SIZES NOS. 2 AND 3)		AMMETER ATTACHMENT (INCLUDES AMMETER)	
			Cat. No.	Price Each	Cat. No.	Price Each
40	220	2	2019079G16	\$124.00	2019328G2	\$35.00
50	220	2	2019079G17	128.00	2019329G1	45.00
	220	2	2019079G18	137.00	2019329G1	45.00
60	440	2	2019079G19	137.00	2019328G1	35.00
	550	2	2019079G20	137.00	2019327G3	33.00
75	220	2	2019079G21	137.00	2019330G1	45.00
	440	2	2019079G22	137.00	2019328G2	35.00
100	550	2	2019079G23	137.00	2019328G1	35.00
	220	3	2019085G8	186.00	2019337G1	50.00
125	440	2	2019079G24	137.00	2019329G1	45.00
	550	2	2019079G25	137.00	2019328G2	35.00
150	220	3	2019085G9	195.00	2019338G1	52.00
	440	2	2019079G26	149.00	2019329G1	45.00
200	550	2	2019079G27	149.00	2019329G1	45.00
	440	2	2019079G28	149.00	2019330G1	45.00
250	550	2	2019079G29	149.00	2019329G1	45.00
	440	3	2019085G10	205.00	2019337G1	50.00
300	550	3	2019085G11	205.00	2019330G1	45.00
	440	3	2019085G12	214.00	2019338G1	52.00
350	550	3	2019085G13	214.00	2019337G1	50.00

## G-E CR1035 Type FP-110 Oil Circuit Breakers A.C.



These switches are especially adapted for the protection of small induction motors which can be thrown directly on the line or can be used in connection with compensators, drum type switches or similar devices employed in starting alternating-current motors. All live parts are enclosed. Frames, oil tanks and calibrating parts are practically dustproof. The frame is provided with a lug to take a padlock by which the switch may be locked in the open position.

All automatic switches, except the triple-pole with undervoltage trip, trip free from the handle and cannot be held closed on overload or short circuit, or left in an intermediate position. The triple-pole switch with undervoltage trip can be held closed.

The handle does not follow the operation of the contacts except on the non-automatic and triple-pole switches, with undervoltage trip. The handles of all switches, except on the triple-pole with undervoltage trip, after tripping automatically, stay in the on-position until the operator turns the handle to the off-position to reset the mechanism before the switch can again be closed.

The frame is arranged for mounting on any flat surface or bracket and is held rigidly by 2 bolts.

The contact parts are insulated from ground and between phases by porcelain insulation, giving a high factor of safety, and are constructed as a unit so that they may be easily removed from or replaced in the frame. The contacts are double-break, opening by gravity, with speed augmented by springs. Contact fingers are so constructed that the burning occurs on a surface other than that used for contacting when the switch is in the closed position.

The switch frame is arranged to take either open or conduit wiring at right-hand end.

All automatic switches equipped with inverse time relays have the time setting controlled by a needle valve. The time setting is easily adjusted to give the proper delay for motor starting without removing the dashpots from the calibrating tubes on which they are mounted.

The current setting recommended is 25 per cent above the normal (full-load) current of the motor for motors with 25 per cent overload guarantee and about 10 per cent above the normal (full-load) current of the motor for continuous rated motors. At this setting the time should be adjusted so that the switch will just fail to trip under starting conditions or in approximately 10 to 15 seconds under starting load. This will give a considerably longer time under ordinary overload conditions, but if the current-setting is correct, this time will allow the switch to trip out with the motor running single-phase before the motor will be injured by such operation.

Switches with undervoltage trip have mechanisms similar to the other automatic switches and except the triple-pole, trip free from the handle.

The undervoltage trip operates at approximately one-half rated voltage. Combinations are listed for 25, 40, 50 and 60 cycles at 110, 220, 440 and 550 volts.

The auto-transformers, where required, are mounted inside the switch, all wiring connections being enclosed.

All switches are triple or 4-pole, single-throw only. For single-phase, use the triple-pole switch, leaving middle pole disconnected, using only one or both series trip coils.

Quick break switches have knob handle.

Quick make and break switches have handle for shipper-rod connection. These are not adapted for operation by hand. Knob handles may, however, be substituted for shipper rod handles where required.

## G-E CR1035 Type FP-110 Oil Circuit Breakers

### Alternating Current

Continued

Maximum Rating with Squirrel-Cage Motors: 7½ H. P.; 110 Volts  
15 H. P., 220-440-550 Volts

Maximum Rating with Slip-Ring Motors: 7½ H. P., 110 Volts  
15 H. P., 220 Volts; 30 H. P., 440-550 Volts

### Non-Automatic—Without Overload Release

Each switch supplied with ½ gallon No. 6 oil.

#### 3-Pole

*Cap. Amp. of Series Coils	Cat. No.	QUICK BREAK Ship. Wt., Lbs.	Price Each	†QUICK MAKE AND QUICK BREAK Cat. No.	Ship. Wt., Lbs.	Price Each
None	1968923G1	20	\$13.00	1968924G1	20	\$17.00

#### 4-Pole

None	1968925G1	25	\$19.00	1968925G2	25	\$23.00
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### †Automatic—With Double Series IT Overload Trip

Each switch supplied with ½ gallon No. 6 also ¼ pint No. 21 oil for dashpots.

#### 3-Pole

2	2602727G1	30	\$28.00	2602727G14	30	\$30.00
3	2602727G2	30	28.00	2602727G15	30	30.00
4	2602727G3	30	28.00	2602727G16	30	30.00
6	2602727G4	30	28.00	2602727G17	30	30.00
8	2602727G5	30	28.00	2602727G18	30	30.00
10	2602727G6	30	28.00	2602727G19	30	30.00
12	2602727G7	30	28.00	2602727G20	30	30.00
16	2602727G8	30	28.00	2602727G21	30	30.00
20	2602727G9	30	28.00	2602727G22	30	30.00
25	2602727G10	30	28.00	2602727G23	30	30.00
30	2602727G11	30	28.00	2602727G24	30	30.00
40	2602727G12	30	28.00	2602727G25	30	30.00
50	2602727G13	30	28.00	2602727G26	30	30.00

#### 4-Pole

2	2602728G1	35	\$32.00	2602728G14	35	\$34.00
3	2602728G2	35	32.00	2602728G15	35	34.00
4	2602728G3	35	32.00	2602728G16	35	34.00
6	2602728G4	35	32.00	2602728G17	35	34.00
8	2602728G5	35	32.00	2602728G18	35	34.00
10	2602728G6	35	32.00	2602728G19	35	34.00
12	2602728G7	35	32.00	2602728G20	35	34.00
16	2602728G8	35	32.00	2602728G21	35	34.00
20	2602728G9	35	32.00	2602728G22	35	34.00
25	2602728G10	35	32.00	2602728G23	35	34.00
30	2602728G11	35	32.00	2602728G24	35	34.00
40	2602728G12	35	32.00	2602728G25	35	34.00
50	2602728G13	35	32.00	2602728G26	35	34.00

### †Automatic—With Double Series IT Overload Trip and Under-Voltage Trip

Each switch supplied with ½ gallon No. 6 also ¼ pint No. 21 oil for dashpots.

#### 4-Pole—110 Volts—40, 50 and 60 Cycles

2	2602729G1	35	\$34.00	2602729G14	35	\$36.00
3	2602729G2	35	34.00	2602729G15	35	36.00
4	2602729G3	35	34.00	2602729G16	35	36.00
6	2602729G4	35	34.00	2602729G17	35	36.00
8	2602729G5	35	34.00	2602729G18	35	36.00
10	2602729G6	35	34.00	2602729G19	35	36.00
12	2602729G7	35	34.00	2602729G20	35	36.00
16	2602729G8	35	34.00	2602729G21	35	36.00
20	2602729G9	35	34.00	2602729G22	35	36.00
25	2602729G10	35	34.00	2602729G23	35	36.00
30	2602729G11	35	34.00	2602729G24	35	36.00
40	2602729G12	35	34.00	2602729G25	35	36.00
50	2602729G13	35	34.00	2602729G26	35	36.00

#### 4-Pole—110 Volts—25 Cycles; 220 Volts—40, 50 and 60 Cycles

2	2602730G1	40	\$38.00	2602730G14	40	\$40.00
3	2602730G2	40	38.00	2602730G15	40	40.00
4	2602730G3	40	38.00	2602730G16	40	40.00
6	2602730G4	40	38.00	2602730G17	40	40.00
8	2602730G5	40	38.00	2602730G18	40	40.00
10	2602730G6	40	38.00	2602730G19	40	40.00
12	2602730G7	40	38.00	2602730G20	40	40.00
16	2602730G8	40	38.00	2602730G21	40	40.00
20	2602730G9	40	38.00	2602730G22	40	40.00
25	2602730G10	40	38.00	2602730G23	40	40.00
30	2602730G11	40	38.00	2602730G24	40	40.00
40	2602730G12	40	38.00	2602730G25	40	40.00
50	2602730G13	40	38.00	2602730G26	40	40.00

**G-E CR1035 Type FP-110 Oil Circuit Breakers**  
**Alternating Current**

Maximum Rating with Squirrel-cage Motors: 7½ H.P., 110 Volts  
 15 H.P., 220-440-550 Volts

Maximum Rating with Slip-ring Motors: 7½ H.P., 110 Volts  
 15 H.P., 220 Volts; 30 H.P., 440-550 Volts

†Automatic—With Double Series IT Overload Trip  
 and Under-voltage Trip

Continued

4-pole—220 Volts—25 Cycles; 440 Volts—50 and 60 Cycles

*Cap. Amp. of Series Coils	QUICK BREAK			†QUICK MAKE AND QUICK BREAK		
	Cat. No.	Ship. Wt., Lbs.	Price Each	Cat. No.	Ship. Wt., Lbs.	Price Each
2	2602731G1	35	\$34.00	2602731G14	35	\$36.00
3	2602731G2	35	34.00	2602731G15	35	36.00
4	2602731G3	35	34.00	2602731G16	35	36.00
6	2602731G4	35	34.00	2602731G17	35	36.00
8	2602731G5	35	34.00	2602731G18	35	36.00
10	2602731G6	35	34.00	2602731G19	35	36.00
12	2602731G7	35	34.00	2602731G20	35	36.00
16	2602731G8	35	34.00	2602731G21	35	36.00
20	2602731G9	35	34.00	2602731G22	35	36.00
25	2602731G10	35	34.00	2602731G23	35	36.00
30	2602731G11	35	34.00	2602731G24	35	36.00
40	2602731G12	35	34.00	2602731G25	35	36.00
50	2602731G13	35	34.00	2602731G26	35	36.00

4-pole—440 Volts—40 Cycles; 550 Volts—40, 50 and 60 Cycles

2	2602732G1	40	\$38.00	2602732G14	40	\$40.00
3	2602732G2	40	38.00	2602732G15	40	40.00
4	2602732G3	40	38.00	2602732G16	40	40.00
6	2602732G4	40	38.00	2602732G17	40	40.00
8	2602732G5	40	38.00	2602732G18	40	40.00
10	2602732G6	40	38.00	2602732G19	40	40.00
12	2602732G7	40	38.00	2602732G20	40	40.00
16	2602732G8	40	38.00	2602732G21	40	40.00
20	2602732G9	40	38.00	2602732G22	40	40.00
25	2602732G10	40	38.00	2602732G23	40	40.00
30	2602732G11	40	38.00	2602732G24	40	40.00
40	2602732G12	40	38.00	2602732G25	40	40.00
50	2602732G13	40	38.00	2602732G26	40	40.00

4-pole—440 and 550 Volts—25 Cycles—(Price Includes Transformer Cat. No. 191392)

2	2602733G1	40	\$42.00	2602733G14	40	\$44.00
3	2602733G2	40	42.00	2602733G15	40	44.00
4	2602733G3	40	42.00	2602733G16	40	44.00
6	2602733G4	40	42.00	2602733G17	40	44.00
8	2602733G5	40	42.00	2602733G18	40	44.00
10	2602733G6	40	42.00	2602733G19	40	44.00
12	2602733G7	40	42.00	2602733G20	40	44.00
16	2602733G8	40	42.00	2602733G21	40	44.00
20	2602733G9	40	42.00	2602733G22	40	44.00
25	2602733G10	40	42.00	2602733G23	40	44.00
30	2602733G11	40	42.00	2602733G24	40	44.00
40	2602733G12	40	42.00	2602733G25	40	44.00
50	2602733G13	40	42.00	2602733G26	40	44.00

\*Series coils will carry 25 per cent overload for 2 hours at 45 degrees Centigrade rise or less. The calibration of series coils is from normal (as listed) to twice normal, i. e., 2 to 4, 3 to 6, 25 to 50, 50 to 100, etc.

†The automatic quick make and break switches have shipper-rod handles which are not adapted for hand operation. Knob handles will be furnished at the same price if specified on the order.

‡The under-voltage trip and transformer where required are mounted within the switch frame and when properly adjusted, the switch cannot be held closed unless there is full voltage on the circuit.

The under-voltage coil is reset by the action of the operating handle. The under-voltage coil should be connected across one phase of the load side (if possible) with proper transformer tap (where transformer is used) in circuit. No resistance is required.

**G-E CR-1035 Type FP-110 Oil Circuit Breakers**  
**Alternating Current**

Maximum Rating with Squirrel-cage Motors: 7½ H.P., 110 Volts; 15 H.P., 220-440-550 Volts

Maximum Rating with Slip-ring Motors: 7½ H.P., 110 Volts; 15 H.P., 220 Volts; 30 H.P., 440-550 Volts

Continued

Quick Break—Automatic—With Under-voltage Trip  
 Each switch supplied with ½ gallon No. 6 oil.

Cat. No.	Max. Cap. Amp.	Volts	Cycles	Ship. Wt., Lbs.	Price Each
2602725G1	50	110	40, 50, 60	22	\$17.00
2602725G2	50	110	25	22	17.00
2602725G2	50	220	40, 50, 60	22	17.00
2602725G3	50	220	25	22	17.00
2602725G3	50	440	50, 60	22	17.00
2602725G4	50	440	40	22	17.00
2602725G4	50	550	40, 50, 60	22	17.00
2602725G5	50	440	25	25	24.00
2602725G5	50	550	25	25	24.00
4-pole					
2602726G1	50	110	40, 50, 60	27	\$21.00
2602726G2	50	110	25	27	21.00
2602726G2	50	220	40, 50, 60	27	21.00
2602726G3	50	220	25	27	21.00
2602726G3	50	440	50, 60	27	21.00
2602726G4	50	440	40	27	21.00
2602726G4	50	550	40, 50, 60	27	21.00
2602726G5	50	440	25	30	28.00
2602726G5	50	550	25	30	28.00

Automatic—With Under-voltage Trip—Overload Protection by Thermal Cutouts—3-pole—Quick Break

The capacity of the thermal cutouts limits the use of this switch to 3-h. p., 110-volt; and 5-h. p., 220-, 440- and 550-volt, 3-phase induction motors.

Each switch supplied with ½ gallon No. 6 oil.

2602725G6	..	110	40, 50, 60	25	\$23.00
2602725G7	..	110	25	25	23.00
2602725G7	..	220	40, 50, 60	25	23.00
2602725G8	..	220	25	25	23.00
2602725G8	..	440	50, 60	25	23.00
2602725G9	..	440	40	25	23.00
2602725G9	..	550	40, 50, 60	25	23.00
2602725G10	..	440	25	30	\$30.00
2602725G10	..	550	25	30	\$30.00

Automatic—With Under-voltage Trip—4-pole—Quick Make and Break

Each switch supplied with ½ gallon G-E No. 6 oil.

2602726G6	50	110	40, 50, 60	27	\$23.00
2602726G7	50	110	25	27	23.00
2602726G7	50	220	40, 50, 60	27	23.00
2602726G8	50	220	25	27	23.00
2602726G8	50	440	50, 60	27	23.00
2602726G9	50	440	40	27	23.00
2602726G9	50	550	40, 50, 60	27	23.00
2602726G10	50	440	25	30	\$30.00
2602726G10	50	550	25	30	\$30.00

§Cat. No. covers switch complete with receptacles for 2 thermal cutouts but does not include the cutouts which must be ordered as a separate item by Cat. No. from following table. Price covers switch complete with 2 thermal cutouts.

¶Includes auto-transformer with taps tagged to indicate proper connection.

**Thermal Cutouts**

The thermal cutouts do not protect the branch circuit from short circuit and cannot be considered as taking the place of branch circuit fuses, which must be installed as specified in the Underwriters' Code.

Cat. No.	Ampere Rating	Full Load Current of Motor in Amp.	Cat. No.	Ampere Rating	Full-load Current of Motor in Amp.
245553	0.8	0.59-0.70	245562	4.3	3.16-3.75
245554	0.95	0.71-0.83	245563	5.1	3.78-4.45
245555	1.1	0.84-0.96	245564	6.0	4.46-5.25
245556	1.3	0.97-1.13	245565	7.1	5.26-6.20
165217	1.5	1.14-1.31	245566	8.4	6.21-7.35
245557	1.8	1.32-1.58	165225	10.0	7.36-8.75
245558	2.1	1.59-1.84	245567	11.8	8.76-10.3
245559	2.5	1.85-2.19	245568	14.0	10.4-12.3
245560	3.0	2.20-2.63	245569	16.6	12.4-14.6
245561	3.6	2.64-3.15	167538	20.0	14.7-17.5

## G-E Type FP-115 Oil Circuit Breakers

Triple and 4-pole, Single Throw  
Non-automatic, for Manual or Shipper-rod Control

Maximum Rating: With Squirrel-cage Motors: 7½ H.P., 110 Volts; 15 H. P., 220-440-550 Volts  
Maximum Rating: With Slip-ring Motors: 7½ H. P., 110 Volts; 15 H. P., 220 Volts; 30 H. P., 440-550 Volts



**APPLICATION.**—Used to advantage for control of motors on looms and various types of textile machinery; also as disconnecting switches. On account of safety features they will be found useful in replacement of open lever switches.

**SAFETY.**—No exposed live parts; dust proof and fire proof; position of contacts clearly indicated; can be locked in open position.

**MECHANISM.**—Quick make and quick break type suitable for shipper-rod or manual operation.

All parts are supported on a single frame. Easily mounted on wall post bracket, machine frame or flat surface.

Double break in each phase. Contacts are of modified

wedge construction, insuring perfect contact and long life under severe service. No burning of actual contact surfaces.

All parts are die made and interchangeable.  
Overall dimensions: Width, 6¼ inches; depth, 5½ inches; height, 8½ inches; handle extends 3¼ inches above the breaker and projects out 2½ inches.

Cat. No.	No. of Poles	Amp.	Volts	Weight, Lbs. Net	Price Each
1908278G3	3	50	600 or Less	9 16	\$11.00
1908278G4	4	50	600 " "	9 18	15.00

## No. CR1047-B1 G-E 3-Pole Starting Switches



Switch is of the tumbler, snap-action type, designed for throwing 2 h.p. motors directly on the line.

The case is dust-tight and is provided with ¾-inch knock-outs in the top and bottom for conduit connections.

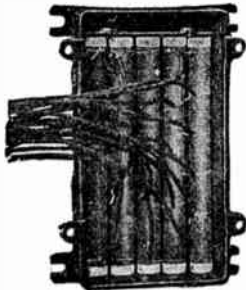
When ordering give Cat. No.

Cat. No.	Height	Width	Depth	Shipping Wt., Lbs.	Price Each
221438	6¼	4	3¾	3	\$3.50

## No. CR3144 G-E Field Resistors

For Machine Tool Service

This field resistor consists of CR9000 Form P resistor unit assembled in a well-ventilated box, and mounted on back of the CR3105 drum switch. The leads from the resistor pass through holes in the back of the drum switch frame to the proper terminals within, thus making a self-contained and compact unit.



### CR3144 Field Resistor Only

CR3105 Drum Switch No.	R-302-B	R-301-B	R-182-A	R-98-B	R-166-A
Shipping Weight, lbs.	25	35	60	80	100
Price....each	\$11.00	13.00	20.00	26.00	39.00

## G-E CR1038 A.C. Starting Switches For Small A.C. Motors



No. 256911 Switch

CR1038-A1-A2 or B2 Motor Starting Switches consist of a triple or 4-pole, single-throw, quick-make and break switch and two thermal cutouts mounted on a base, totally enclosed in a sheet steel case with operating handle projecting through the front of the case. Cat. No. 256911 and Cat. No. 258206 switches are for use with three-phase or two-phase three-wire motors, while Cat. No. 258205 switch is for use with two-phase four-wire motors.

Overload protection is furnished by two inverse-time thermal cutouts. The cutouts are mounted by two metal strip terminals, each slotted for a holding-down screw.

By reason of the time lag in the heating coil, the momentary inrush starting current will not cause the thermal cutouts to open the circuit. Standard fuses of a rating to protect the thermal cutouts against short circuits must be provided back on the line. This fuse rating is given on the thermal cutout.

Cast iron pedestals have been designed for use with the CR1038-A2 and B2 switches where the thermal cutouts are mounted above the switch.

This design of the CR1038 switch is particularly applicable for pedestal mounting and where it is desired to have the service lines come in at the bottom of the switch.

Each switch is provided with a locking device.

*Cat. No.	H.P. RATING				Approx. Ship. Wt. Lbs.	†Price Each
	110 V.	220 V.	440 V.	550 V.		
256911	3	5	7½	7½	13	\$8.00
258206	3	5	7½	7½	13	\$8.00
258205	3	5	7½	7½	15	\$10.00

\*Cat. No. does not include the thermal cutouts which must be ordered as a separate item by Cat. No. given in the table below.  
†Price covers switch complete with 2 thermal cutouts and 10 extra links. An allowance of \$1.70 will be made for the omission of the thermal cutouts.

Cat. No.	For No. of Switches	Pedestals		Price Each
		For Type CR1038-A2 3-phase (T-P., S-T Switch)	For Type CR1038-B2 2-phase, (4-P., S-T Switch)	
277026	1	16	2.00	\$2.00
269976	2	25	4.00	4.00

Pedestals must be ordered as a separate item and at an additional price.

Price,	Thermal Cutout with Spare Link	each	\$1.00
"	Carton of 10 Cutouts, Assorted Ratings	"	9.00
"	" " 10 " One Rating	"	8.50
"	No. 167539, Fusible Link	per 10	.50
"	" 167539 " " " " " " " " " "	100	3.00
"	" 167539 " " " " " " " " " "	500	12.00

Cat. No.	Full Load Current of Motor in Amp.	Cat. No.	Full Load Current of Motor in Amp.
256913	0.59-0.70	256923	3.16- 3.77
256914	0.71-0.83	256924	3.78- 4.45
256915	0.84-0.96	256925	4.46- 5.25
256916	0.97-1.13	256926	5.26- 6.20
256917	1.14-1.31	256927	6.21- 7.35
256918	1.32-1.58	256928	7.36- 8.75
256919	1.59-1.84	256929	8.76-10.3
256920	1.85-2.19	256930	10.4-12.3
255921	2.20-2.63	256931	12.4-14.6
256922	2.64-3.15	256932	14.7-17.5

Fusible link, Cat. No. 167539 is the same for all thermal cutouts.

**Ordering Directions**  
Order CR1038 switch by Cat. No.; thermal cutouts by Cat. No. and pedestal by Cat. No.



**G-E Type CR1042-A3 A.C. Enclosed Resistor Starters**

For Squirrel Cage Induction Motors Having Speeds of Less Than 3600 R.P.M.

Under-Voltage and Overload Protection  
3-Phase—60, 50 and 25 Cycles

Designed to keep the inrush currents within limits allowed by N.E.L.A. rules. The voltage at motor terminals at starting averages 82%, giving a starting torque of approximately 65% of that developed when thrown on the line. The resistor capacity is such as to carry 3 times normal full-load current for 15 seconds once every 4 minutes for an hour, without exceeding American Standard temperature limits. Have a single-step resistor. The switching elements are of contactor finger type—strong and readily renewable.

Operated by throwing handle to starting position and holding it there until motor is under way. Releasing handle will cause the starter to automatically throw over to running side without disconnecting motor from line.

Safety type, completely enclosed in a ventilated case externally operated.



CR1042-A3

HP.	Volts	Approx. Ship. Wt., Lbs.	60 Cycles		50 Cycles	
			†Cat. No.	*Price Each	†Cat. No.	*Price Each
5-7½	220	50	2829015G2	\$42.00	2829015G29	\$42.00
	440	50	2829015G5	42.00	2829015G32	42.00
	550	50	2829015G8	42.00	2829015G35	42.00
10	220	55	2829014G3	47.00	2829014G21	47.00
	440	55	2829014G5	47.00	2829014G23	47.00
	550	55	2829014G7	47.00	2829014G25	47.00
15	220	55	2829014G2	47.00	2829014G20	47.00
	440	55	2829014G4	47.00	2829014G22	47.00
	550	55	2829014G6	47.00	2829014G24	47.00
H.P.	Volts	Ship. Wt., Lbs.	25 Cycles			
			†Cat. No.	*Price, Each		
5-7½	220	50	2829015G11	\$42.00		
	440	50	2829015G14	42.00		
	550	50	2829015G17	42.00		
10	220	55	2829014G9	47.00		
	440	55	2829014G11	47.00		
	550	55	2829014G13	47.00		
15	220	55	2829014G8	47.00		
	440	55	2829014G10	47.00		
	550	55	2829014G12	47.00		

\*Price is for the starting rheostat complete with a CR2824-TC-121-C temperature overload relay. The relay may be omitted at \$6.00.

†The starter is furnished with punched terminals which are rated 30 amperes maximum by the Underwriters. Where the normal current of the motor exceeds 30 amperes, a set of punched tube terminals, Cat. No. 1774499, should be ordered at no increase in price.

The following table gives catalogue number and symbol of the temperature relays and range of the full-load currents of 40-degree motors with which each may be used:

Cat. No.	Relay Symbol	Normal Rating in Amperes	Full-Load Current of Motor in Amperes
2019557G11	TC-121-C11	6.5	4.7-5.8
2019557G12	TC-121-C12	8.0	5.9-7.2
2019557G13	TC-121-C13	10.0	7.3-9.2
2019557G14	TC-121-C14	13.0	9.3-11.6
2019557G15	TC-121-C15	16.0	11.7-14.4
2019557G16	TC-121-C16	20.0	14.5-18.0
2019557G17	TC-121-C17	25.0	18.1-22.0
2019557G18	TC-121-C18	30.0	22.1-28.0
2019557G19	TC-121-C19	40.0	28.1-36.0
2019557G20	TC-121-C20	50.0	36.1-46.0
2019557G21	TC-121-C21	65.0	46.1-58.0
2019557G22	TC-121-C22	80.0	58.1-80.0

**Ordering Directions**

The price of the starter given above includes the relay but the Cat. No. covers the starter only.

1. Order a CR1042-A3 starter by Cat. No.
2. Order a CR2824-TC-121-C temperature overload relay by Cat. No.
3. Order a set of terminals Cat. No. 1774499 if normal motor current exceeds 30 amperes.

**No. CR1135 G-E Semi-Automatic Starters**

For Synchronous Motors  
60, 50 and 25 Cycles—3-Phase

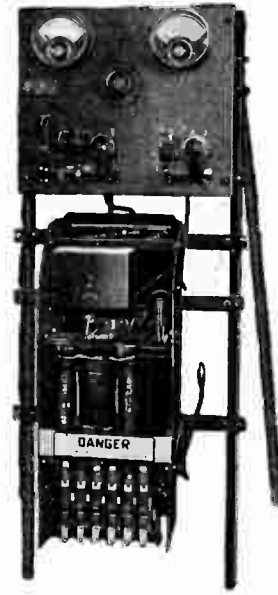
This semi-automatic reduced-voltage starter is recommended for starting medium and high-speed synchronous motors.

The CR1135-A1 starter consists of the following: a.c. line ammeter; d.c. field ammeter; 75-ampere field contactor with auxiliary contact for closing the discharge circuit during starting and stopping; field-actuating relay, which allows field excitation to be applied upon reaching a speed near synchronism; field-discharge resistor; and a CR1034 hand-starting compensator which includes a temperature overload relay.

The CR1135-C1, 2200-volt starter differs from the CR1135-A1 in that the CR1034-K17 compensator is used.

When ordering a CR1135-A1 or C1 starter, give the complete rating of the synchronous motor.

For the CR1135-C1, also order a 1½-kv-a., 2200/220-



No. CR1135-A1

volt, potential transformer and give one of the following Cat. Nos: For 60 or 50 cycles, Cat. No. 79047; for 25 cycles, Cat. No. 36016.

H.P.	0.8-1.0 Power-Factor	Volts	60 CYCLES		50 CYCLES		25 CYCLES	
			Panel No.	*Price Each	Panel No.	*Price Each	Panel No.	*Price Each
20	220	101	\$260.00	101	\$260.00	102	\$325.00	
		440	260.00	101	260.00	102	325.00	
		550	260.00	101	260.00	102	325.00	
25	220	101	260.00	101	260.00	102	325.00	
		440	260.00	101	260.00	102	325.00	
		550	260.00	101	260.00	102	325.00	
30	220	101	255.00	101	265.00	102	330.00	
		440	265.00	101	265.00	102	330.00	
		550	265.00	101	265.00	102	330.00	
40	220	102	315.00	102	315.00	102	335.00	
		440	270.00	101	270.00	102	335.00	
		550	270.00	101	270.00	102	335.00	
50	220	102	320.00	102	320.00	102	340.00	
		440	270.00	101	270.00	102	340.00	
		550	270.00	101	270.00	102	340.00	
60	220	102	325.00	102	325.00	102	355.00	
		440	325.00	102	325.00	102	355.00	
		550	325.00	102	325.00	102	355.00	
75	220	102	330.00	102	330.00	102	365.00	
		440	330.00	102	330.00	102	365.00	
		550	330.00	102	330.00	102	365.00	
100	220	103	375.00	103	375.00	103	390.00	
		440	330.00	102	330.00	103	390.00	
		550	330.00	102	330.00	103	390.00	
125	220	103	380.00	103	380.00	103	400.00	
		440	345.00	102	345.00	103	400.00	
		550	345.00	102	345.00	103	400.00	
150	220	102	345.00	102	345.00			
		440	345.00	102	345.00			
		550	345.00	102	345.00			
200	220	103	390.00	103	390.00			
		440	390.00	103	390.00			
		550	390.00	103	390.00			
250	220	103	400.00	103	400.00			
		440	400.00	103	400.00			
		550	400.00	103	400.00			

**CR1135-C1—2200 Volts**

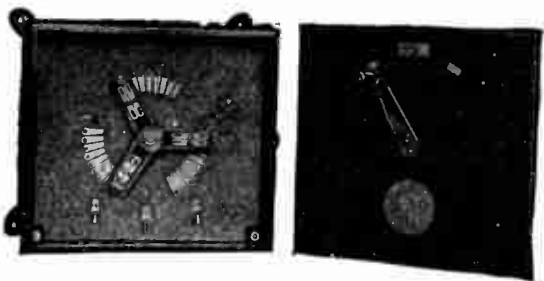
	Volts	Panel No.	*Price	Panel No.	*Price	Panel No.	*Price
20	2200	201	\$490.00	201	\$490.00	201	\$510.00
25	2200	201	500.00	201	500.00	201	510.00
30	2200	201	500.00	201	500.00	201	515.00
40	2200	201	505.00	201	505.00	201	530.00
50	2200	201	505.00	201	505.00	201	530.00
60	2200	201	510.00	201	510.00	201	540.00
75	2200	201	510.00	201	510.00	201	540.00
100	2200	201	515.00	201	515.00		
125	2200	201	520.00	201	520.00		
150	2200	201	525.00	201	525.00		
200	2200	201	535.00	201	535.00		
250	2200	201	545.00	201	545.00		

\*Price does not include rheostat mechanism, but the panel is drilled for mounting a CR8001, 12-in. exciter field rheostat. Prices of CR1135-C1 starter include potential transformer.



## G-E CR1263 and CR1264 A.C. Enclosed Speed Regulating Rheostats

For Types MT or MQ Slip-Ring Induction Motors  
For Secondary Control Only, 60 Cycles, 3 or 2-Phase  
110, 220, 440 and 550 Volts



CR1263 and CR1264 Enclosed Rheostats are for use in the secondary circuit of Types MT and MQ slip-ring induction motors to reduce the speed 50 per cent. As they are not connected with the primary circuit of the motor, it is necessary to also install an oil circuit breaker, magnetic switch or similar device to control the primary circuit. They are enclosed in a case provided with convenient knockouts, and are operated by a lever outside the case.

CR1263 Rheostats are intended for use with motors where the torque requirements are practically constant throughout the speed range. The rheostats for motors up to 3 h.p. inclusive provide 50 per cent speed reduction at approximately 50 per cent torque, but have capacity for full load torque. The rheostats listed for motors above 3 h.p. provide 50 per cent speed reduction at approximately full load torque. The resistors comply with Amer. Std. Resistor Classification No. 95.

CR1264 Rheostats are intended for use with motors that drive fans or other machines where the amount of torque required decreases as the speed is reduced. They have sufficient resistance to provide for speed reductions up to 50 per cent at 33 1/3 per cent full-load torque. The resistors comply with Amer. Std. Resistor Classification No. 93.

Both types of rheostats can be used where the torque requirements are somewhat less than the values given above but the speed reduction will be correspondingly less. For example, at 50 per cent full-load torque, the maximum speed reduction that can be obtained with a CR1263 Rheostat is 25 per cent instead of 50 per cent.

A 3 or 4-pole knife switch must be installed to open and close the primary circuit.

### For 60-Cycle Motors

Cat. No.	CR1263 (For Machine Service)	CR1264 (For Fan Service)	MOTOR RATING			Approx. Ship. Wt. Lbs.	Price Each CR 1264
			Frame No.	H. P.	Speed		
2097631G8	2207461G3	926	3/4	900	28	\$28.00	
2097631G13	2207461G2	926	1	1800	28	28.00	
2097631G5	2207461G3	926	1	1200	28	28.00	
2097631G8	2207461G3	932	1	900	28	28.00	
2097631G10	2207461G7	932	1 1/2	900	28	28.00	
2097151G4	2202480G5	926	2	1800	47	34.00	
2097151G5	2202480G4	934	2	1200	47	34.00	
2097151G5	2202480G4	936	2	900	47	34.00	
2097151G5	2202480G4	932	3	1800	47	34.00	
2097151G5	2202480G5	938	3	1200	47	34.00	
2097151G5	2202480G4	944	3	900	47	34.00	
2218167G5	2218170G5	936	5	1800	90	48.00	
2218167G4	2218170G6	946	5	1200	90	48.00	
2218167G5	2218170G5	952	5	900	90	48.00	
2218108G4	2218171G5	944	7 1/2	1800	110	56.00	
2218168G4	2218171G5	952	7 1/2	1200	110	56.00	
2218168G7	2218171G5	958	7 1/2	900	110	56.00	
2218169G2	2218172G3	948	10	1800	125	62.00	
2218169G2	2218172G3	956	10	1200	125	62.00	
2207464G2	2202767G2	510	10	900	125	67.00	
2207464G3	2202767G6	522	10	720	125	67.00	
2207575G2	2207576G2	501	15	1800	160	76.00	
2207575G2	2207576G2	502	15	1200	160	76.00	
2207575G3	2207576G3	512	15	900	160	76.00	
2207575G4	2207576G6	532	15	720	160	76.00	
2207575G4	2207576G6	532	15	600	160	76.00	

### For 25-Cycle Motors

2097631G15	2207461G11	926	3/4	750	28	\$28.00
2097631G10	2207461G7	932	1	750	28	28.00
2097631G15	2207461G11	936	1 1/2	750	28	28.00
2097151G6	2202480G8	944	2	750	47	34.00
2097151G8	2202480G8	948	3	750	47	34.00
2218167G5	2218170G5	954	5	750	90	48.00
2218168G5	2218171G4	512	7 1/2	750	110	56.00
2218169G5	2218172G6	523	10	750	125	62.00
2207575G2	2207576G2	527	15	750	160	76.00

## G-E CR1920-A2 and B1 Inverse-Time Protective Cutouts

For A.C. Motors



CR1920-A2

The enclosing cases, containing thermal cutouts, are suitable for use with motor-starting devices where it is desired to obtain inverse-time overload protection, for example, with CR3900 drum type switches.

The CR1920-B1 case has one 3/4-inch knockout in each end. The CR1920-A2 case has three 3/4-inch knockouts in each side and 2 in each end.

### CR1920-A2

*Cat. No.	Description	Approx. Ship. Wt., Lbs.	**Price Each
2209003	Sheet Steel Case and Receptacle for 2 Thermal Cutouts	8	\$4.00

### CR1920-B1

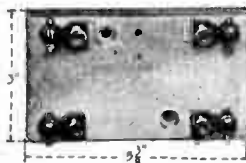
*Cat. No.	Description	Approx. Ship. Wt., Lbs.	***Price Each
2209002	Sheet Steel Case and Receptacle for 1 Thermal Cutout	4	\$2.70

\*Catalogue number does not include thermal cutouts.

\*\*Price is for case, receptacle and 2 thermal cutouts.

\*\*\*Price is for case, receptacle and 1 thermal cutout.

### Receptacles Only



Receptacle for CR1920-A2

Cat. No. 2204799 covers base with 2 terminals for mounting one thermal cutout. Cat. No. 2204800 covers base with 4 terminals for mounting 2 thermal cutouts.

*Cat. No.	Description	Approx. Ship. Wt., Lbs.	†Price Each
2204799	Base with 2 Terminals	2	\$4.40
2204800	Base with 4 Terminals	3	.75

\*Cat. No. does not include thermal cutouts.

†Prices do not include thermal cutouts.

### Conduit Fitting

Fitting consists of one conduit bushing and 2 conduit lock nuts for 3/4-inch conduit for mounting Cat. No. 2209002 and a CR1047-A switch together as a unit.

Approximate shipping weight, 1 pound.  
Price No. 290053..... each \$1.15

### Additional Parts

#### Thermal Cutout with Spare Link

Price, Thermal Cutout, Shipping Weight, 1/2 Pound..... each \$1.00  
Price, Carton of 10 Thermal Cutouts, Assorted Ratings, Shipping Weight, 4 Pounds..... each 9.00  
Price, Carton of 10 Thermal Cutouts, One Rating, Shipping Weight, 4 Pounds..... each 8.50

#### Fusible Link, Cat. No. 167539

Price..... per 10 \$5.50  
Price..... per 100 3.00  
Price..... per 500 12.00

The following table gives the Cat. No. and ampere rating of each thermal cutout and the range of full-load current of motors with which each cutout may be used.

Cat. No.	Ampere Rating	Full-Load Current of Motor in Amp.	Cat. No.	Ampere Rating	Full-Load Current of Motor in Amp.
256913	0.8	0.59-0.70	256923	4.3	3.16- 3.77
256914	0.95	0.71-0.83	256924	5.1	3.78- 4.45
256915	1.1	0.84-0.96	256925	6.0	4.46- 5.25
256916	1.3	0.97-1.13	256926	7.1	5.26- 6.20
256917	1.5	1.14-1.31	256927	8.4	6.21- 7.35
256918	1.8	1.32-1.58	256928	10.0	7.36- 8.75
256919	2.1	1.59-1.84	256929	11.8	8.76-10.3
256920	2.5	1.85-2.19	256930	14.0	10.4-12.3
256921	3.0	2.20-2.63	256931	16.6	12.4-14.6
256922	3.6	2.64-3.15	256932	20.0	14.7-17.5

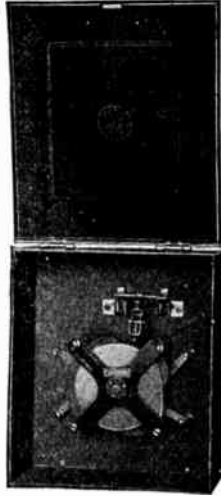
Fusible link, Cat. No. 167539 is the same for all cutouts.

**G-E CR2904-A1 Open-Phase and Phase-Reversal Relays**

25 to 60 Cycles, 600 Volts or Less

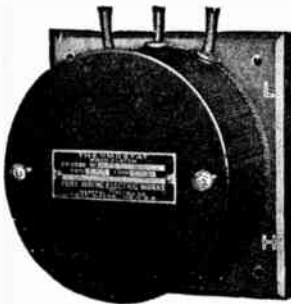
For use with any motor-starting device that provides under-voltage release or under voltage protection for a motor of 3 H.P. or larger.

A CR2904-A1 panel consists of an open-phase and phase-reversal relay mounted on an insulating base and enclosed in a sheet metal case with knockout holes on top, bottom, and sides, and with hasp and staple for locking the cover closed. Used in connection with the control of a polyphase motor to prevent the motor from starting when a phase of the power circuit is open or reversed, and to cause the motor to be disconnected from the line when a phase of the circuit opens when the motor is running. The relay does not open the motor circuit itself but opens the control circuit to the contactor or circuit breaker which handles the main motor circuit. This makes this panel suitable for use with any hand or automatic control device that provides under voltage release or under voltage protection.



Cat. No.	Continuous Capacity Amperes	Min. Amp. for Operation	Approx. Ship. Wt. Lbs.	Price Each
1764492G2	3.0	1.8	50	\$35.00
1764492G3	4.5	2.7	50	35.00
1764492G4	6.7	4.0	50	35.00
1764492G5	8.7	5.2	50	35.00
1764492G6	13.0	7.8	50	35.00
1764492G7	19.0	11.4	50	35.00
1764492G8	30.0	18.0	50	35.00
1764492G9	33.0	22.8	50	35.00
1764492G10	60.0	36.0	50	35.00
1764492G11	80.0	48.0	50	35.00
1764492G12	140.0	84.0	50	35.00
1764492G13	200.0	120.0	50	35.00

**G-E CR2990 Thermostats For A.C. or D.C. Circuits**



Thermostat can be accurately adjusted for a wide variation in temperature.

Adjustment will not change from wear or vibration.

Wiping contacts are self-cleaning and do not affect adjustment.

The thermostat is ideal for installations where excessive vibration occurs, such as in railway service, etc. The small size (5 inches square) makes it inconspicuous and easily mounted.

Mechanism is of the quick-break type, supported on frictionless, long-wearing edges.

Will operate satisfactorily in damp places. Particularly suitable for refrigerator work.

All parts accessible and substantial.

Description	Volts	Amp. Cap. Contacts	Ship. Wt. Lbs.	Price Each
For Use on Either Alternating or Direct Current Circuits	110	0.5	7	\$9.00
	220	0.25	7	9.00
	550	0.1	7	9.00

**Type CR2922-A1 G-E Pressure Governors For A. C. or D. C. Circuits**



Type CR2922-A1 Pressure Governor

These governors are recommended for the automatic control of motor-driven pumps, air compressors, etc., and must always be used in connection with a suitable type of automatic starter. The relay is designed to handle the control circuit of any standard G-E d-c. automatic starter and a-c. automatic starter up to 300 amperes. Above 300 amperes it is necessary to insert a CR7002 switch. Only 3 control wires are necessary for connecting the pressure governor to the starter. These governors can be used on any liquid or gas system that will not corrode the bronze Bourdon tube.

To prevent fluctuations of pressure in the discharge pipe from affecting operation, the governor should be connected to the tank by an independent pipe and should not be connected to the discharge pipe from the pump. If this is not feasible, a small air tank of about 10-gallon capacity may be placed between the pressure governor and the discharge pipe. A needle valve may also be found necessary to further prevent fluctuations which affect the operation of the governor.

Shipping weight, 35 pounds.

60 or 50 Cycles	Cat. No.	Direct Current	Voltage of Circuit	Pressure IN Lbs.		Min. Range in Lbs.*	Price Each
				Min. Cut-in	Max. Cut-out		
25 Cycles	177606302	177606303	110	6	24	1.5	\$65.00
	177606303	177606304	115	6	24	1.5	65.00
	177606303	177606304	220	6	24	1.5	65.00
60 Cycles	1776063012	1776063013	110	12	48	3	65.00
	1776063013	1776063014	115	12	48	3	65.00
	1776063013	1776063014	220	12	48	3	65.00
100 Cycles	1776063022	1776063023	110	20	80	5	65.00
	1776063023	1776063024	115	20	80	5	65.00
	1776063023	1776063024	220	20	80	5	65.00
160 Cycles	1776063032	1776063033	110	32	128	8	65.00
	1776063033	1776063034	115	32	128	8	65.00
	1776063033	1776063034	220	32	128	8	65.00
300 Cycles	1776063042	1776063043	110	60	240	15	65.00
	1776063043	1776063044	115	60	240	15	65.00
	1776063043	1776063044	220	60	240	15	65.00
500 Cycles	1776063052	1776063053	110	100	400	25	65.00
	1776063053	1776063054	115	100	400	25	65.00
	1776063053	1776063054	220	100	400	25	65.00

\*The stop post indicators on the governor may be brought close enough together to give this range between high and low pressures.

†The pound is the full pressure scale rating of the governor. Each governor has a maximum pressure adjustment as indicated in the table.

**Ordering Directions**

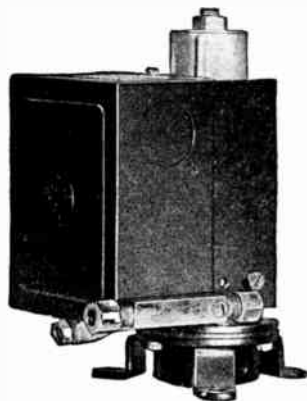
Order by CR number and by catalogue number.

Prices for governors for pressures above or below those listed and for other voltages and frequencies will be furnished on application.

## G-E Type CR2927 Pressure and Vacuum Switches

For A.C. or D.C. Circuit—Double-Pole, Double-Break

2 H.P., 110 or 220 Volts, D.C.; 3 H.P., 110 or 220 Volts, Single-Phase, A.C.; 5 H.P., 110 or 220 Volts, 3 Phase, A.C.; and 1 H.P., 550 Volts, A.C. or D.C.



CR2927-S2 Pressure Switch with Unloader

For use with motor-driven pumps or compressors when it is desired to maintain a pressure or vacuum between specified limits. Switches are suitable for handling pilot circuit of any standard a.c. or d.c. automatic starter, or for throwing small motors directly across the line. May be used for controlling the pressure of any gas or liquid which does not cause deterioration of the rubber diaphragm.

Switch consists of a punched-steel case, a pressure chamber with diaphragm, an adjusting spring, a lever system and a switch mechanism.

The 1/2-inch pipe tap in pressure chamber provides for easy connection to pressure line. Pressure chamber with pipe-tap can be rotated through increments of 60 degrees, making installation more convenient. Base is provided with feet, drilled for mounting screws.

Contacts are double-pole, single-throw, double-break. Stationary contacts are silver-tipped. Moving contacts consist of spring-retained, U-shaped, copper punchings which rest on 3 points when contact is made, thus insuring equal pressure on each tip regardless of wear. Terminal screws are provided on stationary contacts and are located so that switch is easy to wire.

Working parts are enclosed. Two 3/4-inch knockouts provide conduit connections. The cover is fastened by one screw. All adjustments and cover can be sealed if desired.

Pressure is transmitted by diaphragm to a pressure plate against the adjusting spring. Movement of pressure plate is transmitted to switch mechanism by means of a lever. Switch mechanism has a snap action which provides a quick make and break of the circuit and prevents arcing.

A range adjustment device is attached to bottom of case to provide any desired opening and closing range between limits specified in table. By means of this device, the range between opening and closing pressures is adjustable from 10 to 30 pounds at low pressure, and from 15 to 40 pounds at high pressure. Range between opening and closing of a vacuum switch is adjustable from 2 to 7 inches at low vacuums, and from 3 to 8 inches at high vacuums.

Standard switch is adjusted to open circuit at high pressure and to close it at low pressure. This operation can be reversed by changing position of fulcrum screws.

Unloader reduces pressure in cylinder of air compressor to atmospheric pressure as soon as pressure switch has opened circuit of driving motor. This action of the unloader reduces starting torque required of motor when pressure switch again closes circuit to start compressor.

Unloader, Cat. No. 1731687G1 for use with pressure switch, can be furnished at \$1.50 each.

### 1747371G2 Pressure Switches

Form	Max-imum Volts	STANDARD ADJUSTMENT IN POUNDS PER Sq. IN.		MINIMUM ADJUSTMENT IN POUNDS PER Sq. IN.		MAXIMUM ADJUSTMENT IN POUNDS PER Sq. IN.		Approx. Ship. Wt. Lbs.	Price Each
		Closes	Opens	Closes	Opens	Closes	Opens		
S2	550	80	100	0	10 to 30	160 to 185	200	7	\$8.00

### 1747373G1 Vacuum Switches

T1	550	3	8	0	2 to 7	20 to 25	28	15	\$11.00
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### Ordering Directions

Order by CR number, form and Cat. No. If unloader is desired, order by Cat. No.

## G-E Type CR2931 Enclosed Float Switches Forms A, B, C and D



Form D

These float switches have a continuous capacity of 30 amperes, either a.c. or d.c. up to 550 volts. They may be used for throwing motors up to the following capacities directly on the line.

Circuit	H.P. of Motor	Volts	No. of Poles of Switch
A.C.	2	110-220	2
Single-Phase A.C.	3	440-550	2
A.C.	3	110	2 or 4
2 or 3-Phase D.C.	5	220-440-550	2 or 4
	1	115-230-550	2

These switches are drip and splash-proof and are suitable for either tank or sump operation. Shipment is made with the parts assembled for tank operation. If sump operation is desired, the operating parts can be easily reassembled. All electrical parts are enclosed by a heavy

cast-iron weatherproof enclosing case drilled and tapped at the top for 1 1/4-inch conduit. The lower half of the case is removable. The moving contacts are operated by a weighted arm falling over center which gives them a quick motion when opening and closing.

Form A is for clamping to the inside top edge of a tank and is operated by a rod and float. Range, 10 inches to 2 feet.

Form B is for bolting to a tank cover and requires a guide in the cover for the operating rod. Range, 10 inches to 3 1/2 feet.

Form C is for bolting to a tank cover. Range, 10 inches to 3 1/2 feet.

Form D is for bolting to a tank cover and is operated by a chain and float, thus being suitable for any depth of tank or any variation in water level not less than 10 inches.

Cat. No.	Form	No. of Poles	Ship. Wt. Lbs.	Price Each	Cat. No.	Form	No. of Poles	Ship. Wt. Lbs.	Price Each
141637	A	2	85	\$30.00	141645	C	2	95	\$32.00
141639	A	4	95	34.00	141647	C	4	100	36.00
141641	B	2	95	34.00	*141649	D	2	110	34.00
141643	B	4	105	38.00	*141651	D	4	120	38.00

### Forms L and M

Used on control circuits and for throwing small motors up to the following capacities directly in the line.

Circuit	H.P. of Motor	Volts	No. of Poles of Switch
A.C.	1	110	2
Single-Phase A.C.	2	220	2
A.C.	1 1/2	110	2
2 or 3-Phase D.C.	3	220-440-550	2
	1	115	2
	2	230-550	2

All electrical parts are enclosed in a drip and splash-proof enclosing case which is drilled and tapped at the bottom for a 3/4-inch conduit. The moving contacts are actuated by a snap action mechanism which assures a quick break. A double break is provided for each pole. Switches may be used for either sump or tank operation.

Form L is operated by a chain and float. Suitable for any variation in water level not less than 2 inches.

Form M is rod-operated. Range 2 in. 4 ft. 6 in.

Cat. No.	Form	No. of Poles	Shipping Wt., Lbs.	Price Each
*2666739	L	D-p.	40	\$19.00
2666740	M	D-p.	70	19.00

### Form P

For control circuits only; used to interrupt the following maximum currents: On d.c. 1/2 ampere at 250 volts; 1/4 ampere at 600 volts. On a.c. 10 amperes at 110 volts; 5 amperes at 220 volts; 2 amperes at 440 or 550 volts.

Switch is single-pole only, with a double break.

A knockout for 1/2-inch conduit is provided in top of case. May be mounted on horizontal or vertical surface; chain-operated only. Cadmium-plated steel punched parts.

Cat. No.	Form	No. of Poles	Shipping Wt., Lbs.	Price Each
2827795	P	S-p.	10	\$10.00

\*Prices for Forms D, L and P switches include 15 feet of bronze chain; add 15 cents for each additional foot for Forms D and L, 5 cents for each additional foot for Form P.

G-E Type CR2940 Push Button Stations

Momentary Contact

Single Button

Type and Form of Station	Button Markings	Number and Kind of Contacts	Symbol Fig.	DIMENSIONS			For Conduit Size	Approx. Ship. Wt. Lbs.	Price Each
				Width	Height	Depth			
BS-8-E	Stop (Dust and Watertight)	1 Silver Button	1	4 <sup>3</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	†	5	\$9.00
BS-11-B	None (Foot-Operated)	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3 <sup>3</sup> / <sub>4</sub>	1/2 or 3/4	5	4.50
BS-11-N	Reset (D.C. Undervoltage or Field Protective)	1 Disk and Coil	6	4 <sup>1</sup> / <sub>2</sub>	...	4 <sup>3</sup> / <sub>8</sub>	1/2 or 3/4	6	18.00
BS-11-CL	Stop (Oil-Immersed Contacts)	1 Silver Button	1	5 <sup>7</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	1/2 or 3/4	10	7.00
*BS-79-W	Stop	1 Copper Bar	2	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	2.00
*BS-207-U	Slow	1 Leaf Spring	1	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-V	Start	1 Leaf Spring	3	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-W	Stop	1 Leaf Spring	1	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-GG	Open	1 Leaf Spring	1	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-HH	Close	1 Leaf Spring	3	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
BS-211-A	Stop	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	3.50
BS-211-C	Maximum Torque	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	3.50
BS-211-D	Jog	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	3.50
BS-211-E	Reset	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	3.50
BS-211-G	Maximum Torque (3-Point)	1 Disk	5	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	4.00
BS-211-Q	Start	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	1/2 or 3/4	4	3.50
BS-211-S	Reset (For Panel Mounting, 1/2-Inch Hole in Back. No Conduit Inlet)	1 Disk	4	4 <sup>3</sup> / <sub>8</sub>	...	3	None	4	3.50

2 Buttons

BS-4-PP	Run—Stop (Dust and Watertight)	2 Silver Buttons	11	5 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	†	9	\$12.00
BS-12-W	Jog—Stop (Has Shutter on Jog-Button)	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1/2 or 3/4	6	7.00
BS-12-DK	Start—Stop (Oil-Immersed Contacts)	2 Silver Buttons	11	5 <sup>7</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	1/2 or 3/4	10	9.00
*BS-79-J	Start—Stop	2 Copper Bars	7	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	2.00
BS-82-A	Start—Stop (Has Time-Delay Drop-Out)	2 Silver Buttons	23	4 <sup>3</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	1/2 or 3/4	10	12.00
*BS-207-J	Start—Stop (Has Locking Bar)	2 Leaf Springs	8	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-N	In—Out	2 Leaf Springs	9	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-P	Cut—Return	2 Leaf Springs	9	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-Q	Forward—Reverse	2 Leaf Springs	9	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-S	Raise—Lower	2 Leaf Springs	9	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-T	Open—Close	2 Leaf Springs	9	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-FF	Close—Open	2 Leaf Springs	8	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
*BS-207-TT	Start—Stop	2 Leaf Springs	8	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	1/2 or 3/4	2	3.00
BS-212-A	Start—Stop (Has Locking Bar)	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	1/2 or 3/4	6	5.00
BS-212-B	Start—Stop Reset	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-E	Slow—Stop	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-F	Forward—Reverse	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-G	Raise—Lower	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-H	In—Out	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-J	Up—Down	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-N	Fast—Slow	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-AB	Jog—Stop (No Shutter on Jog-Button)	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	3	1/2 or 3/4	6	5.00
BS-212-BB	Start—Stop (For Panel Mounting, 5/8-Inch Hole in Back. No Conduit Inlet)	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	3	None	6	5.00
BS-212-CC	Raise—Lower (For Panel Mounting, 5/8-Inch Hole in Back. No Conduit Inlet)	2 Disks	10	4 <sup>3</sup> / <sub>8</sub>	5 <sup>3</sup> / <sub>4</sub>	3	None	6	5.00

3 Buttons

BS-13-C	Forward—Reverse—Stop (Has Locking Bar)	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	1	9	\$7.00
BS-13-E	Open—Close—Stop	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	1	9	7.00
BS-13-J	Fast—Slow—Stop	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	1	9	7.00
BS-13-R	Up—Down—Stop	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	1	9	7.00
BS-13-U	Run—Jog—Stop (Has Shutter on Jog-Button)	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	1	9	8.00
BS-13-CC	Open—Close—Stop (For Panel Mounting, 3/4-Inch Hole in Back. No Conduit Inlet)	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	None	9	8.00
BS-13-PP	Forward—Reverse—Stop (For Panel Mounting, 3/4-Inch Hole in Back. No Conduit Inlet)	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	None	9	8.00
BS-13-RR	Run—Jog—Stop (No Shutter on Jog-Button)	3 Disks	13	4 <sup>3</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	1	9	7.00
BS-73-A	Forward—Reverse—Stop	3 Leaf Springs	12	2 <sup>7</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>8</sub>	1/2 or 3/4	8	5.00
BS-73-B	Raise—Lower—Stop	3 Leaf Springs	12	2 <sup>7</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>8</sub>	1/2 or 3/4	8	5.00
BS-73-C	Open—Close—Stop	3 Leaf Springs	12	2 <sup>7</sup> / <sub>8</sub>	7 <sup>3</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>8</sub>	1/2 or 3/4	8	5.00

4 Buttons

BS-14-A	Fast—Slow—Stop—Start	4 Disks	14	4 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1	11	\$9.00
BS-14-B	Forward—Reverse—Stop—Jog (No Shutter on Jog-Button)	4 Disks	14	4 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1	11	9.00
BS-14-C	Forward—Reverse—Stop—Run	4 Disks	14	4 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1	11	9.00
BS-14-CC	Forward—Stop—Jog Forward—Jog Reverse	4 Disks	14	4 <sup>3</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	2 <sup>7</sup> / <sub>8</sub>	1	11	9.00

\*CR2940-BS-79 or -BS-207 can be used as a pendant switch when furnished with a pendant fitting, Cat. No. 197484, which can be obtained for \$2.00 additional. Cat. No. and price include 15 feet of 3-cord conductor.

†Diameter.

‡Has boss to be drilled and tapped for conduit by customer; 3/4-inch maximum size.

## G-E Type CR2940 Push Button Stations

Continued

### Maintaining Contact

#### 2 Buttons

Type and Form of Station	Button Markings	Number and Kind of Contacts	Symbol Fig.	DIMENSIONS			For Conduit Size	Approx. Ship. Wt. Lbs.	Price Each
				Width	Height	Depth			
BS-12-KW	Run—Stop	2 Disk	17	4 1/4	6 7/8	4 1/2	1/2 or 3/4	9	\$9.00
BS-12-PW	Fast—Slow	2 Disk	17	4 1/4	6 7/8	4 1/2	1/2 or 3/4	9	9.00
BS-12-QR	Creep—Normal	2 Disk	17	4 1/4	6 7/8	4 1/2	1/2 or 3/4	9	9.00
BS-12-QS	Run—Safe Stop	2 Disk	17	4 1/4	6 7/8	4 1/2	1/2 or 3/4	9	9.00
BS-30-A	Start—Safe Stop	1 Snap Switch	15	3 1/8	4 1/8	3 3/4	1/2	2 1/2	2.50
BS-30-B	Open—Close	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-G	Run—Stop	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-P	On—Off	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-R	Start—Stop	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-EE	Hand—Automatic	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-FF	Forward—Reverse	1 Snap Switch	16	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50
BS-30-TT	Run—Safe	1 Snap Switch	15	3 1/8	4 1/8	2 3/4	1/2	2 1/2	2.50

### Momentary and Maintaining Contacts

#### 3 Buttons

BS-31-A	Start—Safe Stop—Run	1 Disk and 1 Snap Switch	18	4 3/8	6	2 7/8	1	6	\$6.00
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#### 4 Buttons

BS-32-A	Start—Stop—Safe—Run	2 Disk and 1 Snap Switch	19	4 3/8	8 3/8	2 7/8	1	9	\$8.00
BS-32-B	Jog—Stop—Safe—Run (No Shutter on Jog-Button)	2 Disk and 1 Snap Switch	19	4 3/8	8 3/8	2 7/8	1	9	8.00
BS-32-C	Start—Stop—Slow—Fast	2 Disk and 1 Snap Switch	19	4 3/8	8 3/8	2 7/8	1	9	8.00

#### 5 Buttons

BS-33-C	Fast—Slow—Stop—Safe—Run	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	\$10.00
BS-33-D	Fast—Slow—Jog—Safe Stop—Run (No Shutter on Jog-Button)	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	10.00
BS-33-E	Forward—Reverse—Stop—Slow—Fast (No Shutter on Jog-Button)	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	10.00
BS-33-F	Forward—Reverse—Stop—Safe—Run	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	10.00
BS-33-P	Run—Jog—Stop—Slow—Fast (Has Shutter on Jog-Button)	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	11.00
BS-33-W	Fast—Slow Jog—Stop—Safe—Run (No Shutter on Jog-Button)	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	10.00
BS-33-DD	Run—Jog—Stop—Slow—Fast (No Shutter on Jog-Button)	3 Disk and 1 Snap Switch	20	4 3/8	10 1/2	2 7/8	1	11	10.00

#### 6 Buttons

BS-34-H	Fast—Slow Jog—Start—Stop—Safe—Run (No Shutter on Jog-Button)	4 Disk and 1 Snap Switch	21	5 1/2	9 5/8	3 1/8	*	14	\$13.00
BS-34-Q	Forward—Reverse—Jog—Stop—Slow—Fast (No Shutter on Jog-Button)	4 Disk and 1 Snap Switch	22	5 1/2	9 5/8	3 1/8	*	14	13.00

\*Customer to locate and drill for conduit.

### Directions for Ordering

Specify type and form of station required as CR2940-BS-207-J.  
For the CR2940-BS-11-N station, give voltage of the

circuit if it is to be used for undervoltage protection, or the amperes field current if it is to be used for field protection.

**G-E Type CR2940 Push Button Stations**



BS-211-A BS-212-A

For use in the control circuits of automatic starters. Designed to withstand frequent operation and ordinary rough usage of machine-tool and similar applications.

Stations are divided into 3 general classes: momentary contact, maintaining contact and a combination of momentary and maintaining contacts. With a momentary contact, the circuit is made or broken only as long as the operator's finger depresses the button. This feature is required when the station is used with a starter that must provide undervoltage protection. A maintaining contact holds the circuit open or closed as does an ordinary knife switch.

Five kinds of contacts are used: disk, leaf-spring, copper-bar, silver-button and snap-switch.

A disk contact consists of a silver-plated disk normally held by a spring against 2 stationary top contacts. When button is depressed, disk is moved away from top contacts and makes a circuit between 2 bottom contacts. Disk is self-aligning and can be reversed to give double life.

A leaf-spring contact consists of a phosphor-bronze spring and 2 stationary contacts which are bridged by the spring in operation. This kind of contact is smaller than the disk and has less capacity. There are no upper and lower contacts on one button as with a disk contact.

The third type uses a copper bar which is hinged at one end and makes or breaks contact at the other end. On the BS-79-J, 2 contacts have a common connection which cannot be omitted.

A silver-button contact meets the design requirements of the stations on which it is used better than the disk contact.

Snap-switch type is equivalent to a double-pole single-throw or single-pole double-throw knife switch. Maximum voltage with which these can be used, 230 volts, a.c. or d.c.

All stations except BS-4, BS-8, BS-11-CL, BS-12-DK, BS-73, BS-79 and BS-207 are enclosed in black-enameled cast-iron boxes. The BS-4 and BS-8 boxes are malleable iron and the others are pressed steel. Arrangements are made for conduit connections on all but the types for panel mounting. Standard conduit fittings are usually provided at the bottom of the box, but on the BS-79 and BS-207, which are often used as pendant switches, the fittings are at the top. If it is desired to make the connections at the bottom, the push-button mechanism should be reversed in the box and with the BS-207-J the cover should be reversed to keep locking bar with stop-button. The BS-4 and BS-8 have bosses at top to be drilled for conduit by customer, and BS-73 have knockouts at both top and bottom.

The BS-13-C, BS-207-J and BS-212-A are equipped with a locking bar over stop-button. Locking bar is provided with means for attaching padlock.

Pendant switches are used as portable push-button stations around planers, boring mills and similar machines. They are generally suspended. Any of the BS-79 or BS-207 stations can be furnished for pendant installation.

The BS-11-N is a single-button station that may be used for either undervoltage protection or field protection. Suitable for use only on d.c. circuits.

BS-4-PP and BS-8-E are made dust and watertight by a leather diaphragm under cover and over buttons which extend through holes in cover. Pressure on diaphragm depresses buttons.

BS-11-CL and BS-12-DK stations have an oil tank suspended below conduit box and contact mechanism is immersed in oil. Recommended where there would be danger of explosion from flash at contacts of another station.

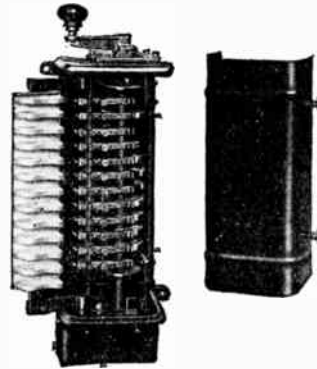
The following table gives ampere rupturing capacity of the different kinds of contacts when used in circuits with inductances ordinarily encountered.

Kind of Contact	D.C. Circuits		A.C. Circuits	
	Volts	Amperes	Volts	Amperes
Copper-Bar or Leaf-Spring	115	0.75	110 or 220	2.0
	230	0.4	440 or 550	0.75
	600	0.2		
Disk	115	2.0	110 or 220	8.0
	230	1.0	440 or 550	4.0
	600	0.4		
Silver-Button	115 or 230	5.0	110 or 220	5.0
	600	2.5	440 or 550	2.5
	115	2.0		
Snap-Switch	230	1.0	110 or 220	5.0

**G-E CR3100 D.C. Drum Switches**

**For Series, Shunt or Compound-Wound Motors**

Reversing or Non-Reversing, Armature Points Only, Resistors Not Included



CR3100-2002A Switch

The CR3100 drum switches are arranged for reversing and non-reversing control of series, shunt or compound-wound motors. When ordered for non-reversing service, they are furnished with a stop in the cap plate to prevent operator from reversing the handle.

All switches listed, except the CR3100-R-307-A, have on each contact finger a magnetic blowout that will insure instantaneous interruption of the circuit. A starwheel provides positive action from point to point.

For starting duty, use with CR3130 resistors; for speed regulating duty, use with CR3131 resistors; for crane and hoist duty, use with CR3132 resistors.

Type R-307-A has hole in bottom for leads; no leads furnished; only for starting duty; not recommended for crane, hoist, or regulating duty. Not suitable for use on 550-volt circuits.

Type R-122-P has hole in bottom for leads; no leads furnished; does not open shunt field in off-position; should not be used with motors with intermittent shunt fields; with these motors use CR3100-2002 drum switch.

Types 2002-A to 2004-A inclusive have conduit box for incoming leads; conduit box may be omitted from CR3100-2002 or 2007 drum switches.

All switches are completely covered to prevent accidental contact with live parts. The standard covers are readily removable, designed to exclude dust under normal conditions and, except for the CR3100-R-307-A, are moistureproof.

**Undervoltage and Overload Protection or Dynamic Braking**

The CR3100 drum switches have an off-position reset segment so that they may be used with CR3171 protective panels or with CR3137 dynamic-braking resistors.

**Ordering Directions**

Order a CR3100 drum switch by type number, specifying whether standard or dustproof cover is desired.

State whether motors are series, shunt, or compound-wound and whether reversible or non-reversible.

Type	H.P. RATING						Points Forward	Approx. Wt. Lbs.	PRICE, EACH
	*CONTINUOUS			†INTERMITTENT					
	115 Volts	230 Volts	550 Volts	115 Volts	230 Volts	550 Volts			
R-307-A	3	5	...	...	...	...	3	40	\$26. ....
R-122-P	5	10	15	6	12	20	4	75	54. ....
2002-A	7½	15	30	15	25	35	5	190	79. \$98.
2007-A	15	30	50	20	35	65	5	250	120. 145.
2003-A	20	35	75	25	50	100	7	300	145. 172.
2004B	35	75	150	50	100	200	8	450	250. 280.

\*The continuous rating should be used in all cases when any point on the drum switch will be used for any period exceeding five minutes.

†The intermittent rating should be used for crane, hoist, or other applications when the running-time is not over 50 per cent of the total and the maximum continuous running-time is not over five minutes.

‡Number of resistance steps is one less than number of drum switch points.



## CR3102 Type R-307 D.C. Drum Controllers

For Small Machine-tool and Similar Drives



The CR3102 equipment consists of an R-307 Drum Switch with starting resistor mounted on the back, the latter being protected by a separate enclosing cover.

This equipment is well suited for use with small machine tools and similar drives that require a small, compact and substantially made enclosed starting device.

### Resistor

The resistor for the 5 h.p. 230-volt equipment is designed for 10-seconds starting duty; all other resistors are for 1-minute starting duty.

### Connections

All connections between the resistor and drum switch are made before shipment. In installing the equipment all that is necessary is to pull the line and motor leads in through a hole in the bottom end of the frame and to connect them to terminals provided for the purpose.

### Overload and Under-voltage Protection

When overload and under-voltage protection is desired, a CR3171 protective panel should be used.

### Reversing—Includes Starting Resistor

*Cat. No.	115 Volts	230 Volts	H.P. of Motor	Points Forward and Reverse	Approx. Shipping Wt. Lbs.	Price Each
258344	258347		1	3	50	\$37.00
258345	258348		2	3	50	37.00
258346	258349		3	3	50	37.00
†	†258350		5	3	50	37.00

### Non-reversing—Includes Resistor

Cat. No.	115 Volts	230 Volts	H.P. of Motor	Approx. Shipping Wt. Lbs.	Price Each
2042218	2042221		1	15	\$13.00
2042219	2042222		2	15	13.00
2042220	2042223		3	15	13.00
.....	†2042224		5	15	13.00

\*Catalogue number and price include complete equipment consisting of R-307 controller with starting resistor on back.

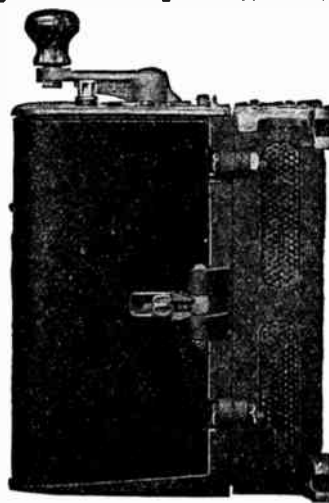
†Resistor has capacity for 10-second starting duty only. For heavier duty use R-307 drum switch with CR3130 starting resistor.

‡Not suitable for 5 h.p., 115-volt motor. Use CR3100 drum switch and CR3130 resistor.

## G-E Type CR3105 D.C. Drum Switches

For Use with Adjustable Speed Motors for Machine Tools, etc.

Reversing or Non-reversing Armature and Field Points



### CR3105 Drum Switch Complete with Armature and Field Resistors

CR3105 Drum Switches are provided with armature points for starting duty and field points for continuous duty and are particularly adapted for use with adjustable speed motors for machine tools, etc. The field resistor is controlled by fingers in the same manner as the armature resistor and not by a dial switch in the base of the drum switch.

### Dynamic Braking

The standard CR3105 Drum Switches, with the exception of the R-301-B, can be used with CR3137 resistors for providing dynamic braking at the off position. The R-301-B can be used with 115 and 230-volt motors for dynamic braking but with 550-volt motors it is necessary to use a contactor with the dynamic braking resistor. This requires a slight change in the drum switch. The changed drum switch is known as the R-301-A, having the same price as the R-301-B, and is suitable for use with motors up to and including 15 h. p. on 550 volts.

### Resistor

With motors up to and including 2 h. p. with the R-302 and 3 h. p. with the R-301 drum switches, both the armature and field resistors are mounted directly on the back of the drum switch while in the larger sizes the field resistor only is attached to the drum switch and the armature resistor is furnished as a separate unit.

### Reversible Drum Switches

All CR3105 Drum Switches can be used with reversible or non-reversible motors as each is provided with a nickel-plated stop in the cap plate to prevent reversing. The stop should be removed when used with reversible motors. A name plate on the front explains this feature.

### Under-voltage and Overload Protection

Any of the CR3105 Drum Switches can be used with the CR3170 panel to provide under-voltage and overload protection. When ordering these drum switches for use with the protective panel a statement should be made to this effect upon the requisition so that the correct wiring diagram can be supplied.

### Connection Diagram

A diagram showing the connections of the drum switch and resistor will be found on the inside of the sheet iron enclosing cover.

Type	MAX. H.P. CAPACITY			*POINTS FORWARD AND REVERSE		Approx. Ship. Wt. Lbs.	Price Each
	115 Volts	230 Volts	550 Volts	Armature	Field		
†R-302-B	3	3	...	2	10	75	\$55.00
R-301-B	5	10	15	3	18	85	73.00
R-182-A	12	20	40	4	18	140	115.00
R- 98-B	20	35	70	4	22	200	155.00
†R-166-A	35	65	100	4	22	400	235.00

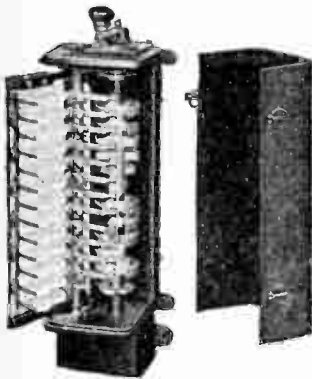
\*Number of resistance steps is one less than the number of drum switch points.

†No magnetic blowout; not for use on 550-volt circuits.

‡Special form of drum switch required for 550 volt circuit. Do not specify R-166-A, but order R-166 Drum Switch for use on 550 volt circuits.

**No. CR3110 G-E D.C. Drum Switches**

**Armature Points Only  
Use CR3151 or CR3153 Resistors**



**2501-A Drum Switch with Cat. No. 1219233G1 Horizontal Handle Attachment**

This switch is designed for use with crane hoists, and for similar applications where the speed of the motor while lowering is to be controlled by dynamic or electric braking. When a d.c. motor is connected as a generator with resistance across its armature, and driven by the load which is being lowered, it delivers power to the resistor and holds back against the load. The speed of the motor can be accurately controlled by increasing or decreasing the ohmic value of the resistance connected across the armature. This is the principle on which

this switch operates. It is so designed that, if there is not sufficient weight on the hook to overhaul the motor and drums, the motor will assist in driving the hoisting machinery in a downward direction.

Cranes that are equipped with this switch can have high lowering speeds if the particular motors which are used are capable of standing such operation. Front covers are lined with insulating material and are easily removable. On floor-mounted sizes the back covers are removable to facilitate wiring. Dust-tight covers can be furnished and should be specified.

This switch is made up without handle and the handle is stocked separately so that it is necessary to order both the drum switch and the type of operating mechanism desired.

The top plate for the horizontal handle is assembled with the drum switch so that when the vertical handle or rope wheel attachment is ordered it will be necessary to remove the top plate for the horizontal handle and mount the vertical handle or rope wheel attachment in its place. This is a matter of removing and replacing 4 cap screws.

**Table A—Drum Switches**

H.P. RATING INTERMITTENT OR CRANE DUTY			No. OF DRUM SWITCH POINTS		CR3110 Drum Switch Type No.	Approx. Ship. Wt. in Lb.	PRICE, EACH Drum Switch Less Handle	Standard Cover	Dust-tight Cover
115 Volts	230 Volts	550 Volts	Hoist	Lower					
10	20	25	4	5	†2500-A	150	\$102.00	\$120.00	
15	30	40	5	6	†2501-A	240	130.00	155.00	
25	50	60	6	7	2502-A	290	158.00	185.00	
40	80	150	8	10	‡*2503-A	630	315.00	345.00	
50	100	150	8	10	§*2503-A	670	370.00	395.00	

\*Contactor panels for use with 2503-A drum switch are listed in Table C.

†For wall mounting.

‡With 300-ampere CR4402-C2 panel.

§With 500-ampere CR4402-C2 panel.

Magnetic control is recommended for frequent operation of motors 40 h.p. and larger.

**Table B—Handles**

Type	Drum Switch with Which Used	Cat. No.	Shipping Wt., Lbs.	Price
Horizontal	2500-A and 2501-A	2219233G1	4	\$5.00
Horizontal	2502-A and 2503-A	2802923G2	4	5.00
Vertical	2500-A and 2501-A	2804463G1	35	32.00
Rope-wheel	2500-A and 2501-A	2872612G1	50	32.00
Spring-return				

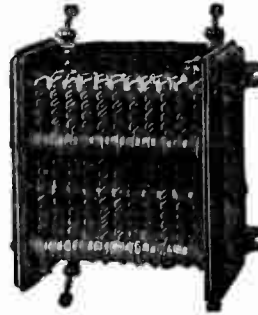
**Table C—CR4402-C2 Semi-Automatic Control Panels**

H.P. OF MOTOR		DRUM SWITCH		CAT. NO. OF PANEL		
115 Volts	230 Volts	550 Volts	Type No.	115 Volts	230 Volts	550 Volts
26-50	51-80	61-150	2503-A	1771328G2	1771328G3	1771328G4
41-50	81-100	150	2503-A	1771329G2	1771329G3	1771329G4

**ORDERING DIRECTIONS.**—Order a CR3110 drum switch by type No., specifying whether standard or dust-tight cover is desired. Order a handle by Cat. No. Order, for use with CR3110-2503-A drum switch, a CR4402-C2 contactor panel by Cat. No.

**G-E CR3130 D.C. Starting Duty Resistors**

**For Machine Tool Service**



These resistors are for use with d.c. constant or adjustable-speed motors. Those listed for constant speed motors should be used with the CR3100 and those for adjustable speed motors should be used with the CR3105 drum type switches. Designed primarily for starting duty, but, while they cannot be used for regulating duty continuously, it is possible to use them in this manner for short periods.

**Resistor Units**

For constant speed motors up to and including 2 h.p., 115 volts, 5 h.p. 230 volts and 10 h.p. 550 volts, wire-wound resistor units are used, while cast grid units are used with the other motors. The resistors for adjustable-speed motors up to and including 2 h.p. with the CR3105-R-302 drum switch and 3 h.p. with the CR3105-R-301 drum switch consist of a ribbon unit assembled between sheets of mica attached to a cast iron plate, and are mounted on the back of the drum switch with the field resistor. The resistors for the 3 h.p., 115 and 230-volt motors with the CR3105-R-302 drum switch, and the 5 h.p. 230-volt and 5, 7½ and 10 h.p. 550-volt motors with the CR3105-R-301 drum switch are composed of wire-wound units, while the resistors for the remaining motors consist of cast grid units.

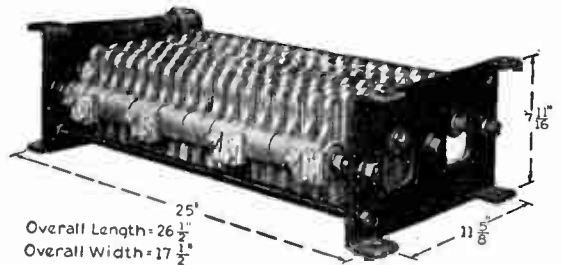
The wire-wound and cast grid units are rigidly supported by tie rods from cast-iron end frames. Perforated sheet iron covers enclose the front and back. All terminals are within the enclosing cover which is suitable for conduit wiring.

**G-E CR3131 D.C. Motor Regulating Duty Resistors**

These resistors are for use with d.c. constant-speed motors in connection with drum switches CR3100 and are designed for continuous duty, giving 50 per cent speed reduction at ¾ full load and 65 per cent speed reduction at full load. Resistors for motors of 2 h.p. and less, 115 volts; 5 h.p. and less, 230 volts; and 10 h.p. and less, 550 volts, consist of Form R wire-wound units. Cast grid units are used for the larger resistors. The units are rigidly supported by tie rods attached to cast iron end frames. Sheet iron covers are placed over the back and front, the latter being perforated in order to insure good ventilation. All terminals are placed within the enclosing cover which is adapted for conduit wiring.

**G-E CR3132 D.C. Intermittent Duty Resistors**

**For Crane and Hoist Service**



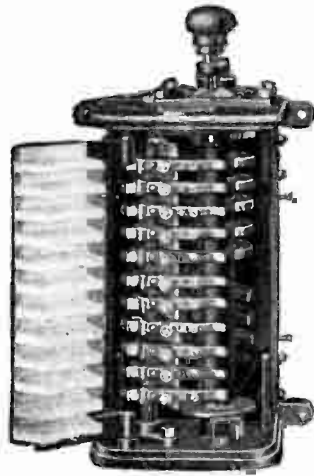
These resistors are for use with direct-current motors in connection with CR3100 Drum Type Switches.

The resistors for small motors consist of Form R wire-wound units assembled in a well ventilated box, while for the larger motors, Type SG cast grid units are used.

The cast grid units are assembled in unit type CR9143 (SG) resistor boxes. The use of this type of resistor allows complete boxes to be kept in stock as spares. In case of burned out or broken grids, a complete box can be easily and quickly replaced. Each box contains one size of grids, with taps on one side, thereby simplifying the wiring of the resistor. Tops are so placed that a few boxes will serve as spares for a number of resistors.

Prices upon application.

## No. CR3200 G-E A.C. Drum Switches and CR3232-5 Resistors For Squirrel-Cage Induction Motors



This primary-resistance switch is for use with squirrel-cage induction motors on small cranes, hoists, machine tools, etc., where a small drum switch is desired. Since this is a primary switch, the capacity is rated in horsepower. It is designed for wall mounting, but may be adapted for floor mounting by ordering standard conduit box used on the CR3203-1300J switch.

The CR3200-1250-A is suitable for motors that do not have an overhauling load, that is, on hoists it can be used where worm gearing or automatic, mechanical, load brakes are used.

The CR3200-1250-B is suitable for use where there is an

overhauling load. This switch should be used on hoists where a worm gear is not used. In this case, one-point reverse is provided so that the motor will exert sufficient torque to prevent excessive motor speeds when overhauled by a load.

### Drum Switches 2 or 3-Phase

MAXIMUM VOLTAGE	Max. Primary Secondary	Max. H.P.	POINTS Forward	POINTS Reverse	CR3200 Switch Type	PRICE EACH DRUM SWITCH LESS HANDLE AND CONDUIT BOX		
						Shipping Wt., Lbs.	Standard Cover	Dust-Tight Cover
550	550	15	4	4	1250-A	110	\$56.00	\$68.00
550	550	15	4	1	1250-B			

### Handles

Type	Drum Switch with Which Used	Cat. No.	Shipping Wt., Lbs.	Price
Horizontal	1250-A and 1250-B	2219233G1	5	\$5.00
Vertical	1250-A and 1250-B	2804463G1	45	32.00
Rope-wheel, Spring-return	1250-A and 1250-B	2224167G1	90	13.00

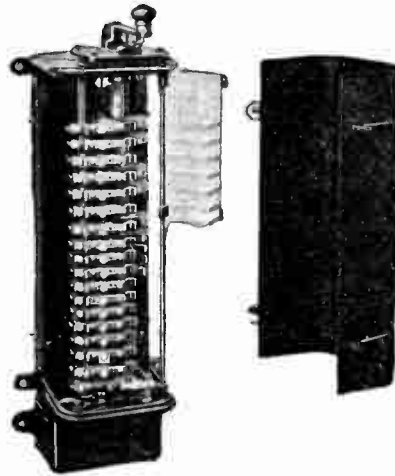
### Resistors for Use with CR3200-1250-A or 1250-B Drum Switches

3-Phase, 60-Cycle, Type KTR Motors					3-Phase, 60-Cycle, Type KTE Motors				
MOTOR RATING			Cat. No. Resistor	MOTOR RATING			Cat. No. Resistor		
Hp.	Frame	Sync. Speed R.P.M.		Hp.	Frame	Sync. Speed R.P.M.			
1 1/2	916	1200	220	2228463	1	924	1200	220	2228464
1 1/2	916	1200	440	2228470	1	924	1200	440	2228471
2	916	1800	220	2228462	1 1/2	926	1200	220	2228461
2	916	1800	440	2228468	1 1/2	926	1200	440	2228468
2	924	1200	220	.....	2 1/2	926	1800	220	2228460
2	924	1200	440	.....	2 1/2	926	1800	440	2228467
3	924	1800	220-440	.....	2 1/2	934	1200	220	2228465
3 1/4	926	1200	220-440	.....	2 1/2	934	1200	440	2228471
4	926	1800	220	2225892	3	932	1800	220	2228465
4	926	1800	440	2228465	3	938	1200	220	2228463
4	934	1200	220-440	.....	4	938	1200	440	2228470
5	932	1800	220-440	.....	6	936	1800	220	2228459
6 1/2	936	1800	220	2228459	6	936	1800	440	2228463
6 1/2	936	1800	440	2228461	6	946	1200	220	2228459
6 1/2	938	1200	220	2228462	6	946	1200	440	2228463
6 1/2	938	1200	440	2228469	9	944	1800	220	2228460
8	946	1200	220-440	.....	9	944	1800	440	2228466
10 1/2	944	1800	220-440	.....	9	952	1200	220	2228472
11	952	1200	220-440	.....	9	952	1200	440	2228466
15	502	1200	220	2225891	12	948	1800	220	2225892
15	502	1200	440	2225892	12	948	1800	440	2228464
15	502	1200	220	2225892	12	956	1200	220	2225892
15	502	1200	440	2225892	12	956	1200	440	2228464

No. of boxes, 1. Approx. shipping weight, 110 pounds.

Price, No. CR3232-5 Resistor ..... each \$20.00  
**ORDERING DIRECTIONS.**—Order drum switch by CR No. and Type No. Specify standard or dust-tight cover. Order handle by Cat. No. Order resistor by CR No. and Cat. No.

## G-E CR3202 A.C. Drum Switches For Wound-Rotor Induction Motors Reversing, Primary and Secondary Control



Type 1300-J (Cover Removed)

These drum switches are for use with wound-rotor induction motors, and, owing to the wide range of secondary currents for motors of the same horsepower, are listed according to ampere capacity rather than horsepower capacity.

The CR3202 Drum Switches are made up without handles and the handles are stocked separately so that it is necessary to order both the drum switch and the type of operating mechanism desired.

The top plate for the horizontal handle is assembled with the drum switch so that when the vertical handle or rope wheel attachment is ordered it will be necessary to remove the top plate for the horizontal handle and mount the vertical handle or rope wheel attachment in its place. This is a matter of removing and replacing four cap screws.

These drum switches are built with cast end-frames with cold-rolled steel side bars, hot riveted. This construction provides maximum strength and rigidity. They are accessible for wiring, inspection, and replacement of parts.

Conduit boxes are adapted for conduit connection at bottom, back or sides. Conduit box may be omitted from the 1300-J, 1308-A, and the 1400-J types.

Front covers are lined with insulating material and are easily removable. On the floor-mounted sizes the back covers are removable to facilitate wiring.

The bearings have renewable bushings, the bottom bushing being of a material which requires no oiling. The top bushing is of phosphor bronze.

All contacts subject to burning or mechanical wear are easily renewable.

The finger tips are carried on self-aligning, channel-section, hinged arms. Their position is adjustable to compensate for wear. The contact pressure on a worn tip is the same as on a new tip.

An auxiliary contact, which is closed only in the off-position is placed at the bottom of the drum to give under-voltage protection when the drum is used with a magnetic switch and push-button station.

Operating levers are provided with latches at the off-position. Star-wheels with pawls are used to insure the switches being set on positive contact points.

Terminals for soldered connections are provided for all outgoing leads. These terminals are plainly marked for identification on the connection diagrams.

Suitable connection diagrams and instruction cards are posted on the inside of the front cover of each switch.

### Dust-Tight Covers

For cement-mill or similar service, where switches are subject to excessive non-explosive dust, it is recommended that switches with dust-tight covers be specified. Dust-tight covers are constructed with a felt gasket riveted around the edges. The covers are tightly fitted to the switch frame. Also all openings in the frame, including the conduit box are sealed with compound to exclude dust.

As special fitting and sealing are required, the covers cannot be furnished separately from the switches.

**G-E CR3202 A.C. Drum Switches**

For Wound-Rotor Induction Motors

Reversing, Primary and Secondary Control

These switches have auxiliary contact for use with CR7006 primary switch.

For starting duty, use with CR3221 resistors.

For speed-regulating duty, use with CR3223 resistors.

For crane and hoist duty, use with CR3244 resistors.

†3-Phase

Type No.	MAXIMUM VOLTAGE		CURRENT PER PHASE		POINTS	
	Primary	Secondary	Primary	Secondary	Forward	Reverse
§*1300-J	550	550	115	115	9	9
*1301-E	550	550	150	150	9	9
1305-C	550	550	300	300	11	11
§*1308-A	550	550	Max. Rating 15 H.P.5			5

Type No.	Approx. Ship. Wt., Lbs.	PRICE, EACH—SWITCH AND CONDUIT BOX LESS HANDLE		Omission Price of Conduit Box
		Standard Cover	Dust-Tight Cover	
§*1300-J	200	\$72.00	\$84.00	\$4.00
*1301-E	245	102.00	120.00	....
1305-C	400	254.00	280.00	....
§*1308-A	110	60.00	.....	4.00

†2-Phase

Type No.	MAXIMUM VOLTAGE		CURRENT PER PHASE		POINTS	
	Primary	Secondary	Primary	Secondary	Forward	Reverse
§*1400-J	550	550	115	115	9	9
*1401-E	550	550	150	150	9	9
1405-A	550	550	300	330	11	11

Type No.	Approx. Ship. Wt., Lbs.	PRICE, EACH—SWITCH AND CONDUIT BOX LESS HANDLE		Omission Price of Conduit Box
		Standard Cover	Dust-Tight Cover	
§*1400-J	200	\$87.00	\$99.00	\$4.00
*1401-E	245	125.00	145.00	....
1405-A	400	320.00	347.00	....

\*Starts motor with single-phase secondary.

†These drum switches open two legs of the circuit in the off-position, the third leg running direct to the motor. An additional switch should be installed which will entirely disconnect the motor from the line. If it is desired to have the drum switch open all three legs of the circuit at the off-position, a 2-phase drum switch listed above should be used.

‡These drum switches when used on a 2-phase, 4-wire circuit will open three legs of the circuit at the off-position, the fourth running direct to the motor, in which case an additional line switch is required to entirely disconnect the motor from the line. When used on a 3-phase or 2-phase 3-wire circuit they will open all three legs at the off-position.

§These switches are suitable for either wall or floor mounting. If for wall mounting, conduit box may be omitted. If for floor mounting, conduit box is essential.

**Handles**

Cat. No.	Type	Drum Switch with Which Used	Approx. Ship. Wt. Lbs.	Price Each
2219233G1	Horizontal	1300-J, 1308-A and 1400-J	5	\$5.00
2802923G2	Horizontal	1301-E, 1401-E	5	5.00
1883446G4	Horizontal	1305-C, 1405-A	9	7.00
2804463G1	Vertical	1300-J, 1308-A and 1400-J	45	32.00
2804463G8	Vertical	1301-E, 1401-E	45	32.00
2224167G1	Rope-Wheel	1308-A	90	13.00
2872612G1	Spring-Return	1300-J, 1400-J	90	32.00

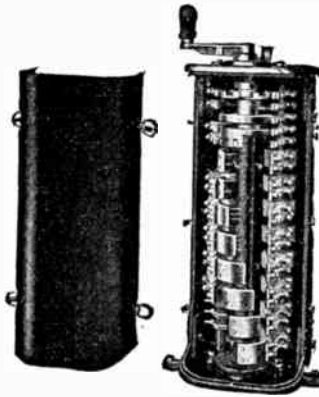
**Ordering Directions**

1. Order drum switch by CR number and type number.
2. Specify standard or dust-tight cover.
3. Order handle by catalogue number.

**G-E CR3204 A.C. Drum Switches**

For Slip-Ring Induction Motors Having 3-Phase Secondaries

Non-Reversing, Secondary Control



Type No. 1501-J

The CR3204 Drum Switches are for use with slip-ring motors having 3-phase secondaries and provide secondary control only. Resistors used with them are connected to prevent opening of the rotor circuit, and a separate primary switch must be used to stop and disconnect motor from circuit. They are provided with auxiliary contacts which permit of connections to either a CR7006 magnetic primary switch or an oil-immersed circuit breaker in the motor primary circuit to afford under-voltage protection on all but the first point of the switch, and overload protection.

When the drum switch is used with a CR7006 magnetic primary switch without a separate push-button station, the handle of the drum switch must always be turned to the first position to close the CR7006 primary switch. The handle of the drum switch must be turned to the off-position to open the primary switch and stop the motor.

When the drum switch is used with a CR7006 magnetic primary switch and a separate push-button station, the handle of the drum switch must be turned to the off-position so that the start-button of the push-button station may be operated to close the CR7006 primary switch.

CONDUIT BOX.—The CR3204-1500-C drum switch is suitable for wall mounting. In making the installation the conduit box should first be secured to the wall or support. The CR3204-1501-J and CR3204-1503-R drum switches are adapted for floor mounting.

SWITCHBOARD MOUNTING.—The CR3204 drum switches for switchboard use are arranged for mounting vertically with the switchboard and are furnished with a bevel-gear mechanism for operating from the front of the panel.

A primary switch is required with CR3204 drum switches. For starting duty use with CR3221 resistors. For machine service regulating duty use with CR3223 resistors. For fan service regulating duty use with CR3224 resistors.

Order CR3204 drum switch by Type No.

Type No.	CURRENT PER PHASE *Starting or Regulating Duty	†Starting or Regulating Duty	Max. Secondary Voltage	Points	Approx. Ship. Wt. Lbs.	PRICE, EACH—SWITCH LESS HANDLE	Standard Cover	Dustproof Cover
§1500-C	....	150	1000	11	140	\$58.00	\$76.00	
1501-J	....	300	1000	13	200	100.00	127.00	
1503-R	1000	500	1000	11	400	235.00	264.00	

\*Starting duty, if separate short-circuiting switch is used. This rating should be used only when the drum switch will be in circuit not longer than 5 minutes and then short circuited by a separate device, such as a 3-pole, 600-ampere magnetic switch. The CR3204-1503-R drum switches are furnished with an additional auxiliary contact on the last point which will provide an interlocking means between the drum switch and a magnetically operated short-circuiting switch.

†Starting or regulating duty, when no separate short-circuiting switch is used. This rating should be used in all cases where any point on the controller will be used as a running point.

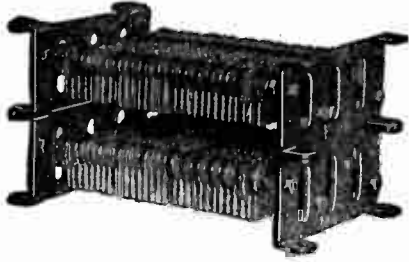
‡Price includes conduit box which may be omitted at \$3.00. §Starts motor with single-phase secondary.

**Handles**

Cat. No.	Type	Drum Switch with Which Used	Ship. Wt. Lbs.	Price Each
2647851G1	Horizontal	1500-C, 1501-J	5	\$3.00
1883446G4	Horizontal	1503-A	9	7.00
2804435G1	Switchboard Mechanism	1500-C	50	42.00
2804435G2		1501-J	50	46.00
2669219		1503-R	60	65.00

## G-E Heavy Duty A.C. Starting Resistors

Types CR3221, CR3223 and CR3224  
For Slip-Ring Induction Motors  
Constant Torque, 60 Cycles, 2 or 3-Phase



These resistors consist of Type IG grid units assembled in one or more boxes, and are for use with standard slip-ring induction motors having 3-phase rotors.

CR3221 Resistors are designed for starting duty only, and should not be used on applications where the drum switch may be left on an intermediate point. They comply with the American Standard Resistor Classification Nos. 34 and 35.

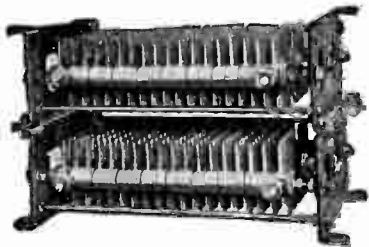
CR3223 Resistors are designed for speed-regulating machine service, i.e., where the torque is practically constant throughout the speed range. They will provide a speed variation of approximately 50 per cent, under torque conditions corresponding to the horse power guarantees at 50 per cent normal speed of the motors with which they are listed. They comply with the American Standard Resistor Classification No. 94.

CR3224 Resistors are similar to CR3223, but are designed for fan service, i.e., where the torque increases with the speed of the motor. They provide approximately 50 per cent speed reduction at 40 per cent torque, and should be used with ventilating fans, centrifugal pumps, ice cream freezers, and similar machines. They comply with the American Standard Resistor Classification No. 93.

## G-E CR3244 A.C. Intermittent Duty Resistors

For MTC or MQC Motors for Crane Service

60, 50 and 25 Cycles, 3 and 2-phase



These resistors are for use with Types MTC or MQC slip-ring motors for crane duty and comply with Amer. Std. Resistor Classification No. 52. They are not recommended for use with motors where the service differs greatly from that usually experienced in crane work.

Prices on similar resistors for use with motors of other manufacture will be furnished upon application. All requests for prices should include the secondary data of the motors.

These resistors have a permanent block of resistance which gives better regulation during acceleration and prevents the motor from stalling as it enables the motor to exert its maximum starting-torque regardless of how rapidly the operator throws the controller handle to the full running position.

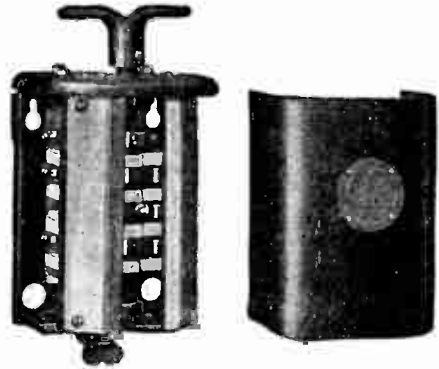
All resistors consist of Type SG cast grid resistor units assembled in one or more boxes. In case the resistor consists of more than one box, the boxes can be bolted together, if desired, to form a single unit. All resistor grids have three supporting lugs equally spaced, requiring the use of only one size of end frame. The tie-rods supporting the units are insulated both from the units and from the end frames. All boxes have the same over all dimensions.

Prices upon application.

## G-E CR3900 Drum Type Switches

For Small A.C. and D.C. Motors

Reversing or Non-reversing—Not for  
Elevator Service



Switch with Standard T Handle

These switches are recommended for throwing small direct and alternating current motors directly across the line.

The RD-80 switches have cast iron boxes with dust tight covers and the holes in the side of the frame through which the leads pass are fitted with rubber bushings.

The RD-417, RD-418, RD-419, RD-420, RD-421 and RD-422 switches have a cast iron frame with sheet metal cap-plate and cover. Two holes are provided in the bottom of the frame for the leads.

### Reversing

Type	MAXIMUM AMPERE CAPACITY—A.C.			D.C.		Approx. Ship. Wt. Lbs.	Price Each
	110-220 Volts	440 Volts	550 Volts	115-230 Volts	600 Volts		
*RD-417-A	30	30	30	30	15	22	\$19.00
†*RD-417-D	30	30	30	30	15	22	19.00
*RD-418-A	30	30	30	30	15	22	19.00
*RD-421-A	30	30	30	30	15	25	20.00
*RD-422-A	30	30	30	30	15	16	17.00
†*RD-422-B	30	30	30	30	15	16	17.00
RD- 80-A	100	100	75	100	..	60	46.00
†RD- 80-F	100	100	75	100	..	60	46.00

### Non-reversing

*RD-419-A	30	30	30	30	15	22	\$19.00
*RD-420-A	30	30	30	30	15	22	19.00

\*These switches have a continuous capacity of 30 amperes but can not be used with motors where the starting current exceeds 45 amperes. When used for throwing small two or three-phase induction motors directly on the line, their use should be limited to the following sizes: 1½ h.p., 110 volts; 3 h.p., 220 volts; 5 h.p., 440 volts, and 7½ h.p., 550 volts.

†This switch is equipped with a spring return attachment which automatically brings the handle to the off-position when it is released.

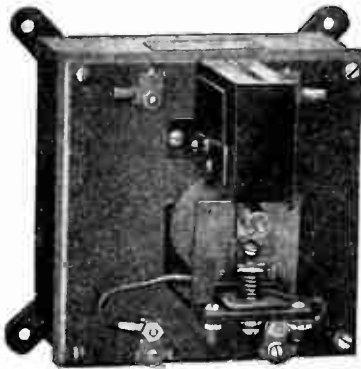
The pawl and pawl spring are omitted and the switches should be used only where the shipper rod is provided with a spring or other centering device for insuring the handle being thrown to the full running or to the off-position. The handle for shipper-rod operation of the RD-419 may be assembled in the dotted position for counter-clockwise rotation of the cylinder.

In ordering, specify type and form of switch desired.



G-E CR4002 D.C. Magnetic Switches

G-E CR4002 D.C. Magnetic Switches



With and Without Enclosing Case

For Remote Control by Knife Switch, Float Switch, Pressure Governor, Thermostat, Etc.

Amp. Cap. Voltage	No. of Poles	CP2800 Contactor No.	CR4002-A2 Open Type Cat. No.	†Price Each	CR4002-C2 Enclosed Type Cat. No.	†Price Each	
20	115	1	1112	1772583G2	\$14.00	1772612G2	\$18.00
20	230	1	1112	1772583G3	14.00	1772612G3	18.00
40	115	1	1112	1772585G2	17.00	1772614G2	28.00
40	230	1	1112	1772585G3	17.00	1772614G3	28.00
40	115	*2	1112	1772586G2	28.00	1772615G2	42.00
40	230	*2	1112	1772586G3	28.00	1772615G3	42.00
80	115	1	1115	1772587G2	18.00	1772616G2	34.00
80	230	1	1115	1772587G3	18.00	1772616G3	34.00
80	550	1	1115	1772587G5	18.00	1772616G5	34.00
80	115	*2	1115	1772588G2	37.00	1772617G2	56.00
80	230	*2	1115	1772588G3	37.00	1772617G3	56.00
80	550	*2	1115	1772588G5	37.00	1772617G5	56.00
150	115	1	1117	1772589G2	22.00	1772618G2	42.00
150	230	1	1117	1772589G3	22.00	1772618G3	42.00
150	550	1	1117	1772589G5	22.00	1772618G5	42.00
150	115	*2	1117	1772590G2	45.00	1772619G2	72.00
150	230	*2	1117	1772590G3	45.00	1772619G3	72.00
150	550	*2	1117	1772590G5	45.00	1772619G5	72.00
300	115	1	1119	1772591G2	35.00	1772620G2	70.00
300	230	1	1119	1772591G3	35.00	1772620G3	70.00
300	550	1	1119	1772591G5	35.00	1772620G5	70.00
300	115	*2	1119	1772592G2	71.00	1772621G2	125.00
300	230	*2	1119	1772592G3	71.00	1772621G3	125.00
300	550	*2	1119	1772592G5	71.00	1772621G5	125.00
600	115	1	1121	1772593G2	67.00	1772622G2	100.00
600	230	1	1121	1772593G3	67.00	1772622G3	100.00
600	550	1	1121	1772593G5	67.00	1772622G5	100.00
600	115	*2	1121	1772594G2	134.00	1772623G2	208.00
600	230	*2	1121	1772594G3	134.00	1772623G3	208.00
600	550	*2	1121	1772594G5	134.00	1772623G5	208.00

The CR4002 magnetic switches consist of a contactor or contactors mounted on a slate base, with feet for wall mounting, with or without a sheet metal enclosing case.

Used extensively with accessory switches, such as float switches, pressure governors, push buttons, etc., to control small motors which can be thrown directly on the line. Also used where it is desired to control, from a distance, circuits carrying large currents and where it would be too expensive to run the main leads to the remote points.

The control wires need be only large enough to furnish the requisite mechanical strength and maintain not less than 80 per cent normal voltage at the contactor coils.

These magnetic switches are furnished to operate directly across the line, without the use of any other series resistance for the coils. They are so designed that all parts are open for inspection, and those parts subject to wear can be easily, cheaply and quickly renewed.

The Form A2 requires two control wires between the contactor and the remote control point. A single-pole knife switch, or similar switch, may be used to close the contactor circuit, and the contactor will remain closed until the knife switch is opened, or until voltage fails or becomes low. If voltage fails the contactor will open and remain open until normal voltage is restored, when the contactor will close. This gives undervoltage release.

The Form B2 is similar to the Form A2, with the exception that an interlock is added to the contactor. Three control wires are required between the remote control point and the contactor. A two-button push-button station of the momentary contact type, instead of the knife switch, is used to control the contactor; one button to open and one to close the contactor. In case the voltage becomes low or fails, the contactor will drop out and upon return of normal voltage will not close until the closing push-button is pressed. This gives undervoltage protection.

Forms C2 and D2 are Forms A2 and B2, respectively, enclosed in sheet metal cases which have hinged doors and hasps for padlocking. The connections are made to terminals on the fronts of the panels. The enclosing cases are arranged for conduit connections.

Ordering Directions

Standard

Order a CR4002 switch by Cat. No., if for standard voltage.

If for special voltage, specify voltage, ampere capacity, and number of poles.

Optional Accessories

1. Float switch—CR2931.
2. Pressure governor—CR2922.
3. Pressure switch—CR2927.
4. Push-button station—CR2940.

For Remote Control by Momentary Contact Push-Button Station

Amp. Cap. Voltage	No. of Poles	CR2800 Contactor No.	CR4002-B2 Open Type Cat. No.	†Price Each	CR4002-D2 Enclosed Type Cat. No.	†Price Each	
20	115	1	1112	1772598G2	\$15.00	1772626G2	\$20.00
20	230	1	1112	1772598G3	15.00	1772626G3	20.00
40	115	1	1112	1772600G2	19.00	1772628G2	30.00
40	230	1	1112	1772600G3	19.00	1772628G3	30.00
40	115	*2	1112	1772601G2	30.00	1772629G2	44.00
40	230	*2	1112	1772601G3	30.00	1772629G3	44.00
80	115	1	1115	1772602G2	20.00	1772630G2	36.00
80	230	1	1115	1772602G3	20.00	1772630G3	36.00
80	550	1	1115	1772602G5	20.00	1772630G5	36.00
80	115	*2	1115	1772603G2	39.00	1772631G2	58.00
80	230	*2	1115	1772603G3	39.00	1772631G3	58.00
80	550	*2	1115	1772603G5	39.00	1772631G5	58.00
150	115	1	1117	1772604G2	25.00	1772632G2	45.00
150	230	1	1117	1772604G3	25.00	1772632G3	45.00
150	550	1	1117	1772604G5	25.00	1772632G5	45.00
150	115	*2	1117	1772605G2	47.00	1772633G2	75.00
150	230	*2	1117	1772605G3	47.00	1772633G3	75.00
150	550	*2	1117	1772605G5	47.00	1772633G5	75.00
300	115	1	1119	1772606G2	38.00	1772634G2	73.00
300	230	1	1119	1772606G3	38.00	1772634G3	73.00
300	550	1	1119	1772606G5	38.00	1772634G5	73.00
300	115	*2	1119	1772607G2	73.00	1772635G2	127.00
300	230	*2	1119	1772607G3	73.00	1772635G3	127.00
300	550	*2	1119	1772607G5	73.00	1772635G5	127.00
600	115	1	1121	1772608G2	70.00	1772636G2	103.00
600	230	1	1121	1772608G3	70.00	1772636G3	103.00
600	550	1	1121	1772608G5	70.00	1772636G5	103.00
600	115	*2	1121	1772609G2	137.00	1772637G2	211.00
600	230	*2	1121	1772609G3	137.00	1772637G3	211.00
600	550	*2	1121	1772609G5	137.00	1772637G5	211.00

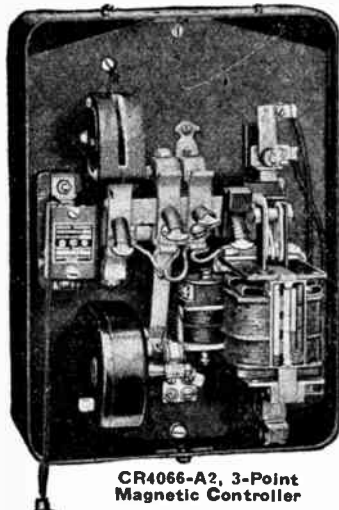
\*Consists of two contactors on same base with coils wired in series.

†Price does not include an accessory. See ordering directions.





**G-E D.C. Magnetic Controllers**  
**CR4066, Non-Reversing—CR4068, Reversing**  
**For Shunt or Compound-Wound, Constant-Speed**  
**D.C. Motors**



**CR4066-A2, 3-Point Magnetic Controller**

These controllers are designed for controlling constant-speed, d.c. motors up to 10 h.p., 110 volts and 20 h.p., 235 volts. They may be used with motors that do not require more than 150 per cent full-load torque to start and longer than 15 seconds to obtain full speed. They comply with American Standard Resistor Classification No. 16. The CR4066-A2 non-reversing controllers consist of a solenoid-operated, multi-finger contactor, a temperature overload relay and a dynamic-braking relay, all mounted on a compound base on the back of which is mounted the starting and dynamic-braking resistor. They are provided with a blow-out on the line contact to disrupt the arc.

The CR4068-A2 controllers are suitable for reversing service and each panel contains 2 mechanically interlocked reversing contactors in addition to the devices as supplied on the CR4066-A2 controllers.

The controllers provide 3 or 4 points of acceleration depending on the rating of the motor with which they are used: 3/4 to 3 h.p., 115 volts and 3/4 to 7 1/2 h.p., 230 volts, 3 points; 5 to 10 h.p., 115 volts and 10 to 20 h.p., 230 volts, 4 points.

Volts	H.P. of Motor	CR4066-A2 Cat. No.	No. of Points	Approx. Shipping Wt., Lbs.	*Price Each
115	3/4-1 1/2	3651116G2	3	36	\$42.00
115	2-3	3651116G3	3	36	42.00
115	5-7 1/2	3650397G2	4	46	60.00
115	10	3650397G3	4	46	65.00
230	3/4-1 1/2	3651116G4	3	36	42.00
230	2-3	3651116G5	3	36	42.00
230	5-7 1/2	3650394G2	3	36	46.00
230	10	3650397G5	4	46	60.00
230	15-20	3650397G6	4	46	65.00

Volts	H.P. of Motor	CR4068-A2 Cat. No.	No. of Points	Approx. Shipping Wt., Lbs.	*Price Each
115	3/4-1 1/2	3650400G2	3	50	\$104.00
115	2-3	3650403G3	3	50	109.00
115	5-7 1/2	3650985G2	4	75	117.00
115	10	3650985G3	4	75	130.00
230	3/4-1 1/2	3650400G4	3	50	104.00
230	2-3	3650400G5	3	50	104.00
230	5-7 1/2	3650403G2	3	50	109.00
230	10	3650985G5	4	75	117.00
230	15-20	3650985G6	4	75	130.00

\*Price includes starter with relay heater unit and CR2940-BS-79-J push-button station, which may be omitted or additional ones furnished at the following prices: Relay heater unit, 50 cents; push-button station, \$2.00.

Price includes starter with relay heater unit and CR2940-BS-13C push-button station, which may be omitted or additional ones furnished at the following prices: Relay heater unit, 50 cents; push-button station, \$7.00.

**Relay Heater Units**

AMPERES Rating of Full-Load Current of Motor	Cat. No.	Relay Heater Units	AMPERES Rating of Full-Load Current of Motor	Cat. No.	Relay Heater Units	AMPERES Rating of Full-Load Current of Motor	Cat. No.	Relay Heater Units
3.21-3.50	4.0	3652500G17	8.91-9.90	11.5	3652500G27	25.6-28.0	33.0	3652500G37
3.51-3.90	4.5	3652500G18	9.91-11.30	13.0	3652500G28	28.1-32.0	37.0	3652500G38
3.91-4.35	5.0	3652500G19	11.40-12.0	14.0	3652500G29	32.1-36.0	41.0	3652500G39
4.36-4.75	5.4	3652500G20	12.1-13.0	15.0	3652500G30	36.1-40.0	46.0	3652500G40
4.76-5.30	6.0	3652500G21	13.1-14.0	16.0	3652500G31	40.1-45.0	52.0	3652500G41
5.31-5.90	6.8	3652500G22	14.1-16.0	18.0	3652500G32	45.1-51.0	58.0	3652500G42
5.91-6.70	7.7	3652500G23	16.1-18.0	20.5	3652500G33	51.1-57.0	65.0	3652500G43
6.71-7.50	8.6	3652500G24	18.1-20.0	23.0	3652500G34	57.1-64.0	74.0	3652500G44
7.51-8.40	9.6	3652500G25	20.1-22.5	26.0	3652500G35	64.1-72.0	83.0	3652500G45
8.41-8.90	10.0	3652500G26	22.6-25.5	29.0	3652500G36	72.1-90.0	90.0	3652500G46

**G-E Type CR7002 AC. Magnetic Switches**



The CR7002 magnetic switch consists of a multi-pole a.c. contactor mounted on a base, with or without a sheet metal enclosing case. (The CR2810-1265 contactor is self-contained and the open type is not mounted on a base.) These switches are used extensively where it is desired to control from a distance circuits carrying relatively large currents and where it would be too expensive to run the main leads to the remote point. These switches, with the exception of the CR2810-1265 contactor, may be used to control a.c. motors, provided overload protection is not required.

Both the open and enclosed switches are provided with holding interlocks for use in connection with the momentary contact push-button stations. This combination provides undervoltage protection and requires 3 wires between the switch and the push-button station. Where the push-button station is of the maintain-contact type, the interlock does not have to be wired into the circuit. With this combination undervoltage release is provided and only 2 wires are required between the switch and the push-button station.

The CR2810-1265 contactor is single-pole only, with 2 breaks in series. Where a 2-pole switch is needed 2 contactors are used and the coils are connected in multiple. Contactor is self-contained and may be mounted directly on an insulated or non-insulated base by means of 2 bolts or screws. This device was designed to handle non-inductive heating loads at a maximum of 220 volts and should not be used to control motor circuits.

The 75-ampere contactors are furnished either with barriers or with arc chutes and blowout coils. The barrier types have the same contacts for the main and interlock circuits, therefore, a contactor with 2 poles and interlock may be used as a 3-pole device without interlock. This type of contactor on inductive loads is limited in its rupturing capacity to the inrush current of the motors for which it is recommended.

The 600-ampere switches are arranged for floor mounting. In the enclosed type the case runs to the floor so it is not necessary to drill for conduit, the bottom of the case being entirely omitted. These switches are not for use with push-button stations unless an intermediate relay is used. They can be used with a knife switch or drum switch.

**Ordering Directions**

STANDARD.—Order a CR7002 switch by Cat. No. if for standard voltages and 60 cycles. If for special voltages and frequencies, specify the voltage, frequency, ampere capacity and number of poles, and whether open or enclosed.

OPTIONAL ACCESSORIES.—Float switch, CR2931; pressure governor, CR2922; pressure switch, CR2927; push-button station, CR2940.

**Maximum H.P. Ratings**

Volts	75 Amperes (With Barriers Only)									
	SQUIRREL-CAGE TYPE KT OR KQ				SQUIRREL-CAGE TYPE FTR OR FQR				SLIP-RING TYPE MT OR MQ	
	3-Phase 3-Wire	2-Phase 4-Wire	2-Phase 3-Wire	3-Phase 4-Wire	2-Phase 3-Wire	2-Phase 4-Wire	2-Phase 3-Wire	2-Phase 4-Wire	2-Phase 3-Wire	2-Phase 4-Wire
110	7 1/2	7 1/2	5	7 1/2	7 1/2	5	7 1/2	7 1/2	5	7 1/2
220	10	10	10	15	15	10	15	15	10	15
440	5	5	5	10	10	10	15	15	15	15
550/600	5	5	5	10	10	10	15	15	15	15
110	7 1/2	7 1/2	5	7 1/2	7 1/2	5	7 1/2	7 1/2	5	7 1/2
220	15	15	15	15	15	15	15	15	15	15
440	25	25	25	35	35	30	35	40	30	40
550/600	25	25	25	35	35	35	40	50	40	50
110	..	..	..	..	..	..	..	..	..	..
220	40	40	40	40	40	40	60	60	40	40
440	50	50	50	75	75	75	100	100	75	75
550	50	50	50	75	75	75	125	125	100	100
110	..	..	..	..	..	..	..	..	..	..
220	75	75	75	75	75	75	100	100	100	100
440	100	100	100	125	125	125	200	200	200	200
550	100	100	100	125	125	125	200	200	200	200

## G-E CR7002 A.C. Magnetic Switches

Continued

Open or Enclosed; Provides Undervoltage Release or Protection Depending on Accessory Used

60 Cycles

15 Amperes (Max. Carrying and Breaking Cap.)

Open Type

Volts	CR2810 Contactor Type	SINGLE-POLE, No INTERLOCK	No INTERLOCK *Price, Ea. Switch Only	SINGLE-POLE, WITH INTERLOCK	WITH INTERLOCK *Price, Ea. Switch Only
110	1265	†2829653G2	\$5.00	†2829654G2	\$6.00
220	1265	†2829653G3	5.00	†2829654G3	6.00

Enclosed Type

Volts	CR2810 Contactor Type	SINGLE-POLE, WITH INTERLOCK	DOUBLE-POLE, WITH INTERLOCK
110	1265	2829656G2 \$7.00	†2829657G2 \$12.00
220	1265	2829656G3 7.00	†2829657G3 12.00

75 to 600 Amperes  
110 Volts

Open Type

Contin-uous Amp. Cap.	No. of Poles	CR2810 Contactor Type	Cat. No.	*Price Switch Only	Enclosed Type	*Price Switch Only
\$75	2	....	2889016G19	\$13.00	Use 3-Pole	.....
\$75	3	.... Use	Enclosed 3-Pole	.....	1775040G19	\$14.00
\$75	4	....	2889018G19	19.00	1775042G19	19.00
75	2	....	2889027G19	17.00	Use 3-Pole	.....
75	3	....	2889029G19	20.00	1775041G19	20.00
75	4	....	2889031G19	24.00	2889039G19	31.00
150	2	198	3650018G2	74.00	Use 3-Pole	.....
150	3	222	3650019G2	80.00	△3653629G2	80.00
300	2	197	3650020G2	95.00	Use 3-Pole	.....
300	3	223	3650021G2	111.00	3652194G2	117.00
600	2	1315	2889981G2	226.00	2889981G27	339.00
600	3	1314	2889980G2	267.00	2889980G27	380.00

220 Volts

\$75	2	....	2889016G2	\$13.00	Use 3-Pole	.....
\$75	3	.... Use	Enclosed 3-Pole	.....	1775040G2	\$14.00
\$75	4	....	2889018G2	19.00	1775042G2	19.00
75	2	....	2889027G2	17.00	Use 3-Pole	.....
75	3	....	2889029G2	20.00	1775041G2	20.00
75	4	....	2889031G2	24.00	2889039G2	21.00
150	2	198	3650018G3	74.00	Use 3-Pole	.....
150	3	222	3650019G3	80.00	△3653629G3	80.00
300	2	197	3650020G3	95.00	Use 3-Pole	.....
300	3	223	3650021G3	111.00	3652194G3	117.00
600	2	1315	2889981G3	226.00	2889981G28	339.00
600	3	1314	2889980G3	267.00	2889980G28	380.00

440 Volts

\$75	2	....	2889016G3	\$13.00	Use 3-Pole	.....
\$75	3	.... Use	Enclosed 3-Pole	.....	1775040G3	\$14.00
\$75	4	....	2889018G3	19.00	1775042G3	19.00
75	2	....	2889027G3	17.00	Use 3-Pole	.....
75	3	....	2889029G3	20.00	1775041G3	20.00
75	4	....	2889031G3	24.00	2889039G3	21.00
150	2	198	3650018G4	74.00	Use 3-Pole	.....
150	3	222	3650019G4	80.00	△3653629G4	80.00
300	2	197	3650020G4	95.00	Use 3-Pole	.....
300	3	223	3650021G4	111.00	3652194G4	117.00
600	2	1315	2889981G4	226.00	2889981G29	339.00
600	3	1314	2889980G4	267.00	2889980G29	380.00

550 Volts

\$75	2	....	2889016G11	\$13.00	Use 3-Pole	.....
\$75	3	.... Use	Enclosed 3-Pole	.....	1775040G11	\$14.00
\$75	4	....	2889018G11	19.00	1775042G11	19.00
75	2	....	2889027G11	17.00	Use 3-Pole	.....
75	3	....	2889029G11	20.00	1775041G11	20.00
75	4	....	2889031G11	24.00	2889039G11	21.00
150	2	198	3650018G5	74.00	Use 3-Pole	.....
150	3	222	3650019G5	80.00	△3653629G5	80.00
300	2	197	3650020G5	95.00	Use 3-Pole	.....
300	3	223	3650021G5	111.00	3652194G5	117.00
600	2	1315	2889981G5	226.00	2889981G30	339.00
600	3	1314	2889980G5	267.00	2889980G30	380.00

\*Prices listed cover switches for all standard frequencies but Cat. No. covers 60-cycle switches only.

†Self-contained contactors, unmounted.

‡Two single-pole contactors. Coils connected in multiple.

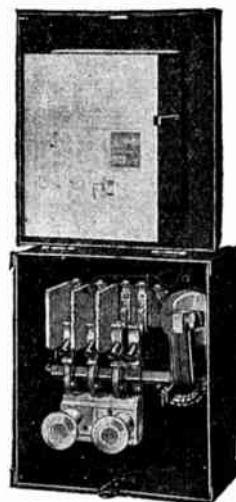
§Contactor has barriers only. Will carry and break 75 amperes non-inductive load.

△Cat. No. covers CR7006-D31 without relay, but with a set of two copper strips to short-circuit the relay studs.

## G-E CR7005-A4 A. C. Enclosed Magnetic Switches



Closed



Open

The CR7005-A4 Enclosed Magnetic Switches are suitable for throwing small A. C. motors up to 3 h. p., 110 volts; and 5 h. p., 220, 440, 550 and 600 volts, directly on the line. They consist of a 3-pole contactor or magnetically operated switch and a thermal cutout receptacle for 2 thermal cutouts mounted in a sheet steel enclosing case. Incoming leads are easily connected to the stationary contacts which are thoroughly insulated by means of moulded material of which the base is composed. Outgoing leads are connected directly to the porcelain base of the thermal cutouts.

### Enclosing Case

The enclosing case is furnished with a hinged cover which may be locked shut if desired. The enclosing case is provided with ten 3/4-inch knockout holes; 3 at the top, 3 at the bottom, and 2 at each side. Knockout holes are also provided in the top for mounting adapter, Cat. No. 2040400, which is required with the CR1923-A1 disconnecting switch.

### Thermal Cutouts

Particular care should be used to select thermal cutouts of the correct size.

In case of an overload, the links of the cutouts will open the motor circuit, but the line contactor will not open automatically. The door of the enclosing case cannot be opened until the contactor is opened, because of an interlock between them. A conspicuous name plate on the cover calls attention to the fact that the cover cannot be lifted until the magnetic switch is de-energized by pressing the stop-button. This insures the cutouts and their receptacles being dead before the operator can replace blown fuse links.

### Under-voltage Protection or Under-voltage Release

The switch is ordinarily operated by means of a CR2940-BS79J "Start" and "Stop" push-button station. This station is of the momentary contact type and an extra pole is provided on the magnetic contactor to provide an electrical interlock for the holding circuit. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage, but the Start button must be pressed to restart the motor. This scheme of connections provides Under-voltage Protection. If desired, the switch may be controlled from a number of places simply by installing a suitable number of CR2940-BS79J Push-button Stations.

The switch may also be operated by any master switch of the single-pole single-throw type, as for example, a CR2940-BS30A Push-button Station, a CR2922 Pressure Governor, or a CR2931 Float Switch. In wiring up such switches the connections to the interlock on the contactor should be omitted. The equipment will then provide Under-voltage Release for, when voltage returns, if the master switch is closed, the contactor will close and start the motor automatically. Before deciding to use this scheme care should be taken to be sure that Under-voltage Release, not Under-voltage protection is required.

**G-E CR7005-A4 A.C. Enclosed Magnetic Switches**

For 3 or 2-phase Motors up to 3 H. P., 110 Volts; 5 H. P., 220, 440, 550 and 600 Volts

Under-voltage Protection or Under-voltage Release  
Inverse-time Overload Protection

Prices include CR2940-BST9J push button station, two thermal cutouts, 12 extra links. Approximate shipping weight, 30 pounds.

**3-pole Switches**

Volts	CAT. No. OF SWITCHES ONLY				*Price Each
	60 Cycles	50 Cycles	40 Cycles	25 Cycles	
110	1776587G19	1776587G16	1776587G19	1776587G2	\$17.00
220	1776587G2	1776587G17	1776587G10	1776587G3	17.00
440	1776587G3	1776587G11	1776587G18	1776587G4	17.00
550	1776587G11	1776587G12	1776587G13	1776587G6	17.00
600	1776587G18	1776587G20	1776587G14	1776587G7	17.00

**4-pole Switches**

110	1777292G19	1777292G16	1777292G9	1777292G2	\$22.00
220	1777292G2	1777292G17	1777292G10	1777292G3	22.00
440	1777292G3	1777292G11	1777292G18	1777292G4	22.00
550	1777292G11	1777292G12	1777292G13	1777292G6	22.00
600	1777292G18	1777292G20	1777292G14	1777292G7	22.00

\*The CR2940-BST9J push-button station may be omitted at a reduction of \$2.00, and the two thermal cutouts at \$1.70

**Prices of Additional Parts**

Thermal Cutout with Spare Link	Price Each
Price	\$1.00
" Carton of 10 Plugs, Assorted Ratings	9.00
" " 10 " One Rating	9.50
Fusible Link, Cat. No. 167539	
Price, per 10	\$ .50
" " 100	3.00
" " 500	12.00

The following table gives the Catalogue Number and ampere rating of each thermal cutout and the range of full load current of the motors with which each plug may be used.

Cat. No.	Ampere Rating	Full Load Current of Motor in Amperes
256913	0.8	0.59—0.70
256914	0.95	0.71—0.83
256915	1.1	0.84—0.96
256916	1.3	0.97—1.13
256917	1.5	1.14—1.31
256918	1.8	1.32—1.58
256919	2.1	1.59—1.84
256920	2.5	1.85—2.19
256921	3.0	2.20—2.63
256922	3.6	2.64—3.15
256923	4.3	3.16—3.75
256924	5.1	3.76—4.45
256925	6.0	4.46—5.25
256926	7.1	5.26—6.20
256927	8.4	6.21—7.35
256928	10.0	7.36—8.75
256929	11.8	8.76—10.3
256930	14.0	10.4—12.3
256931	16.6	12.4—14.6
256932	20.0	14.7—17.5

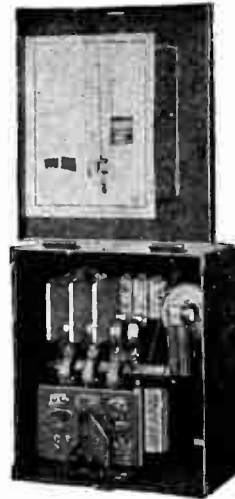
Fusible link, Cat. No. 167539 is same for all cutouts.

**Ordering Directions**

The Cat. No. of the switch does not include the push-button station or the two thermal cutouts. They must be ordered as separate items.

- Order a switch by Cat. No.
- Order a push-button or master switch by complete rating.
- Order two thermal cutouts for each switch by Cat. No.

**G-E CR7006 Enclosed Magnetic Switches For Alternating Current Motors**



CR7006-D4

The CR7006 Enclosed Magnetic Switch consists of a three- or four-pole contactor and a two-coil hand-reset temperature overload relay enclosed in a sheet metal case.

With the exception of the contactor, parts of the CR7006-D4, D5 and D7 are similar. The contactor for the CR7006-D4 switch is provided with barriers between the poles. The contactor for the CR7006-D5 is provided with magnetic blowouts. The CR7006-D7 is identical with the CR7006-D5 except that the enclosing case is larger and ventilated to provide more heat radiation and thus give it a higher rating.

The three-pole forms are recommended for three-phase and two-phase three-wire motors and open all lines to the motor. The three-pole switch may be used with two-phase four-wire

motors provided it is permissible to leave one line of the circuit permanently connected to the motor. The four-pole switch should be used for two-phase four-wire motors when all lines must be opened. The CR7006-D5 or -D7 switch cannot be furnished four-pole.

**Overload Protection**

Overload protection is provided by means of a temperature relay, which upon an overload opens the contactor. This relay has two heating elements, one connected in each of two phases, so that it provides full overload protection for single, two, or three-phase motors.

After the relay trips, the contacts must be reset by hand and a resetting device operated from the outside of the case is provided for the purpose. Provision is made for attaching a cord to the resetting device for convenience in resetting the relay when the switch is mounted above the reach of the operator.

**Under-voltage Protection or Under-voltage Release**

The switch is ordinarily operated by means of a CR2940-BST9J "start" and "stop" push-button station. This station is of the momentary contact type and an extra pole is provided on the magnetic contactor to provide an electrical interlock for the holding circuit. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage, but the "start" button must be pressed to restart the motor. This scheme of connections provides "under-voltage protection." If desired, the switch may be controlled from a number of places simply by installing a suitable number of CR2940-BST9J push-button stations.

The CR7006 switch may also be operated by means of any master switch of the single-pole single-throw type, as for example, by means of a CR2940-BST30A push-button station, a CR2922 pressure governor, a CR2927 pressure switch, a CR2930 or CR2931 float switch, etc. In wiring up switches of this type the connections to the interlock on the contactor should be omitted. The equipment will provide "under-voltage release."

**Enclosing Case**

The enclosing case is provided with a hinged cover which may be locked shut if desired. It is provided with ten 3/4-inch knockout holes; three at the top, three at the bottom, and two at each side.

**Ordering Directions**

- The price of the switch includes switch, overload relay, and push-button station; but the Cat. No. refers to switch.
- Order a switch by Cat. No.
- Order a temperature overload relay by Cat. No.
- Order a push-button or equivalent accessory.
- Order a cover interlock Cat. No. 1773107, if desired.
- Order a set of terminals Cat. No. 1774499, if the normal motor current is over 30 amperes.

## G-E CR7006 Enclosed Magnetic Switches

For A.C. Motors

Overload Protection by Hand Reset Temperature Overload Relay  
Undervoltage Protection or Undervoltage Release, Depending  
upon the Accessory Used. For Throwing Single-Phase,  
2-Phase, or 3-Phase Motor Directly on the Line

Maximum H.P. Ratings

Volts	SQUIRREL-CAGE FORM KT AND KQ			SQUIRREL-CAGE FORM FTR			SLIP-RING FORM MT AND MQ		
	3-Phase Wire	2-Phase Wire	2-Phase Wire	3-Phase Wire	2-Phase Wire	2-Phase Wire	3-Phase Wire	2-Phase Wire	2-Phase Wire
110	7½	7½	5	7½	7½	5	7½	7½	5
220	15	15	15	15	15	15	15	15	10
440	7½	7½	7½	10	10	10	15	15	15
550/600	5	5	5	10	10	10	10	10	10
Type CR7006-D4									
110	7½	7½	5	7½	7½	5	7½	7½	5
220	15	15	15	15	15	15	15	15	10
440	25	25	25	35	35	35	35	40	30
550/600	25	25	25	35	35	35	40	50	40
Type CR7006-D5									
110	10	10	10	10	10	10	10	10	10
220	25	30	25	25	30	25	25	30	20
440	35	35	35	50	50	40	50	50	40
550/660	35	35	35	50	50	50	60	60	60

Prices

Type CR7006-D4

Volts	Cycles	3-POLE		4-POLE	
		Cat. No.	*Price Each	Cat. No.	*Price Each
110	60	1773589G19	\$22.00	1773590G19	\$27.00
220	60	1773589G2	22.00	1773590G2	27.00
440	60	1773589G3	22.00	1773590G3	27.00
550	60	1773589G11	22.00	1773590G11	27.00
600	60	1773589G18	22.00	1773590G18	27.00
110	50	1773589G16	22.00	1773590G16	27.00
220	50	1773589G17	22.00	1773590G17	27.00
440	50	1773589G11	22.00	1773590G11	27.00
550	50	1773589G12	22.00	1773590G12	27.00
600	50	1773589G20	22.00	1773590G20	27.00
110	25	1773589G2	22.00	1773590G2	27.00
220	25	1773589G3	22.00	1773590G3	27.00
440	25	1773589G4	22.00	1773590G4	27.00
550	25	1773589G6	22.00	1773590G6	27.00
600	25	1773589G7	22.00	1773590G7	27.00
Type CR7006 D5, 3-Pole					
110	60	1773855G19	\$28.00	1773151G19	\$33.00
220	60	1773855G2	28.00	1773151G2	33.00
440	60	1773855G3	28.00	1773151G3	33.00
550	60	1773855G11	28.00	1773151G11	33.00
600	60	1773855G18	28.00	1773151G18	33.00
110	50	1773855G16	28.00	1773151G16	33.00
220	50	1773855G17	28.00	1773151G17	33.00
440	50	1773855G11	28.00	1773151G11	33.00
550	50	1773855G12	28.00	1773151G12	33.00
600	50	1773855G20	28.00	1773151G20	33.00
110	25	1773855G2	28.00	1773151G2	33.00
220	25	1773855G3	28.00	1773151G3	33.00
440	25	1773855G4	28.00	1773151G4	33.00
550	25	1773855G6	28.00	1773151G6	33.00
600	25	1773855G7	28.00	1773151G7	33.00

\*Price is for the switch complete with a CR2824-TC121C temperature overload relay and a CR2940-BS79J push-button station. The push-button station may be omitted at \$2.00. Additional thermal relay furnished at \$6.00 each.

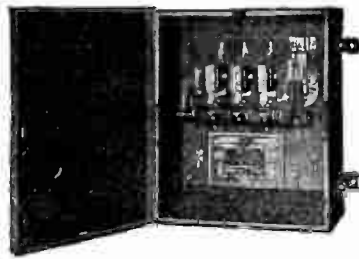
†The switch is furnished with punched terminals which are rated 30 amperes maximum. Where normal current of motor exceeds 30 amperes, a set of punched tube terminals Cat. No. 1774499 should be ordered at no increase in price.

The following table gives the Cat. No. of the temperature relays and the range of full-load currents of the motors with which each may be used.

Cat. No.	Normal Rating in Amp.	Full Load Current of Motor in Amp.	Cat. No.	Normal Rating in Amp.	Full Load Current of Motor in Amp.
2019557G1	0.65	0.40-0.58	2019557G12	8.0	5.9-7.2
2019557G2	0.8	0.59-0.72	2019557G13	10.0	7.3-9.2
2019557G3	1.0	0.73-0.92	2019557G14	13.0	9.3-11.6
2019557G4	1.3	0.93-1.16	2019557G15	16.0	11.7-14.4
2019557G5	1.6	1.17-1.44	2019557G16	20.0	14.5-18.0
2019557G6	2.0	1.45-1.80	2019557G17	25.0	18.1-22.0
2019557G7	2.5	1.81-2.2	2019557G18	30.0	22.1-28.0
2019557G8	3.0	2.3-2.8	2019557G19	40.0	28.1-36.0
2019557G9	4.0	2.9-3.6	2019557G20	50.0	36.1-46.0
2019557G10	5.0	3.7-4.6	2019557G21	65.0	46.1-58.0
2019557G11	6.5	4.7-5.8	2019557G22	80.0	58.1-80.0

## G-E CR7006-D9 Enclosed Magnetic Switches

For Alternating Current Motors



The CR7006-D9 magnetic switch consists of a 3-pole contactor and a 2-coil hand-reset temperature overload relay. It may be used for throwing squirrel-cage motors directly on the line if permitted by the power company. The switch has a more general application as a primary switch in connection with a slip-ring motor, the secondary of which is handled by a drum switch.

primary switch in connection with a slip-ring motor, the secondary of which is handled by a drum switch.

### Overload Protection

Overload protection is provided by a CR2824-TC221 temperature overload relay which is made up of 2 units, one connected in each of 2 phases, so that full protection is provided for 2 or 3-phase motors. Each unit consists of a heating coil surrounded by a brass frame, a V-shaped strip of thermostatic metal rigidly fastened at one end to the brass frame and a contact mechanism normally held closed mechanically by the thermostatic strip but opened when the strip is heated above a certain temperature. The heating coil and the thermostatic strip, the latter bridged by a shunt, are connected in series in a line of the motor circuit.

Heating in the thermostatic strip occurs because of the current flowing through it and also because of the heat which is conducted through the brass frame from the heating coil. For small overloads, the heating coil raises the temperature of the thermostatic strip slowly due to the large volume of the brass frame which absorbs the heat.

With normal current in the thermostatic strip, the heat produced is not sufficient to raise its temperature greatly, but since the heating is proportional to the square of the current flowing through it, the heat produced with 3 or more times normal current is sufficient to cause the relay to trip quickly. Thus the metal frame around the heating coil may represent the iron of the motor and the thermostatic strip may represent the copper of the motor.

For small overloads of long duration the metal frame provides the correct thermal capacity and delays the tripping of the relay, while for large overloads, the heating of the thermostatic strip is accomplished immediately and the relay quickly trips.

The relay is provided with means for adjusting the tripping value over a range of from 80 to 120 per cent of its normal rating. The relay must be reset by hand from inside the switch enclosing case. After the relay has tripped it cannot be reset for about 30 seconds, or until the relay and motor have had an opportunity to cool.

### Under-voltage Protection or Under-voltage Release

The switch is ordinarily operated by means of a CR2940-BS212A start-and-stop push-button station. This station is of the momentary contact type and an extra pole is provided on the magnetic contactor to provide an electrical interlock for the holding circuit. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage, but the start button must be pressed to restart the motor. This scheme of connections provides under-voltage-protection. If desired, the switch may be controlled from a number of places simply by installing a suitable number of CR2940-BS212A push-button stations.

When this switch is used to handle the primary circuit of a slip-ring motor in connection with any of the listed CR3204 secondary drum switches a start-and-stop push button is not required, as provision is made in the switch for closing the contactor coil circuit as the switch handle is turned to the first point, and to open it in returning the handle to the off-position. This combination of CR7006 magnetic switch and secondary drum switch provides under-voltage protection.



**G-E CR7006-D9 Enclosed Magnetic Switches**

For A.C. Motors

Continued

The CR7006 Switch may also be operated by means of any master switch of the single-pole single-throw type, as for example, by means of a knife switch, a CR2922 pressure governor, a CR2927 pressure switch, a CR2930 or CR2931 float switch, etc. In wiring up switches of this type connections to the interlock on contactor should be omitted. Equipment will provide under-voltage release.

**Enclosing Case**

The enclosing case is provided with a hinged cover which may be locked shut if desired.

Two 2-inch and one 3/4-inch knockouts, for conduit connections, are provided in both the top and bottom of the enclosing case.

**Maximum Horse Power Ratings**

Volts	SQUIRREL-CAGE FORMS KT OR MT			SQUIRREL-CAGE FORMS FT OR FTR			SQUIRREL-CAGE FORMS MT OR MQ		
	Phase 3-Wire	Phase 4-Wire	Phase 3-Wire	Phase 3-Wire	Phase 4-Wire	Phase 3-Wire	Phase 2-Wire	Phase 3-Wire	
110	..	..	..	..	..	..	..	..	
220	75	75	75	75	75	75	100	100	
440	100	100	100	125	125	125	200	200	
550	100	100	100	125	125	125	200	200	

**Prices**

Type CR7006-D9—300 Amperes

Cat. No.	Volts	Cycles	Price Each
2829025G2	110	60	\$150.00
2829026G3	220	60	150.00
2829025G4	440	60	150.00
2829025G5	550	60	150.00
2829025G6	110	50	150.00
2829025G7	220	50	150.00
2829025G5	440	50	150.00
2829025G8	550	50	150.00
2829025G3	110	25	150.00
2829025G4	220	25	150.00
2829025G12	440	25	150.00
2829025G13	550	25	150.00

Price is for switch complete with CR2824-TC221 temperature overload relay, and a CR2940-B8212A push-button station. The push-button station may be omitted at \$5.00. Additional temperature relays will be furnished at \$3.00 each.

The following table gives the catalogue number of the temperature relays and the range of full-load currents of the motors with which each may be used.

Cat. No.	Normal Rating in Amperes	Full Load Current in Amperes	Cat. No.	Normal Rating in Amperes	Full Load Current in Amperes
2019555G1	20	14-20	2019555G7	100	77-96
2019555G2	30	21-29	2019555G8	125	97-120
2019555G3	40	30-38	2019555G9	150	121-145
2019555G4	50	39-48	2019555G10	200	146-192
2019555G5	60	49-57	2019555G11	250	193-240
2019555G6	80	58-76	2019555G12	300	241-288

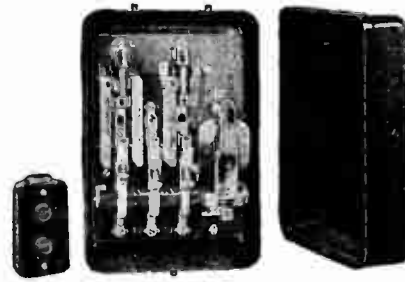
**Ordering Directions**

The price of the switch given above includes the switch, temperature overload relay, and push-button station; but the catalogue number refers to the switch only.

1. Order a CR7006-D9 switch by catalogue number.
2. Order a CR2824-TC221 temperature overload relay by catalogue number.
3. Order a CR2940-B8212A start-and-stop push-button station or equivalent accessory if desired.

**No. CR7006-D20 G-E Enclosed Magnetic Switches**

For A.C. Motors



Suitable for throwing small a.c. motors directly on the line. It consists of a triple-pole, barrier type, magnetically operated contactor and 2 Trumbull inverse time temperature overload relays mounted on a moulded base and enclosed in a drawn-shell steel

enclosing case. Incoming and outgoing leads are easily connected to connection blocks provided near the top and bottom of the base.

This switch, as furnished, is suitable for single and 3-phase applications only, but special coils may be supplied for operation on 2-phase, 3-wire circuits. It cannot be modified for use on 2-phase, 4-wire systems.

**Overload Protection**

Overload protection is provided by 2 Trumbull temperature relays which, on overload, break the coil circuits of the contactor, which opens, thus disconnecting the motor from the line. Each relay consists of a heating element and a thermostatic strip assembled as a unit in the form of a cartridge fuse and mounted on base with fuse clips.

**Undervoltage Protection**

The switch is ordinarily operated by means of a CR2940-B8-79-J start-and-stop push-button station. This station is of the momentary-contact type and an extra pole is supplied on the magnetic contactor to provide an electrical interlock for the holding circuit. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage. Under this condition, the start-button must be pressed to restart the motor. This scheme of connections provides undervoltage protection. If desired, the switch may be controlled from a number of places by installing a suitable number of CR2940-B8-79-J push-button stations.

The DR7006-D20 cannot be controlled by a master switch or equivalent maintain contact, pressure governor, or thermostat, because of the use of the self-resetting relay.

MAX. H.P. RATINGS

Volts	SQUIRREL-CAGE SLIP-RING 3-PHASE			CAT. NO. OF SWITCH ONLY		
	Type KT	Type FTR	Type MT	60 Cycles	50 Cycles	25 Cycles
110	3	3	3	3651020G19	3651020G16	3651020G12
220	7 1/2	7 1/2	7 1/2	3651020G 2	3651020G17	3651020G3
440	5	7 1/2	10	3651020G 3	3651020G11	3651020G4
550	3	5	7 1/2	3651020G11	3651020G12	3651020G6
600	3	5	7 1/2	3651020G18	3651020G20	3651020G7

Approximate shipping weight, 15 pounds.

\*Price Includes Switch, CR2940-B8-79-J Push-Button Station, and 2 Trumbull Overload Relays, each \$15.00

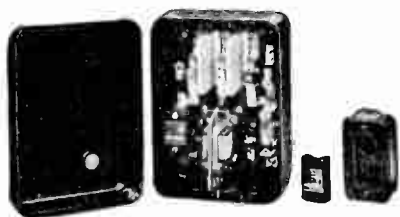
\*The 2 Trumbull overload relays or the push-button station may be omitted, or additional ones furnished at the following prices: relays each \$1.50; push-button station, \$2.00.

**Trumbull Temperature Overload Relays**

Cat. No.	Rating Amperes	Full-Load Current of Motor Amperes	Cat. No.	Rating Amperes	Full-Load Current of Motor Amperes
9571	1	0.75-0.95	9578	8	6.2-6.9
9571 1/2	1.5	0.96-1.42	9579	9	7.0-7.8
9572	2	1.43-1.84	95710	10	7.9-9.0
9572 1/2	2.5	1.85-2.25	95712	12	9.1-10.6
9573	3	2.26-2.67	95714	14	10.7-12.3
9573 1/2	3.5	2.68-3.07	95716	16	12.4-14.0
9574	4	3.08-3.49	95718	18	14.1-15.5
9574 1/2	4.5	3.50-3.90	95720	20	15.6-18.0
9575	5	3.91-4.5	95724	24	18.1-21.3
9576	6	4.51-5.33	95728	28	21.4-24.6
9577	7	5.34-6.1	.....	.....	.....



## No. CR7006-D26 G-E Enclosed Magnetic Switches A.C. Motors



Suitable for throwing small a.c. motors directly across the line. It consists of a triple-pole, barrier-type, magnetically operated contactor with normally open interlock, and 2 hand-reset temperature overload relays mounted on a moulded base and enclosed in a drawn-shell, steel enclosing case. The incoming and outgoing leads are easily fastened to connection blocks provided near top and bottom of base. Switch, as furnished, is suitable for single, 2 and 3-phase application.

### Overload Protection

Overload protection is provided by means of 2 temperature overload relays which, upon an overload open the contactor. Each relay has a heating element connected directly in a phase of the motor circuit. The heat from each heating element is transmitted to a thermostatic strip. Upon the occurrence of an overload, the heat from the element causes the thermostatic strip to deflect, the rate and amount of deflection depending upon the severity and duration of the overload.

### Undervoltage Protection or Undervoltage Release

The switch is furnished with a holding interlock which permits its use with a CR2940-BS-79-J, start-and-stop, momentary-contact type push-button station. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage, but the start-button must be pressed to restart the motor.

MAX. H.P. RATINGS		SQUIRREL CAGE AND SLIP RING, 2 or 3- Single-Phase				
Volts	Phase	60 Cycles	50 Cycles	40 Cycles	25 Cycles	CAT. NO. OF SWITCH ONLY
110	3	1½	3652245G2	3652245G7	3652245G12	3652245G16
220	5	3	3652245G3	3652245G8	3652245G13	3652245G17
440	7½	...	3652245G4	3652245G9	3652245G6	3652245G15
550	7½	...	3652245G5	3652245G10	3652245G14	.....
600	7½	...	3652245G6	3652245G11	3652245G15	.....

Approximate shipping weight, 11 pounds.

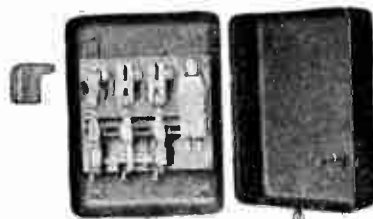
\*Price, (Includes Switch, CR2940-BS-79-J Push-Button Station and Heater Units)..... each \$15.00

\*The relay heater units or the push-button station may be omitted or additional ones furnished at the following prices: relay heater unit each, 50 cents; push-button station, each, \$2.00.

### Relay Heater Units

Cat. No.	Ratings Amperes	Full-Load Current of Motor Amperes	Cat. No.	Ratings Amperes	Full-Load Current of Motor Amperes
3652500G1	0.65	0.52-0.56	3652500G17	4.0	3.21- 3.50
3652500G2	0.72	0.57- 0.63	3652500G18	4.5	3.51- 3.90
3652500G3	0.80	0.64-0.69	3652500G19	5.0	3.91- 4.35
3652500G4	0.90	0.70-0.78	3652500G20	5.4	4.36- 4.75
3652500G5	1.00	0.79-0.87	3652500G21	6.0	4.76- 5.30
3652500G6	1.10	0.88-0.99	3652500G22	6.8	5.31- 5.90
3652500G7	1.30	1.00-1.13	3652500G23	7.7	5.91- 6.70
3652500G8	1.45	1.14-1.26	3652500G24	8.6	6.71- 7.50
3652500G9	1.65	1.27-1.43	3652500G25	9.6	7.51- 8.40
3652500G10	1.85	1.44-1.60	3652500G26	10.0	8.41- 8.90
3652500G11	2.00	1.61-1.78	3652500G27	11.5	8.91- 9.90
3652500G12	2.3	1.79-2.00	3652500G28	13.0	9.91-11.39
3652500G13	2.5	2.01-2.20	3652500G29	14.0	11.40-12.0
3652500G14	2.8	2.21-2.50	3652500G30	15.0	12.1 -13.0
3652500G15	3.2	2.51-2.80	3652500G31	16.0	13.1 -14.0
3652500G16	3.6	2.81-3.20	.....	.....	.....

## No. CR7006-D31 G-E Magnetic Switches For A.C. Motors



The CR7006-D31 Magnetic Switch is suitable for throwing squirrel-cage motors directly across the line; or for use as a primary switch for a wound-rotor motor, the secondary of which is handled by a drum controller. It consists of a triple-pole, restricted-blowout-type, magnetically operated contactor with normally open interlock, and 2 hand-reset, temperature overload relays, mounted on a molded base and enclosed in a drawn-shell, steel enclosing case.

Overload protection is provided by means of 2 temperature overload relays which, upon an overload open the contactor. Each relay has a heating element connected directly in a phase of the motor circuit. The heat from each heating element is transmitted to a thermostatic strip. Upon the occurrence of an overload, the heat from the element causes the thermostatic strip to deflect, the rate and amount of deflection depending upon the severity and duration of the overload.

The relay is so designed that the thermostatic strip will deflect far enough to trip the contact mechanism just before the overload will cause the motor to be excessively heated. The operation of either or both relays will trip the contact mechanism so that all phases of the motor are properly protected.

Each relay, with the exception of the heater units, is a fixed part of the switch. The heater units are made up in different capacities and are interchangeable. Each heater unit consists of wire or punched-grid units imbedded in a cement body which is held in place on the relay for 4 screws.

The switch is ordinarily operated by means of a CR2940-BS-212-A, start-and-stop, push-button station. This station is of the momentary-contact type and an extra pole is provided on the magnetic contactor to provide an electrical interlock for the holding circuit. If such a push-button station is used and the voltage fails, the contactor will open and will not close automatically on return of voltage, but the start-button must be pressed to restart the motor. This scheme of connections provides undervoltage protection. If desired, the switch may be controlled from a number of places by installing a suitable number of CR2940-BS-212-A push-button stations.

MAX. HP. RATINGS		Squirrel-cage and Wound-rotor				
Volts	Phase	60 Cycles	50 Cycles	40 Cycles	25 Cycles	CAT. NO. OF SWITCH ONLY
110	3	1½	3652800G2	3652800G7	3652800G12	3652800G16
220	5	3	3652800G3	3652800G8	3652800G13	3652800G17
440	100	125	3652800G4	3652800G9	3652800G10	3652800G18
550	125	150	3652800G5	3652800G10	3652800G14	3652800G19
600	125	150	3652800G6	3652800G11	3652800G15	3652800G20

125 \$88.00

\*The relay heater units or the push-button station may be omitted or additional ones furnished at the following prices: Relay heater unit, \$0.50 each; push-button station, \$5.00 each.

### Relay Heater Units

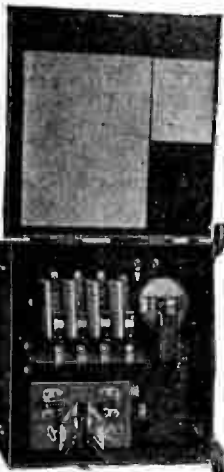
Full-load Current of Motor		Rating of Relay Heater Units	Cat. No. Relay Heater Units	Full-load Current of Motor		Rating of Relay Heater Units	Cat. No. Relay Heater Units
51.1-57	65	84- 99	3652500G43	105	105	3653510G1	
57.1-64	74	100-119	3652500G44	125	125	3653510G2	
64.1-72	83	120-150	3652500G45	150	150	3653510G3	
72.1-84	90	.....	3652500G46	.....	.....	.....	

ORDERING DIRECTIONS.—Order a CR7006-D31 switch by Cat. No. Order 2 relay heater units by Cat. No. Order a CR2940-BS-212-A push-button station. (Provides under-voltage protection.)

**G-E CR7009 A.C. Enclosed Magnetic Reversing Switches**

**Overload Protection by Hand-reset Temperature Overload Relays**

**Under-voltage Protection or Under-voltage Release Depending Upon Accessory Used**



CR7009-B5

**For Reversing Single-phase, Two-phase or Three-phase Motors When Thrown Directly on the Line or When Used with Non-reversing Automatic Starters**

The CR7009 switch consists of two three-pole mechanically interlocked contactors mounted back to back on a compound base, enclosed in a sheet metal case. The contact details of the contactors of the CR7009-B5 switch are the same as those of the CR7006-D4 magnetic switch and those of the CR7009-B6, the same as those of the CR7006-D5 magnetic switch.

The CR7009-B5 switch is suitable, as furnished, for use with single-phase, two-phase, three-wire, or three-phase motors. When used with a two-phase four-wire motor, the reversing connections must be changed by the customer to agree with the diagram furnished. This change can very easily be accomplished.

Since this is a three-pole switch, one of the lines must run directly to the motor. It may also be used to control small direct-current motors (14-ft.-lb. torque or less) where the period of operation does not exceed 30 seconds and where the motor is not operated more than once in the same direction every five minutes.

The CR7009-B6 switch is made up in two forms, one for three-phase or two-phase three-wire, the other for two-phase four-wire. This switch is also suitable for controlling direct current motors on intermittent duty within the time limitations as given above for CR7009-B5. The contactors, being equipped with blowouts, can be used with motors having a full load current of 75 amperes or less.

**Overload Protection**

These switches provide overload protection by means of a CR2824-TC121A temperature overload relay which has two heating elements, one connected in each of two phases, so that it provides full overload protection for single-phase, two-phase or three-phase motors. The relay is provided with calibrating arms for adjusting the tripping value over a range from 80 to 120 per cent of its normal rating. A resetting device operated from the outside of the case is provided for the purpose of resetting the contacts.

**Under-voltage Protection or Under-voltage Release**

The CR7009 switch is ordinarily operated from one or more CR2940-BS13 push-button stations, the combination providing under-voltage protection. It may also be operated by means of a single-pole, double-throw master switch, in which case the connections to the interlock are omitted and under-voltage release is provided.

The top of the enclosing case is provided with small knock-out holes for fastening the adapter (Cat. No. 1775956) which is necessary when a CR1923-A1 disconnecting switch is used. The CR1923-A1 switch provides a convenient means for disconnecting the CR7009 switch and motor from the line for purposes of inspection and repairs.

**Enclosing Case**

The enclosing case is fitted with feet for wall-mounting, so arranged that the base, on which the contactors are mounted is perpendicular to the wall. Knockout holes for conduit fittings are provided at the top of the case close to the edge nearest the wall. Hinged door over each contactor.

**Ordering Directions**

The price of the switch includes switch complete with a CR2824-TC121C overload relay. Cat. No. refers to switch.

Order a CR7009 switch by Cat. No.

Order a CR2824-TC121C relay by Cat. No.

Order a CR2940-BS13 push-button station, or equivalent master switch.

Order, if desired, a CR1923-A1 disconnecting switch by Cat. No. with an adapter, Cat. No. 1775956.

**CR7009 A.C. Enclosed Magnetic Reversing Switches**

Continued

**Maximum Ratings**

**CR7009-B5, without Magnetic Blowouts**  
 10 H. P., 220 Volts  
 7½ H. P., 110 Volts  
 5 H. P., 440/650 Volts

**CR7009-B6, with Magnetic Blowouts**

10 H. P., 110 Volts; 25 H. P., 220 Volts  
 35 H. P., 440/650 Volts

Volts	CR7009-B5 without Magnetic Blowouts		CR7009-B6 with Magnetic Blowouts			
	3-PHASE; 2-PHASE 3-WIRE or 4-WIRE		3-PHASE		2-PHASE, 4-WIRE	
	Cat. No.	*Price Each	Cat. No.	*Price Each	Cat. No.	*Price Each
110	1775445G19	\$ .45	1775446G19	\$.54	1776806G19	\$.54
220	1775445G2	.45	1775446G2	.54	1776806G2	.54
440	1775445G3	.45	1775446G3	.54	1776806G3	.54
550	1775445G11	.45	1775446G11	.54	1776806G11	.54
600	1775445G18	.45	1775446G18	.54	1776806G18	.54
650	1775445G12	.45	1775446G12	.54	1776806G12	.54
60 Cycles						
110	1775445G16	\$.45	1775446G16	\$.54	1776806G16	\$.54
220	1775445G17	.45	1775446G17	.54	1776806G17	.54
440	1775445G11	.45	1775446G11	.54	1776806G11	.54
550	1775445G12	.45	1775446G12	.54	1776806G12	.54
600	1775445G20	.45	1775446G20	.54	1776806G20	.54
650	1775445G13	.45	1775446G13	.54	1776806G13	.54
50 Cycles						
110	1775445G2	\$.45	1775446G2	\$.54	1776806	2 \$.54
220	1775445G3	.45	1775446G3	.54	1776806	3 .54
440	1775445G4	.45	1775446G4	.54	1776806	4 .54
550	1775445G6	.45	1775446G6	.54	1776806	6 .54
600	1775445G7	.45	1775446G7	.54	1776806	7 .54
650	1775445G8	.45	1775446G8	.54	1776806	8 .54
25 Cycles						
110	1775445G2	\$.45	1775446G2	\$.54	1776806	2 \$.54
220	1775445G3	.45	1775446G3	.54	1776806	3 .54
440	1775445G4	.45	1775446G4	.54	1776806	4 .54
550	1775445G6	.45	1775446G6	.54	1776806	6 .54
600	1775445G7	.45	1775446G7	.54	1776806	7 .54
650	1775445G8	.45	1775446G8	.54	1776806	8 .54

**\*\*D. C. Intermittent Duty Only**

115	1775445G27	\$55	1775446G27	\$65	.....
230	1775445G28	55	1775446G28	65	.....
550	1775445G29	55	1775446G29	65	.....

\*Price includes switch complete with a CR2824-TC121A overload relay; Cat. No. covers the switch only. A suitable relay should also be ordered by Cat. No. from the table under Accessories.

\*\*May be used for throwing small direct-current motors on the line on applications where either contactor coil will not be energized more than once every five minutes, no longer than 30 seconds at a time.

**Accessories**

TEMPERATURE RELAY.—May be omitted at \$6.00.

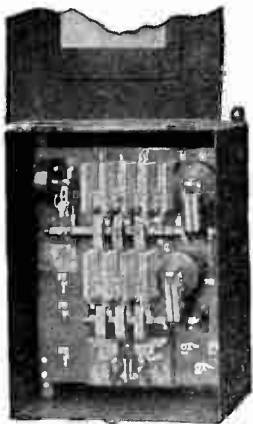
PUSH-BUTTON STATION.—A CR2940-BS13 three-button station should be included at a net price of \$7.00.

MASTER SWITCH.—A single point, forward and reverse, master switch may be used in preference to a push-button station.

DISCONNECTING SWITCHES.—A Cat. No. 2040256 switch, at a price of \$10.00 is recommended for use with these reversing switches. If used, an adapter, Cat. No. 1775956, at 50 cents, is necessary for mounting the disconnecting switch on the enclosing case of CR7009.

Cat. No.	Relay Symbol	Normal Rating in Amperes	Full Load Current of Motor in Amperes
2019557G1	TC121C1	0.65	0.40-0.58
2019557G2	TC121C2	0.8	0.59-0.72
2019557G3	TC121C3	1.0	0.73-0.92
2019557G4	TC121C4	1.3	0.93-1.16
2019557G5	TC121C5	1.6	1.17-1.44
2019557G6	TC121C6	2.0	1.45-1.80
2019557G7	TC121C7	2.5	1.81-2.2
2019557G8	TC121C8	3.0	2.3-2.8
2019557G9	TC121C9	4.0	2.9-3.6
2019557G10	TC121C10	5.0	3.7-4.6
2019557G11	TC121C11	6.5	4.7-5.8
2019557G12	TC121C12	8.0	5.9-7.2
2019557G13	TC121C13	10.0	7.3-9.2
2019557G14	TC121C14	13.0	9.3-11.6
2019557G15	TC121C15	16.0	11.7-14.4
2019557G16	TC121C16	20.0	14.5-18.0
2019557G17	TC121C17	25.0	18.1-22.0
2019557G18	TC121C18	30.0	22.1-28.0
2019557G19	TC121C19	40.0	28.1-36.0
2019557G20	TC121C20	50.0	36.1-46.0
2019557G21	TC121C21	65.0	46.1-58.0
2019557G22	TC121C22	80.0	58.1-80.0

## G-E Type CR7022 A.C. Automatic Starters



**CR7022-A3**  
75 Amperes—Primary  
112 Amperes—Secondary

The listed standard CR7022 time-limit accelerating starters are suitable for full-load starting duty according to A.E.S. resistor classification.

These starters may also be applied to fans, centrifugal pumps or conveyors since the initial peaks are sufficiently low for this type of service. The only change necessary is to adjust the definite-time interlock to give maximum time on the first point.

The starters listed are not applicable to chain drives where low starting torque is required. Refer to the Company when starters for such service are desired.

The following table gives the characteristics for various panels.

H.P. Range	Number Accelerating Points	Accelerating Time Sec. Range	Initial Current Peak	A.E.S. Resistor Class
1-15	2	1-5	200%	16
16-75	3	2-10	150%	15
76-150	4	3-15	150%	15

Form A3 panel consists of the following: one 3-pole, barrier-type line contactor; one 3-pole, barrier-type accelerating contactor; one definite-time interlock; one temperature overload relay; one starting resistor mounted back of panel. All apparatus mounted on black compound base in an enclosing case for wall mounting. Form A4 panel is similar to the Form A3 except that it has blowouts on the contactors and also has one more accelerating point.

Form B2 is similar to the Form A4 except that it has larger contactors and either 2 or 3 accelerating points, depending on the size of the motor.

The pendulum interlock gives a time delay of 1 to 5 seconds between accelerating steps. Interlock consists of an escapement similar to that used in clocks, a train of gears, a lever for attaching to a contactor shaft and a set of contacts. When contactor closes, spring is compressed. This applies torque to gears through a ratchet. Escapement lever together with pendulum measures a definite time for a given amount of rotation. After gears have rotated a given amount, ratchet is released and contacts are closed. This energized the next contactor.

Time period is adjusted by turning adjusting nuts.

Gears are made of special fibre compound.

CR9740-10 starting resistors are made of SG cast-iron grids mounted in standard frames for floor mounting.

For 2-phase, 3-wire service, use 3-phase starters. For 2-phase, 4-wire service, use 3-phase starters, running one line directly to the motor. If all 4 lines must be opened a 4-pole, motor circuit switch (CR1924) should be used.

Pressing the start-button causes the primary contactor to close which connects motor to line with all resistance in secondary circuit. A definite time (depending on setting of definite-time interlock) after line contactor is closed, the definite-time interlock operates and causes the first accelerating contactor to close. Accelerating contactors close in sequence with time intervals, until starting resistance is all short circuited. All accelerating contactors except the last one are de-energized in the running position. The magnetizing current is required only for the line contactor and the final accelerating contactor.

Pressing the stop-button, de-energizes the line contactor which disconnects the motor from the line.

On sustained overload, temperature overload relay will operate and de-energize line contactor, disconnecting motor from line. Overload relay is hand reset.

On undervoltage, all contactors will open and it will be necessary to press the start-button to restart. If a snap switch is used motor will start automatically on the return of voltage.

On open phase, line current will increase and overload relay will disconnect the motor from the line before any damage is done to the motor.

## G-E Type CR7022 A.C. Automatic Starters

### Temperature Overload Relays

#### CR2824-TC-121-C

Cat. No.	Full-Load Current of Motor Amperes	Normal Rating Amperes	Cat. No.	Full-Load Current of Motor Amperes	Normal Rating Amperes
2019557G1	0.40-0.58	0.65	2019557G12	5.9-7.2	8.0
2019557G2	0.59-0.72	0.8	2019557G13	7.3-9.2	10.0
2019557G3	0.73-0.92	1.0	2019557G14	9.3-11.6	13.0
2019557G4	0.93-1.16	1.3	2019557G15	11.7-14.4	16.0
2019557G5	1.17-1.44	1.6	2019557G16	14.5-18.0	20.0
2019557G6	1.45-1.80	2.0	2019557G17	18.1-22.0	25.0
2019557G7	1.81-2.2	2.5	2019557G18	22.1-28.0	30.0
2019557G8	2.3-2.8	3.0	2019557G19	28.1-36.0	40.0
2019557G9	2.9-3.6	4.0	2019557G20	36.1-46.0	50.0
2019557G10	3.7-4.6	5.0	2019557G21	46.1-58.0	65.0
2019557G11	4.7-5.8	6.5	2019557G22	58.1-80.0	80.0

#### CR2824-TC-221-C

2019555G1	14-20	20.0	2019555G7	77-96	100.0
2019555G2	21-29	30.0	2019555G8	97-120	125.0
2019555G3	30-38	40.0	2019555G9	121-145	150.0
2019555G4	39-48	50.0	2019555G10	146-192	200.0
2019555G5	49-57	60.0	2019555G11	193-240	250.0
2019555G6	58-76	80.0	2019555G12	241-300	300.0

## CR9740-10 Starting Resistors for CR7022-B2 Panels

### A.E.S. Resistor Classification No. 15

#### 2-Division—For Use with 3-Starting-Point Panels

Cat. No. Complete Resistor	H.P.		Sec. Ohms		Sec. Amp. Max.	Approx. Shipping Wt., Lbs.	Price Each
	Min-imum	Max-imum	Min-imum	Max-imum			
3664929	20	40	0.22	0.29	213	110	\$20.00
3664930	20	40	0.30	0.38	182	110	20.00
3664931	20	40	0.39	0.51	160	110	20.00
3664932	20	40	0.52	0.68	138	110	20.00
3664933	20	40	0.69	0.91	120	110	20.00
3664934	20	40	0.92	1.2	104	110	20.00
3664935	20	40	1.21	1.62	91	110	20.00
3664936	20	40	1.63	2.16	78	110	20.00
3664937	20	40	2.17	2.60	67	110	20.00
3664938	41	75	0.25	0.33	274	110	20.00
3664939	41	75	0.34	0.40	235	110	20.00
3664940	41	75	0.41	0.57	214	110	20.00
3664941	41	75	0.58	0.74	180	110	20.00
3664942	41	75	0.75	0.96	159	110	20.00
3664943	41	75	0.97	1.25	139	110	20.00
3664944	41	75	1.26	1.62	122	110	20.00
3664945	41	75	1.63	2.11	107	110	20.00
3664946	41	75	2.12	2.74	94	110	20.00
3664947	41	75	2.75	3.50	82.5	110	20.00

#### 3-Division—For Use with 4-Starting-Point Panels

Cat. No. Complete Resistor	H.P.	Sec. Ohms		Sec. Amp.		Approx. Shipping Wt., Lbs.	Price Each
		Min-imum	Max-imum	Min-imum	Max-imum		
3664970	100	1.1	1.38	138	154	220	\$40.00
3664971	100	1.39	1.73	123	137	220	40.00
3664972	100	1.74	2.16	111	122	220	40.00
3664973	100	2.17	2.70	98	110	220	40.00
3664974	125	0.95	1.19	166	185	330	60.00
3664975	125	1.20	1.48	149	165	330	60.00
3664976	125	1.49	1.85	133	148	330	60.00
3664977	125	1.86	2.32	119	132	330	60.00
3664978	125	2.33	2.90	106	118	330	60.00
3664979	150	1.07	1.34	172	191	330	60.00
3664980	150	1.35	1.67	154	171	330	60.00
3664981	150	1.68	2.09	138	153	330	60.00
3664982	150	2.10	2.62	123	137	330	60.00
3664983	150	2.63	3.31	109	122	330	60.00

## Enclosing Cases for CR7022-B2 Panels

Made of sheet metal sections which are fastened together by small bolts. The fronts are doors arranged for locking. Backs are removable. With the exception of Cat. No. 2808183G13, cases do not extend to the floor.

Root Cat. No. of Panel	Cat. No. Enclosing Case	Approx. Price Each	Root Cat. No. of Panel	Cat. No. Enclosing Case	Approx. Price Each
3651053	2806004G18	120\$42.00	3651061	2804466G17	190 \$65.00
3651054	2804461G25	170 65.00	3651062	2804466G15	150 56.00
3651055	2804461G25	170 65.00	3651063	2804466G17	190 65.00
3651057	2804461G23	130 65.00	3651064	2804466G17	190 65.00
3651058	2804466G15	150 56.00	3651065	2808183G13	150 75.00
3651060	2804466G17	190 65.00			

G-E Type CR7022 A.C. Automatic Starters

Continued

For Standard G-E Slip-Ring Induction Motors

60 Cycles, 3-Phase

Starters listed opposite ratings of G-E Slip-Ring Motors, but prices will in general hold for starters used with motors of other manufacture.

MOTOR RATING			220 VOLTS			440 VOLTS			550 VOLTS			FLOOR-MOUNTED CR9748-10 STARTING RESISTOR FOR FORM B2 PANELS ONLY	
H.P.	Frame	Sync. Speed R.P.M.	CR7022 Form	†Cat. No. of Panel	*Price Each	CR7022 Form	†Cat. No. of Panel	*Price Each	CR7022 Form	†Cat. No. of Panel	*Price Each	No. of Boxes	Cat. No. (Complete Resistor)
5	936	1800	A3	3651050G29	\$89.00	A3	3651050G30	\$89.00	A3	3651050G31	\$89.00		
	946	1200	A3	3651050G38	89.00	A3	3651050G39	89.00	A3	3651050G40	89.00		
	952	900	A3	3651050G38	89.00	A3	3651050G39	89.00	A3	3651050G40	89.00		
7½	944	1800	A3	3651050G47	89.00	A3	3651050G48	89.00	A3	3651050G49	89.00		
	952	1200	A3	3651050G47	89.00	A3	3651050G48	89.00	A3	3651050G49	89.00		
	958	900	A3	3651050G47	89.00	A3	3651050G48	89.00	A3	3651050G49	89.00		
10	948	1800	A3	3651050G56	89.00	A3	3651050G57	89.00	A3	3651050G58	89.00		
	956	1200	A3	3651050G47	89.00	A3	3651050G48	89.00	A3	3651050G49	89.00		
	510	900	A3	3651050G20	89.00	A3	3651050G21	89.00	A3	3651050G22	89.00		
	522	720	A3	3651050G2	89.00	A3	3651050G3	89.00	A3	3651050G4	89.00		
15	501	1800	A3	3651050G29	89.00	A3	3651050G30	89.00	A3	3651050G31	89.00		
	502	1200	A3	3651050G20	89.00	A3	3651050G21	89.00	A3	3651050G22	89.00		
	512	900	A3	3651050G20	89.00	A3	3651050G21	89.00	A3	3651050G22	89.00		
	532	720	A3	3651050G2	89.00	A3	3651050G3	89.00	A3	3651050G4	89.00		
	532	600	A3	3651050G2	89.00	A3	3651050G3	89.00	A3	3651050G4	89.00		
20	503	1800	A4	3651052G56	172.00	A4	3651052G57	172.00	A4	3651052G58	172.00		
	512	1200	A4	3651052G56	172.00	A4	3651052G57	172.00	A4	3651052G58	172.00		
	522	900	A4	3651052G20	172.00	A4	3651052G21	172.00	A4	3651052G22	172.00		
	536	720	A4	3651052G47	172.00	A4	3651052G48	172.00	A4	3651052G49	172.00		
	536	600	A4	3651052G29	172.00	A4	3651052G30	172.00	A4	3651052G31	172.00		
25	512	1800	A4	3651052G56	172.00	A4	3651052G57	172.00	A4	3651052G58	172.00		
	522	1200	A4	3651052G29	172.00	A4	3651052G30	172.00	A4	3651052G31	172.00		
	526	900	A4	3651052G29	172.00	A4	3651052G30	172.00	A4	3651052G31	172.00		
	536	720	A4	3651052G38	172.00	A4	3651052G39	172.00	A4	3651052G40	172.00		
	542	600	A4	3651052G38	172.00	A4	3651052G39	172.00	A4	3651052G40	172.00		
30	523	1800	B2	3651057G2	229.00	A4	3651052G57	172.00	A4	3651052G58	172.00	1	3664935
	526	1200	B2	3651057G2	229.00	A4	3651052G39	172.00	A4	3651052G40	172.00	1	3664933
	532	900	B2	3651060G2	229.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664931
	542	720	B2	3651057G2	229.00	A4	3651052G48	172.00	A4	3651052G49	172.00	1	3664934
	546	600	B2	3651057G2	229.00	A4	3651052G48	172.00	A4	3651052G49	172.00	1	3664934
40	527	1800	B2	3651057G2	229.00	A4	3651052G57	172.00	A4	3651052G58	172.00	1	3664935
	532	1200	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664932
	536	900	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664932
	542	720	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664931
	552	600	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664933
50	527	1800	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664933
	536	1200	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664944
	542	900	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664941
	546	720	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664941
	552	600	B2	3651060G2	275.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664943
60	533	1800	B2	3651064G2	303.00	B2	3651054G3	201.00	B2	3651054G4	201.00	1	3664943
	536	1200	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651054G4	201.00	1	3664941
	546	900	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651054G4	201.00	1	3664942
	552	720	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651054G4	201.00	1	3664943
	556	600	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651054G4	201.00	1	3664943
75	537	1800	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664942
	547	1200	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664943
	552	900	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664945
	556	720	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664943
	558	600	B2	3651064G2	303.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664943
100	543	1800	B2	3651065G2	370.00	B2	3651060G3	275.00	B2	3651060G4	275.00	1	3664943
	553	1200	B2	3651065G2	370.00	B2	3651061G3	328.00	B2	3651061G4	328.00	2	3664943
	556	900	B2	3651065G2	370.00	B2	3651061G3	328.00	B2	3651061G4	328.00	2	3664971
	558	720	B2	3651065G2	370.00	B2	3651061G3	328.00	B2	3651061G4	328.00	2	3664970
	562	600	B2	3651065G2	370.00	B2	3651061G3	328.00	B2	3651061G4	328.00	2	3664971
125	547	1800	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	328.00	2	3664970
	557	1200	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	347.00	3	3664978
	558	900	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	347.00	3	3664977
	562	720	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	347.00	3	3664977
	562	600	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	347.00	3	3664974
150	549	1800	..	.....	.....	B2	3651065G3	390.00	B2	3651061G4	347.00	3	3664974
	557	1200	..	.....	.....	B2	3651065G3	390.00	B2	3651065G3	390.00	3	3664983
	561	900	..	.....	.....	B2	3651065G3	390.00	B2	3651065G3	390.00	3	3664981
	562	720	..	.....	.....	B2	3651065G3	390.00	B2	3651065G3	390.00	3	3664979
	564	600	..	.....	.....	B2	3651065G3	390.00	B2	3651065G3	390.00	3	3664979

Resistor for  
Forms A3 and A4  
Included in Panel  
Cat. No.

\*Price for Forms A3 and A4 starters includes panel enclosing case, starting resistor, temperature overload relay and push-button station. Price for Form B2 starters includes

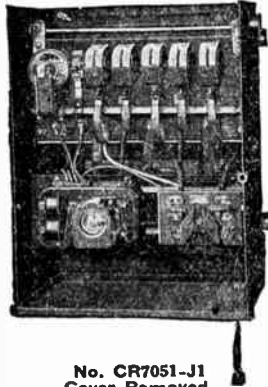
panel, starting resistor, temperature overload relay and push-button station.

†Does not include temperature overload relay.

## CR7051 Automatic Starting Compensators For Squirrel-cage Induction Motors Definite-time Acceleration—Overload Protection 220, 440 and 550 Volts



No. CR7051-J1  
(Side View)



No. CR7051-J1  
Cover Removed

The CR7051 Automatic Starting Compensators are suitable for starting squirrel-cage induction motors that do not require longer than 15 seconds to attain full speed, once every 4 minutes for an hour.

Consists chiefly of an auto-transformer for supplying reduced voltage to the motor for acceleration, a contactor for connecting the auto-transformer to its low-voltage taps during acceleration, a contactor for connecting the motor to the line, a temperature overload relay and a definite-time relay which causes the accelerating contactor to open and the line contactor to close at a pre-determined time.

The auto-transformer has 2 coils for 2-phase motors and 3 coils for 3-phase motors, which gives balanced starting currents and the maximum starting torque per ampere line current. For motors up to 18 h.p., 3 sets of starting taps are provided which furnish 50, 65 or 80 per cent line voltage with respective line currents of 25, 42 or 65 per cent of the current which would be required if no compensator were used. For motors above 18 h.p., 4 sets of starting taps are provided which furnish 40, 58, 70 or 85 per cent line voltage with respective line currents of 16, 34, 49 or 72 per cent of the current that would be required if no compensator were used.

Compensators are shipped with connections made to the set of taps that furnishes 58 or 65 per cent line voltage. Provision is made for conveniently changing them to any other set which may be found more desirable when installing.

An electrical interlock is provided on the starting contactor which prevents the running-contactor from closing until the starting-contactor has opened. As a further safeguard, there is also a mechanical interlock between the 2 contactors.

### CR7051-J1 Compensators, Size No. 1

The CR7051-J1 Compensators are furnished for wall mounting but can be supplied for floor mounting by the addition of pipe supports, Cat. No. 1769917, at an additional price. The accelerating and running contactors are mounted back to back with the auto-transformer and relays mounted below. This reduces the wiring and results in a compact arrangement of all mechanical and electrical parts, completely enclosed in metal case. The enclosing case may be locked to conform with all safety requirements.

### CR7051-K1 Compensators, Sizes No. 2 and 3

The CR7051-K1 Compensators sizes No. 2 and 3 are furnished for floor mounting. They are supported by angle iron frame work and are enclosed in a sheet metal enclosing case which extends to the floor. The hinged front door is provided with means for locking to conform with safety requirements. The cover for the back of the panel is easily removable for making line and motor connections.

### CR7051-L1 Compensators, 2200 Volts

The CR7051-L1 Compensators for 2200 volts are electrically similar to the CR7051-J1 and K-1 compensators for 220 to 550 volts but are of a different mechanical construction. The contacts are oil-immersed, each pole being in an individual compartment. The definite-time accelerating relay, temperature over-relay and electrical interlocks are mounted on a slate base which is enclosed in a sheet metal case. Low-voltage for the control circuit is provided by means of a voltage transformer. The transformer is included in the price of the compensator but must be ordered as a separate item and mounted by the purchaser.

## G-E CR7051-J1 Automatic Starting Compensators

For Squirrel-Cage Induction Motors

Definite-Time Acceleration—Overload Protection  
220, 440 and 550 Volts

40-Degree, 3-Phase, 60 Cycles

MOTOR RATING I.L.P. Volts	Cat. No.	CR7051-J1		**AMMETER ATTACHMENT	
		Approx. Ship. Wt. Lbs.	Price Each	Approx. Ship. Wt. Lbs.	Price Each
5	220	1775617G2	246 \$130.	2019325G4	55 \$28.
5	440	1775617G3	246 130.	2019325G2	55 26.
5	550	1775617G4	246 130.	2019325G1	55 26.
7½	220	1775617G2	246 130.	2019325G5	55 30.
7½	440	1775617G3	246 130.	2019325G3	55 26.
7½	550	1775617G4	246 130.	2019325G2	55 26.
10	220	1775617G2	246 130.	2019325G6	55 30.
10	440	1775617G3	246 130.	2019325G4	55 28.
10	550	1775617G4	246 130.	2019325G3	55 26.
15	220	1775617G2	246 130.	2019325G7	55 30.
15	440	1775617G3	246 130.	2019325G5	55 30.
15	550	1775617G4	246 130.	2019325G4	55 28.
20	220	1775617G5	255 140.	2019352G8	55 32.
20	440	1775617G6	246 140.	2019325G6	55 30.
20	550	1775617G7	246 140.	2019325G5	55 30.
25	220	1775617G5	255 140.	2019335G1	55 32.
25	440	1775617G6	246 140.	2019325G6	55 30.
25	550	1775617G7	246 140.	2019325G6	55 30.
30	440	1775617G8	255 144.	2019325G7	55 30.
30	550	1775617G9	255 144.	2019325G6	55 30.
40	440	1775617G10	255 149.	2019325G8	55 33.
40	550	1775617G11	255 149.	2019325G7	55 30.
50	440	1775617G10	255 149.	2019325G1	55 32.
50	550	1775617G11	255 149.	2019325G8	55 32.

### 40-Degree, 3-Phase, 50 Cycles

5	220	1775618G2	246 \$130.	2019325G4	55 \$28.
5	440	1775618G3	246 130.	2019325G2	55 26.
5	550	1775618G4	246 130.	2019325G1	55 26.
7½	220	1775618G2	246 130.	2019325G5	55 30.
7½	440	1775618G3	246 130.	2019325G3	55 26.
7½	550	1775618G4	246 130.	2019325G2	55 26.
10	220	1775618G2	246 130.	2019325G6	55 30.
10	440	1775618G3	246 130.	2019325G4	55 28.
10	550	1775618G4	246 130.	2019325G3	55 26.
15	220	1775618G2	246 130.	2019325G7	55 30.
15	440	1775618G3	246 130.	2019325G5	55 30.
15	550	1775618G4	246 130.	2019325G4	55 28.
20	220	1775618G5	255 140.	2019325G8	55 32.
20	440	1775618G6	246 140.	2019325G6	55 30.
20	550	1775618G7	246 140.	2019325G5	55 30.
25	220	1775618G5	255 140.	2019325G1	55 32.
25	440	1775618G6	246 140.	2019325G6	55 30.
25	550	1775618G7	246 140.	2019325G6	55 30.
30	440	1775618G8	255 144.	2019325G7	55 30.
30	550	1775618G9	255 144.	2019325G6	55 30.
40	440	1775618G10	255 149.	2019325G8	55 32.
40	550	1775618G11	255 149.	2019325G7	55 30.
50	440	1775618G10	255 149.	2019325G1	55 32.
50	550	1775618G11	255 149.	2019325G8	55 32.

### 40-Degree, 3-Phase, 25 Cycles

5	220	1775620G2	246 \$130.	2019325G4	55 \$28.
5	440	1775620G3	246 130.	2019325G2	55 26.
5	550	1775620G4	246 130.	2019325G1	55 26.
7½	220	1775620G2	246 130.	2019325G5	55 30.
7½	440	1775620G3	246 130.	2019325G3	55 26.
7½	550	1775620G4	246 130.	2019325G2	55 26.
10	220	1775620G2	246 130.	2019325G6	55 30.
10	440	1775620G3	246 130.	2019325G4	55 28.
10	550	1775620G4	246 130.	2019325G3	55 26.
15	220	1775620G5	255 140.	2019325G7	55 30.
15	440	1775620G6	255 140.	2019325G5	55 30.
15	550	1775620H7	255 140.	2019325G4	55 28.

\*\*Includes ammeter.

†Price is for compensator complete with temperature overload relay. Overload relay and push-button station may be omitted or additional ones supplied at the following prices: Relay, \$6.00; push-button station, \$2.00.



**G-E CR7051-J1 Automatic Starting Compensators**

For Squirrel-Cage Induction Motors  
Definite Acceleration—Overload Protection  
220, 440 and 550 Volts

40-Degree, 2-Phase, 3-Wire, 60 Cycles

MOTOR RATING		Cat. No.	Approx. Ship.		Cat. No.	Approx. Ship.	
H.P.	Volts		Wt. Lbs.	Price Each		Wt. Lbs.	Price Each
5	220	1775621G2	246	\$130.	2019325G4	55	\$28.
5	440	1775621G3	246	130.	2019325G2	55	26.
5	550	1775621G4	246	130.	2019325G1	55	26.
7½	220	1775621G2	246	130.	2019325G5	55	30.
7½	440	1775621G3	246	130.	2019325G3	55	26.
7½	550	1775621G4	246	130.	2019325G2	55	26.
10	220	1775621G2	246	130.	2019325G6	55	30.
10	440	1775621G3	246	130.	2019325G4	55	28.
10	550	1775621G4	246	130.	2019325G3	55	26.
15	220	1775621G2	246	130.	2019325G7	55	30.
15	440	1775621G3	246	130.	2019325G5	55	30.
15	550	1775621G4	246	130.	2019325G4	55	28.
20	220	1775621G5	255	140.	2019325G8	55	32.
20	440	1775621G6	246	140.	2019325G6	55	30.
20	550	1775621G7	246	140.	2019325G5	55	30.
25	220	1775621G5	255	140.	2019326G1	55	32.
25	440	1775621G6	255	140.	2019325G6	55	30.
25	550	1775621G7	255	140.	2019325G6	55	30.
30	440	1775621G8	255	144.	2019325G7	55	30.
30	550	1775621G9	255	144.	2019325G6	55	30.
40	440	1775621G10	255	149.	2019325G8	55	32.
40	550	1775621G11	255	149.	2019325G7	55	30.
50	440	1775621G10	255	149.	2019326G1	55	32.
50	550	1775621G11	255	149.	2019325G8	55	32.

40-Degree, 2-Phase, 3-Wire, 25 Cycles

5	220	1775622G2	246	\$130.	2019325G4	55	\$28.
5	440	1775622G3	246	130.	2019325G2	55	26.
5	550	1775622G4	246	130.	2019325G1	55	26.
7½	220	1775622G2	246	130.	2019325G5	55	30.
7½	440	1775622G3	246	130.	2019325G3	55	26.
7½	550	1775622G4	246	130.	2019325G2	55	26.
10	220	1775622G2	246	130.	2019325G6	55	30.
10	440	1775622G3	246	130.	2019325G4	55	28.
10	550	1775622G4	246	130.	2019325G3	55	26.
15	220	1775622G5	255	140.	2019325G7	55	30.
15	440	1775622G6	255	140.	2019325G5	55	30.
15	550	1775622G7	255	140.	2019325G4	55	28.

40-Degree, 2-Phase, 4-Wire, 60 Cycles

5	220	1775623G2	246	\$130.	2019325G3	55	\$26.
5	440	1775623G3	246	130.	2019325G1	55	26.
5	550	1775623G4	246	130.	2019325G1	55	26.
7½	220	1775623G2	246	130.	2019325G5	55	30.
7½	440	1775623G3	246	130.	2019325G2	55	26.
7½	550	1775623G4	246	130.	2019325G2	55	26.
10	220	1775623G2	246	130.	2019325G5	55	30.
10	440	1775623G3	246	130.	2019325G4	55	28.
10	550	1775623G4	246	130.	2019325G3	55	26.
15	220	1775623G2	246	130.	2019325G6	55	30.
15	440	1775623G3	246	130.	2019325G5	55	28.
15	550	1775623G4	246	130.	2019325G4	55	28.
20	220	1775623G5	255	140.	2019325G7	55	30.
20	440	1775623G6	246	140.	2019325G5	55	30.
20	550	1775623G7	246	140.	2019325G5	55	30.
25	220	1775623G5	255	140.	2019325G8	55	32.
25	440	1775623G6	255	140.	2019325G6	55	30.
25	550	1775623G7	255	140.	2019325G5	55	30.
30	440	1775623G8	255	144.	2019325G6	55	30.
30	550	1775623G9	255	144.	2019325G6	55	30.
40	440	1775623G10	255	149.	2019325G7	55	30.
40	550	1775623G11	255	149.	2019325G6	55	30.
50	440	1775623G10	255	149.	2019325G8	55	32.
50	550	1775623G11	255	149.	2019325G7	55	30.

40-Degree, 2-Phase, 4-Wire, 25 Cycles

5	220	1775624G2	246	\$130.	2019325G3	55	\$26.
5	440	1775624G3	246	130.	2019325G1	55	26.
5	550	1775624G4	246	130.	2019325G1	55	26.
7½	220	1775624G2	246	130.	2019325G5	55	30.
7½	440	1775624G3	246	130.	2019325G2	55	26.
7½	550	1775624G4	246	130.	2019325G2	55	26.
10	220	1775624G2	246	130.	2019325G5	55	30.
10	440	1775624G3	246	130.	2019325G4	55	28.
10	550	1775624G4	246	130.	2019325G3	55	26.
15	220	1775624G5	255	140.	2019325G6	55	30.
15	440	1775624G6	255	140.	2019325G5	55	30.
15	550	1775624G7	255	140.	2019325G4	55	30.

\*\*Includes ammeter.

†Price is for compensator complete with temperature overload relay. Overload relay and push-button station may be omitted or additional ones supplied at the following prices: Relay, \$6.00; push-button station, \$2.00

**G-E CR7051-J1 Automatic Starting Compensators**

For Squirrel-Cage Induction Motors

Definite-Time Acceleration—Overload Protection

220, 440 and 550 Volts

**CR2824-TC-121 Temperature Overload Relay. 3-Phase, 60 Cycles**

MOTOR RATING		CATALOGUE NUMBERS		
H.P.	Speed	220 Volts	440 Volts	550 Volts
5	3600 to 1200	2019557G15	2019557G12	2019557G11
5	900 to 600	2019557G16	2019557G13	2019557G12
7½	3600 to 1200	2019557G17	2019557G14	2019557G13
7½	900	2019557G18	2019557G14	2019557G13
7½	720-600	2019557G18	2019557G15	2019557G14
10	3600 to 1200	2019557G18	2019557G15	2019557G14
10	900	2019557G19	2019557G15	2019557G14
10	720	2019557G19	2019557G16	2019557G14
10	600	2019557G19	2019557G16	2019557G15
15	3600 to 720	2019557G20	2019557G17	2019557G16
15	600	2019557G21	2019557G18	2019557G17
20	3600 to 720	2019557G21	2019557G18	2019557G17
20	600	2019557G21	2019557G19	2019557G18
25	3000 to 600	2019557G22	2019557G19	2019557G18
30	1800	.....	2019557G19	2019557G19
30	1200 to 600	.....	2019557G20	2019557G19
40	1800 to 600	.....	2019557G21	2019557G20
50	1800 to 600	.....	2019557G22	2019557G21

3-Phase, 50 Cycles

5	1500-1000	2019557G15	2019557G12	2019557G11
7½	1500-1000	2019557G17	2019557G14	2019557G13
10	1500	2019557G18	2019557G15	2019557G14
10	1000-750	2019557G19	2019557G16	2019557G15
15	1500	2019557G20	2019557G17	2019557G16
15	1000	2019557G21	2019557G18	2019557G17
15	750-600	2019557G20	2019557G17	2019557G16
20	1500 to 750	2019557G21	2019557G18	2019557G17
20	600	2019557G21	2019557G19	2019557G18
25	1500 to 750	2019557G22	2019557G19	2019557G19
30	1500 to 600	.....	2019557G20	2019557G19
40	1500 to 600	.....	2019557G21	2019557G20
50	1500 to 500	.....	2019557G22	2019557G21

3-Phase, 25 Cycles

5	1500-750	2019557G15	2019557G12	2019557G11
7½	1500 to 500	2019557G17	2019557G14	2019557G13
10	1500-750	2019557G18	2019557G15	2019557G14
10	500	2019557G19	2019557G16	2019557G15
15	1500 to 500	2019557G20	2019557G17	2019557G16

2-Phase, 3-Wire, 60 Cycles

5	3600	2019557G14	2019557G11	2019557G10
5	180 to 720	2019557G15	2019557G12	2019557G11
5	600	2019557G16	2019557G13	2019557G12
7½	3600 to 1200	2019557G16	2019557G13	2019557G12
7½	900 to 600	2019557G17	2019557G14	2019557G13
10	3600 to 1200	2019557G17	2019557G14	2019557G13
10	900-720	2019557G18	2019557G15	2019557G14
10	600	2019557G19	2019557G16	2019557G15
15	3600 to 900	2019557G19	2019557G16	2019557G15
15	720-600	2019557G20	2019557G17	2019557G16
20	3600 to 1200	2019557G20	2019557G17	2019557G16
20	900-720	2019557G21	2019557G18	2019557G17
20	600	2019557G21	2019557G18	2019557G18
25	3600-1800	2019557G21	2019557G18	2019557G17
25	1200	2019557G21	2019557G18	2019557G18
25	900 to 600	2019557G21	2019557G19	2019557G18
30	1800 to 600	.....	2019557G19	2019557G18
40	1800 to 600	.....	2019557G20	2019557G19
50	1800 to 720	.....	2019557G21	2019557G20
	600	.....	2019557G21	2019557G21

2-Phase, 3-Wire, 25 Cycles

5	1500-750	2019557G14	2019557G11	2019557G10
7½	1500-750	2019557G16	2019557G13	2019557G12
7½	500	2019557G17	2019557G13	2019557G12
10	1500	2019557G17	2019557G14	2019557G13
10	750-500	2019557G18	2019557G15	2019557G14
15	1500 to 500	2019557G19	2019557G16	2019557G15



## CR7051-J1 Automatic Starting Compensators

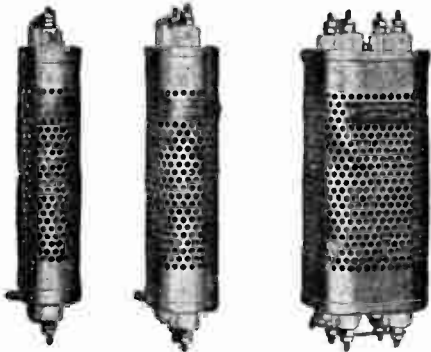
For Squirrel-cage Induction Motors  
 Definite-time Acceleration—Overload Protection  
 220, 440 and 550 Volts

## CR2824-TC-121 Temperature Overload Relay

Cat. No. 2019557  
 For 50-cycle Motors  
 Continued

MOTOR RATING H.P.	SPEED	GROUP NO.					
		220 VOLTS		440 VOLTS		550 VOLTS	
		3-Phase	2-Phase 3-or 4-Wire	3-Phase	2-Phase 3-or 4-Wire	3-Phase	2-Phase 3-or 4-Wire
25	1500	G22	....	G19	....	G18	....
25	1000	G22	....	G19	....	G18	....
25	750	G22	....	G19	....	G18	....
30	1500	....	....	G20	....	G19	....
30	1000	....	....	G20	....	G19	....
30	750	....	....	G20	....	G19	....
30	600	....	....	G20	....	G19	....
40	1500	....	....	G21	....	G20	....
40	1000	....	....	G21	....	G20	....
40	750	....	....	G21	....	G20	....
40	600	....	....	G21	....	G20	....
50	1500	....	....	G22	....	G21	....
50	1000	....	....	G22	....	G21	....
50	750	....	....	G22	....	G21	....
50	600	....	....	G22	....	G21	....
50	500	....	....	G22	....	G21	....
For 25-cycle Motors							
5	1500	G15	....	G12	....	G11	....
5	750	G15	....	G12	....	G11	....
7½	1500	G17	....	G14	....	G13	....
7½	750	G17	....	G14	....	G13	....
7½	500	G17	....	G14	....	G13	....
10	1500	G18	....	G15	....	G14	....
10	750	G18	....	G15	....	G14	....
10	500	G19	....	G16	....	G15	....
15	1500	G20	....	G17	....	G16	....
15	750	G20	....	G17	....	G16	....
15	500	G20	....	G17	....	G16	....

## G-E CR9158 Cage Type Resistors with Enameled Resistor Units



The CR9158 Cage-Type Resistor with enameled resistor units is arranged for wall mounting. The perforated enclosing case which is cadmium-plated to resist corrosion, protects the units and at the same time affords ample ventilation. The units are the 122-watt open-rated size, with an enclosed rating of 85 watts. The resistors are made in 1, 2, 3 or 4-unit sizes, the 4-unit case being used for both the 3 and 4-unit resistors. Units can be connected in series or in parallel as desired and are in most general use on switchboards and in railway signal work.

In ordering, specify CR9158 and give the number of resistor units desired. The desired resistance of each unit should also be given.

*Continuous Watt Capacity	No. of Form QE Units	Approx. Ship. Wt., Lbs.	Price Each
85	1	3	\$1.50
170	2	4	2.55
255	3	5	3.95
340	4	6	4.90

\*Enclosed rating.

## G-E CR7051-K1 Automatic Starting Compensators

For Squirrel-Cage Induction Motors

Definite-Time Acceleration—Overload Protection

220, 440 and 550 Volts

### 3-Phase, 60 Cycles

MOTOR RATING H.P.	VOLTS	SIZE No.	CATALOGUE NUMBERS		*Price Each
			CR7051-K1	TC-221 Relay	
40	220	2	2829551G3	2019555G7	\$325.00
50	220	2	2829551G4	2019555G8	325.00
60	220	3	2829035G2	2019555G9	451.00
60	440	2	2829551G5	2019555G6	330.00
60	550	2	2829551G8	2019555G5	330.00
75	220	3	2829035G3	2019555G10	455.00
75	440	2	2829551G6	2019555G7	330.00
75	550	2	2829551G9	2019555G6	330.00
100	220	3	2829035G4	2019555G11	475.00
100	440	2	2829551G7	2019555G8	335.00
100	550	2	2829551G10	2019555G7	335.00
125	440	3	2829035G5	2019555G9	475.00
125	550	2	2829551G11	2019555G8	340.00
150	440	3	2829035G6	2019555G10	484.00
150	550	2	2829551G12	2019555G9	354.00
200	440	3	2829035G7	2019555G11	502.00
200	550	3	2829035G8	2019555G10	502.00
250	550	3	2829035G8	2019555G11	507.00

### 3-Phase, 50 Cycles

40	220	2	2829551G14	2019555G7	\$325.00
50	220	2	2829551G15	2019555G8	325.00
60	220	3	2829035G10	2019555G9	451.00
60	440	2	2829551G16	2019555G6	330.00
60	550	2	2829551G19	2019555G5	330.00
75	220	3	2829035G11	2019555G10	455.00
75	440	2	2829551G17	2019555G7	330.00
75	550	2	2829551G20	2019555G6	330.00
100	220	3	2829035G12	2019555G11	455.00
100	440	2	2829551G18	2019555G8	330.00
100	550	2	2829551G21	2019555G7	330.00
125	440	3	2829035G13	2019555G9	475.00
125	550	2	2829551G22	2019555G8	340.00
150	440	3	2829035G14	2019555G10	484.00
150	550	3	2829035G16	2019555G9	484.00
200	440	3	2829035G15	2019555G11	502.00
200	550	3	2829035G17	2019555G10	502.00
250	550	3	2829035G18	2019555G11	507.00

### 3-Phase, 25 Cycles

30	220	2	2829551G25	2019555G6	\$335.00
30	440	2	2829551G31	2019555G3	335.00
30	550	2	2829551G40	2019555G2	335.00
40	220	2	2829551G26	2019555G7	335.00
40	440	2	2829551G32	2019555G4	335.00
40	550	2	2829551G41	2019555G3	335.00
50	220	2	2829551G27	2019555G8	344.00
50	440	2	2829551G33	2019555G6	344.00
50	550	2	2829551G42	2019555G5	344.00
60	220	2	2829551G28	2019555G9	353.00
60	440	2	2829551G34	2019555G6	350.00
60	550	2	2829551G43	2019555G5	350.00
75	220	3	2829035G19	2019555G10	488.00
75	440	2	2829551G35	2019555G7	353.00
75	550	2	2829551G44	2019555G6	353.00
100	220	3	2829035G20	2019555G11	515.00
100	440	2	2829551G36	2019555G8	395.00
100	550	2	2829551G45	2019555G7	395.00
125	440	2	2829551G37	2019555G9	405.00
125	550	3	2829035G23	2019555G8	558.00
150	440	3	2829035G21	2019555G10	558.00
150	550	3	2829035G24	2019555G9	558.00
200	440	3	2829035G22	2019555G11	572.00
200	550	3	2829035G25	2019555G10	572.00

\*Price is for compensator complete with temperature overload relay and push-button station.

**G-E CR7051-K1 Automatic Starting Compensators**

For Squirrel-cage Induction Motors  
Definite-time Acceleration—Overload Protection  
220, 440 and 550 Volts

2-phase, 3-wire, 60 Cycles

Motor H.P.	Rating Volts	Size No.	CATALOGUE NUMBERS		*Price Each
			CR7051-K1	TC-221 Relay	
40	220	2	2829136G3	2019555G6	\$325.00
50	220	3	2829137G2	2019555G8	437.00
60	220	3	2829137G3	2019555G9	452.00
60	440	2	2829136G4	2019555G5	330.00
60	550	2	2829136G6	2019555G4	330.00
75	220	3	2829137G4	2019555G9	456.00
75	440	2	2829136G5	2019555G6	330.00
75	550	2	2829136G7	2019555G5	330.00
100	440	3	2829137G5	2019555G8	452.00
100	550	2	2829136G8	2019555G7	335.00
125	440	3	2829137G6	2019555G9	475.00
125	550	3	2829137G8	2019555G8	465.00
150	440	3	2829137G7	2019555G9	484.00
150	550	3	2829137G9	2019555G9	475.00
200	550	3	2829137G10	2019555G10	502.00

2-phase, 3-wire, 25 Cycles

20	220	2	2829136G9	2019555G4	\$330.00
20	440	2	2829136G14	2019555G1	330.00
25	220	2	2829136G10	2019555G5	330.00
25	440	2	2829136G15	2019555G2	330.00
30	220	2	2829136G11	2019555G6	330.00
30	440	2	2829136G16	2019555G3	330.00
40	220	2	2829136G12	2019555G7	335.00
40	440	2	2829136G17	2019555G4	335.00
50	220	2	2829136G13	2019555G8	353.00
50	440	2	2829136G18	2019555G5	353.00
60	220	3	2829137G11	2019555G9	479.00
60	440	2	2829136G19	2019555G5	363.00
75	220	3	2829137G12	2019555G9	484.00
75	440	2	2829136G20	2019555G6	363.00
100	440	2	2829136G21	2019555G8	405.00
125	440	3	2829137G14	2019555G9	517.00

2-phase, 4-wire 60 Cycles

40	220	2	2829138G3	2019555G6	\$325.00
50	220	2	2829138G4	2019555G8	325.00
60	220	2	2829138G5	2019555G9	335.00
60	440	2	2829138G6	2019555G5	330.00
60	550	2	2829138G10	2019555G4	330.00
75	220	3	2829139G2	2019555G9	456.00
75	440	2	2829138G7	2019555G6	330.00
75	550	2	2829138G11	2019555G5	330.00
100	220	3	2829139G3	2019555G11	484.00
100	440	2	2829138G8	2019555G8	335.00
100	550	2	2829138G12	2019555G7	335.00
125	220	3	2829139G4	2019555G12	488.00
125	440	2	2829138G9	2019555G9	344.00
125	550	2	2829138G13	2019555G8	344.00
150	440	3	2829139G5	2019555G9	488.00
150	550	2	2829138G14	2019555G9	348.00
200	440	3	2829139G6	2019555G11	488.00
200	550	3	2829139G8	2019555G10	502.00
250	440	3	2829139G7	2019555G12	502.00
250	550	3	2829139G9	2019555G11	512.00

2-phase, 4-wire, 25 Cycles

20	220	2	2829138G15	2019555G4	\$330.00
20	440	2	2829138G21	2019555G1	330.00
25	220	2	2829138G16	2019555G5	330.00
25	440	2	2829138G22	2019555G2	330.00
30	220	2	2829138G17	2019555G6	335.00
30	440	2	2829138G23	2019555G3	335.00
40	220	2	2829138G18	2019555G7	335.00
40	440	2	2829138G24	2019555G4	335.00
50	220	2	2829138G19	2019555G8	344.00
50	440	2	2829138G25	2019555G5	344.00
60	220	2	2829138G20	2019555G9	348.00
60	440	2	2829138G26	2019555G5	348.00
75	220	3	2829139G11	2019555G9	484.00
75	440	2	2829138G27	2019555G6	363.00
100	220	3	2829138G12	2019555G11	517.00
100	440	2	2829138G28	2019555G8	404.00

\*Price is for compensator complete with temperature overload relay.

**G-E CR7051-L1 Automatic Starting Compensators**

For Squirrel-Cage Induction Motors  
Definite-Time Acceleration—Overload Protection  
2200 Volts

3-Phase, 60 Cycles

Motor Rating H.P.	Size No.	*Price Each	Cat. No.	Motor Rating H.P.	Size No.	*Price Each	Cat. No.
20	1	\$675.00	2888164G2	150	1	\$715.00	2888164G11
25	1	680.00	2888164G3	200	1	725.00	2888164G12
30	1	680.00	2888164G4	250	1	740.00	2888164G13
40	1	685.00	2888164G5	300	2	900.00	2888165G2
50	1	690.00	2888164G6	350	2	912.00	2888165G3
60	1	690.00	2888164G7	400	2	912.00	2888165G4
75	1	690.00	2888164G8	450	2	915.00	2888165G5
100	1	707.00	2888164G9	500	2	915.00	2888165G6
125	1	717.00	2888164G10	.....	.....	.....	.....

3-Phase, 50 Cycles

20	1	\$675.00	2888164G14	125	1	\$715.00	2888164G22
25	1	680.00	2888164G15	150	1	715.00	2888164G23
30	1	680.00	2888164G16	200	1	725.00	2888164G24
40	1	685.00	2888164G17	250	1	740.00	2888164G25
50	1	690.00	2888164G18	300	2	900.00	2888165G7
60	1	690.00	2888164G19	350	2	912.00	2888165G8
75	1	690.00	2888164G20	300	2	912.00	2888165G9
100	1	707.00	2888164G21	.....	.....	.....	.....

3-Phase, 25 Cycles

20	1	\$707.00	2888164G26	125	1	\$772.00	2888164G34
25	1	707.00	2888164G27	150	1	780.00	2888164G35
30	1	707.00	2888164G28	200	1	795.00	2888164G36
40	1	715.00	2888164G29	250	1	827.00	2888164G37
50	1	715.00	2888164G30	300	1	995.00	2888165G12
60	1	740.00	2888164G31	350	2	1000.00	2888165G13
75	1	754.00	2888164G32	400	2	1000.00	2888165G14
100	1	763.00	2888164G33	.....	.....	.....	.....

2-Phase, 4-Wire, 60 Cycles

20	1	\$685.00	2888163G2	75	1	\$697.00	2888163G8
25	1	685.00	2888163G3	100	1	697.00	2888163G9
30	1	685.00	2888163G4	125	1	710.00	2888163G10
40	1	690.00	2888163G5	150	1	730.00	2888163G11
50	1	690.00	2888163G6	200	1	735.00	2888163G12
60	1	690.00	2888163G7	250	1	745.00	2888163G13

\*Price includes temperature overload relay which is included in Cat. No. of CR7051-L1 compensator. Price also includes potential transformer but this must be ordered as a separate item.

**Accessories For Hand Control**

A CR2940-BS-79-J Start and Stop push-button station, which provides under-voltage protection, may be used with CR7051-J1 compensators and CR2940-BS-212-A Start and Stop push-button station with all other forms of CR7051 compensators.

A single-pole knife or snap switch, which provides under-voltage release, can be used in the pilot circuit to start and stop the motor.

**For Automatic Control (Under-Voltage Release)**

To maintain a water level in an open tank between definite limits, use a CR2931 float switch.

To maintain a definite pressure in a closed tank, use a CR2922 pressure governor or a CR2927 pressure switch.

**Ordering Directions**

**For CR7051-J1 Compensators**

1. Order the compensator by CR number and Cat. No. and specify the complete name plate rating of the motor.
2. Order a CR2824-TC-121-C temperature overload relay by Cat. No. 2019557 and group number from table for horsepower, speed and voltage of motor.
3. Order a push-button station or other accessory by its complete description.
4. Order an ammeter attachment by Cat. No.

**For CR7051-K1 Compensators**

1. Order CR7051-K1 compensator by Cat. No.
2. Order a TC-221 temperature overload relay by Cat. No.
3. Order a push-button station or other desired accessory by its complete description.

**For CR7051-L1 Compensators**

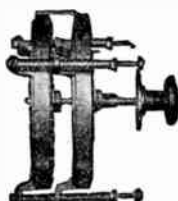
1. Order CR7051-L1 compensator by Cat. No.
2. Order one Type H, 1½-kv-a., control circuit transformer.
3. Order a push-button station or other desired accessory by its complete description.

## G-E CR8000 and CR8001 Plate Type D.C. Field Rheostats

6, 10, 12 and 15-Inch Plates



CR8000, Front of Panel Mounting



CR8001, Back of Panel Mounting

### 125 Volts

Ohms	AMPERE CAPACITY		No. of Plates in Multiple	Diam. in.	CR8000 FOR FRONT OF PANEL MOUNTING		CR8001 FOR BACK OF PANEL MOUNTING	
	First Step	Last Step			Cat. No.	*Price Each	Cat. No.	*Price Each
400	1.25	0.25	1	6	1916254	\$5.00	1916255	\$7.00
353	1.5	0.71	1	10	108484	7.00	108485	9.00
352	1.3	0.27	1	6	1916252	5.00	1916253	7.00
300	1.4	0.33	1	6	1916250	5.00	1916251	7.00
300	0.5	0.25	1	10	43576	7.00	43577	9.00
286	2	1	1	10	108486	7.00	108487	9.00
250	1.5	0.38	1	6	1916248	5.00	1916249	7.00
240	0.63	0.32	1	10	43578	7.00	43579	9.00
210	2.8	1	1	10	108488	7.00	108489	9.00
200	1.6	0.45	1	6	1916246	5.00	1916247	7.00
200	0.75	0.48	1	10	43580	7.00	43581	9.00
175	3	1	1	10	108490	7.00	108491	9.00
150	1.7	0.56	1	6	1916244	5.00	1916245	7.00
150	1	0.5	1	10	43582	7.00	43583	9.00
146	4.5	1	1	12	108492	9.00	108493	11.00
120	1.25	0.63	1	10	43584	7.00	43585	9.00
103	1.93	0.75	1	6	1916242	5.00	1916243	7.00
100	1.5	0.75	1	10	43586	7.00	43587	9.00
100	5.5	1.7	1	12	108494	9.00	108495	11.00
88	6	2	2	12	108496	16.00	108497	18.00
75	2	1	1	10	43588	7.00	43589	9.00
70	2.2	1	1	6	1916240	5.00	1916241	7.00
70	9	1.4	2	12	108498	16.00	108499	18.00
60	2.4	1.1	1	6	1916238	5.00	1916239	7.00
60	2.5	1.25	1	10	43590	7.00	43591	9.00
55	10	2	2	12	108500	16.00	108501	18.00
50	3	1.5	1	10	43592	7.00	43593	9.00
45	14	2.4	2	15	108502	22.00	108503	24.00
42	16.5	3	3	15	108504	33.00	108505	35.00
40	2.7	1.45	1	6	1916236	5.00	1916237	7.00
37.5	4	2	1	10	43594	7.00	43595	9.00
30	3	1.75	1	6	1916234	5.00	1916235	7.00
30	5	2.5	1	12	43596	9.00	43597	11.00
30	21	3.6	3	15	108506	33.00	108507	35.00
25	6	3	1	12	43598	9.00	43599	11.00
22.5	28	4.8	4	15	108508	45.00	108509	47.00
22	12	4	2	12	61794	16.00	61795	18.00
20	3.4	2.2	1	6	1916232	5.00	1916233	7.00
18.8	4	1	1	12	43600	9.00	43601	11.00
15	4	2.7	1	6	1916230	5.00	1916231	7.00
15	10	5	1	15	43602	12.00	43603	14.00
15	14	6	2	12	61718	16.00	61719	18.00
15	18	6	2	15	61720	22.00	61721	24.00
12.5	12.5	6.3	2	12	64636	16.00	64637	18.00
12	25	7.5	3	15	61722	33.00	61723	35.00
10	4.5	3.3	1	6	1916228	5.00	1916229	7.00
9.4	16	8	2	12	43606	16.00	43607	18.00
7.5	20	10	2	15	43608	22.00	43609	24.00
6.3	25	12.5	3	15	64638	33.00	64639	35.00
6	30	12	3	15	61724	33.00	61725	35.00
5	6.5	5.2	1	6	1916226	5.00	1916227	7.00
5	30	15	3	15	43612	33.00	43613	35.00
3.75	40	20	4	15	43614	45.00	43615	47.00
3	8	6.7	1	6	1916224	5.00	1916225	7.00
2	9	8	1	6	1916222	5.00	1916223	7.00
1	11	10	1	6	1916220	5.00	1916221	7.00

### 250 Volts

3435	1.2	0.07	1	12	2214505G139	\$9.00	2214505G39	\$11.00
3130	1.2	0.07	1	12	2214505G138	9.00	2214505G38	11.00
2840	1.4	0.08	1	12	2214505G137	9.00	2214505G37	11.00
2580	1.4	0.09	1	12	2214505G136	9.00	2214505G36	11.00
2345	1.4	0.10	1	12	2214505G135	9.00	2214505G35	11.00
2130	1.4	0.10	1	12	2214505G134	9.00	2214505G34	11.00
1930	1.5	0.12	1	12	2214505G133	9.00	2214505G33	11.00
1750	1.7	0.13	1	12	2214505G132	9.00	2214505G32	11.00
1600	1.7	0.15	1	12	2214505G131	9.00	2214505G31	11.00
1450	1.7	0.15	1	12	2214505G130	9.00	2214505G30	11.00
1320	1.8	0.15	1	12	2214505G129	9.00	2214505G29	11.00
1200	1.9	0.20	1	12	2214505G128	9.00	2214505G28	11.00
1100	1.9	0.20	1	12	2214505G127	9.00	2214505G27	11.00
1000	2	0.20	1	12	2214505G126	9.00	2214505G26	11.00
900	1.7	0.25	1	12	2214505G125	9.00	2214505G25	11.00
820	1.8	0.25	1	12	2214505G124	9.00	2214505G24	11.00
745	1.9	0.30	1	12	2214505G123	9.00	2214505G23	11.00
675	2.0	0.30	1	12	2214505G122	9.00	2214505G22	11.00

\*Prices cover rheostats with black polished handwheel. A polished cast brass handwheel, Cat. No. 59820 instead of the polished black handwheel, can be furnished with CR8001 back-of-panel rheostats with 10, 12 and 15-inch plates at an additional price of \$7.

## G-E CR8000 and CR8001 Plate Type D.C. Field Rheostats

6, 10, 12 and 16-Inch Plates

250 Volts—Continued

Ohms	AMPERE CAPACITY		No. of Plates in Multiple	Diam. in.	CR8000 FOR FRONT OF PANEL MOUNTING		CR8001 FOR BACK OF PANEL MOUNTING	
	First Step	Last Step			Cat. No.	*Price Each	Cat. No.	*Price Each
615	2	0.35	1	12	2214505G121	\$9.00	2214505G21	\$11.00
600	0.8	0.28	1	6	1916218	5.00	1916219	7.00
555	2	0.40	1	12	2214505G120	9.00	2214505G20	11.00
500	2.1	0.40	1	12	2214505G119	9.00	2214505G19	11.00
480	0.85	0.31	1	6	1916216	5.00	1916217	7.00
460	2	0.40	1	12	2214505G118	9.00	2214505G18	11.00
420	2.2	0.51	1	12	2214505G117	9.00	2214505G17	11.00
400	0.90	0.37	1	6	1916214	5.00	1916215	7.00
380	2.3	0.50	1	12	2214505G116	9.00	2214505G16	11.00
350	2.3	0.55	1	12	2214505G115	9.00	2214505G15	11.00
315	2.4	0.60	1	12	2214505G114	9.00	2214505G14	11.00
300	1	0.45	1	6	1914895	5.00	1916213	7.00
300	1	0.50	1	10	43620	7.00	43621	9.00
285	2.4	0.60	1	12	2214505G113	9.00	2214505G13	11.00
260	2.5	0.70	1	12	2214505G112	9.00	2214505G12	11.00
250	1	0.50	1	6	1916210	5.00	1916211	7.00
240	1.25	0.63	1	10	43622	7.00	43623	9.00
235	2.5	0.75	1	12	2214505G111	9.00	2214505G11	11.00
215	2.6	0.80	1	12	2214505G110	9.00	2214505G10	11.00
200	1.2	0.60	1	6	1916208	5.00	1916209	7.00
200	1.5	0.75	1	10	43624	7.00	43625	9.00
195	2.6	0.85	1	12	2214505G109	9.00	2214505G9	11.00
175	2.7	0.90	1	12	2214505G108	9.00	2214505G8	11.00
160	2.8	1	1	12	2214505G107	9.00	2214505G7	11.00
150	1.3	0.75	1	6	1916206	5.00	1916207	7.00
150	2	1	1	10	43626	7.00	43627	9.00
145	2.8	1	1	12	2214505G106	9.00	2214505G6	11.00
133	2.9	1	1	12	2214505G105	9.00	2214505G5	11.00
125	1.4	0.83	1	6	1916204	5.00	1916205	7.00
120	3	1.2	1	12	2214505G104	9.00	2214505G4	11.00
110	3	1.3	1	12	2214505G103	9.00	2214505G3	11.00
100	1.6	0.98	1	6	1916202	5.00	1916203	7.00
100	3.2	1.4	1	12	2214505G102	9.00	2214505G2	11.00
75	1.7	1.13	1	6	1916200	5.00	1916201	7.00
75	4	2	1	12	43632	9.00	43633	11.00
75	6	2	2	12	61726	16.00	61727	18.00
60	1.9	1.3	1	6	1916198	5.00	1916199	7.00
60	5	2.5	1	15	43634	12.00	43635	14.00
55	9	3	2	15	61728	22.00	61729	24.00
50	2	1.43	1	6	1916196	5.00	1916197	7.00
48	6.3	3.2	2	15	43636	12.00	43637	14.00
45	9	4	2	15	61732	22.00	61733	24.00
40	2.3	1.58	1	6	1916194	5.00	1916195	7.00
40	11	4	2	15	61730	22.00	61731	24.00
37.5	8	4	2	12	43638	16.00	43639	18.00
30	2.6	2	1	6	1916192	5.00	1916193	7.00
30	10	5	2	15	43640	22.00	43642	24.00
30	11	6.5	3	15	61780	33.00	61781	35.00
25	12.5	6.3	2	15	43642	22.00	43643	24.00
20	3	2.42	1	6	1916190	5.00	1916191	7.00
20	15	7.5	3	15	43644	33.00	43645	35.00
20	17	7	3	15	61778	33.00	61779	35.00
15	20	10	4	15	43646	45.00	43647	47.00

### 550 Volts

3500	0.32	0.11	1	6	1915698	\$5.00	1915699	\$7.00
3000	0.35	0.12	1	6	1915696	5.00	1915697	7.00
2500	0.38	0.14	1	6	1915694	5.00	1915695	7.00
2000	0.40	0.165	1	6	1915692	5.00	1915693	7.00
2000	0.6	0.3	1	15	49144	12.		

**Model 1 Weston Portable Voltmeters  
For D.C.**



Single and double range instruments are furnished with locking contact and key or will be provided with a reversing switch instead of contact key at an additional cost of \$3.25. Equipped with zero-correcting device.

Metal case, dull black finish, base is of Bakelite.

Single Range					
Range in Volts	Number of Scale Divisions	Price Each	Range in Volts	Number of Scale Divisions	Price Each
3	150	\$72.00	150	150	\$72.00
15	150	72.00	300	150	81.25
50	100	72.00	600	120	81.25
75	150	72.00	750	150	87.50
150	150	*68.75	...	...	.....

\*Furnished without contact key.

Double Range					
Range in Volts	Number of Scale Divisions	Price Each	Range in Volts	Number of Scale Divisions	Price Each
15	150	\$77.00	300	150	\$86.25
3			150		
150	150	77.00	600	150	86.25
3			150		
150	150	77.00	600	150	86.25
15			300		
150	150	77.00	750	150	92.50
75			150		

Triple Range					
Range in Volts	Number of Scale Divisions	Price Each	Range in Volts	Number of Scale Divisions	Price Each
150	150	\$82.00	750	150	\$102.50
15			300		
3			150		
300	150	91.25	15		
150			3		
3			...	...	.....
750	150	97.50	...	...	.....
300			...	...	.....
150			...	...	.....

**Model 1 Weston Portable Ammeters**

For D.C. Single Range



This instrument is accurate, direct reading, compact and serviceable for rapid work. All instruments are self-contained and are only made regularly with a single range.

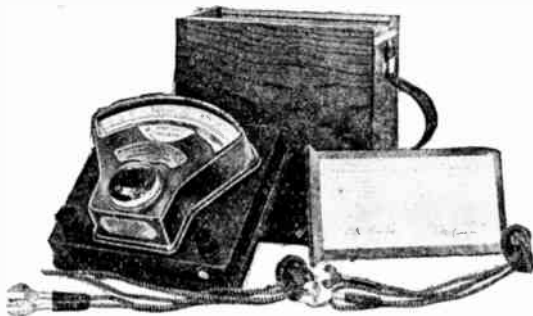
Instruments have zero-correcting devices.

Bakelite base and sub-base.

Range in Amperes	Number of Scale Divisions	Price Each	Range in Amperes	Number of Scale Divisions	Price Each
1	100	\$68.75	50	100	\$81.25
1.5	150	68.75	100	100	87.75
3	150	75.00	150	150	93.75
5	100	81.25	200	100	100.00
10	100	81.25	300	150	100.00
15	150	81.25	400	80	112.50
25	125	81.25	500	100	112.50

**Model 1 Weston Portable Millivoltmeters  
For D.C.**

With Shunts for Ampere Measurements



This millivoltmeter in connection with Weston Patent Alloy Shunts, reads directly in amperes. Shunts of different sizes can be adjusted to same instrument. Measures a current of 2000 amperes with the same degree of accuracy as a current of 1 ampere. If user of this combination desires to employ additional ranges to those for which instrument is already adjusted, purchase additional shunts of ranges required, thus saving expense of an additional instrument. Price, Model 1..... each \$62.50

**Single Range Shunts for Millivoltmeters**

Prices below include adjustment between millivoltmeter and shunts.

Range in Amperes	Price Each	Range in Amperes	Price Each	Range in Amperes	Price Each	Range in Amperes	Price Each
1	\$13.75	30	\$27.50	200	\$48.25	750	\$82.50
3	17.25	50	30.75	300	55.00	1000	110.00
5	20.75	75	34.50	400	62.00	1500	178.75
10	20.75	100	41.25	500	68.75	2000	240.75
15	20.75	150	44.75	600	75.75	.....	.....

**Model 1 Type 2 Weston Portable Direct Reading Ohmmeters**



May be operated on ordinary dry cells, thereby dispensing with the necessity of using a troublesome or expensive storage battery as a constant source of e.m.f.

No auxiliary rheostat, voltmeter, or other apparatus is required and as only six dry cells are essential for the highest range instrument (fewer cells being required for the low range instruments) the complete apparatus may be readily carried from place to place as a unit.

If the instrument is connected by its proper binding posts to the battery it then merely becomes necessary to connect the unknown resistance to the two binding posts provided for the purpose; press the contact key and read directly in ohms.

Instruments are made with double and triple ranges, a plug switch serving to make the change from one range to the other.

The instrument is guaranteed to be accurate within 1/4 of one per cent of full scale at any temperature from 10° C (50° F) to 30° C (86° F).

When not indicating, the pointer stands in a free zero position, there being no initial tension on the movable coil springs. Any inaccuracy at zero can therefore be instantly determined and corrected by means of the zero corrector.

Range Ohms	Volts Necessary to Operate	Price Each
0-2.5, 0-25, 25-50	*1.5	\$106.25
0-10, 0-50, 50-100	*1.5	106.25
0-200, 0-1000, 1000-2000	6	112.50
0-300, 0-1500, 1500-3000	9	112.50
0-1000, 0-5000, 5000-10000	24	120.00

\*When used for long periods on the low range it is recommended that 2 cells be used in multiple.

## Model 1 Weston Portable Millivoltmeters For Direct Current

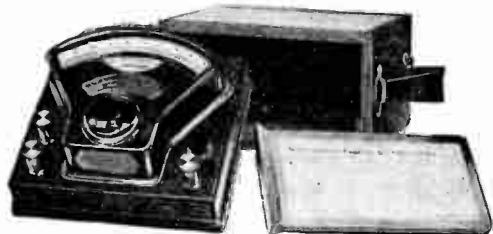


This millivoltmeter may be arranged for use with alloy shunts for current measurements at an additional cost of \$6.25.

Range in Millivolts	Number of Scale Divisions	Price Each	Range in Millivolts	Number of Scale Divisions	Price Each
20	100	\$62.50	**20 } 200 }	100	\$68.75
10-0-10	100	62.50			
*10-0-10	100	68.75	...	...	.....
100-0-100					

\*Supplied with contact key by use of which either range may be employed.  
\*\*Has three binding posts.

## Model 1 Weston Portable Milliammeters For D.C.



### Single Range

Range in Milliampers	Number of Scale Divisions	Price Each	Range in Milliampers	Number of Scale Divisions	Price Each
1.5	150	\$68.75	75	150	\$62.50
3	150	68.75	150	150	62.50
7.5	150	68.75	300	150	62.50
10	100	68.75	600	120	62.50
15	150	62.50	750	150	62.50
30	150	62.50	1000	100	68.75
50	100	62.50	1500	150	68.75

### Double Range

500, 50	100	\$75.00	*500, 10	100	\$87.00
500, 10	100	75.00	.....	.....	.....

\*Supplied with resistance box having two coils. When box is connected in series with binding posts marked 10 lower scale is read in volts. A full scale deflection is secured with 10 or 100 volts according to coil multiplier used.

## Model 1 Weston Portable Voltammeters For Direct Current



Model 1 voltammeters of other ranges made on special order.

RANGE		Number of Scale Div.	Price Each	RANGE		Number of Scale Div.	Price Each
Volts	Amps.			Volts	Amps.		
150	1.5	150	\$93.75	150	3	150	\$93.75

## Model 45 Weston Portable Voltmeters For Direct Current



The movement is completely enclosed in an iron case, securely fastened in a wooden carrying box, which protects it from stray magnetic fields. Has zero correcting device.

Double and triple range voltmeters will be furnished when desired in the combinations listed under Model 1 voltmeter. To determine the price of such instruments add \$7.50 for each additional range to the price listed for the highest range.

Box is provided with a hinged cover, which protects the scale and binding posts.

Range in Volts	Number of Scale Divisions	Price Each	Range in Volts	Number of Scale Divisions	Price Each
.2-0-3	150	\$41.25	150	150	\$48.75
3	150	41.25	300	150	53.75
5	100	41.25	600	120	57.75
15	150	41.25	750	150	61.00

## Model 45 Weston Portable Ammeters For D.C.

The movement is completely enclosed in an iron case, securely fastened in a wooden carrying box, which protects it from stray magnetic fields. This box is provided with a hinged cover.

Instrument has zero connecting device.

Double and triple range voltmeters will be furnished when desired in the combinations listed under Model 1 voltmeter. Ammeters, having a maximum range of 25 amperes or less, are provided with self-contained shunts. Higher range adjusted to external type shunts.



Range in Amps.	Number of Scale Div.	Price Each	Range in Amps.	Number of Scale Div.	Price Each	Range in Amps.	Number of Scale Div.	Price Each
1.5	150	\$41.25	100	100	\$43.75	500	100	\$48.75
5	100	41.25	150	150	44.50	750	150	52.00
15	150	41.25	200	100	46.25	1000	100	53.75
50	100	42.00	300	150	46.75	.....	.....	.....

## Model 45 Weston Portable Milliammeters For D.C.

Is of the pivoted movable coil permanent magnet type, and designed to meet the demand for a medium-priced instrument of sufficient accuracy for general testing in plants.

The movement is enclosed in an iron case, securely fastened in a wooden carrying box. Equipped with knife edge pointer and mirror scale.

Range in Milliampers	No. of Scale Div.	Price Each	Range in Milliampers	No. of Scale Div.	Price Each
1.5	150	\$49.50	100	100	\$41.25
3	150	49.50	150	150	41.25
7.5	150	49.50	300	150	41.25
15	150	41.25	750	150	41.25
30	150	41.25	1500	150	41.25
75	150	41.25	.....	.....	.....



**Model 280 Weston Miniature Precision Portable Instruments**

For D.C.

These instruments are all the same size and can be carried in any ordinary coat pocket. They are made in a great many varieties of ranges and are admirably adapted to all kinds of commercial and experimental testing that falls within their limits of e.m.f. and current.



**Model 280 Weston Triple Range Portable Voltmeters**

For D.C.

This instrument can be carried in an ordinary coat pocket. It is admirably adapted to all kinds of commercial and experimental testing that falls within its limits of e.m.f. and current.

Provided with zero-correcting device. Case is dust-proof and made of sheet steel which shields magnetic system from any action of external fields.

Made in triple range only.



**Single-Range Millivoltmeters**

Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
50	50	\$18.75	150	75	\$18.75	400	40	\$18.75
100	50	18.75	200	40	18.75	500	50	18.75
120	60	18.75	250	50	18.75	600	60	18.75
130	65	18.75	300	60	18.75	750	75	18.75

**Single-Range Voltmeters**

1.2	60	\$18.75	10	50	\$18.75	60	60	\$18.75
1.5	75	18.75	15	75	18.75	75	75	18.75
3	60	18.75	20	50	18.75	100	50	18.75
5	50	18.75	30	60	18.75	120	60	18.75
7.5	75	18.75	50	50	18.75	150	75	18.75

**Single-Range Milliammeters**

50	50	\$18.75	150	75	\$18.75	500	50	\$18.75
75	75	18.75	250	50	18.75	750	75	18.75
100	50	18.75	300	60	18.75	...	...	...

**Single-Range Ammeters**

1	50	\$18.75	7.5	75	\$18.75	30	60	\$18.75
1.5	75	18.75	10	50	18.75	*50	50	23.75
2	40	18.75	15	75	18.75	*100	50	23.75
3	60	18.75	20	40	18.75	...	...	...
5	50	18.75	25	50	18.75	...	...	...

**Triple-Range Voltmeters**

Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
25-10-2.5	50	\$21.75	100-50-5	50	\$21.75
30-3-1.5	30	21.75	150-15-1.5	30	21.75
30-15-3	30	21.75	150-30-3	30	21.75
50-5-2.5	50	21.75	150-75-3	30	21.75
50-25-5	50	21.75	...	...	...

**Triple-Range Ammeters**

5-2.5-0.25	50	\$21.75	20-8-2	40	\$21.75
10-1-0.1	50	21.75	25-2.5-0.5	50	21.75
10-1-0.5	50	21.75	25-5-2.5	50	21.75
10-5-0.5	50	21.75	25-10-2.5	50	21.75
10-2-5-1	50	21.75	25-10-5	50	21.75
15-13-0.15	30	21.75	30-3-1.5	30	21.75
15-3-1.5	30	21.75	30-6-3	60	21.75
20-4-2	40	21.75	30-15-3	30	21.75

\*Provided with external shunt.

**Model 280 Weston Garage Testing Instruments**



This instrument is compact (pocket size) and has a uniform and legible scale, is accurate and serviceable, damped, quick in action, shielded from the disturbing influence of external magnetic fields, permanent and durable. It is adjusted for ranges of 30 and 3 volts and 100 milli-volts (all self-contained), and is provided with external shunts of 3, 30 and

300 ampere rating for use in making current measurements.  
 Price, Model 280, Testing Instrument..... each \$41.25  
 " Carrying Case..... " 8.50  
 " Multiplier for 150-volt Range..... " 5.00

**Model 45 Weston Battery Testing Voltmeters**

This instrument has been developed for the battery service station which is called upon to repair, charge and test batteries on a large scale. It is substantially constructed to withstand hard usage, the vital parts being contained in a cast-iron case about which is a wooden carrying box.

The range is 0.2-0-3 volts, which is particularly adapted for making voltage and cadmium tests on the individual cells of the battery.



Price, Model 45..... each \$41.25  
 " Cadmium Test Cables..... per pair 5.00

**Model 443 Weston Battery Testing Voltmeters**

This instrument meets every requirement for a means of testing the individual cells of a storage battery.

The acid-proof case is of Bakelite. In addition to its normal scale of 0 to 3 volts, this instrument is calibrated so that a portion of its scale is specially divided and figured for making the Cadmium Test. This special test which goes as added equipment has terminal consisting of a spike and a protected Cadmium stick, whereas the cable regularly supplied with the instrument has only the spike terminal.

Price, Model 443 Voltmeter, each \$14.00  
 " Cadmium Test Cable. " 2.75





## Model 341 Weston Portable Voltmeters For A.C. and D.C.

These instruments are electro-dynamometer meters and may be used with equal accuracy on either a.c. or d.c. circuits. They are contained in highly polished mahogany boxes, provided with carrying handles, locks and covers equipped with slip hinges. The weight is approximately 11 pounds, and the dimensions are 8x10 $\frac{1}{4}$ x-5 $\frac{3}{4}$  inches over all.

The entire movable and field coil system is mounted in a double closed iron shield, which effectually protects it from external magnetic field and electrostatic influences.



### Single Range

Range	Approx. Resist. Ohms	Price Each	Range	Approx. Resist. Ohms	Price Each
1	2	\$107.25	30	470	\$99.00
1.5	3	107.25	50	770	99.00
2	4	107.25	75	1180	99.00
3	6	107.25	120	2700	99.00
5	18	107.25	150	3300	99.00
7.5	50	103.25	300	6700	103.25
10	66	103.25	600	20000	111.50
15	100	103.25	750	25000	115.50

### Double Range

5-1	10-2	\$115.50	150-75	3300-1650	\$107.25
15-1.5	30-3	115.50	300-150	6700-3350	111.50
3-1.5	6-3	115.50	600-150	20000-5000	119.75
6-3	21-10.5	115.50	600-300	20000-10000	119.75
15-7.5	100-50	111.50	750-150	25000-5000	123.75
30-15	300-150	111.50	750-300	25000-10000	123.75
120-60	2700-1350	107.25			

## Model 311 Weston Potential Transformers

Designed for use on circuits of any frequency from 25 to 133 cycles per second.

They have an accuracy better than one-half of one per cent for loads not exceeding 15 volt amperes at any power factor.

The variation in ratio of transformation for various applied voltages within the range of the connected instrument is small.



Range Volts	Price Each
2200-1100 to 110	\$74.25
1100-550 " 110	70.75
440-220 " 110	66.75

## Weston Y-Boxes for Models 310 and 432 Wattmeters

These multipliers are resistors having a definite multiplying constant, the resistance material of which is highly insulated and arranged for proper heat dissipation.

They are so adjusted that the readings of the instrument may be multiplied by a specific constant.

Normal Voltage of Instrument	Normal Line Voltage Constant With Y-Box	MAXIMUM VOLTAGE WITH Y-BOX		PRICE, EACH	
		Model 310	Model 432	Model 310	Model 432
75	3	150	170	\$24.00	\$18.00
150	3	300	340	24.00	18.00
150	4	400	450	30.00	18.00
150	5	500	550	38.00	18.00
150	6	600	750	45.00	18.00

The multipliers listed are those most commonly required, but intermediate ranges or sub-divisions will be provided when so ordered.

## Model 329 Weston Portable Polyphase Wattmeters

These instruments are contained in highly polished mahogany boxes, provided with carrying handles, locks and covers equipped with slip hinges.

This form of instrument really consists of two single phase wattmeters, electrically independent, but having their movable coils mounted on a common shaft, so that they rotate together. Each coil, however, moves in its own system of field coils.

Scales are uniform throughout their entire length, and are 5 $\frac{1}{4}$  inches long.

The pointers are equipped with simple zero setting devices, and are of the Weston triangular truss type with knife edges. To prevent parallax errors mirrors are provided.



Approximate weight, 17 $\frac{1}{2}$  pounds.  
Dimensions overall, 9 $\frac{1}{2}$  x 10 $\frac{1}{2}$  x 8 $\frac{3}{8}$  inches.

### Normal 100/50, Maximum 150/75 Volts

Series	AMPERES		*Watt Ranges Field Coils in Series	Field Coils in Multiples	No. of Scale Lines	Price Each
	NORMAL	MAXIMUM				
1	2	2	4	200/100	400/200	100 \$181.50
2.5	5	5	10	500/250	1000/500	100 181.50
5	10	10	20	1/.5 K.W.	2/1 K.W.	100 181.50
10	20	20	40	2/1 K.W.	4/2 K.W.	100 189.75

### Normal 150/75, Maximum 250/125 Volts

1	2	2	4	300/150	600/300	150 \$181.50
2.5	5	5	10	750/375	1500/750	150 181.50
5	10	10	20	1.5/.75K.W.	3/1.5 K.W.	150 181.50
10	20	20	40	3/1.5 K.W.	6/3 K.W.	150 189.75

### Normal 200/100, Maximum 300/150 Volts

1	2	2	4	400/200	800/400	100 \$189.75
2.5	5	5	10	1/.5 K.W.	2/1 K.W.	100 189.75
5	10	10	20	2/1 K.W.	4/2 K.W.	100 189.75
10	20	20	40	4/2 K.W.	8/4 K.W.	100 198.00

### Normal 300/150, Maximum 450/250 Volts

1	2	2	4	600/300	1200/600	120 \$189.75
2.5	5	5	10	1.5/.75 K.W.	3/1.5 K.W.	150 189.75
5	10	10	20	3/1.5 K.W.	6/3 K.W.	150 189.75
10	20	20	40	6/3 K.W.	12/6 K.W.	120 198.00

### Normal 500/100, Maximum 600/150 Volts

1	2	2	4	1000/200	2000/400	100 \$206.25
2.5	5	5	10	2500/500	5000/1000	100 206.25
5	10	10	20	5/1 K.W.	10/2 K.W.	100 206.25
10	20	20	40	10/2 K.W.	20/4 K.W.	100 214.50

### Normal 500/250, Maximum 600/375 Volts

1	2	2	4	1000/500	2000/1000	100 \$206.25
2.5	5	5	10	2.5/1.25 K.W.	5/2.5 K.W.	125 206.25
5	10	10	20	5/2.5 K.W.	10/5 K.W.	100 206.25
10	20	20	40	10/5 K.W.	20/10 K.W.	100 214.50

### Normal 600/150, Maximum 675/250 Volts

1	2	2	4	1200/300	2400/600	120 \$210.50
2.5	5	5	10	3/.75 K.W.	6/1.5 K.W.	150 210.50
5	10	10	20	6/1.5 K.W.	12/3 K.W.	150 210.50
10	20	20	40	12/3 K.W.	24/6 K.W.	120 218.75

### Normal 600/300, Maximum 675/450 Volts

1	2	2	4	1.2/.6 K.W.	2.4/1.2 K.W.	120 \$210.50
2.5	5	5	10	3/1.5 K.W.	6/3 K.W.	150 210.50
5	10	10	20	6/3 K.W.	12/6 K.W.	120 210.50
10	20	20	40	12/6 K.W.	24/12 K.W.	120 218.75

### Normal 750/150, Maximum 750/250 Volts

1	2	2	4	1500/300	3000/600	150 \$214.50
2.5	5	5	10	3750/750	7500/1500	150 214.50
5	10	10	20	7.5/1.5 K.W.	15/3 K.W.	150 214.50
10	20	20	40	15/3 K.W.	30/5 K.W.	150 222.75

### Normal 750/300, Maximum 750/450 Volts

1	2	2	4	1500/600	3000/1200	150 \$214.50
2.5	5	5	10	3750/1500	7500/3000	150 214.50
5	10	10	20	7.5/3 K.W.	15/6 K.W.	150 214.50
10	20	20	40	15/5 K.W.	30/12 K.W.	150 222.75

\*Range not marked K. W. read in watts.

**Model 370 Weston Portable Instruments**  
For Alternating and Direct Current



These instruments are electro-dynamometer ammeters, and may be used with equal accuracy on either direct current circuits or on alternating current circuits of any frequency up to 133 cycles per second and of any wave form.

They are contained in polished mahogany boxes, provided with carrying handles, locks and covers equipped

with slip hinges. The weight is approximately 11 lbs., and the dimensions are 8x10 $\frac{1}{4}$ x5 $\frac{3}{4}$  inches over all.

**Milliammeters—Single Range**

Approx. Resist. Range Ohms	Price Each	Approx. Resist. Range Ohms	Price Each	Approx. Resist. Range Ohms	Price Each
15 1400	\$111.50	75 50	\$111.50	300 3.2	\$111.50
20 720	111.50	100 26.5	111.50	500 1.2	111.50
30 350	111.50	150 19.5	111.50	750 0.9	111.50
50 167	111.50	200 7.5	111.50	...	...

**Ammeters—Double Range**

2-1 ...	\$123.75	5-2 $\frac{1}{2}$ ...	\$123.75	10-5 ...	\$123.75
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**Model 310 Weston Portable Wattmeters**  
For Alternating and Direct Current

These instruments represent the latest development in electro-dynamometer wattmeters and embody many characteristics hitherto considered unattainable in instruments of this class.

They are contained in highly polished mahogany boxes, provided with carrying handles, locks and covers equipped with slip hinges. The weight is approximately 11 lbs., and the dimensions are 8x10 $\frac{1}{4}$ x5 $\frac{3}{4}$  inches over all.



**Scales**

Scales are 5 $\frac{1}{4}$  inches long, are uniform throughout their entire length, and are provided with mirrors to prevent parallax mirrors.

The pointers are of the Weston triangular truss type with knife edges, and are equipped with simple zero setting devices controlled from the outside of the case.

**Ranges**

Double ranges for both the current and voltage circuits are provided. The double current, range feature is obtained by connecting the two field coil sections either in series or in multiple by means of links and binding screws, conveniently located on the top of the instrument. These links are provided with handles to facilitate their manipulation, and are slotted, making it unnecessary to remove them entirely each time the range is changed. The double voltage ranges are controlled by means of independent binding posts.

As each instrument has a number of ranges, a scale cannot be made which is readable with equal facility for all ranges. In each case however, a scale is provided which gives 1, 2 or 5 units per division for the range marked, and simple multiplying factors for the other ranges.

**Special Model for Very Low Power Factors**

Maximum Volts	IN AMPS.		WATT RANGES			Price Each
	Fields in Series	Fields in Multiple	Fields in Series	Fields in Multiple	Number of Scale Lines	
150/75	0.5	1	15/7.5	30/15	150	\$132.00
150/75	1	2	30/15	60/30	150	132.00
150/75	2.5	5	75/37.5	150/75	150	132.00
150/75	5	10	150/75	300/150	150	132.00
150/75	10	20	300/150	600/300	150	140.25
150/75	20	40	600/300	1200/600	120	140.25
150/75	50	100	1500/750	3000/1500	150	140.25

**Model 310 Weston Portable Wattmeters**  
For D.C. and A.C. S. Ph. Nor. 100/50, Max. 150/75 V.

Series	AMPERE		WATT RANGES		Field Coils in Series	Field Coils in Multiple	Number of Scale Lines	Price Each
	NORMAL	MAXIMUM	Series	Multiple				
1	2	2	4	100/50	200/100	100	\$115.50	
2.5	5	5	10	250/125	500/250	125	115.50	
5	10	10	20	500/250	1000/500	100	115.50	
10	20	20	40	1.5 K.W.	2/1 K.W.	100	115.50	
20	40	40	80	2/1 K.W.	4/2 K.W.	100	123.75	
30	60	60	120	3/1.5 K.W.	6/3 K.W.	150	123.75	
50	100	75	150	5/2.5 K.W.	10/5 K.W.	100	123.75	
<b>Normal 150/75, Maximum 250/125 Volts</b>								
1	2	2	4	150/75	300/150	150	\$115.50	
2.5	5	5	10	375/187.5	750/375	150	115.50	
5	10	10	20	750/375	1500/750	150	115.50	
10	20	20	40	1.5/.75 K.W.	3/1.5 K.W.	150	115.50	
20	40	40	80	3/1.5 K.W.	6/3 K.W.	150	123.75	
30	60	60	120	5/2.5 K.W.	10/5 K.W.	100	123.75	
50	100	75	150	7.5/3.75 K.W.	15/7.5 K.W.	150	123.75	
<b>Normal 200/100, Maximum 300/150 Volts</b>								
1	2	2	4	200/100	400/200	100	\$123.75	
2.5	5	5	10	500/250	1000/500	100	123.75	
5	10	10	20	1/.5 K.W.	2/1 K.W.	100	123.75	
10	20	20	40	2/1 K.W.	4/2 K.W.	100	123.75	
20	40	40	80	4/2 K.W.	8/4 K.W.	100	132.00	
30	60	60	120	6/3 K.W.	12/6 K.W.	120	132.00	
50	100	75	150	10/5 K.W.	20/10 K.W.	100	132.00	
<b>Normal 300/150, Maximum 450/250 Volts</b>								
1	2	2	4	300/150	600/300	150	\$123.75	
2.5	5	5	10	750/375	1500/750	150	123.75	
5	10	10	20	1.5/.75 K.W.	3/1.5 K.W.	150	123.75	
10	20	20	40	3/1.5 K.W.	6/3 K.W.	150	123.75	
20	40	40	80	6/3 K.W.	12/6 K.W.	120	132.00	
30	60	60	120	10/5 K.W.	20/10 K.W.	100	132.00	
50	100	75	150	15/7.5 K.W.	30/15 K.W.	150	132.00	
<b>Normal 500/100, Maximum 600/150 Volts</b>								
1	2	2	4	500/100	1000/200	100	\$140.25	
2.5	5	5	10	1250/250	2500/500	125	140.25	
5	10	10	20	2500/500	5000/1000	100	140.25	
10	20	20	40	5/1 K.W.	10/2 K.W.	100	140.25	
20	40	40	80	10/2 K.W.	20/4 K.W.	100	148.50	
30	60	60	120	15/3 K.W.	30/6 K.W.	150	148.50	
50	100	75	150	25/5 K.W.	50/10 K.W.	100	148.50	
<b>Normal 500/250, Maximum 600/375 Volts</b>								
1	2	2	4	500/250	1000/500	100	\$140.25	
2.5	5	5	10	1250/625	2500/1250	125	140.25	
5	10	10	20	2.5/1.25 K.W.	5/2.5 K.W.	125	140.25	
10	20	20	40	5/2.5 K.W.	10/5 K.W.	100	140.25	
20	40	40	80	10/5 K.W.	20/10 K.W.	100	148.50	
30	60	60	120	15/7.5 K.W.	30/15 K.W.	150	148.50	
50	100	75	150	25/12.5 K.W.	50/25 K.W.	125	148.50	
<b>Normal 600/150, Maximum 675/250 Volts</b>								
1	2	2	4	600/150	1200/300	150	\$144.50	
2.5	5	5	10	1500/375	3000/750	150	144.50	
5	10	10	20	3/.75 K.W.	6/1.5 K.W.	150	144.50	
10	20	20	40	6/1.5 K.W.	12/3 K.W.	150	144.50	
20	40	40	80	12/3 K.W.	24/6 K.W.	120	152.75	
30	60	60	120	20/5 K.W.	40/10 K.W.	100	152.75	
50	100	75	150	30/7.5 K.W.	60/15 K.W.	150	152.75	
<b>Normal 600/300, Maximum 675/450 Volts</b>								
1	2	2	4	600/300	1200/600	120	\$144.50	
2.5	5	5	10	1.5/.75 K.W.	3/1.5 K.W.	150	144.50	
5	10	10	20	3/1.5 K.W.	6/3 K.W.	150	144.50	
10	20	20	40	6/3 K.W.	12/6 K.W.	120	144.50	
20	40	40	80	12/6 K.W.	24/12 K.W.	120	152.75	
30	60	60	120	20/10 K.W.	40/20 K.W.	100	152.75	
50	100	75	150	30/15 K.W.	60/30 K.W.	150	152.75	
<b>Normal 750/150, Maximum 750/250 Volts</b>								
1	2	2	4	750/150	1500/300	150	\$148.50	
2.5	5	5	10	1875/375	3750/750	150	148.50	
5	10	10	20	3750/750	7500/1500	150	148.50	
10	20	20	40	7.5/1.5 K.W.	15/3 K.W.	150	148.50	
20	40	40	80	15/3 K.W.	30/6 K.W.	150	156.75	
30	60	60	120	25/5 K.W.	50/10 K.W.	100	156.75	
50	100	75	150	37.5/7.5 K.W.	75/15 K.W.	150	156.75	
<b>Normal 750/300, Maximum 750/450 Volts</b>								
1	2	2	4	750/300	1500/600	150	\$148.50	
2.5	5	5	10	2000/800	4000/1600	150	148.50	
5	10	10	20	3750/1500	7500/3000	150	148.50	
10	20	20	40	7.5/3 K.W.	15/6 K.W.	150	148.50	
20	40	40	80	15/6 K.W.	30/12 K.W.	150	156.75	
30	60	60	120	25/10 K.W.	50/20 K.W.	100	156.75	
50	100	75	150	37.5/15 K.W.	75/30 K.W.	150	156.75	

are

All the  
 than those listed  
 multiplier or by using  
 with an instrument  
 above 750 volts transformers

Effectively shielded from the electric and electrostatic influences, the movable system is maintained within a drawn steel shielding cup.

Motion of the movable system is controlled in any degree by means of an efficient air damper of special design and construction. The damping is of such a quality that the movable system instantly follows circuit fluctuations without undue oscillation.

The pointer is of the trussed type of construction, assuring maximum strength and eliminating vibration at all commercial frequencies. It has a knife-edge tip, which is of valuable aid in obtaining accurate readings.

Model 433 Voltmeter scales necessarily are not uniformly divided throughout their length. By means of special design and construction it has been possible to make the scale divisions nearly uniform over the upper two-thirds of the scale.

Over All Width .....	5 5/8 Inches	147.6 Millimeters
"    " Depth .....	5 1/4 " "	133.3 " "
"    " Height .....	3 1/2 " "	88.9 " "
Scale Length .....	3.8 " "	97.5 " "
Approx. Weight .....	2 1/2 Pounds	1.1 Kilograms

**Single Ranges**

Range Volts	Scale Divisions	Price Each	Range Volts	Scale Divisions	Price Each
10	100	<b>\$30.00</b>	75	75	<b>\$30.00</b>
15	75	<b>30.00</b>	100	100	<b>30.00</b>
20	100	<b>30.00</b>	125	125	<b>30.00</b>
30	60	<b>30.00</b>	150	75	<b>30.00</b>
50	100	<b>30.00</b>	250	50	<b>32.50</b>
60	60	<b>30.00</b>	300	60	<b>32.50</b>

**Double Ranges**

20 } 10 } 30 } 15 } 60 } 30 }	100	<b>\$37.50</b>	150 } 75 } 300 } 150 }	75	<b>\$37.50</b>
	150	<b>37.50</b>		150	<b>39.00</b>
	60	<b>37.50</b>	...	...	.....

Resistor Multipliers can be furnished for voltage ranges in excess of 300 volts and up to and including 750 volts. Prices will be quoted upon application.

For ranges above 750 volts a Weston Portable Potential Transformer is recommended.

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 Scale Length  
 Approximate

Range Milliamperes	Sc Divi
75	"
100	10
150	
200	1
250	

Range Amperes	Sc Divi
1	1
1.5	1
2	1
3	
5	
7.5	

ernat-  
ter than 500

ent provided with  
correcting device.  
Dimensions, small size,  
7 1/8 x 3 1/4 inches; large size,  
7 3/4 x 8 3/4 x 4 inches.



**Single Range**

Range in Amps.	Number of Scale Div.	Price Each	Range in Amps.	Number of Scale Div.	Price Each
1	100	\$32.75	75	150	\$32.25
2	100	32.25	100	100	32.25
3	150	31.25	150	150	33.00
5	100	31.25	200	100	33.75
10	100	31.25	250	125	34.50
15	150	31.25	300	150	34.75
25	125	31.25	400	80	38.00
50	100	32.25	500	100	41.25

**Double Range**

10-5	100	\$48.75	...	...	.....
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**Model 155 Weston Portable Milliammeters**

**For Alternating Current**

This instrument is contained in a polished black walnut case which is without cover, but has leather carrying handles. It is dust-proof.



Provided with zero-correcting device.

Dimensions, small size, 7x7 1/8x8 1/4 inches; large size, 7 3/4x8 3/4x4 inches.

Range in Milli-amperes	Number of Scale Div.	Approx. Resistance Ohms	Price Each	Range in Milli-amperes	Number of Scale Div.	Approx. Resistance Ohms	Price Each
75	150	128.00	\$32.75	500	100	2.25	\$32.75
150	150	38.00	32.75	750	150	1.10	32.75
250	125	12.00	32.75	...	...	.....	.....

7 3/4 x 3 inches  
weight only 6 1/4  
rmer  
each \$55.00

**Model 312 Weston Current Transformers**



They have an accuracy better than one-half of one per cent for loads not exceeding 15 volt amperes at any power factor.

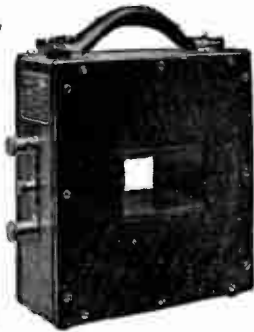
The variation in ratio of transformation for various applied voltages within the range of the connected instrument is very small, and for all ordinary measurements no correction is necessary.

Secondary, 5 amperes.  
Capacity, 25 volt amperes.  
Test, 10,000 volts for 1 minute.  
Frequency, 25 to 133 cycles.

Range Amperes	Price Each
10- 20- 40 to 5	\$81.75
25- 50-100 " 5	81.75
50-100-200 " 5	81.75

**Model 313 Weston Current Transformers**

The ranges listed correspond to the primary current for a conductor passing through the opening once. Range can be changed by passing the primary conductor through the opening more than once. Transformer has a short-circuiting switch in the secondary. Designed for use on potentials as high as 2500 volts. Secondary, 5 amperes. Capacity, 25 volt amperes. Test 10,000 volts for 1 minute. Frequency, 25 to 133 cycles.



Range Amperes	Opening Inches	Price Each
1200 to 5	2x3 1/2	\$63.25
1800 " 5	2x4 1/2	66.75
2400 " 5	2x4 1/2	70.75

**Model 461 Weston Portable Multi-range Current Transformers**



There is a wide variety of testing that can only be conveniently and successfully conducted by means of a portable current transformer that is comprehensive as to range of values; accurate within the order of accuracy of any precision portable instrument with which it may be used; compact in size; light in weight; and reasonable in cost.

Model 461 Portable Current Transformer meets all these qualifications.

It has three secondary primary ranges: 10 to 40 amperes to

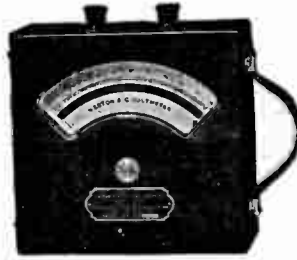
connections are made by binding posts. The secondary range of 5 amperes and is provided with a short-circuiting switch. The core of the transformer is wound through which one turn of primary will give 40 amperes, two turns 400 amperes, four turns 800 amperes, etc. Hence the range extends from 10 to 800 amperes.

Has a ratio accuracy within the guaranteed accuracy of any standard Weston portable A. C. ammeter when used on circuits of 60 cycle frequency. The error on circuits of 25 cycle frequency is .3 per cent of full load value at 1/2 secondary current. Maximum frequencies from 25 cycles up to 133 cycles and voltages up to and including 2500 volts.

It is compact, its dimensions being 6 1/4 x 4 1/2 x 3 1/2 (158.8x196.9x76.2 m.m.) It is light, weighing 10 pounds (2.84 kilograms).

Price, Model 461 Multi-range Current Transformer

**Model 155 Weston Portable Voltmeters For Alternating Current**



This instrument may be used on circuits of any frequency from 15 to 140 cycles per second without appreciable errors resulting.

Voltmeters are all self-contained. Voltmeters having ranges of 125 volts or higher require 75 milliamperes to produce a full scale deflection. Equipped with zero correcting device.

Dimensions, small size,

7x7 1/8 x 3 3/4 inches; large size, 7 3/4 x 8 3/4 x 4 inches.

Single Range				Double Range				Triple Range			
Range in Volts	Number of Scale Div.	Approx. Resistance Ohms	Price Each	Range in Volts	Number of Scale Div.	Approx. Resistance Ohms	Price Each	Range in Volts	Number of Scale Div.	Approx. Resistance Ohms	Price Each
30	150	150	\$33.75	300	150	4000	\$40.50	600-150	150	.....	\$56.25
50	100	415	33.75	500	100	6700	47.00	750-300	150	.....	60.25
75	150	509	33.75	600	120	8000	48.75	600-300	150	.....	56.25
125	125	1670	33.75	750	150	10000	52.75	600-300-150	150	.....	\$67.75
150	150	2000	34.50	.....	.....	.....	.....	.....	.....	.....	.....

**Model 155 Weston Portable Ammeters For Alternating Current**

The ammeters listed may be used on circuits having a difference in potential of 2300 volts.

The current transformers must be used for the measurement of all the alternating currents greater than 10 amperes.

Instrument with zero-correcting device



**Model 433 Weston Portable Voltmeters  
For Alternating Current**



Model 433 Voltmeter is of the electromagnetic or movable iron type depending for its operation upon the mutual repulsion of two properly shaped pieces made from a special iron alloy, one fixed and the other movable, which are polarized by a current passing through a field coil in which they are mounted. The movable piece is fastened to the pointer through a staff so that its motion is communicated to the pointer.

Made as single range or double range instrument. In the case of the double range instruments three binding posts are provided, one of these being common to both ranges.

The voltmeters listed are self-contained. Ranges higher than those indicated can be obtained by means of an external potential transformer in conjunction with a 150-volt range. For ranges above 150 volts a potential transformer must be used.

The instruments are protected from effects of external magnetic fields by a special shielding system being constructed.

The instruments are designed to a proper mechanical design that insures that the pointer is rigid and that the instrument is free from vibration.

**Model 433 Weston Portable Ammeters  
and Milliammeters**

For Alternating Current



Model 433 Ammeters and Milliammeters depend for their operation on the electromagnetic or movable-iron principle.

This principle consists of the mutual repulsion of two properly shaped pieces made from a special iron alloy, one fixed and the other movable, which are polarized by a current passing through a field coil in which they are mounted. The movable piece is fastened to the pointer through a staff so that its motion is communicated to the pointer.

Made in single ranges only. They are all self-contained up to and including 50 amperes.

Ranges above 50 amperes can be obtained by using a current transformer with a 5-ampere instrument. Weston Model 312, 313 and 461 Portable Current Transformers are recommended for this purpose.

For proper protection from the action of external magnetic and electrostatic influences, the movable systems of these instruments are placed in a shielding cup of drawn steel.

By means of a very efficient air damper of special Weston design, motion of the movable system is effectually controlled so that no undesirable oscillation occurs. The pointer follows the circuit fluctuations with rapidity, making it possible to obtain accurate instantaneous readings.

The pointers are of the trussed construction assuring rigidity and absence of vibration. The pointer is provided with a knife-edge tip.

Model 433 ammeter and milliammeter scales have characteristics similar to those of the voltmeter scales. These scales are easily read over their working range. A mirror is provided which, with the knife-edge pointer, facilitates the taking of accurate readings through the elimination of parallax errors.

The instruments may be used on any frequency as high as 500 cycles per second without appreciable error. Errors in indication due to temperature are negligible. These instruments may be left in circuit continuously without overheating or error in the instrument indication.

Width	5 1/8 Inches	128.5 Millimeters
Height	6 1/2 "	153.0 "
Depth	3 1/2 "	88.9 "
Weight	3.8 "	97.5 "
	2 1/2 Pounds	1.1 Kilograms

**Model 433 Milliammeters**

Scale Divisions	Price Each	Range Milliamperes	Scale Divisions	Price Each
5	\$28.00	300	60	\$28.00
10	28.00	400	80	28.00
15	28.00	500	100	28.00
20	28.00	600	60	28.00
25	28.00	750	75	28.00

**Model 433 Ammeters**

Scale Divisions	Price Each	Range Amperes	Scale Divisions	Price Each
100	\$28.00	10	100	\$28.00
50	28.00	15	75	28.00
30	28.00	25	50	28.00
20	28.00	30	60	28.00
10	28.00	50	100	28.00
75	28.00	..	...	....



## Model 432 Weston Portable Wattmeters For D.C. and Single-phase A.C.

The Model 432 Wattmeter is an electro-dynamometer instrument having electrically independent potential and current circuits. All of these instruments are made with a single current range and double voltage ranges. Standard normal current ranges are available from 1 ampere up to and including 50 amperes. The voltage range combinations are 75-150 and 150-300 volts. All of the listed ranges are self-contained. Current ranges can be extended beyond 50 amperes by using a 5-ampere instrument in



conjunction with a current transformer. Width overall, 6 1/2 inches. Depth overall, 5 1/4 inches. Height overall, 3 1/2 inches. Scale length, 3.8 inches. Approximate weight, 3 1/4 pounds.

Normal Volts	AMPERES		WATTS		Price Each
	Nor.	Max.	Low Range	High Range	
75-150	1	1.5	75	150	\$50.00
150-300	1	1.5	150	300	57.50
75-150	2	3	150	300	50.00
150-300	2	3	300	600	57.50
75-150	5	7.5	375	750	50.00
150-300	5	7.5	.75 K.W.	1.5 K.W.	57.50
75-150	10	15	.75 K.W.	1.5 K.W.	55.00
150-300	10	15	1.5 K.W.	3 K.W.	62.50
75-150	20	30	1.5 K.W.	3 K.W.	55.00
150-300	20	30	3 K.W.	6 K.W.	62.50
75-150	50	75	3.75 K.W.	7.5 K.W.	60.00
150-300	50	75	7.5 K.W.	15 K.W.	67.50

Resistor multipliers can be furnished for voltage ranges in excess of 300 volts and up to and including 750 volts. Prices upon application. For ranges above 750 volts a Weston Portable Potential Transformer is recommended.

## Model 457 Weston Portable Potential Transformers

Designed to supply the need for a compact light weight transformer which the user can easily and conveniently carry in addition to the measuring instruments with which it is to be used. Consequently, this transformer has been made as small and as light in weight as possible yet maintaining a high degree of accuracy in performance.



The transformer is contained in a neat polished wooden case having a removable cover. It is also provided with a strong carrying strap.

Model 457 potential transformers have two primary ranges, the higher range being four times the value of the lower range. A primary range changing switch is provided which enables either primary range to be brought into use instantly.

The range changing switch is mounted on the bakelite top of the transformer. The knob is of bakelite and bears an index mark so as to show which range is in use. On this top are also mounted the primary and secondary binding posts. Markings on the transformer top clearly indicate which are the primary and which the secondary binding posts. By means of the marking the primary and secondary binding posts of like instantaneous polarity are designated.

Normal	Ratio, Volts		Frequency Cycles	Price Each
	Maximum	to		
2200-500	to 110	3000-750	to 150	\$65.00
2200-550	" 110	2500-625	" 125	65.00
3000-750	" 100	3750-937.5	" 125	65.00

## Model 57 Weston Round Pattern Switchboard Instruments

For D.C.

These instruments are made in three patterns: Regular, for front of board connection. Back connection, in which the binding-posts are carried through to the rear of the switchboard. Flush type, in which a flange is provided for the front, allowing the entire body of the instrument to pass through for connection in the rear of the switchboard.

The cases of these instruments are regularly supplied in No. 11 dull black japan finish. Diameter, 9.5 inches. Shipping weight, 22 pounds.

Ammeters			Ammeters			Ammeters		
Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
1	50	\$37.50	150	75	\$40.50	750	75	\$47.25
5	50	37.50	200	40	42.00	1000	50	48.75
10	50	37.50	250	50	42.50	1200	60	50.25
15	75	37.50	300	60	42.50	1500	75	59.00
25	50	37.50	400	40	42.75	2000	40	65.75
50	50	38.25	500	50	44.25	2500	50	68.00
75	75	39.00	600	60	45.75	3000	60	71.25
100	50	39.75	...	...	...	...	...	...

For ranges of 75 amperes or less specify whether external or self-contained shunt is desired.

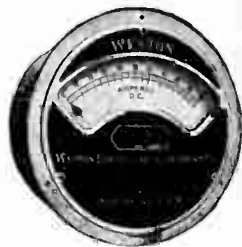
Voltmeters			Voltmeters			Voltmeters		
Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
3	60	\$37.50	50	50	\$39.75	250	50	\$47.25
6	60	37.50	75	75	41.00	300	60	48.75
15	75	37.50	130	65	42.50	600	60	52.25
25	50	39.00	150	75	44.25	750	75	54.25

Voltmeters may be made with an additional lower range at an increase in price. These prices are for No. 11 finish dull black japan. No extra charge will be made for above instruments with back connection or flush-type cases. Always specify the style desired when ordering.

## Model 24 Weston Round Pattern Switchboard Instruments

For Direct Current

The cases are supplied in three types: Regular, to be attached directly to and connected from the front of the switchboard; back connected regular, but with binding posts projecting through to the back of the board; and flush type instrument, intended to be countersunk so that the front of the case is practically flush with the face of the board, causing the body of the instrument and the binding posts to project through to the back of the board.



Finished in dull black japan. Specify style desired, when ordering. Diameter, 7 1/4 inches. Shipping weight, 15 pounds.

Ammeters			Ammeters			Ammeters		
Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
1	50	\$19.75	100	50	\$26.50	500	50	\$32.25
5	50	24.75	130	65	27.25	600	60	33.75
10	50	24.75	150	75	27.25	750	75	35.50
15	75	25.50	200	40	28.00	1000	50	37.25
25	50	25.50	250	50	29.75	1200	60	38.75
50	50	26.25	300	60	30.25	1500	75	48.50
...	...	...	400	40	30.50	3000	60	62.00

In ordering, please specify whether self-contained or external shunts are desired, when the range is 75 amperes or less.

Voltmeters			Voltmeters			Voltmeters		
Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each	Range	No. of Scale Divisions	Price Each
3	60	\$25.50	25	50	\$26.50	150	75	\$28.00
5	50	25.50	50	50	26.50	250	50	32.25
6	60	25.75	80	40	26.50	300	60	33.75
10	50	26.50	100	50	27.25	600	60	36.00
15	75	26.50	130	65	27.25	...	...	...

**Weston Fan-Shaped Switchboard Voltmeters**

**For Direct Current**



Compact in size and have remarkably long, open and legible scales. Each instrument is provided with a zero shifting device.

The standard finish of case is a heavy, rich, dull black japan that has the appearance of hard rubber, and exceptionally durable.

All instruments are of the back connected type and are secured to the switchboard by means of studs projecting from the rear of the case.

**Dimensions**

Model	Width Inches	Height Inches	Scale Inches	Weight
267	4.1	3.35	2.5	1 lb. 9 oz.
269	5 5/8	4 7/8	4	1 lb. 8 oz.

Model 267			Model 269			Model 269		
Range Volts	No. of Scale Div.	Price Each	No. of Scale Div.	Price Each	Range Volts	No. of Scale Div.	Price Each	
1	50	\$16.25	50	\$21.00	20	40	\$21.00	
1.5	30	16.25	75	21.00	30	60	21.00	
2	40	16.25	40	21.00	50	50	21.00	
3	30	16.25	60	21.00	75	75	21.00	
5	50	16.25	50	21.00	100	50	21.00	
8	40	16.25	40	21.00	150	75	21.00	
10	50	16.25	50	21.00	200	40	21.00	
12	60	16.25	60	21.00	250	50	25.25	
15	30	16.25	75	21.00	300	60	25.25	

The prices of Models 267 and 269 voltmeters with zero at the center of the scale, may be determined by adding the highest numerals on both sides of the scale and referring to the above price list for the price of an instrument having a range equal to the combined range of the zero center instrument.

**Weston Fan-Shaped Switchboard Ammeters**

**For Direct Current**



Compact in size and have remarkably long, open and legible scales. Each instrument is provided with a zero shifting device.

The standard finish of case is a heavy, rich, dull black japan that has the appearance of hard rubber, and exceptionally durable.

All instruments are of the back connected type and are secured to the switchboard by means of studs projecting from the rear of the case.

**Dimensions**

Model	Width Inches	Height Inches	Scale Inches	Weight
267	4.1	3.35	2.5	10.9 oz.
269	5 5/8	4 7/8	4	1 lb. 8 oz.

Model 267			Model 269			Model 267			Model 269		
Range Amp.	No. of Scale Div.	Price Each	No. of Scale Div.	Price Each	Range Amp.	No. of Scale Div.	Price Each	No. of Scale Div.	Price Each		
1	50	\$16.25	50	\$20.00	30	30	\$16.25	60	\$20.00		
1.5	50	16.25	75	20.00	50	50	18.50	50	20.00		
2	40	16.25	40	20.00	75	75	18.50	75	22.25		
3	30	16.25	60	20.00	100	50	18.50	50	22.25		
5	50	16.25	50	20.00	150	30	18.50	75	22.25		
7.5	75	16.25	75	20.00	200	40	21.25	40	22.25		
10	50	16.25	50	20.00	300	60	21.75	60	22.75		
15	30	16.25	75	20.00	400	40	22.00	40	23.00		
20	40	16.25	40	20.00	500	50	23.75	50	24.75		

Model 267, up to and including 30 amperes, and Model 269, up to and including 50 amperes, furnished with self-contained shunts.

Models 267 and 269, external shunts, have drop of 100 millivolts. Shunts for Model 269 above 150 amperes have 50 millivolts drop.

Zero center ammeters will be furnished without extra charge.

**Model 301 Weston D.C. Radio Panel Instruments**



Model 301 Voltmeters are ideal for filament and plate voltage measurements. Their high internal resistance means that a slight amount of current is drawn for the operation of the instrument. This is of great importance when using dry cell tubes or measuring the B battery because a useless drain on these cells means more rapid replacement.

Made self-contained up to and including 200 volts. Above 200 volts, they are supplied with external resistors; above 150 volts, the instrument is supplied in a bakelite case to provide proper insulating qualities. Voltmeters up to 40 volts have a resistance of 62 ohms per volt; 50 to 150 volts inclusive, 200 ohms per volt; 200 volts, 250 ohms per volt and above 200 volts (with external resistor) 62 ohms per volt.

Diameter, metal case, 3.25 inches; bakelite case, 3.375 inches.

Voltmeters are of the flush type with dull japan finish.

Volts	Description	Price Each	Volts	Description	Price Each
1.5	Filament or Grid	\$8.00	10-0-10	Zero Center	\$8.00
2	Filament or Grid	8.00	100	Plate	11.00
3	Filament or Grid	8.00	150	Plate	11.00
5	Filament or Grid	8.00	†200	Plate	11.75
7	Filament or Grid	8.00	†300	Plate	13.75
8	Filament or Grid	8.00	†500	Plate	17.75
10	Filament or Grid	8.00	†1000	Plate	24.75
15	Filament or Grid	8.00	†1500	Plate	30.75
20	Filament or Grid	8.00	†2000	Plate	36.75
25	Filament or Grid	8.00	†2500	Plate	51.00
30	Filament or Grid	8.00	†3000	Plate	59.75
50	Filament or Grid	8.00			

Cannot be used to measure voltage of a B battery substitute unless substitute can maintain its voltage with a current of .005 ampere, the current required to operate the voltmeter.

**Multipliers for Increasing Range of Voltmeters**

Range with Instrument	300	500	1000	1500
Price	each \$5.00	9.00	16.00	22.00
Range with Instrument	2000	2500	3000	
Price	each \$28.00	42.25	51.00	

**\*Filament Ammeters for Filament Control**

Amperes	1	1.5	2	3	5	8
Price	each \$8.00	8.00	8.00	8.00	8.00	8.00
Amperes	10	15	20	30	50	
Price	each \$8.00	8.00	8.00	8.00	8.00	

**\*Plate or Grid Milliammeters**

For measuring the plate current of vacuum tubes. Will give a deflection for steady or pulsating d.c. and will indicate the average value of a pulsating current.

Bakelite cases are recommended when plate milliammeters are used on circuits exceeding 150 volts and when circuit conditions do not permit the grounding of one side of the instrument, or when desired to match high voltage voltmeters.

Milli-amperes	Price Each	Milli-amperes	Price Each	Milli-amperes	Price Each
1	\$12.00	15	\$8.00	150	\$8.00
1.5	12.00	25	8.00	200	8.00
2	12.00	30	8.00	300	8.00
5	10.00	50	8.00	500	8.00
10	8.00	100	8.00	800	8.00

\*Flush type with dull japan finish.

†Instrument supplied with Bakelite case.

Bakelite case supplied on voltmeter for 150 volts and less at 75 cents extra.

Bakelite case to match high range voltmeters 75 cents extra.

‡Supplied with external resistor.

## Models 167 and 343 Weston Switchboard Wattmeters

For D.C. and Single-phase A.C.



For current ranges in excess of 100 amperes it is necessary to use current transformers.

For voltages above 750 volts for any current range both current and potential transformers must be employed. All current circuits have an overload capacity of double normal value permitting full-scale readings to be made at 50 per cent power factor. Dull black japan finish.

### Model 167

Diameter, 9 5/8 inches. Depth, 3 3/8 inches. Length of scale, 6 5/8 inches.

#### Self-contained

100-150 Volts			200-300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
1	150 W.	\$68.75	1	300 W.	\$72.50
2	300 W.	68.75	2	600 W.	72.50
5	500 W.	68.75	5	1 K.W.	72.50
5	750 W.	68.75	5	1.5 K.W.	72.50
10	1 K.W.	68.75	10	2 K.W.	72.50
10	1.5 K.W.	68.75	10	3 K.W.	72.50
20	2 K.W.	68.75	20	4 K.W.	72.50
20	3 K.W.	68.75	20	6 K.W.	72.50
50	5 K.W.	68.75	20	7.5 K.W.	72.50
50	7.5 K.W.	68.75	50	10.15 K.W.	72.50
100	10 K.W.	77.00	100	20 K.W.	80.00
100	15 K.W.	77.00	100	30 K.W.	80.00

#### External Resistor

400-600 Volts			600-750 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
1	600 W.	\$76.25	1	750 W.x	\$76.75
2	1.2 K.W.	76.25	2	1.5 K.W.	76.75
5	2 K.W.	76.25	5	2.5 K.W.	76.75
5	3 K.W.	76.25	5	4 K.W.	76.75
10	4 K.W.	76.25	10	5 K.W.	76.75
10	6 K.W.	76.25	10	7.5 K.W.	76.75
20	8 K.W.	76.25	20	10 K.W.	76.75
20	12 K.W.	76.25	20	15 K.W.	76.75
50	20 K.W.	76.25	50	25 K.W.	76.75
50	30 K.W.	76.25	50	40 K.W.	76.75
100	40 K.W.	84.50	100	50 K.W.	85.00
100	60 K.W.	84.50	100	75 K.W.	85.00

### Model 343

Diameter, 7 3/4 inches. Depth, 4 1/2 inches. Length of scale, 5 1/8 inches.

#### Self-contained

100-150 Volts			200-300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
1	150 W.	\$63.25	1	300 W.	\$67.50
2	300 W.	63.25	2	600 W.	67.50
5	500 W.	63.25	5	1 K.W.	67.50
5	750 W.	63.25	5	1.5 K.W.	67.50
10	1 K.W.	63.25	10	2 K.W.	67.50
10	1.5 K.W.	63.25	10	3 K.W.	67.25
20	2 K.W.	63.25	20	4 K.W.	67.25
20	3 K.W.	63.25	20	6 K.W.	67.50
50	5 K.W.	63.25	50	10 K.W.	67.50
50	7.5 K.W.	63.25	50	15 K.W.	67.50
100	10 K.W.	72.00	100	20 K.W.	76.00
100	15 K.W.	72.00	100	30 K.W.	76.00

#### External Resistor

400-600 Volts			600-750 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
1	600 W.	\$70.75	1	750 W.	\$71.25
2	1.2 K.W.	70.75	2	1.5 K.W.	71.25
5	2 K.W.	70.75	5	2.5 K.W.	71.25
5	3 K.W.	70.75	5	4 K.W.	71.25
10	4 K.W.	70.75	10	5 K.W.	71.25
10	6 K.W.	70.75	10	7.5 K.W.	71.25
20	8 K.W.	70.75	20	10 K.W.	71.25
20	12 K.W.	70.75	20	15 K.W.	71.25
50	20 K.W.	70.75	50	25 K.W.	71.25
50	30 K.W.	70.75	50	40 K.W.	71.25
100	40 K.W.	79.50	100	50 K.W.	80.00
100	60 K.W.	79.50	100	75 K.W.	80.00

## Models 216 and 368 Weston Switchboard Wattmeters

For Polyphase Alternating Current



Furnished in semi-flush or full front case, dull black finish.

For current ranges above 100 amperes current transformers must be used.

For voltages above 750 volts for any current range and potential transformers are necessary. Current circuits can be used continuously on double normal current enabling full-scale readings to be made at 50 per cent power factor.

Semi-flush Type

### Model 216

Full-front: Diameter, 9 1/8 inches. Depth, 6 1/8 inches.  
Semi-flush: Diameter, 10 inches. Depth, 4 inches. Scale, 6 3/8 inches.

#### Self-contained

100-150 Volts			200-300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	1 K.W.	\$96.25	5	2 K.W.	\$103.25
5	1.5 K.W.	96.25	5	3 K.W.	103.25
10	2 K.W.	96.25	10	4 K.W.	103.25
10	3 K.W.	96.25	10	6 K.W.	103.25
20	4 K.W.	96.25	20	8 K.W.	103.25
20	6 K.W.	96.25	20	12 K.W.	103.25
20	7.5 K.W.	96.25	50	20 K.W.	103.25
50	10 K.W.	96.25	50	30 K.W.	103.25
50	15 K.W.	96.25	100	40 K.W.	110.00
100	20 K.W.	103.25	100	60 K.W.	110.00
100	30 K.W.	103.25	.....	.....	.....

#### External Resistor

400-600 Volts			600-750 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	4 K.W.	\$107.50	5	5 K.W.	\$107.50
5	6 K.W.	107.50	5	7.5 K.W.	107.50
10	8 K.W.	107.50	10	10 K.W.	107.50
10	12 K.W.	107.50	10	15 K.W.	107.50
20	20 K.W.	107.50	20	20 K.W.	107.50
20	30 K.W.	107.50	20	30 K.W.	107.00
50	40 K.W.	107.50	50	50 K.W.	107.50
50	60 K.W.	107.50	50	75 K.W.	107.50
100	80 K.W.	114.50	100	100 K.W.	114.50
100	120 K.W.	114.50	100	150 K.W.	114.50

### Model 368

Furnished in semi-flush type only.  
Resistance for all ranges furnished in external boxes arranged for mounting on the back of the switchboard.  
Diameter, 7 3/4 inches. Depth, 4 1/2 inches. Scale, 5 1/8 inches.

100-150 Volts			200-300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	1 K.W.	\$93.00	5	2 K.W.	\$101.50
5	1.5 K.W.	93.00	5	3 K.W.	101.50
10	2 K.W.	93.00	10	4 K.W.	101.50
10	3 K.W.	93.00	10	6 K.W.	101.50
20	4 K.W.	93.00	20	8 K.W.	101.50
20	6 K.W.	93.00	20	10 K.W.	101.50

400-600 Volts			600-750 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	4 K.W.	\$104.25	5	5 K.W.	\$104.25
5	6 K.W.	104.25	5	7.5 K.W.	104.25
10	8 K.W.	104.25	10	10 K.W.	104.25
10	12 K.W.	104.25	10	15 K.W.	104.25
20	20 K.W.	104.25	20	20 K.W.	104.25
20	30 K.W.	104.25	20	30 K.W.	104.25

**Models 215 and 356 Weston Power-factor Meters**

**For Alternating Current**



By virtue of a novel mode of construction, the Weston power-factor meter has been rendered practically perfect in its operation. From 3/10 load to full load it indicates the true phase angle to within 1 per cent independent of any variable conditions found on ordinary commercial circuits. Polyphase power-factor meters may be used on any commercial frequency. Single phase meters require a phase-splitting device and, therefore, must be calibrated for the frequency at which they are to operate. The following ranges are regularly carried in stock: 25, 40, 50, 60, 125 and 133 cycles per second. Polyphase power-factor meters are arranged for the following systems: two-phase three-wire, and three-phase three-wire for balanced loads. Meters above 150-volt range are equipped with external resistance box. All meters have the same kind of scale, reading from 0.50 lag to 0.50 lead. Special scales for power-factors as low as 0.30 may be had at slight extra cost. This instrument may also be arranged as a sine or cosine meter. For two-phase four-wire circuits, two-phase three-wire instruments in conjunction with two potential transformers. Polyphase instruments are made for balanced load only.

**Model 215**

Diameter, 9 5/8 inches. Depth, 4 inches. Scale, 6% inches. Polyphase

100 to 125 or 125 to 150 Volts			200 to 250 or 250 to 300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	.5-1-.5	\$75.75	5	.5-1-.5	\$82.50
10	.5-1-.5	75.75	10	.5-1-.5	82.50
20	.5-1-.5	82.50	20	.5-1-.5	89.50
50	.5-1-.5	82.50	50	.5-1-.5	89.50
100	.5-1-.5	89.50	100	.5-1-.5	96.25
400 to 500 or 500 to 600 Volts			600 to 750 Volts		
5	.5-1-.5	\$96.25	5	.5-1-.5	\$103.25
10	.5-1-.5	96.25	10	.5-1-.5	103.25
20	.5-1-.5	103.25	20	.5-1-.5	110.00
50	.5-1-.5	103.25	50	.5-1-.5	110.00
100	.5-1-.5	110.00	100	.5-1-.5	117.00

External resistor furnished on ranges above 150 volts.

**Single-phase**

Single-phase meters require an auxiliary device for splitting the phase, which is mounted in an external box. The price of Single-phase Power-factor Meters, including auxiliary device, is \$13.75 more than the price of corresponding range polyphase meters. They are made for direct connection only up to 300 volts.

When ordering, always specify the frequency.

**Model 356**

Diameter, 7 1/2 inches. Depth, 4 1/2 inches. Scale, 5% inches. Prices given below are for polyphase only.

Single-phase meters including external phase splitting reactors carry list prices \$14.75 more than the corresponding range polyphase meters. Single-phase meters are made for direct connection to circuits of 300 volts maximum. All resistors for all ranges are self-contained. Always specify frequency when ordering.

**Two-phase, Three-wire, and Three-phase**

100 to 125 or 125 to 150 Volts			200 to 250 or 250 to 300 Volts		
Amp.	Scale	Price Each	Amp.	Scale	Price Each
5	.50-1-.50	\$70.75	5	.50-1-.50	\$78.00
10	.50-1-.50	70.75	10	.50-1-.50	78.00
20	.50-1-.50	78.00	20	.50-1-.50	85.50
50	.50-1-.50	78.00	50	.50-1-.50	85.50
100	.50-1-.50	85.25	100	.50-1-.50	93.00
400 to 500 or 500 to 600 Volts			660 to 750 Volts		
5	.50-1-.50	\$93.00	5	.50-1-.50	\$100.50
10	.50-1-.50	93.00	10	.50-1-.50	100.50
20	.50-1-.50	100.50	20	.50-1-.50	107.75
50	.50-1-.50	100.50	50	.50-1-.50	107.75
100	.50-1-.50	107.75	100	.50-1-.50	115.25

**Model 151 Weston Round Pattern Switchboard Ammeters**

**For Alternating Current**

The case is provided with a ground terminal which must be connected to earth when the potential difference of circuits exceeds 200 volts. Case is made of cast iron. Diameter, 9.56 inches; depth, 3.15 inches. Length of scale, 6.5 inches. Self cont. up to 500A.

Range in Amps.	Price Each	Range in Amps.	Price Each
1	\$29.50	50	\$29.00
2	29.00	75	29.00
3	28.00	100	29.00
5	28.00	150	29.75
10	28.00	200	30.50
15	28.00	250	31.00
20	28.00	300	31.25
25	28.00	400	32.25
30	28.00	500	33.00
40	29.00	...	....



**Model 156 Weston Round Pattern Switchboard Voltmeters**

**For A.C.**

Made for direct connection to circuits up to and including 750 volts. Up to and including the 300-volt range the resistors are self-contained. Above 300 and up to and including 750 volts an external resistor is provided. Voltages above 750 necessitate the use of potential transformers. Fitted with zero-correcting device.

Voltmeter is contained in cast iron case. Diameter of case, 7.25 inches; depth, 3.15 inches; length of scale, 5.25 inches.



Range in Volts	Price Each	Range in Volts	Price Each
75	\$24.00	300	\$30.50
130	24.00	500	32.25
150	24.50	600	32.50
250	30.50	750	34.50

**Model 156 Weston Round Pattern Switchboard Ammeters**

**For A.C.**

On these ammeters a ground terminal is provided for use where it is desired to ground the case to protect the operator.

Ammeter contained in cast iron case. Diameter of case, 7.25 inches; depth, 3.15 inches; length of scale, 5.1 inches.

Range Amperes	Price Each	Range Amperes	Price Each
1	\$23.00	50	\$22.75
2	22.75	75	22.75
3	22.25	100	22.75
5	22.25	150	23.75
10	22.25	200	24.25
15	22.25	250	24.75
20	22.25	300	25.50
25	22.25	400	27.25
30	22.25	500	29.00
40	22.75	...	....



**Model 214 Weston Frequency Meters**

**For Alternating Current**

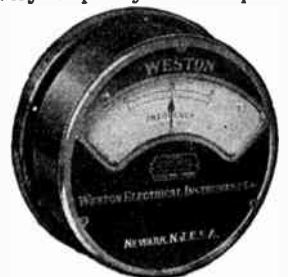
Indications are independent of changes of temperature, voltage and wave form, such as may be encountered in the commercial circuits of to-day. Standard meters are made for one voltage, 100 to 125 volts. Every frequency meter is provided with an external box which contains reactors and resistors.

Diameter, 9 5/8 inches. Depth, 4 inches.

**100-125 or 125-150 Volts**

Cycles	Price Each	Cycles	Price Each
25	\$82.50	60	\$82.50
40	82.50	125	82.50
50	82.50	133	82.50

For 200-250 or 250-300 volts, add \$7.00 list to above prices.



## Model 355 Weston Frequency Meters

For Alternating Current

Indications are practically independent of changes of temperature, voltage and wave form, such as may be encountered in the commercial circuits of today. Standard meters are made for one voltage, 100 to 125 volts. Every frequency meter is provided with an external box which contains reactors and resistors.



Diameter,  $7\frac{1}{2}$  inches. Depth,  $4\frac{1}{2}$  inches.  
**100-125 or 125-150 Volts**

Cycles	Price Each	Cycles	Price Each
25	\$78.00	60	\$78.00
40	78.00	125	78.00
50	78.00	133	78.00

For 200-250 or 250-300 volts, add \$7.50 list to above prices.

## Model 226 Weston Synchrosopes

For Alternating Current



Consists of a phase angle indicator mounted with its pointer behind a ground glass scale and illuminated by a small synchronizing lamp. A difference in frequency between machines causes the pointer to swing back and forth. Perfect synchronism is indicated by the pointer remaining at rest in the middle of the scale with the lamp lighted.

Made for 100-125 volts and any commercial frequency up to 60 cycles.

Price, Model 226.....each \$86.00  
 Specify voltage and frequency when ordering.

## Weston Round Pattern Switchboard Instruments

For A.C.



Voltmeters with a range above 300 volts are provided with external resistance.

Every ammeter is tested before shipment for insulation with 4,600 volts for one minute.

The case of each ammeter is provided with a ground terminal, which must be connected to earth when the potential difference of circuits exceeds 200 volts.

Transformers must be used on all circuits carrying over 500 amperes, and a value of 5 amperes for the secondary is recommended. Models 260 and 261 have drawn steel cases.

### Dimensions

Model	Diameter Inches	Depth Inches	Model	Diameter Inches	Depth Inches
260	$7\frac{1}{2}$	$4\frac{1}{2}$	261	$9\frac{5}{8}$	4

### Voltmeters

Model 260				Model 261			
Range	Price Each	Range	Price Each	Range	Price Each	Range	Price Each
130	\$24.00	500	\$32.25	75	\$30.50	300	\$37.25
150	24.50	600	32.50	130	31.00	500	38.50
300	30.50	750	34.50	150	31.00	600	39.00
...	...	...	...	250	37.25	750	41.00

### Ammeters

Model 260		Model 261	
Range	Price Each	Range	Price Each
5	\$22.25	5	\$28.00

## Models 251 and 252 Weston Round Pattern Switchboard Instruments

For Direct Current

Same instruments as the Models Nos. 57 and 24, except being mounted in drawn steel cases so as to correspond with the alternating current instruments.

Voltmeters are furnished with self-contained resistors for circuits up to and including 300 volts. For higher potentials external resistors are provided arranged for mounting on the back of switchboard.



### Model 251

Voltmeters		Ammeters	
Range Volts	Price Each	Range Amp.	Price Each
130	\$46.75	200	\$46.25
150	48.75	250	46.75
250	52.00	300	46.75
300	53.75	400	47.00
600	58.75	500	48.75
750	62.25	600	50.25
...	...	750	52.00
...	...	...	...

### Model 252

Voltmeters		Ammeters	
Range Volts	Price Each	Range Amperes	Price Each
130	\$27.25	250	\$29.75
150	28.00	300	30.25
250	32.25	400	30.50
300	33.75	500	32.25
600	38.00	600	33.75
...	...	750	35.50

Voltmeters above 300 volts have external resistors. Ammeters, all ranges, have external shunts.

All ammeters are furnished as millivoltmeters adjusted for use with external shunts only. Prices for lower or higher ranges will be quoted upon request.

## Model 354 Weston Dashboard Ammeters

For Direct Current

Furnished in two styles—(A) Flush style, with a wide flange, so that the instrument can be fastened directly to the dashboard; and (B) Surface style, projecting out from the dashboard, and held in place by the back connection studs, which also serve for making the electrical connections.

Finished in dull black or full nickel, with silver grey or black scales.

Finished in the following ranges: 10-0-10, 15-0-15, 20-0-20, and 30-0-30.

Price.....each \$3.50

When ordering, specify the style, range, finish of scale desired.



## Model 453 Weston Heavy Discharge Battery Testers

To obtain the actual working condition of an automotive storage battery the voltage of each cell of battery should be tested while a relatively heavy current is flowing.

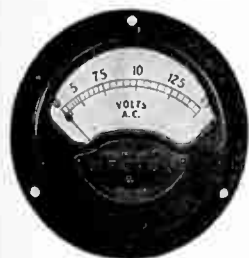
The Model 453 consists of a prod upon which is mounted a direct-current voltmeter having a range of 3-0-3 volts.



Price, Model 453, Complete.....each \$14.00  
 " Prod Only....." 5.50

**Model 429 Weston Round Pattern Switchboard Instruments**

**For Alternating Current**



Model 429 voltmeters, ammeters, and milliammeters operate on the electro magnetic or movable iron principle in which is utilized the repulsion action between a fixed and a movable piece of iron placed within a field coil.

All scales are calibrated by hand in reference to standard instruments. The angle of deflection is approximately 80° and the scale

length 2.7 inches (68.6 m.m.). These scales have the same general characteristics as those of the larger Weston A. C. Instruments, being slightly congested at the lower end but remarkably uniform over the working range, which comprises approximately the upper four-fifths of the scale.

Voltmeters are made self-contained in the listed ranges up to and including 150 volts. Ranges above this value are provided with an external resistor box. For use with potential transformers, the 150-volt instrument can be supplied having the scale calibrated to indicate the primary voltage, if this is desired. Voltmeters are accurate within 1 per cent of full scale value, over the working range of the scale, under normal working conditions on any frequency between 25 and 133 cycles per second. Changes in temperature have no effect on the accuracy of indications, neither are instruments affected by length of time they are left in circuit. Low range voltmeters of this type necessarily require a larger current for operation than the high range instruments. At times, this larger current may become an important factor in altering the normal circuit conditions; therefore, the resistance of each range has been stated in the price list in order that the purchaser may be better enabled to select the proper instrument for his purpose.

Ammeters and milliammeters are self-contained in the ranges listed. Ranges above 50 amperes can be obtained by using a 5-ampere instrument with a current transformer of proper range. When desired, the ammeter will be calibrated to indicate the primary amperes. In cases where an overload capacity is required, a 6 1/4-ampere instrument can be provided with scale calibrated to indicate primary amperes.

Prices will be quoted upon application.

Dimensions		Surface	Flush
Diameter of Flange	inches	4 3/8	4 3/8
" " Body	"	3 3/8	3 3/8
Total Depth	"	2	1 7/8
Extension from Panel	"	2	2 7/8
Length of Scale	"	2.7	2.7
Approximate Weight	pounds	1.25	1.25

Voltmeters							
Range Volts	Resist. Ohms	Scale Div.	Price Each	Range Volts	Resist. Ohms	Scale Div.	Price Each
10	68	50	\$20.00	75	2500	75	\$20.00
15	144	30	20.00	100	6400	50	20.00
20	192	40	20.00	125	8000	25	20.00
30	400	30	20.00	150	9400	30	20.00
50	1100	50	20.00	*250	16000	25	25.00
60	2000	60	20.00	*300	19000	30	25.00

\*Provided with external resistor.

NOTE.—For voltmeters to be used on 500 cycles add \$3.00 to the above price.

Ammeters				
Range Amp.	Scale Div.	Price Each	Range Amp.	Price Each
1	50	\$18.00	10	\$18.00
1.5	30	18.00	15	18.00
2	40	18.00	25	18.00
3	30	18.00	30	18.00
5	50	18.00	50	18.00
7.5	75	18.00	...	.....

Milliammeters				
Range Milliammeters	Scale Div.	Price Each	Range Milliammeters	Price Each
75	75	\$18.00	300	\$18.00
100	50	18.00	400	18.00
150	30	18.00	500	18.00
200	40	18.00	600	18.00
250	25	18.00	750	18.00

**Model 427 Weston Switchboard Wattmeters For D. C. and Single-phase A. C.**



Model 427 Wattmeters operate on the electro-dynamometer principle; consequently they can be used on both direct and alternating current.

Flush and semi-flush types of cases are provided for this model. In order that the semi-flush case should harmonize with the surface type instruments of the other models, its projection from the switch-board has been made the same as for the other surface type instruments.

These instruments are accurate within 1 per cent of full scale value at any part of the scale, under normal working conditions on direct current or on alternating current of any frequency between 25 and 133 cycles per second and of any wave form met with in commercial practice. Temperature errors are negligible.

The current circuits of these wattmeters are capable of withstanding an overload current of 50 per cent of the normal current without overheating. This feature is of value when the power factor of the circuit is low.

Model 427 Wattmeters are regularly made with self-contained voltage ranges up to and including 250 volts.

Above this value and up to and including 750 volts, an external resistor is provided. Voltage ranges may also be extended by using a potential transformer of suitable range in connection with a 150-volt instrument.

Current ranges are self-contained up to and including 20 amperes normal (30 amperes maximum). For high current ranges, it is necessary to use a current transformer in connection with a 5-ampere instrument.

**Dimensions**

Diam. Flange	Diam. Body	Depth In.	Length Scale
4 3/8	3 3/8	3 3/8	2.5

**Self-contained**

100-150 Volts				200-250 Volts			
AMPERES Nor.	Max.	Range Watts	Price Each	AMPERES Nor.	Max.	Range Watts	Price Each
1	1.5	100	\$40.00	1	1.5	200	\$45.00
1	1.5	150	40.00	1	1.5	300	45.00
2	3	200	40.00	2	3	400	45.00
2	3	300	40.00	2	3	600	45.00
5	7.5	500	40.00	5	7.5	1K.W.	45.00
5	7.5	750	40.00	5	7.5	1.5K.W.	45.00
10	15	1K.W.	40.00	10	15	2K.W.	45.00
10	15	1.5K.W.	40.00	10	15	3K.W.	45.00
20	30	2K.W.	40.00	20	30	4K.W.	45.00
20	30	3K.W.	40.00	20	30	6K.W.	45.00

**External Resistor**

400-600 Volts			600-750 Volts		
1	1.5	Price Each	1	1.5	Price Each
1	1.5	\$50.00	1	1.5	\$55.00
1	1.5	50.00	1	1.5	55.00
2	3	50.00	2	3	55.00
2	3	50.00	2	3	55.00
5	7.5	50.00	5	7.5	55.00
5	7.5	50.00	5	7.5	55.00
10	15	50.00	10	15	55.00
10	15	50.00	10	15	55.00
20	30	50.00	20	30	55.00
20	30	50.00	20	30	55.00

**Radio Instruments**

150 Volts			500 Cycles			300 Volts		
Amp. Max.	Range Watts	Price Each	Amp. Max.	Range Watts	Price Each	Amp. Max.	Range Watts	Price Each
3	300	\$42.50	3	300	\$47.50	3	300	\$47.50
4	400	42.50	4	400	47.50	4	400	47.50
7.5	750	42.50	7.5	750	47.50	7.5	750	47.50
15	1.5K.W.	42.50	15	1.5K.W.	47.50	15	1.5K.W.	47.50
30	3K.W.	42.50	30	3K.W.	47.50	30	3K.W.	47.50



## Model 496 Weston Rectangular Switchboard Instruments For Alternating Current



These instruments are of the electro-magnetic or movable-iron type.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields.

Case is 5 3/4 inches wide, 6 inches high and projects 4 1/4 inches from front of the switchboard. Designed for back connection and surface mounting

only. Finish, dull black japan.

Scale is 5 1/8 inches in length, hand calibrated.

### Voltmeters

External resistors required for all ranges.

Ranges above 750 volts require the use of potential transformers.

Volts	Number of Scale Divisions	Approximate Resistance Ohms	Price Each
100	50	1300	\$28.00
130	65	1700	28.00
150	75	2000	28.50
300	30	8300	34.75
500	50	14000	36.00
600	60	16600	36.50
750	75	21000	38.50

### Ammeters

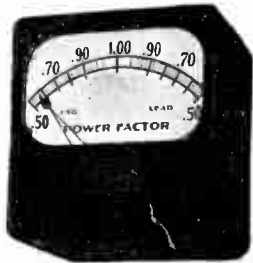
Ranges above 10 amperes and 750 volts require the use of current transformers.

Amperes	Number of Scale Divisions	Approximate Resistance Ohms	Price Each
3	30	.13	\$26.50
5	50	.044	26.50
7.5	75	.022	26.50
10	50	.013	26.50

## Model 497 Weston Rectangular Switchboard Power Factor Meters For Alternating Current Single-phase, 2-phase 3-wire and 3-phase

The Power Factor Meter is constructed on the electro-dynamometer principle.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields. Case is 5 3/4 inches wide, 6 inches high, and projects 4 1/4 inches from front of the switchboard. Designed for back connection and surface mounting only. Finish, dull black japan.



Scale is 5 1/8 inches in length, hand calibrated.

External resistors required for all ranges. Current ranges above 5 amperes require the use of current transformers. State actual voltage when ordering.

### Single-phase Meters

Made for direct connection to circuits of 300 volts maximum. Always specify frequency when ordering.

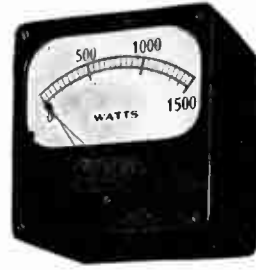
Single-phase meters including external phase splitting reactors carry prices \$14.75 more than the corresponding range polyphase meters as given below.

### 2-phase 3-wire and 3-phase

Made for direct connection to circuits of 750 volts maximum For 2-phase 4-wire circuits use 2-phase 3-wire instruments with 2 potential transformers. All details in regard to ratio and connections of transformers to be used on 3-phase circuits should be given.

Volts	Amps.	Price Each	Volts	Amps.	Price Each
100 to 125	5	\$70.75	400 to 500	5	\$93.00
125 " 150	5	70.75	500 " 600	5	93.00
200 " 250	5	78.00	600 " 750	5	100.50
250 " 300	5	78.00	.....	..	.....

## Model 498 Weston Rectangular Switchboard Single-phase Wattmeters For Alternating Current



This instrument is constructed on the electro-dynamometer principle.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields.

Case is 5 3/4 inches wide, 6 inches high, and projects 4 1/4 inches from front of switchboard.

Designed for back connection and surface mounting only.

Finish is dull black japan.

Scale is 5 1/8 inches in length, hand calibrated.

External resistors required for all ranges.

Current ranges above 5 amperes require the use of current transformers and potential ranges above 750 volts require the use of both current and potential transformers.

Volts	Normal Amperes	Scale	Price Each
100 to 150	5	500 W.	\$63.25
100 " 150	5	750 W.	63.25
200 " 300	5	1 K.W.	67.50
200 " 300	5	1.5 K.W.	67.50
400 " 600	5	2 K.W.	70.75
400 " 600	5	3 K.W.	70.75
600 " 750	5	2.5 K.W.	71.25
600 " 750	5	4 K.W.	71.25

## Model 499 Weston Rectangular Switchboard Polyphase Wattmeters For Alternating Current



This instrument is constructed on the electro-dynamometer principle.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields.

Case is 5 3/4 inches wide, 6 inches high, and projects 4 1/4 inches from front of switchboard.

Designed for back connection and surface mounting only.

Finish, dull black japan.

Scale is 5 1/8 inches in length, hand calibrated.

External resistors required for all ranges.

Current ranges above 5 amperes require the use of current transformers and potential ranges above 750 volts require the use of both current and potential transformers.

Volts	Normal Amperes	Scale	Price Each
100 to 150	5	1 K.W.	\$93.00
100 " 150	5	1.5 K.W.	93.00
200 " 300	5	2 K.W.	104.25
200 " 300	5	3 K.W.	104.25
400 " 600	5	4 K.W.	104.25
400 " 600	5	6 K.W.	104.25
600 " 750	5	6 K.W.	104.25
600 " 750	5	7.5 K.W.	104.25

**Model 500 Weston Rectangular Switchboard Frequency Meters**

For Alternating Current



This instrument is of the electro-magnetic or movable-iron type.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields.

Case is 5 3/4 inches wide, 6 inches high, and projects 4 1/4 inches from front of switchboard.

Designed for back connection and surface mounting only.

Finish is dull black japan.

External reactance required for all ranges.

Higher ranges require the use of a potential transformer.

State actual voltage when ordering.

For 220-volt service, add \$7.50 to prices given below.

Volts	Cycles	Price Each	Volts	Cycles	Price Each
100 to 125	25	\$78.00	100 to 125	60	\$78.00
or	40	78.00	or	125	78.00
125 to 150	50	78.00	125 to 150	133	78.00

**Model 501 Weston Rectangular Switchboard Triplex Ammeters**

For Alternating Current



The Triplex Ammeter consists of three separate and distinct ammeter movements mounted one above the other and contained all in one case. Designed for back connection and surface mounting only.

The dust-proof iron case serves to protect the movements from the influence of external magnetic fields.

Case is 5 3/4 inches wide, 15 1/2 inches high, and projects 4 1/2 inches from front of switchboard.

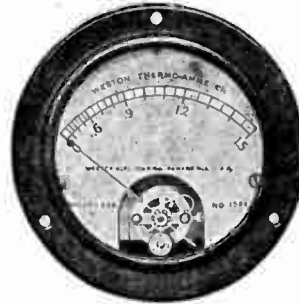
Finish, dull black japan.

Scales are 5 1/8 inches in length, hand calibrated.

Ranges above 10 amperes and 750 volts require the use of current transformers.

Amperes	Number of Scale Divisions	Approximate Resistance Ohms	Price Each
3	30	.13	\$70.00
5	50	.044	70.00
7.5	75	.022	70.00
10	50	.013	70.00

**Model 425 Weston Radio Frequency Instruments**



Consists of a heating element and Weston direct-current permanent magnet movable coil instrument mounted in the same case. They are regularly made as ammeters, milliammeters and galvanometers or current squared meters. All are back connected. These instruments are furnished in dull black finish with either flush or surface type cases. All instruments have a zero adjusting device. The indications are not affected by changes in temperature and are equally accurate on any audio or radio frequencies. The galvanometers and milliammeters cannot be used on direct currents. The power required to operate these instruments is small. They have a safe overload capacity of 50 per cent.

Flush			Surface		
Diam. In.	Depth In.	Scale In.	Diam. In.	Depth In.	Scale In.
3.25	1.17	2.35	2.75	1.23	2.35

**Thermo-Milliammeters**

Range	No. of Scale Div.	Price Each	Range	No. of Scale Div.	Price Each
125	25	\$15.00	500	50	\$15.00
250	50	15.00			

**Thermo-Ammeters**

Range	No. of Scale Div.	Price Each	Range	No. of Scale Div.	Price Each
1	50	\$13.50	5	50	\$13.50
1.5	30	13.50	6	60	14.50
2	40	13.50	8	40	14.50
2.5	50	13.50	10	50	14.50
3	60	13.50	15	30	14.50
4	40	13.50	20	40	14.50

**Thermo-Galvanometers**

Description	No. of Scale Divisions	Price Each
115 Milliammeters 5.2 Ohms	50	\$15.00

Specify whether surface or flush type is desired.

**Model 400 Weston Thermo Ammeters**

Weston Model 400 Radio Frequency ammeters or thermo ammeters consist of a heating element and a direct current permanent magnet indicator calibrated to indicate directly the current passing through the heating element.



These instruments are made self-contained with either front or back connection studs for currents up to and including 100 amperes. Above 100 amperes external heating elements must be used. Ranges of 100 amperes or below are also supplied with external heating elements when desired although for the lower ranges it is preferable to use the self-contained instrument.

Instruments for use with external elements are always made back connected.

Indications are not affected by changes in room temperature.

Each instrument has a zero correcting device for rectifying any slight accidental changes in the zero position of the pointer. The standard finish is dull black japan.

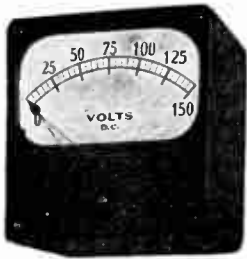
**Dimensions**

Diameter at Base	inches	7 1/4
Depth of Case	"	4
Overall Width of Front Connected Instrument	"	10 3/8
Scale Length	"	5.1

**Prices**

Range Amp.	Approx. Wt., Lbs.	Price Each	Range Amp.	Approx. Wt., Lbs.	Price Each
1	7.3	\$51.75	25	7.3	\$51.75
2	7.3	51.75	30	7.3	51.75
3	7.3	51.75	40	7.3	51.75
4	7.3	51.75	50	7.3	51.75
5	7.3	51.75	60	7.3	58.25
10	7.3	51.75	80	7.3	71.00
15	7.3	51.75	100	7.3	77.50
20	7.3	51.75	...	...	.....

## Model 502 Weston Rectangular Switchboard Instruments For Direct Current



These Rectangular D.C. Instruments are of the permanent magnet, movable coil type, similar to the round pattern Model 24 Instruments.

Each instrument is mounted in a dust-proof iron case which serves to protect the movement from the influence of external magnetic fields. Case is 5 3/4 inches wide, 6 inches high, and projects 1 1/4 inches from front of switchboard.

Designed for back connection and surface mounting only. Finish is dull black japan. Scales are 5 1/8 inches in length, hand calibrated.

### Voltmeters

Resistance self-contained up to 800 volts.

The resistance of these instruments is 100 ohms per volt.

Volts	Number of Scale Division	Price Each	Volts	Number of Scale Division	Price Each
120	60	\$27.25	300	30	\$33.75
150	30	28.00	600	30	36.00
250	50	32.25	750	30	38.00

Prices for higher or lower ranges upon application.

### Ammeters

All ammeters are furnished for use with 50 M. V. external shunts only.

Standard 8-foot cables are supplied.

Amperes	Number of Scale Division	Price Each	Amperes	Number of Scale Division	Price Each
250	50	\$29.75	500	50	\$32.25
300	30	30.25	600	30	33.75
400	40	30.50	800	40	37.25

Prices for higher or lower ranges upon application.

## Model 375 Weston Students' Galvanometers

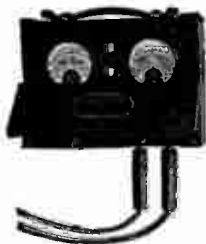


The instrument is mounted on a base, so that the face, or scale is inclined at an angle of 45 degrees. The scale is 2.35 inches in length, is uniformly divided, and is calibrated 30-0-30. Each instrument is provided with a zero-adjusting device. The resistance is approximately 25 ohms. The current required for a millimeter (1 scale division) deflection is 22 micro-amperes.

With one volt, a deflection of 1 millimeter (1 scale division) will be obtained through 45,500 ohms, but as a deflection of 0.2 of a scale division can be readily detected, the galvanometer is, in reality, serviceable through 227,500 ohms.

Price, Model 375.....each \$13.50

## Model 441 Weston Fault-finders



The Fault-finder consists of an ammeter and a voltmeter mounted in a strong, compact carrying box with carrying strap. The ammeter and voltmeter being electrically independent of each other, simultaneous readings of current and voltage can be made.

The voltmeter has ranges of 2-0-30 and 0.2-0-3 volts. The latter range is particularly adapted to making cadmium tests.

Each Fault-finder is provided with a pair of flexible rubber-covered cables.

Price, Model 441.....each \$31.00  
" Cadmium Test Cables.....per pair 2.75

## Matthews Woodpecker Telefaults



Locates trouble on telephone, telegraph, signal and certain classes of electric light and power cables. Only uses one dry cell battery. Maximum voltage only 5 volts.

It does not noise up other working pairs, because of the inductive field created. The tone is like a woodpecker on a pole; it is not a hum.

Price, Type L.....each \$132.00  
Price, Extra Exploring Coil.....each 30.00  
Price, Extra Receivers.....each 14.00

## No. 32 Sterling Charge Indicators



Places a current load on the battery greater than that drawn by all the tubes in any radio set.

Tells at a glance when the A battery needs charging and when the battery on charge has been charged enough.

The test is external. Apply the spur and cord tip momentarily to the battery poles and the red pointer registers instantly.

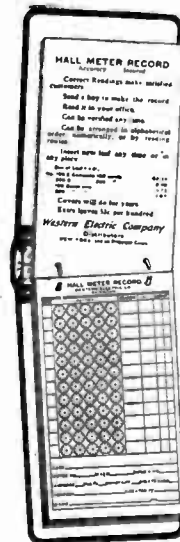
Full nickel finish. Black dial with a red pointer.

Standard package, 10.

Individually boxed. Weight, 3 ounces.

Price, No. 32.....each \$2.00

## Wathour Loose Leaf Meter Books



The Hall Loose Leaf Meter Book is made in two sizes Nos. 100 and 200.

No. 100 is designed to hold 100 meter sheets.

No. 200 will accommodate 200 sheets. No. 100C consists of a No. 100 cover and 100 sheets.

No. 200C comprises a No. 200 cover and 200 sheets.

Size of leaf is 5x8 1/2 inches.

### No. 100C

Meter book complete with 100 leaves. Price No. 100C.....each \$3.75

### No. 200C

Meter book complete with 200 leaves. Price No. 200C.....each \$4.58

### Covers Only

Price No. 100.....each \$3.00  
" " 200....." 3.23

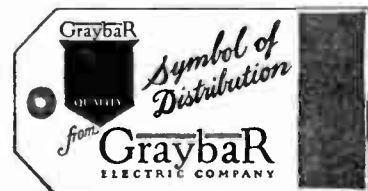
### Leaves Only

Price in 1000 Lots.....per 1000 \$6.00  
" " 100....." 100 .68

### Indexes

Price.....per set \$2.48

Meter Book Complete



**Duncan Direct Current Watthour Meters**

Models E, EA and ER



Model E

Models E and EA meters are of the series type and are made for capacities as shown in the price list. The Model E meters are also made with astatic field coils and armature in sizes including 25 amperes and larger and when this feature is wanted, please specify Model EA.

Model ER is of the shunted type and is provided with a shunt that is connected in series in the main feeder or line and having flexible

cables that connect it with the field coils of the meter. This arrangement allows only a portion of the main current to pass through the field coils of the Model ER and for this reason it adapts itself most admirably for heavy currents and we are prepared to furnish it for any capacity up to and including 30,000 amperes at either 110, 220 or 500 volts. The armature in the Model ER is slightly different from the armature employed in the other series type models. Its form resembles that of a squirrel cage instead of the coils being wound around the armature, the same as is practiced in the building of a form wound armature for dynamos, and for this reason repairs to the armature are easily taken care of and made at small expense.

**Models E and EA**

Amperes	110 to 125 Volts, 2-wire		1220 to 250 Volts, 2-wire		1400 to 600 Volts, 2-wire		1220 to 250 Volts, 3-wire	
	Model E	Model EA	Model E	Model EA	Model E	Model EA	Model E	Model EA
5	\$30.70	.....	\$35.60	.....	\$45.40	.....	\$35.60	.....
10	33.40	.....	39.20	.....	50.50	.....	39.20	.....
15	37.80	.....	46.30	.....	59.40	.....	46.30	.....
25	44.20	\$50.00	54.90	\$60.80	70.10	\$77.50	54.90	\$60.80
50	57.20	63.70	67.80	75.50	86.30	95.20	70.10	77.50
75	73.50	82.40	76.30	84.00	102.50	112.80	84.40	93.00
100	88.30	99.00	90.50	99.80	117.80	129.50	100.50	111.80
150	100.50	111.80	115.80	127.50	147.20	162.00	123.80	136.50
200	112.90	125.60	132.50	146.20	169.30	186.20	147.20	162.00
300	127.50	141.30	147.20	162.30	191.30	210.50	171.80	189.50
400	147.20	165.00	166.90	183.30	210.00	230.00	.....	.....
500	166.90	186.50	186.50	206.00	230.00	250.00	.....	.....
600	186.50	210.80	206.00	226.50	250.00	270.00	.....	.....

**Model ER**

Amperes	110 to 125 Volts, 2-wire		220 to 250 Volts, 2-wire		400 to 600 Volts, 2-wire		220 to 250 Volts, 3-wire	
	Price, Each	Price, Each	Price, Each	Price, Each	Price, Each	Price, Each	Price, Each	Price, Each
100	\$205.00	.....	\$215.00	.....	\$230.00	.....	\$235.00	.....
150	207.50	.....	217.50	.....	232.50	.....	240.00	.....
200	210.00	.....	220.00	.....	235.00	.....	245.00	.....
300	212.50	.....	222.50	.....	237.50	.....	250.00	.....
400	220.00	.....	230.00	.....	245.00	.....	265.00	.....
500	230.00	.....	240.00	.....	255.00	.....	285.00	.....
600	235.00	.....	245.00	.....	260.00	.....	295.00	.....
800	242.00	.....	252.00	.....	267.00	.....	309.00	.....
1000	248.00	.....	258.00	.....	273.00	.....	321.00	.....
1200	255.00	.....	265.00	.....	280.00	.....	335.00	.....
1500	265.00	.....	275.00	.....	290.00	.....	355.00	.....
2000	275.00	.....	285.00	.....	300.00	.....	375.00	.....
2500	295.00	.....	305.00	.....	320.00	.....	415.00	.....
3000	310.00	.....	320.00	.....	335.00	.....	445.00	.....
4000	337.50	.....	347.50	.....	362.50	.....	500.00	.....
5000	370.00	.....	380.00	.....	395.00	.....	565.00	.....

The Model ER Watthour Meter is of the shunted type.

The prices listed include, for each meter, one set of 5-foot shunt cables, one shunt for the 2-wire, and two shunts for the 3-wire meter.

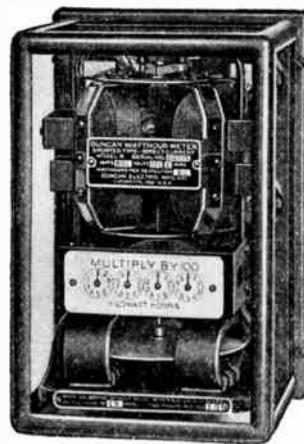
When cables in excess of five feet are required and specified, the following extra list prices will be charged.

**Total Length—Shunt to Meter**

Length Feet	Price Each	Length Feet	Price Each	Length Feet	Price Each
6	\$2.65	10	\$14.75	16	\$47.40
8	8.00	12	25.00	20	65.00

Specify normal voltage when ordering.

**Duncan D.C. Watthour Meters**



Model R

The Model F switchboard meter is of the series type and is built in ampere ratings up to 1000 amperes, 2-wire, and 500 amperes, 3-wire. The finish and type of base and cover used are the same as for the Model FR.

Models R and FR are particularly adapted for the measurement of direct currents of high ampere strength. They operate from an external shunt or shunts having a standard voltage drop of 80 millivolts, and so calibrated that the meter takes 15 amperes when full rated current is passed through the shunt.

The mechanism of these 2 models is exactly the same, the difference being in the finish and style of base and cover supplied. Model R is highly finished, the standard being hard rubber black, but polished nickel or polished copper finish can be supplied on request at same price. The base is a smooth aluminum casting and the cover is of plate glass and extruded metal.

Model FR receives a frosted nickel finish. The base is of formed heavy gauge sheet brass and the cover is also of sheet metal with a glass panel front.

**PRICE, EACH**

Amperes	110 to 125 Volts, 2-Wire		220 to 250 Volts, 2-Wire		220 to 250 Volts, 3-Wire		400 to 600 Volts, 2-Wire	
	Model R	Model FR	Model R	Model FR	Model R	Model FR	Model R	Model FR
100	\$305.50	\$249.50	\$316.50	\$260.50	\$340.50	\$284.50	\$333.50	\$277.50
150	308.50	252.50	319.50	263.50	346.50	290.50	336.50	280.50
200	311.50	255.50	322.50	266.50	352.50	296.50	339.50	283.50
300	314.00	258.00	325.00	269.00	357.50	301.50	342.00	286.00
400	323.00	267.00	334.00	278.00	375.50	319.50	351.00	295.00
500	335.00	279.00	346.00	290.00	399.50	343.50	363.00	307.00
600	341.00	285.00	352.00	296.00	411.50	355.50	369.00	313.00
800	349.50	293.50	360.50	304.50	428.50	372.50	377.50	321.50
1000	356.50	300.50	367.50	311.50	442.50	386.50	384.50	328.50
1200	364.50	308.50	375.50	319.50	458.50	402.50	392.50	336.50
1500	376.50	320.50	387.50	331.50	482.50	426.50	404.50	348.50
2000	388.50	332.50	399.50	343.50	506.50	450.50	416.50	360.50
2500	412.00	356.00	423.00	367.00	553.50	497.50	440.00	384.00
3000	430.00	374.00	441.00	385.00	589.50	533.50	458.00	402.00
4000	462.50	406.50	473.50	417.50	654.50	598.50	490.50	434.50
5000	501.00	445.00	512.00	456.00	731.50	675.50	529.00	473.00
6000	554.50	498.50	565.50	509.50	838.50	782.50	582.50	526.50
8000	638.00	582.00	649.00	593.00	1005.50	949.50	666.00	610.00
10000	726.50	670.50	737.50	681.50	1182.50	1126.50	754.50	698.50
12000	816.00	760.00	827.00	771.00	1301.50	1305.50	844.00	788.00
15000	911.00	855.00	922.00	866.00	1551.50	1495.50	939.00	883.00
20000	982.00	926.00	993.00	937.00	1693.50	1637.50	1010.00	954.00

**Model F**

Amperes	PRICE, EACH			
	110 to 125 Volts, 2-Wire	220 to 250 Volts, 2-Wire	220 to 250 Volts, 3-Wire	400 to 600 Volts, 2-Wire
100	\$163.00	\$174.00	\$197.00	\$185.00
150	174.00	185.00	214.00	197.00
200	185.00	197.00	230.00	204.00
300	202.00	214.00	253.00	230.00
400	219.00	230.00	276.00	247.00
500	236.00	247.00	304.00	264.00
600	259.00	270.00	.....	287.00
800	270.00	281.00	.....	298.00
1000	280.00	292.00	.....	310.00

**Shunt Cables**

Price per Set of 4 Leads

Length.....feet	6	7	10	13½	15½	20
Price.....each	\$3.15	9.50	17.50	29.80	56.25	77.25

## G-E Single-Phase Watthour Meters

Type I-14, 50 and 60 Cycles

Type I-15, 25 Cycles

Self-Contained—Require No Instrument Transformers



This watthour meter is self-contained, that is, requires no instrument transformer, except when the current exceeds 300 amperes, 2-wire, and 150 amperes, 3-wire, a current transformer is necessary, or when the voltage is more than 600 volts, both current and potential transformers are required. In such cases meters for use on the secondary of transformers should be ordered, designating the meters by catalogue number and ratings.

These meters may be used on circuits the voltage of which is not more than 10 per cent above or below the rated voltage of the meter. When ordering meters for voltages outside these limits, the normal operating voltage must be specified.

### With Attached Terminal Covers

110-Volt—2-Wire

Amperes	CAT. No. GLASS COVER		Price Each
	Type I-14 50 Cycles	Type I-15 25 Cycles	
5	*	294511	\$16.65
10	*	294512	17.60
15	*	294513	21.50
25	*	294514	26.00
50	*	294515	35.50
75	290935	290965	41.00
100	290936	290966	45.00
150	290937	290967	48.50
200	290938	290968	50.00
300	290939	290969	51.00

220-Volt—2-Wire

5	*	294531	\$18.65
10	*	294532	19.60
15	*	294533	23.50
25	*	294534	28.50
50	*	294535	38.50
75	290955	290975	44.00
100	290956	290976	48.00
150	290957	290977	52.00
200	290958	290978	54.00
300	290959	290979	55.00

220-Volt—3-Wire (4-Terminal)

5	†	294549	\$18.65
10	†	294550	19.60
15	†	294551	23.50
25	†	294552	28.50
50	†	294553	38.50
75	291001	291009	44.00
100	291002	291010	48.00
150	291003	291011	52.00

220-Volt—3-Wire (6-Terminal)

5	†	294601	\$18.65
10	†	294602	19.60
15	†	294603	23.50
25	†	294604	28.50
50	†	294605	38.50
75	291145	291161	44.00

\*These ratings, 5 to 50-ampere, in type I-14 are superseded by type I-16.

†These ratings, 5 to 50-ampere, in type I-14 are superseded by type I-16.

## G-E Single-Phase Watthour Meters

Type I-14, 50 and 60 Cycles

Type I-15, 25 Cycles

Self-Contained—Require No Instrument Transformers

Continued

### With Removable Terminal Covers

110-Volt—2-Wire

Amperes	CAT. No. GLASS COVER		Price Each
	Type I-14 50 Cycles	Type I-15 25 Cycles	
5	*	294563	\$16.65
10	*	294564	17.60
15	*	294565	21.50
25	*	294566	26.00
50	*	294567	35.50
75	291047	291071	41.00
100	290936	290966	45.00
150	290937	290967	48.50
200	290938	290968	50.00
400	290939	290969	51.00

220-Volt—2-Wire

5	*	294575	\$18.65
10	*	294576	19.60
15	*	294577	23.50
25	*	294578	28.50
50	*	294579	38.50
75	291059	291083	44.00
100	290956	290976	48.00
150	290957	290977	52.00
200	290958	290978	54.00
300	290959	290979	55.00

220-Volt—3-Wire (4-Terminal)

5	†	294587	\$18.65
10	†	294588	19.60
15	†	294589	23.50
25	†	294590	28.50
50	†	294591	38.50
75	291107	291119	44.00
100	291002	291010	48.00
150	291003	291011	52.00

220-Volt—3-Wire (6-Terminal)

5	†	294615	\$18.65
10	†	294616	19.60
15	†	294617	23.50
25	†	294618	28.50
50	†	294619	38.50
75	291187	291199	44.00

\*These ratings 5 to 50-ampere, in Type I-14 are superseded by Type I-16.

†These ratings, 5 to 50-ampere, in Type I-14 are superseded by Type I-16.

### 5-Ampere Meters for Use with Instrument Transformers

25 Cycles, Glass Cover, Type I-15

(For 50 and 60 Cycles See Type I-16)

For 2-Wire Circuits

Amperes	Volts	CAT. Nos.		Price Each
		With Attached Terminal Cover	With Removable Terminal Cover	
5	110-Volt, 2-Wire	294623	294627	\$21.00
5	220-Volt, 2-Wire	294624	294628	23.00

For 3-Wire Circuits

*5	220-Volt, 3-Wire	294630	294632	\$23.00
†5	220-Volt, 2-Wire	294624	294628	23.00

\*These are 6-terminal meters and should be used for 3-wire transformer rated circuits above 800 amperes with 2 single primary transformers.

†These meters should be used for 3-wire transformer rated circuits 800 amperes and below with a double primary and single secondary 5-ampere winding current transformer.

Amperes	GLASS COVER NET WEIGHT		No. in Box	Shipping Wt., Lbs. Glass Cover
	Lbs.	Oz.		
5 to 25	8	12	6	65
50 and 75	11	2	4	59
100 to 300	15	8	1	27

**G-E Type IP-5 Watthour Meters**

Single-Phase, Prepayment



Where the service to certain classes of consumers must be rendered under somewhat unfavorable conditions from the viewpoint of the usual method of metering, such for instance as transient or shifting populations involving frequent "cutting in" or "out" of service, reading, billing, collecting, etc., such cases may be metered more efficiently and conveniently through the use of the prepayment type of meter.

The Type IP-5 Prepayment Meter is made for this class of service and is arranged so that after the prepayment of one or more coins (25-cent piece) in

the usual manner the consumer may receive energy up to the full amount for which payment has been made. The coin device permits prepayment of from one to twenty coins at a time. When the energy paid for has been used the meter automatically opens the line switch.

The mechanism is entirely mechanical in its operation. The element of the single-phase Type I-14 meter is employed.

Front connected, metal cover, dull black finish.

These meters may be used on circuits the voltage of which is not more than 10 per cent above or below the rated voltage of the meter.

When ordering meters for voltages outside of these limits the normal operating voltage must be specified.

Approximate shipping weight. one in a box, 31 pounds; two in a box, 57 pounds.

25-30 Cycles		110 Volts, 2-Wire		40-133 Cycles	
Cat. No.	Amps.	Price Each	Cat. No.	Amps.	Price Each
199631	5	\$66.25	192840	5	\$66.25
199632	10	69.00	192841	10	69.00
199633	15	71.50	192842	15	71.50
		220 Volts, 2-Wire			
199634	5	\$68.25	192844	5	\$68.25
199635	10	71.00	192845	10	71.00
199636	15	73.50	192846	15	73.50
		220 Volts, 3-Wire			
199637	5	\$68.25	192848	5	\$68.25
199638	10	71.00	192849	10	71.00
199639	15	73.50	192850	15	73.50

When ordering, state cycles desired and the rate of charge per kilowatt-hour.

**G-E Types IS-4 and IS-5 Watthour Meters**

Single-Phase, for Switchboard Service

The Types IS-4 and IS-5 Meters, made expressly for switchboard service, are of strong and simple construction.

They possess the fundamental features of the Type I-14 worked into an attractive switchboard housing. Their electrical characteristics are, therefore, the same.

They are back-connected, but in order to facilitate testing are equipped with a very convenient form of testing terminal so designed that access to the back of the panel is unnecessary in order to introduce testing instruments, or to cut the meter out of service.



Type IS-5 Glass Cover

They are equipped with micrometer adjustments for full and light loads.

The Type IS-4 is furnished with a cast metal case finished in dull black with the raised parts of polished nickel.

The Type IS-5 is furnished with a glass cover as shown in the illustration, the metal parts being finished in dull black and nickel.

Approximate shipping weight, all voltages: 1 in a box, 65 pounds; 2 in a box, 115 pounds.



Type IS-4 Metal Cover

**Type IS-4, Back-Connected, Metal Cover**  
Single-Phase, A.C., 60 Cycles, 2-Wire

110 Volts			220 Volts		
Cat. No.	Amp.	Price Each	Cat. No.	Amp.	Price Each
187698	5	\$50.00	187706	5	\$52.00
187699	10	53.00	187707	10	55.00
187700	15	56.00	187708	15	58.00
187701	25	60.00	187709	25	62.00
187702	50	68.00	187710	50	70.00
187703	75	72.50	187711	75	74.50
187704	100	75.50	187712	100	77.50
187705	150	79.00	187713	150	81.00

**Type IS-4 for Use with Instrument Transformers**  
60 Cycles, 2-Wire

187730	5	\$50.00	187731	5	\$52.00
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**Type IS-5, Back-Connected, Glass Cover**  
Single-Phase, A.C., 60 Cycles, 2-Wire

110 Volts			220 Volts		
Cat. No.	Amp.	Price Each	Cat. No.	Amp.	Price Each
199221	5	\$75.00	199229	5	\$77.00
199222	10	78.00	199230	10	80.00
199223	15	81.00	199231	15	83.00
199224	25	85.00	199232	25	87.00
199225	50	93.00	199233	50	95.00
199226	75	97.50	199234	75	99.50
199227	100	100.50	199235	100	102.50
199228	150	104.00	199236	150	106.50

**Type IS-5 for Use with Instrument Transformers**  
60 Cycles, 2-Wire

199253	5	\$75.00	199254	5	\$77.00
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When ordering, state cycles desired. The above catalogue numbers cover 60 cycles only.



## G-E Types DS-6 and DS-7 Watthour Meters For Switchboard Service Polyphase, Alternating Current



Type DS-6

The Type DS-6 and DS-7 meters are designed expressly for switchboard service. In principle they are like the Type D-7 but are provided with housing as shown adapting them for mounting on panels. They possess the same electrical characteristics as the Type D-7. They are provided with special testing terminals so that access to the back of the panel is unnecessary in order to introduce testing instruments or to cut the meter out of service. Micrometer adjustments are provided for full and light load and

for the balance of elements. A suitable power-factor adjustment is also available.

The Type DS-6 is furnished in an attractive cast metal case finished in dull black with raised portions of polished nickel very similar to the single-phase Type IS-4.

The Type DS-7 is furnished with a glass cover, the metal parts being finished in dull black and nickel.

### Type DS-6 Watthour Meter

Back-connected, Metal Cover, Dull Black Finish

For 3-phase, 3-wire; 2-phase, 3-wire; 2-phase, 4-wire Circuits  
60 Cycles, Self-Contained  
110 Volts

Cat. No.	Amp.	Approx. Kilowatt Rating of Meter	H. P. Rating of Motor with which Meter can be Used	Price Each
187734	5	1	1	\$72.50
187735	10	2	2	77.00
187736	15	3	3	81.50
187737	25	5	5	88.50
187738	50	10	10	102.00
187739	75	15	15	112.00
187740	100	20	20	120.00
187741	150	30	30	136.50
220 Volts				
187742	5	2	2	\$79.50
187743	10	4	4	84.00
187744	15	6	6	88.00
187745	25	10	10	95.00
187746	50	20	20	108.50
187747	75	30	30	119.00
187748	100	40	40	128.00
187749	150	60	60	144.00
440 Volts				
187750	5	4	4	\$89.50
187751	10	8	8	94.50
187752	15	12	12	99.00
187753	25	20	20	106.50
187754	50	40	40	121.50
187755	75	60	60	132.50
187756	100	80	80	142.00
187757	150	120	120	160.00
550 Volts				
187758	5	5	5	\$89.50
187759	10	10	10	94.50
187760	15	15	15	99.00
187761	25	25	25	106.50
187762	50	50	50	121.50
187763	75	75	75	132.50
187764	100	100	100	142.00
187765	150	150	150	160.00

### Meters for Use with Transformers

Cat. No.	Amp.	Volts	Price Each	Cat. No.	Amp.	Volts	Price Each
187766	5	110	\$72.50	187768	5	440	\$89.50
187767	5	220	79.50	187769	5	550	89.50

## G-E Type DS-6 Watthour Meters

For Switchboard Service

Back-Connected, Metal Cover

For 3-Phase, 4-Wire Circuits Only; 60 Cycles, Self-Contained  
220 Volts, Delta; 127 Volts Y

Cat. No.	Amp.	Approx. Kilowatt Rating of Meter	H.P. Rating of Motor with which Meter can be Used	Price Each
188344	5	2	2	\$79.50
188345	10	4	4	84.00
188346	15	6	6	88.00
188347	25	10	10	95.00
188348	50	20	20	108.50
188349	75	30	30	119.00
440 Volts, Delta; 254 Volts Y				
188350	5	4	4	\$89.50
188351	10	8	8	94.50
188352	15	12	12	99.00
188353	25	20	20	106.50
188354	50	40	40	121.50
188355	75	60	60	132.50

### Meters for Use with Transformers

For Use with Current Transformers

Cat. No.	Amp.	Volts Δ	Volts Y	Price Each
188356	5	220	127	\$79.50
188357	5	440	254	89.50

### For Use with Current and Potential Transformers

188358	5	190	110	\$79.50
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Approximate net weight each, 39 pounds. Approximate shipping weight, one in box, 72 pounds; two in box, 140 pounds.

## Type DS-7 Watthour Meters

Back-Connected, Glass Cover

For 3-phase, 3-wire; 2-phase, 3-wire and 4-wire Circuits  
60 Cycles, Self-Contained  
110 Volts

Cat. No.	Amp.	Kw. Capacity Non-Ind. Loads	Motor H.P. Rating 2 and 3 Phase	Price Each
199257	5	1	1	\$110.00
199258	10	2	2	114.50
199259	15	3	3	119.00
199260	25	5	5	126.00
199261	50	10	10	139.50
199262	75	15	15	149.50
199263	100	20	20	157.50
199264	150	30	30	174.00
220 Volts				
199265	5	2	2	\$117.00
199266	10	4	4	121.50
199267	15	6	6	125.50
199268	25	10	10	132.50
199269	50	20	20	146.00
199270	75	30	30	156.50
199271	100	40	40	165.50
199272	150	60	60	181.50
440 Volts				
199273	5	4	4	\$127.00
199274	10	8	8	132.00
199275	15	12	12	136.50
199276	25	20	20	144.00
199277	50	40	40	159.00
199278	75	60	60	170.00
199279	100	80	80	179.50
199280	150	120	120	197.50
550 Volts				
199281	5	5	5	\$127.00
199282	10	10	10	132.00
199283	15	15	15	136.50
199284	25	25	25	144.00
199285	50	50	50	159.00
199286	75	75	75	170.00
199287	100	100	100	179.50
199288	150	150	150	197.50



## G-E D.C. Watthour Meters Types CS-3 and CS-4



Type CS-3 is an astatic watthour meter for d.c. service and is especially designed by an astatic arrangement of the armature and field coils for operation with accuracy in the presence of stray fields.

These meters can be furnished in back connected form, known as Type CS-4.

Always state normal operating voltage of circuit when ordering.

## G-E D.C. Watthour Meters



This meter embodies the double or astatic arrangement of field coil and armature as in the CS-3 meter. The magnets are astatically arranged and magnetically shielded by a laminated iron box which totally surrounds them. The resistance for the potential circuit is mounted within the case so that all parts are at the same relative temperature, minimizing errors arising from this source. It is furnished with glass cover, the finish of the meter being dull black and copper.

When ordering, state normal operating voltage of circuit.

### Type CS-3, Side Connected—Metal Cover 2-Wire

Cat. No.	Volts	Amp.	Motor Rating in H.P.	Height	Width	Depth	Ship. Wt. in Box	Price Each
195737		15	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	\$100.00
195738		25	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	105.00
195739		50	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	110.00
195740	100-105	75	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	115.00
195741	106-110	100	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	120.00
195742	111-115	150	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	130.00
195743	116-120	209	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	140.00
195744		300	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	160.00
195745		400	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	180.00
195746		600	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	210.00
195748		15	4	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	110.00
195749		25	7	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	117.50
195750		50	15	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	125.00
195751	200-210	75	20	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	132.50
195752	211-220	100	25	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	140.00
195753	221-230	150	40	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	150.00
195754	231-240	200	50	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	160.00
195755		300	80	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	180.00
195756		400	100	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	200.00
195757		600	160	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	230.00
196300		15	10	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	130.00
196301		25	15	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	140.00
196302		50	30	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	150.00
196303		75	50	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	160.00
196304	500-550	100	60	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	170.00
196305	551-600	150	100	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	180.00
196306		200	125	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	190.00
196307		300	200	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	210.00
196308		400	250	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	230.00
196309		600	400	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	260.00

3-Wire								
Cat. No.	Volts	Amp.	Motor Rating in H.P.	Height	Width	Depth	Ship. Wt. in Box	Price Each
195759		15	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	\$115.00
195760		25	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	125.00
195761		50	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	135.00
195762	200-210	75	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	145.00
195763	211-220	100	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	155.00
195764	221-230	150	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	165.00
195765	231-240	200	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	175.00
195766		300	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	195.00
195767		400	...	18 <sup>5</sup> / <sub>8</sub>	8 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	60	215.00

### Type CS-4, Back Connected—Metal Cover

When back connected type CS-3 meter is required, it is designated as type CS-4 and can be furnished at the price of the corresponding capacity of Type CS-3 meter plus the addition shown in the table below.

#### Additions for Type CS-4 Meters

The following prices will be added to the price of Type CS-3 meters when back connections are required, the meter then being known as the Type CS-4.				
Ampers	15-150	200-400	600	
Price, 2-Wire	each	\$4.00	\$3.00	\$3.00
Price, 3-Wire	each	5.00	4.00	
Price, Ratchet Device	each			\$7.75

### \*Type CS, Back Connected—Rectangular Glass Cover

Cat. No.	Volts	Amp.	Motor Rating in H.P.	OVERALL DIMENSIONS INCHES			Ship. Wt. in Box	Price Each
				Height	Width	Depth		
58235		50	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	\$250.00
58236		75	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	260.00
58237		100	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	270.00
58238	100-105	150	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	280.00
58239	106-110	200	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	290.00
58240	111-115	300	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	310.00
58241	116-120	400	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	225	330.00
58242		600	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	230	360.00
58243		800	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	235	390.00
58244		1200	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	245	420.00
58245		1500	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	255	450.00
58246		50	15	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	270.00
58247		75	20	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	280.00
58248		100	25	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	290.00
58249	200-210	150	40	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	305.00
58250	211-220	200	50	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	315.00
58251	221-230	300	80	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	335.00
58252	231-240	400	108	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	225	355.00
58253		600	160	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	230	390.00
58254		800	200	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	235	420.00
58255		1200	320	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	245	450.00
58256		1500	400	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	255	480.00
58268		50	30	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	290.00
58269		75	50	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	300.00
58270		100	60	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	210	310.00
58271		150	100	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	330.00
58272	500-550	200	120	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	215	340.00
58273	551-600	300	200	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	360.00
58274		400	240	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	225	380.00
58275		600	400	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	230	420.00
58276		800	500	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	235	450.00
58277		1200	800	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	245	480.00
58278		1500	1000	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	255	510.00

3-Wire								
Cat. No.	Volts	Amp.	Motor Rating in H.P.	Height	Width	Depth	Ship. Wt. in Box	Price Each
58257		50	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	\$285.00
58258		75	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	300.00
58259		100	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	220	315.00
58260	200-210	150	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	225	340.00
58261	211-220	200	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	225	355.00
58262	221-230	300	...	18 <sup>1</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	8 <sup>5</sup> / <sub>16</sub>	230	380.00
58263	231-240	400	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	235	410.00
58264		600	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	240	460.00
58265		800	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	245	510.00
58266		1200	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	255	560.00
58267		1500	...	20 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>16</sub>	265	610.00

### \*Type G-3, Back Connected—Glass Cover

2-Wire								
Cat. No.	Volts	Amp.	Motor Rating in H.P.	Height	Width	Depth	Ship. Wt. in Box	Price Each
58350	100-105	2000	...	...	...	...	280	\$550.00
58351	106-110	3000	...	...	...	...	300	600.00
58352	111-115	4000	...	...	...	...	310	650.00
58353	116-120	6000	...	...	...	...	350	750.00
58356	200-210	2000	550	...	...	...	280	580.00
58357	211-220	3000	800	...	...	...	300	630.00
58358	221-230	4000	1100	...	...	...	310	680.00
58359	231-240	6000	1600	...	...	...	350	780.00
58366		2000	1300	...	...	...	280	610.00
58367	500-550	3000	2000	...	...	...	300	660.00
58368	551-600	4000	2600	...	...	...	310	710.00
58369		6000	4000	...	...	...	350	810.00

\*For switchboard type meters whose dials are read frequently a faster moving register can be supplied by specifying it on the requisition.

†For 220-volt 3-wire service two 110-volt 2-wire meters are recommended. If required, prices on 3-wire Type G-3 meters will be given upon application.

**G-E Type C-15 D.C. Watthour Meters**



**Type C-15**  
2-wire

The Type C-15 direct-current watthour meter is identical in principle with the Type C-6 meter and retains those essential features of the latter which insure successful operation. It differs, however, in many of its mechanical details, such as in the use of the Type I-14 meter register and magnets, the D-7 meter cover and a material reduction in over-all dimensions and weight.

The back is an aluminum alloy casting following out as far as possible the idea introduced in the I-14 meter, i. e., one central casting to which all parts are attached. The terminal chamber is at the bottom with a separately concealed cover identical with the I-14.

This meter is built only in the smaller ratings of 5 to 15 amperes, 110 and 220 volts, 2 and 3-wire.

**2-wire—Bottom Connected—Metal Cover**

100-120 Volts			200-220 Volts		
Cat. No.	Amp.	Price Each	Cat. No.	Amp.	Price Each
269862	5	\$26.00	269864	5	\$29.00
269863	10	28.00	269865	10	33.00
279274	15	32.00	279275	15	39.00

**3-wire—Bottom Connected—Metal Cover**

200-220 Volts						
Cat. No.	Amp.	No. of Terminals	Price Each	Cat. No.	No. of Terminals	Price Each
269866	5	4	\$29.00	290855	5	\$29.00
269867	10	4	33.00	290856	10	33.00
279276	15	4	39.00	290857	15	39.00

State normal operating voltage of circuit when ordering.

**G-E Jewels and Pivots for Watthour Meters**

**Removable Sapphire Jewels**



No. 31320



No. 39924

Cat. No.	Description	Finish
31320	For Meters with Single Aluminum Disk Earlier than Types C and I	Nickel
6672	For Meters with Single Copper Disk (Similar to Cat. No. 31320 Excepting that It has a Heavier Spring)	Brass
39924	For Types I, C, CQ, IS-2, IS-3, D-3, DS-4, and DS-5 Meters	"
157465	For Types I-14, D-6, IS-4, DS-6 and DS-7 Meters	"
105210	For Type I-10 Meters	"

**Removable Diamond Jewels**

Cat. No.	Description	Finish
39925	For Types C and CS Meters	Brass
39926	" " E " G and Other Commutating Meters Earlier than Type C	Copper
118569	For Types CS, G-2 and G-3 Meters	Nickel

**Pivots**

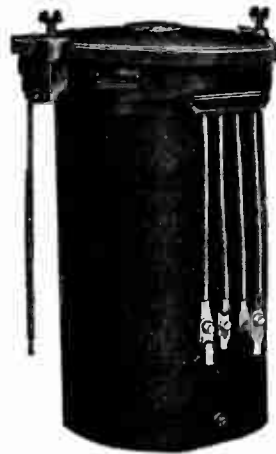


Cat. No.	Description	Finish
295309	Box of 25 Meter Pivots	.....

Prices upon application.

**G-E Type H Distribution Transformers**

**Single-Phase, 60 Cycles, Self-Cooled**



G-E Single-Phase Distribution Transformers are built on the distributed core, which has been found best adapted both electrically and mechanically to this type of transformer.

Various coil constructions have been developed to meet the particular requirements of designs depending upon unit size and voltage rating. In the larger sizes, circular coils of either disk or cylindrical form are used on account of their greatly superior mechanical qualities, and the facilities they give for rigid mechanical support.

The windings of these G-E Distribution Transformers are carefully dried and filled under

pressure with an insulating compound. This process not only removes all moisture from the insulation and seals the windings against the entrance of moisture, but also makes the winding a solid mass, thus giving it greater mechanical strength and heat conductivity. In the core-wound transformers this treatment is applied to the complete unit, consisting of core and coils. In the form-wound transformers the complete winding is treated as a unit before assembly on the core.

**For Operation on 2200-2300-2400-Volt Circuits**

**APPLICATION.**—By connection of the low voltage leads outside the tank, transformers are arranged for series, multiple of three-wire service, with the exception of sizes 150 and 200 kv-a., which are suitable for series and three-wire service only.

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUPS.**—Two cutouts, Cat. No. 104227 are furnished with sizes up to 50 kv-a., inclusive. When cutouts are desired for sizes 75 to 200 kv-a., inclusive, two Cat. No. 6x241 should be ordered separately.

**SUSPENSION HOOKS.**—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

**Name Plate Voltage Rating**

Line No. 1		Line No. 2	
High Voltage	Low Voltage	High Voltage	Low Voltage
2200/3810Y	to 110/220		
2300/4000Y	to 115/230		
2400/4160Y	to 120/240	2200/3810Y	to 122/244

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Required Gallons	Approx. Shipping Wt., Lbs. Incl. Oil
79047	79041	1.5	2 1/2	180
79050	79044	3	3	230
165651	165751	5	5 1/4	335
165652	165752	7.5	8 1/4	450
165653	165753	10	14 1/2	510
165654	165754	15	19	650
165656	165756	25	23 1/2	815
198389	198392	37.5	31	1150
165659	165759	50	34	1350
165660	165760	75	50	1770
165661	165761	100	44	1955
172735	172741	150	72	2330
172736	172742	200	152	3940

## G-E Type H Distribution Transformers

Single-Phase, 60 Cycles, Self-Cooled

For Operation on 440-460-480 and 550-575-600-Volt Circuits

APPLICATION.—By connection of the low voltage leads outside the tank, transformers are arranged for series, multiple or three-wire service.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Two cutouts Cat. No. 104227 are furnished with sizes up to 10 kv-a., inclusive, in the 440-volt class and with sizes up to 15 kv-a., inclusive, in the 550-volt class. When cutouts are desired for sizes 15 and 25 kv-a., in the 440-volt class or for sizes 25 and 37.5 kv-a., in the 550-volt class, two Cat. No. 6x241 should be ordered separately.

SUSPENSION HOOKS.—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

Name Plate Voltage Rating		Kv-a. Cont. Rating 55° C. Rise	Oil Required Gal.	Approx. Shipping Wt., Incl. Oil
High	Low			
440 to 110/220	550 to 110/220	1.5	2 1/2	180
460 to 115/230	575 to 115/230	3	3	230
480 to 120/240	600 to 120/240	5	5 1/4	335
Cat. No.	Cat. No.			
43394	76745	7.5	9	455
43397	76748	10	15	515
43399	76750	15	19	650
43400	76751	25	23 1/2	815
43401	76752	37.5	31	1150
43402	76753	50	34	1350
43404	76755	75	50	1770
198400	198396	100	44	1955
43407	76758			
78958	78960			
78959	78961			

## G-E Type H Distribution Transformers

Single-phase, 60 Cycles, Self-cooled

For Operation on 2200-2300-2400-volt Circuits

APPLICATION.—By connection of the low voltage leads outside the tank, transformers are arranged for series and multiple service.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Two cutouts Cat. No. 104227 are furnished with sizes up to 50 kv-a., inclusive. When cutouts are desired for sizes 75 to 200 kv-a., inclusive, two Cat. No. 6x241 should be ordered separately.

SUSPENSION HOOKS.—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

### Name Plate Voltage Rating

Line No. 1		Line No. 2		Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gal.	Approx. Shipping Wt., Incl. Oil, Lbs.
High Voltage	Low Voltage	High Voltage	Low Voltage			
2200/3810Y	to 220/440	2200/3810Y	to 244/488			
2300/4000Y	" 230/460					
2400/4160Y	" 240/480					
Line No. 1	Line No. 2					
Cat. No.	Cat. No.					
224951	79178	1.5	2	175		
197128	79181	3	3	230		
197129	180182	5	5 1/4	335		
197130	180183	7.5	8 1/4	450		
197131	180184	10	14 1/2	510		
197132	180185	15	19	650		
197134	180187	25	23 1/2	815		
198408	198393	37.5	31	1150		
197137	180190	50	34	1350		
197138	180191	75	50	1770		
197139	180192	100	44	1955		
197141	148136	150	72	2330		
197142	148137	200	152	3940		

## G-E Type H Distribution Transformers

Single-phase, 60 Cycles, Self-cooled

For Operation on 2300-volt Circuits

APPLICATION.—By connection of the low-voltage leads outside the tank, transformers having low-voltage rating of 115/230 are arranged for series, multiple or three-wire service, with the exception of sizes 150 and 200 kv-a. which are suitable for series and three-wire service only. Transformers having low-voltage rating of 230/360 are suitable for series and multiple service only.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Two cutouts Cat. No. 104227 are furnished with sizes up to 50 kv-a., inclusive.

When cutouts are desired for sizes 75 to 200 kv-a., inclusive, two Cat. No. 6x241 should be ordered separately.

SUSPENSION HOOKS.—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

### Name Plate Voltage Rating

High Voltage 2070/2185/2300/4000Y to Low Voltage 115/230		High Voltage 2070/2185/2300/4000Y to Low Voltage 230/460		Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
Low Voltage		Low Voltage				
115/230	230/460	115/230	230/460			
Cat. No.	Cat. No.	Cat. No.	Cat. No.			
224948	224949	224948	224949	1.5	2 1/2	175
200407	222153	200407	222153	3	3	230
200408	222154	200408	222154	5	5 1/4	335
200409	222155	200409	222155	7.5	8 1/4	450
200410	222156	200410	222156	10	14 1/2	510
200411	222157	200411	222157	15	19	650
200413	222158	200413	222158	25	23 1/2	815
198407	222159	198407	222159	37.5	31	1150
200416	222160	200416	222160	50	34	1350
200417	222161	200417	222161	75	50	1770
200418	222162	200418	222162	100	44	1955
200420	222163	200420	222163	150	72	2330
200421	222164	200421	222164	200	152	3940

## G-E Type H Distribution Transformers

Single-phase, 60 Cycles, Self-cooled

For Operation on 1100, 1150, 1200-Volt Circuits

APPLICATION.—By connection of the low-voltage leads outside the tank, transformers are arranged for series, multiple or three-wire service.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Two cutouts, Cat. No. 104227 are furnished with sizes up to 25 kv-a., inclusive. When cutouts are desired for sizes 37 1/2 to 75 kv-a., inclusive, two Cat. No. 6x242 should be ordered separately, and two Cat. No. 6x241 for 100 kv-a.

SUSPENSION HOOKS.—Suspension hooks are provided with, and included in the weight, of all sizes up to 100 kv-a., inclusive.

### Name Plate Voltage Rating

High Voltage 1100/2200/3810Y to Low Voltage 110/220		High Voltage 1150/2300/4000Y to Low Voltage 115/230		High Voltage 1200/2400/4160Y to Low Voltage 120/240	
High Voltage	Low Voltage	High Voltage	Low Voltage	High Voltage	Low Voltage
1100/2200	110/220	1150/2300	115/230	1200/2400	120/240
Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
224950	79179	224950	79179	224950	79179
195657	79180	195657	79180	195657	79180
195658	79181	195658	79181	195658	79181
24008	79182	24008	79182	24008	79182
24009	79183	24009	79183	24009	79183
24010	79184	24010	79184	24010	79184
24012	79185	24012	79185	24012	79185
198388	79186	198388	79186	198388	79186
24015	79187	24015	79187	24015	79187
78970	79188	78970	79188	78970	79188
78971	79189	78971	79189	78971	79189

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled

For Operation on 2200, 2300, 2400-volt Circuits

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Two cutouts Cat. No. 104227 are furnished with sizes up to 50 kv-a., inclusive. When cutouts are desired for sizes 75 to 200 kv-a., inclusive, two Cat. No. 6x241 should be ordered separately.

**SUSPENSION HOOKS.**—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

**Name Plate Voltage Rating**

High Voltage 2200/3810Y to Low Voltage 550  
High Voltage 2300/4000Y to Low Voltage 575  
High Voltage 2400/4160Y to Low Voltage 600

Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
224947	1.5	2	175
207369	3	3	230
207370	5	5 1/4	335
207371	7.5	8 1/4	450
207372	10	14 1/2	510
207373	15	19	650
207374	25	23 1/2	815
207375	37.5	31	1150
207376	50	34	1350
207377	75	50	1770
207378	100	44	1945
207380	150	135	3600
207381	200	149	3920

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled

For Operation on 3300-volt Circuits

**APPLICATION.**—By connection of the low-voltage leads outside the tank, transformers are arranged for series, multiple, or three-wire service, with the exception of 150 and 200 kv-a. which are suitable for series and three-wire service only.

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Two cutouts Cat. No. 104227 are furnished with sizes up to 50 kv-a., inclusive.

When cutouts are desired for sizes 75 to 200 kv-a., inclusive, two Cat. No. 6X241 should be ordered separately.

**SUSPENSION HOOKS.**—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

**Name Plate Voltage Rating**

High Voltage 3300 to Low Voltage 122/244

Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
79162	1.5	2	175
79165	3	3	230
79167	5	5 1/4	335
79168	7.5	8 1/4	450
79169	10	14 1/2	510
79170	15	19	650
79172	25	23 1/2	815
198404	37.5	31	1150
79175	50	34	1350
78972	75	50	1770
78973	100	44	1955
172732	150	72	2330
172733	200	152	3940

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled

For Operation on 4000-volt Circuits

These transformers are to provide service where it is more economical or desirable to connect transformers across phases than between line and neutral on 2300-4000 volt Y circuits. The use of these transformers gives the same service voltages as 10:1 ratio transformers connected between line and neutral.

**APPLICATION.**—By connection of the low-voltage leads outside the tank, transformers are arranged for series, multiple or three-wire service, with the exception of 150 and 200 kv-a. which are suitable for series and three-wire service only.

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Cutouts are not furnished with these transformers. When cutouts are desired two Cat. No. 6X243 should be ordered separately.

**SUSPENSION HOOKS.**—Suspension hooks are provided with, and included in the weight of all sizes up to 100 kv-a., inclusive.

**Name Plate Voltage Rating**

High Voltage 4000 to Low Voltage 115/220

No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
246241	1.5	2 1/2	180
246242	3	3	230
246243	5	5 1/4	335
246244	7.5	8 1/4	450
246245	10	14 1/2	510
246246	15	19	650
246247	25	23 1/2	815
246248	37.5	31	1150
246249	50	34	1350
246250	75	50	1770
246251	100	44	1955
246252	150	72	2330
246253	200	152	3940

**G-E Type H Distribution Transformers**

Single-Phase, 60 Cycles, Self-Cooled

For Operation on 2200-4400, 2300-4600 and 2400-4800-Volt Circuits

**APPLICATION.**—By connection of the low voltage leads outside the tank, transformers are arranged for series, multiple or three-wire service, with the exception of sizes 150 and 200 kv-a., which are suitable for series and 3-wire service only.

**SERVICE.**—Suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Cutouts are not furnished with these transformers. When cutouts are desired, two of Cat. No. listed below should be ordered separately.

Transformer High Voltage Rating	Kv-a. Sizes Incl.	Cutouts Recommended Cat. No.	Transformer High Voltage Rating	Kv-a. Sizes Incl.	Cutouts Recommended Cat. No.
4400 to 4800	Up to 75	6X242	2200 to 2400	Up to 50	104227
4400 to 4800	100 to 200	6X241	2200 to 2400	75 to 200	6X241

**SUSPENSION HOOKS.**—Suspension hooks are provided with all sizes up to 100 kv-a., inclusive.

Transformer weights include suspension hooks up to 100 kv-a., inclusive.

**Name Plate Voltage Rating**

Line 1			Line 2		
High Voltage	Low Voltage		High Voltage	Low Voltage	
2200/4400/7620Y	to 110/220		2200/4400/7620Y	to 122/244	
2300/4600/8000Y	to 115/230				
2400/4800/8320Y	to 120/240				
Line No. 1	Line No. 2		Kv-a. Cont. Rating 55° C. Rise	Gal. Oil Req'd	Approx. Ship Wt., Incl. Oil, Lbs.
Cat. No.	Cat. No.				
224953	224952		1.5	2 1/2	205
195645	195639		3	5 1/4	325
195646	195640		5	5 1/4	335
79927	79910		7.5	8 1/4	450
79928	79911		10	14 1/2	510
79929	79912		15	19	650
79931	79914		25	33	960
198391	198390		37.5	33	1200
79934	79917		50	36	1405
79935	79918		75	50	1770
79936	79919		100	44	1955
172729	172726		150	72	3540
172730	172727		200	152	3890



## G-E Type H Distribution Transformers

**Single-phase, 60 Cycles, Self-cooled**  
For Operation on 2200-4400, 2300 and 2400-4800-volt Circuits

**APPLICATION.**—By connection of the low-voltage leads outside the tank, transformers are arranged for series and multiple service only. All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Cutouts are not furnished with these transformers. When cutouts are desired, two of Cat. No. listed below should be ordered separately.

Transformer High Voltage Rating	Kv-a. Sizes Incl.	Cutouts Recommended Cat. No.	Transformer High Voltage Rating	Kv-a. Sizes Incl.	Cutouts Recommended Cat. No.
4400 to 4800	Up to 75	6X242	2200 to 2400	Up to 50	104227
4400 "	4800 100 "	200	6X241	2200 to 2400	75 to 200 6X241

**SUSPENSION HOOKS.**—Suspension hooks are provided with all sizes up to 100 kv-a., inclusive. Transformer weights include suspension hooks, up to 100 kv-a., inclusive.

### Name Plate Voltage Rating

High Voltage 2200/4400/7620Y to Low Voltage 220/440  
High Voltage 2300/4600/8000Y to Low Voltage 230/460  
High Voltage 2400/4800/8320Y to Low Voltage 240/480

Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Ship. Wt., Incl. Oil, Lbs.
224954	1.5	2 3/4	205
224434	3	5 1/4	325
224435	5	8 1/4	335
224436	7.5	11 1/4	450
224437	10	14 1/2	510
224438	15	19	650
224439	25	33	960
224440	37.5	33	1200
224441	50	36	1405
224442	75	50	1770
224443	100	44	1955
224444	150	72	2330
224445	200	152	3940

## G-E Type H Distribution Transformers

**Single-Phase, 60 Cycles, Self-cooled**  
For Operating on 6600-Volt Circuits

**APPLICATION.**—For operation on 6600-volt circuits and for supplying service voltages 600 and below. Transformers of these name plate ratings are also designed for operation as follows:

High Voltage Rating	Low Voltage Rating		
	Line No. 1	Line No. 2	Line No. 3
6600/11430Y/ 6200/6000/5700	to 110/220	220/440	550
7200/12470Y/ 6875/6545/6220	to 120/240	240/480	600

By connection of the low voltage leads outside the tank, transformers having low voltage rating of 115/230 are arranged for series, multiple or three-wire service, with the exception of sizes 150 and 200, which are suitable for series and three-wire service only. Transformers having low voltage rating of 230/460 are suitable for series and multiple service only. Suitable for indoor or outdoor installation.

**SUSPENSION HOOKS.**—Provided with, and included in the weight of all sizes up to 50 kv-a., inclusive.

### Name Plate Voltage Rating

Line No. 1, High Voltage, 6900/11950Y/6585/6275/5960  
To Low Voltage, 115/230  
Line No. 2, High Voltage, 6900/11950Y/6585/6275/5960  
To Low Voltage, 230/460  
Line No. 3, High Voltage, 6900/11950Y/6585/6275/5960  
To Low Voltage, 575

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Line No. 3 Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Required Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
199346	199374	204392	1.5	5 1/2	290
199347	199375	204393	3	8 1/2	315
199348	199376	204394	5	11 1/2	445
199349	199377	204395	7.5	13 1/2	505
199350	199378	204396	10	13	545
199351	199379	204397	15	16	695
199352	199380	204398	25	31	995
199353	199381	204399	37.5	30	1150
199354	199382	204400	50	37	1475
199355	199383	204401	75	50	1990
199356	199384	204402	100	48	2130
199358	199386	204404	150	70	2710
199359	199387	204405	200	168	4460

## G-E Type H Distribution Transformers

**Single-phase, 60 Cycles, Self-cooled**  
For Operation on 6600-volt Circuits

**APPLICATION.**—For operation on 6600-volt circuits and for supplying 2300 or 4000-volt distribution and motors.

Transformers having voltage rating of 6600/11430Y to 2300 are, when operated in bank, suitable for transforming from 6600 to 2300; from 6600 to 4000Y or from 11430Y to 2300. They should not be used connected in Y on both high- and low-voltage sides simultaneously to transform from 11430Y to 4000Y as this connection may result in the presence of excessive stresses in the windings due to harmonic voltages.

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Cutouts are not included with these transformers.

**SUSPENSION HOOKS.**—Suspension hooks are provided with and included in the weight of all sizes up to 50 kv-a., inches.

### Name Plate Voltage Rating

High Voltage 6600/11430Y/6270 5940  
To Low Voltage 2300 Delta

Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
204406	1.5	5 1/2	285
204407	3	8 1/2	305
204408	5	11 1/2	435
204409	7.5	13 1/2	500
204410	10	13	530
204411	15	16	665
204412	25	31	985
204413	37.5	30	1145
204414	50	37	1465
204415	75	50	1945
204416	100	48	2075
204418	150	70	2710
204419	200	162	4240

## G-E Type H Distribution Transformers

**Single-phase, 60 Cycles, Self-cooled**  
For Operation on 11000-volt Circuits

**APPLICATION.**—For 11000-volt circuits and for supplying service voltages 600 and below. Transformers of these name plate ratings are also designed for operation as follows:

High Voltage Rating	Low Voltage Rating		
	Line No. 1	Line No. 2	Line No. 3
11000/10450/9900	to 110/220	220/440	550

By connection of the low-voltage leads outside the tank, transformers having low-voltage rating of 115/230 are arranged for series, multiple or three-wire service with the exception of sizes 150 and 200, which are suitable for series and three-wire service only. Transformers having low voltage rating of 230/460 are suitable for series and multiple service only.

**SERVICE.**—All sizes are suitable for outdoor or indoor installation.

**FUSIBLE PRIMARY CUTOUTS.**—Cutouts are not furnished with these transformers.

**SUSPENSION HOOKS.**—Provided with and included in weight of all sizes up to 50 kv-a. inclusive.

### Name Plate Voltage Rating

Line No. 1 High Voltage, 11500/10925/10350  
To Low Voltage 115/230  
Line No. 2 High Voltage, 11500/10925/10350  
To Low Voltage, 230/460  
Line No. 3 High Voltage, 11500/10925/10350  
To Low Voltage, 575

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Line No. 3 Cat. No.	Kv-a. Cont. Rating 55° C. Rise	Oil Req'd Gals.	Approx. Shipping Wt., Lbs. Incl. Oil
204420	204432	204444	2.5	5 1/2	310
204421	204433	204445	5	8 1/2	440
204422	204434	204446	10	13	550
204423	204435	204447	15	16	680
204424	204436	204448	25	31	1005
204425	204437	204449	37.5	30	1170
204426	204438	204450	50	37	1475
204427	204439	204451	75	50	1980
204428	204440	204452	100	48	2150
204430	204442	204454	150	70	2710
204431	204443	204455	200	168	4460

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled  
For Operation on 11000-volt Circuits

APPLICATION.—For operation on 11000-volt circuits and for supplying 2300 or 4000 volt distribution and motors.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are provided with all sizes up to 50 kv-a. inclusive.

Transformer weights include suspension hooks up to 50 kv-a. inclusive.

**Name Plate Voltage Rating**  
High Voltage, 11000/10450/9900  
To Low Voltage 2300/4000Y

Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt., Lbs. Incl. Oil
204456	2.5	5½	310
204457	5	8½	430
204458	10	13	540
204459	15	16	670
204460	25	31	980
204461	37.5	40	1255
204462	50	37	1415
204463	75	50	1930
204464	100	48	2095
204466	150	70	2710
204467	200	162	4240

**G-E Type H Distribution Transformers**

Single-phase 60 Cycles, Self-cooled  
For Operation on 13200-volt Circuits

APPLICATION.—For 13200-volt circuits and for supplying service voltages 600 and below. Transformers of these name plate ratings are also designed for operation as follows:

**Low Voltage Rating**

High Voltage Rating 13200/12540/11880 to Line No. 1 110/220  
Line No. 2 230/440  
Line No. 3 550

By connection of the low-voltage leads outside the tank, transformers having low-voltage rating of 115/230 are arranged for series, multiple or three-wire service, with the exception of 150 and 200 kv-a., which are suitable for series and three-wire service only. Transformers having low-voltage rating of 230/460 are suitable for series and multiple service only.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Provided with and included in weights of all sizes up to 50 kv-a., inclusive.

**Name Plate Voltage Rating**

Line No. 1 High Voltage, 13800/13110/12420  
To Low Voltage, 115/230  
Line No. 2 High Voltage, 13800/13110/12420  
To Low Voltage, 230/460  
Line No. 3 High Voltage, 13800/13110/12420  
To Low Voltage, 575

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Line No. 3 Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt. Incl. Oil, Lbs.
204468	204480	204492	2.5	5½	310
204469	204481	204493	5	8½	440
204470	204482	204494	10	13	550
204471	204483	204495	15	16	685
204472	204484	204496	25	31	1005
204473	204485	204497	37.5	40	1265
204474	204486	204498	50	37	1455
204475	204487	204499	75	50	1920
204476	204488	204500	100	48	2080
204478	204490	204502	150	70	2710
204479	204491	204503	200	168	4450

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled

For Operation on 13200-volt Circuits

APPLICATION.—For operation on 13200-volt circuits and for supplying 2300 or 4000-volt distribution and motors.

SERVICE.—All sizes are suitable for outdoor or indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are provided with all sizes up to 50 kv-a., inclusive.

Transformer weights include suspension hooks up to 50 kv-a., inclusive.

**Name Plate Voltage Rating**

High Voltage 13200/12540 11880  
To Low Voltage 2300/4000Y

Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt., Incl. Oil, Lbs.
204504	2.5	11½	375
204505	5	11	430
204506	10	18	580
204507	15	25	705
204508	25	27	960
204509	37.5	54	1440
204510	50	55	1600
204511	75	75	2690
204512	100	68	2810
204514	150	135	4140
204515	200	174	4710

**G-E Type H Distribution Transformers**

Single-phase, 60 Cycles, Self-cooled  
For Operation on 22000-volt Circuits

APPLICATION.—For operation on 22000-volt circuits and for supplying service voltages 600 and below. Transformers of these name plate ratings are also designed for operation as follows:

**Low Voltage Rating**

High Voltage Rating 22000/20900/19800 to Line No. 1 110/220  
Line No. 2 220/440  
Line No. 3 550

By connection of the low-voltage leads outside the tank, transformers having low-voltage rating of 115/230 are arranged for series, multiple or three-wire service with the exception of 150 and 200 kv-a. which are suitable for series and three-wire service only. Transformers having low-voltage rating of 230/460 are suitable for series and multiple service only.

SERVICE.—All sizes are suitable for outdoor and indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are not provided with these transformers.

**Name Plate Voltage Rating**

Line No. 1, High Voltage, 23000/21850/20700  
To Low Voltage, 115/230  
Line No. 2, High Voltage, 23000/21850/20700  
To Low Voltage, 230/460  
Line No. 3, High Voltage, 23000/21850/20700  
To Low Voltage, 575

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Line No. 3 Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt. Incl. Oil, Lbs.
204561	204572	204583	5	36	965
204562	204573	204584	10	43½	1185
204563	204574	204585	15	42	1230
204564	204575	204586	25	54	1470
204565	204576	204587	37.5	60	1780
204566	204577	204588	50	61	1910
204567	204578	204589	75	94	2700
204568	204579	204590	100	116	3140
204570	204581	204592	150	160	4170
204571	204582	204593	200	200	5060

## G-E Type H Distribution Transformers

Single-Phase, 60 Cycles, Self-Cooled  
For Operation on 22000-Volt Circuits

APPLICATION.—For operation on 22000-volt circuits and for supplying 2300 or 4000-volt distribution and motors.

SERVICE.—All sizes are suitable for outdoor and indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are not provided with these transformers.

Name Plate Voltage Rating  
High Voltage, 22000/20900/19800  
to Low Voltage, 2300/4000Y

Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt. Incl. Oil, Lbs.
204594	5	36	965
204595	10	43½	1185
204596	15	42	1230
204597	25	54	1470
204598	37.5	60	1780
204599	50	58	1910
204600	75	60	2700
204601	100	115	3140
204603	150	120	4170
204604	200	154	5060

## G-E Type H Distribution Transformers

Single-Phase, 60 Cycles, Self-Cooled  
For Operation on 33000-Volt Circuits

APPLICATION.—For operation on 33000-volt circuits and for supplying 2300 or 4000-volt distribution and motors.

SERVICE.—All sizes are suitable for outdoor and indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are not provided with these transformers.

Name Plate Voltage Rating  
High Voltage 33000/31350/29700  
to Low Voltage 2300/4000Y

Cat. No.	Kv-a. Cont. 55° C Rise	Gals. Oil Req'd	Approx. Shipping Wt. Incl. Oil, Lbs.
204635	10	44	1185
204636	15	41½	1245
204637	25	53½	1500
204638	37.5	60	1800
204639	50	58	1840
204640	75	60	2160
204641	100	115	3080
204643	150	162	4100
204644	200	157	4550

## GE-Type H Distribution Transformers

Single-phase, 60 Cycles, Self-cooled  
For Operation on 33000-volt Circuits

APPLICATION.—For operation on 33000-volt circuits and for supplying service voltages 600 and below. Transformers of these name plate ratings are also designed for operation as follows:

High Voltage Rating	Line No. 1	Line No. 2	Line No. 3
33000/31360/29700	to 110/220	220/440	550

By connection of the low-voltage leads outside tank, transformers having low-voltage rating of 115/230 are arranged for series, multiple or three-wire service with the exception of sizes 150 and 200 which are suitable for series and three-wire service only. Transformers having low-voltage rating of 230/460 are suitable for series and multiple service only.

SERVICE.—All sizes are suitable for outdoor and indoor installation.

FUSIBLE PRIMARY CUTOUTS.—Cutouts are not furnished with these transformers.

SUSPENSION HOOKS.—Suspension hooks are not provided with these transformers.

Name Plate Voltage Rating  
Line No. 1, High Voltage, 34500/32775/31050  
to Low Voltage, 115/230  
Line No. 2, High Voltage, 34500/32775/31050  
to Low Voltage, 230/460  
Line No. 3, High Voltage, 34500/32775/31050  
to Low Voltage, 575

Line No. 1 Cat. No.	Line No. 2 Cat. No.	Line No. 3 Cat. No.	Kv-a. Cont. 55° C Rise	Oil Req'd Gals.	Approx. Shipping Wt. Incl. Oil, Lbs.
204605	204615	204625	10	43½	1195
204606	204616	204626	15	41	1250
204607	204617	204627	25	53	1515
204608	204618	204628	37.5	60	1820
204609	204619	204629	50	61	1950
204610	204620	204630	75	94	2700
204611	204621	204631	100	115	3150
204613	204623	204633	150	162	4230
204614	204624	204634	200	200	5130

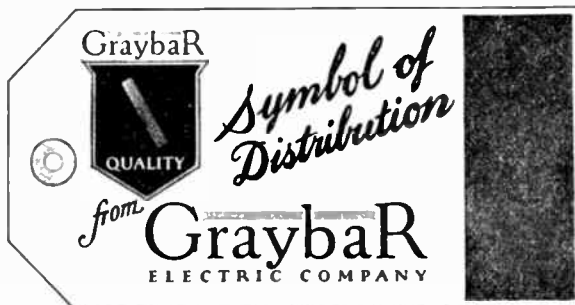
## G-E Transil Oil

For Use in Transformers

The General Electric Company furnishes with all its oil immersed transformers, an insulating oil which bears the registered trade name of "Transil" and which has characteristics necessary for the successful operation of transformers of their manufacture.

These characteristics are constantly being checked by means of tests on samples of oil taken from various shipments. For this reason and because the quality of oil used in transformers has such a direct influence on the life and successful operation of this class of apparatus it is obviously important that "Transil" Oil be used in transformers manufactured by the General Electric Company.

Prices and further information regarding "Transil" Oil will be furnished on request.



**G-E Insulator Type Primary Cutouts**

Single Pole, 30 Amperes, 2500 Volts



Cat. No. 104227 cutout is provided with spring catch contact with 2 binding screws.

Price, No. 104227.....each \$2.00  
 Price, No. 246477, Base.....each 1.25  
 Price, No. 104577, Plug Only.....each .75

Cat. No. 260276 combination safety plug puller and switch hook. Over all length, 42 inches.  
 Price, No. 260276.....each \$5.00

**Fuse Links for No. 104227**



Cat. No.	Amp.	Std. Pkg.	Price Each	Cat. No.	Amp.	Std. Pkg.	Price Each
259480	1	100	\$.13	259485	15	100	\$.13
259481	2	100	.13	259486	20	100	.13
259482	3	100	.13	259487	25	100	.13
259483	5	100	.13	259488	30	100	.13
259484	10	100	.13	.....	..	...	...

**P & S Porcelain Primary Fuse Blocks**

Single-Pole

30 Amperes, 2500 Volts

This cutout is single-pole and will operate with entire satisfaction under a load of 30 amperes at 2500 volts.

Smooth, highly glazed body.

The plug is designed with a broad hand shield and long heavy fluted handle, for heavy gloves. Will not slip.

Wood screws for fastening the cutouts to the crossarms with each cutout.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
139½	Brown Glazed Cutout with Plug.....	10	30	195	\$1.75
139½C	Brown Glazed Case only.....	10	30	130	1.22
141	Plug Only, for No. 139½.....	10	30	22	.63
142	Contacts No. 139½.....	10	30	3	.44
144	Contacts No. 141.....	10	30	1	.11
145	Contacts No. 139½C.....	10	30	3	.33

**G-E Expulsion Type Primary Cutouts**



The design of these cutouts embodies the following features:

**SAFETY.**—Fuse holder is removed from circuit when door is opened—door closes upward, protecting lineman should cutout be closed on a short circuit—door can be opened or closed by a switch hook; cutout hangs low on the crossarm.

**RELIABILITY.**—Expulsion principle of operation—gases are expelled outside housing—interlocking barriers prevent conducting gas from short-circuiting terminals—high interrupting capacity.

Heavy clips insure good contact and prevent overheating.  
**SIMPLICITY.**—Cutouts are suitable for right or left-hand entrance leads. Link holder can be removed and replaced with one hand; cannot be replaced upside down. Hanger adjustable for 2¼ to 4¼-inch crossarm; fuse holder in which fuses can be renewed easily.

**DURABILITY.**—Glazed porcelain housing with molded compound door and galvanized hanger.

**60 Amperes, 0 to 2500/4000 Grounded Y Volts**

Interrupting Capacity, 1500 Amperes at 60 Cycles  
 Cat. No. 6X243 is a primary cutout complete with link holder in porcelain box. Arranged for both right and left hand entrance. No fuse links.

Price, No. 6X243.....each \$5.75  
 Price, No. 10X986, Link Holders.....each 1.50  
 Price, No. 16X179, Disconnecting Blade.....each 1.50

**Fuse Links**

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
10X192	1	\$.20	10X196	10	\$.20	10X200	30	\$.20
10X193	2	.20	10X197	15	.20	10X201	40	.20
10X194	3	.20	10X198	20	.20	10X202	50	.20
10X195	5	.20	10X199	25	.20	10X203	60	.20

**60 Amperes, 7500 Volts**

Cat. No. 6X242 cutout is suitable for either right or left hand entrance. Furnished complete with link holder enclosed in porcelain box.

Price, No. 6X242.....each \$9.50  
 Price, No. 10X985, Link Holder.....each 1.75  
 Price, No. 16X178, Disconnecting Blade.....each 1.75

**Fuse Links**

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
10X180	1	\$.20	10X184	10	\$.20	10X188	30	\$.20
10X181	2	.20	10X185	15	.20	10X189	40	.20
10X182	3	.20	10X186	20	.20	10X190	50	.20
10X183	5	.20	10X187	25	.20	10X191	60	.20

**150 Amperes, 0 to 5000 Volts**

Interrupting Capacity 3000 Amperes at 60 Cycles  
 Cat. No. 6X241 primary cutout is furnished complete with link holder in porcelain box. Arranged for both right and left hand entrance. No fuse links.

Price, No. 6X241.....each \$16.00  
 Price, No. 260348, Link Holder.....each 3.00  
 Price, No. 297372, Disconnecting Blade.....each 3.00

**Fuse Links**

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
261058	5	\$.25	261062	40	\$.25	295538	125	\$.25
261059	10	.25	261063	50	.25	295539	150	.25
261060	15	.25	261064	75	.25	.....	.....	.....
261061	25	.25	261065	100	.25	.....	.....	.....

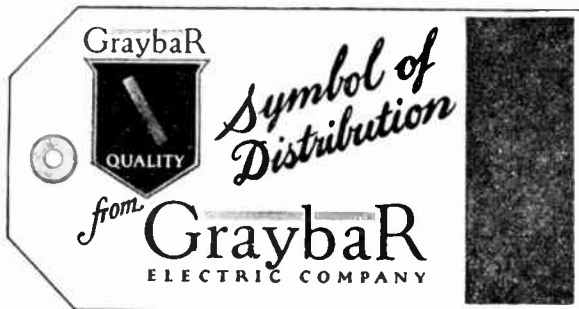
**150 Amperes, 0 to 7500/12500 Grounded Y Volts**

Interrupting Capacity 3000 Amperes at 60 Cycles  
 Cat. No. 6X240 primary cutout is furnished complete with link holder in porcelain box. Arranged for both right and left-hand entrance. No fuse links.

Price, No. 6X240.....each \$19.00  
 Price, No. 260348, Link Holder.....each 3.00  
 Price, No. 297372, Disconnecting Blade.....each 3.00

**Fuse Links**

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
261058	5	\$.25	261062	40	\$.25	295538	125	\$.25
261059	10	.25	261063	50	.25	295539	150	.25
261060	15	.25	261064	75	.25	.....	.....	.....
261061	25	.25	261065	100	.25	.....	.....	.....



## G-E D & W Oil Fuse Cutouts



**Subway Type**  
100-200 Amperes

it makes it suitable for use near the source of supply on large systems. Its reliability has been proved by the service records of over 85000 units installed over a period of 12 years and by exhaustive short-circuit tests made under exacting conditions of large generator capacity and low power-factor.

This cutout is available for pole or subway service and for current ratings from 50 to 300 amperes, and voltages up to 7500.

When ordering specify catalogue number and in addition the type, rated ampere capacity and voltage.

The design of this cutout embodies, to a certain extent, the desirable characteristics of both the fusible cutout and the oil circuit breaker. The fusible element is retained, yet a positive, rapid break of the circuit is made under oil. Some desirable features are:

**Safety in renewal**—fuse carrier is locked in place before circuit is closed.

**Safety in operation**—ample strength against internal pressure—are under oil prevents ignition of any inflammable material or gases in manholes.

**Reliability**—fuse element under oil prevents deterioration from oxidation and electrolysis.

**Simplicity**—fuses are quickly and easily replaced.

**Durability**—all electrical parts are protected by the housing from weather and bad atmospheric conditions.

**Quietness**—muffling effect of the venting system results in little noise even when opening heavy short circuits.

**Wide range of application**—capable of close fusing for protection of apparatus against overload as well as heavy short circuits.

The principal function of the Type D oil fuse cutout is the protection of distribution and small power transformers against overload conditions and heavy short circuits by quietly and accurately interrupting the primary supply circuit. It is often used to protect feeders and branch circuits, and for sectionalizing.

Accurate and uniform operation under overload makes this cutout ideal for the protection of apparatus against overload, and its high interrupting capacity



**Pole Type**  
100-300 Amperes

## G-E Fuse Links For Type D Oil Fuse Cutouts Standard Type

CATALOGUE NUMBERS OF CUTOUTS						
	230014	230000	230001	4X105	230009	
	230002	230003	230004	230008	230010	
	246103	246104	246105		For	4X106
*235587	230005	230006	†230007	2500		4X123
	230011	230012	†230013			
	4X101	246107	†246108			
	4X110	4X108	4X104			
		4X121	4X122			
CATALOGUE NUMBERS OF FUSE LINKS						
Rated Capacity of Links Amperes	5	295544				
	10	295552	295545	295552	295561	295571
	15	295553	295546	295553		295572
	20		295547			
	25	295554	295548	295554	295562	295573
	30		295549	295555		
	40	No larger link made for these cutouts	295550	295556	295563	295574
	50		295551	295557	295564	295575
	60	No larger link made for these cutouts		295558		No smaller link made for this cutout
	75			295559	295565	295576
	100			295560	295566	295577
	125				295567	295578
	150			No larger link made for these cutouts	295568	295579
	175				295569	295580
	200				295570	295581
	250					No larger link made for these cutouts
	300					295582
						295583

Shipping Weight Carton, Pounds					
1	1	2	3	4	2
	Price, Each—Up to 100 Amperes				
\$ .65	\$ .55	\$ .65	\$ .80	\$ 1.00	\$ 1.00
		Price, Each—Over 100 Amperes			
			\$ 1.20	\$ 1.40	

### Reactive Type

CATALOGUE NUMBERS OF CUTOUTS						
230000	230001	†230007	4X105			
230006	†230007	†230013	230008			
230003	230004	†246108	For 2500 volts only	230009		
246104	246105	†4X104		4X106	230010	
230012	†230013	†4X122		4X123		
246107	†246108	For use on 5000 volts				
4X108	†4X104					
4X121	†4X122					
CATALOGUE NUMBERS OF FUSE LINKS						
Rated Capacity of Links Amperes	10	295584	295591	295601	295615	295623
	15	295585				295624
	25	295586	295592	295602	295616	295625
	30				295617	
	40	295587	295593			
	50	295588	295594	295603	No smaller link made for this cutout	295618
	75	295589	295595	295604		295619
	100	295590	295596	295605	295608	295620
	125	No larger link made for these cutouts	295597		295609	No larger link made for these cutouts
	150		295598	No larger link made for these cutouts	295610	No larger link made for these cutouts
	175		295599		295611	
	200		295600		295612	
	250		No larger link made for these cutouts		295613	
	300				295614	

Shipping Weight, Carton, Pounds					
3	4	4	6	4	4
	Price, Each—Up to 100 Amperes				
\$ 2.50	\$ 2.50	\$ 2.50	\$ 2.50	\$ 2.50	\$ 2.50
		Price, Each—Over 100 Amperes			
			\$ 2.70	\$ 2.70	

A standard package consists of 100 links.

A standard half package consists of 50 links.

A carton consists of 10 links.

\*Cat. No. 235587 is now obsolete. The links listed are for the boxes which are already in service.

†The standard links for 100 amperes and below listed for these cutouts will operate satisfactorily on 5000 volts.

‡When Cat. Nos. 230007, 230013, 246108, 4X104 and 4X122 are used on 5000-volt circuits where reactive type fuse links are required, use links Cat. Nos. 295601 to 295605. Links Cat. Nos. 295591 to 295600 are only good for 2500-volt circuits.

### Pole Type

Cat. No.	Type	Volts	INTERRUPTING CAPACITY AMPERES AT 60 CYCLES		SHIPPING WT., LBS.	Price Each
			Plain Links	Reactive Links		
4x101	D-1E	2500	5 to 50	2000	51 6	\$ 21.00
4x108	D-8E	2500	10 to 100	4000	62 9	29.00
4x104	D-4E	2500	10 to 200	8000	113 21	38.00
			5000	10 to 100		
4x105	D-5E	2500	100 to 300	8000	205 31	95.00
4x106	D-6E	7500	10 to 100	3000	200 31	95.00

### Subway Type

4x110	D-10E	2500	5 to 50	2000	61 6	\$ 38.00
4x121	D-21E	2500	10 to 100	4000	70 9	45.00
4x122	D-22E	2500	10 to 200	8000	127 21	60.00
			5000	10 to 100		
*4x123	D-23E	7500	10 to 100	3000	200 26	130.00

\*The bushings on Cat. No. 4X123 cutout are not the separable sleeve type, but are designed for connection to the cables using standard splicing material.

2500-volt cutouts are suitable for operation on 4000-volt Y-connected circuits with dead grounded neutral. In all cases 2 cutouts are required between lines.

**Transformer Specialties**

**Transformers for Special Purposes**

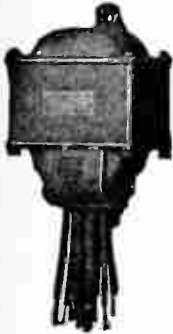
In addition to standard Type M transformers, the General Electric Company has developed a uniform line of parts for manufacturing any miniature air-cooled transformers ranging from 15 to 5000 watts inclusive, 60 cycles, and from 5 to 3000 watts inclusive, 25 cycles, at voltages of 550 and below. No oil is used for either cooling or insulating purposes.

Type M transformers present a good appearance wherever installed. The construction may be for indoor or outdoor service as desired. By substituting this transformer for batteries or magneto generators, no maintenance or replacement charges due to wear are incurred, less space is required and cleanliness and reliability are assured.

The following are a few representative applications: Electric welding, speed variation of motors, operating of small, low-voltage motors from higher voltage circuits, railway signal lighting two to three-phase transformation.

**G-E Sign Lighting Transformers**

**Primary—110-220 Volts; Secondary—11-22 Volts**



These transformers are used in connection with the lighting of large or small advertising, municipal, civic, or other display signs. They are also used quite extensively for experimental purposes where a standard transformer is needed for producing heavy currents at low voltages.

Primary windings are arranged for series-multiple connection to operate either from 110 or 220-volt circuits. Secondary windings are similarly arranged to give full output at 11 or 22 volts and to permit of three-wire operation. Coils are enclosed in a strong, metal case which is provided with lugs for fastening to the wall, or to the back of the sign.

**50 to 140 Cycles**

Cat. No.	Cap. Watts	APPROX. DIMENS., IN.		APPROX. WT., LBS	
		Depth	Wall Space	Net	Shipping
76676	250	3 1/2	8 x 5	15	20
76678	500	4 1/2	9 x 5 1/2	20	30
146138	750	4 1/2	10 x 5 1/2	25	40
76680	1000	5	11 x 6 1/2	35	50
146139	1500	5	12 x 6 1/2	40	55
76683	2000	6	12 1/2 x 7 1/2	60	80

**25 to 49 Cycles**

Cat. No.	Cap. Watts	APPROX. DIMENS., IN.		APPROX. WT., LBS	
		Depth	Wall Space	Net	Shipping
173094	250	4 1/2	9 1/2 x 5 1/2	22	32
173095	500	5	11 1/2 x 6 1/2	35	50
173096	750	5	12 1/2 x 6 1/2	50	65
173097	1000	6	12 1/2 x 7 1/2	65	85
173098	1500	6	16 x 7 1/2	80	100
200404	2000	7 1/2	14 x 9 1/2	105	125

**G-E Type M Transformers**

**Specially Fitted for Conduit Wiring Installations**

**Primary—440 Volts  
Secondary—110 Volts  
50 to 140 Cycles**



This design is particularly adapted to lighting oil well rigs, mine lighting, irrigation plants where conduit wiring is needed.

Cat. No.	Cap. Watts	APPROX. DIMENS., IN.			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
236154	100	4	7 1/2 x 5	9x5	13	15
236155	250	4	8 1/2 x 5	10x5	18	20
236156	500	4 1/2	9 1/2 x 5 1/2	11x5 1/2	30	35

**G-E Insulating Transformers**

**Primary—110-220 Volts; Secondary—110-220 Volts  
50 to 140 Cycles**



Insulating Transformers are arranged for 1:1 or 2:1 ratio and are manufactured chiefly for uses such as insulating lighting from power circuits; single wire lighting systems in mines; insulating telephone circuits (before rectification) from lighting circuits, etc., and for other transformations to which the rating is adapted. They are used as well for balancing three-wire, 110-220 volt circuits where auto transformers cannot be used. Weights include oil for the Type H sizes. Suitable for indoor or outdoor installation.

**Type M, Air-Cooled**

Cat. No.	Kva.	APPROX. DIMENS., INCHES		APPROX. WT., LBS.	
		Depth	Wall Space	Net	Ship.
166688	1	5	11 x 6 1/2	35	45
166690	2	6	12 1/2 x 7 1/2	60	75
166692	3	6	14 1/2 x 7 1/2	80	100
189911	5	7 1/2	15 1/2 x 9 1/2	125	145

**Type H, Oil-Cooled**

Cat. No.	Kva.	APPROX. DIMENS., INCHES		APPROX. WT., LBS.	
		Depth	Wall Space	Net	Ship.
177157	7.5	26	18 1/2 x 18	390	475
179474	10	28 1/2	18 1/2 x 21	460	560
179475	15	32	22 1/2 x 22	685	825
256300	25	42	24 x 24 1/2	995	1205

**Type M, for Conduit Wiring Installations**

Cat. No.	Kva.	APPROX. DIMENS., INCHES			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
245327	1	5	10 x 6 1/2	11 1/2 x 6 1/2	35	45
245328	2	6	11 x 7 1/2	12 1/2 x 7 1/2	60	75
245329	3	6	13 x 7 1/2	14 1/2 x 7 1/2	80	100
245330	5	7 1/2	14 1/2 x 9 1/2	16 x 9 1/2	125	145

**G-E Auto Transformers**

**Single-Phase**

**Primary—220 Volts  
Secondary—110 Volts, 2-Wire  
or 110-220 Volts, 3-Wire**

The auto transformer is an economical substitute for the ordinary transformer, particularly when both voltages are low and a comparatively small change in voltage is desired.

The design is for single-phase, 2-phase or open delta transformation. It is not suitable to transform power 3 to 2-phase from 220 volts to 110 volts. Type M, air-cooled; Type H, oil-cooled.



**50 to 140 Cycles—Wall Type**

Cat. No.	Type	Kv-a.	DIMENSIONS, INCHES		Wall or Floor Space Inches	APPROX. WT., LBS.	
			Depth	Height		Net	Ship.
79883	M	1	4 1/2	..	9 x 5 1/2	20	30
79884	M	1.5	5	..	10 1/2 x 6 1/2	30	40
79885	M	2	5	..	11 x 6 1/2	35	45
79886	M	3	5	..	12 1/2 x 6 1/2	40	50
79887	M	4	6	..	12 1/2 x 7 1/2	50	60
79888	M	5	6	..	14 x 7 1/2	65	80
189909	M	7.5	7 1/2	..	15 x 9 1/2	110	130
189910	M	10	7 1/2	..	16 1/2 x 9 1/2	130	155

**50 to 140 Cycles—Floor Type**

Cat. No.	Type	Kv-a.	Depth	Height	Wall or Floor Space Inches	APPROX. WT., LBS.
79891	H	15	..	26	18 1/2 x 18	290
278520	H	25	..	31	21 1/2 x 21 3/4	355

**25 to 49 Cycles—Wall Type**

Cat. No.	Type	Kv-a.	APPROX. DIMENS., IN.		APPROX. WT., LBS.	
			Depth	Wall Space	Net	Ship.
173085	M	1	5	..	11 x 6 1/2	35
173086	M	1.5	6	..	11 1/2 x 7 1/2	50
173087	M	2	6	..	12 1/2 x 7 1/2	60
173088	M	3	6	..	14 x 7 1/2	75
200402	M	4	7 1/2	..	14 x 9 1/2	110
200403	M	5	7 1/2	..	15 x 9 1/2	125



## G-E Type M Auto Transformers For Conduit Wiring Installations

Primary—220 Volts  
Secondary—110 Volts, 2-Wire  
or 110-220 Volts, 3-Wire



When a comparatively small change in voltage is desired, or where both voltages are low, an auto transformer can be used successfully as a transformer and its reduced capacity will mean a considerable saving.

The use of auto transformers for supplying lighting circuits from power circuits having potentials above 250 volts is not, however, considered good practice.

All sizes are suitable for outdoor installations.

Transformers are air-cooled.

### 50 to 140 Cycles

Cat. No.	Type	*Kv-a.	APPROX. DIMENS., IN.			APPROX. WT., LBS.	
			Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
245345	M	1	4 1/2	11 x 5 1/2	14 x 5 1/2	20	30
245346	M	1.5	5	12 x 6 1/2	12 1/4 x 6 1/2	30	40
245347	M	2	5	12 1/2 x 6 1/2	16 x 6 1/2	35	45
245348	M	3	6	13 x 7 1/2	15 x 7 1/2	40	50
245349	M	4	6	14 x 7 1/2	16 1/2 x 7 1/2	50	60
245350	M	5	6	15 x 7 1/2	17 1/2 x 7 1/2	65	80
245351	M	7.5	7 1/2	15 x 9 1/2	16 1/2 x 9 1/2	110	130
245352	M	10	7 1/2	16 x 9 1/2	18 1/2 x 9 1/2	130	155

### 25 to 49 Cycles

245339	M	1	5	12 x 6 1/2	15 x 6 1/2	35	45
245340	M	1.5	6	13 1/2 x 7 1/2	16 x 7 1/2	50	60
245341	M	2	6	16 x 7 1/2	18 x 7 1/2	60	70
245342	M	3	6	16 x 7 1/2	18 1/2 x 7 1/2	75	90
245343	M	4	7 1/2	17 x 9 1/2	19 x 9 1/2	110	130
245344	M	5	7 1/2	17 x 9 1/2	19 1/2 x 9 1/2	125	150

\*Kv-a. output at 110 volts, 2-wire or allowable unbalancing at 110-220 volts, 3-wire.

## G-E Type MTQ Auto Transformers 2-phase, 4-wire

MTQ Auto Transformers are designed to transform power efficiently and inexpensively from three to two-phase, 4-wire, or the reverse, with outputs of 1 to 25 Kv-a.

The principal application of the MTQ Auto Transformer is to adapt polyphase motors to existing circuits. They are not suitable, however, for 3-wire, 2-phase service, or to operate motors with interconnected phases.

Suitable for indoor or outdoor installation.

In ordering MTQ Auto Transformers specify whether the two-phase circuit is 3 or 4-wire.

Primary—220 Volts, 2-phase  
Secondary—220 Volts, 2-phase 4-wire  
50-140 Cycles, 3 to 2-phase

Cat. No.	Kva.	APPROX. DIMENS., IN.			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
G223996	1	4	12x4	15	25	
G223997	3	4	16 x 5	30	40	
G223998	5	4 1/2	16 1/2 x 5 1/2	45	55	
G223999	7.5	5	18 1/2 x 6 1/2	55	70	
G224000	10	5	20 x 6 1/2	75	90	
G224001	15	6	19 1/2 x 7 1/2	95	115	
G224002	20	6	21 x 7 1/2	115	140	
G224003	25	6	23 1/2 x 7 1/2	135	160	

### Type MTQ, for Conduit Wiring Installation

Primary—220 Volts, 3-phase  
Secondary—220 Volts, 2-phase 4-wire  
50-140 Cycles, 3 to 2-phase

Cat. No.	Kva.	APPROX. DIMENS., IN.			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
G245331	1	4	14 x 4	17	25	
G245332	3	4	17 x 5	20 1/2 x 5	30	40
G245333	5	4 1/2	17 1/2 x 5 1/2	20 1/2 x 5 1/2	45	55
G245334	7.5	5	20 x 6 1/2	23 1/2 x 6 1/2	55	70
G245335	10	5	21 1/2 x 6 1/2	25 x 6 1/2	75	90
G245336	15	6	23 x 7 1/2	25 x 7 1/2	95	115
G245337	20	6	23 1/2 x 7 1/2	26 x 7 1/2	115	140
G245338	25	6	25 1/2 x 7 1/2	28 1/2 x 7 1/2	135	160

## G-E Type MTQ Auto Transformers Two-phase, 3-wire



MTQ Auto Transformers are designed to transform power efficiently and cheaply from three to two-phase, 3-wire, or the reverse, with outputs of 1 to 25 kva.

The principal application of the MTQ Auto Transformer is to adapt polyphase motors to existing circuits. They are not suitable for 4-wire, 2-phase service, or to operate motors with interconnected phases.

In ordering MTQ Auto Transformers specify whether the two-phase circuit is 3 or 4-wire, in that an auto transformer arranged for a 3-wire circuit is not applicable to a 4-wire circuit, or the reverse.

Primary—220 Volts, 3-phase  
Secondary—220 Volts, 2-phase, 3-wire, 50-140 Cycles, 3 to 2-phase

Cat. No.	Kva.	APPROX. DIMENS., IN.			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
246751	1	4	13 x 5	25	35	
246752	3	4 1/2	15 1/2 x 5 1/2	35	45	
246753	5	5	18 1/2 x 6 1/2	65	75	
246754	7.5	5	20 1/2 x 6 1/2	80	95	
246755	10	6	19 x 7 1/2	95	115	
246756	15	6	22 x 7 1/2	130	150	
246757	20	6	25 1/2 x 7 1/2	160	180	
246758	25	7 1/2	22 1/2 x 9 1/2	185	210	

### Type MTQ, for Conduit Wiring Installations

Primary—220 Volts, 3-phase  
Secondary—220 Volts, 2-phase, 3-wire, 50-140 Cycles, 3 to 2-phase

Cat. No.	Kva.	APPROX. DIMENS., INCHES			APPROX. WT., LBS.	
		Depth	Wall Space	Over All Inc. Nipples	Net	Ship.
246759	1	4	12 x 5	13 1/2 x 5	25	35
246760	3	4 1/2	14 1/2 x 5 1/2	16 x 5 1/2	35	45
246761	5	5	17 1/2 x 6 1/2	19 x 6 1/2	65	75
246762	7.5	5	19 x 6 1/2	20 1/2 x 6 1/2	80	95
246763	10	6	17 1/2 x 7 1/2	19 x 7 1/2	95	115
246764	15	6	20 1/2 x 7 1/2	22 x 7 1/2	130	150
246765	20	6	23 1/2 x 7 1/2	25 x 7 1/2	160	180
246766	25	7 1/2	21 x 9 1/2	22 1/2 x 9 1/2	185	210

## G-E Type M Air-Cooled Distribution Transformers

Single Phase  
50 to 140 Cycles



To take care of indoor or outdoor installations particularly indoor where it is impractical to install oil-cooled transformers, the General Electric Company has designed line of air-cooled distribution transformers, capacities 1 to 5 kv-a. inclusive. Primary voltage, 440 and 550; secondary voltage, 110 or 220 volts 2-wire or 220/110 volts 3-wire.

### Primary 440 Volts—Secondary 110/220 Volts

Cat. No.	KV-A.	APPROX. DIMEN. INCHES		APPROX. WT., LBS.	
		Depth	Wall Space	Net	Ship.
261225	1	5	12 x 6 1/2	41	51
261226	2	6	13 1/2 x 7 1/2	67	82
261227	3	6	15 x 7 1/2	92	112
261228	5	7 1/2	17 1/2 x 9 1/2	145	165

### Primary 550 Volts—Secondary 110/220 Volts

Cat. No.	KV-A.	APPROX. DIMEN. INCHES		APPROX. WT., LBS.	
		Depth	Wall Space	Net	Ship.
261233	1	5	12 1/2 x 6 1/2	43	53
261234	2	6	13 1/2 x 7 1/2	71	86
261235	3	6	15 1/2 x 7 1/2	95	115
261236	5	7 1/2	17 x 9 1/2	150	170

Prices upon application.

**G-E Type M Air-Cooled Distribution Transformers**

**Single-Phase  
For Conduit Wiring Installation**  
50 to 60 Cycles



To take care of indoor or outdoor installations, particularly indoor where it is impractical to install oil-cooled transformers, the General Electric Company has designed a line of air-cooled distribution transformers, capacities 1 to 5 kv-a. inclusive.

Primary voltage, 440 and 550; secondary voltage, 110 or 220 volts 2-wire or 220/110 volts 3-wire.

**Primary 440 Volts—Secondary 110/220 Volts**

Cat. No.	Kv-a.	APPROX. DIMEN. INCHES Depth	APPROX. DIMEN. INCHES		APPROX. WT. Lbs. Net	Lbs. Ship.
			Wall	Space		
261229	1	5	13 1/2	6 1/2	41	51
			*14 1/2	x6 1/2		
261230	2	6	15	x7 1/2	67	82
			*16 1/2	x7 1/2		
261231	3	6	16 1/2	x7 1/2	92	112
			*18	x7 1/2		
261232	5	7 1/2	19	x9 1/2	145	165
			*20	x9 1/2		

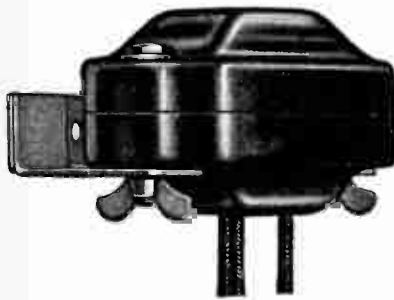
**Primary 550 Volts—Secondary 110/220 Volts**

261237	1	5	*14	x6 1/2	43	53
			*15	x6 1/2		
261238	2	6	15 1/2	x7 1/2	71	86
			*16 1/2	x7 1/2		
261239	3	6	17	x7 1/2	95	115
			*18 1/2	x7 1/2		
261240	5	7 1/2	18 1/2	x9 1/2	150	170
			*20	x9 1/2		

\*Over all dimensions including nipples.  
Prices upon application.

**Keystone Lightning Arresters**

**Type S, for Secondary Protection  
Up to 350 Volts A.C.**



Type S is designed for the protection of 110/120, 115/230, 120/240-volt a.c. secondary circuits, though it may be used for protecting other apparatus on either 2 or 3-wire circuits where the maximum voltage between conductors does not exceed 350. Made only in double pole type.

Type S arrester is regularly supplied with line and ground leads of No. 12 B. U. S. gauge stranded cable, line leads being 36 inches long and ground lead 18 inches long and with hot galvanized strap iron hangers. These hangers are of 12-gauge metal and are provided with 5/16-inch holes on 2-inch centers for accommodating 1/4-inch bolts or lags. All exposed bolts and nuts on the arrester are of hot galvanized iron.

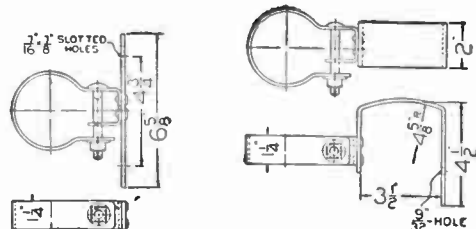
Size, 5x3 inches. Standard package, 12.  
Price, No. 50960.....each \$4.00

**For Neutral Protection  
Voltage Rating, 0-350 Volts**

These arresters are designed for protecting the neutral wire of transformers installed on grounded neutral circuits, where the neutral wire is grounded only at power or substations and not dead grounded at the transformer installations.

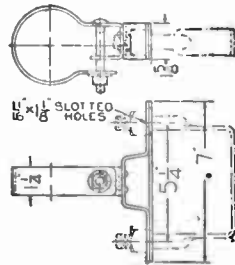
No.	Type	Size Inches	Std. Pkg.	Weight Pounds	Price Each
50000	T-300	3 1/2 x 3 1/2	12	23 1/4	\$4.00
50922	R	3 1/4 x 2 3/8	24	1 1/2	1.50
50642	N	2 5/8 x 3 1/4	24	1	2.00
50643	NS	2 5/8 x 3 1/4	24	1	1.90

**Mounting Brackets for Crystal Valve Lightning Arresters**



Type CA, Standard Equipment Unless Otherwise Specified

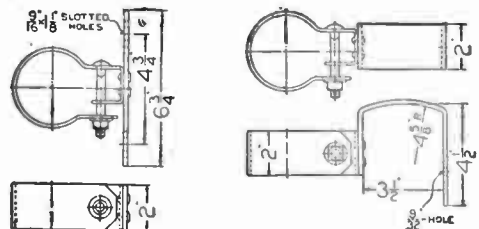
Type CB



Type CD

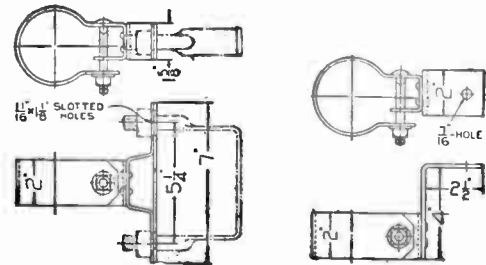
Type CE

The mounting brackets, illustrated above, are for use on crystal valve arresters. Nos. 50935, 50924, 50925, 50926, 50927 and 50931. Type CA bracket is supplied unless other types are specified on order. Choice of above mounting brackets may be had without additional cost.



Type DA, Standard Equipment Unless Otherwise Specified

Type DB



Type DD

Type DE

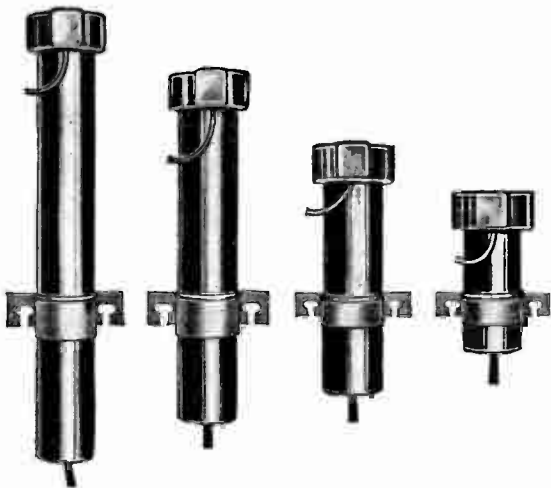
The mounting brackets, illustrated above, are for use on the heavier crystal valve arresters, Nos. 50932 and 50934. Type DA bracket is supplied unless other types are specified on order. Choice of above mounting brackets may be had without additional cost.

The types CA and DA brackets are designed for cross arm or flat surface mounting and are the type generally preferred by the user. The types CB and DB are saddle type brackets for the standard 3 1/2 x 4 1/2-inch cross arms. The types CD and DD are clamp type brackets designed for use with standard Pierce cross arm straps and may be used with either the No. 1001-2-3-4 or 2001-2-3 or 4 Pierce straps; the Pierce straps are not included as a part of the bracket. The types CE and DE are semi-saddle type brackets bolting to the top of the arm and may be used with any standard arm.

All brackets are made from heavy steel stock, hot galvanized; are riveted and spot welded and the entire assemblies are of great strength and durability and easy to install. Prices upon application.

## Type CV Keystone Crystal Valve A.C. Lightning Arresters

For 350-15000-Volt A.C. Service



## Type CV Keystone Crystal Valve A.C. Lightning Arresters

For 350-15000-Volt A.C. Service

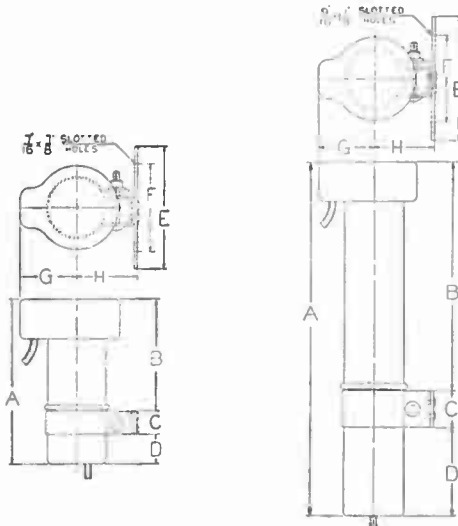


Fig. 1  
Nos. 50935, 50924, 50925,  
50926, 50927, 50931,  
With Type CA  
Mounting Bracket

Fig. 2  
Nos. 50932 and 50934,  
With Type DA  
Mounting Bracket

Keystone Crystal Valve Lightning Arresters represent the latest development in the design of highly efficient lightning protective apparatus and are the result of some highly successful researches in the rectifying properties and valve characteristics of refractory conducting crystals. They are characterized by the following important advantages:

Low initial or relief voltage for lightning disturbances.

High discharge rate due to low internal impedance.

They are of the true valve with all its attendant advantages.

They suffer no measurable deterioration in service.

Their operating characteristics permit of their handling rapidly recurring discharges over long periods of time without danger of self destruction.

Their impedance decreases as the severity of the discharge increases.

They require no inspection other than a visual inspection.

They are small in size and of low first cost, permitting them to be installed directly on the transformer pole and used to protect small transformers as well as large.

Due to their operating characteristics they have an unusually long life.

Crystal Valve Arresters are regularly provided with line and ground leads of No. 6 B.&S. gauge stranded cable, 18 inches long and with hot galvanized strap hangers.

All voltages specified are maximum phase-phase voltages. For straight single-phase circuits use arresters recommended in Table 1.

Treat single-phase circuits split from 2-phase, and single and 2-phase circuits split from 3-phase circuits in accordance with the recommendations covering the particular type of circuit from which they are split.

For 2-phase 4-wire ungrounded circuits use arresters recommended in Table 1. For 2-phase 3-wire circuits with ungrounded neutral use arresters recommended in Table 1 for the phase wires; for the neutral wire use arresters rated at 71 per cent of the phase-phase voltage.

For the neutral wire of 3-phase 4-wire ungrounded Y circuits use arresters rated at 58 per cent of the phase-phase voltage.

For neutral protection on either 2 or 3-phase circuits where the neutral is solidly grounded, use Types T-300, R. N. or NS arresters. If, due to unbalancing, the voltage between neutral and ground is between 350 and 750 volts, use type CV form S arrester, listed below.

### Voltage Ratings

No.	CV Form Type	Table One For Delta or Ungrounded Y 3-Phase Sys- tems, Volts	Table Two For 3-Phase Y Systems with Solidly Grounded Neutral, Volts
50935	S	350-750	.....
50924	0	750-1200	.....
50925	1	1000-3000	.....
50926	2	2500-3500	.....
50927	3	.....	3000-5000
50931	7	3000-6000	5000-9000
50932	8	6000-9000	9000-12800
50934	10	9000-15000	12800-18000

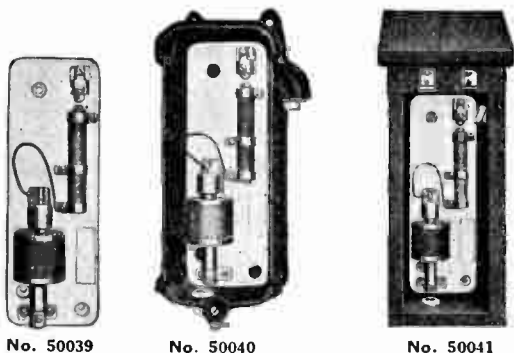
### Dimensional Data

Cat. No.	Fig.	DIMENSIONS, INCHES							
		A	B	C	D	E	F	G	H
50935	1	6	4 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50924	1	9	6 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50925	1	9	6 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50926	1	9	6 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50927	1	9	6 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	1 <sup>5</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50931	1	16 <sup>1</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	4 <sup>5</sup> / <sub>8</sub>	6 <sup>5</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50932	2	21 <sup>7</sup> / <sub>8</sub>	14	2	5 <sup>7</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>
50934	2	31 <sup>1</sup> / <sub>4</sub>	20	2	9 <sup>1</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>5</sup> / <sub>16</sub>

### Prices

Cat. No.	CV Form Type	Std. Pkg.	Price Each
50935	S	12	\$6.75
50924	0	12	8.25
50925	1	12	10.50
50926	2	6	13.00
50927	3	12	10.50
50931	7	6	19.25
50932	8	6	27.00
50934	10	3	45.00

**Garton-Daniels D.C. Lightning Arresters**



**G-E Type OF Oxide Film Lightning Arresters**



The oxide film arrester consists essentially of a number of cells with a gap in series between line and ground. The cells are held together under slight pressure and are arranged in sections or stacks according to the voltage and kind of circuit. Each cell is made of 2 circular brass plates crimped firmly to the edges of an annular piece of porcelain. A powder, lead peroxide, which has low resistance, compactly fills the space between the plates. The inside of the metal plates is covered with a varnish film which is an insulator. The number of cells used in an arrester is such that the voltage per cell is approximately 300 volts.

D.C. arresters, station type, are furnished with polished and lacquered metal work. Pole or car arresters are furnished in either wooden or iron covers as required. Iron covers are, however, not furnished on Types EH, EJ and EK arresters. Both covers are of standard design fitted with insulated bushings for the leading-in wires and the arrester insulated from the cover.

When a lightning voltage sparks over the gaps it is impressed on the cells and breaks down the insulating coating on the metal plates. The breakdown occurs in the form of a minute puncture of the film coating. The metal plates are not punctured. As soon as the film gives way, a discharge current flows through the cells to ground, thus relieving the lightning pressure. The flow of current through the cells immediately causes a chemical change by heat, in the lead peroxide at the point of puncture. The lead peroxide is reduced to red lead and litharge which have a high resistance. Thus, following the lightning discharge, a high resistance amounting practically to insulation is automatically cut into the discharge path. This cuts off the flow of generator current that would otherwise follow the lightning discharge, and the arcs in the gaps die out. If the potential should still, or again, be sufficiently high to break down the gaps, the operation is repeated at some other point on the surface of the varnished plates.

Cat. No.	Type	Voltage Range	Standard Package	Weight Pounds Each	Price Each
†50014	DF	Up to 350	12	3 1/4	\$8.50
†50016	DF	Up to 350	12	13 1/4	11.00
*50015	DF	Up to 350	12	9	9.50
†50039	EG	††350-750	12	5	9.00
*50041	EG	††350-750	12	10	10.50
†50040	EG	††350-750	12	14 1/2	12.00
**11780	EG	††350-750	12	9	10.50
††11779	EG	††350-750	12	14	12.00
†50193	EG	†350-750	12	5	9.00
*50194	EG	†350-750	12	10	10.50
†50195	EG	†350-750	12	14 1/2	12.00
**50030	EG	†350-750	12	9	10.50
†50031	EG	†350-750	12	14	12.00
†50338	EH	750-1350	12	11	18.00
**50339	EH	750-1350	12	21	20.00
*50400	EH	750-1350	12	21 1/2	20.00
†50404	EJ	1350-1800	12	11	20.00
*50405	EJ	1350-1800	12	21	22.00
*50406	EJ	1350-1800	12	21 1/2	22.00
†50426	EK	1800-2400	6	45	40.00
*50427	EK	1800-2400	6	49	44.00

- \*Arrester mounted on porcelain base and fitted in wooden box for pole service.
- †Arrester mounted on porcelain base and fitted in iron box for pole service.
- †Arrester mounted on porcelain base for station service.
- \*\*Arrester unit mounted in wooden box for installation in railway car.
- ††Arrester unit mounted in iron box for installation in railway car.
- ††Grounded circuit.
- †Metallic circuit.

**Form B—3-Phase—Indoor Service**

Cat. No.	**VOLTAGE RATING OF ARRESTER		Shipping Weight Pounds	*Price Each
	Minimum	Maximum		
†1576274	1000	3000	70	\$70.00
2593102	1000	3000	235	184.00
2593103	3000	5000	330	256.00
2593104	5000	7500	390	330.00
2593105	7500	15000	710	662.00
.....	15000	20000	1100	878.00
2593106	20000	25000	1200	1048.00
2593161	25000	30000	1550	1220.00
2593107	30000	37000	1700	1484.00
2593108	37000	50000	3400	2360.00
2593109	50000	73000	4800	3360.00

**Form BO—3-Phase—Outdoor Service**

1576267	300	1000	90	\$66.00
†2516513	1000	3000	150	78.00
2593138	1000	3000	650	412.00
2593139	3000	5000	750	488.00
2593140	5000	7500	800	556.00
2593111	7500	15000	1350	936.00
2593158	15000	20000	1850	1124.00
2593112	20000	25000	1950	1324.00
2516591	25000	30000	2300	1616.00
2593113	30000	37000	2600	1912.00
2593114	37000	50000	5900	2988.00
2593115	50000	73000	7300	4146.00

**Form B—Single-Phase—Indoor Service**

Not for use on single-phase circuits from quarter-phase 3-wire circuits. Use 2 on quarter-phase, 4-wire circuits.

1576223	1000	3000	190	\$124.00
1576224	3000	5000	270	172.00
1576225	5000	7500	360	360.00

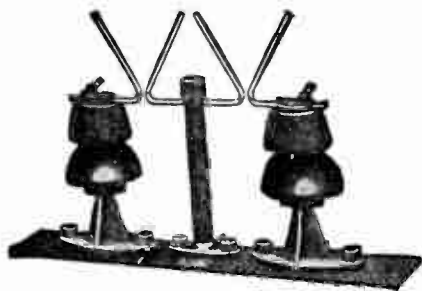
\*Prices do not include disconnecting switches. Some kind of disconnecting device must be installed with these arresters.

†Single-pole, for 2300-volt delta or 4100-volt grounded Y circuits.

\*\*Select arrester so that the line voltage will never exceed the maximum rating of the arrester under any normal operating condition.

Suitable for altitudes up to 4000 feet.

**Double-pole Horn Gaps**



To prevent the full line potential being thrown on the telephone protective equipment in the case of a cross with the telephone line.

Price, No. 201112, for Outdoor Use, Wt., 70 Lbs. each \$28.00

## G-E Line Type Lightning Arresters

Pellet Oxide Film and Compression Chamber

Single Pole—Outdoor Service Only

For Delta or Ungrounded Y 3-Phase Systems

Cat. No.	Circuit Voltage	ARRESTERS REQUIRED		Std. Pkg.	Approx. Ship. Wt., Lbs.	Price Each
		1-Phase	3-Phase			
†2906822G2	0- 750	2	3	24	4	\$4.20
†2906823G2	0- 750	1	.	12	7	6.70
2923407G1	1000- 3000	2	3	12	13	11.50
2596671G1	3000- 6000	2	3	6	25	21.50
2596671G2	6000- 9000	2	3	6	37	30.00
2596671G3	9000-15000	2	3	3	47	50.00
2516584	15000-25000	2	3	1	350	165.00
2516586	25000-37000	2	3	1	480	232.00
2593137	37000-50000	2	3	1	600	436.00

## For 3-Phase Systems with Solidly Grounded Neutral

†146187	..... †	.	.	24	1	\$2.25
†2906822G3	..... †	.	.	24	4	4.20
2923407G1	3000- 5000	†	3	12	13	11.50
2596671G1	5000- 9000	†	3	6	25	21.50
2596671G2	9000-12800	†	3	6	37	30.00
2596671G3	12800-18000	†	3	3	47	50.00
2516584	18000-25000	†	3	1	350	165.00
2516586	25000-37000	†	3	1	480	232.00
2593137	37000-50000	†	3	1	600	436.00

## For Protection of Load Side of Series Lighting Transformers

Single-Pole Cat. No.	K.W. Rating of Transformers (Secondary Amperes 6.6. and 7.5)	Std. Pkg.	Approx. Ship. Wt., Lbs. Each	Price Each
†2906822G2	1, 2, 3	24	4	\$4.20
2923407G1	5, 7.5, 10, 15	12	13	11.50
2596671G1	20, 25, 30	6	25	21.50
2596671G2	35, 40	6	37	30.00
2596671G3	50, 60, 70	3	47	50.00



No. 2923407G1

2906822G3. Use 2 arresters at a single-phase installation between outside wires. A system is considered solidly grounded when no resistance or reactance is used in grounding the neutral.

Suitable for altitudes up to 6000 feet.

## G-E Line Connectors

Suitable where occasional disconnecting is required and where quick disconnecting is not necessary.

Current carrying capacity, 200 amperes.

Can be clamped on any wire from 1/16 to 5/8 inch in diameter. A hole 1/16 inch in diameter is provided for soldering a lead to connector.

Aluminum or brass clamp; two phosphor-bronze spring; two set-screws, zinc-plated steel.

Disconnecting switch hook is required to operate device.

Illustration shows connector attached to pole.

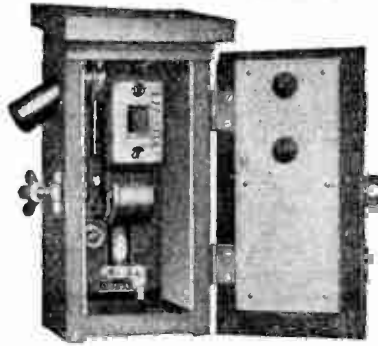


Cat. No.	Description	Std. Pkg.	APPROXIMATE		Price Each
			WT. OUNCES Net	Ship.	
270281	Brass	12	32	45	\$7.00
159589G3	Aluminum	12	10	20	10.00

## G-E Magnetic Blow-Out Lightning Arresters

For Electric Railway Circuits

MD-3, D.C.



For Indoor Service

Std. Pkg., 12. Ship. wt., 12 lbs.

Cat. No.	Circuit Voltage	Price Each
164403	0-350	\$11.00
164405	350-750	11.00

For Outdoor Service

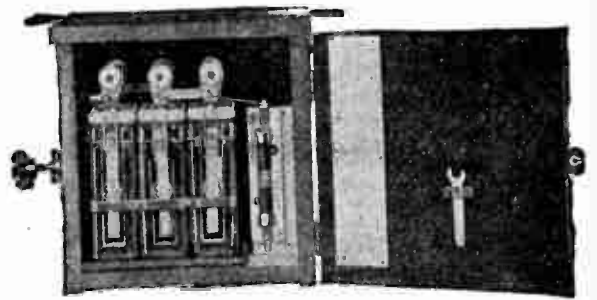
Std. Pkg., 12. Ship. wt., 20 lbs.

Cat. No.	Circuit Voltage	Price Each
164406	0-350	\$17.00
164406	350-750	17.00
2516587	350-750	23.00

Prices on arresters for voltages higher than 350-750 quoted on request.

## No. 2593165 G-E Aluminum Lightning Arresters

D.C.



Arresters should be installed on each car and at the stations and substations; on each feeder and each generator or synchronous converter.

Suitable for either indoor or outdoor installations. Mounted in a wooden box.

Circuit volts, 500-750. Standard package, 4.

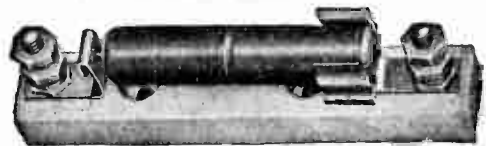
Shipping weight, 45 pounds.

Price, No. 2593165..... each \$50.00

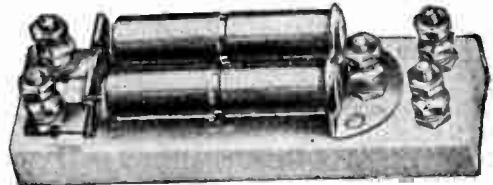
Prices on arresters for voltages higher than 500-750, quoted on request.

## G-E Vacuum Tube Lightning Arresters

For Railway Signal Circuits



No. 148057

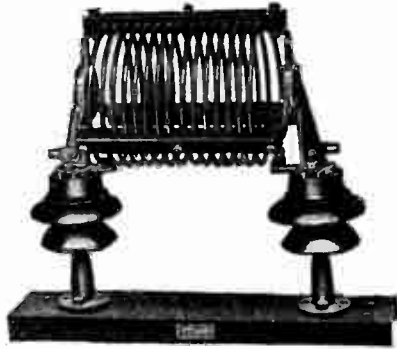


No. 1518810

Vacuum tube arrester has standard American Railway Association binding posts. No. 1518810 has 5 terminals, for lines, ground and instruments. No. 1518809 has only 3 terminals, 2 for the lines and one for the ground. No. 144585 has 3 terminals for line, ground and instrument, while No. 148057 has 2, one for line and one for ground.

Cat. No.	Description	Std. Pkg.	Wt., Lbs.	Price Each
1518810	5-Terminal, Double-Pole.....	24	70	\$7.00
1518809	3-Terminal, Double-Pole.....	24	70	6.00
144585	3-Terminal, Single-Pole.....	48	80	3.90
148057	2-Terminal, Single-Pole.....	48	70	3.35

**G-E Insulated Choke Coils**



Choke coils are recommended for use with all high-voltage lightning arresters when used on overhead lines. They should not be installed with lightning arresters when used to protect cables over half a mile long, without careful consideration.

Indoor				
Cat. No.	Maximum Volts	Maximum Amperes	Shipping Wt., Lbs.	Price Each
76339	4500	25	13	\$10.00
76340	4500	50	16	14.00
25401	7500	25	21	29.00
3416	7500	100	45	40.00
36882	7500	200	40	44.00
1559599G1	15000	100	125	52.00
1559599G3	15000	200	135	60.00
1559599G5	15000	400	160	86.00
1559599G2	25000	100	135	56.00
1559599G4	25000	200	145	66.00
1559599G6	25000	400	175	92.00
Outdoor or Indoor				
1559598G1	15000	100	150	\$64.00
1559598G6	15000	200	160	72.00
1559598G11	15000	400	185	94.00
1559598G2	25000	100	160	66.00
1559598G7	25000	200	170	76.00
1559598G12	25000	400	195	102.00
1559598G3	37000	100	185	78.00
1559598G8	37000	200	195	88.00
1559598G13	37000	400	230	114.00
1559598G4	50000	100	235	104.00
1559598G9	50000	200	245	114.00
1559598G14	50000	400	275	140.00
1559598G5	73000	100	270	134.00
1559598G10	73000	200	280	144.00
1559598G15	73000	400	310	170.00

**Line Suspension Choke Coils**



May be used on any voltage.

Cat. No.	Maximum Amperes	Shipping Wt. Lbs.	Price Each
†2596693G2	25	8	\$10.00
*79596	100	15	14.00
2515525G1	100	55	34.00
2515525G2	200	65	42.00
2515525G3	400	105	72.00

\*For use at installations of not over 300 kv-a., maximum, 73000 volts.

†For use at installations of not over 150 kv-a., maximum, 25000 volts.

**G-E Type LG-116 Disconnecting Switches**

Single-Pole, Single and Double Throw

Indoor Type—Unmounted

2500 or 3500 Volts



Type LG-116 switches are for disconnecting purposes only. They should not be opened under load.

All switches are given an insulations test at least equal to that prescribed in the Standardization Rules of the A. I. E. E. (2¼ x rated voltage—2000 volts).

2500 or 3500-volt switches are for mounting directly on marble bases or on 1½ or 2-inch marble panels. Slate should not be used. Special LG-116 switches on marble bases for 3500 volts can be furnished. These switches parallel the 2500-volt line on bases except that special larger marble bases and special spacing are required.

Back connected switches, 1200 amperes and below, include 2 nuts and 1 terminal per stud.

Front connected switches, 1200 amperes, inclusive, are equipped with a complete set of terminals.

All switches 1600 amperes and above are laminated for bar connections. No terminals are included.

Do not fail to order one or more switch hooks with each equipment, unless previously ordered.

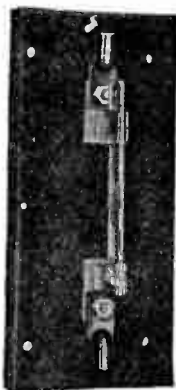
Cat. No.	Capacity Amperes	Throw	CONNECTIONS				Shipping Wt., Lbs.	Price Each
			Hinge Clip	Slots	Contact Clip	Slots		
1960351G1	300	D	Bk.	..	Bk.	..	20	\$15.00
1960351G2	300	D	Bk.	..	Fr.	..	20	13.00
1918497G1	300	S	Bk.	..	Bk.	..	20	11.00
1918498G1	300	S	Fr.	..	Fr.	..	15	9.00
1960350G1	300	S	Fr.	..	Bk.	..	15	10.00
1960350G2	300	S	Bk.	..	Fr.	..	15	21.00
1960351G3	600	D	Bk.	..	Bk.	..	35	29.00
1960351G4	600	D	Bk.	..	Fr.	..	30	25.00
1918497G2	600	S	Bk.	..	Bk.	..	25	22.00
1918498G2	600	S	Fr.	..	Fr.	..	25	18.00
1960350G3	600	S	Fr.	..	Bk.	..	25	20.00
1960350G4	600	S	Bk.	..	Fr.	..	25	20.00
1960351G5	800	D	Bk.	..	Bk.	..	45	46.00
1960351G6	800	D	Bk.	..	Fr.	..	40	40.00
1918497G3	800	S	Bk.	..	Bk.	..	35	32.00
1918498G3	800	S	Fr.	..	Fr.	..	30	26.00
1960350G5	800	S	Fr.	..	Bk.	..	35	29.00
1960350G6	800	S	Bk.	..	Fr.	..	35	29.00
1960351G7	1200	D	Bk.	..	Bk.	..	70	71.00
1960351G8	1200	D	Bk.	..	Fr.	..	65	58.00
1918497G4	1200	S	Bk.	..	Bk.	..	50	51.00
1918498G4	1200	S	Fr.	..	Fr.	..	45	38.00
1960350G7	1200	S	Fr.	..	Bk.	..	50	45.00
1960350G8	1200	S	Bk.	..	Fr.	..	50	45.00
1960349G1	1600	D	Bk.	V	Bk.	H	85	97.00
1960349G2	1600	D	Bk.	V	Fr.	H	75	83.00
1918497G5	1600	S	Bk.	V	Bk.	H	60	72.00
1959750G1	1600	S	Fr.	H	Fr.	H	50	58.00
1960348G1	1600	S	Fr.	H	Bk.	H	55	65.00
1960348G2	1600	S	Bk.	V	Fr.	H	55	65.00
1960349G3	2000	D	Bk.	V	Bk.	H	90	133.00
1960349G4	2000	D	Bk.	V	Fr.	H	80	115.00
1918497G6	2000	S	Bk.	V	Bk.	H	75	98.00
1959750G2	2000	S	Fr.	H	Fr.	H	65	80.00
1960348G3	2000	S	Fr.	H	Bk.	H	70	89.00
1960348G4	2000	S	Bk.	V	Fr.	H	70	89.00
1960349G5	3000	D	Bk.	V	Bk.	H	130	180.00
1960349G6	3000	D	Bk.	V	Fr.	H	120	160.00
1918497G7	3000	S	Bk.	V	Bk.	H	100	134.00
1959750G3	3000	S	Fr.	H	Fr.	H	90	114.00
1960348G5	3000	S	Fr.	H	Bk.	H	95	124.00
1960348G6	3000	S	Bk.	V	Fr.	H	95	124.00



## G-E Type LG-116 Disconnecting Switches

Single-Pole, Single and Double Throw  
Indoor Type—Mounted on Marble Bases  
With Honed Finish and Rounded Edges

2500 Volts

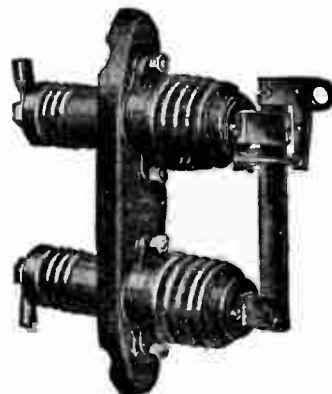


Special Type LG-116 switches paralleling the 2500-volt line can be supplied for 3500 volts. These switches are the same as 2500-volt switches except mounted on special ebony asbestos bases with special spacing. Prices upon request.

Cat. No.	Capacity Amperes	Throw	Hinge Clip	CONNECTIONS		Size, Base Inches	Ship. Wt., Lbs.	Price Each
				Contact Clip	Slots			
1960061G1	300	D	Bk.	Bk.	..	22x 6x1½	40	\$30.00
1960061G2	300	D	Bk.	Fr.	..	22x 6x1½	40	28.00
1960058G1	300	S	Bk.	Bk.	..	15x 6x1½	35	23.00
1960058G2	300	S	Fr.	Fr.	..	15x 6x1½	30	21.00
1960058G3	300	S	Fr.	Bk.	..	15x 6x1½	35	22.00
1960058G4	300	S	Bk.	Fr.	..	15x 6x1½	35	22.00
1960061G3	600	D	Bk.	Bk.	..	26x 8x1½	60	49.00
1960061G4	600	D	Bk.	Fr.	..	26x 8x1½	60	43.00
1960058G5	600	S	Bk.	Bk.	..	15x 6x1½	45	36.00
1960058G6	600	S	Fr.	Fr.	..	18x 8x1½	50	31.00
1960058G7	600	S	Fr.	Bk.	..	18x 8x1½	50	34.00
1960058G8	600	S	Bk.	Fr.	..	18x 8x1½	50	34.00
1960061G5	800	D	Bk.	Bk.	..	26x 8x1½	65	65.00
1960061G6	800	D	Bk.	Fr.	..	26x 8x1½	65	58.00
1960059G1	800	S	Bk.	Bk.	..	18x 6x1½	50	48.00
1960059G2	800	S	Fr.	Fr.	..	18x 8x1½	55	41.00
1960059G3	800	S	Fr.	Bk.	..	18x 8x1½	55	45.00
1960059G4	800	S	Bk.	Fr.	..	18x 8x1½	55	45.00
1960061G7	1200	D	Bk.	Bk.	..	28x10x2	115	98.00
1960061G8	1200	D	Bk.	Fr.	..	28x10x2	115	86.00
1960059G5	1200	S	Bk.	Bk.	..	18x10x1½	85	70.00
1960059G6	1200	S	Fr.	Fr.	..	18x10x1½	80	58.00
1960059G7	1200	S	Fr.	Bk.	..	18x10x1½	80	64.00
1960059G8	1200	S	Bk.	Fr.	..	18x10x1½	80	64.00
1960062G1	1600	D	Bk.	V Bk.	H	28x10x2	135	126.00
1960062G2	1600	D	Bk.	V Fr.	H	28x10x2	120	112.00
1960060G1	1600	S	Bk.	V Bk.	H	18x10x1½	100	90.00
1960060G2	1600	S	Fr.	H Fr.	H	18x10x1½	85	76.00
1960060G3	1600	S	Fr.	H Bk.	H	18x10x1½	90	83.00
1960060G4	1600	S	Bk.	V Fr.	H	18x10x1½	90	83.00
1960062G3	2000	D	Bk.	V Bk.	H	28x12x2	140	166.00
1960062G4	2000	D	Bk.	V Fr.	H	28x12x2	125	148.00
1960060G5	2000	S	Bk.	V Bk.	H	18x10x2	115	121.00
1960060G6	2000	S	Fr.	H Fr.	H	18x12x2	100	103.00
1960060G7	2000	S	Fr.	H Bk.	H	18x12x2	110	112.00
1960060G8	2000	S	Bk.	V Ft.	H	18x12x2	110	112.00
1960062G5	3000	D	Bk.	V Bk.	H	28x12x2	180	215.00
1960062G6	3000	D	Bk.	V Fr.	H	28x12x2	165	195.00
1960063G1	3000	S	Bk.	V Bk.	H	18x10x2	135	161.00
1960063G2	3000	S	Fr.	H Fr.	H	18x12x2	115	141.00
1960063G3	3000	S	Fr.	H Bk.	H	18x12x2	115	151.00
1960063G4	3000	S	Bk.	V Fr.	H	18x12x2	115	151.00

## G-E Combination Safety Catches and Opening Devices

For Type LG-116 Disconnecting Switches



These combination safety catches and opening devices are for use on single-throw switches only. Prices on combinations for double-throw switches will be furnished upon application.

They must be used, together in combination form and neither can be used separately.

These devices permit of the release of the catch and the opening of the switch with one operation of the switch hook.

Cat. No.	Volts	Cap. Amps.	Contact Connection	Ship. Wt., Lbs.	Price Each
1995990G8	2500	300	Front	3	\$3.50
			Back		
1995990G9	2500	600	Front	3	4.00
			Back		
1995990G10	2500	800	Front	4	7.00
			Back		
1995990G11	2500	1200	Front	4	8.50
			Back		
1995990G12	2500	1600	Front	5	13.50
			Back		
1995990G13	2500	2000	Front	5	15.00
			Back		
1995990G14	2500	3000	Front	6	16.50
			Back		

## G-E Switch Hooks

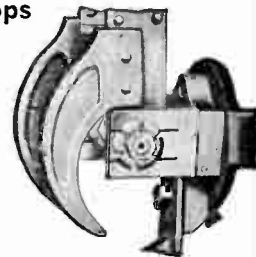
For Type LG-116 Disconnecting Switches

Cat. No.	Maximum Voltage	Length of Handle, Feet	Shipping Wt., Lbs.	Price Each
65849	15000	4	10	\$4.00
65850	25000	8	15	7.00

## G-E 90-Degree Blade Stops

For Type LG-116 Disconnecting Switches

It is often desirable to provide stops for switches in order to prevent them from accidentally coming in contact with other apparatus, or to prevent the closing of a double-throw switch in the wrong throw.

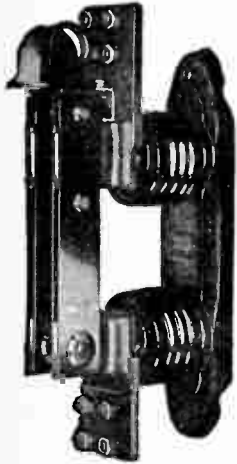


Cat. No.	Cap. Amps.	Shipping Wt., Lbs.	Price Each
1960395G1	300	1	\$4.00
1960395G2	600	1	4.00
1960395G3	800	1	4.00
1960395G4	1200	2	4.00
1960395G5	*1600	2	6.00
1960395G6	*2000	2	6.00
1960395G7	*3000	2	7.00

\*Require 2 stops per switch.

**G-E Type LG-17B Disconnecting Switches**  
Indoor Type, Single-pole, Single and Double-throw

With Moderate Duty Insulators and Safety Catches Mounted on Oval Metal Bases for Flat Surface or 1/4-inch Pipe Mounting  
15000 Volts



Back connected 1200-amp. and below, have round studs. 1200-amp. back connected, have 2 nuts per stud but no terminals. Adapter plate with 2 terminals and necessary bolts and nuts No. 2609820G1 must be ordered separately if desired. 800-amp. and below, back connected, have 2 nuts and one terminal per stud. Front connected 1200-amp. are complete with 4 hex. head bolts and nuts per clip block but no terminals. Adapter plate with 2 terminals and necessary bolts and nuts No. 262275G1 must be ordered separately if desired. 800-amp. and below, front connected are complete with set of terminals with bolts and nuts. 800-amp. have 4 bolts and nuts per terminal. 200, 400 and 600-amp. have one bolt and nut per terminal complete with a doweled

locking washer. Clip blocks in addition to hole for bolt have 4 small holes in which 2 dowels on locking fit. These projections go through 2 holes in terminal itself and then into 2 of the holes in clip block and prevent terminal from turning or twisting. Terminal can be mounted straight out or swung to either right or left.

When it is desired to mount Type LG-17B switches listed below on 1/4-inch pipe (not included), add for each switch two 1/2-inch half yokes with nut for clamping base to pipe.

**Single-pole, Single-throw**

Front Connected Contact and Back Connected Hinge				Back Connected Contact and Front Connected Hinge			
Cat. No.	Amp.	Shp. Wt., Lbs.	*Price Each	Cat. No.	Amp.	Shp. Wt., Lbs.	*Price Each
2194152G1	200	38	\$30.00	2194170G1	800	75	\$62.00
2194158G1	400	48	38.00	2194177G1	1200	90	84.00
2194164G1	600	55	46.00				
Back Connected Contact and Front Connected Hinge				Front Connected Contact and Front Connected Hinge			
2194152G2	200	38	\$30.00	2194170G2	800	75	\$62.00
2194158G2	400	48	38.00	2194177G2	1200	90	84.00
2194164G2	600	55	46.00				
Back Connected Contact and Back Connected Hinge				Back Connected Contact and Back Connected Hinge			
2194152G3	200	40	\$34.00	2194170G3	800	80	\$73.00
2194158G3	400	50	43.00	2194177G3	1200	110	99.00
2194164G3	600	60	55.00				
Front Connected Contact and Front Connected Hinge				Front Connected Contact and Front Connected Hinge			
2194152G4	200	35	\$27.00	2194170G4	800	65	\$49.00
2194158G4	400	45	33.00	2194177G4	1200	70	69.00
2194164G4	600	50	38.00				

**Single-pole, Double-throw**

1 Front Connected Contact, Other Contact and Hinge Back Connected				2 Back Connected Contacts and Back Connected Hinge			
Cat. No.	Amp.	Shp. Wt., Lbs.	*Price Each	Cat. No.	Amp.	Shp. Wt., Lbs.	*Price Each
2194153G1	200	58	\$46.00	2194171G1	800	103	\$91.00
2194159G1	400	68	60.00	2194178G1	1200	130	127.00
2194165G1	600	80	68.00				
2 Front Connected Contacts and Back Connected Hinge				2 Front Connected Contacts and Front Connected Hinge			
2194153G2	200	60	\$49.00	2194171G2	800	105	102.00
2194159G2	400	75	67.00	2194178G2	1200	145	141.00
2194165G2	600	85	76.00				
2 Front Connected Contacts and Back Connected Hinge				2 Front Connected Contacts and Front Connected Hinge			
2194153G3	200	55	\$39.00	2194171G3	800	95	\$79.00
2194159G3	400	70	53.00	2194179G1	1200	115	114.00
2194165G3	600	75	61.00				
2 Front Connected Contacts and Front Connected Hinge				2 Front Connected Contacts and Front Connected Hinge			
2194153G4	200	50	\$35.00	2194171G4	800	85	\$69.00
2194159G4	400	65	46.00	2194179G2	1200	95	99.00
2194165G4	600	70	53.00				

\*Pipe and fittings for mounting on pipe not included. For No. 195406 half yoke with nut for pipe mounting, (2 required for each switch), add 12 cents each.

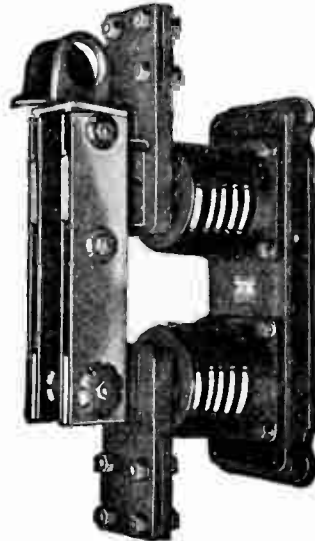
**Terminals for 1200-ampere Switches**

†Cat. No.	Cable Hole Inside	Bolt Hole, In.	Stud Hole, In.	Connection Used on	Shp. Wt., Lbs. per 100	Price per 100
2672275G1	2-1.699	4 1/8	1 1/2	Front	1000	\$800.00
2609820G1	2-1.699	4 1/8	1 1/2	Back	1000	800.00

†Catalogue numbers include one adapter with 2 terminals and necessary bolts, nuts and washers.

**G-E Type LG-17C Disconnecting Switches**  
Indoor Type, Single-pole, Single and Double-throw

With Heavy Duty Insulators and Safety Catches Mounted on Rectangular Metal Bases for Flat Surface or 1/4-inch Pipe Mounting  
15000 Volts



When it is desired to mount Type LG-17C switches listed below on 1 1/4-inch pipe (not included) add for each switch four 1/2-inch half yokes with nut for clamping base to pipe.

All switches below have laminated blocks and stud for bar connection. Round back connected studs are not available. Nuts and terminals not recommended on switches above 1200-ampere capacity.

**Single-pole, Single-throw**

Front Connected Contact and Back Connected Hinge					
Cat. No.	Amp.	ARRANGEMENT OF SLOTS Hinge	CONTACT	Shp. Wt., Lbs.	Price Each
2194186G1	1600	Vert.	Hor.	155	\$110.00
2194186G4	1600	Hor.	"	155	110.00
2194192G1	2000	Vert.	"	185	134.00
2194192G4	2000	Hor.	"	185	134.00
2194198G1	3000	Vert.	"	205	193.00
2194198G4	3000	Hor.	"	205	193.00
Back Connected Contact and Front Connected Hinge					
2194186G2	1600	Hor.	Vert.	155	\$110.00
2194186G3	1600	"	Hor.	155	110.00
2194192G2	2000	"	Vert.	185	134.00
2194192G3	2000	"	Hor.	185	134.00
2194198G2	3000	"	Vert.	205	193.00
2194198G3	3000	"	Hor.	205	193.00
Back Connected Contact and Back Connected Hinge					
2194187G1	1600	Hor.	Hor.	165	\$133.00
2194187G2	1600	Vert.	Vert.	165	133.00
2194187G3	1600	Hor.	"	165	133.00
2194187G4	1600	Vert.	Hor.	165	133.00
2194193G1	2000	Hor.	"	220	160.00
2194193G2	2000	Vert.	Vert.	220	160.00
2194193G3	2000	Hor.	"	220	160.00
2194193G4	2000	Vert.	Hor.	220	160.00
2194199G1	3000	Hor.	"	230	234.00
2194199G2	3000	Vert.	Vert.	230	234.00
2194199G3	3000	Hor.	"	230	234.00
2194199G4	3000	Vert.	Hor.	230	234.00
Front Connected Contact and Front Connected Hinge					
2194186G5	1600	Hor.	Hor.	140	\$87.00
2194192G5	2000	"	"	150	107.00
2194198G5	3000	"	"	175	152.00

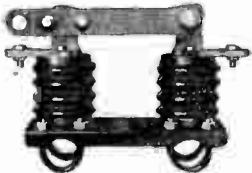
**Single-pole, Double-throw**

1 Front Connected Contact, Other Contact and Hinge Back Connected					
Cat. No.	Amp.	ARRANGEMENT OF SLOTS Hinge	CONTACT	Shp. Wt., Lbs.	Price Each
2194188G1	1600	Vert.	Both Hor.	215	\$165.00
2194194G1	2000	"	"	275	202.00
2194200G1	3000	"	Vert.	300	296.00
2 Back Connected Contacts and Back Connected Hinge					
2194188G2	1600	Vert.	Both Hor.	225	\$184.00
2194194G2	2000	"	"	300	225.00
2194200G2	3000	"	"	325	328.00
2 Front Connected Contacts and Back Connected Hinge					
2194188G3	1600	Vert.	Both Hor.	210	\$142.00
2194194G3	2000	"	"	325	171.00
2194200G3	3000	"	"	260	244.00
2 Front Connected Contacts and Front Connected Hinge					
2194188G4	1600	Hor.	Both Hor.	190	\$123.00
2194194G4	2000	"	"	200	149.00
2194200G4	3000	"	"	225	213.00

\*Pipe and fittings for mounting on pipe not included. For No. 195406 half yoke with nut for pipe mounting (4 required for each switch) add 12 cents each.

## Three-E Disconnecting Switches

### Indoor Type



Cat. No. 10400-Z

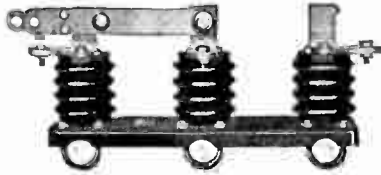
This switch has interchangeable parts construction. Has double blades which insure large radiating area and consequent cool operation.

Can be adapted for flat mounting by removing U-bolts.

Can be supplied with or without locking device.

### Type U-1, Single Throw—1¼-Inch Pipe Mounting

Cat. No.		Voltage	Amperage	Shipping Wt., Lbs.	Price Each
With Lock	Without Lock				
10401-Z	10400-Z	7500	300	24	\$30.80
10403-Z	10402-Z	7500	300	24	35.70
10405-Z	10404-Z	15000	300	26	32.50
		15000	300	26	37.40
		25000	300	28	38.10
		25000	300	38	43.00



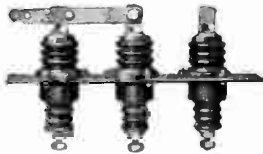
Cat. No. 10417-Z

### Type U-2, Double Throw—1¼-Inch Pipe Mounting

10416-Z	10416-Z	7500	300	30	\$43.90
10417-Z		7500	300	30	48.80
	10418-Z	15000	300	34	45.90
10419-Z		15000	300	34	50.80
	10420-Z	25000	300	39	53.40
10421-Z		25000	300	39	58.30



Cat. No. 11928-Z



Cat. No. 11973-Z

### Type W-5, Single Throw—Flat Mounting

11929-Z	11928-Z	7500	300	36	\$45.00
		7500	300	36	49.90
12017-Z	12016-Z	15000	300	46	48.00
		15000	300	46	52.90
12105-Z	12104-Z	25000	300	52	63.20
		25000	300	52	68.10

### Type W-25, Double Throw—Flat Mounting

11972-Z	11972-Z	7500	300	51	\$67.60
11973-Z		7500	300	51	72.50
	12060-Z	15000	300	66	72.50
12061-Z		15000	300	66	77.40
	12148-Z	25000	300	76	95.90
12149-Z		25000	300	76	100.80



Cat. No. 12193-Z



Cat. No. 12237

### Type W-6, Single Throw—Flat Mounting

12193-Z	12192-Z	7500	300	30	\$35.60
		7500	300	30	40.50
	12280-Z	15000	300	34	40.10
12281-Z		15000	300	34	45.00
	12368-Z	25000	300	41	50.00
12369-Z		25000	300	41	54.90

### Type W-26, Double Throw—Flat Mounting

12236-Z	12236-Z	7500	300	40	\$51.90
12237-Z		7500	300	40	56.80
	12324-Z	15000	300	49	54.80
12325-Z		15000	300	49	59.70
	12412-Z	25000	300	56	67.50
12413-Z		25000	300	56	72.40

## Three-E Disconnecting Switches

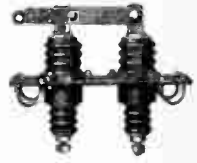
### Indoor Type



Type U-6



Type U-7



Type U-5



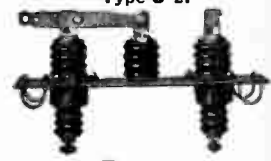
Type U-26



Type U-27



Type U-29



Type U-28



Type U-25



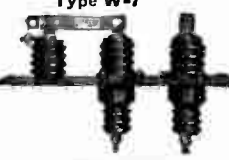
Type W-1



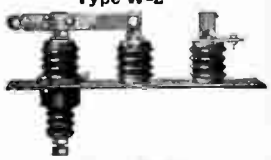
Type W-7



Type W-2



Type W-27



Type W-29



Type W-28



Types M-1 or S-1



Types M-7 or S-7



Types M-6 or S-6



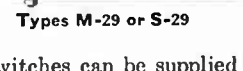
Types M-2 or S-2



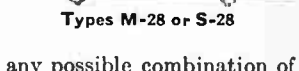
Types M-5 or S-5



Types M-26 or S-26



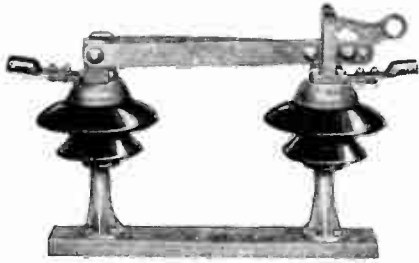
Types M-29 or S-29



Types M-28 or S-28

Switches can be supplied in any possible combination of front and back connection. They can be supplied for either single throw, double throw or transfer style on porcelain insulators, for either pipe or flat mounting and for any voltage from 7500 to 25000 and for any amperage from 100 to 3000 and either with or without lock from 300 amperes up. Likewise any switch can be had mounted on either slate or marble base in any of the above types or amperate rates.

Three-E Disconnecting Switches



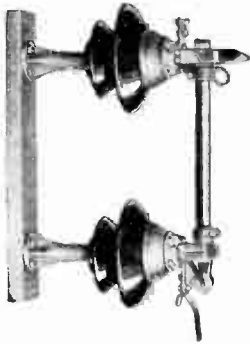
Type DU-DI

Voltage	Amperage	Shipping Weight Pounds	WITHOUT LOCK		WITH LOCK	
			Cat. No.	Price Each	Cat. No.	Price Each
7500	300	63	31000	\$35.90	31001	\$41.50
15000	300	77	31014	43.00	31015	46.00
25000	300	86	31028	50.00	31029	53.00
37000	300	112	31042	55.20	31043	58.40
50000	300	158	31056	81.30	31057	84.30
73000	300	180	31070	133.00	31071	136.00

Three-E Outdoor Disconnecting Switches can be supplied for either upright, underhung or 55-degree vertical mounting. They are made in single throw, double throw and transfer styles for voltages to 73000 and up to 2000 amperes.

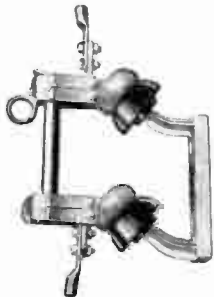
Three-E Fuse Disconnects

Type FVH-D



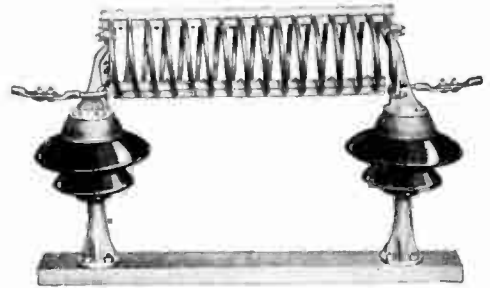
Cat. No.	Voltage	Shipping Wt., Lbs.	Price Each
77650	7500	70	\$64.00
77651	15000	85	74.00
77652	25000	95	79.00
77653	37000	115	85.00
77654	50000	175	109.00
77655	73000	200	165.00

Type FV-J



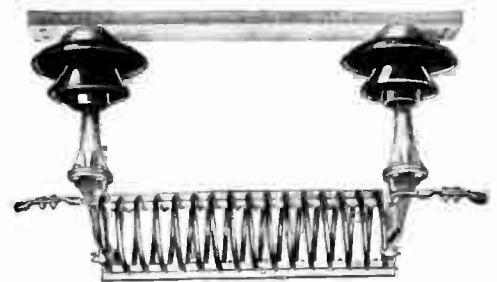
Cat. No.	Voltage	Shipping Wt., Lbs.	Price Each
79040	4500	25	\$25.00
79041	7500	30	28.00
79042	15000	35	34.00
79043	25000	40	37.00

Three-E Outdoor Choke Coils



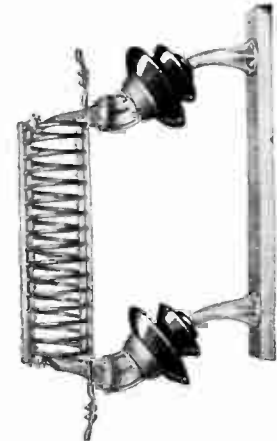
Cat. No. 60522, Type PU-D

Cat. No.	Voltage	Amperage	Shipping Wt., Lbs.	Price Each
66500	7500	100	125	\$42.00
66501	15000	100	145	49.00
66502	25000	100	150	53.00



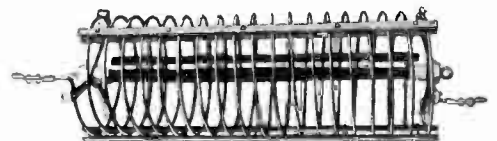
Cat. No. 65122, Type PH-D

Cat. No.	Voltage	Amperage	Shipping Wt., Lbs.	Price Each
66600	7500	100	125	\$42.00
66601	15000	100	145	49.00
66602	25000	100	150	53.00



Cat. No. 65223, Type PV-D

Cat. No.	Voltage	Amperage	Shipping Wt., Lbs.	Price Each
66700	7500	100	125	\$47.00
66701	15000	100	145	53.00
66702	25000	100	150	58.00



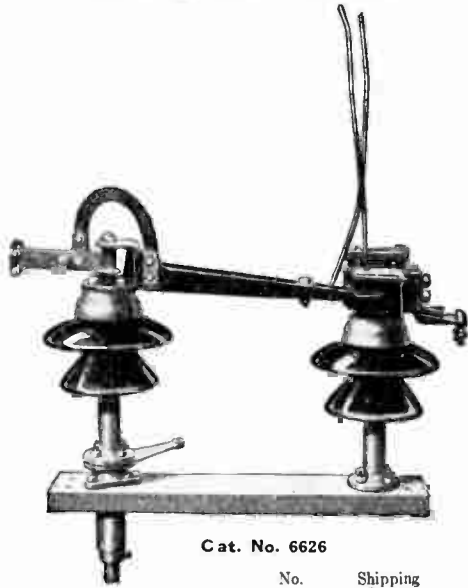
Cat. No. 65425, Type PS

Cat. No.	Voltage	Amperage	Shipping Wt., Lbs.	Price Each
65400	7500	100	35	\$23.00
65402	15-25000	100	45	25.00

Choke Coils can be furnished up to 73000 volts and up to 600 amperes in all of the above styles.

## Type 6600 Three-E Mechanism-Operated Multi-Pole Switches

300 Amperes—15000 to 73000 Volts



Cat. No. 6626

Cat. No.	Voltage	Amperage	No. of Poles	Shipping Weight Pounds	Price Each
6613	7500	150	2	215	\$106.00
6615	7500	150	3	265	144.00
6617	7500	150	4	320	185.00
6625	15000	150	3	290	206.00
6616	15000	300	3	320	250.00
6626	25000	300	3	350	280.00
6637	37000	300	3	375	320.00
6650	50000	300	3	415	420.00
6673	73000	300	3	475	500.00

## EEE Clamp Insulator Supports



Flat Mounting



Pipe Mounting

Clamp insulator supports furnished with larger holes.

FLAT MOUNTING				1 1/4-IN. PIPE MOUNTING			
Cat. No.	A.C. D.C.	Hole In.	Price Each	Cat. No.	A.C. D.C.	Hole In.	Price Each
1401	.....	5/16	\$1.48	1439	.....	5/16	\$2.12
.....	1402	5/16	1.36	.....	1440	5/16	2.00
1403	.....	3/8	1.48	1441	.....	3/8	2.12
.....	1404	3/8	1.36	.....	1442	3/8	2.00
1405	.....	1/2	1.48	1443	.....	1/2	2.12
.....	1406	1/2	1.36	.....	1444	1/2	2.00
1407	.....	5/8	1.86	1445	.....	5/8	2.50
.....	1408	5/8	1.72	.....	1446	5/8	2.36
1409	.....	3/4	1.86	1447	.....	3/4	2.50
.....	1410	3/4	1.72	.....	1448	3/4	2.36
1411	.....	7/8	1.86	1449	.....	7/8	2.50
.....	1412	7/8	1.72	.....	1450	7/8	2.36
1413	.....	1	1.86	1451	.....	1	2.50
.....	1414	1	1.72	.....	1452	1	2.36
1415	.....	1 1/8	1.86	1453	.....	1 1/8	2.50
.....	1416	1 1/8	1.72	.....	1454	1 1/8	2.36
1417	.....	1 1/4	2.64	1455	.....	1 1/4	3.44
.....	1418	1 1/4	2.52	.....	1456	1 1/4	3.32
1419	.....	1 3/8	2.64	1457	.....	1 3/8	3.44
.....	1420	1 3/8	2.52	.....	1458	1 3/8	3.32
1421	.....	1 1/2	2.64	1459	.....	1 1/2	3.44
.....	1422	1 1/2	2.52	.....	1460	1 1/2	3.32
1423	.....	1 3/4	3.74	1461	.....	1 3/4	4.54
.....	1424	1 3/4	3.54	.....	1462	1 3/4	4.34
1425	.....	2	3.74	1463	.....	2	4.54
.....	1426	2	3.54	.....	1464	2	4.34

## Three-E Indoor Cable End Bells



Cat. No.	Type	No. of Conductors	Voltage	MAXIMUM OUTSIDE DIAMETER CABLE, INCHES		Amt. Compound Required Gals.	Shipping Wt. Lbs.	PRICE, EACH	
				Wiped or Joint	Pipe Joint			Without Compound	With Compound
107	10-AF	2	4000	1 3/4	1 3/8	1/2	25	\$15.20	\$17.20
108	10-AF	3	4000	1 3/4	1 3/8	1/2	25	15.80	17.80
101	10-F	2	7500	3 1/8	2 3/4	1	50	23.20	27.20
102	10-F	3	7500	3 1/8	2 3/4	1	50	25.00	29.00
145	14-F	2	35000	4 1/2	3 3/4	1 1/2	65	57.00	63.00
143	14-F	3	35000	4 1/2	3 3/4	1 1/2	65	59.00	65.00
500	50-AF	1	7500	1 3/8	1	1/8	10	13.16	13.66
501	50-AF	1	15000	1 3/8	1	1/8	10	14.46	14.96
820	82-F	2	15000	3 3/8	3	1	50	32.00	36.00
821	82-F	3	15000	3 3/8	3	1	50	33.60	37.60

## Three-E Outdoor Cable End Bells



Cat. No.	Type	No. of Conductors	Voltage	MAXIMUM OUTSIDE DIAMETER CABLE, INCHES		Amt. Compound Required Gals.	Shipping Wt. Lbs.	PRICE, EACH	
				Wiped or Joint	Pipe Joint			Without Compound	With Compound
15005	TC-82	2	3000	2 7/8	2 7/8	1	65	\$43.00	\$47.00
15001	TC-82	3	3000	2 7/8	2 7/8	1	70	49.00	53.00
15007	TC-14	2	7500	2 5/8	2 5/8	1 1/2	80	69.00	75.00
15004	TC-14	3	7500	2 5/8	2 5/8	1 1/2	85	79.00	85.00
15011	TC-28	2	15000	3 1/4	3 1/4	2	100	83.00	91.00
15009	TC-28	3	15000	3 1/4	3 1/4	2	105	95.00	103.00

Three-E Cable End Bells, both indoor and outdoor, can be furnished in a large number of shapes and sizes to meet any installation condition.



Customers should always specify the following on their orders. Voltage of circuit, number of conductors, gauge of cable, exact overall diameter of cable over lead sheath, type of joint required. (All bells are made to either screw on pipe or clamp, or wipe on cable) if pipe joint size of pipe must be also specified.

If customers will co-operate in giving this information, delays in shipment of material will be avoided.

**Form A Three-E Indoor Insulating Supports**



Type AF

**Type AF, Flat Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
20130	2	3500	\$6.10
20131	2	7500	6.25
20132	2	15000	6.65
20138	3	3500	6.30
20139	3	7500	6.45
20140	3	15000	6.85
20142	4	3500	6.90
20143	4	7500	7.05
20144	4	15000	7.45

**Type AF, 1/4-Inch Pipe Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
20170	2	3500	\$6.25
20171	2	7500	6.40
20172	2	15000	6.80
20178	3	3500	6.45
20179	3	7500	6.60
20180	3	15000	7.00
20182	4	3500	7.05
20183	4	7500	7.20
20184	4	1500	7.60



Type AF

**Type TF, Flat Mounting**



Type TF

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
20290	2	3500	\$4.90
20291	2	7500	5.05
20292	2	15000	5.45
20298	3	3500	5.40
20299	3	7500	5.55
20300	3	15000	5.95
20302	4	3500	5.65
20303	4	7500	5.80
20304	4	15000	6.20

**Type TP, 1/4-Inch Pipe Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
20330	2	3500	\$5.05
20331	2	7500	5.20
20332	2	15000	5.60
20338	3	3500	5.55
20339	3	7500	5.70
20340	3	15000	6.10
20342	4	3500	5.80
20343	4	7500	6.00
20344	4	15000	6.40



Type TP

**Type LF, Flat Mounting**



Type LF

Cat. No.	Diameter Bus, Inches	Volt-age	Price Each
20514	0-13/32	3500	\$4.90
20515	0-13/32	7500	5.05
20516	0-13/32	15000	5.45
20518	13/32-11/16	3500	5.10
20519	13/32-11/16	7500	5.25
20520	13/32-11/16	15000	5.65
20522	11/16-13/4	3500	5.45
20523	11/16-13/4	7500	5.60
20524	11/16-13/4	15000	6.00

**Type FP, 1/4-Inch Pipe Mounting**

Cat. No.	Diameter Bus, Inches	Volt-age	Price Each
20538	3/16-1/2	3500	\$5.05
20539	3/16-1/2	7500	5.20
20540	3/16-1/2	15000	5.60
20542	1/2-1	3500	5.25
20543	1/2-1	7500	5.40
20544	1/2-1	15000	5.80
20546	1-13/4	3500	5.60
20547	1-13/4	7500	5.75
20548	1-13/4	15000	6.15



Type FP

**Form D Three-E Outdoor Insulating Supports**



Type DAF

**Type DAF, Flat Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
102000	2	7500	\$10.90
102002	3	7500	11.20
102003	4	7500	11.50
102010	2	15000	13.10
102012	3	15000	13.40
102013	4	15000	13.70
102020	2	25000	14.90
102022	3	25000	15.20
102023	4	25000	15.50

**Type DAP, 1/4-Inch Pipe Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
102100	2	7500	\$14.60
102102	3	7500	14.90
102103	4	7500	15.20
102110	2	15000	16.80
102112	3	15000	17.10
102113	4	15000	17.40
102120	2	25000	18.60
102122	3	25000	18.90
102123	4	25000	19.20



Type DAP

**Type DTF, Flat Mounting**



Type DTF

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
112000	2	7500	\$8.90
112002	3	7500	9.10
112003	4	7500	9.30
112010	2	15000	11.10
112012	3	15000	11.30
112013	4	15000	11.50
112020	2	25000	12.90
112022	3	25000	13.10
112023	4	25000	13.30

**Type DTP, 1/4-Inch Pipe Mounting**

Cat. No.	Size of Bar, Inches	Volt-age	Price Each
112100	2	7500	\$12.60
112102	3	7500	12.80
112103	4	7500	13.00
112110	2	15000	14.80
112112	3	15000	15.00
112113	4	15000	15.20
112120	2	25000	16.60
112122	3	25000	16.80
112123	4	25000	17.00



Type DTP

**Type DFF, Flat Mounting**



Type DFF

Cat. No.	Size of Bus, Inches	Volt-age	Price Each
118000	0-13/32	7500	\$8.00
118001	13/32-11/16	7500	8.10
118002	11/16-13/4	7500	8.20
118010	0-13/32	15000	10.20
118011	13/32-11/16	15000	10.30
118012	11/16-13/4	15000	10.40
118020	0-13/32	25000	12.00
118021	13/32-11/16	25000	12.10
118022	11/16-13/4	25000	12.20

**Type DFP, 1/4-Inch Pipe Mounting**

Cat. No.	Size of Bus, Inches	Volt-age	Price Each
118100	0-13/32	7500	\$11.70
118101	13/32-11/16	7500	11.80
118102	11/16-13/4	7500	11.90
118110	0-13/32	15000	13.90
118111	13/32-11/16	15000	14.00
118112	11/16-13/4	15000	14.10
118120	0-13/32	25000	15.70
118121	13/32-11/16	25000	15.90
118122	11/16-13/4	25000	16.00



Type DFP

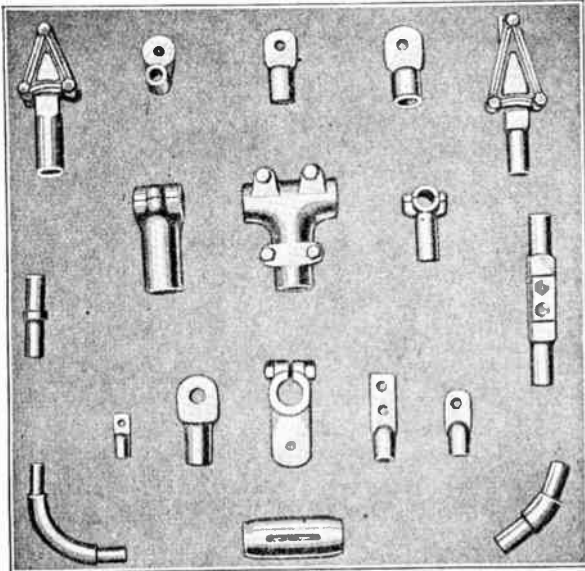
Can be supplied up to 25000 volts for all types.

Outdoor Bus Supports can be supplied up to 7300 volts for all types and arrangements. Only upright supports are shown here, all other styles can be furnished.

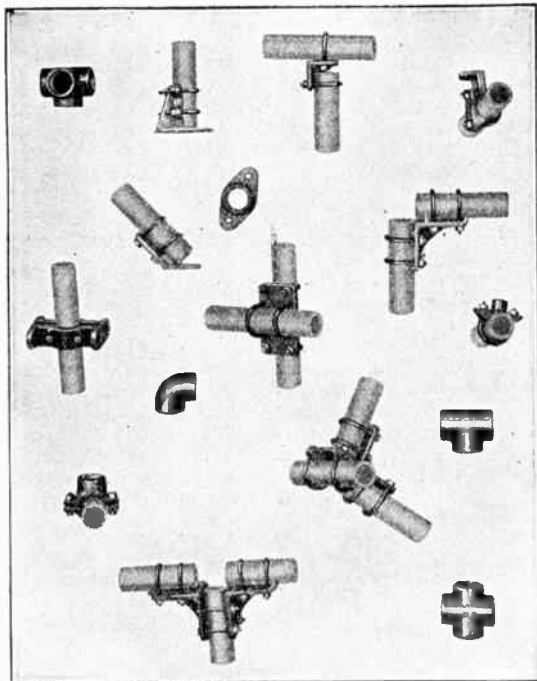


## Three-E Electrical Conductor Fittings

For Wire, Cable, Rod, Tubing and Bar

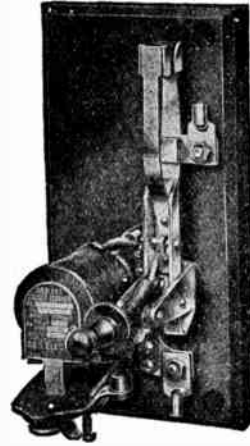


## Three-E Switchboard Structural Devices



The above illustrations show but a small portion of the Three-E line of pipe fittings. Fittings can be supplied for the popular pipe sizes in all manner of shapes to meet most any conceivable condition.

## G-E Type CG Air Circuit Breakers



Direct Current, Overload  
Single-pole, 550 Volts or Less

CATALOGUE NUMBERS Front Con- nected on Base	Back Connected for 1½ or 2-in. Panel	Cap. Amps.	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
39899	39911	3	20	12	\$26.00
39903	39915	5	20	12	26.00
39907	39919	10	20	12	26.00
35483	35507	15	20	12	26.00
35487	35511	25	20	12	30.00
35491	35515	50	20	12	30.00
35495	35519	100	20	12	30.00
35499	35523	200	32	20	42.00
35503	35527	300	32	20	45.00
Double-pole, 550 Volts or Less					
39900	39912	3	30	15	\$38.00
39904	39916	5	30	15	38.00
39908	39920	10	30	15	38.00
35484	35508	15	30	15	38.00
35488	35512	25	30	15	44.00
35492	35516	50	30	15	44.00
35496	35520	100	30	15	44.00
35500	35524	200	50	35	64.00
35504	35528	300	50	35	70.00

Approximate calibration is from 50 to 150 per cent of normal current.

Direct Current, \*Plain Shunt Trip  
Single-pole, 550 Volts or Less

CATALOGUE NUMBERS Front Con- nected on Base	Back Connected for 1½ or 2-in. Panel	Cap. Amps.	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
110571	110583	100	20	12	\$30.00
110575	110587	200	32	20	42.00
110579	110591	300	32	20	45.00
†Double-pole, 550 Volts					
110572	110584	100	25	15	\$42.00
110576	110588	200	48	32	64.00
110580	110592	300	48	32	70.00

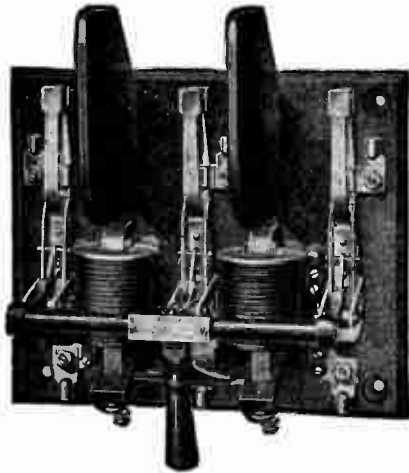
Capacities below 100 amperes, same price.

No overload coils on these breakers.

\*Shunt trip coils are intended for momentary operation only and must not be left in circuit continuously after being energized. Connections should be so arranged that the opening of the circuit breaker will disconnect the shunt trip circuit. If for any reason, however, the shunt trip has to be connected to the line side a circuit opening auxiliary switch should be mounted on the breaker to open the trip circuit.

†Double-pole plain shunt breakers trip both poles, same as overload breakers.

G-E Type CG Air Circuit Breakers



Direct Current, Underload

Underload breakers are calibrated at the factory to trip on 20 per cent of the carrying capacity. They can be set to trip at any point as low as 10 per cent if so specified on the requisition.

Single-pole, 550 Volts or Less

CATALOGUE NUMBERS Front Con- nected On Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
37493	37517	15	20	12	\$30.00
37497	37521	25	20	12	32.00
37501	37525	50	20	12	32.00
37505	37529	100	20	12	32.00
37509	37533	200	32	20	45.00
37513	37537	300	32	20	48.00

Double-pole, 550 Volts or Less

CATALOGUE NUMBERS	Front Con- nected On Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps	On Base	For Panel	Price Each
37494	37518	15	30	15	15	\$44.00
37498	37522	25	30	15	15	47.00
37502	37526	50	30	15	15	47.00
37506	37530	100	30	15	15	47.00
37510	37534	200	50	35	35	68.00
37514	37538	300	50	35	35	75.00

Alternating Current, Overload

Single-pole, 600 Volts or Less

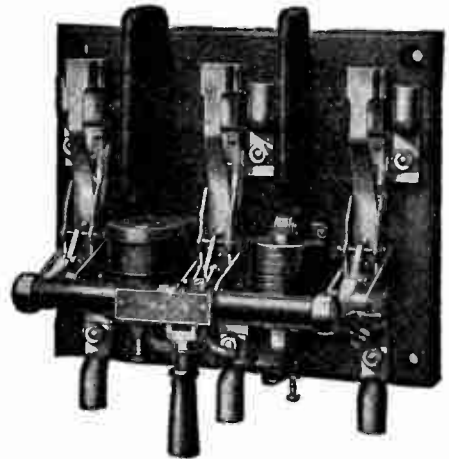
CATALOGUE NUMBERS Front Con- nected On Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
43340	43352	3	20	12	\$31.00
43344	43356	5	20	12	31.00
43348	43360	10	20	12	31.00
38144	38168	15	20	12	31.00
38148	38172	25	20	12	36.00
38152	38176	50	20	12	36.00
38156	38180	100	20	12	36.00
38160	38184	200	32	20	50.00
38164	38188	300	32	20	54.00

Double-pole, 600 Volts or Less

CATALOGUE NUMBERS	Front Con- nected On Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps	On Base	For Panel	Price Each
43341	43353	3	30	15	15	\$46.00
43345	43357	5	30	15	15	46.00
43349	43361	10	30	15	15	46.00
38145	38169	15	30	15	15	46.00
38149	38173	25	30	15	15	50.00
38153	38177	50	30	15	15	50.00
38157	38181	100	30	15	15	50.00
38161	38185	200	50	35	35	75.00
38165	38189	300	50	35	35	84.00

NOTE.—Approximate calibration is from 50 to 150 per cent of the normal capacity.

G-E Type CG Air Circuit Breakers



Each breaker calibrated individually. Wide range of calibration. Close easily; do not jar open.

Double-pole breakers, each pole separate handle; triple-pole breakers, one handle for all poles and "trip free" feature.

Alternating Current, Overload  
Triple-pole, 600 Volts, Two Overload Coils

CATALOGUE NUMBERS Front Connected on Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps.	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
46268	46277	3	44	40	\$82.00
46269	46278	5	44	40	82.00
46270	46279	10	44	40	82.00
38190	38214	15	44	40	82.00
38191	38215	25	44	40	94.00
38192	38216	50	44	40	94.00
38193	38217	100	44	40	94.00
38194	38218	200	70	55	130.00
38195	38219	300	70	55	145.00

Triple-pole, 600 Volts  
One Overload and One Under-voltage Coil

CATALOGUE NUMBERS	Front Connected on Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps.	On Base	For Panel	Price Each
46274	46283	3	47	44	44	\$86.00
46275	46284	5	47	44	44	86.00
46276	46285	10	47	44	44	86.00
38202	38220	15	47	44	44	86.00
38203	38221	25	47	44	44	96.00
38204	38222	50	47	44	44	96.00
38205	38223	100	47	44	44	96.00
38206	38224	200	70	55	55	132.00
38207	38225	300	70	55	55	145.00

NOTE.—Approximate calibration is from 50 to 150 per cent of the normal capacity.

Alternating Current, Plain Shunt Trip

Capacities below 100 amperes same price.

Shunt trip coils are intended for momentary operation only and must not be left in circuit continuously after being energized. Connections should be so arranged that the opening of the circuit breaker will disconnect the shunt trip circuit. If for any reason, however, the shunt trip has to be connected to the line side a circuit opening auxiliary switch should be mounted on the breaker to open the trip circuit.

Single-pole, 600 Volts or Less

CATALOGUE NUMBERS Front Connected on Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps.	APPROXIMATE SHIPPING WT., LBS.		Price Each
			On Base	For Panel	
110547	110559	100	20	12	\$34.00
110551	110563	200	32	20	46.00
110555	110567	300	32	20	49.00

Double-pole, 600 Volts or Less

CATALOGUE NUMBERS	Front Connected on Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps.	On Base	For Panel	Price Each
110548	110560	100	25	15	15	\$48.00
110552	110564	200	48	32	32	70.00
110556	110568	300	48	32	32	76.00

Triple-pole, 600 Volts or Less

CATALOGUE NUMBERS	Front Connected on Base	Back Connected For 1½ or 2-in. Panel	Cap. Amps.	On Base	For Panel	Price Each
110593	110596	100	40	30	30	\$64.00
110594	110597	200	65	50	50	104.00
110595	110598	300	65	50	50	114.00

## G-E Undervoltage Attachments

For Type CG Circuit Breakers



By the use of undervoltage release attachment, circuit breakers may be arranged to operate on a drop in or cessation of voltage, two or more circuit breakers may be electrically interlocked and by use of a switch to short-circuit undervoltage release, circuit breakers may be tripped from one or more remote points.

### For D.C.

Cat. No.	Voltage of Circuit	Approx. Releasing Voltage	DESCRIPTION OF CIRCUIT BREAKER Cap. Amps.	No. of Poles	Price Each
37539	125	60	3 to 100	Single and Double	\$11.00
37542	125	60	200 and 300	Single and Double	11.00
37540	250	125	3 to 100	Single and Double	13.00
37543	250	125	200 and 300	Single and Double	13.00
37541	500	250	3 to 100	Single and Double	16.00
37544	500	250	200 and 300	Single and Double	16.00

### For A.C.

43378	125	60	3 to 100	Single and Double	\$12.00
43381	125	60	200 and 300	Single and Double	12.00
43379	250	125	3 to 100	Single and Double	14.00
43382	250	125	200 and 300	Single and Double	14.00
43380	600	300	3 to 100	Single and Double	17.00
43383	600	300	200 and 300	Single and Double	17.00

## G-E Shunt Trip Attachments

For Type CG Circuit Breakers

The shunt trip has been designed to provide for conditions under which the undervoltage attachment can not be successfully applied. It trips the breaker when energized, and should be allowed to remain in circuit only momentarily.



### For D.C. or A.C.

Cat. No.	Voltage of Circuit	DESCRIPTION OF CIRCUIT BREAKER Cap. Amps.	No. of Poles	Price Each
37545	125-250-500	3 to 100	Single and Double	\$8.00
37546	125-250-500	200 and 300	Single and Double	8.00

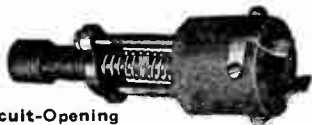
## G-E Auxiliary Switches

For Type CG Circuit Breakers

For D.C. or A.C.



Circuit-Closing



Circuit-Opening

For Breakers 3 to 100 Amperes

COMBINED CIRCUIT OPENING AND CIRCUIT CLOSING

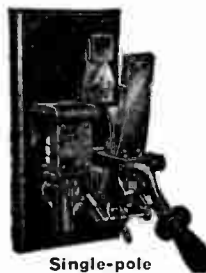
For Mounting On	CIRCUIT CLOSING		CIRCUIT OPENING		COMBINED CIRCUIT OPENING AND CIRCUIT CLOSING	
	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each
1 1/4-Inch Base	37553	\$5.00	37547	\$5.00	37559	\$7.00
1 1/2-Inch Panel	37554	5.00	37548	5.00	37560	7.00
2-Inch Panel	37555	5.00	37549	5.00	37561	7.00

For Breakers 200 and 300 Amperes

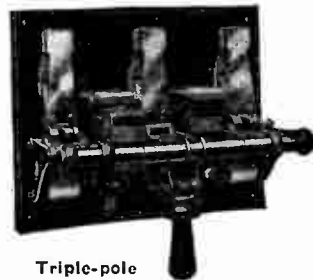
1 1/4-Inch Base	37556	\$5.00	37550	\$5.00	37562	\$7.00
1 1/2-Inch Panel	37557	5.00	37551	5.00	37563	7.00
2-Inch Panel	37558	5.00	37552	5.00	37564	7.00

## G-E Type CP Air Circuit Breakers

Alternating Current—Over Current (Overload) Back Connected



Single-pole



Triple-pole

These breakers may be relied upon to open circuits under severe abnormal conditions. Either the breakers may have self-contained features which provide the particular protection desired, or various attachments or auxiliary devices may be added to give that protection.

They are recommended for use on railway, lighting and power switchboards, or for general industrial service. When used for industrial service, each breaker is usually on a base for separate mounting.

These breakers are simple in design and each part is properly proportioned for the work it has to perform, and at the same time all combine to form a symmetrical and attractive device.

### Single-pole, 650 Volts or Less

CATALOGUE NUMBERS On 1 1/4-inch Base	For 1 1/2 or 2-inch Panel	Capacity Amps.	CALIBRATION Min.	Max.	APPROX. SHIP. WT., LBS. On Base	For Panel	Price Each
2195904G3	2195904G4	15	12	25	40	25	\$45.00
2195914G3	2195914G4	25	20	40	40	25	45.00
2195924G3	2195924G4	50	35	75	40	25	51.00
2195901G3	2195901G4	100	75	150	40	25	53.00
2195932G3	2195932G4	200	150	300	50	30	64.00
2195903G3	2195903G4	300	225	450	50	30	76.00
2195905G3	2195905G4	500	375	750	50	30	100.00
†2195906G3	2195906G4	600	450	900	50	30	119.00
†2195918G1	2195918G2	800	600	1200	50	40	138.00
†2195919G1	2195919G2	1200	900	1800	50	40	186.00
*Double-pole, 480 Volts or Less, One Overload Coils							
2195934G3	2195934G4	15	12	25	50	40	\$65.00
2195944G3	2195944G4	25	20	40	50	40	65.00
2195954G3	2195954G4	50	35	75	50	40	74.00
2196001G3	2196001G4	100	75	150	50	40	77.00
2195902G3	2195902G4	200	150	300	60	50	96.00
2195953G3	2195953G4	300	225	450	100	60	118.00
2195955G3	2195955G4	500	375	750	100	60	160.00
†2195966G3	2195966G4	600	450	900	100	60	190.00
†2195958G1	2195958G2	800	600	1200	140	130	207.00
†2195959G1	2195959G2	1200	900	1800	140	130	279.00
*Double-pole 480 Volts or Less, 2 Overload Coils							
2195964G3	2195964G4	15	12	25	60	50	\$90.00
2195974G3	2195974G4	25	20	40	60	50	90.00
2195984G3	2195984G4	50	35	75	60	50	102.00
2195991G3	2195991G4	100	75	150	60	50	106.00
2196002G3	2196002G4	200	150	300	70	60	128.00
2195983G3	2195983G4	300	225	450	110	85	152.00
2195985G3	2195985G4	500	375	750	110	85	200.00
†2195976G3	2195976G4	600	450	900	110	85	238.00
†2195938G1	2195938G2	800	600	1200	150	130	276.00
†2195939G1	2195939G2	1200	900	1800	150	130	372.00
Triple-pole, 650 Volts or Less, 2 Overload Coils							
2195994G1	2195994G2	15	12	25	80	60	\$119.00
2196004G1	2196004G2	25	20	40	80	60	119.00
2196014G1	2196014G2	50	35	75	80	60	135.00
2196021G1	2196021G2	100	75	150	80	60	140.00
2196012G1	2196012G2	200	150	300	90	80	173.00
2196013G1	2196013G2	300	225	450	150	90	209.00
2196015G1	2196015G2	500	375	750	150	90	305.00
†2196016G1	2196016G2	600	450	900	150	90	358.00
†2195968G1	2195968G2	800	600	1200	200	180	398.00
†2195969G1	2195969G2	1200	900	1800	200	180	652.00

\*Double-pole, 650-volt breakers, prices upon application, stating requirements.

†Mounted on 1 1/2-inch base only.

### Nuts and Terminals

All Type CP Air Circuit Breakers are furnished with a complete set of nuts (2 nuts per stud), but will have only one stud of each pole equipped with a terminal. Additional terminals, if required, should be ordered extra.

**G-E Type CP Air Circuit Breakers**

Direct Current—Plain Shunt Trip—Back Connected



Shunt trip coils are intended for momentary operation only and must not be left in circuit continuously after being energized. Connections should be arranged so that the opening of the circuit breaker will disconnect the shunt trip circuit. If, however, the shunt trip has to be connected to the line side, a circuit opening auxiliary switch should be mounted on the circuit breaker to open the trip circuit.

**\*Single-pole—650 Volts or Less**

CATALOGUE NUMBERS		Cap. Amp.	SHIP. WT., LBS.		Price Each
On 1 1/4-inch Base	For 1 1/2 or 2-inch Panel		On Base	For Panel	
2196041G1	2196041G2	100	40	25	\$48.00
2196042G1	2196042G2	200	50	30	58.00
2196043G1	2196043G2	300	50	30	69.00
2196045G1	2196045G2	500	50	30	91.00
†2196036G1	2196036G2	600	50	30	108.00
†2196058G1	2196058G2	800	50	40	125.00
†2196059G1	2196059G2	1200	50	40	169.00

**\*Double-pole—250 Volts or Less**

2195911G1	2195911G2	100	50	40	\$72.00
2196022G1	2196022G2	200	50	40	87.00
2196023G1	2196023G2	300	100	60	107.00
2196035G1	2196035G2	500	100	60	146.00
†2196026G1	2196026G2	600	100	60	172.00
†2196068G1	2196068G2	800	140	130	188.00
†2196069G1	2196069G2	1200	140	130	254.00

\*The coil used with the shunt trip breaker will operate on any direct-current voltage (650 volts or less).

†Mounted on 1 1/2-inch base.

**G-E Auxiliary Switches**

For Type CP Circuit Breakers

The circuit-closing auxiliary switch is arranged to make contact when the breaker opens and may be used for interlocking schemes or to indicate the opening of a breaker by means of an indicating lamp or bell alarm.

For Single, Double and Triple-Pole, D.C. and A.C.

CATALOGUE NUMBERS		Capacity Breaker Amperes	Price Each
For Mounting on Base 1 1/4-Inch Thick	For Mounting on 1 1/2-Inch Panel		
1937635G35	1937635G36	15-200	\$8.00
1937635G38	1937635G39	300-500	8.00

For Single and Double-Pole, 2-Coil, A.C., Overload Only

\*1937635G43 1937635G43 1937635G44 800-1200 \$8.00

For Single or Double-Pole, D.C.—Double, or Triple-Pole, A.C. Also 600-Ampere Single-Pole A.C.

\*1937635G41 1937635G41 1937635G42 600-1200 \$8.00

\*For mounting on 1/2-inch panel or base.

**G-E Shunt Trip Attachments**

For Type CP Circuit Breakers

The shunt trip attachment causes the breaker to open when energized. The coil should be allowed to remain only momentarily in circuit; hence it should be so connected that the opening of the circuit breaker disconnects it from the circuit.

**Alternating Current**

Cat. No.	Voltage of Circuit	DESCRIPTION OF BREAKER Cap., Amps.	No. of Poles	Price Each
36267	650 or Less	15- 600	1, 2 and 3	\$10.00
43371	650 or Less	800-1200	1	10.00
36268	650 or Less	800-1200	2 and 3	10.00

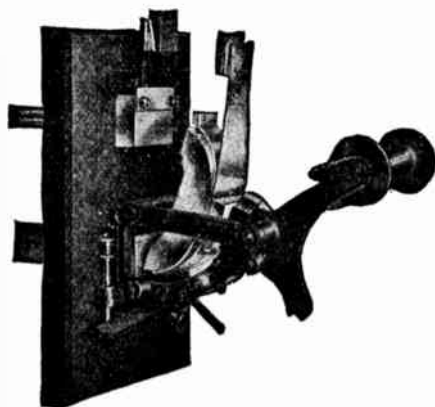
**Direct Current**

36267	650 or Less	15- 600	1, 2 and 3	\$10.00
36269	650 or Less	800-1200	1	10.00
36268	250 or Less	800-1200	2	10.00

Approximate shipping weight, 10 pounds.

**G-E Type CK Air Circuit Breakers**

With Laminated Studs



The Type CK 250-volt circuit breakers are recommended for service where large capacity breakers are required for lighting or power installations.

Terminals are not included with the circuit breaker as in many cases busbar connections are used.

Can be furnished from stock in wide range of capacities.

Are designed with ample conducting parts.

Complete line of attachments.

Require small amount of space on panel.

Close easily.

Very heavy and substantial secondaries.

End on contact construction of main brush.

Heavy brush pressure, high efficiency contact and means of adjusting pressure.

Wiping contact, both main brush and secondaries.

Trip easily but cannot jar open.

Handle and tripping button well insulated from live part of breaker.

Each breaker calibrated individually. Wide range of calibration.

Prices on solenoid, motor and pneumatically-operated circuit breakers on request.

Prices on double-pole, overload shunt trip and under-voltage breakers on request.

**Direct Current—Overload—Back Connected**

Single-pole, 250 Volts

CATALOGUE NUMBERS		Amps.	CALIBRATION		Approx. Shipping Wt., Lbs.	Price Each
For 2-inch Panel	For 2 1/2-inch Panel		Min.	Max.		
1912301G1	.....	1500	1000	3000	100	\$200.00
1912303G1	.....	2000	1200	4000	100	260.00
1912305G1	.....	3000	1500	6000	150	370.00
1912307G1	.....	4000	2000	10000	200	484.00
1912309G1	.....	6000	2000	15000	300	714.00

**\*Double-pole, 250 Volts**

1912301G2	.....	1500	1000	3000	200	\$435.00
1912303G2	.....	2000	1200	4000	200	555.00
1912305G2	.....	3000	1500	6000	300	775.00
1912307G2	.....	4000	2000	10000	400	1023.00
1912309G2	1912309G2	6000	2000	15000	600	1583.00

**Alternating Current—Overload—Back Connected**

Single-pole, 480 Volts

Cat. No. For 2-inch Panel	Amps.	CALIBRATION		Approx. Shipping Wt., Lbs.	Price Each
		Min.	Max.		
1912301G3	1500	1000	3000	100	\$260.00
1912303G3	2000	1200	4000	100	366.00
1912305G3	3000	1500	6000	150	467.00

**\*Double-pole, 480 Volts**

1912301G4	1500	1000	3000	260	\$555.00
1912303G4	2000	1200	4000	260	767.00
1912305G4	3000	1500	6000	340	1029.00
†	4000	2000	10000	440	.....

Always specify frequency when ordering alternating current breakers.

\*Double-pole, two-coil breakers, consist of two single-pole overload breakers, mechanically interlocked.

†Prices on 4000, 6000, 8000 and 12000 amperes A.C. circuit breakers will be quoted on application.

## Type CK-2 Air Circuit Breakers With Laminated Studs



The Type CK-2 650-volt circuit breakers are recommended for any service, however severe, and are especially adapted to large railway installations of any character.

Terminals are not included with the circuit breaker as in many cases busbar connections are used. Where terminals are required, the size and quantity of cable connections vary so widely, depending on the length of run, the line drop allowed and other conditions, that it seems preferable to list them separately so that proper selection may be made to suit each case.

Range of calibration from at least 50 per cent below to 100 per cent above normal rating.

Large handles with guards afford protection to the operator. The frames as well as current carrying parts are alive. Spade handles are standard but straight handles can be furnished.

Especially heavy mechanism and a powerful toggle held by hardened steel catches secure the breakers in closed position and the breakers operate with minimum effort without auxiliary closing mechanism.

### Direct Current—Overload—Back Connected Single-pole, 650 Volts

CATALOGUE NUMBERS For 2-inch Panel	For 2½-inch Panel	Amps.	CALIBRATION		Approx. Shipping Wt., Lbs.	Price Each
			Min.	Max.		
1912311G1	.....	1500	1000	3000	130	\$220.00
1912313G1	.....	2000	1200	4000	130	280.00
1912315G1	.....	3000	1500	6000	170	394.00
1912317G1	.....	4000	2000	10000	220	500.00
.....	1912319G1	6000	2000	15000	360	750.00
.....	1912321G1	8000	2000	20000	520	990.00
.....	1912323G1	10000	2000	25000	680	1230.00

### \*Double-pole 650 Volts

1912311G2	.....	1500	1000	3000	260	\$475.00
1912313G2	.....	2000	1200	4000	260	605.00
1912315G2	.....	3000	1500	6000	340	823.00
1912317G2	.....	4000	2000	10000	440	1065.00
1912319G2	1912319G2	6000	2000	15000	720	1635.00

### Alternating Current—Overload—Back Connected Single-pole, 650 Volts

Cat. No. For 2-inch Panel	Amps.	CALIBRATION		Approx. Shipping Wt., Lbs.	Price Each
		Min.	Max.		
1912311G3	1500	1000	3000	130	\$277.00
1912313G3	2000	1200	4000	130	388.00
1912315G3	3000	1500	6000	170	493.00
<b>Double-pole, 650 Volts</b>					
1912311G4	1500	1000	3000	260	\$589.00
1912313G4	2000	1200	4000	260	811.00
1912315G4	3000	1500	6000	340	1061.00
†	4000	2000	10000	440	.....

Always specify frequency when ordering alternating current breakers.

\*Double-pole, two-coil breaker, consists of two single-pole overload breakers mechanically interlocked.

†Prices on 4000, 8000 and 12000-ampere A.C. circuit breakers will be quoted upon application.

## G-E Under-voltage Attachments For Types CK and CK2 Circuit Breakers



In general, D. C. under-voltage devices cause the opening of the air circuit breakers when the line voltage drops to approximately 25 per cent of the normal voltage. The coil is always in circuit and operates with the releasing of its armature.

Releases at approximately one-half rated voltage.

Cat. No. and price includes series resistance for under-voltage coil.

Only one attachment may be used with a single-pole or double-pole breaker. With a single-pole breaker the attachment is mounted on the right-hand side facing the panel; with a double-pole breaker it is mounted symmetrically between poles, and trips the left-hand breaker.

### For Direct Current

#### For Use with Single or Double Pole, Type CK or CK2

110 to 125 Volts Cat. No.	Price Each	220 to 250 Volts Cat. No.	Price Each	550 to 650 Volts Cat. No.	Price Each	Breakers Size Amps.	Approx. Ship. Wt., Lbs.
2636281G1	\$21.00	2636281G2	\$23.00	2636281G3	\$25.00	1500	15
2636281G4	21.00	2636281G5	23.00	2636281G6	25.00	2000	15
2636281G7	21.00	2536281G8	23.00	2636281G9	25.00	3000	15
2636281G10	21.00	2636281G11	23.00	2636281G12	25.00	4000	15
2636281G13	21.00	2636281G14	23.00	2636281G15	25.00	6000	15
2636281G16	21.00	2636281G17	23.00	2636281G18	25.00	8000	15
2636281G19	21.00	2636281G20	23.00	2636281G21	25.00	10000	15

Prices of alternating current attachment on application.

## Shunt Trip Attachments

### For Types CK and CK2 Circuit Breakers

The shunt trip attachment causes the breaker to open when energized.

Attachment should be allowed to remain in circuit only momentarily.



### For Direct Current—125, 250, or 650 Volts

#### For Use with Single or Double Pole

Cat. No.	Cap. Amps.	Ship. Wt., Lbs.	Price Each	Cat. No.	Cap. Amps.	Ship. Wt., Lbs.	Price Each
2636280G1	1500	15	\$21.00	2636280G5	6000	15	\$21.00
2636280G2	2000	15	21.00	2636280G6	8000	15	21.00
2636280G3	3000	15	21.00	2636280G7	10000	15	21.00
2636280G4	4000	15	21.00	.....	.....	.....	.....

## Auxiliary Switches

### For Types CK and CK2 Circuit Breakers

D.C. or A.C.



Capacity Breakers Amperes	Thickness Panel In.	250 Volts For Type CK		650 Volts For Type CK2	
		Cat. No.	Price Each	Cat. No.	Price Each
1500	2	1937635G26	\$8.00	1937635G2	\$8.00
2000	2	1937635G28	8.00	1937635G4	8.00
3000	2	1937635G30	8.00	1937635G6	8.00
4000	2	1937635G31	8.00	1937635G7	8.00
6000	2	1937635G33	8.00	1937635G9	8.00
6000	2½	1937635G34	8.00	1937635G10	8.00
8000	2½	.....	.....	1937635G11	8.00
10000	2½	.....	.....	1937635G12	8.00

**Type FP7 Pole Line Oil Circuit Breakers**



Pole line oil circuit breakers are usually less adequately protected by lightning arresters than station breakers, and the question of high-voltage strains must be more carefully considered. This is especially true on circuits of voltages of 15,000 volts and below where the line insulators will frequently stand high-voltage test of many times the normal voltage.

In no case should a breaker be selected for any given service having a lower test

voltage than the actual arc over voltage (dry test) of the insulators used on the lines.

The Type FP-7 oil circuit breaker is adapted for use on alternating current series arc systems, for sectionalizing feeder systems, cutting out transformers, and all classes of service requiring a reliable outdoor switch to be operated under load. In many cases the use of one of these breakers in connection with pole type transformers will obviate the necessity for bringing high tension lines into a building.

All Type FP-7 oil circuit breakers are given a dielectric test considerably above that prescribed in standardization rules of the A.I.E.E. For the purpose of comparison with arc-over voltage on line insulators, minimum arc-over voltage for the Type FP-7 breakers is given below:

4500 Volt.....	14000 Volts Test
7500 ".....	22000 Volts Test
15000 ".....	45000 Volts Test

The breaker is enclosed in a substantial weatherproof case consisting of a cast iron frame, with a removable cover which is grooved on the under side to fit closely the edge of the frame and a readily detachable oil tank which fits around a flange on the bottom of the frame. The oil tank has an insulating lining and wooden barriers are provided between poles.

Lugs are provided on the frame for bolting the breaker directly to a flat surface, or supporting it by means of strap-iron hooks, for mounting on transmission pole cross arms in a manner similar to that usually employed for pole type transformers.

Porcelain bushings are provided for incoming and outgoing leads. They are protected from the elements by the overhanging switch frame.

Bushings will take cable up to 3/4 in. diameter for 100-amp. switches and up to 1 in. diameter for 200-amp. switches.

These circuit breakers are equipped with porcelain shields covering terminals and leads in top of breakers, thus greatly increasing the arc-over test.

**Non-automatic, without Overload Release**

4500-7500 and 15000 Volts  
Single Pole, Single Throw

Cat. No.	Amp. Continuous Load at 30° Rise or Less	Volts	Gals. No. 6 Oil Req.	Approx. Shipping Wt., Lbs.	Price Each
150133	200	7500	2	175	\$62.00
150137	200	15000	3	250	104.00

**Double Pole, Single Throw**

150127	100	4500	2	125	\$60.00
150134	200	7500	3	200	91.00
150138	200	15000	5	300	136.00

**Triple Pole, Single Throw**

150128	100	4500	2	175	\$80.00
150135	200	7500	5	250	116.00
150139	200	15000	6	350	180.00

**Four Pole, Single Throw**

150129	100	4500	3	225	\$100.00
150136	200	7500	6	275	146.00
150140	200	15000	9	400	222.00

**G-E Type FK-20 Oil Circuit Breakers**

Type FK-20 Circuit Breakers are used especially for the protection of induction motors in industrial applications.

They are made single-throw only and are for mounting on wall, post or other flat surface. They may be mounted directly on machines by the use of brackets or suitable supports.

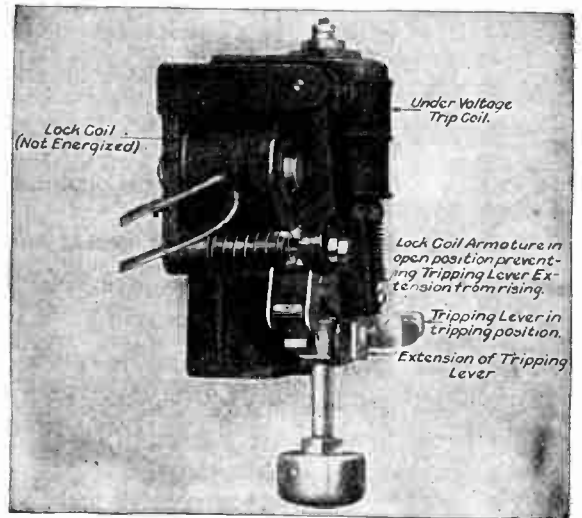
All breakers both automatic and non-automatic have toggle in mechanism so that overload or under-voltage features may be added as desired.

All Type FK-20 Oil Circuit Breakers are provided with entrance holes in sides, back and underneath breaker frame for open or conduit connections. The breakers are shipped out with a set of porcelain entrance bushings for open wiring and in the automatic type the leads from the series trip coils are extended through two of the porcelain bushings.

An approved form of making connections to this breaker is by means of conduit boxes. Type FK-20 Oil Circuit Breakers are not recommended for use out of doors, or indoors when directly connected to incoming lines where they will be subjected to surges or other voltage disturbances unless protected by lightning arresters or other surge protective devices.

Dashpots may be adjusted for a time delay from 1 second to about 1 minute. The standard setting recommended is for a time delay of 10 seconds at double the normal full load current of motor. This gives a time delay of about 1/2 minute at 25 per cent overload, and correspondingly less at greater overloads, which affords ample protection against overload, yet prevents breakers from opening on starting currents.

**Magnetic Locks with Undervoltage Trip**



Lock consists of a magnet with a hinged armature which is attached to the under-voltage trip. The armature is designed so as to interfere with an extension on the under-voltage tripping lever and prevents the under-voltage from being set as long as the coil on the magnetic lock is de-energized.

When the locking coil is energized, its armature moves out of interference and the under-voltage trip may be set. In other words, the breaker is locked out with magnetic coil de-energized; unlocked with coil energized.

For Breakers	Amperes	25 Cycles		60-40 Cycles	
		Cat. No.	Price Each	Cat. No.	Price Each
110	60-200-300	278480	\$29.00	277458	\$22.00
220	60-200-300	198657	29.00	198654	29.00
440	60-200-300	198658	29.00	198655	29.00
550	60-200-300	198659	29.00	198656	29.00
2500	60-200	*278478	35.00	*198660	32.00
2500	300	*278479	37.00	*198661	34.00

\*Includes proper auxiliary switch. Does not include auto-transformer but requires the use of separate transformer. Order extra as follows: For 60-cycle voltage transformer, Cat. No. 236088, price \$22.00. For 25, 40 and 50-cycle voltage transformers, Cat. No. 236087, price \$30.00.



## G-E Type FK-20 Oil Circuit Breakers Non-automatic, without Overload Release 2500 Volts or Less



The non-automatic breakers listed have the tripping toggle so that undervoltage or automatic features can be added at any time.

### Triple-pole, Single-throw

Cat. No.	*Amps. Cap.	Capa- city Gal.	Ship- Wt. Lbs.	Price Each
167368	60	2	130	\$43.00
167369	200	2	135	51.00
167370	300	4	185	90.00
Four-pole, Single-throw				
167371	60	3	170	\$80.00
167372	200	3	180	90.00

## Automatic, with Double Series I. T. L. Overload Trip

### Triple-pole, Single-throw—2500 Volts or Less

Cat. No.	*Breaker	AMPERES, CAPACITY †Series Coils	Capa- city Gal.	Approx. Ship. Wt., Lbs.	Price Each
167373	60	2	2	145	\$62.00
167374	60	3	2	145	62.00
167375	60	4	2	145	62.00
167376	60	6	2	145	62.00
167377	60	8	2	145	62.00
167378	60	10	2	145	62.00
167379	60	12	2	145	62.00
167380	60	16	2	145	62.00
167381	60	20	2	145	62.00
167382	60	25	2	145	62.00
167383	60	30	2	145	62.00
167384	60	40	2	145	62.00
167385	60	50	2	145	62.00
167386	60	60	2	145	62.00
167387	200	70	2	150	70.00
167388	200	80	2	150	70.00
167389	200	100	2	150	70.00
167390	200	125	2	150	70.00
167391	200	145	2	150	70.00
167392	200	160	2	150	70.00
167393	200	170	2	150	70.00
167394	200	200	2	150	70.00
167395	300	225	4	200	109.00
167396	300	250	4	200	109.00
167397	300	275	4	200	109.00
167398	300	300	4	200	109.00

### Four-pole, Single-throw—2500 Volts or Less

Cat. No.	*Breaker	AMPERES, CAPACITY †Series Coils	Capa- city Gal.	Approx. Ship. Wt., Lbs.	Price Each
167399	60	2	3	185	\$99.00
167400	60	3	3	185	99.00
167401	60	4	3	185	99.00
167402	60	6	3	185	99.00
167403	60	8	3	185	99.00
167404	60	10	3	185	99.00
167405	60	12	3	185	99.00
167406	60	16	3	185	99.00
167407	60	20	3	185	99.00
167408	60	25	3	185	99.00
167409	60	30	3	185	99.00
167410	60	40	3	185	99.00
167411	60	50	3	185	99.00
167412	60	60	3	185	99.00
167413	200	70	3	195	109.00
167414	200	80	3	195	109.00
167415	200	100	3	195	109.00
167416	200	125	3	195	109.00
167417	200	145	3	195	109.00
167418	200	160	3	195	109.00
167419	200	170	3	195	109.00
167420	200	200	3	195	109.00

\*Load which the breaker will carry continuously at 30 degrees C. rise or less.

†Series coils will carry 25 per cent overload for 2 hours at 45 degrees C. rise or less.

The calibration of series coils is from normal, as listed, to two times, i.e., 2 to 4, 3 to 6, 60 to 120, etc.

## G-E Type FK-20 Oil Circuit Breakers 2500 Volts or Less

### Undervoltage Attachments\*

All undervoltage attachments listed below include coil W. S. F. 92660 and are common for all breakers listed. The undervoltage mechanism and transformer, where required, is mounted within the breaker frame, and when properly adjusted the oil circuit breaker cannot be closed until undervoltage plunger is lifted by hand to its upper position, when it will hold in if full potential is upon the line.

The undervoltage attachment should be connected across one phase on the load side, if possible, with proper transformer and tap in circuit. No resistances required.

Cat. No.	Circuit		Includes Transformer Mfrs. No.	Approx. Net Wt. Lbs. Extra†	Price Each
	Volts	Cycles			
167421	110	60	None	3	\$9.00
	110	25-40			
167422	220	25-40-60	\$191392	6	16.00
	440	25-40-60			
	550	25-40-60			
	2200	60			
167423	2200	60	191393	8	18.00
167424	2200	25-40	191394	9	20.00

\*Release at approximately one-half rated voltage.

†Add 5 pounds for boxing if shipped separate from breaker.

‡Auto-transformer with taps tagged to indicate proper connections for various voltages and cycles.

### Gaskets

Order breakers Same as Cat. No. (give Cat. No. of standard breaker), except that it is to be equipped with felt gaskets. Breakers ordered with gaskets will be furnished with gaskets between cover and frame and between frame and oil tank.

Standard Type FK-20 oil circuit breakers, as regularly furnished, are sufficiently dustproof for use in cotton mills and for like service. When, however, these breakers are to be installed in cement or flour mills where the dust is very fine the standard breakers are not tight enough to exclude the dust from the top of the breaker or the oil vessel. In these cases breakers provided with felt gaskets should always be recommended.

Price, for 60-200 Ampere Breaker, 2 and 3-pole. each \$4.75  
 " " 300 " " 2 " 3 " " " 4.75  
 " " 60-200 " " 4-pole..... " 4.75

### Oil Circuit Breaker Covers For Mounting Ammeters

These covers replace the covers ordinarily furnished with the FK-20 breakers and provide a suitable mounting for a Type R-6 ammeter. The rear half of the cover completely houses the ammeter studs and all connections and is removable to permit of easy access to breaker and connections. The front part of cover which supports the ammeter is provided with bushings to take any standard R-6 ammeter within the range of capacities required.

*Cat. No.	Amperes	For Breaker Poles	Mounts R-6 Ammeter Amps.	Approx. Ship. Wt. Lbs. Extra	Price Each
167425	60-200	2 and 3	4-300	50	\$18.00
167426	300	2 " 3	4-400	60	20.00
167427	60-200	4	4-300	60	20.00

\*Ammeters and current transformers, where required, are not included. Order separately.

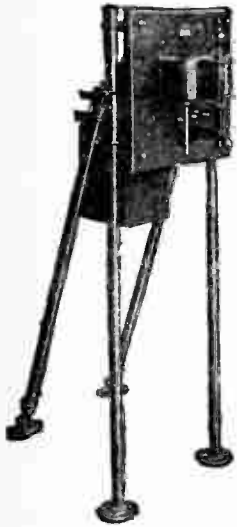
NOTE.—Series ammeters, R-6, used with Type FK-20 breakers are recommended only for use on circuits 650 volts or less. For voltages above 650 volts, secondary ammeters, 5 amperes with suitable current transformers, should be used. The current transformers are mounted separately, outside of breaker. Secondary ammeters will be calibrated in primary current, if so ordered, without extra charge. Ratio of current transformer with which it is to be used must be specified.

SELECTION OF AMMETERS.—Ammeters for use with induction motors having standard A guarantee (25 per cent overload for 2 hours) should be selected to have full scale deflection equal to or greater than 150 per cent of the normal full load running current.

ORDERING.—In ordering Type FK-20 breakers with cover for ammeter mounting five Cat. No. of breaker (non-automatic or automatic); Cat. No. of undervoltage if required; Cat. No. of special cover as above; also Cat. No. of ammeter and of current transformer if required. The omission of the standard cover will be taken care of without special notice.

**G-E Type FK13 Oil Circuit Breakers**

With Operating Lever For Mounting on 1½ or 2-inch Panels



The Type FK-13 oil circuit breakers are of the single tank type, all poles in one oil tank with insulating barriers between phases.

**CONTACTS.**—The Type FK-13 breakers have wedge contact blades and flared contact fingers. Any arcing, when the breaker is opened, takes place between the flared ends of the contact fingers and the upper edge of the contact blade, thus insuring a long life to the contact surfaces.

**MANUAL OPERATION.**—Type FK-13 oil circuit breakers are listed single or double throw for manual operation as follows:

For mounting directly on back of panel.

For mounting on panel frame 5 inches back of panel.

For mounting on pipe framework remote from panel.

As these breakers are furnished with 45-degree operating levers

they are listed non-automatic and automatic with one, two or three-trip coils.

**SERIES TRIP.**—For circuits above 750 volts the use of transformer trip coil circuit breakers is recommended.

The manufacturer does not recommend the installation of apparatus on the panel or switchboard when that apparatus is subjected to a pressure in excess of 2500 volts. For such installation, remote control apparatus is recommended.

**Non-automatic—Without Overload Release**

200 Amperes, 3300 Volts

Double Pole

Cat. No.	Throw	Mounting	Location of Circuit Breaker	Approx. Shipping Wt., Lbs.	Price Each
129704	Single	Panel	On Panel	80	\$69.00
129707	Double	"	"	130	116.00
129734	Single	Panel Pipe	"	90	75.00
129737	Double	"	{ Pipe 5-in. Back of Panel	140	124.00
129764	Single	{ For Remote	{ On Pipe	150	94.00
129767	Double	{ Control	{ Framework	230	168.00

Triple Pole

129705	Single	Panel	On Panel	30	\$81.00
129708	Double	"	"	140	136.00
129735	Single	Panel Pipe	"	90	87.00
129738	Double	"	{ Pipe 5-in. Back of Panel	150	144.00
129765	Single	{ For Remote	{ On Pipe	150	106.00
129768	Double	{ Control	{ Framework	230	188.00

Four Pole

129706	Single	Panel	On Panel	100	\$97.00
129709	Double	"	"	170	164.00
129736	Single	Panel Pipe	"	110	103.00
129739	Double	"	{ Pipe 5-in. Back of Panel	180	172.00
129766	Single	{ For Remote	{ On Pipe	170	122.00
129769	Double	{ Control	{ Framework	260	216.00

**Automatic—With Series Overload Trip**

For Use Only on 750 Volts or Less

Double Pole with One Coil

Cat. No.	Throw	Mounting	Location of Circuit Breaker	Approx. Shipping Wt., Lbs.	Price Each
129728	Single	Panel	On Panel	100	\$89.00

Triple Pole with Two Coils

129730	Single	Panel	On Panel	120	\$124.00
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Four Pole with Two Coils

129731	Single	Panel	On Panel	140	\$140.00
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**G-E Type FK13 Oil Circuit Breakers**

With Operating Lever for Mounting on 1½ or 2-inch Panel

Automatic—One Coil for Use with Current Transformers

200 Amperes, 3300 Volts Double Pole

Current transformers are not included in price. They must be ordered separately.

Cat. No.	No. of Current Transformers Used	Throw	Mounting	Location of Circuit Breaker	Approx. Shipping Wt. Lbs.	Price Each
173653	*1	Single	Panel	On Panel	90	\$84.00
173658	*1	Double	"	"	150	126.00
173675	*1	Single	Pipe Panel	"	100	90.00
173680	*1	Double	"	{ Pipe, 5 in. Back of Panel	160	137.00
173697	*1	Single	{ For Remote	{ On Pipe	160	109.00
173702	*1	Double	{ Control	{ Framework	240	181.00

Triple Pole with Two Coils

173655	†2(3)	Single	Panel	On Panel	90	\$96.00
173660	†2(3)	Double	"	"	150	146.00
173677	†2(3)	Single	Pipe Panel	"	100	102.00
173682	†2(3)	Double	"	{ Pipe, 5 in. Back of Panel	160	157.00
173699	†2(3)	{ Single	{ For Remote	{ On Pipe	160	121.00
173704	†2(3)	{ Double	{ Control	{ Framework	201	201.00

**Automatic—Two Coils for Use with Current Transformers**

Triple Pole

Cat. No.	No. of Current Transformers Used	Throw	Mounting	Location of Circuit Breaker	Approx. Shipping Wt. Lbs.	Price Each
173663	*2	Single	Panel	On Panel	100	\$111.00
173667	*2	Double	"	"	160	161.00
173685	*2	Single	Panel Pipe	"	110	118.00
173689	*2	Double	"	{ Pipe, 5 In. Back of Panel	170	171.00
173707	†2	Single	{ For Remote	{ On Pipe	170	137.00
173711	†2	Double	{ Control	{ Framework	250	215.00

Four Pole

173665	*2	Single	Panel	On Panel	120	\$127.00
173669	*2	Double	"	"	190	189.00
173687	*2	Single	Panel Pipe	"	130	134.00
173691	*2	Double	"	{ Pipe, 5 in. Back of Panel	200	199.00
173709	†2	Single	{ For Remote	{ On Pipe	190	153.00
173713	†2	Double	{ Control	{ Framework	280	243.00

**Automatic—Three Coils for Use with Current Transformers**

Triple Pole

Current transformers not included in price. They must be ordered separately.

Cat. No.	No. of Current Transformers Used	Throw	Mounting	Location of Circuit Breaker	Approx. Shipping Wt. Lbs.	Price Each
173671	*3	Single	Panel	On Panel	110	\$133.00
173673	*3	Double	"	"	170	179.00
173693	*3	Single	Panel Pipe	"	120	140.00
173695	*3	Double	"	{ Pipe, 5 in. Back of Panel	180	189.00
173715	*3	Single	{ For Remote	{ On Pipe	180	159.00
173717	*3	Double	{ Control	{ Framework	200	233.00

Four Pole

173672	*3	Single	Panel	On Panel	130	\$149.00
173674	*3	Double	"	"	200	207.00
173694	*3	Single	Panel Pipe	"	140	156.00

173696	*3	Double	"	{ Pipe, 5 in. Back of Panel	210	217.00
173715	*3	Single	{ For Remote	{ On Pipe	260	175.00
173718	*3	Double	{ Control	{ Framework	290	261.00

\*Operating lever equipped with 4-amp. trip coil WSF 3121538. With or without circuit-opening relay.

†Operating lever equipped with 125-volt direct current trip coil WSF 90094. For use only with circuit-closing overload relay or similar device.

## G-E Under-voltage Attachments

### For Type FK13 Oil Circuit Breakers

A complete line of hinged armature under-voltage attachments for pressures up to and including 550 volts. Above 550 volts, use 110-volt attachment in connection with suitable voltage transformer.

Where no overload features are required, the under-voltage attachment may be used with a special, plain, under-voltage operating lever provided with a tripping toggle for the under-voltage attachment, but, otherwise similar to the non-automatic lever.

Double-throw circuit breakers are usually automatic and would use standard under-voltage attachments as listed. Plain under-voltage, double-throw circuit breakers will require special consideration. Prices on request.

### Plain Under-voltage Operating Levers

#### Addition to Prices of Single-throw Breakers

For Circuit Breaker Mounted on Panel	For Circuit Breaker Mounted on Panel Pipes	For Circuit Breaker Mounted on Remote Control
<b>\$9.00</b>	<b>\$9.00</b>	<b>\$9.00</b>

### Hinged Armature Under-voltage Attachments

Under-voltage release operates at approximately one-half normal voltage.

### Plain Under-voltage Operating Lever

#### Single Throw

Plain under-voltage operating lever not made for double-throw. Use automatic breaker with under-voltage attachment.

CAT. No.		INCLUDES SERIES RESISTANCE FOR UNDER-VOLTAGE COIL		Volts	Cycles	Approx. Shipping Wt., Lbs.	Price Each
Left-hand	Right-hand	Left-hand	Right-hand				
2602719G 1	2602718G 1	110	25	10	\$28.00		
2602719G 2	2602718G 2	110	40	12	30.00		
2602719G 3	2602718G 3	110	50	12	30.00		
2602719G 4	2602718G 4	110	60	10	28.00		
2602719G 5	2602718G 5	220	25	12	30.00		
2602719G 6	2602718G 6	220	40, 50	12	30.00		
2602719G 7	2602718G 7	220	60	12	30.00		
2602719G 8	2602718G 8	440	25, 40, 50	12	30.00		
2602719G 9	2602718G 9	440	60	12	30.00		
2602719G10	2602718G10	550	25, 40, 50, 60	12	30.00		

### One-coil Operating Lever

#### Single Throw

2602719G11	2602718G11	110	25	10	\$28.00
2602719G12	2602718G12	110	40	12	30.00
2602719G13	2602718G13	110	50	12	30.00
2602719G14	2602718G14	110	60	10	28.00
2602719G15	2602718G15	220	25	12	30.00
2602719G16	2602718G16	220	40, 50	12	30.00
2602719G17	2602718G17	220	60	12	30.00
2602719G18	2602718G18	440	25, 40, 50	12	30.00
2602719G19	2602718G19	440	60	12	30.00
2602719G20	2602718G20	550	25, 40, 50, 60	12	30.00

#### Double Throw

2602716G 1	2602717G 1	110	25	10	\$28.00
2602716G 2	2602717G 2	110	40	12	30.00
2602716G 3	2602717G 3	110	50	12	30.00
2602716G 4	2602717G 4	110	60	10	28.00
2602716G 5	2602717G 5	220	25	12	30.00
2602716G 6	2602717G 6	220	40, 50	12	30.00
2602716G 7	2602717G 7	220	60	12	30.00
2602716G 8	2602717G 8	440	25, 40, 50	12	30.00
2602716G 9	2602717G 9	440	60	12	30.00
2602716G10	2602717G10	550	25, 40, 50, 60	15	30.00

## G-E Under-Voltage Attachments

### For Type FK13 Oil Circuit Breakers

Continued

### Two-Coil Operating Lever

#### Single Throw

CAT. No.		INCLUDES SERIES RESISTANCE FOR UNDER-VOLTAGE COIL		Volts	Cycles	Approx. Ship. Wt., Lbs.	Price Each
Left-Hand	Right-Hand	Left-Hand	Right-Hand				
2602719G21	2602718G21	110	25	10	\$28.00		
2602719G22	2602718G22	110	40	12	30.00		
2602719G23	2602718G23	110	50	12	30.00		
2602719G24	2602718G24	110	60	10	28.00		
2602719G25	2602718G25	220	25	12	30.00		
2602719G26	2602718G26	220	40, 50	12	30.00		
2602719G27	2602718G27	220	60	12	30.00		
2602719G28	2602718G28	440	25, 40, 50	12	30.00		
2602719G29	2602718G29	440	60	12	30.00		
2602719G30	2602718G30	550	25, 40, 50, 60	15	30.00		

### Two Coils Between Levers

#### Double Throw

2602716G11	2602717G11	110	25	10	\$28.00
2602716G12	2602717G12	110	40	12	30.00
2602716G13	2602717G13	110	50	12	30.00
2602716G14	2602717G14	110	60	10	28.00
2602716G15	2602717G15	220	25	12	30.00
2602716G16	2602717G16	220	40, 50	12	30.00
2602716G17	2602717G17	220	60	12	30.00
2602716G18	2602717G18	440	25, 40, 50	12	30.00
2602716G19	2602717G19	440	60	12	30.00
2602716G20	2602717G20	550	25, 40, 50, 60	15	30.00

### Three-Coil Operating Lever

#### Single Throw

2602719G31	2602718G31	110	25	10	\$28.00
2602719G32	2602718G32	110	40	12	30.00
2602719G33	2602718G33	110	50	12	30.00
2602719G34	2602718G34	110	60	10	28.00
2602719G35	2602718G35	220	25	12	30.00
2602719G36	2602718G36	220	40, 50	12	30.00
2602719G37	2602718G37	220	60	12	30.00
2602719G38	2602718G38	440	25, 40, 50	12	30.00
2602719G39	2602718G39	440	60	12	30.00
2602719G40	2602718G40	550	25, 40, 50, 60	15	30.00

#### Double Throw

2602716G31	2602717G31	110	25	10	\$28.00
2602716G32	2602717G32	110	40	12	30.00
2602716G33	2602717G33	110	50	12	30.00
2602716G34	2602717G34	110	60	10	28.00
2602716G35	2602717G35	220	25	12	30.00
2602716G36	2602717G36	220	40, 50	12	30.00
2602716G37	2602717G37	220	60	12	30.00
2602716G38	2602717G38	440	25, 40, 50	12	30.00
2602716G39	2602717G39	440	60	12	30.00
2602716G40	2602717G40	550	25, 40, 50, 60	15	30.00

**G-E Auxiliary Switches**

For Type FK13 Oil Circuit Breakers

For Use With Type FK13 Oil Circuit Breakers Mounted on Back of 1 or 2-inch Panel or on Panel Pipes 5 Inches Back of Panel

Cat. No.	Function	Approx. Shipping Wt. Lbs.	Price Each
134598	Circuit-Opening	5	\$15.00
134599	" Closing	5	15.00
134600	" Opening and Closing	8	24.00

For Use With Remote Control Type FK13 Circuit Breakers Mounted on Flat Surface or Pipe Framework

134601	Circuit-Opening	\$16.00
134602	" Closing	16.00
134603	" Opening and Closing	28.00

Drilling for attaching the auxiliary switch must be done by the customer except when the auxiliary switch is ordered with the oil circuit breaker and mounted at the factory.

**Bell Alarm Switches**

For Type FK13 Oil Circuit Breakers

Operates Only When the Oil Circuit Breaker Opens Automatically

Price, No. 139335, Wt. 1 Lb. each \$8.00

For Circuit Breakers Mounted on Panel Pipes or Remote Control

Price, No. 139336, Wt. 1 Lb. each \$8.00

**Tank Lifters**

Simple and practical tank lifting devices can be furnished for Type FK13 oil circuit breakers to facilitate handling the heavier oil tanks used on double-throw breakers. For single-throw breakers the weight of the oil tank is hardly sufficient to warrant the use of a tank lifter.

Description of breakers must be given.

**Circuit Breaker Rating**

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
169569	200	3300	40	\$54.00

**Natural Black Slate Panels**

For Type FK13 Oil Circuit Breakers

These small panels for mounting individual Type FK13 oil circuit breakers are made of natural black slate, 1½ inches thick and mounted on 48-inch pipe supports with floor braces. Panels will be drilled only for oil circuit breakers, lever mechanism and under-voltage attachment if the latter is required.

Oil circuit breakers will not be assembled on the panel at the factory and the equipment will be shipped knocked down, panel and breaker in separate cases.

In ordering, specify catalogue number of panel and also catalogue number of oil circuit breaker and under-voltage attachment (if latter is desired) for which the panel is to be drilled.

For Single-throw Circuit Breakers

Cat. No.	Description	No. of Approx. Trip		DIMENSIONS, INCHES			*Price Each
		Trip	Shp. Coils	Height	Width	Thickness	
1842931G1	Non-Automatic	0	100	16	20	1½	\$34.00
1842932G1	Automatic	1	100	16	20	1½	34.00
1842933G1	"	2	100	16	20	1½	34.00

For Double-throw Circuit Breakers

1842934G1	Non-Automatic	0	130	16	24	1½	\$38.00
1842935G1	Automatic	1	130	16	24	1½	38.00
1842936G1	" (two Coil Transformer trip)	2	130	16	24	1½	38.00
1842937G1	Automatic (two coil Series Trip)	2	130	16	24	1½	38.00

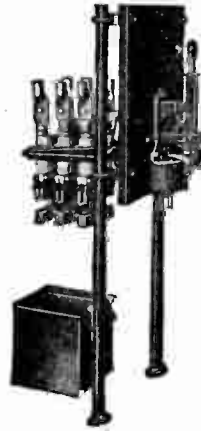
\*Add \$2.00 if panel is to be drilled for under-voltage attachment.

**G-E Type FK5 Oil Circuit Breakers**

For Switchboard Service

600, 4500 and 7500 Volts

Manually-operated Non-automatic



The Type FK-5 Oil Circuit Breaker is in extensive use for circuits up to 7500 volts, where a reliable breaker of moderate capacity is required. It is constructed from the best materials and the workmanship is of the highest character, in short, essentials for long service are found in this breaker.

The operating lever now being used adds its advantages to those already possessed by the breaker. Uniformity in the application and appearance of these operating levers; sensitiveness of the tripping toggle; and the improvement in manual operation—these are a few of the advantages obtained.

RATINGS.—The ratings of the breakers are based on the maximum current the breakers will carry continuously without overheating. Therefore, equipment should be selected that has a capacity at least equal to the maximum rating or to the one- or two-hour overload rating of the circuit.

Single, triple and four-pole single-throw breakers can be obtained in all capacities.

The breakers are made in the following capacities:

Volts	Amps.	Poles	Throws
600	300	2, 3 or 4-pole	Single- or Double-throw
600	500	2, 3 or 4-pole	" " "
600	800	2, 3 or 4-pole	Single-throw Only
4500	200	2, 3 or 4-pole	Single or Double-throw
7500	300	2, 3 or 4-pole	" " "
7500	300	1-pole	Single-throw Only
7500	500	2, 3 or 4-pole	Single or Double-throw
7500	500	1-pole	Single-throw Only

OPERATING MECHANISMS.—The following are obtainable: MANUALLY-OPERATED LEVERS.—Non-automatic levers for all breakers.

Automatic levers with one, two, or three-coil secondary overload trip.

TRIP COILS.—For tripping automatically, alternating current trip coils connected directly or by means of relays to the secondaries of current transformers may be used, or coils separately energized from a reliable source of under-voltage alternating or direct current. When separately energized coils are used, circuit-closing relays consisting of one, two or three units are energized from the secondaries or current transformers with their contacts controlling the tripping circuit.

SECONDARY TRIP COILS.—Five ampere coils, for use with current transformers. Coils calibrated at 5, 7 and 9 amperes.

Four ampere coils, calibrated at 4 amperes, for use with current transformers and circuit-opening relays.

Potential coils from 12 to 250 volts, direct current and from 110 to 440 volts, alternating current, for use with circuit-closing relays or other contact-making devices.

SOLENOID MECHANISM.—Solenoid operation can be furnished for 4500 and 7500-volt breakers. (Two breakers may be electrically interlocked to effect double-throw.) Standard solenoid coils are wound for 125, 250 and 600-volt direct current only.

Overload protection for solenoid-operated breakers is obtained by the use of separate current transformers and circuit-closing overload relays.

When breakers are solenoid-operated the same number of current transformers are used as for manually-operated breakers, but one, two or three single-unit circuit-closing alternating current relays are used to connect the low-voltage tripping current to the trip coil of the direct current solenoid.

## G-E Type FK5 Oil Circuit Breakers

For Switchboard Service  
600, 4500 and 7500 Volts

Non-automatic—Manually Operated  
Operating Lever for Mounting on 1½ or 2-inch Panel  
Panel Mounting

Breaker for Mounting Directly on Back of Panel  
Double-pole—Single Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105819G1	300	600	160	\$99.00
2105819G7	500	600	170	116.00
2105819G13	800	600	190	156.00
2105820G1	200	*4500	160	87.00
2105820G7	300	*7500	170	103.00
2105820G13	500	*7500	190	121.00
<b>Triple-pole—Single Throw</b>				
2105819G2	300	600	170	116.00
2105819G8	500	600	190	143.00
2105819G14	800	600	200	203.00
2105820G2	200	*4500	170	100.00
2105820G8	300	*7500	190	121.00
2105820G14	500	*7500	200	149.00
<b>Four-pole—Single Throw</b>				
2105819G3	300	600	230	150.00
2105819G9	500	600	250	184.00
2105819G15	800	600	260	266.00
2105820G3	200	*4500	230	125.00
2105820G9	300	*7500	250	156.00
2105820G15	500	*7500	260	192.00

### Panel Frame Mounting

Breaker for Mounting on Panel Frame 5 Inches  
Back of Panel  
Double-pole—Single Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105821G1	300	600	180	\$111.00
2105821G7	500	600	190	128.00
2105821G13	800	600	210	168.00
2105822G1	200	*4500	180	99.00
2105822G7	300	*7500	190	115.00
2105822G13	500	*7500	210	133.00
<b>Triple-pole—Single Throw</b>				
2105821G2	300	600	190	128.00
2105821G8	500	600	210	155.00
2105821G14	800	600	220	215.00
2105822G2	200	*4500	190	112.00
2105822G8	300	*7500	210	133.00
2105822G14	500	*7500	220	161.00
<b>Four-pole—Single Throw</b>				
2105821G3	300	600	250	162.00
2105821G9	500	600	270	196.00
2105821G15	800	600	280	278.00
2105822G3	200	*4500	250	137.00
2105822G9	300	*7500	270	168.00
2105822G15	500	*7500	280	204.00

With Remote Control Lever for Mounting on  
1½ or 2-inch Panel  
For Mounting on Pipe Framework  
Double-pole—Single Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105823G1	300	600	230	\$145.00
2105823G7	500	600	270	162.00
2105823G13	800	600	280	202.00
2105824G1	200	4500	230	133.00
2105824G7	300	7500	270	149.00
2105824G13	500	7500	280	167.00
<b>Triple-pole—Single Throw</b>				
2105823G2	300	600	240	162.00
2105823G8	500	600	290	189.00
2105823G14	800	600	400	248.00
2105824G2	200	4500	240	146.00
2105824G8	300	7500	290	167.00
2105824G14	500	7500	400	195.00
<b>Four-pole—Single Throw</b>				
2105823G3	300	600	270	196.00
2105823G9	500	600	330	230.00
2105823G15	800	600	340	312.00
2105824G3	200	4500	270	171.00
2105824G9	300	7500	330	202.00
2105824G15	500	7500	340	238.00

\*The manufacturer does not recommend installation of apparatus on panel or switchboard when apparatus is subjected to pressure in excess of 2500 volts.

## G-E Type FK5 Oil Circuit Breakers

For Switchboard Service  
600, 4500 and 7500 Volts

Non-automatic—Manually Operated  
Operating Lever for Mounting on 1½ or 2-inch Panel  
Panel Mounting

Breaker for Mounting Directly on Back of Panel  
Double-pole—Double Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105819G4	300	600	260	\$178.00
2105819G10	500	600	290	206.00
2105820G4	200	*4500	250	163.00
2105820G10	300	*7500	260	185.00
2105820G16	500	*7500	290	214.00
<b>Triple-pole—Double Throw</b>				
2105819G5	300	600	280	211.00
2105819G11	500	600	310	255.00
2105820G5	200	*4500	270	185.00
2105820G11	300	*7500	280	219.00
2105820G17	500	*7500	310	265.00
<b>Four-pole—Double Throw</b>				
2105819G6	300	600	350	259.00
2105819G12	500	600	410	315.00
2105820G6	200	*4500	330	227.00
2105820G12	300	*7500	350	269.00
2105820G18	500	*7500	410	329.00

### Panel Frame Mounting

Breaker for Mounting on Panel Frame 5 Inches  
Back of Panel

For Mounting on Pipe Framework  
Double-pole—Double Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105821G4	300	600	280	\$196.00
2105821G10	500	600	310	224.00
2105822G4	200	*4500	270	181.00
2105822G10	300	*7500	280	203.00
2105822G16	500	*7500	310	232.00
<b>Triple-pole—Double Throw</b>				
2105821G5	300	600	300	229.00
2105821G11	500	600	330	273.00
2105822G5	200	*4500	290	203.00
2105822G11	300	*7500	300	237.00
2105822G17	200	*7500	330	283.00
<b>Four-pole—Double Throw</b>				
2105821G6	300	600	370	277.00
2105821G12	500	600	420	333.00
2105822G6	200	*4500	350	245.00
2105822G12	300	*7500	370	287.00
2105822G18	500	*7500	420	347.00

With Remote Control Lever for Mounting on  
1½ or 2-inch Panel

For Mounting on Pipe Framework  
Double-pole—Double Throw

Cat. No.	Amperes	Volts	Shipping Wt. Lbs.	Price Each
2105823G4	300	600	330	\$264.00
2105823G10	500	600	380	292.00
2105824G4	200	4500	330	249.00
2105824G10	300	7500	380	271.00
2105824G16	500	7500	390	300.00
<b>Triple-pole—Double Throw</b>				
2105823G5	300	600	340	297.00
2105823G11	500	600	390	341.00
2105824G5	200	4500	340	271.00
2105824G11	300	7500	390	305.00
2105824G17	500	7500	400	351.00
<b>Four-pole—Double Throw</b>				
2105823G6	300	600	390	345.00
2105823G12	500	600	470	401.00
2105824G6	200	4500	390	313.00
2105824G11	300	7500	470	355.00
2105824G17	500	7500	480	415.00

\*The manufacturer does not recommend the installation of apparatus on the panel or switchboard when that apparatus is subjected to pressure in excess of 2500 volts. For such installation remote control apparatus is recommended.

**G-E Automatic Trip Attachments**

*Cat. No.	No. of Coils	RATING IN VOLTS		Approx. Ship. Wt., Lbs.	†Price Each
		D.C.	A.C.		
1912361G1	1	12	...	5	\$9.00
1912361G2	1	24 to 30	...	5	9.00
1912361G3	1	110 " 125	...	5	9.00
1912361G4	1	220 " 250	...	5	9.00
1912361G5	1	.....	440	5	9.00
1912361G6	1	.....	220	5	9.00
1912361G7	1	.....	110	5	9.00

*Cat. No.	No. of Coils	Rating in Amp. A.C.	Approx. Ship. Wt., Lbs.	†Price Each
1912362G1	1	5	5	\$9.00
1912362G2	1	4	5	9.00
1912362G3	2	5	10	16.00
1912362G4	2	4	10	16.00
1912362G5	3	5	15	23.00
1912362G6	3	4	15	23.00
1912362G7	1	3	5	9.00
1912362G8	2	3	10	16.00
1912362G9	3	3	15	23.00

\*When shipped separately, these attachments are assembled with supporting plates and bolts.  
 †Current transformers not included.

**Under-Voltage Devices**

**For Use with Manually Operated Type FK5 Oil Circuit Breakers**

Hinged armature under-voltage attachments are listed for pressures up to and including 550 volts. Above 550 volts, use 110-volt attachment in connection with suitable voltage transformer.

The under-voltage attachment is mounted at the left (right-hand not furnished for use with Type HA2 lever) of a single-throw lever mechanism or between the levers of a double-throw mechanism. In the latter case, it acts on the tripping toggle of the right-hand lever, the action being transmitted to the left-hand lever by the cross trip.

**Operates at Approximately One-half Normal Pressure**

For use with manually operated oil circuit breakers of 800 amperes or less, 25 to 60 cycles.

Cat. No.	Cycles	Volts	Shipping Wt., Lbs.	Price Each
2602714G1	25	110	10	\$28.00
2602714G5	25	220	12	30.00
2602714G8	25	440	12	30.00
2602714G10	25	550	12	30.00
2602714G2	40	110	12	30.00
2602714G6	40	220	12	30.00
2602714G8	40	440	12	30.00
2602714G10	40	550	12	30.00
2602714G3	50	110	12	30.00
2602714G6	50	220	12	30.00
2602714G8	50	440	12	30.00
2602714G10	50	550	12	30.00
2602714G4	60	110	10	28.00
2602714G7	60	220	12	30.00
2602714G9	60	440	12	30.00
2602714G10	60	550	12	30.00

**Auxiliary Switches**

Auxiliary switches for signaling, electrical interlock or control of auxiliary apparatus are frequently required.

For manually-operated Type FK5 oil circuit breaker mounted directly on back of panel or on panel frame 5 inches back, finger-type auxiliary switches are used.

For manually-operated Type FK5 oil circuit breakers mounted remote from panel, rotary type auxiliary switches are used and mounted on the horizontal hanger which is drilled for such accessories at the factory.

**For Breakers Mounted on Back of Panel**

Cat. No.	Description	Shipping Wt., Lbs.	Price Each
134586	Circuit-Opening.....	5	\$14.00
134587	Circuit-Closing.....	5	14.00
134588	Circuit-Opening and Closing.....	8	24.00

**For Breakers Mounted on Panel Frame 5 Inches Back of Panel**

134589	Circuit-Opening.....	5	\$15.00
134590	Circuit-Closing.....	5	15.00
134591	Circuit-Opening and Closing.....	8	24.00

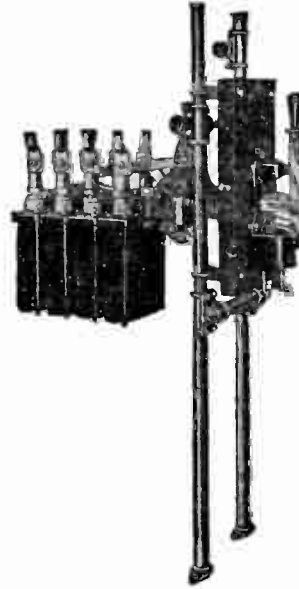
**For Breakers Mounted Remote from Panel**

Cat. No.	No. of Stages	Shipping Wt., Lbs.	Price Each	Cat. No.	No. of Stages	Shipping Wt., Lbs.	Price Each
1918240G1	1	9	\$15.00	1918240G4	4	12	\$30.00
1918240G2	2	10	20.00	1918240G5	5	13	35.00
1918240G3	3	11	25.00	1918240G6	6	14	40.00

**G-E Type FK35 and FK35Y Oil Circuit Breakers**

**For Switchboard Service—600 and 7500 Volts**

**Manually Operated—Non-automatic**



Types FK35 and FK35Y oil circuit breakers are recommended for use up to 7500 volts on systems where thoroughly reliable breakers of moderate capacity are required.

These breakers are of standard unit construction, each unit consisting of oil tank, cover, insulator studs and contacts, blade and rod. Thus, a single, double, triple or four-pole breaker is made up respectively of one, two, three or four standard units plus frame, breaker mechanism and either manual or solenoid operating mechanism.

Each standard unit is suspended from the frame of the oil circuit breaker by attaching the oil tank cover to the under surface of the frame. Each oil tank is held in position by hook bolts.

The FK35Y oil circuit breakers are similar to the Type FK35 breakers, except that they have removable arcing tips and the operating rods and the blades are slightly different. The interrupting capacities are the same.

**DISTINCTIVE FEATURES.**—Breakers adapted to either vertical or horizontal operation by making one member of breaker mechanism a bell crank.

Interchangeability of breaker units of like rating.

Each phase in separate tank.

Bell alarm auxiliary switch included with all operating levers.

The manufacturer does not recommend the installation of apparatus on the panel or switchboard when that apparatus is subjected to a pressure in excess of 2500 volts.

**For Mounting Directly on Back of Panel**

**Double-pole—Single Throw**

Cat. No.	Type	Amperes	Volts	Shipping Wt., Lbs.	Price Each
1945973G1	FK35	400	600	150	\$112.00
1945973G4	FK35	600	600	170	124.00
1945973G7	FK35	800	600	180	155.00
1945973G10	FK35	400	7500	160	117.00
1945973G13	FK35	600	7500	180	133.00
1945977G1	FK35Y	400	600	160	126.00
1945977G4	FK35Y	600	600	180	152.00
1945977G7	FK35Y	800	600	190	175.00
1945977G10	FK35Y	400	7500	170	131.00
1945977G13	FK35Y	600	7500	190	155.00

**Triple-pole—Single Throw**

1945973G2	FK35	400	600	185	\$137.00
1945973G5	FK35	600	600	210	159.00
1945973G8	FK35	800	600	220	203.00
1945973G11	FK35	400	7500	190	148.00
1945973G14	FK35	600	7500	220	169.00
1945977G2	FK35Y	400	600	195	165.00
1945977G5	FK35Y	600	600	220	198.00
1945977G8	FK35Y	800	600	230	235.00
1945977G11	FK35Y	400	7500	200	168.00
1945977G14	FK35Y	600	7500	230	203.00

**Four-pole—Single Throw**

1945973G3	FK35	400	600	250	\$167.00
1945973G6	FK35	600	600	270	195.00
1945973G9	FK35	800	600	290	254.00
1945973G12	FK35	400	7500	260	175.00
1945973G15	FK35	600	7500	280	210.00
1945977G3	FK35Y	400	600	260	203.00
1945977G6	FK35Y	600	600	280	247.00
1945977G9	FK35Y	800	600	300	294.00
1945977G12	FK35Y	400	7500	270	207.00
1945977G15	FK35Y	600	7500	290	254.00



## G-E Type FK35 and FK35Y Oil Circuit Breakers

For Switchboard Service—600 and 7500 Volts  
Manually Operated—Non-automatic  
for Mounting on Panel Frame  
5 Inches Back of Panel

### Double-pole—Single Throw

Cap. Amp.	Volts	TYPE FK35			TYPE FK35Y		
		Cat. No.	Shipping Wt., Lbs.	Price Each	Cat. No.	Shipping Wt., Lbs.	Price Each
400	600	1945972G1	160	\$118.00	1945976G1	170	\$132.00
600	600	1945972G4	170	130.00	1945976G4	180	158.00
800	600	1945972G7	180	161.00	1945976G7	190	181.00
400	7500	1945972G10	170	123.00	1945976G10	180	137.00
600	7500	1945972G13	180	139.00	1945976G13	190	161.00

### Triple-pole—Single Throw

400	600	1945972G2	200	\$143.00	1945976G2	210	\$171.00
600	600	1945972G5	220	165.00	1945976G5	230	204.00
800	600	1945972G8	230	209.00	1945976G8	240	241.00
400	7500	1945972G11	210	154.00	1945976G11	220	174.00
600	7500	1945972G14	230	175.00	1945976G14	240	209.00

### Four-pole—Single Throw

400	600	1945972G3	260	\$173.00	1945976G3	270	\$209.00
600	600	1945972G6	280	201.00	1945976G6	290	253.00
800	600	1945972G9	300	260.00	1945976G9	310	300.00
400	7500	1945972G12	280	181.00	1945976G12	290	213.00
600	7500	1945972G15	300	216.00	1945976G15	310	260.00

### For Mounting Remote from Panel

For Mounting on Pipe Framework  
Double-pole—Single Throw

Cap. Amp.	Volts	TYPE KF35			TYPE FK35Y		
		Cat. No.	Ship. Wt., Lbs.	Price Each	Cat. No.	Ship. Wt., Lbs.	Price Each
400	600	1945975G1	230	\$147.00	1945988G1	240	\$161.00
600	600	1945975G4	250	159.00	1945988G4	260	187.00
800	600	1945975G7	260	190.00	1945988G7	270	210.00
400	7500	1945975G10	240	152.00	1945988G10	250	166.00
600	7500	1945975G13	260	168.00	1945988G13	270	190.00

### Triple-pole—Single Throw

400	600	1945975G2	265	\$172.00	1945988G2	275	\$200.00
600	600	1945975G5	290	194.00	1945988G5	300	233.00
800	600	1945975G8	300	238.00	1945988G8	310	270.00
400	7500	1945975G11	270	183.00	1945988G11	280	203.00
600	7500	1945975G14	300	204.00	1945988G14	310	238.00

### Four-pole—Single Throw

400	600	1945975G3	330	\$202.00	1945988G3	340	\$238.00
600	600	1945975G6	350	230.00	1945988G6	360	282.00
800	600	1945975G9	370	289.00	1945988G9	380	329.00
400	7500	1945975G12	340	210.00	1945988G12	350	242.00
600	7500	1945975G15	360	245.00	1945988G15	370	289.00

### For Mounting on Flat Surface

Double-pole—Single Throw

Cap. Amp.	Volts	TYPE FK35			TYPE FK35Y		
		Cat. No.	Ship. Wt., Lbs.	Price Each	Cat. No.	Ship. Wt., Lbs.	Price Each
400	7500	1945974G1	240	\$152.00	1945987G1	250	\$166.00
600	7500	1945974G4	260	168.00	1945987G4	270	190.00

### Triple-pole—Single Throw

400	7500	1945974G2	270	\$183.00	1945987G2	280	\$203.00
600	7500	1945974G5	300	204.00	1945987G5	310	238.00

### Four-pole—Single Throw

400	7500	1945974G3	340	\$210.00	1945987G3	350	\$242.00
600	7500	1945974G6	360	245.00	1945987G6	370	289.00

### For Mounting in Masonry Cell

Double-pole—Single Throw

Cap. Amp.	Volts	TYPE FK35			TYPE FK35Y		
		Cat. No.	Ship. Wt., Lbs.	Price Each	Cat. No.	Ship. Wt., Lbs.	Price Each
400	7500	1945974G7	240	\$152.00	1945987G7	250	\$166.00
600	7500	1945974G10	260	168.00	1945987G10	270	190.00

### Triple-pole—Single Throw

400	7500	1945974G8	270	\$183.00	1945987G8	280	\$203.00
600	7500	1945974G11	300	204.00	1945987G11	310	238.00

### Four-pole—Single Throw

400	7500	1945974G9	340	\$210.00	1945987G9	350	\$242.00
600	7500	1945974G12	360	245.00	1945987G12	370	289.00

The manufacturer does not recommend the installation of apparatus on the panel or switchboard when that apparatus is subjected to a pressure in excess of 2500 volts. For such installation remote control apparatus is recommended.

## G-E Attachments for Types FK35 and FK35Y Oil Circuit Breakers

### Automatic Trip Attachments

When shipped separate these attachments are assembled with supporting plates and bolts.  
Current transformers not included.

Cat. No.	No. of Coils	Rating in Volts	Shipping Wt., Lbs.	Price Each
1912361G1	1	12, D.C.	5	\$9.00
1912361G2	1	24-30, D.C.	5	9.00
1912361G3	1	110-125, D.C.	5	9.00
1912361G4	1	220-250, D.C.	5	9.00
1912361G5	1	440, A.C.	5	9.00
1912361G6	1	220, A.C.	5	9.00
1912361G7	1	110, A.C.	5	9.00

Cat. No.	No. of Coils	Rating in Amp. A. C.	Shipping Wt. Lbs.	Price Each
1912362G1	1	5	5	\$9.00
1912362G2	1	4	5	9.00
1912362G3	2	5	10	16.00
1912362G4	2	4	10	16.00
1912362G5	3	5	15	23.00
1912362G6	3	4	15	23.00
1912362G7	1	3	5	9.00
1912362G8	2	3	10	16.00
1912362G9	3	3	15	23.00

### Under-voltage Attachments

Hinged armature under-voltage attachments are listed above for pressures up to and including 550 volts. Above 550 volts use 110-volt attachments in connection with suitable voltage transformer.

As all Types FK35 and FK35Y operating levers have a toggle and trip lever, the hinged armature under-voltage attachment is always applicable.

Cat. No.	Cycles	Volts	Shipping Wt., Lbs.	Price Each
2602714G1	25	110	10	\$28.00
2602714G5	25	220	12	30.00
2602714G8	25	440	12	30.00
2602714G10	25	550	15	30.00
2602714G2	40	110	12	30.00
2602714G6	40	220	12	30.00
2602714G8	40	440	12	30.00
2602714G10	40	550	15	30.00
2602714G3	50	110	12	30.00
2602714G6	50	220	12	30.00
2602714G8	50	440	12	30.00
2602714G10	50	550	15	30.00
2602714G4	60	110	10	28.00
2602714G7	60	220	12	30.00
2602714G9	60	440	12	30.00
2602714G10	60	550	15	30.00

### Double-throw Attachments

Mechanical interlocks are available as attachments to combine for double-throw non-automatic operation.

1.—Any two panel or panel frame mounting, or remote control Types FK35 or FK35Y breakers.

2.—Any Type FK35 or FK35Y breaker with any Type FK32A or FK32B breaker.

For panel or panel frame mounting the interlock is attached to the breaker frame, proper holes for same being provided on the breakers.

For remote control mounting the interlock is attached to the hangers on back of panel, proper holes for same being provided on the hangers.

In ordering specify breakers to be interlocked, form of mounting and distance between centers of operating levers 8, 9, 11, 12, 13 or 16 inches.

Price, Mechanical Interlock..... each \$11.00

### Cross Trip—Automatic Operation

Where operating levers for breakers interlocked for double-throw are equipped with automatic trip attachment in one operating lever only, a cross trip is required between the two levers to trip on both throws.

Where two sets of current transformers are used with automatic trip attachments in both operating levers, or where one set of current transformers is used with automatic trip attachments in both operating levers with trip coils in series in each phase, the cross trip is not required.

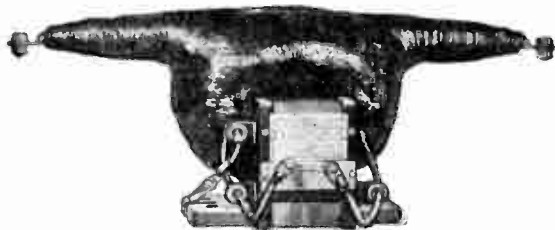
In ordering specify distance between centers of operating levers, 8, 9, 11, 12, 13 or 16 inches.

Price, Cross Trip..... each \$3.00

**G-E Type Y-298A Tripping Current Transformers**

For Oil Circuit Breakers

25-125 Cycles, 15000 Volts or Less



400 Amperes and Below

These transformers are for tripping oil circuit breakers. They may be used with any of the standard 4- and 5-ampere trip coils. They are listed in capacities from 5 to 800 amperes at 15000 volts or less.

In general their use is limited to tripping duty only, either directly or in connection with relays, but where high accuracy is not essential a secondary ammeter may be used.

As these transformers are small and inexpensive they may be used very conveniently in installations where series trip has heretofore been recommended.



500 to 800 Amperes

The smaller capacities from 5 to 400 amperes inclusive are equipped with cast metal bases with two-bolt holes, allowing them to be bolted to flat surfaces or pipe supports.

The larger capacities from 500 to 800 amperes inclusive are of the bus type and are supported by the buses or the stud of the oil circuit breaker, no bases being required due to the light weight of these transformers.

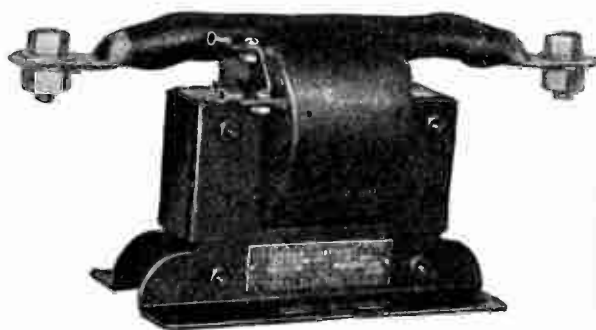
Cat. No.	Primary Capacity In Amperes	Ratio	Shipping Weight Pounds	Price Each
216838	5	1-1	44	\$53.00
216839	10	2-1	44	53.00
216840	12.5	2.5-1	44	53.00
216841	15	3-1	44	53.00
216842	20	4-1	44	53.00
216843	25	5-1	44	53.00
216844	30	6-1	44	53.00
216845	40	8-1	44	53.00
216846	50	10-1	44	53.00
216847	60	12-1	44	53.00
216848	80	16-1	44	53.00
216849	100	20-1	44	53.00
216850	125	25-1	44	54.00
216851	150	30-1	44	54.00
216852	200	40-1	44	55.00
216853	250	50-1	44	55.00
216854	300	60-1	44	55.00
216855	350	70-1	44	56.00
246264	400	80-1	44	56.00
246265	500	100-1	44	56.00
246266	600	120-1	44	56.00
246267	800	160-1	44	56.00

All transformers are provided with an additional turn on secondary for ammeters only.

These transformers are tested at 5000 volts between primary and all other parts, and at 2500 volts between secondary and ground.

**G-E Type Y-285-D Tripping Current Transformers**

For Oil Circuit Breakers  
25-125 Cycles, 4500 Volts or Less



May be used with any standard 4 and 5-ampere trip coils. In general its use is limited to tripping duty only, either directly or in connection with relays, but where high accuracy is not essential a secondary ammeter may also be used.

Tested at 15000 volts between primary and all other parts, and at 2500 volts between secondary and ground.

Primary terminals are not included.  
Shipping weights: 5 to 100-amp., 25 pounds; 125 to 300-amp., 27 pounds; 400 to 800-amp., 30 pounds.

Cat. No.	Prim. Amps.	Ratio	Price Each	Cat. No.	Prim. Amps.	Ratio	Price Each
13X253	5	1-1	\$17.00	13X264	100	20-1	\$17.00
13X254	10	2-1	17.00	13X265	125	25-1	18.00
13X256	15	3-1	17.00	13X266	150	30-1	18.00
13X257	20	4-1	17.00	13X267	200	40-1	19.00
13X258	25	5-1	17.00	13X268	250	50-1	20.00
13X259	30	6-1	17.00	13X269	300	60-1	21.00
13X260	40	8-1	17.00	13X270	400	80-1	22.00
13X261	50	10-1	17.00	13X271	500	100-1	22.00
13X262	60	12-1	17.00	13X272	600	120-1	22.00
13X263	80	16-1	17.00	13X273	800	160-1	22.00

**G-E Type HG-7 A.C. Auxiliary Relays**

Single-Pole, 1-Circuit, Circuit-Closing Contacts  
25 and 60 Cycles A.C.

For Mounting on Front of 1/2 or 2-Inch Panel

This relay is larger than the HG-2 and intended to perform heavier duty. When used with potential transformers the 110-volt relay imposes a burden of 2 volt-amperes at 25 cycles, 30 volt-amperes at 60 cycles.

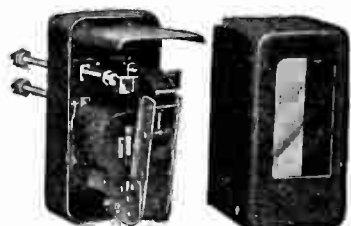
It is of the hinged armature type and its action in opening is supplemented by a compression spring after the coil is de-energized. Front cover is provided with glass window.

The winding will ordinarily withstand low voltage alternating currents continuously applied without any external resistance. There are rare instances where a resistor is used when it is necessary at times that the relay be short circuited but the resistor in this instance will stand full voltage for only one minute.

Particularly adaptable where generous contact capacity and quick action are desired. Contacts will carry 15 amperes continuously and 50 amperes for 1 minute. Will interrupt current at the various voltages indicated below:

Voltage of Control Circuit	24	125	250	600
Contacts Will Break-D.C.	50	15	5	1
Contacts Will Break-A.C.	50	30	10	3

Service, 15 seconds or continuous.



Without Cover With Cover

Cat. No.	Operating Voltage A.C.	Frequency Cycles	Current Taken at Rated Frequency, Amps.	Ship. Wt. Lbs.	Price Each
2633624G1	110	25	0.2	7	\$32.00
2633624G3	110	60	0.35	7	32.00
2633624G2	220	25	0.1	7	32.00
2633624G4	220	60	0.2	7	32.00

**G-E Types PQ, PQ2 and PQ3  
Overcurrent Relays**

For Use with Current Transformers Having  
5-Ampere Secondaries  
For Mounting on 1½ or 2-Inch Panels  
Alternating Current—Single Pole—40-60 Cycles



Fig. 1  
PQ Instantaneous  
Circuit-closing



Fig. 2  
PQ Inverse Time-  
limit  
Circuit-closing



Fig. 3  
PQ3 Inverse Time-  
limit  
Circuit-opening

These relays are for use only on 5-ampere secondaries of current transformers. Standard winding has a continuous rating of 5 amperes and is calibrated to operate at 5, 8, 12 and 15 amperes. The volt-ampere burden, 22.5 volt amperes, is sufficiently low to permit using these relays on the same current transformers with meters and other instruments without affecting the accuracy of the instruments.

All time Type PQ relays are regularly equipped with needle valve only. The quick return valve and the quick exhaust valve are not regularly furnished but can be furnished as a separate item. The bellows support has a tapped hole for receiving these valves. This hole is closed by a removable plug which is regularly furnished with the relay.

The standard unit Types PQ, PQ2 and PQ3 overcurrent relays are all of the same general construction, the only difference being in the respective contact elements. All parts are interchangeable, thereby permitting changing any relay to secure the desired contact characteristics by simply adding the necessary parts and omitting those not required. This rule does not apply to the Type PQ2, two-circuit, 3-contact, circuit-closing relay. The Type PQ2 relay is provided with instantaneous closing contacts only.

The 3-spring-finger type of contact cannot always be relied upon to retain their proper alignment with the result that when the plunger operates slowly, as in the case when employing the air bellows, all 3 contacts may not be engaged simultaneously. This condition would cause arcing and the subsequent destruction of the contact tips. The relays are dust-proof both with respect to the contact parts and the calibrating parts. A dustproof cover encloses the contacts, and a shutter encloses the calibrating parts after adjustments have been made. The coil can be replaced without disturbing the upper part of the relay.

These relays can be provided with alternating current or direct current potential coils.

Price, Needle Valve.....	per pole, each	\$ 50
" Quick Return Valve.....	" " "	1.75
" Exhaust Valve.....	" " "	1.50

**Instantaneous Overcurrent  
CONTACTS**

Cat. No.	Type	DESCRIPTION			Wt. Lbs.	Price Each
		Circuits	Function	Normal Position		
199735	PQ	1	Closing	Open	10	\$21.00
199736	PQ2	2	"	"	10	26.00
199737	PQ3	1	Opening	Closed	10	22.00
<b>Inverse Time—Overcurrent</b>						
199738	PQ	1	Closing	Open	12	\$25.00
199739	PQ3	1	Opening	Closed	12	26.00
<b>Definite Time—Overcurrent</b>						
199740	PQ	1	Closing	Open	12	\$25.00
199741	PQ3	1	Opening	Closed	12	26.00

\*Current transformers not included.

**G-E Type PB-54 Hesitating Solenoid  
Control Relays**

With Blowout Coil  
Totally Enclosed, Single-Pole, One-Circuit  
Circuit-Closing Contacts

48 to 600 Volts, D.C.

For Mounting on ¾ or 1¼-Inch Vertical or Horizontal Pipe



Type PB-54 Relay  
with Cover



Type PB-54 Relay  
with Cover Removed

The Type PB-54 Solenoid Control Relay is made in single-pole units only.

It is provided with a blowout coil and a metal cover. The blowout coil reduces the arc and the burning of contact tips. The metal cover encloses all live parts, thereby providing full safety features.

In general, the Type PB-54 Relay operates to close its contacts through a toggle mechanism actuated by the plunger.

The hesitating feature is obtained by the inductive effect of a heavy copper short-circuited winding located in the spool which delays the drop of the plunger approximately one second after the coil is de-energized.

**Contacts**

Contacts are of copper against copper and will make and break the current given in the following table:

Voltage of Circuit	CONTACTS WILL CARRY AMPERES	
	Continuous	5 Seconds
125	50	200
250	50	100
600	20	40

**Mounting**

The relay is provided with supports for mounting on ¾-inch or 1¼-inch vertical or horizontal pipe.

When it is desired to mount the relay on the front or back of a panel the pipe fitting can be removed and the relay secured by two screws through holes provided for this purpose in the back of the frame.

**For Mounting on ¾-Inch Vertical or  
Horizontal Pipe**

*Cat. No.	Voltage of D.C. Control Circuit	Approx. Shig. Wt., Lbs.	Price Each Class PP
2182135G10	48	15	\$38.00
2182135G11	125 or 250	15	37.00
2182135G12	600	15	40.00

**For Mounting on 1¼-Inch Vertical or  
Horizontal Pipe**

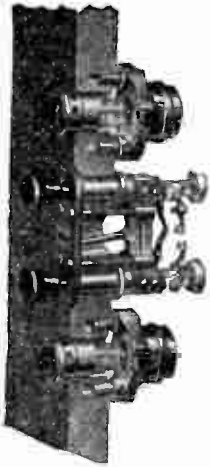
*Cat. No.	Voltage of D.C. Control Circuit	Approx. Shig. Wt., Lbs.	Price Each Class PP
2182135G7	48	15	\$38.00
2182135G8	125 or 250	15	37.00
2182135G9	600	15	40.00

\*Catalogue number includes relay complete with support for mounting on either vertical or horizontal pipe.

**Twin Pull Button Control Switches**

For Controlling Motor and Solenoid Operated Switches, Circuit Breakers, etc.

Single-pole—Double Throw  
125 to 600 Volts



S-P. D-T. Twin Pull Button Control Switch with Indicating Lamps and Receptacles

Mechanical indicator shows which throw was last operated; Mazda lamps with red and green lenses for indicating, show whether switch or breaker is closed or open.

These switches are equipped with sliding contacts which will handle 10 amperes at 125 volts, 3 1/2 amperes at 250 volts and 1/2 an ampere at 600 volts.



Lamp Receptacle and Lens

**G-E Potential and Synchronizing Plugs and Receptacles**



Synchronizing Plug

The plug and receptacle materially simplifies the synchronizing system of switchboards and the control of potential circuits by making it possible to locate the receptacles in the immediate vicinity of the controlling and indicating devices and by avoiding the grouping of a large number of leads in a small space. Also obviates the necessity of modifying existing panels in regard to the potential and synchronizing connections when panels are added.



Receptacle with Bushing



Receptacle without Bushing

Potential plugs and receptacles are used to connect a voltmeter to any one of a number of generator, battery or feeder circuits, or to any phase of a polyphase circuit.

Synchronizing plugs and receptacles are used for connecting a synchronism indicator or synchronizing lamps to the generator being synchronized.

Plug holders are furnished to provide means for holding the plugs when not in use.



Plug Holder

Cat. No. For 1 1/2 or 2-in. Panel	Cat. No. Lamps Receptacles Lenses	INCLUDES Resistances for Lamp Circuits	Voltage or Control Circuit	Ship. Wt. Lbs.	Price Each
*1959119G1	Without	None	125 to 600	5	\$12.00
*1959119G2	With	None	125	8	18.00
*1959119G3	With	1954175†	250	10	22.00
*1959119G4	With	1954179†	600	10	26.00

\*Switch only, no provision for lamps, no lamps, receptacles or lenses included.

†Each Cat. No. includes one control switch; two receptacles, Cat. No. 40431 each complete with a Cat. No. 36099 glass tube fuse; one ruby lens and holder, Cat. No. 36795; one green lens and holder, Cat. No. 36796; and two Type E Mazda (T7 Bulb) candelabra lamps and screws for fastening receptacles and switch in position. The 250 and 600-volt, Cat. Nos. 1959119G3 and 1959119G4, also include for lamp circuits, one resistance in two divisions electrically separate, Cat. Nos. 1954175 and 1954179 respectively. No base or connection included.

‡For 2-inch panel mounting, the spacer shipped with the switch is not used. These switches can not be mounted on thicker panels.

§Resistances, Cat. Nos. 1954175 and 1954179, are for use only with Mazda candelabra lamps.

**Indicating Lamps and Lenses for Control Switches**

Cat. Nos. 234284, 234285, 234286 and 234484 are complete with porcelain receptacle No. 40431, with expansion bolts, terminals, glass tube fuse No. 36099, Type E Mazda Candelabra lamp and lens with holder.

Cat. No.	Description	Price Each
234284	Complete with Ruby Lens and Holder	\$3.50
234285	" " Green " " "	3.50
234286	" " White " " "	3.50
234484	" " Blue " " "	3.50
40431	Porcelain Receptacle Complete with Fuse	.60
36795	Ruby Lens and Holder, Complete	1.00
36796	Green " " " " "	1.00
114219	White " " " " "	1.00
234485	Blue " " " " "	1.00
1954175	Resistance 250 Volts (for Use with Mazda Candelabra Lamps)	5.00
1954179	Resistance 600 Volts (for Use with Mazda Candelabra Lamps)	9.00
36099	Glass Tube Fuse	*.05

\*Net.

**Receptacles**

Description	No. of Points	To Secure Equivalent of Super-seded Cat. No. Below	Use the Number of Cat. No. 2696460G1, 3, 4 or 9 Receptacles with Bushings Below
125-250-Volt, D.C. Potential	2	29656	2
600-Volt, D.C. Potential	2	13285	2
125-250-Volt, D.C. Potential	4	13288	4
600-Volt, D.C. Potential or Synchronizing	4	29658	4
Synchronizing	4	13289	4
A.C. Potential	4	29657	4
A.C. Potential	6	29659	6
A.C. Synchronizing	6	60429	6
A.C. Potential	8	29660	8

**Plugs**

Cat. No.	No. of Points	Description	Shipping Wt., Lbs.	Price Each
29652	2	125-250-Volt, D.C. Potential	1	\$3.25
13265	2	600-Volt, D.C. Potential	1	3.25
37644	2	A.C. Potential	1	3.25
13269	4	125-250-Volt, D.C. Potential	1	4.00
29653	4	600-Volt, D.C. Potential	1	4.25
29655	4	A.C. Potential	1	4.25
27369	4	Synchronizing Machine Running	1	4.50
27368	4	Synchronizing Machine Starting	1	4.50
29654	4	Synchronizing Machine Running	1	4.75
173427	6	Synchronizing Machine Running	2	5.25
173426	6	Synchronizing Machine Starting	2	5.25
173425	6	Synchronizing Machine Running	2	5.25
173424	6	Synchronizing Machine Starting	2	5.25
234489	6	Synchronizing Machine Starting	2	5.25

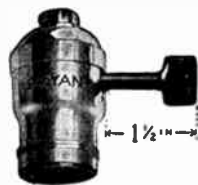
Plug Holder, Cat. No. 129965, price \$ .30.

**Receptacles**

Thickness Panel Inches	Ship. Weight Pounds	With Bushing Cat. No.	Price Each	*Without Bushing Cat. No.	Price Each
3/4	1/4	2696460G1	\$.45	2696460G5	\$.40
1	1/4	2696460G1	.45	2696460G5	.40
1 1/4	1/4	2696460G9	.45	2696460G10	.40
1 1/2 or 2	1/4	2696460G3	.45	2696460G7	.40
2 1/2	1/4	2696460G4	.45	2696460G8	.40

\*Receptacles without bushings are for replacements; can be mounted in moulded or hard rubber mats of superseded potential or synchronizing receptacles if a socket needs replacing.

**Bryant Wiring Devices with Extra Long Keys**



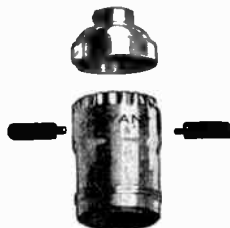
The medium base key sockets and similar size socket devices have keys 1 inch long, but can have longer keys on special order, which must specify the distance desired between the outside of the shell and the end of the key. Otherwise, if extra long keys are ordered 1 1/2-inch keys will be supplied. The lengths which can be supplied are 1 1/4, 1 1/2, 2 and 2 1/2 inches.

For sockets and other devices with keys longer than 1 inch, add to the price of standard device 5 cents.

Standard package quantity, 100 of one length. No assortment permitted. For gummon key, add 5 cents.

The keys of the candelabra and miniature base devices are 5/8 inch long and this is the only length that can be furnished.

**Bryant Wiring Devices with Removable Push-Buttons**



Nos. 34, 44, 77, 81, 87 and 4181 socket bodies can be supplied, on special order, with removable buttons 2 1/4 inches long over all; standard length is 1 3/4 inches.

For devices with removable buttons add 7 cents to price of standard device.

Standard package quantity, 100. No assortment permitted.

**Bryant Wiring Devices with Metal Keys**



Any Bryant key socket listed in this catalogue can be supplied with a metal key as shown in the adjoining illustration. The key can be detached for finishing. Unless otherwise specified it will be finished the same as the socket. The standard length measures 1 inch from the shell to the end of the key. Other lengths which can be furnished are 1 1/4, 1 1/2, 2 and 2 1/2 inches.

For sockets with 1-inch metal keys, add 10 cents to price of standard socket. For sockets with keys longer than 1 inch, add 15 cents to price of standard socket. Standard package quantity, 100 of one length. No assortment permitted.

**Bryant Wiring Devices for Special Metal Keys**

Any Bryant key socket listed in this catalogue can be supplied with insulated threaded mandrel to receive a special key furnished by the fixture manufacturer. The unthreaded portion is 1/4 inch in diameter. The threaded portion will take a key tapped for No. 6 screw, 32 threads per inch. Add 7 cents to price of standard socket.

Standard package quantity, 100. No assortment permitted.



**Bryant Wiring Devices with Art Keys  
Brush Brass Color**

Key socket bodies and their combinations will, when specified, be furnished with brush brass colored composition keys. The color is permanent because it is moulded into the composition. When Art Keys are desired, specify Art Key, after the catalogue number. The price, schedule, standard package quantity and carton are the same as for sockets with regular keys. Key socket bodies of the same Cat. No. with Art Keys and regular keys may be assorted in unbroken cartons to make up a standard package quantity.

**Bryant Pull Devices with Extension Chain Guides**



Pull devices installed in husks or socket covers require extension chain guides to carry the chain through the cover. These chain guides are not in any way part of the device shell but are attached to the device mechanism. The extension piece, which is 3/7 inch in diameter, can be unscrewed for installation through the hole in the husk and for refinishing. The male threaded portion of the chain guide, which is attached to the device, extends less than 1/8 inch outside of the device shell, making it possible to insert the device in any husk, even though it follows the outline of the device shell closely. This male threaded portion of the chain guide is not interchangeable on New Wrinkle and Wrinklet sockets, but the extension pieces are interchangeable and can be used on any Bryant New Wrinkle and Wrinklet socket which is properly equipped with its own male threaded portion of the chain guide.

Extension chain guides are made only in the following regular lengths: 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4 and 2 inches.

Add 10 cents to price of standard device.

Standard package quantity, 50 of one length or 100 of assorted lengths. No assortment with devices having regular chain guides permissible.

**Bryant Pull Devices with Chain of Special Length**

The regular length of chain on all pull devices, except as otherwise noted, is 8 inches. Devices with chains shorter than regular will be sold at the same price as regular.

For devices with chains longer than regular, add 10 cents per foot of extra chain per device.

For special, except silver and gold, finishes on chains longer than 1 foot, add 2 cents per foot of extra chain per device.

For silver finish, add 10 cents. Price of gold finish on application.

The standard quantity package will be the same as for standard length. Devices of the same catalogue number with standard and special length chains may be assorted in unbroken cartons to make up the standard package quantity.



**Bryant Sockets and Receptacles with Lamp Grips**



Most mogul base devices and most medium base devices listed in this catalogue can be equipped with a lamp grip, as illustrated, which effectually prevents the lamp from unscrewing.

For devices with lamp grips add 5 cents per outlet to the price.

The standard package quantity will be the same as the regular article.

Devices of the same catalogue number without and with lamp grip may be assorted in unbroken cartons to make up the standard package quantity.

**Bryant Sockets and Receptacles with Left-hand Screw Shell  
Medium Base Only**

For special conditions many of medium base sockets or cut-out bases listed in this catalogue can be fitted with left-hand screw shells, designed to receive lamps similarly equipped.

For medium base devices with left-hand screw shells, add 3 cents to the price for each left-hand screw shell.

The standard package quantity will be the same as the regular article.

Devices of the same catalogue number with left-hand and right-hand screw shells may be assorted in unbroken cartons to make up the standard package quantity.

**Bryant Pull Devices with Linen Cord**



Some pull devices are regularly fitted with a short chain, 10 ft. of linen cord, small size, and a small composition ball. Sockets and other devices which are regularly fitted with 8 inches of chain and a brass ball will, on special order, be furnished with a short chain, 3 feet of linen cord and composition ball at the regular price.

For cords longer than 3 feet, add 1 cent per foot to price.

The standard package quantity will be the same as the regular article. Devices with linen cords may be assorted in unbroken cartons with similar devices with chains of various lengths to make up the standard package quantity.

Connection between chain and cord is made by means of a No. 810 splicing link.

**Bryant Socket Caps with Side Entrance Bushings**

Medium Base Size Only

The caps of most medium base brass shell sockets can be furnished with an insulated bushing as illustrated. The purpose of this construction is to provide a passage for the conductors when the support for the socket is a rod instead of a pipe or tube; or when for any other reason it is impossible or undesirable to pass the conductors through the regular bushing of the socket cap.



No. CX cap is such a cap, being an AA cap with side entrance bushing.

For socket caps fitted with insulated side bushing, add 2 cents to price.

The standard package quantity will be the same as the regular article. Caps of the same catalogue number with and without the insulated side bushing may be assorted in unbroken cartons to make up the standard package quantity.

**Bryant Unassembled Sockets**



Cap



Cap Lining



Shell



Interior and Lining

Sockets, when so specified, will be shipped unassembled. By this is meant that the caps will be packed in one set of cartons, the shells in another set, the cap linings in another set. This should not be confused with sockets shipped knocked-down, which describes the shell, lining and interior complete as one unit, and the cap with its lining complete as another unit. It is advantageous to purchase sockets unassembled only when the purchaser does his own refinishing, in which case orders should specify, polished but not lacquered.

**Socket Reducers**

No.	Cat. No.	Sched. No.	Description	Carton	Std. Pkg.	Wt., Lbs.	Price Each
No. 391	421 B		Mogul to Medium..	10	100	23	\$.25
	392 B		Medium to Candelabra.....	25	100	8	.10
No. 392	391 B		Candelabra to Miniature.....	100	100	1	.06

**Bryant Brylock Lock Attachments**



No. AA-15 with Brylock Attachment No. AA-45, Showing Construction

In public places where the theft of lamps presents a problem, the use of Bryant sockets equipped with the Brylock attachment will stop further loss.

The Brylock attachment consists of a pointed and hardened steel screw supported by a threaded sleeve. The sleeve is fastened into the socket in such a position that when the pointed screw is turned by the special Brylock key it is forced to pierce the metal of the lamp base and effectually prevents the lamp from being turned.

Thus the lamp cannot be removed without the use of the special Brylock key.

Brylock keys are not supplied with Brylock equipped sockets but must be ordered separately.

**Bryant Sockets and Receptacles with Brylock Attachments**

Schedule B

The price of a Bryant socket or receptacle with Brylock attachment is 27 cents per attachment more than the price of the same device without the locking feature.

Devices of the same catalogue number with and without the Brylock attachment may be assorted in unbroken cartons to make a standard package, which will be the same as for the standard device. A standard package of Brylock devices is 100 identical Brylock devices, carton 25; except when the standard package of a regular device is less than 100, or the carton less than 25, under which condition the regular standard package and carton quantities apply to the device when equipped with the Brylock attachment.

Cat. No.	*Old Cat. No.	Device with Brylock Price Each	Cat. No.	*Old Cat. No.	Device with Brylock Price Each
10	40	\$.53	4205	.....	\$.96
11	41	.53	4206	.....	.69
12	42	.56	4207	.....	.72
13	43	.50	4208	.....	.66
15	45	.67	4209	.....	.83
34	44	.53	4210	.....	1.02
35	..	.86	4211	.....	.63
80	86	.53	4212	.....	.66
81	87	.53	4213	.....	.60
82	..	.56	4214	.....	.77
83	88	.50	4215	.....	.96
85	89	.67	4219	.....	.68
95	..	.50	4220	.....	.87
**4100	4222	.87	7000	WA-86	.63
**4101	.....	.92	7006	WA-89	.77
**4102	4221	.72	7009	WA-88	.60
**4103	.....	.77	7401	.....	.60
**4104	4223	1.57	43316	.....	.65
**4105	.....	1.62	50717	4236	.52
4201	.....	.63	59480	AA-40	.63
4202	.....	.66	59482	AA-43	.60
4203	.....	.60	60018	4218	.71
4204	.....	.77	65250	AA-45	.77

\*Formerly listed as a separate Brylock device under the old catalogue number given.

\*\*When equipped with Brylock attachment a Uno shade holder cannot be used.

**No. 631 Bryant Keys for Brylock Sockets**

Cat. No.	Carton	Weight Pounds per Carton	Price Each
631	10	1/2	\$.35





## No. 10 Bryant New Wrinkle Single-pole Key Socket Bodies

250 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
10	B	25	250	45	\$.26

## No. 11 Bryant New Wrinkle Double-pole Key Socket Bodies

250 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
11	B	25	250	44	\$.26

## No. 12 Bryant New Wrinkle Single-pole High Capacity Key Socket Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
12	B	25	250	44	\$.29

## No. 13 Bryant New Wrinkle Keyless Socket Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
13	B	25	250	40	\$.23

## No. 15 Bryant New Wrinkle Single-Pole Pull Socket Bodies

250 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
15	B	25	250	54	\$.40

## No. 35 Bryant New Wrinkle Single-pole High Capacity Pull Socket Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35	B	25	250	55	\$.59

## No. 34 Bryant New Wrinkle Single-pole Push Button Socket Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34	B	25	250	40	\$.26

## No. 31 Bryant New Wrinkle Single-pole High Capacity Key Socket Bodies

With Spartan Plug Outlet

Each Outlet 660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
31	B	10	10	2	\$.46

## No. 32 Bryant New Wrinkle Keyless Socket Bodies

Each Outlet 660 Watts, 250 Volts

With Spartan Plug Outlet



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
32	B	10	10	2	\$.43

## No. 33 Bryant New Wrinkle Single-Pole Pull Socket Bodies

With Spartan Plug Outlet

Each Outlet 660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
33	B	10	10	2	\$.73

## No. 16 Bryant New Wrinkle Single-pole Twin Pull Socket Bodies

Each Outlet 250 Watts, 250 Volts  
Both outlets operate on and off simultaneously.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
16	B	10	20	9	\$1.08

## No. 17 Bryant New Wrinkle Single-Pole Twin Pull Socket Bodies

Side Outlet, 660 Watts, 250 Volts  
Bottom Outlet, 250 Watts, 250 Volts  
Side outlet on all the time, bottom outlet on and off.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
17	B	10	20	9	\$1.08

## No. 25 Bryant New Wrinkle Single-pole Pull Socket Rosette Bodies

3 Amperes, 125 Volts; 1 Ampere, 250 Volts

Cord hole in composition basing,  $\frac{1}{2}$  inch.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
25	H	10	20	4	\$.53

## No. 55 Bryant New Wrinkle Single-pole Pull Switch Rosette Bodies

6 Amperes, 125 Volts  
3 Amperes, 250 Volts

Cord hole in composition bushing,  $\frac{1}{2}$  inch.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
55	H	10	20	4	\$.59

## No. 19 Bryant New Wrinkle Single-pole Pull Wall Switch Bodies

3 Amperes, 125 Volts; 1 Ampere, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
19	H	10	20	4	\$.53

## No. 29 Bryant New Wrinkle Spartan Plug Receptacle Bodies

10 Amperes, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
29	R	5	20	3	\$.25

**Bryant New Wrinkle Pull Ceiling Switch Bodies**

Equipped with short No. 6 chain, 10 feet of small linen cord and small composition ball. Standard finish, brush brass. Special finishes at an increased price.

**No. 20 Single-pole**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
20	H	10	20	4	\$.53

**No. 27 Electrolier**

3 Amperes, 125 Volts; 1 Ampere, 250 Volts  
Operating 1, 2, 1 and 2 off.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
27	H	10	20	4	\$.83

**No. 50 Single-pole**

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50	H	10	20	4	\$.59



**Bryant New Wrinkle Pull Fixture Switch Bodies**

Equipped with short No. 6 chain, 10 feet of small linen cord and small composition ball. Standard finish, brush brass. Special finishes at an increased price.

**No. 21 Single-pole**

3 Amperes, 125 Volts; 1 Ampere, 250 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
21	H	10	20	5	\$.68

**No. 28 Electrolier**

3 Amperes, 125 Volts; 1 Ampere, 250 Volts  
Operating 1, 2, 1 and 2, off.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
28	H	10	20	5	\$.98

**No. 51 Single-pole**

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
51	H	10	20	5	\$.74



**Nos. AA and AB Bryant New Wrinkle Caps**

**1/8-Inch Female**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AA	B	25	250	12	\$.10

**1/4-Inch Female**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AB	B	25	25	2	\$.16



**Nos. AC and AD Bryant New Wrinkle Caps**

**3/8-Inch Female**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AC	B	25	100	6	\$.16

**1/2-Inch Female**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AD	B	25	50	4	\$.19



**Nos. AE and AF Bryant New Wrinkle Caps**

**1/8-Inch Male**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AE	B	25	25	1	\$.10

**1/4-Inch Male**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AF	B	25	25	1	\$.16



**Nos. AG and AH Bryant New Wrinkle Caps**

**3/8-Inch Male**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AG	B	25	50	2	\$.16

**1/2-Inch Male**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AH	B	25	50	2	\$.22



**No. AU Bryant New Wrinkle Strain Relief Pendant Caps**

With porcelain bushing. 1 1/2-inch hole.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AU	B	25	100	4	\$.10



**No. AK Bryant New Wrinkle Fixture Caps**

1/8-inch 3-step Female

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AK	B	25	25	3	\$.20

**No. AT Bryant New Wrinkle Pendant Caps**

With composition bushing. Hole, 1 3/32 inch in diameter.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AT	B	25	250	10	\$.10

**No. CX Bryant New Wrinkle Caps**

1/8-inch Female

With side entrance with composition bushing. Dimension of cord hole, 5/16 x 3/16-inch.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CX	B	25	100	6	\$.12

**No. AM Bryant New Wrinkle Caps**

1/8-Inch Female Angle



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AM	B	25	50	3	\$.21

**No. AP Bryant New Wrinkle Caps**

3/8-inch Angle—Female



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AP	B	25	25	2	\$.24

**No. AV Bryant New Wrinkle Caps**

Attachment Plug



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AV	B	10	50	9	\$.27

## No. BH Bryant New Wrinkle Small Covered Bases



Outside diameter of base  $2\frac{1}{4}$  inches. Screw spacings  $1\frac{1}{2}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BH	B	10	100	19	\$.28



## No. BK Bryant New Wrinkle Large Brass Covered Bases

Outside diameter of base  $3\frac{1}{2}$  inches. Screw spacings 2 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BK	B	10	50	23	\$.37

## No. BL Bryant New Wrinkle $3\frac{1}{4}$ -Inch Box Bases

Outside diameter of base  $3\frac{5}{8}$  inches. Screw spacing 2 and  $2\frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BL	B	10	50	32	\$.37



## No. BM Bryant New Wrinkle 4-Inch Box Bases

Outside diameter of base  $4\frac{21}{32}$  inches. Screw spacings  $2\frac{1}{32}$  and  $3\frac{1}{2}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BM	B	5	50	55	\$.67

## No. BZ Bryant New Wrinkle Canopy Tap Bases



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BZ	B	10	20	6	\$.22



## No. AX Bryant New Wrinkle Porcelain Slotted Bases

Outside diameter of base,  $2\frac{1}{8}$  inches. Screw spacings,  $1\frac{1}{8}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AX	B	10	100	16	\$.18

## No. AY Bryant New Wrinkle Porcelain Small Concealed Bases

Outside diameter of base  $2\frac{1}{8}$  inches. Screw spacings,  $1\frac{1}{2}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AY	B	10	100	17	\$.18



## No. AZ Bryant New Wrinkle Porcelain Large Concealed Bases

Outside diameter of base,  $2\frac{3}{4}$  inches. Screw spacings  $2\frac{1}{4}$  inches.

Fits Type 500 Adaptiboxes, Types GN, HM, and W Octagonal Unilets, etc.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AZ	B	10	100	40	\$.23

## No. BA Bryant New Wrinkle Porcelain Angle Concealed Bases



Screw spacings,  $1\frac{1}{8}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BA	B	10	100	30	\$.23

## No. BY Bryant New Wrinkle Porcelain Cleat Bases

With Covered Terminals Supporting screw spacings,  $\frac{7}{8} \times \frac{1}{2}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BY	B	5	100	60	\$.36



## No. AW Bryant New Wrinkle Porcelain Cleat Bases

Screw spacings  $2\frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AW	B	10	100	26	\$.23

## No. BB Bryant New Wrinkle Porcelain Bases

For  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch Pipe Taplets and for wood molding and V. V. Fittings Covers Nos. 43SS, 44SS and 45SS by means of which it can be attached to all  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and 1-inch V. V. Fittings Types 1, 3, 4 and T. Screw spacings,  $2\frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BB	B	10	100	25	\$.18



## No. BW Bryant New Wrinkle Porcelain Bases

For  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch Pipe Taplets and for V. V. Fittings Covers Nos. 43SS, 44SS and 45SS by means of which it can be attached to all  $\frac{1}{2}$ ,  $\frac{3}{4}$  and 1-inch V. V. Fittings Types 1, 3, 4 and T. Screw spacings,  $2\frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BW	B	10	100	34	\$.23



## No. BC Bryant New Wrinkle Porcelain Bases

For  $\frac{1}{2}$ -inch Obround Condulets and  $\frac{1}{2}$ -inch Types L, LFB and L 45 V. V. Fittings. Screw spacings,  $2\frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BC	B	10	100	39	\$.23



## No. DE Bryant New Wrinkle Porcelain Bases

For Types 4400, 4500, 4600 and 4700 Adaptiboxes. Screw spacings,  $3\frac{3}{4}$  and  $3 \times \frac{5}{8}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
DE	B	10	100	35	\$.23



## No. DF Bryant New Wrinkle Porcelain Bases

For  $\frac{1}{2}$ -inch Rectangular Unilets. Supporting screw spacings,  $1\frac{1}{2} \times \frac{3}{4}$  inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
DF	B	10	100	35	\$.23



**Bryant Surface and Outlet Box Keyless Receptacles**

660 Watts, 250 Volts  
Schedule B



These receptacles are flat on the back and therefore suitable for use either on outlet boxes or without them.

Approved for use on walls or ceilings containing metal lathing and upon metal surfaces.

Standard finish is brush brass which will be furnished when no finish is specified. Suitable machine screws are furnished for mounting the device on box.

Nos. 4101 and 4103 are regularly fitted with 6-inch leads of No. 14 B.&S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B.&S. stranded slow-burning wire for 3 cents, or with asbestos braid rubber-covered wire for 12 cents, list additional per device. Leads longer than 6 inches cost additional: Rubber-covered, 9 cents per foot; slow-burning, 18 cents per foot; asbestos braid, 24 cents per foot; these prices cover both leads in all cases. Devices with asbestos braid wire will be sealed with a compound that will not soften under heat. Brylock feature, 27 cents extra.

**For 3 1/4-Inch Outlet Boxes**

Diameter of base, 3 5/8 inches. Height, 1 1/2 inches. Supporting screw spacing, 2 3/4 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
4102	With Binding Screws	1	50	36	\$.45
4103	With Wire Leads	1	50	40	.50

**For 3 1/4 and 4-Inch Outlet Boxes**

Diameter of base, 4 5/8 inches. Height, 1 1/2 inches. Supporting screw spacings, 2 3/4 and 3 1/2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
4100	With Binding Screws	1	50	55	\$.60
4101	With Wire Leads	1	50	58	.65

**Bryant Surface and Outlet Box Single-Pole Pull Receptacles**

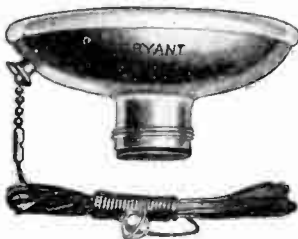
250 Watts, 250 Volts  
Schedule B

**For 3 1/4 and 4-Inch Outlet Boxes**

These receptacles are flat on the back and therefore suitable for use either on outlet boxes or without them.

Approved for use on walls or ceilings containing metal lathing and upon metal surfaces.

Diameter of base, 4 1/2 inches. Height, 2 inches. Supporting screw spacings, 2 3/4 and 3 1/2 inches. Mechanisms are single-pole.



No. 4104

Standard finish is brush brass which will be furnished when no finish is specified. Suitable machine screws are furnished for mounting the device on box.

No. 4105 is regularly fitted with 6-inch leads of No. 14 B.&S. stranded rubber-covered wire. On special order, can be fitted with 6-inch leads of No. 14 B.&S. stranded slow-burning wire for 3 cents, or with asbestos braid rubber-covered wire for 12 cents, list additional per device. Leads longer than 6 inches cost additional: Rubber-covered, 9 cents per foot; slow-burning, 18 cents per foot; asbestos braid, 24 cents per foot; these prices cover both leads in all cases. Devices with asbestos braid wire will be sealed with a compound that will not soften under heat.

Equipped with short No. 6 chain, 10 feet of small linen cord and small composition pendant ball.

Can be supplied with Brylock feature at an addition to price of 27 cents each. For small Undark luminous pendent, add 28 cents.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
4104	With Binding Screws	1	50	69	\$1.30
4105	With Wire Leads	1	50	75	1.35

**Bryant Assembled Sockets**

The following sockets are carried in stock assembled, i.e., the socket body is partially inserted in the cap, but the latching operation is not completed, so that the sockets are easily taken apart for wiring. Each complete socket is separately wrapped in tissue paper. This method of packing sockets is especially advantageous to fixture manufacturers who have frequent use for other than 1 1/2-inch caps. For the average socket user, requiring a considerable variety of bodies, caps and bases, the "knocked-down" method of shipping sockets is decidedly more convenient.

Other combinations of sockets than those listed below will be shipped assembled, when so specified, without extra charge, but such orders will be subject to the delays which are usual in connection with goods that are not carried in stock.



No. AA-10

**New Wrinkle Sockets with 1/8-Inch Cap**

Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
AA-10	S.P. Key	B	25	250	56	\$.36
AA-13	Keyless	B	25	250	51	.33
AA-15	S.P. Pull	B	25	250	56	.50

**Wrinklet Sockets with 1/8-Inch Cap**

Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
WA-80	S.P. Key	B	25	250	44	\$.36
WA-81	S.P. Push	B	25	250	42	.36
WA-83	Keyless	B	25	250	43	.33
WA-95	Short Keyless	B	25	250	31	.33
WA-85	S.P. Pull	B	25	250	55	.50



No. WA-85

**No. AV-17 Bryant Dubl-Duty Sockets**

250 Volts, 250 Watts



This socket provides two Edison screw base outlets where formerly there was but one. Bottom outlet is controlled by pull chain; side outlet is always on; side outlet is above shade; when bottom outlet is used for a lamp, the lamp maintains its original position.

Any standard shade holder can be used, including Uno.

Standard finish, brush brass. Standard chain furnished, 8 inches of No. 6. Brylock attachment, add 27 cents.

each. Small Undark luminous pendant, 25 cents. Lamp grip, 5 cents per outlet.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
A V17	B	1	20	11	\$1.35

**Bryant Sockets with Covered Base for Concealed Work**

250 Volts



No. 60018

Outside diameter of base, Nos. 60018, 60019, 4219, 2 5/16 inches; Nos. 60020 and 4220, 3 1/8 inches. Nos. 4219, 60018, 60019 supporting screw spacing, 1 5/8 inches; Nos. 4220 and 60020, 1 5/8 and 2 inches. Height, 2 1/4 inches.

Nos. 4219 and 4220 furnished with Brylock attachment. No. 60018 has single-pole switch mechanism.

Cat. No.	Watts	Description	Sched-ule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
60018	250	Key	B	10	100	40	\$.44
60019	660	Keyless	B	10	100	40	.41
60020	660	Keyless	B	10	100	60	.60
4219	660	Keyless	B	10	100	38	.68
4220	660	Keyless	B	10	100	60	.87

## Bryant Parts of Brass Shell Sockets, Receptacles and Socket Type Devices

Description	Sched- ule	Std. Pkg.	Price Each	Add for Special Finish
<b>Medium, Candelabra and Miniature Base</b>				
<b>Shells, All Kinds, without Linings, Except Shells for "Brylock" Sockets</b> .....	B	250	<b>\$.10</b>	†
Shells for "Brylock" Sockets without Linings but with Locking Devices.....	B	100	.24	†
<b>Caps, 1/8 In. without Linings, including Knurled Rings for "Titan" Caps</b> .....	B	250	.09 1/2	†
Caps, 1/4 In. without Linings.....	B	100	.15 1/2	†
Caps, 3/8 In. without Linings, including Knurled Rings for "Titan" Caps.....	B	100	.15 1/2	†
Caps, 1/2 In. without Linings.....	B	100	.18 1/2	†
Caps, Pendant, without Linings or Insulating Bushings, including Knurled Rings for "Titan" Caps.....	B	250	.08 1/2	†
<b>Linings for Shells, All Kinds except for "Brylock" Sockets</b> .....	B	250	.03	.....
Shell Linings for "Brylock" Sockets.....	B	100	.03	.....
<b>Linings for Caps, All Kinds of Paper Cap Linings</b> .....	B	250	.00 1/2	.....
Combination Porcelain Strain Relief Lining and Bushing for AU and CB Caps.....	B	100	.01 1/2	.....
<b>Bushings, Composition for Pendant Caps and Pendant Devices</b> .....	B	250	.01	.....
<b>Knurled Rings, only for "Titan" Caps</b> .....	B	250	.02	.....
<b>Screw Shells, Standard, Right-Hand, Medium</b> .....	B	250	.03 1/2	.....
Standard Candelabra or Miniature.....	B	250	.02	.....
<b>Socket Interiors, Medium Edison Base:</b>				
Keyless, 660 Watts.....	B	250	.13	.....
Key, S. P. and D. P., 250 Watts.....	B	250	.17	.....
Key, H. C., 660 Watts.....	B	250	.23	.....
Pull, 250 Watts, with Chain-Guide, Chain and Pendant Ball.....	B	250	.26	*
Pull, 250 Watts, with Chain-Guide, but without Chain or Pendant Ball.....	B	250	.22	*
Pull, 250 Watts, without Chain-Guide, Chain or Pendant Ball.....	B	250	.20	.....
Pull, 660 Watts, with Chain-Guide, Chain and Pendant Ball.....	B	250	.48	*
Pull, 660 Watts, with Chain-Guide, but without Chain or Pendant Ball.....	B	250	.44	*
Pull, 660 Watts, without Chain-Guide, Chain or Pendant Ball.....	B	250	.42	.....
"Brylock," Price Shown is Advance over Corresponding Standard Interior.....	B	100	.13	.....
Push, 660 Watts, with Non-Removable "Templus" Buttons.....	B	250	.18	.....
Push, 660 Watts, with Removable "Templus" Buttons.....	B	100	.27	.....
<b>Socket Interiors, Candelabra and Miniature Base:</b>				
Keyless, 75 Watts.....	B	100	.21	.....
Key, S. P., 75 Watts.....	B	100	.28	.....
Pull, 75 Watts with Chain-Guide, but without Chain or Pendant Ball.....	B	50	.64	*
<b>Socket Interiors, Bayonet (Ediswan) Medium Base:</b>				
Keyless, 660 Watts.....	B	250	.26	.....
Key, 250 Watts.....	B	250	.29	.....
Pull, 250 Watts, with Chain-Guide, but without Chain or Pendant Ball.....	B	250	.37	.....
Push, 660 Watts, with Non-removable "Templus" Buttons.....	B	250	.29	.....
Push, 660 Watts, with Removable "Templus" Buttons.....	B	100	.36	.....
<b>Miscellaneous Parts</b>				
<b>Metal Keys, 1 In. Long</b> .....	B	100	<b>\$.05</b>	<b>\$.05</b>
Metal Keys, 1 1/4, 1 1/2, 2 or 2 1/2 In. Long.....	B	100	.10	.05
<b>Chain and Chain Assemblies:</b>				
No. 6, for Medium Base Pull Devices not Cut into Lengths, per foot.....	H	1000 ft.	.05	*
No. 6, for Medium Base Pull Devices cut into Specified Lengths Less than 100 Ft. each, per foot.....	H	250	.10	*
No. 3, for Candelabra and Miniature Base Pull Devices not Cut into Lengths, per foot..	H	500 ft.	.05	*
No. 3, for Candelabra and Miniature Base Pull Devices cut into Specified Lengths less than 100 Ft. each, per foot.....	H	100	.10	*
8-In. Pull Chain, No. 3, or No. 6, with or without Check Ball.....	H	250	.07	*
8-In. Pull Chain, No. 3 or No. 6, with or without Check Ball and with either No. 512 or No. 516 Pendant Ball.....	H	250	.13	*
6 1/2-In. Pull Chain, No. 3 or No. 6, with or without Check Ball.....	H	250	.05 1/2	*
5-In. Pull Chain, No. 3 or No. 6, with or without Check Ball, with No. 510.....	H	250	.14	*
Splicing Link placed 1 1/2 in. from one end and either No. 512 or No. 516 Pendant Ball on other end.....				
8-In. Pull Chain, No. 3 or No. 6 with or without Check Ball, with No. 513 Insulating Link and with either No. 512 or No. 516 Pendant Ball.....	H	250	.21	*
Short Chain, No. 810 Splicing Link, 3 ft. Small Black Linen Cord and Small Black Composition Pendant Ball.....	H	250	.13	*
<b>Composition Pendant Balls, Black, Small for Brass Shell Pull Devices, Etc</b> .....	H	50	.06	.....
Large, for Ceiling Pull Switches, etc.....	H	50	.06	.....
<b>Black Braided Linen Cord, Light Weight, for Small Pull Devices</b> .....	H	100 ft.	.01	.....
Heavy, for Ceiling Pull Switches and Hospital Signal System.....	H	100 ft.	.02	.....
<b>Chain Guides, Standard Length for All Pull Devices, including Seat Piece</b> .....	H	250	.05	*
Extension, 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4 or 2 In., including Seat Piece.....	H	50†	.15	*
Extensions are interchangeable on "New Wrinkle" and "Wrinklet" Devices, but the Seat Pieces to which they Screw are not interchangeable on "New Wrinkle" and "Wrinklet" devices.....				
Separable, two parts which are intended to be pressed together with a tool.....	H	50	.04	*
Separable, two parts which screw together.....	H	100	.10	*
<b>Mogul Base</b>				
<b>Shells, without Linings</b> .....	B	50	<b>\$.55</b>	†
<b>Caps, without Linings</b> .....	B	50	.75	†
<b>Linings, Shell</b> .....	B	50	.10	.....
<b>Linings, Cap</b> .....	B	50	.03	.....
<b>Interiors</b> .....	B	50	.37	.....
<b>Screw Shells (Standard Finish is Gilding Metal)</b> .....	B	50	.12	.....

The standard finish on all metal parts is brush brass which will be shipped when the finish is not specified.  
 \*50 of one length or 100 of assorted lengths constitute a standard package quantity.

†Double the list prices shown for bodies and caps on special finishes.

††For special finishes on socket pull chains and parts, see another page.

**Bryant Bayonet Shell Sockets**

250 Volts



The caps and shells of bayonet shell sockets fasten together with a bayonet lock which is secured by two screws. The standard finish is brush brass, which will be shipped when the finish is not specified.

**With 1/8-Inch Cap**

Cat. No.	Watts	Description	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9386	250	Key	B	25	250	54	\$ .33
9392	660	Keyless	B	25	250	51	.30
35000	250	Pull	B	25	250	65	.60

**With 3/8-Inch Cap**

50760	250	Key	B	25	100	22	\$ .39
50768	660	Keyless	B	25	100	20	.36
35001	250	Pull	B	25	100	28	.66

**For Base for Concealed Work**

9184	250	Key	B	10	100	30	\$ .44
9185	660	Keyless	B	10	100	28	.41

Outside diameter of base is 2 1/16 inches, height 2 7/16 inches. Holes for supporting screws are spaced 1 5/8 inches on centers.

**No. 50717 Bryant Pony Wall Sockets with Base for Concealed Work**

250 Volts

Cat. No.	Watts	Description	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50717	660	Keyless	B	10	100	28	\$ .25

Outside diameter of base is 2 inches, height, 2 inches. Holes for supporting screws are spaced 1 1/4 inches on centers.



**No. 4117 Bryant Switchboard Sockets**

250 Volts

The shell of this socket is made of highly polished black composition and is threaded on the inside to engage with the outside of the lamp screw shell. The mounting studs are 3/8 inch in diameter and are spaced 3/4 inch on centers, one of them being in the center of the socket.

Outside diameter of shell is 2 1/8 inches. Height 1 1/8 inches. Length of studs, 2 1/2 inches.



Cat. No.	Watts	Description	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4117	660	Keyless	B	10	100	28	\$ .40

**Bryant Removable Ring Sockets With 1/8-inch Cap**

Schedule B  
250 Volts

Cat. No.	Watts	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50740	250	Key	25	500	49	\$ .35
50741	660	Keyless	25	500	60	.32
35037	250	*Pull	25	250	70	.65

\*With white porcelain rings.

**No. 50746 Bryant Removable Ring Sockets**

With Small Covered Base for Concealed Work

Schedule B  
250 Volts

Outside diameter base, 2 inches; height 1 3/4 inches; screw spacings, 1 1/4 inches.

Cat. No.	Watts	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50746	660	Keyless	10	250	60	\$ .41



**Bryant Titan Sockets**

Schedule B—250 Volts



In these sockets the connection between shell and cap is effected by means of a threaded ring which engages with a corresponding thread in the shell, providing an exceptionally rugged and secure fastening.

The standard finish, brush brass.

**With 1/8-inch Cap**

Cat. No.	Watts	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4201	250	Key, Single-pole	25	250	59	\$ .36
4262	660	" High Capacity	25	250	59	.39
4203	660	Keyless	25	250	54	.33
4204	250	Pull, Single-pole	25	250	70	.50
4205	660	" High Capacity	25	250	75	.69

**With 3/8-inch Cap**

4206	250	Key, Single-pole	25	100	25	\$ .42
4207	660	" High Capacity	25	100	25	.45
4208	660	Keyless	25	100	23	.39
4209	250	Pull, Single-pole	25	100	30	.56
4210	660	" High Capacity	25	100	30	.75

**With Pendant Cap**

4211	250	Key, Single-pole	25	250	55	\$ .36
4212	660	" High Capacity	25	250	55	.39
4213	660	Keyless	25	250	49	.33
4214	250	Pull, Single Pull	25	250	65	.50
4215	660	" High Capacity	25	250	65	.69

**Bryant Single-pole Pull Sockets With Bottom Chain Guide**

Schedule B  
250 Watts, 250 Volts

These sockets are especially adapted for indirect lighting fixtures and wall brackets.

Standard finish, brush brass.

Standard equipment, 8 inches of No. 6 chain.

Brylock attachment, 27 cents extra.

Undark luminous pendant, permanently attached, 25 cents extra.



Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4068	1/8-inch Nozzle	10	50	22	\$ .75
4237	" "	10	50	22	.80
4116	" 3-step Nozzle	10	50	25	.80

**Bryant Electrolier Sockets**

Schedule B — 660 Watts, 250 Volts

The shell screws into the cap to form the mechanical connection between the two.

Standard finish is brush brass.

Carton, 50 and 10 respectively.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66237	Keyless, 1/8-inch Cap	250	47	\$ .40
50766	" 3/8 " "	100	18	.46



**Bryant Porcelain Lined Metal Shell Sockets With Shade-holder Threads**

Schedule B  
660 Watts, 600 Volts

Threaded to receive a special line of shade-holders. A strong, weatherproof and convenient method of attachment.

Copper shell sockets have standard gilding metal screw shells, but all other metal parts are of bronze, so that the sockets are non-corrosive.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3706	Alum. 3/8-in. Fem. Cap.	10	50	25	\$ .50
3707	" 1/2 " "	10	50	25	.50
3708	Aluminum Cord Grip Cap	10	50	25	.50
3726	Cop. 3/8-in. Fem. Cap.	10	50	36	.50
3727	" 1/2 " "	10	50	36	.50
3728	Copper Cord Grip Cap	10	50	37	.50





## No. 80 Bryant Wrinklet Single-pole Key Socket Bodies

250 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
80	B	25	250	35	\$ .26



## No. 82 Bryant Wrinklet Single-pole High Capacity Key Socket Bodies

660 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
82	B	25	250	37	\$ .29



## No. 85 Bryant Wrinklet Single-Pole Pull Socket Bodies

250 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
85	B	25	250	36	\$ .40



## No. 83 Bryant Wrinklet Keyless Socket Bodies

660 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
83	B	25	250	34	\$ .23



## No. 95 Bryant Wrinklet Short Keyless Socket Bodies

660 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
95	B	25	250	21	\$ .23



## No. 81 Bryant Wrinklet Single-pole Push Socket Bodies

660 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
81	B	25	250	30	\$ .26



## Bryant Wrinklet Pull Switch Bodies

3 Amperes, 125 Volts; 1 Ampere, 250 Volts

Schedule II

### No. 90 Single-pole Pull Switch Bodies

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
90	10	20	3	\$ .53



### No. 91 Single-pole Pull Fixture Switch Bodies

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
91	10	20	4	\$ .68



No. 90 Pull Switch

No. 91 Pull Fixture Switch

## No. WA Bryant Wrinklet Caps

1/8-inch Female

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WA	B	25	250	11	\$ .10



## No. WB Bryant Wrinklet Caps

1/4-inch Female

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WB	B	25	25	4	\$ .16



## No. WC Bryant Wrinklet Caps

3/8-inch Female

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WC	B	25	50	3	\$ .16



## No. WE Bryant Wrinklet Caps

1/8-inch Male

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WE	B	25	25	2	\$ .10



## No. WG Bryant Wrinklet Caps

3/8-inch Male

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WG	B	25	25	2	\$ .16



## No. WM Bryant Wrinklet Caps

1/8-inch Female Angle

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WM	B	25	50	4	\$ .21



## No. WP Bryant Wrinklet Caps

3/8-inch Female Angle

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WP	B	25	25	2	\$ .24



## No. WT Bryant Wrinklet Caps

Pendent, 1 3/32-inch Hole

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
WT	B	25	50	2	\$ .10



**Bryant Single-Pole Plug-In Pull Sockets**

250 Volts—Schedule B

Inserting this socket in a key or keyless socket provides the convenience of control of a pull socket. Standard finish, brush brass.



Cat. No.	Over All Lgth., In.	Watts	Size Chain	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35024	3 1/2	250	No. 6	10	10	6	\$ .70
65024	2 3/16	660	No. 3	10	10	4	.70

**Bryant Keyless Angle Sockets**

Schedule B

660 Watts, 250 Volts

Especially adapted for show-case and trough reflector lighting. Side bushing. Standard finish, brush brass.

Cat. No.	Side Bushing, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4043	1/8	25	100	26	\$ .35
4044	3/8	25	100	27	.41



**Bryant Twin Keyless Sockets**

Each Outlet, 660 Watts, 250 Volts

Length of socket, 2 1/8 inches.

With 1/8-inch Cap



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
46750	B	10	10	3	\$ .65

With 3/8-inch Cap

46751	B	10	10	3	\$ .70
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**Nos. 4051-4052 Bryant Twin Pull Sockets**

250 Watts Combined Load on Both Outlets, 250 Volts



Both outlets are controlled simultaneously.

Standard finish, brush brass. Standard length of chain, 8 inches of size No. 6 chain.

Can be equipped with Brylock attachment at an addition to price of 27 cents for each outlet.

For permanently attached small Undark luminous pendant add 25 cents to price.

With 1/8-Inch Bushing

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4051	B	10	10	4	\$1.00

With 3/8-Inch Bushing

4052	B	10	10	4	\$1.06
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**Nos. 4005-4006 Bryant Twin Pull Sockets**

Each Outlet, 250 Watts, 250 Volts

First pull: Outlet No. 1 alone. Second pull: Both outlets in multiple. Third pull: Outlet No. 1 off; outlet No. 2 on. Fourth pull: Both outlets off.

Standard finish, brush brass. Standard length of chain, 8 inches of size No. 6 chain.

Can be equipped with Brylock attachment at an addition to price of 27 cents for each outlet.

For permanently attached small Undark luminous pendant add 25 cents to price.



With 1/8-Inch Bushing

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4005	B	10	10	4	\$1.00

With 3/8-Inch Bushing

4006	B	10	10	4	\$1.06
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**Nos. 4053-4054 Bryant Twin Pull Sockets**

250 Volts—Pull Outlet, 250 Watts; Keyless Outlet, 660 Watts

One outlet is controlled. Other outlet is connected permanently.

Standard finish, brush brass. Standard length of chain, 8 inches of size No. 6 chain.

Can be equipped with Brylock attachment at an addition to price of 27 cents for each outlet.

For permanently attached small Undark luminous pendant, add 25 cents.



With 1/8-Inch Bushing

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4053	B	10	10	4	\$1.00

With 3/8-Inch Bushing

4054	B	10	10	4	\$1.06
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**No. 4567 Bryant High-heat Composition Keyless Sockets**

Schedule B—660 Watts, 250 Volts

With 3/8-inch Female Bushing

This socket is intended for use in unit lighting fixtures with Type C gas filled lamps.

The body is of high-heat composition in two parts held together with a threaded brass ring.

Equipped regularly with lamp grip.

Diameter of body, 1 1/2-inch.

Diameter of brass ring, 1 3/8 inches.

Length over all, 2 1/2 inches.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4567	Medium with 3/8-inch Female Bushing	10	100	34	\$ .42

**No. 540 Bryant Single-pole Pull Candle Sockets**

Schedule B—75 Watts, 125 Volts

Composition, with Paper Jacket and Female Thread Bushing

The bushing of this socket is threaded for 1/8-inch iron pipe, .405-inch outside diameter, 27 threads to the inch. Standard chain is No. 3 and extends 5 inches below composition. Standard finish of chain is brush brass, but nickel or silvered finish will be furnished without extra charge. For any other special finish, see another page.

Outside diameter, 3/8 inch. Length over all, 2 3/8 inches. Regularly supplied with a paper insulating jacket which covers the mechanism and screw shell; outside diameter of jacket is 3/8 inch.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
540	Candelabra	25	50	5	\$ .75

**Bryant Candle Sockets**

Medium Base, Keyless, with Paper Jacket and Female Bushing

660 Watts, 250 Volts

Schedule B

Bushing is threaded for 1/8-inch iron pipe, .405-inch outside diameter, 27 threads per inch. Outside diameter of paper jacket is 1 1/8 inches. Length of body, 1 1/8 inches. On No. 4004, fixture wires are passed up through center of socket body and brass bushing, while the socket is being screwed onto the fixture pipe.



No. 4004



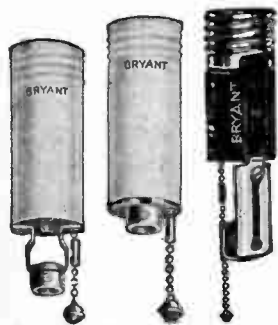
No. 4194

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4004	Rigid, 2 1/8 Inches Long	25	250	31	\$ .16
4194	Adj. 3/8 to 5/8 Inches Long	25	250	33	.17

## Bryant Candle Sockets

Composition, Medium Base, Pull, with Paper Jacket and Female Bushing

250 Watts, 250 Volts  
Schedule B



The standard chain is No. 3 size. Standard finish of chain is brush brass; polished or dull nickel finish furnished without extra charge. Can be furnished with small undark luminous pendant at an addition to price of \$.25. Nos. 4120 and 4230, rigid; 4190, adjustable.

Cat. No.	Lgth. In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
4120	3 <sup>3</sup> / <sub>16</sub>	10	100	20	\$.75
4230	3 <sup>7</sup> / <sub>8</sub>	10	100	20	.75
4190	4 <sup>3</sup> / <sub>8</sub> -5 <sup>3</sup> / <sub>8</sub>	10	100	21	.75

No. 4230 No. 4120 No. 4190

## Bryant Sockets for Flat Pans

Schedule B  
660 Watts, 250 Volts

These sockets are made by soldering 8-inch leads of stranded rubber-covered wire to the terminals of regular No. 95 Wrinklet sockets and covering the tops with wax to hold the bodies in the shells. Used in ceiling pan fixtures by making round holes 1<sup>1</sup>/<sub>4</sub> inches in diameter in the pans and soldering around the holes on the upper side of the pans Bryant No. 549 Uno fixture rings, after which the wires are connected.

Wrinklet caps cannot be used on these sockets. Standard finish, brass polished but not lacquered. Longer leads can be supplied at an advance in price of 4<sup>1</sup>/<sub>2</sub> cents per foot each conductor. Wire lengths cannot be assorted to make up a standard package.



Cat. No.	Leads Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
95014	With No. 14 Wire Leads	25	250	45	\$.34
95016	With No. 16 Wire Leads	25	250	42	.30
95018	With No. 18 Wire Leads	25	250	40	.28

## Bryant Pull Socket Balls, and Insulating and Splicing Links



No. 512 or No. 516  
Shown Unassembled



No. 513



No. 510 or No. 811  
No. 810 is Similar

In those pull devices having a combination chain and cord, No. 810 splicing link is used to join the two.

The standard finish is brush brass, which will be supplied when no other finish is specified. All other finishes will be special, for which add 2 cents each to prices for both balls and links, except for silver and gold. For silver finishes add 10 cents list. Gold finish prices upon application.

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
512	H	Snap Lock Ball with Sleeve for Medium Base Pull Devices	50	250	1	\$.06
516	H	Snap Lock Ball with Sleeve for Candelabra and Miniature Base Pull Devices	10	50	1/4	.06
510	H	Splicing Link for No. 6 Chain	200	200	1/2	.021 <sup>1</sup> / <sub>2</sub>
513	H	Insulating Link for No. 3 or No. 6 Chain	100	100	1/2	.08
810	H	Splicing Link to Connect No. 6 Chain to Small Linen Pull Cord	200	200	1/4	.021 <sup>1</sup> / <sub>2</sub>
811	H	Splicing Link for No. 3 Chain	200	200	1/2	.021 <sup>1</sup> / <sub>2</sub>

## No. NW Bryant New Wrinkle and Wrinklet Socket Cap Wrenches

For use in fastening caps to fixtures when the caps are enclosed in husks.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
NW	H	1	1	1/2	\$.50



## Bryant Intermediate Base Lamp Holders

Wiring devices with intermediate screw shells are now available for use with the new intermediate size lamps.



No. 9610

### Brass Shell Key Sockets

75 Watts, 125 Volts

Has 1/8-inch cap.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9610	B	25	100	10	\$.36

### Brass Shell Keyless Sockets

75 Watts, 250 Volts

Has 1/8-inch cap.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9613	B	25	100	9	\$.33



No. 9613



No. 9615

### Brass Shell Pull Sockets

75 Watts, 125 Volts

Has 1/8-inch cap and 4-inch chain.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9615	B	25	100	10	\$.84

### Composition Candle Pull Sockets with Paper Jacket

75 Watts, 125 Volts

Has female thread bushing.

The No. 4170 hickey can be used with this socket, thereby providing a candle pull socket with an extension of 1<sup>1</sup>/<sub>2</sub> inches and adjustable up to 2<sup>3</sup>/<sub>32</sub> inches more than its own length.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9640	B	25	100	14	\$.75



No. 9640

### Green Templus Pendant Sockets

75 Watts, 250 Volts

For Christmas trees.

Furnished with 5-inch leads of No. 18 green stranded rubber covered weather-proof wire.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9650	B	25	100	8	\$.12



No. 9650

### Porcelain Keyless Candle Sockets

75 Watts, 250 Volts

Has female thread bushing.

Adjustable, 3<sup>7</sup>/<sub>8</sub> to 5<sup>1</sup>/<sub>2</sub> inches long.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9652	B	25	100	13	\$.17



No. 9652

### Porcelain Cleat Receptacles

75 Watts, 250 Volts

For surface wiring.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9653	B	25	100	17	\$.12



No. 9653

### Porcelain Sign Receptacles

75 Watts, 250 Volts

For metal signs.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9663	B	25	100	16	\$.17



No. 9663

### Porcelain Sign Receptacles with Removable Ring

75 Watts, 250 Volts

For metal signs.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9690	B	25	100	20	\$.20



No. 9690

### Adapters

Adapter from standard to intermediate base.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9691	B	25	100	6	\$.10



No. 9691

**Bryant Single-pole Key Sockets**

75 Watts, 125 Volts  
New Wrinkle Style Shell Fastening  
1/8-inch Cap

Standard finish, brush brass. Can be furnished with metal key or to take special metal key.



Cat. No.	Description	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
433	Miniature	H	25	100	12	\$ .39
434	Candelabra	H	25	100	12	.39

**Bryant Miniature and Candelabra Keyless Sockets**

75 Watts, 125 Volts



Threaded Shell Fastening 1/8-inch Cap

Cat. No.	Style	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
320	Miniature	H	25	100	8	\$ .32
321	Candelabra	H	25	100	8	.32

**Bryant Single-pole Pull Sockets**

75 Watts, 125 Volts  
New Wrinkle Style Shell Fastening  
1/8-inch Cap

Standard length chain, 4 inches. Extension chain guides and Undark luminous pendants furnished, extra.



Cat. No.	Description	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
385	Miniature	H	10	50	6	\$ .84
386	Candelabra	H	10	50	6	.84

No. 386

**Bryant Porcelain Receptacles for Metal Signs**

75 Watts, 125 Volts  
With Removable Ring



Hole required, 3/4 inch diameter. Diameter, 1 3/8 inches. Thickness of ring, 1/4 inch. Depth: No. 389, 5/8 inch; No. 390, 7/8 inch.

Cat. No.	Description	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
389	Miniature	H	25	100	9	\$ .20
390	Candelabra	H	25	100	11	.20

**Bryant Porcelain Receptacles for Metal Signs**

Schedule H

75 Watts, 125 Volts

Miniature

Cat. No.	Hole Req'd In.	Depth In.	Screw Spacings In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
387	3/8	3/8	1 1/8	10	100	8	\$ .18



No. 388

Candelabra

388	3/4	1	1 3/8	10	100	10	\$ .18
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**Bryant Porcelain Base Cleat Receptacles**

75 Watts, 125 Volts



Outside diameter of base, 1 3/8 inches. Thickness of base, 1/2 inch. Height, 1 3/4 inches. Supporting screw spacings, 1 1/8 inches.

Cat. No.	Description	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
366	Miniature	H	25	100	12	\$ .12
367	Candelabra	H	25	100	13	.12

**Bryant Porcelain Base Cleat Receptacles**

Schedule H

75 Watts, 125 Volts



No. 9445

Cat. No.	Description	BASE, IN. O. D.	Thick-ness In.	Ht. In.	Screw Spacings In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9445	Miniature	1 3/8	3/8	1 3/4	1 1/8	25	200	11	\$ .09
9446	Candelabra	1 3/4	3/8	1 3/4	1 1/8	25	200	14	.09

**No. 325 Bryant Candelabra Cleat Receptacles**

75 Watts, 125 Volts

Oblong Porcelain Base

Base, 1 3/8 x 1 inch. Thickness of base, 1/2 inch. Height, 1 3/8 inches. Supporting screw spacings, 1 3/4 by 1 1/2 inch.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
325	H	25	100	12	\$ .10

**No. 70 Bryant Single-Pole Porcelain Key Socket Bodies**

Schedule B

250 Watts, 250 Volts

Emergency and weatherproof shade-holders may be attached to this device.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
70	10	100	35	\$ .26

**No. 72 Bryant Single-Pole Porcelain Key Socket Bodies**

Schedule B

660 Watts, 250 Volts

Emergency and weatherproof shade-holders may be attached to this device.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
72	10	100	32	\$ .29

**No. 73 Bryant Porcelain Keyless Socket Bodies**

Schedule B

660 Watts, 250 Volts

Emergency and Weatherproof shade-holders may be attached to this device.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
73	10	100	30	\$ .23

**No. 75 Bryant Single-pole Porcelain Pull Socket Bodies**

Schedule B

250 Watts, 250 Volts

Emergency and Weatherproof shade-holders may be attached. Standard finish, brush brass. For special finishes add 2 cents.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
75	10	100	41	\$ .59

**No. 76 Bryant Single-pole Porcelain Pull Socket Bodies**

Schedule B

660 Watts, 250 Volts

Emergency and Weatherproof shade-holders may be attached. Standard finish, brush brass. For special finishes add 2 cents.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
76	10	100	43	\$ .81

**No. 71 Bryant Porcelain Push Button Socket Bodies**

Schedule B

660 Watts, 250 Volts

Emergency and Weatherproof shade-holders may be attached to this device.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
71	10	100	39	\$ .29

**No. 79 Bryant Porcelain Spartan Receptacle Bodies**

Schedule R

10 Amperes, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
79	10	20	4	\$ .15

**No. PT Bryant Porcelain Pendant Caps**

Schedule B

Cord hole, 1 3/8-inch.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PT	10	100	11	\$ .10



## No. PA Bryant Porcelain Caps

Brass, 1/8-Inch Female

Schedule B

Standard finish, brush brass.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PA	10	100	17	\$.20

## No. PB Bryant Porcelain Caps

Schedule B

1/4-Inch Female Brass

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PB	10	100	17	\$.30



## No. PC Bryant Porcelain Caps

Schedule B

3/8-Inch Female Brass

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PC	10	100	17	\$.24



## No. PE Bryant Porcelain Caps

Schedule B

3/8-inch Female Aluminum

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PE	10	100	17	\$.40



## No. RT Bryant Porcelain Pendent Caps

Schedule B

Cord hole, 1/2 inch.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RT	10	100	16	\$.10



## No. PD Bryant Porcelain Caps

Schedule B

Aluminum, 1/2-Inch Female



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PD	10	100	17	\$.42

\*Brass, 1/2-Inch Female

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PD	10	100	17	\$.27

\*Standard finish, brush brass.

## No. PP Bryant Porcelain Angle Caps

Schedule B

3/8-inch Female Brass

Standard finish, brush brass.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PP	10	100	27	\$.50



## No. PF Bryant Porcelain Angle Caps

Schedule B

3/8-inch Female Aluminum



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PF	10	100	20	\$.65

## No. RW Bryant Porcelain Angle Caps

Schedule B

1/2-inch Female Aluminum

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RW	10	100	22	\$.75



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RW	10	100	22	\$.60

## No. PW Bryant Porcelain Cleat Bases

Schedule B

Diameter of base, 2 1/4 inches. Diameter over lugs, 2 3/8 inches. Supporting screw spacings, 1 5/8 inch.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PW	10	100	28	\$.14

## No. PZ Bryant Porcelain Concealed Bases

Schedule B

Outside diameter 2 3/4 inches. Screw spacings 1 1/2 and 2 3/8 inches. Base fits Type No. 500 Adaptibox.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PZ	10	100	46	\$.15

## No. RL Bryant Porcelain Bases

For 3/4-inch Boxes

Schedule B

Outside diameter 3 5/8 inches. Screw spacings 2 3/4 inches. Suitable machine screws for mounting furnished.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RL	10	50	25	\$.30

## No. RM Bryant Porcelain Bases

Schedule B

For 3/4-inch and 4-inch Boxes

Outside diameter, 4 7/8 inches. Supporting screw spacings, 2 3/4 and 3 1/2 inches. Screws for mounting furnished.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RM	5	50	45	\$.40

## No. 78 Bryant Spartan Current Taps

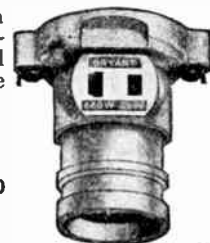
Schedule H

660 Watts, 250 Volts



Can be inserted between the cap or base and the body of any porcelain socket combination of the Bryant Interchangeable Porcelain Line and will take any of the Spartan caps of the Bryant Spartan Line.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
78	10	50	12	\$.20



Inserted Between No. PW Base and No. 73 Socket

## No. SS Bryant K-W Cleat Bases

Stamped Lugs

Diameter, 2 3/8 inches; over lugs, 3 1/2 inches. Screw spacings, 1 5/8 inches.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SS	H	10	100	45	\$.13

**No. ST Bryant K-W**

**Cleat Bases**

**Cast Lugs**

Diameter,  $2\frac{3}{8}$  inches; over lugs,  $3\frac{1}{2}$  inches. Screw spacings,  $1\frac{5}{8}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ST	H	10	100	45	\$.13



**No. SU Bryant K-W Concealed Bases**



Outside diameter of base,  $2\frac{9}{16}$  inches. Screw spacings,  $1\frac{5}{8}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SU	H	10	100	40	\$.13

**No. SV Bryant K-W Wood Molding Bases**

Base measures  $2\frac{3}{8} \times 2\frac{1}{4}$  inches. Screw spacings,  $1\frac{5}{8}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SV	H	10	100	40	\$.13



**No. SW Bryant K-W Combination Bases**

Diameter,  $2\frac{3}{8}$  inches. Screw spacings,  $1\frac{5}{8}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SW	H	10	100	45	\$.13

**No. 717 Bryant K-W Pendent Rosette Caps**

Fusible  
2 Amperes, 125 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
717	H	10	100	22	\$.13



**No. 710 Bryant K-W Key Socket Bodies**

Fusible  
250 Watts, 125 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
710	B	10	100	45	\$.62



**No. 718 Bryant K-W Bracket Rosette Caps**

Fusible

Bushing tapped for  $\frac{1}{8}$ -inch pipe. Standard finish, brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
718	H	10	100	30	\$.23



**No. 4235 Bryant Medium Base Reflector**

**Sockets**

Schedule B  
660 Watts, 250 Volts



No. 4235 Front View

No. 4235 Back View

A single piece of ruggedly designed porcelain. The conductors pass through separate holes in the porcelain to the binding screw terminals which are located in shallow recesses at the lamp end of the socket. This construction greatly simplifies both the installation of the socket in the reflector and the connecting of the conductors. The terminal binding screws are extra heavy and long and are staked to prevent being backed out too far.

There are four mounting surfaces or levels accomplished by steps of  $\frac{1}{4}$  inch each, so that it is possible to hold the lamp at four different positions or focuses with reference to the particular style of reflector used.

This socket can be installed with ease in any type of metal reflector regardless of whether the reflector and its holder are made in one piece or separate pieces; it is suitable for use with metal caps tapped to fit either  $\frac{3}{8}$ -inch or  $\frac{1}{2}$ -inch pipe.

No caps are furnished with these sockets. Reflector manufacturers will supply whatever kind of support is best suited to their particular style of reflectors or holders.

The supporting means of the socket may be so arranged in the reflector that the holding screws, as well as the binding screws, are accessible from the lamp end of the socket.

Socket is  $2\frac{3}{8}$  inches in diameter by  $1\frac{3}{4}$  inches deep. Holes for supporting screws are  $\frac{3}{16}$  inch in diameter and are spaced  $1\frac{1}{2}$  inches on centers.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4235	10	100	48	\$.30

**No. 9402 Bryant Porcelain Cleat Receptacles**

660 Watts, 250 Volts

Diameter of main base is  $2\frac{1}{32}$  inches; diameter over lugs is  $2\frac{7}{8}$  inches. Height  $1\frac{21}{32}$  inches. Holes for supporting screws spaced  $2\frac{5}{16}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9402	B	10	100	45	\$.17

**No. 4013 Bryant Porcelain Cleat Receptacles**

660 Watts, 250 Volts

**With Groove for Shade Holder**

Diameter main base,  $2\frac{1}{8}$  inches; over lugs,  $2\frac{7}{8}$  inches. Height,  $1\frac{3}{4}$  inches. Screw holes spaced  $2\frac{5}{16}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4013	B	10	100	42	\$.22

**No. 9403 Bryant Porcelain Cleat Receptacles**

660 Watts, 250 Volts

Brass Shell for Uno and other holders. Diameter of main base,  $2\frac{1}{32}$  inches; over lugs,  $2\frac{7}{8}$  inches. Height,  $1\frac{15}{16}$  inches. Screw holes spaced  $2\frac{5}{16}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9403	B	10	100	38	\$.27

**No. 28795 Bryant Porcelain Cleat Receptacles**

660 Watts, 250 Volts

Diameter of base is  $2\frac{3}{8}$  inches. Height,  $1\frac{3}{8}$  inches. Holes for supporting screws are spaced  $1\frac{7}{8}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
28795	B	10	100	39	\$.18





## No. 50715 Bryant Porcelain Cleat Receptacles

660 Watts, 250 Volts



Diameter of main base,  $1\frac{7}{8}$  inches; diameter over lugs is  $2\frac{1}{8}$  inches. Height,  $1\frac{23}{32}$  inches. Holes for supporting screws are spaced  $1\frac{13}{32}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50715	B	10	100	33	\$ .12

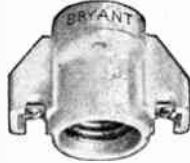
## No. 59275 Bryant Porcelain Cleat Receptacles

660 Watts, 250 Volts

For Damp Places

Diameter over lugs is  $2\frac{1}{4}$  inches. Height  $1\frac{1}{2}$  inches. Holes for supporting screws are spaced 2 inches on centers. Raises wires 1 inch.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59275	B	10	100	45	\$ .25



## No. 9171 Bryant Porcelain Cleat Receptacles

660 Watts, 250 Volts

Diameter of base is  $1\frac{1}{2}$  inches. Height  $1\frac{1}{2}$  inches.

Supported by one screw in center.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9171	B	10	100	25	\$ .12



## No. 4229 Bryant Porcelain Receptacles

660 Watts, 250 Volts

With Combination Base for Cleat or Concealed Wiring

Diameter of base is  $2\frac{1}{2}$  inches. Height,  $1\frac{7}{8}$  inches. Holes for supporting screws are elongated to provide  $1\frac{3}{8}$  to  $1\frac{5}{8}$  in. on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4229	B	10	100	43	\$ .25



## Bryant Porcelain Cleat Receptacles

660 Watts, 250 Volts

Length,  $3\frac{5}{8}$  in. Width, 1 in. Height,  $2\frac{1}{4}$  in. Supporting screw spacings,  $\frac{7}{8}$  by  $\frac{3}{4}$  inch.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
58301	B	5	100	66	\$ .28
*58300	B	5	100	70	\$ .33

\*With shade-holder groove.



## Bryant Porcelain Concealed Receptacles

660 Watts, 250 Volts

Outside diameter of base,  $2\frac{3}{8}$  inches. Height,  $1\frac{1}{16}$  inches. Supporting screw spacings,  $1\frac{5}{8}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4000	B	10	100	42	\$ .25
*4001	B	10	100	43	\$ .30

\*With shade-holder groove.



## No. 4002 Bryant Porcelain Concealed Receptacles

660 Watts, 250 Volts

Brass Ring for Uno and Other Holders

Outside diameter base,  $2\frac{3}{8}$  inches. Height,  $1\frac{1}{8}$  inches. Screw holes spaced  $1\frac{5}{8}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4002	B	10	100	41	\$ .35



## No. 50744 Bryant Porcelain Receptacles

660 Watts, 250 Volts

With Removable Ring

Outside diameter of base is  $2\frac{1}{4}$  inches. Height,  $1\frac{7}{8}$  inches. Holes for supporting screws are spaced  $1\frac{1}{4}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50744	B	10	100	50	\$ .30



## No. 9401 Bryant Porcelain Receptacles

660 Watts, 250 Volts

With Single-pole Link Fuse

Outside diameter of base is  $2\frac{1}{8}$  inches. Height,  $1\frac{1}{8}$  inches. Holes for supporting screws are spaced  $1\frac{1}{8}$  inches on centers. Slotted base.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9401	B	10	100	57	\$ .40



## Bryant Porcelain Wood Molding Receptacles

660 Watts, 250 Volts

Length,  $2\frac{7}{8}$  in. Width,  $1\frac{1}{8}$  in. Height,  $1\frac{1}{8}$  in. Screw spacings,  $2\frac{3}{4}$  in.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4024	B	10	100	34	\$ .30
*4026	B	10	100	38	\$ .35

\*With shade-holder groove.



## No. 4025 Bryant Porcelain Wood Molding Receptacles

660 Watts, 250 Volts

With brass ring for Uno and other standard shadeholders. Length,  $2\frac{7}{8}$  in. Width,  $1\frac{5}{8}$  in. Height,  $1\frac{1}{8}$  in. Screw holes spaced,  $2\frac{3}{4}$  in.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4025	B	10	100	32	\$ .40



## No. 42453 Bryant Porcelain Wood Molding Receptacles

660 Watts, 250 Volts

Length is  $2\frac{5}{8}$  inches. Width,  $2\frac{1}{8}$  inches. Height,  $1\frac{3}{4}$  inches. Holes for supporting screws are spaced  $1\frac{3}{8}$  inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
42453	B	10	100	53	\$ .25



## Bryant Porcelain Receptacles for Outlet Boxes and Metal Signs

Schedule B  
660 Watts, 250 Volts

Deep Receptacles with Shallow ( $\frac{7}{16}$ -Inch) Ring

The hole required for receptacles is,  $1\frac{1}{2}$  inches in diameter. Diameter of receptacles,  $1\frac{3}{4}$  inches. Diameter of rings,  $1\frac{13}{16}$  inches.

No. 4099 is provided with a porcelain button which covers the live terminals and takes the place of the waxing. Button is readily screwed into place without the aid of tools.

No. 4036 is provided with loop terminals which wires may be hooked and soldered, after which the live metal parts must be covered with insulating wax.

No. 4035 is regularly fitted with 6-inch leads of No. 14 B & S stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B & S stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches cost additional as follows: R.C. 9 cents list per foot, S.B. 18 cents list per foot, A.B. 24 cents list per foot; these prices cover both leads. In all cases, devices with asbestos braid wire will be sealed with a compound that will not soften under head.



No. 4099 with Button in Place

With Binding Screws

Cat. No.	Separation Inches	Depth of Back, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61988	$1\frac{1}{2}$	$1\frac{1}{4}$	10	100	36	\$ .20

With Binding Screws Covered

4099	$1\frac{1}{2}$	$1\frac{7}{8}$	10	100	46	\$ .25
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With Loop Terminals

4036	$1\frac{3}{4}$	$1\frac{3}{4}$	10	100	32	\$ .20
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With 6-Inch Wires

4035	$1\frac{3}{4}$	$1\frac{3}{4}$	10	100	37	\$ .28
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Shallow Rings Only

.....	...	...	25	100	16	\$ .06
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**Bryant Porcelain Receptacles for Outlet Boxes, Metal Signs and Lighting Units**

660 Watts, 250 Volts  
**Shallow Receptacles with Deep (9/16-Inch) Ring and 1 Lug**  
*Schedule B*



No. 59108

Nos. 4132 and 59109 are provided with loop terminals to which wires may be hooked and soldered and live metal parts covered with insulating wax. No. 59109 with groove in base for passage of wires.



No. 4132

The hole required for receptacles is 1 1/2 inches in diameter. Diameter of receptacles is 1 3/4 inches. Diameter of rings is 1 1/8 inches.

No. 4109 is provided with a porcelain button which covers the live terminals and takes the place of the usual waxing.



No. 4109 with Button Unscrewed

Nos. 4132 and 59109 are provided with loop terminals to which wires may be hooked and soldered and live metal parts covered with insulating wax. No. 59109 with groove in base for passage of wires. No. 4003 is regularly fitted with 6-inch leads of No. 14 B.&S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B.&S. stranded slow-burning wire for 3 cents or of asbestos braid rubber-covered wire for 12 cents list additional.

Leads longer than 6 inches cost additional: Rubber-covered, 9 cents per foot; slow-burning, 18 cents per foot.

With Binding Screws						
Cat. No.	Separation Inches	Depth of Back, in.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59108	5/8	13/16	10	100	28	\$ .20
With Binding Screws Covered						
4109	5/8	1 1/16	10	100	38	\$ .25
With Loop Terminals						
4132	27/32	10	10	100	28	\$ .20
59109	5/8	13/16	10	100	28	.20
With 6-Inch Wires						
4003	27/32	10	10	100	34	\$ .28
Deep Rings Only						
.....	...	...	25	100	13	\$ .06



**No. 59107 Bryant Receptacles for Outlet Boxes**

**Conduit Box Receptacles**

660 Watts, 600 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59107	B	10	100	45	\$ .30

**No. 4074 Bryant Porcelain Receptacles with Loop Terminals**

660 Watts, 600 Volts

Hole required, 1 1/8 inches. Diameter over lugs, 2 5/8 inches. Depth, 1 1/8 inches. Screw spacings, 2 1/8 inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4074	B	10	100	42	\$ .25



**Bryant Receptacles for 3 1/4-Inch Outlet Boxes**

660 Watts, 250 Volts

**With Shade-Holder Groove**

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4227	B	5	100	78	\$ .40

**Without Shade-Holder Groove**

62357	B	5	100	83	\$ .40
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**Bryant Composition Decorative Sockets**

75 Watts, 125 Volts

Green glazed finish. Fitted with five inches of No. 18 B. & S. Green Braid, Stranded Rubber Covered Wire. Longer wires, \$.09 per foot, extra

Cat. No.	Style	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
322	Miniature	H	25	100	6	\$ .16
323	Candelabra	H	25	100	6	.16



**Bryant Porcelain Receptacles for Outlet Boxes and Metal Signs**

660 Watts, 250 Volts

**With Deep (9/16-Inch) Screw Ring**



No. 4133



No. 4133 with No. 443 Shade-Holder



No. 4133 with No. 628 Shade-Holder

Screw ring has groove for Weatherproof shade-holders, and recess for Emergency shade-holders.

The hole required for receptacles is 1 1/2 in. in diameter. Diameter of receptacles, 1 3/4 in. Diameter of rings, 1 1/8 in. No. 4134 is provided with a porcelain button which covers live terminals and takes the place of waxing. No. 4136 has loop terminals to which wires may be hooked and soldered, live metal parts then covered with insulating wax. No. 4135 is regularly fitted with 6-inch leads of No. 14 B.&S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches cost additional as follows: R.C. 9 cents list per foot, S.B., 18 cents list per foot, A.B. 24 cents list per foot; these prices cover both leads. In all cases, devices with asbestos braid wire will be sealed with a compound that will not soften under heat.



No. 4135

With Binding Screws						
Cat. No.	Sched-ule	Separation Inches	Depth of Back, in.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg. Price Each
4133	B	5/8	13/16	10	100	24 \$ .25
With Binding Screws Covered						
4134	B	5/8	1 1/16	10	100	38 \$ .30
With Loop Terminals						
4136	B	27/32	27/32	10	100	25 \$ .25
With 6-Inch Wires						
4135	B	27/32	27/32	10	100	34 \$ .33
Shade-Holder Rings Only						
....	..	...	...	25	100	10 \$ .10

**No. 4033 Bryant One-piece Flush Receptacles for Outlet Boxes**

660 Watts, 250 Volts

Hole required, 1 1/8-inch diameter. Outside diameter face, 2 3/8 inches; thickness, 3/8 inch. Depth from back of flange, 1 1/2 inches. Screw holes spaced 1 1/8 inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4033	B	10	250	94	\$ .20

**No. 9514 Bryant 2-piece Flush Receptacles For Outlet Boxes**

660 Watts, 250 Volts

Hole required, 1 1/8 in. diameter. Flange, 2 1/4 in. diameter; thickness, 1 1/4 in. Depth from back of flange, 1 1/2 in. Screw hole spacings, 1 1/8 in.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9514	B	10	100	92	\$ .30

**No. 9397 Bryant Outlet Box Receptacles**

660 Watts, 250 Volts

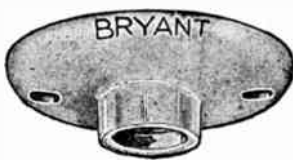
Base is 2x1 3/8 inches. Height, 1 1/2 inches. Holes for supporting screws are spaced 1 1/2 inches on centers.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9397	B	10	100	40	\$ .17



## Bryant Receptacles for 4-Inch Outlet Boxes

660 Watts, 250 Volts  
With Shade-Holder Groove



Cat. No.	Sched. No.	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4228	B	5	50	56	\$ .50

Without Shade-Holder Groove

4064	B	5	50	58	\$ .50
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## Bryant Porcelain Receptacles for 3 1/4-inch Outlet Boxes

660 Watts, 600 Volts



No. 4110

Diameter, 3 1/2 inches. Supporting screw spacings, 2 3/4 inches.

With Black Japanned Flat Cover

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4110	B	1	100	75	\$ .35

With Sherardized Flat Cover

4111	B	1	100	75	\$ .35
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## Bryant Porcelain Receptacles for 4-inch Outlet Boxes

660 Watts, 600 Volts



No. 4113

With Black Japanned Raised Cover

Cat. No.	Sched- ule	Outside Diam., In.	Screw Spac- ings, In.	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4113	B	4 1/8	3 1/2	1	100	96	\$ .40

With Sherardized Raised Cover

4114	B	4 1/8	3 1/2	1	100	98	\$ .40
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## Bryant Receptacles for Outlet Boxes

660 Watts, 250 Volts



With Marine Screw Shell

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
22287	B	10	100	46	\$ .35

With Regular Screw Shell

4149	B	10	100	44	.25
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## No. 4038 Bryant Temporary Cleat Receptacles

660 Watts, 250 Volts

Diameter of main base is 1 7/8 inches. Diameter over lugs, 2 5/8 inches. Height, 1 3/8 inches. Holes for supporting screws are spaced 1 3/8 inches on centers.



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4038	B	10	100	102	\$ .18

## Bryant Porcelain Receptacles for Metal Signs

660 Watts, 250 Volts

With Binding Screw Terminals



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4063	B	10	100	30	\$ .17

With Loop Terminals

4159	B	10	100	30	\$ .17
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Hole required, 1 3/8 inches; diameter, 1 3/8 in.; depth, 1 1/2 in.; screw spacings, 1 13/16 in.

No. 4063

## No. 40488 Bryant Receptacles for Outlet Boxes

Pony Sign Receptacles

660 Watts, 250 Volts



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
40488	B	10	100	25	\$ .18

## Bryant Receptacles for Outlet Boxes

Ruby Sign Receptacles With Binding Screws



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4014	B	10	100	29	\$ .28

Ruby Sign Receptacles With Stranded Wire Leads

No. 4014	4057	B	10	100	38	\$ .33
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## No. 1700 Bryant Receptacles for Wooden Signs

660 Watts, 250 Volts

Hole required, 1 1/8-inch diameter. Screw holes spaced 1 7/8 inch. No. 1700 Pony Sign Receptacles.

Diameter of back, 1 1/4 inches; thickness of back, 3/8 inch; length of neck, 1 1/2 in.

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
1700	B	10	100	28	\$ .17



## Bryant Porcelain Pull Outlet Box Receptacles

With Shadeholder Groove

250 Watts, 250 Volts



No. 4278

Can be mounted on metal, tiled or concrete surfaces in addition to standard 3 1/4 and 4-inch outlet boxes.

Diameter of base, 4 21/32 inches; height, 2 5/8 inches. Four slots for supporting screws arranged radially from the center and spaced to take screws placed from 2 3/4 to 3 1/2 inches on radial centers. Distance between centers

of adjacent slots is from 1 7/8 to 2 1/2 inches.

Fitted with polished nickel-plated chain but will be furnished with brush brass chain at no extra charge.

Cat. No.	Sched- ule	Cord and Chain Equipment	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4274	B	8-In. Chain, Ins., 6-Ft. Cord	1	50	76	\$ 1.28
4275	B	8-Inch Chain.....	1	50	76	1.12
4276	B	6-Foot Cord.....	1	50	76	1.12
4277	B	8-Inch Chain, Insulator....	1	50	76	1.20
4278	B	8-Inch Chain, 6-Foot Cord..	1	50	76	1.20
4279	B	3-Foot No. 6-Inch Chain....	1	50	76	1.35

## No. 4273 Bryant Porcelain Keyless Box Receptacles

With Shadeholder Groove

660 Watts, 250 Volts

This receptacle can be mounted on metal, tiled or concrete surfaces in addition to standard 3 1/4 and 4-inch outlet boxes.

Diameter of base, 4 21/32 inches; height, 2 5/8 inches. Two slots for supporting screws arranged to take screws spaced from 2 3/4 to 3 1/2 inches on centers.



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
4273	B	1	50	76	\$ .60

**Bryant Porcelain Pull Receptacles**  
For Ceiling Rings—With Binding Screws

250 Watts, 250 Volts *Schedule B*



No. 61978

For use in metal ceiling rings which have 1½-inch throats and made to hold a shade or globe at bottom. A porcelain clamping ring and asbestos gasket are provided to hold receptacle securely in ceiling ring. A separable chain guide is furnished. Hole required for chain guide, 1¼-inch diameter.

Standard finish of metal chain parts is brush brass, but polished nickel can be supplied without extra charge.

For any other finish except silver and gold add 2 cents to price except for No. 61979 for which add 6 cents.

Diameter, 1½ inches. Length over all 2¼ inches. Length above ring, 1½ inches.

Cat. No.	Cord and Chain Equipment	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61974	8-In. Chain, Insulator, 6-Ft. Cord	10	100	50	\$ .91
61975	8-In. Chain	10	100	50	.75
61976	6-Ft. Cord	10	100	50	.75
61977	8-In. Chain, Insulator	10	100	50	.83
61978	8-In. Chain, 6-Ft. Cord	10	100	50	.83
61979	3-Ft. No. 6 Chain	10	100	50	.98

**No. 399 Bryant Weatherproof Porcelain Sockets**

*Schedule B*  
660 Watts, 600 Volts



Main diameter, 1½ inches. Flange diameter, 1¾ inches. Length porcelain, 1½ inches. Fitted with 6 inches of No. 14 B.&S. stranded rubber covered wire. On special order can be fitted with 6-inch leads of No. 14 B.&S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for \$.12 list additional per device. Leads longer than 6 inches cost additional as follows: R.C., 9 cents per foot; S.B., \$.18

list per foot; A.B., \$.24 list per foot; these prices cover both leads in all cases. Devices with asbestos braid wire will be sealed with a compound that will not soften under heat. No. in carton, 10; standard package, 100.

Weight standard package, 35 pounds.

Price, No. 399..... each \$ .16

**No. 9366 Bryant Weatherproof Porcelain Sockets**

660 Watts, 600 Volts

With Groove for Shade-Holder

Main diameter, 1½ inches. Flange diameter, 1¾ inches. Length porcelain, 2½ inches. Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B.&S. stranded slow-burning wire for 3 cents, or with asbestos braid rubber-covered wire for 12 cents, list additional per device. Leads longer than 6 inches cost additional: Rubber-covered, 9 cents per foot; slow-burning, 18 cents per foot; asbestos braid, 24 cents per foot; these prices cover both leads in all cases.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9366	B	10	100	40	\$ .18

**No. 60666 Bryant Weatherproof Composition Sockets**

660 Watts, 600 Volts



Composition socket with groove for weatherproof shade-holder. Main diameter tapers from 1½ to 1¼ inches. Flange diameter is 1½ inches. Length of composition, 2¾ inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60666	B	10	100	30	\$ .20

**No. 60667 Bryant High-Heat Composition Sockets**

With Groove for Weatherproof Shade-Holder  
*Schedule B*



Main diameter tapers from 1½ to 1¼ inches. Flange diameter, 1¾ inches. Length of composition, 2¾ inches. Weatherproof shade-holders Nos. 628 and 629 may be attached to this device. Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches

cost additional as follows: R.C. 9 cents list per foot, S. B., 18 cents list per foot.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
60667	Weatherproof Socket	10	100	30	\$ .20

**Bryant Weatherproof Bracket Composition Sockets**

660 Watts, 250 Volts



Wires inside pipe. Main diam., 1½ in. Flange diam., 1¾ in. Length composition, 1½ in. Fitted with 6-in. No. 14 B. & S. wire.

Cat. No.	Sched-ule	Pipe In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43311	B	1/8	10	100	33	\$ .60
43312	B	3/8	10	100	33	.60

**No. 43310 Bryant Weatherproof Composition Sockets**

Pony Size—With Shade-Holder Groove

660 Watts, 600 Volts



Main diameter, 1¾ inches. Flange diameter, 1½ inches. Length of composition, 2 inches. Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents, or with asbestos braid rubber covered wire for 12 cents, list additional per device. Leads longer than 6 inches cost additional: Rubber-covered, 9 cents per foot; slow-burning, 18 cents per foot; asbestos braid, 24 cents per foot; these prices cover both leads in all cases. Devices with asbestos braid wire will be sealed with a compound that will not soften under heat.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43310	B	10	100	28	\$ .18

**No. 43315 Bryant High-Heat Composition Sockets**

Pony Size  
*Schedule B*

Main diameter, 1½ inches. Flange diameter, 1½ inches. Length of composition, 2 inches.

Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches cost additional as follows: R. C., 9 cents list per foot, S. B., 18 cents list per foot, A. B., 24 cents list per foot; these prices cover both leads in all cases.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
43315	Weatherproof Socket	10	100	28	\$ .18

**Bryant Weatherproof Bracket Composition Sockets**

660 Watts, 600 Volts



Wires outside pipe. Main diam., 1½ in. Flange diam. 1¾ in. Length composition, 1½ in. Fitted with 6-in. No. 14 B. & S. wire.

Cat. No.	Sched-ule	Pipe In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43313	B	1/8	10	100	33	\$ .60
43314	B	3/8	10	100	33	.60

## No. 43316 Bryant Templus High-Heat Brylock Sockets

With Groove for Weatherproof Shade-Holder  
Schedule B



Main diameter, 1½ inches. Flange diameter, 1⅝ inches. Length composition, 2 inches.

Weatherproof shade-holders Nos. 628 and 629 may be attached to this device. Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches cost additional as follows: R. C., 9 cents list per foot, S. B., 18 cents list per foot.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
43316	Weatherproof Socket	10	100	30	\$ .65

## Bryant Weatherproof Bracket Porcelain Sockets

660 Watts, 250 Volts



Wires inside of pipe. Diam., 1⅝ in. Length, 2⅞ in. Fitted with 6 in. of No. 18 B. & S. stranded rubber covered fixture wire.

Cat. No.	Sched-ule	Pipe In.	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
9448	B	¼	10	100	43	\$ .60
9496	B	⅜	10	100	43	.60

## No. 4056 Bryant Mica Temporary Sockets

660 Watts, 250 Volts



Diameter of body is 1½ inches. Diameter of cap 1⅞ inches. Length, 2⅞ inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4056	B	10	250	76	\$ .30

## No. 4037 Bryant Porcelain Temporary Sockets

660 Watts, 250 Volts

Diameter of body is 1½ inches. Diameter of cap, 1⅞ inches. Length, 2⅞ inches. Provided with pointed binding screws.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4037	B	10	100	82	\$ .24



## Bryant Sockets for Decorative Lighting

660 Watts, 250 Volts



Porcelain					
Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4034	B	10	250	70	\$ .20

### High Heat Composition

No. 4034	4041	B	10	250	55	\$ .25
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## Bryant Weatherproof Bragdon Porcelain Sockets

660 Watts, 600 Volts

With Groove for Shade-holder



Extension skirt carries the drip away from the lamp and socket. Method of wiring at top removes the strain from the wire connections. Extra hole in porcelain at top allows for independent suspension if desired.

Main diameter, 1⅝ inches. Diameter of skirt, 2¼ inches. Length, 3 inches. Fitted with 6 inches of No. 14 B. & S. stranded rubber covered wire. Sockets with longer wires, extra charge, 9 cents per foot.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
50997	B	10	100	73	\$ .50

## No. 9407 Bryant Weatherproof Porcelain Receptacles

660 Watts, 600 Volts

Outside diam. of base, 2¼ in. Thickness of base, 1 in. Height, 2⅞ in. Holes for screws spaced 2⅞ in.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
9407	B	10	100	76	\$ .25



## No. 9408 Bryant Weatherproof Porcelain Receptacles

660 Watts, 600 Volts

With Bottom Wires and Shade-holder Groove

Outside diam. of base, 2¼ in. Height, 2⅞ inches. Screw spacings, 2¼ in.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
9408	B	10	100	77	\$ .30



## No. 9411 Bryant Pony Weatherproof Porcelain Receptacles

660 Watts, 600 Volts

With Bottom Wires

Outside diam. of base, 2⅞ in. Height, 1⅞. Diam. over lugs, 2⅞ in. Screw spacings, 2⅞ in. Fitted with 6-in. wire.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
9411	B	10	100	55	\$ .25



## No. 44912 Bryant Pony Weatherproof Porcelain Receptacles

660 Watts, 600 Volts

Diam. of base, 1⅜ inches; over lugs, 2¼ in. Thickness of base, 1 in. Height, 2⅞ in. Holes for supporting screws are spaced 1⅜ in. on centers.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
44912	B	10	100	51	\$ .25



## No. 30000 Bryant Angle Weatherproof Porcelain Receptacles

660 Watts, 600 Volts

With Side Wires, Angle Base and Groove for Weatherproof Shade-Holder

Regularly fitted with 6-inch leads of No. 14 B. & S. stranded rubber-covered wire. On special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents additional per device or with asbestos braid rubber-covered wire for 12 cents additional per device. Leads longer than 6 in. additional as follows: R.C. 9 cents per foot, S.B., 18 cents; A.B., 24 cents; these prices cover both leads in all cases.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
30000	B	10	100	88	\$ .45



## Bryant Street Hood Sockets

With Binding Screw Terminals

660 Watts, 250 Volts

Has side lugs.

Length over all, 3⅞ inches. The screws which attach the porcelain base to the malleable iron yoke are spaced 2¼ inches on centers.

Emergency Shade Holders, Nos. 443, 444 and 445 may be attached to this receptacle only when used on not over 250 volts.



No. 25706

Cat. No.	Sched-ule	Yoke In.	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
25706	B	⅜	10	100	67	\$ .27
4233	B	½	10	100	67	.27

**No. 4077 Bryant Porcelain Mogul Keyless Socket Bodies**

Two-piece  
Elongated Holes  
1500 Watts, 600 Volts



Main diameter, 2 3/8 inches.  
Flange diameter, 2 3/8 inches.  
Length, 3 inches.  
Screw spacings, 1 1/2 to 1 3/4 in.

Cat. No. ....	4077
Schedule.....	B
Carton.....	5
Std. Pkg.....	50
Wt., Std. Pkg..... lbs.	56
Price, No. 4077..... each	\$ .70

**No. 4062 Bryant Porcelain Mogul Keyless Socket Bodies**

1500 Watts, 600 Volts

Main diameter, 2 1/4 inches.  
Flange diameter, 2 1/2 inches.  
Length, 2 1/2 inches.  
Screw spacings, 1 1/2 inches.

Cat. No. ....	4062
Schedule.....	B
Carton.....	5
Std. Pkg.....	50
Wt., Std. Pkg..... lbs.	43
Price, No. 4062..... each	\$ .55



**No. 4088 Bryant Porcelain Mogul Keyless Socket Bodies**

1500 Watts, 600 Volts  
With Loop Terminals

Diameter, 2 3/4 inches.  
Length, 2 1/2 inches.  
Screw spacings, 1 1/2 inches.



Cat. No. ....	4088
Schedule.....	B
Carton.....	5
Std. Pkg.....	50
Wt., Std. Pkg..... lbs.	40
Price, No. 4088..... each	\$ .55

**No. 4081 Bryant Porcelain Mogul Keyless Socket Bodies**

1500 Watts, 600 Volts  
With 15-inch Leads

Diameter, 2 3/4 inches.  
Length, 2 1/2 inches.  
Screw spacings, 1 1/2 inches.

Cat. No. ....	4081
Schedule.....	B
Carton.....	5
Std. Pkg.....	50
Wt., Std. Pkg..... lbs.	45
Price, No. 4081..... each	\$ .70



**No. 4123 Bryant Porcelain Mogul Keyless Socket Bodies**

1500 Watts, 600 Volts

With Binding Screws



Diameter, 2 3/4 inches.  
Length, 2 1/2 inches.  
Screw spacings, 1 1/2 inches.

Cat. No. ....	4123
Schedule.....	B
Carton.....	5
Std. Pkg.....	50
Wt., Std. Pkg..... lbs.	40
Price, No. 4123..... each	\$ .55

**No. SD Bryant Mogul Socket Yokes**

3/8-inch Female Cast Iron



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SD	B	10	50	22	\$ .15

**No. SE Bryant Mogul Socket Yokes**

1/2-inch Female Cast Iron

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SE	B	10	50	22	\$ .15



**No. SA Bryant Mogul Socket Caps**

3/8-inch Female Aluminum



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SA	B	10	50	6	\$ .30

**No. SB Bryant Mogul Socket Caps**

1/2-inch Female Aluminum

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SB	B	10	50	6	\$ .30



**No. 4073 Bryant Porcelain Cleat Receptacles**

Schedule B  
1500 Watts, 250 Volts

For Mogul Base Lamps

Diameter over lugs, 3 1/2 inches.  
Diameter of neck, 2 1/4 inches.  
Height, 2 3/8 inches. Diameter of main part of base, 2 3/8 inches.  
Supporting screw spacings, 2 7/8 inches.

The assembling screws of this device are waxed with a compound which will not soften under heat.

Can be supplied with a lamp grip feature at an additional price of 5 cents each.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4073	5	50	51	\$ .75





## Bryant Porcelain Keyless Lighting

### Unit Sockets

#### Mogul

1500 Watts, 600 Volts  
Schedule B



No. 4157

Diameter, 2 1/8 inches. Length body, 2 3/4 inches. The yoke bushing has a female thread for 3/8-inch pipe, 18 threads per inch. Nos. 4157 and 4158 yoke bushings also have a male thread 7/8-inch diameter, 27 threads per inch. Nos. 4192 and 4193 yoke bushings have no male thread but are fitted with set screw.

Cat. No.	Length Inches	Carton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4157	3 5/16	5	50	30	\$ .60
4158	3 1/16	5	50	30	.60
4192	3 5/16	5	50	30	.65
4193	3 1/16	5	50	30	.65

## Bryant Brass Shell Mogul Keyless Sockets

### Schedule B

1500 Watts, 600 Volts



No. 4021

Brass shell sockets have asbestos shell linings and paper cap linings.

Diameter, 2 inches.

Length, 3 3/4 inches.

The assembling screws of these devices are waxed with a compound which will not soften under heat.

Standard finish, brush brass.

#### 3/8-inch Cap

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4021	5	50	40	\$1.50

#### 1/2-inch Cap

4022	5	50	40	\$1.50
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## Bryant Small Undark Luminous Pendants



No. 750



No. 751 Attached to Cord

Undark luminous pendants, No. 750, for attachment to pull chain are also supplied mounted 10 on a handsome three-color counter display card which suggests places for their use, and shows how to attach them. Packed in this way the price is 25 cents each, standard package 50, carton 10, and no less than a carton quantity will be shipped.

### For Attachment to Pull Chain

Cat. No.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
750	B	10	50	1	\$ .25

### For Attachment to Devices with Pull Cords

751	H	10	50	1	\$ .28
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## No. 91 Benjamin Medium Base Socket Extensions

660 Watts, 250 Volts



This medium base socket extension is equipped with a bead for shade holder and provides a means of attaching glassware to flush sockets or ceiling receptacles.

In long narrow shades where the lamps are set too high for the best effects, No. 91 may be used to lower the lamps 1 inch.

Standard finish is lacquered brass.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
91	With Bright Brass Casing Having Shade Holder Bead	10	1	\$ .30

## Hubbell Brass Shell Sockets

Standard finish is brush brass.

Special finishes listed on another page.

Prices of socket parts shown elsewhere.

Pull sockets are regularly equipped with 7-inch chains; pull switches, with short chain and 6-foot black cords. Extra chain 10 cents per foot or fraction, cord 1 cent per foot or fraction. For extra chain, acorns, cord, extension eyelets, etc., see another page.

Pull sockets can be supplied with luminous acorns at an addition to the list price of 25 cents each.

Standard length of keys for all key sockets is 1 inch.

## Hubbell Pull Sockets

250 Watts, 250 Volts



Sockets have interchangeable shells and caps. Standard finish is brush brass. If chains over 7 inches long are desired, add 10 cents per foot or fraction.

Cat. No.	Cap In.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3618	1/8	B	25	250	60	\$ .50
3620	Pend.	B	25	250	60	.50

## Hubbell Key Sockets

250 Watts, 250 Volts

Sockets have interchangeable shells and caps. Standard finish, brush brass.

Cat. No.	Cap In.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3664	1/8	B	25	250	50	\$ .36
3665	3/8	B	25	250	51	.42
3666	Pend.	B	25	250	50	.36



## Hubbell Keyless Sockets

### With 1/8-Inch Cap

660 Watts, 250 Volts

Standard finish is brush brass.



Cat. No.	Cap In.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3667	1/8	B	25	250	44	\$ .33
3668	3/8	B	25	250	45	.39
3669	Pend.	B	25	250	43	.33

## No. 60 Hubbell Pull Socket Bodies

250 Watts, 250 Volts

Standard finish is brush brass.

Cat. No.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60	B	25	250	45	\$ .40



## No. 178 Hubbell Pull Socket Bodies

660 Watts, 250 Volts

Standard finish is brush brass.



Cat. No.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
178	B	25	250	45	\$ .59

## No. 62 Hubbell Keyless Socket Bodies

660 Watts, 250 Volts

Standard finish is brush brass.

Cat. No.	Sched-ule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62	B	25	250	36	\$ .23



**No. 61 Hubbell Key Socket Bodies**

250 Watts, 250 Volts

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61	B	25	250	45	\$.26

**No. 75 Hubbell Key Socket Bodies**

660 Watts, 250 Volts

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
75	B	25	250	45	\$.29

**No. 63 Hubbell Pull Switch Bodies**

3 Amperes, 125 Volts  
1 Ampere, 250 Volts

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
63	F	10	20	4	\$.53

**No. 65 Hubbell Rosette Pull Switch Bodies**

3 Amperes, 125 Volts  
1 Ampere, 250 Volts

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
65	F	10	20	4	\$.53

**No. 14 Hubbell Socket Caps**

Pendent

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
14	B	25	250	8	\$.10

**No. 55 Hubbell Socket Caps**

Pendent

Porcelain Strain Relief Bushing

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
55	B	25	100	6	\$.10

**No. 11 Hubbell Socket Caps**

1/8-Inch Female

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
11	B	25	250	13	\$.10

**No. 12 Hubbell Socket Caps**

1/4-Inch Female

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
12	B	25	25	2	\$.16

**No. 13 Hubbell Socket Caps**

3/8-Inch Female

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
13	B	25	100	7	\$.16

**No. 15 Hubbell Socket Caps**

1/8-Inch Male

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
15	B	25	25	2	\$.10

**No. 17 Hubbell Socket Caps**

3/8-Inch Male

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
17	B	25	50	8	\$.16

**No. 18 Hubbell Socket Caps**

1/8-Inch Angle

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
18	B	25	50	8	\$.21

**No. 20 Hubbell Socket Caps**

3/8-Inch Angle

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
20	B	25	25	5	\$.24

**No. 25 Hubbell Small Concealed Socket Bases**

Supporting screw holes are spaced 1 1/2 inches on centers.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
25	B	10	100	23	\$.18

**No. 57 Hubbell Small Concealed Socket Bases**

Slotted

Supporting screw holes are spaced 1 1/2 inches on centers.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
57	B	10	100	20	\$.18

**No. 30 Hubbell Angle Concealed Socket Bases**

Supporting screw holes are spaced 1 1/2 inches on centers.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
30	B	10	100	20	\$.23

## No. 27 Hubbell Surface Wiring Socket Bases

Supporting screw holes are spaced  $2\frac{1}{2}$  inches on centers.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
27	B	10	100	30	\$.23



## No. 26 Hubbell Small Covered Concealed Socket Bases

Supporting screw holes are spaced  $1\frac{3}{4}$  inches on centers.



Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
26	B	10	100	23	\$.28

## No. 38 Hubbell Insulated Ceiling Socket Bases

For  $3\frac{1}{4}$ -Inch Outlet Boxes



Supporting screw holes are spaced  $2\frac{5}{16}$  and  $2\frac{3}{4}$  in. on centers. Standard finish, brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
38	B	10	50	28	\$.37

## No. 40 Hubbell Insulating Ceiling Socket Bases

For 4-Inch Outlet Boxes

Supporting screw holes are spaced  $2\frac{5}{16}$ ,  $2\frac{3}{4}$  and  $3\frac{1}{2}$  inches on centers. Standard finish, brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
40	B	5	50	40	\$.67



## No. 220 Hubbell Brass Receptacle Bases

No. 220 is fitted with a horizontal supporting bridge with 1-inch clearance above wall surface.

One of the adapters listed below must be used to mount this base on an outlet box.



Brush brass is standard finish.

Special finishes on another page in fourth price column.

This base fits all standard quick catch socket and pull switch bodies.

Outside diameter of base,  $4\frac{21}{32}$  inches.

Cat. No.	Sched. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
220	B	Deep Back	1	50	33	\$.60

### Adapters for No. 220 Base



No. 1163



No. 1165



No. 1162

Cat. No.	Sched. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1162	B	With $\frac{7}{8}$ -Inch Screws, for BX Type Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	\$.07
1163	B	With $1\frac{1}{2}$ -Inch Screws, for Deep Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	.07
1164	B	With $1\frac{1}{2}$ -Inch Screws, for Shallow Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	.07
1165	B	With $1\frac{1}{2}$ -Inch Screws, for $3\frac{1}{4}$ and 4-Inch Outlet Boxes	10	50	8	.07

Cat. No.	Sched. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1162	B	With $\frac{7}{8}$ -Inch Screws, for BX Type Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	\$.07
1163	B	With $1\frac{1}{2}$ -Inch Screws, for Deep Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	.07
1164	B	With $1\frac{1}{2}$ -Inch Screws, for Shallow Boxes, with $\frac{3}{8}$ -Inch Stud	10	50	8	.07
1165	B	With $1\frac{1}{2}$ -Inch Screws, for $3\frac{1}{4}$ and 4-Inch Outlet Boxes	10	50	8	.07

## No. 3821 Hubbell Electrolier Pull Sockets

With  $\frac{1}{8}$ -Inch Cap  
250 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3821	B	25	250	50	\$.50

## No. 3822 Hubbell Electrolier Key Sockets

With  $\frac{1}{8}$ -Inch Cap  
250 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3822	B	25	250	43	\$.36

## No. 3950 Hubbell Electrolier Push Through Sockets

With  $\frac{1}{8}$ -Inch Cap  
250 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3950	B	25	250	40	\$.36

## No. 3756 Hubbell Electrolier Keyless Sockets

With  $\frac{1}{8}$ -Inch Cap  
660 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3756	B	25	250	40	\$.33

## No. 3899 Hubbell Electrolier Short Shell Keyless Sockets

With  $\frac{1}{8}$ -Inch Cap  
660 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3899	B	25	250	32	\$.33

## No. 41 Hubbell Electrolier Caps

$\frac{1}{8}$ -Inch Female



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
41	B	25	250	11	\$.10

## No. 43 Hubbell Electrolier Caps

$\frac{3}{8}$ -Inch Female



Standard finish is brush brass.

Cat. No.	Sched. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43	B	25	50	3	\$.16

**No. 70 Hubbell Electrolier Pull Socket Bodies**

250 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
70	B	25	250	35	\$.40

**No. 71 Hubbell Electrolier Key Socket Bodies**

250 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
71	B	25	250	35	\$.26

**No. 59 Hubbell Electrolier Push Through Socket Bodies**

660 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59	B	25	250	32	\$.26

**No. 72 Hubbell Electrolier Long Shell Socket Bodies**

660 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
72	B	25	250	35	\$.23

**No. 73 Hubbell Electrolier Short Shell Keyless Socket Bodies**

660 Watts, 250 Volts



Standard finish is brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
73	B	25	250	25	\$.23

**No. 99 Hubbell Electrolier Caps**

1/8-Inch with Side Outlet Bushing

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
99	B	25	50	5	\$.12

**No. 45 Hubbell Electrolier Caps**

1/8-Inch Male

Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
45	B	25	25	3	\$.10

**Hubbell Composition Bushings**

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 1000
5380	F	1/8-Inch Socket Bushing.....	**	1000	3	\$6.00
5381	F	3/8-Inch Socket Bushing.....	**	1000	10	14.50

\*\*Packed in bulk.



**Hubbell Intermediate Base Socket Devices**

Schedule B

**Brass Shell Key Sockets**  
75 Watts, 125 Volts



Has 1/8-inch cap. Standard finish is brush brass.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2609	25	100	10	\$.36

**Brass Shell Keyless Sockets**  
75 Watts, 250 Volts



Has 1/8-inch cap. Standard finish is brush brass.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2611	25	100	9	\$.33

**Brass Shell Pull Sockets**  
75 Watts, 125 Volts



Has 1/8-inch cap. Standard finish is brush brass.

1090 25 100 10 \$.84  
Pull sockets with chain over 4 inches in length, add to list per foot or fraction thereof, 10 cents.



**No. 480 Keyless Candle Sockets**  
75 Watts, 250 Volts

Has 1/8-inch bushing. Adjustable. Overall length, 3 1/2 to 4 1/8 inches.  
480 25 100 13 \$.17

**Pull Candle Sockets**  
75 Watts, 125 Volts

Has 1/8-inch bushing. Overall length, 2 1/8 inches. Chain, 5 1/2 inches long.  
9640 25 100 15 \$.75



No. 9640

**Porcelain Sign Receptacles with Porcelain Ring**  
75 Watts, 250 Volts



Requires 1 1/16-inch hole.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6878	25	250	20	\$.20

**Porcelain Sign Receptacles**  
75 Watts, 250 Volts



Screw hole spacing, 1 3/8". Requires 1-inch hole.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6054	25	250	16	\$.17

**Porcelain Sign Receptacles with Spring Stud and Screw**  
75 Watts, 250 Volts



Screw hole spacing, 1 3/8". Requires 1-inch hole.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9403	25	250	38	\$.17

**Porcelain Cleat Receptacles**  
75 Watts, 250 Volts



Screw hole spacing, 1 1/2". Diameter, 1 1/8 inches.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2603	25	100	17	\$.12

**Bakelite Weatherproof Sockets**  
75 Watts, 250 Volts



With 6 inches of No. 18 rubber-covered wire. Longer wire supplied on large orders only, at 4 1/2 cents per foot list extra for each conductor.  
2597 25 100 8 \$.12

**Adapters**  
75 Watts, 250 Volts



Medium to intermediate base adapter.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
492	25	100	6	\$.10

## Hubbell Porcelain Candelabra Receptacles for Candle Fixtures

75 Watts, 125 Volts



No. 5686



No. 7042



No. 5819

These receptacles are known as standard round candelabra receptacles, and will take candelabra base lamps.

They are constructed of porcelain and especially designed for use with fixtures equipped with glass candles.

The receptacle screws into a central supporting tube, and the candle, when in place, completely covers both the supporting tube and receptacle. Fitted with both male and female thread.

No. 5812 Receptacle is provided with porcelain skirt  $\frac{1}{4}$  inch longer than standard. Otherwise is identical in construction with No. 5686.

Cat. No.	Schedule	Description	Carton	Wt., Lbs.			Price Each
				Std. Pkg.	Std. Pkg.	Std. Pkg.	
5686	F	$\frac{5}{16}$ -Inch Male Bushing	25	100	6		\$ .21
5812	F	$\frac{5}{16}$ -Inch Male Bushing with Extra Long Porcelain Skirt	25	100	6		.21
7042	F	$\frac{1}{8}$ -Inch Pipe Tap Female Bushing Single Support	25	100	6		.21
5819	F	$\frac{1}{8}$ -Inch Pipe Tap Female Bushing	25	100	6		.21
6169	F	$\frac{1}{8}$ -Inch Pipe Tap Male Bushing	25	100	6		.21

### Hubbell Pull Sockets

75 Watts, 125 Volts

Standard finish is brush brass.

#### Quick Catch Shell Fastening

Candelabra base.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5742	F	10	50	10	\$ .84



No. 5742

#### 2-Screw Lock Shell Fastening

Bayonet base.

5792	F	10	50	10	\$ .90
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No. 5792

Pull sockets furnished with chain over 4 inches in length, add to list, 10 cents per foot.

For pull sockets equipped with  $\frac{3}{8}$ -inch extension eyelets, add to list 10 cents. Separate extension eyelets, 15 cents each list.

### No. 5753 Hubbell Candelabra Keyless Sockets

75 Watts, 125 Volts

Candelabra base.

Standard finish is brush brass.

#### Screw Thread Shell Fastening

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5753	F	25	100	10	\$ .32



### No. 35024 Hubbell Pull Sockets with Lamp Base Attachment

250 Watts, 250 Volts

Can be attached to any ordinary socket or receptacle. Equipped with 7-inch pull chain. Standard finish is brush brass.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35024	B	10	10	4	\$ .70



## Features of Hubbell Adjustable Candle Sockets

Features of Hubbell Adjustable Candle Sockets are summed up as follows:

1. The hickey can be easily detached, by loosening one screw, making wiring easy.
2. The hickey can be secured at any desired adjustment by the slight turn of one screw.
3. The hickey can be screwed onto the fixture separate from the socket, locked in place by the set screw.
4. The socket can then be located and the wire attached.
5. The candle pull socket hickey is interchangeable with the keyless candle socket.

### Hubbell Adjustable Candle Sockets

Schedule B

#### Pull—Complete

250 Watts, 250 Volts

Cat. No.	Length, In.		Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Min.	Max.				
3965	$3\frac{3}{4}$	$4\frac{5}{8}$	10	100	13	\$ .75
3966	$4\frac{3}{4}$	$5\frac{5}{8}$	10	100	14	.75
3967	$5\frac{3}{4}$	$6\frac{5}{8}$	10	100	15	.75
3968	$6\frac{3}{4}$	$7\frac{5}{8}$	10	100	16	.75



No. 3965

#### Keyless—Complete

660 Watts, 250 Volts

3969	$3\frac{3}{4}$	$4\frac{5}{8}$	25	250	45	\$ .17
3970	$4\frac{3}{4}$	$5\frac{5}{8}$	25	250	45	.17
3971	$5\frac{3}{4}$	$6\frac{5}{8}$	10	100	21	.17
3972	$6\frac{3}{4}$	$7\frac{5}{8}$	10	100	22	.17



No. 3969

### Separate Parts

#### Pull—Body Only

Cat. No.	Carton	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
3973	10	100	10	\$ .70

#### Keyless—Body Only

3974	25	250	32	\$ .12
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#### Separate Hickeys

Hickeys may be assorted in carton quantities to make standard package quantities. Hickeys are tapped for  $\frac{1}{8}$ -inch fixture studs only. A set screw locks the hickey rigidly to fixture stud.

Cat. No.	Used on Cat. Nos.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3975	3965 and 3969	25	100	3	\$ .05
3976	3966 and 3970	25	100	4	.05
3977	3967 and 3971	25	100	5	.05
3978	3968 and 3972	25	100	6	.05

### Hubbell Porcelain Keyless Candle Sockets

660 Watts, 250 Volts



No. 3394



No. 3921

#### With Hickey

Cat. No.	Schedule	Bushing Inches	Length Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3394	B	$\frac{1}{8}$	$2\frac{1}{16}$	25	250	20	\$ .16

#### Without Hickey

3921	B	$\frac{1}{8}$	$2\frac{1}{16}$	25	250	20	\$ .16
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**Hubbell Porcelain Husk Keyless Sockets**



These sockets have brass covered cap. They are not interchangeable with the rest of the porcelain line listed on another page. Diameter, 1½ inches.

Cat. No.	Schedule	Size Cap Inches	Overall Length Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3375	B	1/8	2 5/8	10	100	45	\$.43
3376	B	1/4	2 3/4	10	100	45	.47
3377	B	3/8	2 3/4	10	100	45	.47

**Hubbell Porcelain Husk Keyless Sockets**

**With Body Terminals**

660 Watts, 250 Volts



Cat. No.	Schedule	Size Cap Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
856	B	1/8	10	100	30	\$.35
857	B	1/4	10	100	30	.35
858	B	3/8	10	100	30	.35

**Wrenches for Attaching Above Husk Socket Caps in Husk**

1277	B	1	1	\$.50
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**Hubbell Pull Socket Te-Taps**

Plug Outlet—660 Watts, 250 Volts  
Socket Outlet—250 Watts, 250 Volts



No. 3190



No. 3191

The plug outlet at the side of these Te-Taps is provided with double T slots which will take all types of standard plug caps with tandem, parallel or polarized blades, and is alive at all times.

Threaded brass shell will accommodate standard shade holders.

Pull chain independently controls lamp.

Standard finish is brush brass, and will be furnished on all orders unless otherwise specified.

Special finishes listed on another page.

**With Screw Base**

Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3190	B	With Medium Screw Base...	10	10	5	\$1.00

**With Standard Socket Caps**

3191	B	With 1/8-Inch Cap	10	10	4	\$.80
3193	B	With 3/8-Inch Cap	10	10	4	.86
3194	B	With Pendant Cap	10	10	4	.80

**Hubbell Pull Sockets with Insulated Chain**

*Schedule B*



Hubbell Pull Sockets may be furnished with insulated chain. For sockets so equipped, add 8 cents to the list price.

Standard package quantity is the same as for the standard socket with which the insulated chain is ordered.

May be furnished on any style of pull socket.

The illustration shows a pull socket with insulating link and detachable tassel assembled.

**Hubbell Extension Eyelets for Pull Sockets**

When sockets are furnished with extension eyelets, add 10 cents to the list price of corresponding socket with regular eyelet.

Standard eyelet sold separately from socket, 5 cents each list. Standard package, 250. If assorted, 100 extension eyelets constitute a standard package.

For special finished eyelets not attached to socket, add 2 cents to list price. Standard finish is brush brass.

Special finished sockets with extension eyelets take same advance as regular sockets, plus extra, as above, for the extension eyelet.



For Standard Sockets	Cat. Nos. For Electrolier Sockets	Schedule	Extension Eyelet Inches	Carton	Std. Pkg.	Wt., Oz. Std. Pkg.	Price Each
3322	3292	B	3/8	*	50	8	\$.15
3329	....	B	1/2	*	50	9	.15
3323	....	B	3/4	*	50	10	.15
3324	....	B	1	*	50	12	.15
3325	....	B	1 1/4	*	50	14	.15
3326	....	B	1 1/2	*	50	16	.15
3327	....	B	1 3/4	*	50	18	.15
3328	....	B	2	*	50	20	.15

\*In bulk.

**Hubbell Sockets with Extra Long Keys**

All Hubbell Key Sockets are equipped with 1-inch keys, but can be fitted with longer keys on special order, which must specify distance desired between outside of shell and end of keys.



The following can be furnished: Length, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4 and 2 1/2 inches. Add to list price of standard socket, 5 cents.

Standard package, 100 of one length.

On orders for sockets with extra long keys, where the length is not given, 1 1/2-inch will be supplied.

**No. 7015 Hubbell Improved Nuclasp Luminous Acorns Detachable**

Mounted 25 on a counter card. Each card is enclosed in an envelope, and two cards (standard package) packed in a substantial pasteboard box.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Oz. Std. Pkg.	Price Each
7015	F	25	50	9	\$.25



## Hubbell Socket Chain, Cord, Acorns and Tassels



No. 7015 No. 5919 No. 6982 No. 3946 No. 7004

Standard finish is brush brass. For special finishes on chain add 2 cents list per foot or fraction.

Full standard packages of 1000 feet No. 5382 chain will be shipped on spools of 200 feet each. Quantities less than 100 feet will be shipped in hanks.

Pull chains less than 8 inches in length with acorns attached, take the same price as regular 8-inch chain or 13 cents.

All standard Hubbell pull sockets are now supplied with No. 3946 new detachable tassel. Standard finish is brush brass. All other finishes on acorns or tassels, add 2 cents to price.

Pull sockets furnished with short chain and 3 feet of cord, complete with acorn instead of 8-inch chain, without extra charge.

Separate chain cut to length with acorn, or chain sold as part of a device, is subject to Schedule B and takes a price of 10 cents per foot or fraction thereof.

Cord, with or without acorn, Schedule F.

Counter cards of 25 luminous acorns can be furnished.

Cat. No.	Schedule	Description	Carton	Wt., Lbs.		Price Each
				Std. Pkg.	Std. Pkg.	
5382	F	No. 6 Standard Socket Chain	*	11000	15	\$ .05
5535	F	No. 3 Candelabra Chain	*	500	20	† .05
6563	F	Black Linen Cord	*	11000	10	† .01
3435	B	3' Cord with Short Chain and Acorn	*	250	5	.13
3436	B	6' Cord with Short Chain and Acorn	*	250	10	.16
3437	B	10' Cord with Short Chain and Acorn	*	250	12	.20
3320	B	8" Pull Chain Complete with Tassel.	*	250	\$5	.13
3321	B	8" Pull Chain Complete with Fiber Insulator and Tassel.	*	250	10	.21
3438	B	12" Pull Chain Complete with Tassel.	*	250	12	.16
3439	B	12" Pull Chain Complete with Fiber Insulator and Tassel.	*	250	15	.24
3440	B	18" Pull Chain Complete with Tassel.	*	250	17	.21
3441	B	18" Pull Chain Complete with Fiber Insulator and Tassel.	*	250	17	.29
3946	F	Tassel Standard, Detachable	*	250	5	.06
3947	F	Tassel Candelabra, Detachable	*	50	1	.06
6561	F	6' Cord Only with Acorn	*	250	10	.12
6562	F	10' Cord Only with Acorn	*	250	15	.16
6982	F	Acorn, Standard for Pull Sockets	*	250	1	.06
†5919	F	Acorn, Adjustable for Linen Cord	*	250	5	.06
7015	F	Acorn, Detachable Luminous	25	50	\$9	.25
7004	F	Acorn, Detachable Candelabra	50	50	1	.06

\*Packed in bulk. †Feet, and price per foot. ‡Ounces.

†Furnished in black finish to match cord.

## Hubbell Detachable Nuclasp Insulating and Splicing Links



No. 6089



No. 7026



No. 6999



No. 6814

Easy to attach and detach. Neat in appearance. Standard finish is brush brass. All other finishes on insulators and connectors, add 2 cents to list price.

Cat. No.	Schedule	Description	Carton	Wt., Oz.		Price Each
				Std. Pkg.	Std. Pkg.	
6089	F	Clip Splicing Link	100	200	6	\$ .03
6999	F	Detachable Insulator	100	100	16	.09
7026	F	Detachable Chain Connector	100	200	8	.03
*6814	F	Detachable Insulating Link	100	100	8	.08

\*This device is fitted with slotted catches for chain.

## Hubbell Socket Parts

### Medium, Mogul and Candelabra Base

Brush brass is standard finish on all metal parts listed below and will be furnished unless otherwise specified.

Carton quantity will be considered one-fifth standard package.

Parts of sockets are subject to same class of discounts as applying to complete socket with which they are used.

### Medium Base

#### Schedule B

Description	Std. Pkg.	Price Each
Shells, All Kinds, without Linings	250	\$ .10
Cap, 1/8-Inch without Lining	250	.09 1/2
Cap, 1/4-Inch without Lining	250	.15 1/2
Cap, 3/8-Inch without Lining	250	.15 1/2
Cap, Pendant, without Bushing or Lining	250	.08 1/2
Linings, Shell, All Kinds	250	.007
Linings, Cap, All Sizes	250	.00 1/2
Bushings, Pendant Cap, Porcelain	250	.02 1/2
Bushings, Pendant Cap, Composition	250	.01
Interior, Keyless, (Medium Base M-300)	250	.13
Interior, Push, with Non-Removable Buttons (M-412)	250	.18
Interior, Key, 250 Watts (M-200)	250	.17
Interior, Key, 660 Watts (M-202)	250	.23
Interior, Pull, 250 Watts, with Chain Eyelet, but without Chain or Acorn (MA-100)	250	.22
Interior, Pull, 250 Watts, without Chain, Acorn and Chain Eyelet (MB-100)	250	.20
Interior, Pull, 250 Watts, with Chain, Acorn and Chain Eyelet (M-100)	250	.26
Interior, Pull, 660 Watts, with Chain Eyelet, Chain and Acorn (M-109)	250	.34
Standard Chain Eyelet for Pull Sockets (D-7500)	250	.05
Electrolier Chain Eyelet for Pull Sockets (D-7501)	250	.05
8-Inch Chain with Acorn	250	.13
Acorn for Pull Chain	250	.06
Screw, Shells, All Kinds	250	.03 1/2

### Mogul Base

#### Schedule B

Shells, All Kinds, without Linings	50	\$ .55
Cap, 3/8-Inch, without Lining	50	.75
Linings, Shell, All Kinds	50	.10
Linings, Cap, All Sizes	50	.03
Interior, Keyless	50	.37
Screw Shells, All Kinds	50	.12

### Candelabra Base

#### Schedule F

Shells, All Kinds, without Linings	50	\$ .10
Cap, 1/8-Inch, without Lining	50	.06 1/2
Linings, Shell, All Kinds	50	.03
Linings, Cap, All Sizes	50	.00 1/2
Interior, Keyless	100	.17
Interior, Pull, 75 Watts, with Chain Eyelet, Chain and Acorn (M-104)	50	.73
Chain Eyelet for Pull Sockets	5	.05
8-Inch Chain with Acorn	50	.13
Acorn for Pull Chain	50	.06
Screw Shells, All Kinds	100	.02

## No. 998 Line—Hubbell Pull Receptacle Parts

### Medium Base

#### Schedule B

Description	Std. Pkg.	Price Each
Porcelain Ring	100	.06
Interior Only (M-115) Less Chain	100	.22
Gasket	100	.04
Porcelain Shell	100	.20
8-Inch Chain with Acorn	100	.13
8-Inch Chain 6-Foot Cord and Acorn	100	.25
8-Inch Chain Insulator and Acorn	100	.25
3-Foot Chain with Acorn	100	.25

Hubbell Special Finishes

Hubbell Special Finishes

Sockets and Shade Holders

Plug Material and Flush Plates

Description	Complete Sockets and Pull Switches Keyless		Socket and Pull Switch Parts Keyless				
	Push	Pull	Caps	Bases	Push Bodies	Pull Bodies	Shade Holders
Barff, Bauer (Lacquer)	\$.06	\$.08	\$.03	\$.12	\$.03	\$.05	\$.03
(a) Brass, Brush							
Brass, Flemish	.10	.12	.05	.16	.05	.07	.05
Brass, Lemon	.06	.08	.03	.12	.03	.05	.03
Brass, Oxidized	.10	.12	.05	.16	.05	.07	.05
Brass, Polished	.06	.08	.03	.12	.03	.05	.03
Brass, Polished (Not Lacquered)	.06	.07	.03	.12	.03	.04	.03
Brass, Sand Blast Antique	.22	.24	.11	.30	.11	.13	.11
Brass, Sand Blast Brush	.18	.20	.09	.28	.09	.11	.09
Bronze, Brush	.10	.12	.05	.16	.05	.07	.05
Bronze, Japanese (Dark)	.10	.12	.05	.16	.05	.07	.05
Bronze, Polished	.10	.12	.05	.16	.05	.07	.05
Bronze, Statuary (Light)	.10	.12	.05	.16	.05	.07	.05
Bronze, Sand Blast Antique	.22	.24	.11	.30	.11	.13	.11
Copper, Antique or Acid	.16	.18	.08	.25	.08	.10	.08
Copper, Brush	.10	.12	.05	.16	.05	.07	.05
Copper, Mottled	.10	.12	.05	.16	.06	.07	.05
Copper, Oxidized	.10	.12	.05	.16	.05	.07	.05
Copper, Polished	.10	.12	.05	.16	.05	.07	.05
(b) Enamel, White (Lacquer)	.06	.08	.03	.12	.03	.05	.03
Gilt, Rich	.06	.07	.03	.12	.03	.04	.03
(c) Gold							
Gun Metal	.10	.12	.05	.16	.05	.07	.05
Nickel, Dull	.10	.12	.05	.16	.05	.07	.05
Nickel, Polished	.10	.12	.05	.16	.05	.07	.05
Nickel, Sand Blast	.22	.24	.11	.30	.11	.13	.11
Silver, Butler's (Brushed)	.20	.30	.10	.25	.10	.20	.10
Silver, Oxidized	.20	.30	.10	.25	.10	.20	.10
Silver, Polished	.20	.30	.10	.25	.10	.20	.10
Silver, Satin	.20	.30	.10	.25	.10	.20	.10
Verde, Antique (Lacquer)	.06	.08	.03	.12	.03	.05	.03

(a) Standard finish on all brass shell devices is brush brass which will be furnished on all orders where no finish is specified. Any electro plated finish on pull chain parts furnished at an addition of 2 cents list. This addition is subject to quantity reduction applying to socket finishes.

(b) Pull devices in white finish but with chain eyelet, chain and acorn in any electro plated finish except brush brass add 2 cents list advance over price shown for key, keyless and push sockets. Pull devices in brush brass finish but chain, tassel and eyelet in any other finish add to list difference between columns 1 and 2 for the finish desired.

(c) All finishes not listed above, including gold, prices on application. Sample should be submitted with inquiry.

Standard and special finishes of one catalogue number may be assorted to make up standard package.

The above prices for special finishes apply to small lots. When ordering in quantity lots of one finish, one shipment, single or assorted catalogue numbers, they are reduced as follows:

- Special Finish on Socket Material and Shade Holders:
  - Lots 250 to 499, finish list price reduced 10%;
  - Lots 500 to 999, finish list price reduced 20%;
  - Lots 1000 and over, finish list price reduced 50%;
- These quantity deductions should be made from list prices of finishes before the trade discounts are figured.

Assembled or unassembled sockets with brush brass but unlacquered shells take same list price as brush brass.

For the convenience of fixture, lamp and specialty manufacturers: Standard and electrolier pull, key, keyless and electrolier push button sockets may be secured disassembled, packed in bulk and finished in old brass, unfinished, or special finishes, i.e., caps, shells, linings and interiors packed separately in a unit container of 250 complete sockets.

Special finishes, on chain and parts other than gold and silver, add to list prices as follows: Chain eyelets, standard or extension, 2 cents; chains, not longer than 1 foot, with or without cords and insulators, 2 cents; brass acorn or tassel, 2 cents; chain splicing link, 2 cents; chain insulator, 2 cents; for any chain, not longer than 1 foot, with any combination of chain eyelet, connector, insulating link, and brass acorn or tassel in one finish, per set, 2 cents; chains, longer than 1 foot, per extra foot or fraction, 2 cents; chain in bulk, per foot, 2 cents. Prices for gold and silver will be quoted on application.

Description	Metal Covered Attachment Plug Caps		Brass Flush Plates For Receptacles and Switches	
	Std. 10-Amp. Caps and Door Receptacles	Large Polarized 20-Amp. Ampere	Nos. 6282 and 20-3/4" Round Plates	(d) Standard No. 5580 Double Hinged Cover Plate (First Gang)
Barff, Bauer, (Lacquer)	\$.04	\$.08	\$.10	\$.15
(a) Brass, Brush				
Brass, Flemish	.08	.15	.15	.20
Brass, Lemon	.04	.08	.10	.15
Brass, Oxidized	.08	.15	.15	.20
Brass, Polished	.04	.08	.10	.15
Brass, Polished (not Lacquered)	.04	.08	.10	.15
Brass, Sand Blast Antique	.12	.25	.30	.35
Brass, Sand Blast, Brush	.08	.16	.25	.30
Bronze, Brush	.08	.15	.15	.20
Bronze, Japanese (Dark)	.08	.15	.15	.20
Bronze, Polished	.08	.15	.15	.20
Bronze, Statuary (Light)	.08	.15	.15	.20
Bronze, Sand Blast, Antique	.12	.25	.30	.35
Copper, Antique	.10	.19	.20	.25
Copper, Brush	.08	.15	.15	.20
Copper, Mottled	.08	.15	.15	.20
Copper, Oxidized	.08	.15	.15	.20
Copper, Polished	.08	.15	.15	.20
Enamel, White (Lacquer)	.04	.08	.10	.15
Gilt, Rich	.04	.08	.10	.15
(c) Gold				
Gun Metal	.08	.15	.15	.20
Nickel, Dull	.08	.15	.15	.20
Nickel, Polished	.08	.15	.15	.20
Nickel, Sand Blast	.12	.25	.30	.35
Silver, Butler's (Brushed)	.14	.27	.45	.50
Silver, Oxidized	.14	.27	.45	.50
Silver, Polished	.14	.27	.45	.50
Silver, Satin	.14	.27	.45	.50
Verde, Antique	.04	.08	.10	.15

(a) Standard finish is brush brass which will be furnished on all orders where no finish is specified.

(c) All finishes not listed above, including gold, prices on application. Sample should be submitted with inquiry.

(d) These prices should be added to brush brass prices and not "Lacco."

(e) List prices applying to finishes on plates are based on single plates. When ordering in gangs, add 10 cents for each gang beyond the first, regardless of finish except gold.

The above prices for special finishes apply to small lots. When ordering in quantity lots of one finish, one shipment, single or assorted, catalogue numbers, they are reduced as follows:

- 100 to 499 gangs or caps finish, list price reduced 10%.
  - 500 to 999 gangs or caps finish, list price reduced 20%.
  - 1000 gangs or caps and over, finish list price reduced 50%.
- These deductions should be made from the list prices of finishes before trade discounts are figured.

Unfinished devices (except flush plates) or devices polished but not lacquered will be supplied at same list price as devices in standard finish.

Unfinished flush plates, that are polished and buffed, will be supplied at same list price as brush brass plates.

Unfinished flush plates, not polished or buffed (in rough state) will be furnished at same list price as "Lacco" finish plates.

"Lacco" finish is a durable sprayed-on lacquer coating resembling brush brass.

BAKELITE PLATES.—For white, ivory, yellow and blue finishes on Bakelite plates add 20 cents per gang to list price of plate, for grained wood finishes add 50 cents. Prices on all other finishes quoted on application.

## Hubbell Porcelain Sockets

Separate chains not attached to sockets on another page.

Standard finish of exposed brass parts is brush brass and polished nickel.

For special plated finishes on all exposed brass parts except on cap, add to list 2 cents.

For special finishes on metal-covered caps, see third price column.

Standard length of porcelain keys is  $\frac{1}{8}$  inch.

Standard length of chain, 7 inches.

Sockets with chains over 7 inches in length, add to list price per foot, 10 cents, or fraction thereof.

Luminous acorns for chains listed on another page.

Machine screws for mounting, furnished with socket bases.

All porcelain sockets are wired from the cap.



### Hubbell Porcelain Pull Socket Bodies

250 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
160	B	10	100	30	\$ .59

660 Watts, 250 Volts

1606	B	10	100	30	\$ .81
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### Hubbell Porcelain Key Socket Bodies

250 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
161	B	10	100	30	\$ .26

660 Watts, 250 Volts

1616	B	10	100	60	\$ .29
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### No. 162 Hubbell Porcelain Keyless Socket Bodies

660 Watts, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
162	B	10	100	20	\$ .23



### No. 150 Hubbell Porcelain Socket Caps

Pendent

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
150	B	10	100	14	\$ .10



### No. 151 Hubbell Porcelain Socket Caps

$\frac{1}{8}$ -Inch Brass

Standard finish is brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
151	B	10	100	15	\$ .20

### No. 152 Hubbell Porcelain Socket Caps

$\frac{1}{4}$ -Inch Brass

Standard finish is brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
152	B	10	100	35	\$ .30



### No. 153 Hubbell Porcelain Socket Caps

$\frac{3}{8}$ -Inch Brass

Standard finish is brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
153	B	10	100	15	\$ .24

### No. 191 Hubbell Porcelain Socket Caps

$\frac{1}{2}$ -Inch Brass

Standard finish is brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
191	B	10	100	22	\$ .27



### No. 156 Hubbell Porcelain Concealed Socket Bases

Supporting screw holes are spaced  $1\frac{1}{8}$  and  $2\frac{3}{16}$  inches on centers. Outside diameter,  $2\frac{3}{4}$  inches.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
156	B	10	100	40	\$ .15

### No. 157 Hubbell Porcelain Cleat Socket Bases

Supporting screw holes are spaced  $1\frac{5}{16}$  inches on centers. Outside dimensions,  $2\frac{7}{8} \times 2\frac{3}{16}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
157	B	10	100	45	\$ .14



### No. 158 Hubbell Porcelain Small Ceiling Socket Bases

For  $3\frac{1}{4}$ -Inch Outlet Boxes

Supporting screw holes are spaced  $2\frac{3}{4}$  inches on centers. Outside diameter,  $3\frac{11}{16}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
158	B	10	50	28	\$ .30



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
158	B	10	50	28	\$ .30

### No. 151 Hubbell Porcelain Socket Caps

$\frac{1}{8}$ -Inch Brass

Standard finish is brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
151	B	10	100	15	\$ .20

### No. 159 Hubbell Porcelain Wide Ceiling Socket Bases

For 4-Inch Outlet Boxes

Screw holes spaced  $3\frac{1}{2}$  inches on centers. Outside diameter,  $4\frac{1}{16}$  inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
159	B	5	50	40	\$ .40



**Hubbell Canopy Pull Sockets**

250 Watts, 250 Volts



No. 3998

This socket can be used with any canopy or fixture designed for porcelain screw ring receptacles. The hook slips over chain guide holding interior in shell. Socket is prevented from rotating by notch engaging with canopy ring. The socket ring screws on thread of socket, thus binding it firmly in the canopy.

Furnished with cleaned shells only.

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3994	B	With 8-Inch Chain, Insulator and 42 Inches of Cord	10	250	65	\$ .75
3995	B	With 8-Inch Chain	10	250	60	.60
3996	B	With 50-Inch Cord	10	250	61	.60
3997	B	With 8-Inch Chain and Insulator	10	250	63	.70
3998	B	With 8-Inch Chain and 42-Inch Cord	10	250	65	.70
3999	B	With 36 Inches of Chain...	10	250	70	.80

Cord up to 72 inches supplied without extra charge on Nos. 3994, 3996 and 3998. Extra eyelets for use in canopies supplied at 1 cent each extra list or 1/2 cent if only one-half the eyelet is wanted. Brush brass is standard finish on chain. No extra charge for nickel. For any other finish add 2 cents list per foot or fraction thereof.

**Hubbell Brass Covered Surface and Outlet Box Ceiling Receptacles**

Schedule B

Keyless

660 Watts, 250 Volts



No. 4100

No. 4100 is for 3 1/4 and 4-inch outlet boxes. Screw spacings, 2 3/4 and 3 1/2 inches.

No. 4102 is for use on 3 1/4-inch boxes. Screw spacings, 2 3/4 inches.

Standard finish is brush brass.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4100	Keyless	1	50	55	\$ .60
4102	Keyless	1	50	36	.45

Pull

250 Watts, 250 Volts

No. 4104 is for 3 1/4 and 4-inch outlet boxes. Screw spacings, 2 3/4 and 3 1/2 inches.

It is equipped with short chain, 10 feet of black linen cord and small composition ball.

Standard finish is brush brass.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4104	Pull	1	50	69	\$1.30

**Hubbell Keyless Pony Wall Sockets**

660 Watts, 250 Volts



Plain Base

Supporting screw holes are spaced 1 3/8 inches on centers.

Standard finish is brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50717	B	10	100	25	\$ .25

Slotted Base

Supporting screw holes are spaced 1 3/8 inches on centers.

Standard finish is brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50718	B	10	100	25	\$ .25



**Hubbell Porcelain Pull Receptacles**

For Ceiling Fixtures

250 Watts, 250 Volts

Schedule B

Standard gaskets are of special packing compound to withstand heat. Asbestos gaskets supplied without additional cost.

Hole required in sign, 1 1/2 inches.

Insulator in chain is placed 4 inches from eyelet.

Each receptacle is furnished with an extra chain eyelet which can be riveted or spun on shell of ceiling fixture or outlet box cover. When sold separately, price of extra chain eyelet is 4 cents.

Standard finishes are brush brass and nickel plate.

Brush brass is furnished unless otherwise specified. For all other finishes except on No. 999, add 2 cents, and on No. 999, add 10 cents.

Regularly equipped with 8-inch chain except Nos. 999 and 991. For chain longer than 8 inches, add 10 cents per foot or fraction thereof.

Extra length cord, 1 cent per foot.

For insulators, add 8 cents.



Extra Chain Eyelet

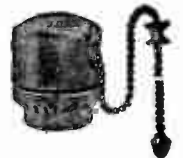
**With Binding Screws**



No. 997



No. 998



No. 999

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
995	With 8-inch Chain	10	100	50	\$ .75
997	" 8 " " and Insulator	10	100	50	.83
998	" 8 " " " 6 Ft. of Cord	10	100	50	.83
999	" 3-foot "	10	100	50	.98

**With 6-inch Leads No. 14 B & S Stranded Rubber Covered Wire**



No. 990

987	With 8-inch Chain	10	100	50	\$ .83
989	" 8 " " and Insulator	10	100	50	.91
990	" 8 " " " 6 Ft. of Cord	10	100	50	.91
991	" 3-foot "	10	100	50	1.06

**Porcelain Receptacles for Ceiling Fixtures and Outlet Boxes**

For Loop Wiring—660 Watts, 250 Volts

Terminals mounted in depressions permit wires to be hooked and soldered; live metal parts may be covered with insulating wax.

Screw Terminals

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4065	B	10	100	28	\$ .20

Clip Terminals

4066	B	10	100	28	.20
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**No. 1140 Hubbell Wrenches**

For Attaching Removable Rings to Sign Receptacles

Schedule B

Carton, 1.

Standard package, 1.



Price, No. 1140..... each \$ .50

## Hubbell Porcelain Sign Receptacles

### Special Features and Separate Rings

All receptacles without leads have 8 notches and are easy to install. A notch in the side of hole punched in metal sign, engages one of the slots in porcelain preventing turning. No. 1197 pliers are used for forming these notches or lugs. Separate fluted porcelain rings, 6 cents list. Standard package, 100. Separate grooved porcelain rings, 10 cents list. Standard package, 100.

Nos. 4003, 4035 and 4037 on special order can be fitted with 6-inch leads of No. 14 B. & S. stranded slow-burning wire for 3 cents list additional per device or with asbestos braid rubber-covered wire for 12 cents list additional per device. Leads longer than 6 inches cost additional as follows: Rubber covered 9 cents list per foot, slow-burning 18 cents list per foot, asbestos braid 24 cents list per foot; these prices cover both leads in all cases. Devices with asbestos braid wire are sealed with a heat-proof compound.

## Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### Shallow—With 1/16-Inch Ring

#### Binding Screws

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59108	B	10	100	25	\$.20

#### Loop Terminals

59109	B	10	100	25	\$.20
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## No. 4109 Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### With 1/16-Inch Ring Covered Terminals

With porcelain button which covers the line terminal screw. Porcelain piece is attached in place by one center screw.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4109	B	10	100	40	\$.25



## No. 4003 Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### With 1/16-Inch Ring and 6-Inch No. 14 Wires



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4003	B	10	100	30	\$.28

## Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### Deep—With 3/8-Inch Ring

#### Binding Screws

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61988	B	10	100	30	\$.20

#### Loop Terminals

61989	B	10	100	30	\$.20
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## No. 4035 Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### With 3/8-Inch Ring and 6-Inch No. 14 Wires

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4035	B	10	100	30	\$.28



## Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### With 1/16-Inch Ring Grooved for Shade Holder

#### Binding Screws

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4036	B	10	100	25	\$.25

#### Loop Terminals

4038	B	10	100	30	\$.25
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## No. 4037 Hubbell Porcelain Sign Receptacles

660 Watts, 250 Volts

### With 1/16-Inch Ring Grooved for Shade Holder and 6-Inch No. 14 Wires

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4037	B	10	100	30	\$.33

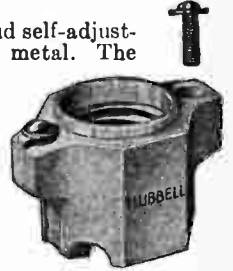


## Hubbell Porcelain Sign Receptacles With Bronze Washer—Head Spring—Stud and Screw

A coil spring makes the holding stud self-adjusting for use on varying thickness of metal. The receptacle is snapped into place by means of the stud, then the holding screw is run in from the front.

A 1 3/8-inch punch is required.

Holes for supporting screws are spaced 1 3/8 inches on centers.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4067	B	25	250	60	\$.17
4068	B	25	250	60	\$.17

## Hubbell Porcelain Sign Receptacles

These receptacles require a hole 1 3/8 inches in diameter. Holes for supporting screws are spaced 1 3/8 inches on centers.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4063	B	10	100	25	\$.17
4064	B	10	100	25	\$.17



## Hubbell Weatherproof Composition Sockets

660 Watts, 600 Volts

### With Shade Holder Groove

Each socket is furnished with 6 inches of No. 14 B. & S. stranded rubber-covered wire.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60666	B	10	100	25	\$.20



### Without Shade Holder Groove

Each socket is furnished with 6 inches of No. 14 B. & S. stranded rubber-covered wire.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43310	B	10	100	25	\$.18

Longer wire supplied on large orders only. Extra charge, 4 1/2 cents per foot list for each conductor.

Lamp guards for above sockets on another page.

Reflectors for above sockets listed elsewhere.

## No. 1197 Hubbell Metal Sign Pliers

Schedule B

A notch in the side of the hole punched in metal sign engages one of the slots in the porcelain receptacle, preventing turning. This plier is used for forming these notches or lugs.

Standard package, 1.

Price, No. 1197..... each \$1.50



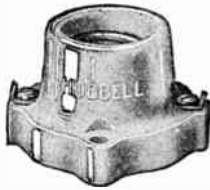
**No. 9402 Hubbell Porcelain Cleat Receptacles**

660 Watts, 250 Volts

Holes for supporting screws are spaced  $2\frac{3}{8}$  inches on centers.

Outside dimensions of base,  $2\frac{15}{16} \times 2\frac{23}{32}$  inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9402	B	10	100	40	\$.17



**No. 4013 Hubbell Porcelain Cleat Receptacles**

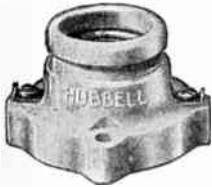
660 Watts, 250 Volts

With Shade Holder Groove

Holes for supporting screws are spaced  $2\frac{3}{8}$  inches on centers.

Dimensions of base,  $2\frac{15}{16} \times 2\frac{23}{32}$  inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4013	B	10	100	40	\$.22



**No. 9171 Hubbell Porcelain Cleat Receptacles**

660 Watts, 250 Volts

Supported by one screw in center. Outside diameter of base, 2 inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*9171	B	10	100	30	\$.12



**No. 50715 Hubbell Porcelain Pony Cleat Receptacles**

660 Watts, 250 Volts

Holes for supporting screws spaced  $1\frac{1}{8}$  inches on centers. Dimensions of base,  $2\frac{1}{2} \times 2\frac{3}{8}$  inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50715	B	10	100	30	\$.12



**No. 50716 Hubbell Porcelain Pony Cleat Receptacles**

Clip Terminals

660 Watts, 250 Volts

Holes for supporting screws are spaced  $1\frac{1}{8}$  inches on centers.

Dimensions of base,  $2\frac{1}{2} \times 2\frac{3}{8}$  in.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50716	B	10	100	30	\$.12



**No. 4229 Hubbell Porcelain Cleat Receptacles**

With Combination Base for Cleat or Concealed Wiring

660 Watts, 250 Volts

Holes for supporting screws are elongated to provide  $1\frac{3}{8}$  to  $1\frac{1}{8}$  inches on centers.

Diameter of base,  $2\frac{1}{8}$  inches.

Height of base,  $1\frac{1}{8}$  inches.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4229	B	10	100	35	\$.25

**Hubbell Porcelain Keyless Mogul Sockets**

1500 Watts, 600 Volts



No. 3390



No. 3289

With Aluminum Cap

Cat. No.	Size Cap Inches	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3390	$\frac{3}{8}$	B	2	50	75	\$1.00
3391	$\frac{1}{2}$	B	2	50	75	1.00
3392	$\frac{3}{4}$	B	2	50	75	1.00

With Cast Iron Yoke

Cat. No.	Size Cap Inches	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3289	$\frac{3}{8}$	B	2	50	85	\$.85
3290	$\frac{1}{2}$	B	2	50	85	.85
3291	$\frac{3}{4}$	B	2	50	85	.85

**Hubbell Porcelain Keyless Mogul Sockets**

One-Piece Porcelain

1500 Watts, 600 Volts

With Aluminum Cap

Cat. No.	Size Cap Inches	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3468	$\frac{3}{8}$	B	2	50	60	\$.85
3469	$\frac{1}{2}$	B	2	50	60	.85

With Cast Iron Yoke

Cat. No.	Size Cap Inches	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3471	$\frac{3}{8}$	B	2	50	60	\$.70
3472	$\frac{1}{2}$	B	2	50	60	.70
3473	$\frac{3}{4}$	B	2	50	60	.70



No. 3468

**No. 3464 Hubbell Porcelain Mogul Cleat Receptacles**

1500 Watts, 600 Volts

Screws spaced  $2\frac{7}{8}$  inches. Diameter of base,  $3\frac{1}{2}$  inches.

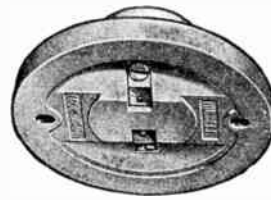
Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3464	B	2	50	50	\$.75



**Hubbell Porcelain Ceiling Receptacles**

For  $3\frac{1}{4}$  and 4-Inch Outlet Boxes

660 Watts, 250 Volts



No. 3922 (Rear View)



Holes for supporting screws in No. 3922 are spaced  $2\frac{1}{4}$  inches on centers. Holes for supporting screws in No. 3923 are spaced  $3\frac{1}{2}$  inches on centers.

Cat. No.	Sched-ule	Size In.	HEIGHT RECEPTACLE, INCHES		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
			Height	Outside Diameter				
3922	B	$3\frac{1}{4}$	$1\frac{3}{8}$	$3\frac{1}{16}$	5	100	80	\$.40
3923	B	4	$1\frac{3}{8}$	$4\frac{1}{16}$	5	50	60	.50



## No. GE300 Fluted-Catch Key Lampholders

No. GE749, 1/8-Inch Cap  
No. GE769 Key Body  
250 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE300	B	25	250	54	\$.72

## No. GE312 Fluted-Catch Key Lampholders

No. GE757 Pendant Cap—No. GE769 Key Body  
250 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE312	B	25	250	54	\$.72

## No. GE313 Fluted-Catch Keyless Lampholders

No. GE757 Pendant Cap  
No. GE770 Keyless Body  
660 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE313	B	25	250	49	\$.66

## No. GE301 Fluted-Catch Keyless Lampholders

No. GE749, 1/8-inch Cap—No. GE770 Keyless Body  
660 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE301	B	25	250	49	\$.66

## No. GE314 Fluted-Catch Pull Lampholders

No. GE757 Pendant Cap  
No. GE771 Pull Body  
250 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE314	B	25	250	56	\$1.00

## No. GE302 Fluted-Catch Pull Lampholders

No. GE749, 1/8-Inch Cap—No. GE771 Pull Body  
250 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE302	B	25	250	56	\$1.00

## No. GE769 Fluted-Catch Key Lampholder Bodies

250 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE769	B	25	250	42	\$.52

## No. GE772 Fluted-Catch Key Lampholder Bodies

660 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE772	B	25	250	43	\$.58

## No. GE770 Fluted-catch Keyless Lampholder Bodies

660 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE770	B	25	250	37	\$.46

## No. GE771 Fluted-Catch Pull Lampholder Bodies

250 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE771	B	25	250	45	\$.80

## No. GE773 Fluted-Catch Pull Lampholder Bodies

660 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE773	B	25	250	46	\$1.18

## No. GE749 Fluted-Catch Lampholder Caps

1/8-Inch Female Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE749	B	25	250	13	\$.20

## No. GE750 Fluted-Catch Lampholder Caps

1/4-Inch Female Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE750	B	25	50	3	\$.32

## No. GE751 Fluted-Catch Lampholder Caps

3/8-Inch Female Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE751	B	25	100	7	\$.32

## No. GE752 Fluted-Catch Lampholder Caps

3/8-Inch Male Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE752	B	25	50	6	\$.32

## No. GE1265 Fluted-Catch Lampholder Caps

1/2-Inch Female Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1265	B	25	50	5	\$.38

**No. GE2477 Fluted-Catch Pendent Caps**

*Schedule B*

With clamp grip for 3/8-inch and 1/2-inch cord.

Standard finish, brush brass.



Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2477	25	100	13	\$ .30

**No. GE764 Fluted-Catch Lampholder Caps**

1/8-Inch—90° Angle

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE764	B	25	50	3	\$ .42

**No. GE766 Fluted-Catch Lampholder Caps**

3/8-inch 90° Angle

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE766	B	25	50	4	\$ .48

**No. GE1612 Fluted-catch Strain Relief Pendent Caps**

With Porcelain Bushing, 1 1/2-inch Hole

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1612	B	25	100	5	\$ .20

**No. GE757 Fluted-Catch Pendent Caps**

With Moulded Compound Bushing

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE757	B	25	250	9	\$ .20

**No. GE1637 Threaded-Catch Key Bodies**

250 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1637	B	25	250	46	\$ .56

**No. GE1638 Threaded-Catch Keyless Lampholder Bodies**

660 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1638	B	25	250	41	\$ .50

**Nos. GE1639 and GE1837 Threaded-Catch Pull Lampholder Bodies**

Standard finish, brush brass.

250 Watts, 250 Volts



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1639	B	25	250	47	\$ .84
GE1837	B	25	250	48	\$ 1.22

**No. GE1729 Threaded-Catch Key Bodies**

660 Watts, 250 Volts

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1729	B	25	250	42	\$ .62

**No. GE1630 Threaded-Catch Caps**

1/8-inch Female Thread

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1630	B	25	250	11	\$ 1.16

**No. GE1632 Threaded-Catch Caps**

3/8-inch Female Thread

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1632	B	25	100	6	\$ .28

**No. GE1633 Threaded-Catch Caps**

1/2-inch Female Thread

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1633	B	25	50	5	\$ .34

**No. GE1634 Threaded-catch Pendent Caps**

With Compound Bushing

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1634	B	25	250	11	\$ 1.16

**No. GE1635 Threaded-catch Strain Relief Pendent Caps**

With Porcelain Bushing, 1 1/2-Inch Hole

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1635	B	25	100	3	\$ 1.16

**No. GE2502 Threaded-Catch Pendent Caps**

*Schedule B*

With clamp grip for 3/8-inch and 1/2-inch cord.

Standard finish, brush brass.



Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2502	25	100	15	\$ .26

**No. GE2236 Threaded-catch Pendent Chain Link Fixture Caps**

With Compound Bushing, for 3/8-inch Pipe

Standard finish, brush brass.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2236	B	10	100	18	\$ .76

## G-E Threaded-Catch Shadeholder Socket Bodies

Lighting equipment makers appreciate the convenience and economy of G-E Shadeholder Sockets. They are really a combination husk and socket, two separate parts made up as a single unit.

They may be used wherever a combination of socket and husk is required, as their tasteful design harmonizes with any type of mixture or pendant.

G-E Shadeholder Sockets represent a saving in the first cost of material and, in addition, a real economy in the matter of assembling cost.

They have all the mechanical excellence of standard sockets besides being equipped with the G-E Threaded-catch Fastening for the cap and shell. This consists of a threaded brass ring which forms a union between the two parts and holds them securely no matter how heavy the reflector or how much vibration or strain may be present.

G-E Shadeholder Sockets may be had in pull, key and keyless types with shadeholders, and in any desired finish to match the rest of the fixture.

These bodies are interchangeable with all standard threaded-catch caps. Threaded rings are included with bodies.

### No. GE1671 Threaded-Catch Shadeholder Key Socket Bodies

With 2 1/4-Inch Shadeholders  
250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1671	B	10	100	29	\$ .71



### No. GE1838 Threaded-Catch Shadeholder Key Socket Bodies

With 2 1/4-Inch Shadeholders  
660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1838	B	10	100	27	\$ .77



### No. GE1672 Threaded-Catch Shadeholder Keyless Socket Bodies

With 2 1/4-Inch Shadeholders  
660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1672	B	10	100	25	\$ .65



### No. GE1810 Threaded-Catch Shadeholder Pull Socket Bodies

With 2 1/4-Inch Shadeholders  
250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1810	B	10	100	28	\$ .99



### No. GE1818 Threaded-Catch Shadeholder Pull Socket Bodies

With 2 1/4-Inch Shadeholders  
660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1818	B	10	100	26	\$ 1.37



## No. GE774 Fluted-Catch Locking Key Lampholder Bodies With Lamp Grip

250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE774	B	25	100	21	\$ 1.06



## No. GE775 Fluted-Catch Locking Keyless Lampholder Bodies With Lamp Grip

660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE775	B	25	100	17	\$ 1.00



## No. GE1164 Fluted-Catch Locking Pull Lampholder Bodies With Lamp Grip

250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1164	B	25	100	24	\$ 1.34



## No. GE1640 Threaded-Catch Locking Key Lampholder Bodies With Lamp Grip

250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1640	B	25	100	21	\$ 1.10



## No. GE1641 Threaded-Catch Locking Keyless Lampholder Bodies With Lamp Grip

660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1641	B	25	100	20	\$ 1.04



## No. GE1836 Threaded-Catch Locking Pull Lampholder Bodies With Lamp Grip

250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1836	B	25	100	25	\$ 1.38



## No. GE434 Key for Locking Lampholders



Locking keys must be ordered separately, as they are not furnished as part of the lampholder.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE434	B	10	100	2	\$ .20

**No. GE784 Fluted-catch Small Porcelain Lampholder Bases—Solid**



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE784	B	10	100	47	\$.36

**No. GE974 Fluted-catch Small Porcelain Lampholder Bases—Slotted**



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE974	B	10	100	18	\$.36

**No. GE793 Fluted-catch Porcelain Lampholder Bases—Cleat**



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE793	B	10	100	30	\$.46

**No. GE794 Fluted-Catch 3 1/4-Inch Box Insulated Lampholder Bases**

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE794	B	5	50	35	\$.74



**No. GE786 Fluted-catch Small Covered Solid Bases**

Standard finish, brushed brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE786	B	10	100	21	\$.56



**No. GE795 Fluted-Catch 4-Inch Box Insulated Lampholder Bases**

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE795	B	5	50	58	\$1.34



**No. GE1800 Fluted-catch Deep All-metal Bases for All Outlets**

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1800	B	1	50	22	\$1.20



**No. GE1644 Threaded-Catch Electrolier Pendant Caps**

Compound Bushing

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1644	B	25	50	3	\$.16



**No. GE1620 Fluted-Catch Electrolier Key Lampholder Bodies**

250 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1620	B	25	250	31	\$.52

**No. GE2238 Fluted-Catch Electrolier Key Lampholder Bodies**

660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2238	B	25	250	32	\$.58



**No. GE1621 Fluted-catch Electrolier Keyless Lampholder Bodies**

Short Shell

660 Watts, 250 Volts



Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1621	B	25	250	21	\$.46

**No. GE1623 Fluted-Catch Electrolier Pull Lampholder Bodies**

250 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1623	B	25	250	38	\$.80



**No. GE1685 Fluted-Catch Electrolier Pull Lampholder Bodies**

660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1685	B	25	250	40	\$1.18



**No. GE1624 Fluted-catch Electrolier Push Button Lampholder Bodies**

660 Watts, 250 Volts

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1624	B	25	250	32	\$.52



**No. GE1642 Threaded-Catch Electrolier Lampholder Caps**

1/8-Inch Female Thread

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1642	B	25	250	11	\$.16



**No. GE1643 Threaded-Catch Electrolier Lampholder Caps**

3/8-Inch Female Thread

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1643	B	25	50	4	\$.28



## No. GE1615 Fluted-Catch Electrolier Lampholder Caps

1/8-Inch Thread



Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1615	B	25	250	12	\$ .20

## No. GE2305 Fluted-Catch Electrolier Lampholder Caps

Schedule B

1/4-inch thread.

Standard finish, brush brass.



Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2305	25	50	4	\$ .32

## No. GE1617 Fluted-Catch Electrolier Lampholder Caps

3/8-Inch Thread

Standard finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1617	B	25	50	4	\$ .32

## No. GE1618 Fluted-Catch Electrolier Lampholder Caps

1/8-Inch Thread

90° Angle

Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1618	B	25	50	5	\$ .42



## No. GE1840 Fluted-catch Electrolier Lampholder Caps

1/8-inch Thread

With 7/32-inch Side Outlet Bushing

Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1840	B	25	50	3	\$ .24



## No. GE1619 Fluted-Catch Electrolier Pendant Caps

Compound Bushing

Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1619	B	25	50	2	\$ .20



## No. GE1358 Candle Keyless Lampholders

1/8-inch Extension Hickey

660 Watts, 250 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1358	B	25	250	27	\$ .32



## No. GE2311 Candle Keyless Lampholders

1/8-inch Adjustable Extension Hickey

660 Watts, 250 Volts

Adjustable to any over all length between 4 1/8 and 5 3/4 inches. Sturdily built to stand up under actual service conditions.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2311	B	25	250	32	\$ .34



## Nos. GE1645 and GE1739 Threaded-Catch Electrolier Key Lampholder Bodies

Threaded ring is part of lampholder body.  
Standard finish, brush brass.



250 Watts, 250 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1645	B	25	250	31	\$ .56
GE1739	B	25	250	41	\$ .62

## No. GE1646 Threaded-Catch Electrolier Keyless Lampholder Bodies

660 Watts, 250 Volts

Schedule B

Threaded ring is part of lampholder body.  
Standard finish, brush brass.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1646	25	250	31	\$ .50



## No. GE1647 Threaded-Catch Electrolier Pull Lampholder Bodies

250 Watts, 250 Volts

Schedule B

Threaded ring is part of lampholder body.  
Standard finish, brush brass.



Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1647	25	250	39	\$ .84

## No. GE1841 Threaded-Catch Electrolier Pull Lampholder Bodies

660 Watts, 250 Volts

Threaded ring is part of lampholder body.  
Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1841	B	25	250	44	\$ 1.22



## No. GE1648 Threaded-Catch Electrolier Push Button Lampholder Bodies

660 Watts, 250 Volts

Threaded ring is part of lampholder body.  
Standard finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1648	B	25	250	31	\$ .56

## No. GE1830 Candle Pull Lampholders

250 Watts, 250 Volts

Schedule B

Has 1/8-inch removable extension hickey.  
Standard finish of chains, brush brass.



Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1830	10	100	17	\$ 1.50

## No. GE2302 Candle Pull Lampholders

1/8-inch Bushing

250 Watts, 250 Volts



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2302	B	10	100	17	\$ 1.50

## No. GE2326 Candle Pull Lampholder Bodies

250 Watts, 250 Volts—Schedule B

For adjustable yokes.

Regularly equipped with No. 3 candelabra chain, splicing link and removable ball.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2326	B	10	100	16	\$ 1.40



**No. 10x707 G-E Keyless Lampholders**  
 Single Leg  
 1/8-Inch Adjustable Extension Hickey  
 660 Watts, 250 Volts  
 Adjustable to any overall length between 3 3/8 and 5 1/2 inches.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Price Each
GE10x707	B	25	250	\$ .34

**No. GE2327 1-Inch Adjustable Yokes for Candle Pull Lampholder Bodies**

250 Watts, 250 Volts

Schedule B



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2327	B	25	100	3	\$ .10

**No. GE2328 2-Inch Adjustable Yokes for Candle Pull Lampholder Bodies**

250 Watts, 250 Volts

Schedule B



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2328	B	25	100	4	\$ .10

**No. GE2501 Candelabra Key Lampholders**

Metal Shell, 1/8-Inch

75 Watts, 125 Volts



With multi-catch fastening.  
 Standard finish, brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2501	G (Class 1)	25	100	9	\$ .78

**No. GE023 Candelabra Keyless Lampholders**

Metal Shell, Multi-Catch Fastening

75 Watts, 125 Volts

Standard finish, brush brass, 1/8-inch cap.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE023	G (Class 1)	50	100	6	\$ .64

**No. GE024 Miniature Keyless Lampholders**

Multi-catch Fastening—1/8-inch Cap

75 Watts, 125 Volts

Standard finish, brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE024	G (Class 1)	50	100	5	\$ .64

**No. GE025 Candelabra Bayonet Base Keyless Lampholders**

Multi-catch Fastening—1/8-inch Cap

75 Watts, 125 Volts

Standard finish, brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE025	G (Class 1)	50	100	6	\$ .64

**No. 9444 Candelabra Keyless Lampholders**

Porcelain Shell

75 Watts, 125 Volts



Diameter of stud, 5/16 inch, 27 threads per inch.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9444	G (Class 1)	50	100	6	\$ .42

**No. 69444 G-E Candelabra Keyless Lampholders**  
 Porcelain Shell, 1/8-inch Female Thread

75 Watts, 125 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
69444	G (Class 1)	50	100	6	\$ .42

**No. GE2346 Candelabra Keyless Lampholders**

Schedule G Class 1

With loop hickey, 1/8-inch female thread. Candelabra screw base, porcelain shell.  
 Standard finish, brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2346	G (Class 1)	50	100	6	\$ .42

**G-E Porcelain Pendant Keyless Lampholders**

75 Watts, 125 Volts

With 6-inch No. 18 stranded R.C. wire leads.

Candelabra

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
30856	G (Class 1)	25	100	7	\$ .32



Miniature

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
30857	G (Class 1)	25	100	7	\$ .32

**No. GE675 Porcelain Keyless Candelabra Lampholders**

75 Watts, 125 Volts



For cleat work.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE675	G. Class 1	25	100	13	\$ .24

**No. GE676 Porcelain Keyless Miniature Lampholders**

75 Watts, 125 Volts

For cleat work.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE676	G. Class 1	25	100	10	\$ .18



**No. 35699 G-E Adapters**

Schedule G, Class 1



Candelabra screw base to medium screw adapters.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35699	25	100	8	\$ .20

**No. GE070 Medium Screw Base to Mogul Screw Base Adapters**

Schedule G Class 1



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE070	10	100	25	\$ .50

**No. GE682 Medium Screw Base to Standard Adapters**

Schedule G Class 1



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE682	10	50	11	\$ .40



## G-E Intermediate Lampholders

Schedule B

### No. GE2609 Key Lampholders

75 Watts, 125 Volts



Has 1/8-inch cap.  
Carton, 25. Standard package, 100. Weight, standard package 10 pounds.  
Price, No. GE2609.....each \$.72

### No. GE2611 Keyless Lampholders

75 Watts, 250 Volts



Has 1/8-inch cap.  
Carton, 25. Standard package, 100. Weight, standard package, 9 pounds.  
Price, No. GE2611.....each \$.66

### No. GE2610 Pull Lampholders

75 Watts, 125 Volts



Has 1/8-inch cap.  
Carton, 25. Standard package, 100. Weight, standard package, 10 pounds.  
Price, No. GE2610.....each \$1.63

### No. GE2623 Keyless Candle Lampholders

75 Watts, 250 Volts



Carton, 25. Standard package, 100. Weight, standard package, 17 pounds.

Price, No. GE2623.....each \$.34

### No. GE2624 Pull Candle Lampholders

75 Watts, 125 Volts



Carton, 25. Standard package, 100. Weight, standard package, 8 pounds.

Price, No. GE2624.....each \$1.50

### No. GE2597 Weatherproof Lampholders

75 Watts, 250 Volts



Carton, 25. Standard package, 100. Weight, standard package, 6 pounds.

Price, No. GE2597.....each \$.24

Standard finish on all brass shell devices is brush brass. Lampholders with wire leads are regularly furnished with 6 inches of No. 18 stranded rubber covered wire.

For lampholders with extra length leads, add 18 cents list per foot or fraction thereof (9 cents per foot per lead).

### No. GE2625 Porcelain Keyless Removable Ring Lampholders

75 Watts, 250 Volts



With binding screw terminals.  
Carton, 25. Standard package, 250. Weight, standard package, 42 pounds.  
Price, No. GE2625.....each \$.24

### No. GE2603 Porcelain Keyless Lampholders

75 Watts, 250 Volts



For neat work. Outside supporting screw holes. Carton, 25. Standard package, 100. Weight, standard package, 17 pounds.

Price, No. GE2603.....each \$.24

### No. GE2626 Porcelain Keyless Sign Lampholders

75 Watts, 250 Volts



Wire grooves parallel with supporting screws. Carton, 25. Standard package, 250. Weight, standard package, 28 pounds.

Price, No. GE2626.....each \$.24

## No. GE1210 Snap-Catch Porcelain Key Lampholder Bodies

250 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1210	B	10	250	29	\$.52

## No. GE2237 Snap-Catch Porcelain Key Lampholder Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2237	B	10	100	30	\$.58

## No. GE1214 Snap-Catch Porcelain Keyless Lampholder Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1214	B	10	100	24	\$.46

## No. GE1218 Snap-Catch Porcelain Pull Lampholder Bodies

250 Watts, 250 Volts



Standard finish of chain is nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1218	B	10	100	44	\$1.18

## No. GE1842 Snap-Catch Porcelain Pull Lampholder Bodies

660 Watts, 250 Volts



Standard finish of chain is nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1842	B	10	100	29	\$1.62

## No. GE1222 Snap-Catch Porcelain Push Button Lampholder Bodies

660 Watts, 250 Volts



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1222	B	10	100	30	\$.58

## No. GE1224 Snap-Catch Porcelain Lampholder Caps

10 Amperes, 250 Volts



1/8-inch cap.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1224	B	10	100	15	\$.40

## No. GE1225 Snap-Catch Porcelain Lampholder Caps

10 Amperes, 250 Volts



Has 3/8-inch cap.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1225	B	10	100	15	\$.48

**No. GE1283 Snap-Catch Porcelain Lampholder Caps**



10 Amperes, 250 Volts

Has 1/2-inch cap.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1283	B	10	100	18	\$ .54

**No. GE1223 Snap-Catch Porcelain Lampholder Caps**

For Pendent Work  
10 Amperes, 250 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1223	B	10	100	13	\$ .20



**No. GE1843 Snap-Catch Porcelain Lampholder Caps**

3/8-inch - 90° Angle

10 Amperes, 250 Volts

With aluminum top.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1843	B	10	100	13	\$1.00



**No. GE1844 Snap-Catch Porcelain Lampholder Caps**

10 Amperes, 250 Volts

1/2-inch, 90-degree angle. Aluminum top.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1844	B	10	100	17	\$1.20



**No. GE799 Porcelain Key Lampholder Bodies**  
With 2-Screw Fastening

250 Watts, 250 Volts



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE799	B	10	100	27	\$ .52

**No. GE800 Porcelain Keyless Lampholder Bodies**

With 2-Screw Fastening

660 Watts, 250 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE800	B	10	100	23	\$ .46



**G-E Porcelain Pull Lampholder Bodies**

With Interchangeable 2-Screw Fastening  
Standard finish of chain is nickel.



Cat. No.	Watts	Volts	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2284	250	250	B	10	100	36	\$1.18
GE2312	660	250	B	10	100	36	1.62

**No. GE2283 Porcelain Push Button Lampholder Bodies**

Interchangeable Two-Screw Fastening  
660 Watts, 250 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2283	B	10	100	36	\$ .58



**No. GE797 Porcelain Lampholder Caps**

1/8-Inch



With interchangeable 2-screw fastening.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE797	B	10	100	15	\$ .40

**No. GE798 Porcelain Lampholder Caps**

Interchangeable 2-Screw Fastening

Has a 3/8-inch cap.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE798	B	10	100	16	\$ .48



**No. GE1278 Porcelain Lampholder Caps**

1/2-Inch with 2-Screw Fastening



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1278	B	10	100	18	\$ .54

**No. GE796 Porcelain Lampholder Caps**

Interchangeable 2-Screw Fastening

Pendent Cap

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE796	B	10	100	12	\$ .20



**No. GE1845 Porcelain Lampholder Caps**

3/8-Inch

90-Degree Angle with 2-Screw Fastening



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1845	B	10	100	33	\$1.00

**No. GE802 Porcelain Lampholder Concealed Bases**

Interchangeable 2-Screw Fastening



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE802	B	10	100	35	\$ .30

**No. GE803 Porcelain Lampholder Cleat Bases**

Interchangeable 2-Screw Fastening

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE803	B	10	100	21	\$ .28



**G-E Porcelain Lampholder Bases**

With 2-Screw Fastening

3 1/4-Inch Box Bases

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE806	B	10	50	50	\$ .60

4-Inch Box Bases

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE807	B	5	50	50	\$ .80



No. 806

## No. GE1625 Porcelain Keyless Lampholders

660 Watts, 250 Volts

Schedule B

Two-screw fastening, two-piece body.  
Regularly furnished with lamp grip.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1625	10	100	40	\$ .70



## No. 278932 G-E Porcelain Fixture Keyless Lampholders

660 Watts, 250 Volts

Schedule B

3/8-inch brass cup. Tapped outside for 1/8-inch lock nut, 2-screw fastening.  
For use with industrial type reflectors.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
278932	10	100	35	\$ .80

## No. GE469 Porcelain Keyless Lampholders

2-Screw Fastening

660 Watts, 250 Volts

With 1/2-inch japanned cast metal cap.  
With lamp grips.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE469	B	10	100	59	\$1.10



## No. 37695 G-E Keyless Weatherproof Lampholders

660 Watts, 600 Volts

With hole for supporting wire suspension.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
37695	B	10	100	38	\$.50

## No. GE040 Keyless Porcelain Weatherproof Pendant Lampholders

Without Shadeholder Groove

600 Watts, 600 Volts

With wire leads, spring center contact.  
Standard length of wire, 6 inches; extra length, 18 cents per foot.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE040	B	10	100	32	\$ .32



## No. 9366 G-E Keyless Porcelain Weatherproof Pendant Lampholders

With Shadeholder Groove

660 Watts, 600 Volts

Spring center contact. Standard length wire, 6 inches; extra length, 18 cents per foot.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9366	B	10	100	31	\$.36



## No. 43310 G-E Keyless Weatherproof Pendant Lampholders

Without Shadeholder Groove

660 Watts, 600 Volts

With wire leads, spring center contact. Stand-ard length wire, 6 inches; extra length, 18 cents per foot.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43310	B	10	100	23	\$.36



## No. 60666 G-E Keyless Weatherproof Pendant Lampholders

With Shadeholder Groove

660 Watts, 600 Volts

With wire leads, spring center contact. Stand-ard length wire, 6 inches; extra length, 18 cents per foot.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60666	B	10	100	23	\$.40



## G-E Threaded Catch Textolite Lampholders

Schedule B

This line combines the insulating and heat resisting, qualities of moulded lampholders with simplicity of assembly, ease of wiring and security of fastening.

Textolite is a phenolic compound highly resistant to mois-ture, corrosion, heat, acid fumes and steam and much less subject to chipping than porcelain or compounds.

Caps, shells and keys are a high-lustre rich brown color; external metal parts have a harmonizing plated finish.



No. GE2703

### Key Bodies

Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2703	250	250	25	100	22	\$.52
GE2704	660	250	25	100	24	.58

### Keyless Bodies

Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2705	660	250	25	100	18	\$.46

### Pull Bodies

Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2706	250	250	25	100	28	\$1.02
GE2707	660	250	25	100	30	1.46



No. GE2706

### Pull Bodies with Insulated Chain

Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2708	250	250	25	100	30	\$1.18
GE2709	660	250	25	100	32	1.62



No. GE2708

### Push Button Bodies

Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2710	660	250	25	100	28	\$.58

### Caps

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2702	Pendent Cap	25	100	12	\$.20
GE2700	1/8-Inch Cap	25	100	12	.40
GE2701	3/8-Inch Cap	25	100	12	.48



No. GE2702

## G-E Heavy Duty Keyless Lampholders

660 Watts, 600 Volts

Schedule B

Medium screw base. With threaded connections, porce-lain linings, lamp grips and threaded shadeholder beads.

Cat. No.	Size Cap. In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*GE2323	3/8	10	50	17	\$1.00
†GE2491	3/8	10	50	22	1.00
*GE2324	1/2	10	50	16	1.00
†GE2492	1/2	10	50	21	1.00
†GE2540	1/2	10	50	21	1.25



\*Aluminum.

†Copper.

‡Aluminum, with short-circuiting center spring contact.

## G-E Threaded Shadeholders for Heavy Duty Lampholders

660 Watts, 600 Volts—Schedule B

Solid, with screws.

Carton, 10. Standard package, 50.

Cat. No.	Kind	Shadeholder, In.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Kind	Shadeholder, In.	Wt., Lbs. Std. Pkg.	Price Each
GE2376	Alum.	2 1/4	10	\$.40	GE2494	Copper	3 1/4	13	\$.60
GE2493	Copper	2 1/4	10	.40	GE2378	Alum.	4	15	.80
GE2377	Alum.	3 1/4	13	.60	GE2495	Copper	4	15	.80



## No. 9171 G-E Porcelain Keyless Lampholders for Cleat Work

660 Watts, 250 Volts

Without shadeholder groove.

Center supporting screw hole.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9171	B	10	100	24	\$.24



**No. GE900 Keyless Mogul Lampholders**



1500 Watts, 600 Volts

One-piece brass shell. Porcelain lining. With lamp grip. Has 3/8-inch nozzle. Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE900	B	5	50	42	\$2.40

**No. GE901 Keyless Mogul Lampholders**

1500 Watts, 600 Volts

One-piece brass shell. Porcelain lining. With lamp grip. Has 1/2-inch nozzle. Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE901	B	5	50	42	\$2.40



**No. GE1166 Keyless Porcelain Mogul Lampholders**

One-piece Body

With 3/8-inch Stamped Brass Cap

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1166	B	5	50	46	\$1.70



**No. GE1167 Keyless Porcelain Mogul Lampholders**

One-piece Body

With 1/2-inch Stamped Brass Cap

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1167	B	5	50	47	\$1.70



**No. GE104 Keyless Porcelain Mogul Lampholders**

Two-piece Body

With 3/8-inch Japanned Cast Metal Cap

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE104	B	5	50	80	\$2.00



**No. GE069 Keyless Porcelain Mogul Lampholders**

Two-piece Body

With 1/2-inch Japanned Cast Metal Cap

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE069	B	5	50	86	\$2.00



**No. GE1629 Keyless Porcelain Mogul Lampholder Bodies**

One-piece

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1629	B	5	50	40	\$1.10



**No. GE1626 Keyless Porcelain Mogul Lampholder Bodies**

Two-piece

1500 Watts, 600 Volts

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1626	B	5	50	57	\$1.40



**No. GE264 Metal Shell Keyless Lampholders**

660 Watts, 250 Volts

One piece. Insulated. For 3/4-inch and 4-inch outlet boxes. Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE264	B	1	50	53	\$1.20



**No. GE721 Metal Shell Pull Lampholders**

250 Watts, 250 Volts

One piece. Insulated. For 3/4-inch and 4-inch outlet boxes. With short chain; 6 feet of cord and ball. Std. finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE721	B	1	50	64	\$2.60

**No. 60018 G-E Metal Shell Key Lampholders**

250 Watts, 250 Volts

One piece. Small concealed base. Standard finish is brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60018	B	10	100	35	\$8.88

**No. 60019 G-E Metal Shell Keyless Lampholders**

660 Watts, 250 Volts

Small concealed base one-piece. Standard finish, brush brass.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60019	B	10	100	35	\$8.82



**G-E Canopy Lampholders**

With Removable Ring and Support for Attaching to Canopy

250 Watts, 250 Volts

With 7-Inch Chain

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2604	B	10	250	61	\$1.20



With 4-Foot Cord

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2605	B	10	250	61	\$1.20

With 7-Inch Chain and 4-Foot Cord

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
No. GE2604	GE2606	B	10	250	65	\$1.40

Regularly furnished with unfinished shells.

When specified, 6-foot cord will be furnished without extra charge. When specified, extra eyelets will be furnished at an additional list of 2 cents; or 1 cent for one half an eyelet. Brush brass is the standard finish on chain. When specified, nickel chain will be furnished without extra charge. Other finishes, 4 cents per foot.

**No. GE294 Porcelain Keyless Lampholders for Concealed Work**

660 Watts, 250 Volts

Without shadeholder groove.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE294	B	10	100	43	\$5.50



**No. 9514 G-E Porcelain Keyless Lampholders**

660 Watts, 250 Volts

For concealed work. For flush mounting.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9514	B	10	100	36	\$6.60

## No. GE295 Porcelain Keyless Lampholders

660 Watts, 250 Volts



For concealed work.  
With shadeholder groove.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE295	B	10	100	43	\$ .60

## No. GE2470 Porcelain Keyless Lampholders

660 Watts, 250 Volts  
Schedule B



For concealed or open work. With removable ring, with shadeholder groove.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2470	10	100	38	\$ .60

## No. GE2471 Porcelain Keyless Lampholders

660 Watts, 250 Volts  
Schedule B

For concealed or open work.  
With removable ring, with shadeholder groove.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2471	10	100	38	\$ .50

## No. 28795 G-E Porcelain Keyless Lampholders

660 Watts, 250 Volts  
Schedule B

For cleat work. Without shadeholder groove. Outside supporting, screw holes, round base.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
28795	10	100	35	\$ .36

## No. 50715 G-E Porcelain Keyless Lampholders

660 Watts, 250 Volts

For cleat work.  
Without shadeholder groove.  
Outside supporting screw holes.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50715	B	10	100	26	\$ .24

## G-E Porcelain Keyless Lampholders for Cleat Work

Without shadeholder groove. Outside supporting screw holes. Porcelain shell.  
No. 224160, with lamp grip.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9402	B	10	100	37	\$ .34
224160	B	10	100	37	.44

## No. 59275 G-E Porcelain Keyless Lampholders

660 Watts, 250 Volts  
Schedule B



For cleat work. Without shadeholder groove. Outside supporting screw holes. Wire supports 1 inch from surface.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59275	10	100	72	\$ .50

## No. GE033 Porcelain Keyless Lampholders

660 Watts, 250 Volts



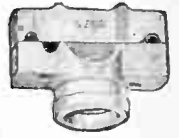
For cleat work.  
With shadeholder groove.  
Heavy porcelain shell.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE033	B	10	100	37	\$ .44

## No. GE031 Porcelain Keyless Lampholders for Cleat Work

660 Watts, 250 Volts

With shadeholder groove.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE031	B	5	100	74	\$ .66

## No. 9403 G-E Porcelain Keyless Lampholders

660 Watts, 250 Volts

For cleat work.  
With brass shell.  
Threaded for shadeholder.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9403	B	10	100	34	\$ .54

## No. GE020 Porcelain Keyless Lampholders for Moulding Work

660 Watts, 250 Volts

Without shadeholder groove.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE020	B	10	100	33	\$ .60

## No. GE021 Porcelain Keyless Lampholders for Moulding Work

660 Watts, 250 Volts

With shadeholder groove.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE021	B	10	100	33	\$ .70

## No. 66722 G-E Porcelain Multiple Keyless Lampholders

660 Watts, 250 Volts

For cleat, concealed or moulding work.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66722	B	10	100	110	\$ .80

## G-E Porcelain Keyless Lampholders

660 Watts, 250 Volts—Schedule B

With Shadeholder Groove



With Covers for 3/4-Inch Outlet Boxes

Cat. Nos.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Blk. En. Galv.				
GE2581 GE2686	10	100	45	\$ .60

With Covers for 4-Inch Outlet Boxes

GE2582 GE2687	5	100	50	\$ .70
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With Wire Leads and Shadeholder Groove

With Covers for 3/4-Inch Outlet Boxes

Cat. Nos.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Blk. En. Galv.				
GE2583 GE2688	10	100	50	\$ .70

With Covers for 4-Inch Outlet Boxes

GE2584 GE2689	5	100	72	\$ .80
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Lampholders with wire leads furnished with 6 inches of No. 14 stranded rubber covered wire. For extra length leads, add 18c list per foot or fraction thereof (9c per foot per lead).

## No. 60931 G-E Porcelain Keyless Conduit Box Lampholders

660 Watts, 250 Volts



For attaching to cover of box.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60931	B	10	100	19	\$ .36

**No. GE071 Porcelain Keyless Conduit Box Lampholders**

660 Watts, 250 Volts

With 6-inch wire leads.  
For attaching to cover of box.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE071	B	10	100	40	\$.60



**No. GE155 Porcelain Keyless Conduit Box Lampholders**

660 Watts, 250 Volts

With shadeholder groove.  
For 3 1/4-inch box.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE155	B	5	100	76	\$.80

**No. GE088 Porcelain Keyless Conduit Box Lampholders**

660 Watts, 250 Volts

With shadeholder groove.  
For 4-inch box.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE088	B	5	50	60	\$1.00



**No. GE172 Porcelain Keyless Sign Lampholders**

660 Watts, 250 Volts

Extra heavy supporting lugs.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE172	B	10	100	26	\$.34



**No. GE170 Porcelain Keyless Sign Lampholders**

660 Watts, 250 Volts

For wooden signs.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE170	B	10	100	23	\$.34

**G-E Porcelain Keyless Sign Lampholders**

660 Watts, 250 Volts

With self-adjusting spring fastener and mounting screw.



**Loop Terminals**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2601	B	10	100	25	\$.34

**Binding Screw Terminals**

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2660	B	10	100	25	.34

**No. GE079 Removable Ring Porcelain Keyless Lampholders with 6-inch Wire Leads**

660 Watts, 250 Volts

1 1/2-inch shallow ring, 1 1/8-inch deep body.  
With extra length leads, add \$.18 per foot.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE079	B	10	100	32	\$.56



**No. GE001 G-E Removable Ring Porcelain Keyless Lampholders**

660 Watts, 250 Volts

With binding screw terminals.  
Has a 1 1/2-inch shallow ring; 1 1/8-inch deep body.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE001	B	10	100	27	\$.40

**No. GE271 G-E Removable Ring Porcelain Keyless Lampholders**

With Protected Binding Screw Terminals  
660 Watts, 250 Volts

Has a 1 1/2-inch shallow ring; 1 1/8-inch deep body.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE271	B	10	100	39	\$.50

**No. 50717 G-E Metal Shell Keyless Lampholders**

660 Watts, 600 Volts

For car wiring.  
Small concealed porcelain base.  
Standard finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50717	B	10	100	23	\$.50

**No. 66320 G-E Metal Shell Keyless Lampholders**

660 Watts, 600 Volts

For car wiring.  
Large concealed covered base, one-piece metal shell.

Standard finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66320	B	5	100	47	\$1.20

**No. GE009 Metal Shell Keyless Lampholders**

660 Watts, 600 Volts

For car wiring.  
Small concealed covered base compound lining, one-piece metal shell.  
Standard finish, brush brass.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE009	B	10	50	17	\$1.00

**No. GE433 Metal Shell Locking Keyless Lampholders**

660 Watts, 250 Volts

For car wiring. Small concealed covered insulated base, with lamp grip.  
Standard finish, brush brass.  
Locking key is not included.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE433	B	10	100	33	\$1.42

**No. GE1194 Porcelain Keyless Mogul Base Lampholders**

1500 Watts, 600 Volts

For cleat work.

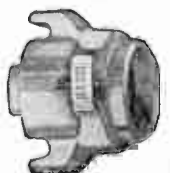


Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1194	B	5	50	40	\$1.50

**No. 159380 G-E Porcelain Keyless Mogul Base Lampholders**

1500 Watts, 600 Volts

For conduit box and sign work. Takes 2 3/8-inch hole in sign front.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
159380	B	1	100	111	\$1.70



## G-E Removable-Ring Lampholders

3/16-inch Deep Ring—Porcelain—Keyless—27/32-inch Shallow Body

660 Watts, 250 Volts—N.E.C. Standard  
Schedule B (Exceptions)

Suitable in shallow fixture canopies or pans and signs. May be mounted on standard outlet box covers, G-E Nos. SP14C36, SP52C36 or SP24C36; Universal Nos. 5G, 2G, and 4G respectively. Eight slots in body permit the alignment of the wiring grooves, or the leads, with the feed wires, regardless of the position of the holding lug in the canopy, sign front or box cover. Have removable screw shells which can be removed without disturbing the wiring. Require a hole 1 1/2 inches in diameter for mounting.

Asbestos gaskets are standard. Rubber gaskets can be substituted for asbestos without extra charge.

### With Binding Screw Terminals



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2262	10	100	22	\$ .40

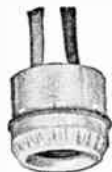
### With Protected Binding Screw Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2294	10	100	31	\$ .50



### With Wire Leads

Regularly with 6-inch leads of No. 14 stranded rubber covered wire. For extra lengths, add 9 cents per foot per lead.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2297	10	100	29	\$ .56

### With Well for Pitching Binding Screw Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2598	10	100	23	\$ .40



## G-E Porcelain Removable Ring Pull Lampholders

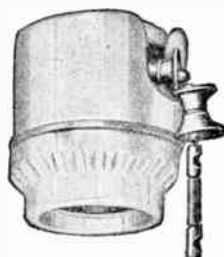
250 Watts, 250 Volts  
Schedule B

For use in kitchen lighting units, ball-light ceiling canopies, hall, porch and bathroom fixtures, etc.

A 1 1/2-inch hole in the fitter or canopy is required for these lampholders.

On insulated chains insulators are located 2 3/8 inches from the mouth of the eyelet. Asbestos gaskets between the body and removable ring are standard and lampholders so equipped will be regularly furnished. When specified, rubber gaskets will be substituted for asbestos gaskets without extra charge.

With each lampholder an extra double eyelet is provided which can be riveted or spun on the canopy or fitter as a guide for the chain or cord. This bell piece requires a 1 1/4-inch hole.



No. GE2288

### For Ceiling Use

Cat. No.	Equipped with	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2287	7-In. Chain and 4-Ft. Cord...	10	100	41	\$1.66
GE2288	7-In. Insulated Chain and 4-Ft. Linen Cord	10	100	43	1.82
GE2289	4-Ft. Linen Cord	10	100	45	1.50

### For Wall Use

GE2292	7-In. Chain	10	100	40	\$1.50
GE2293	7-In. Insulated Chain	10	100	43	1.66

On special order, above lampholders can be supplied with 6-inch leads, at an extra charge of 16 cents each. Standard finish on chain is nickelplate.

On special order, brush brass chain will be furnished without extra charge.

## G-E Pull Lampholders with Insulated Chains

Schedule B



Insulation is accomplished by inserting a fibre rod within the chain.

Standard package and carton same as for corresponding standard lampholders. No assortment permitted.

Additional Price, for Pull Lampholders with Insulated Chains..... each \$ .16

## G-E Lampholders with Extension Chain Guides

Schedule B

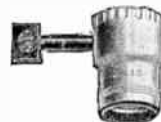
Lengths: 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4 and 2 inches. Std. pkg., 50 of one length or 100 of assorted lengths in cartons. Carton quantity same as for corresponding standard pull lamp holders. Pull lampholders with extension eyelets cannot be assorted with standard pull lampholders.

Additional Price, for Pull Lampholders with Extension Chain Guides Assembled on Lampholders..... each \$ .20



## G-E Lampholders with Extra Long Keys

Schedule B



Lengths: 1 1/4, 1 1/2, 2 and 2 1/2 inches. The standard length of keys for lampholders is 7/8 inch. When so specified, lampholders with 1-inch keys can be furnished at same list price and in same standard package quantities.

On orders for lampholders with extra long keys, where length is not specified 1 1/2-inch keys will be furnished.

Standard package, 100 of one length and one catalogue number. Carton quantity same as for corresponding standard key lampholders. No assortment permitted.

Additional Price, for Lampholders with Extra Long Keys..... each \$ .10

## G-E Lampholders with Metal Keys

Schedule B

Standard length of metal key, 1 inch. Standard package, 100 of one length and one catalogue number. Carton quantity same as for corresponding standard key lampholders. No assortment permitted.

Additional Price, for Lampholders with Metal Keys..... each \$ .20



## G-E Lampholder Devices with Lamp Grip

Schedule B

Lamp grips which prevent lamps from unscrewing as a result of vibration can be furnished on any medium base or mogul base lampholder device listed in this catalogue. They are regularly furnished on G-E locking lampholders.

Standard package and carton quantities same as for corresponding standard lampholders. No assortment permitted. Additional Price, for Other Lampholders with Lamp Grips..... each \$ .10

## G-E Lampholder Devices for Type C Lamps

Schedule B

A special heat-proof compound is regularly used for the pitching of current bearing screws in all mogul base lampholder devices.

For medium base lampholder devices pitched with heat-proof compound add to list price of corresponding device, 6 cents. Standard package quantities and carton quantities will be the same as standard lampholders. No assortment permitted.

G-E Special Finishes

Brass Shell Sockets, Socket Receptacles

Pendent Switches and Shadeholders, Flush Plates and Accessories

List Prices to Be Added to List Price of Corresponding Devices

Fin- ish No.	Finish	1. COMPLETE WITH CAPS		2. BODIES ONLY		3. Caps Only	4. Bases Only In- clud- ing Socket Recep- tacles with One Piece Metal Covers	5. Shade- hold- ers	6. 600- volt Medium Screw Base Sockets and Brass Shell Mogul Sock- ets	7. ALL PORCELAIN SOCKET PARTS WITH EXPOSED NICKEL PARTS		8. Surface Switches Covers for Ceil- ing Pull Sur- face Pull Rotary and Tum- bler Switches		9. METAL COVERED ATTACHING PLUG CAPS ELEXIT PLUG COVERS AND HOOKS		10. Flush Plates In- clud- ing Elexit Plates Single Flush Plates
		(a) Key Key- less and Push	(b) Pull	(a) Key Key- less and Push	(b) Pull					(a) Caps	(b) Pull Bodies	(a) Caps	(b) Pull Bodies	(a) 10 Caps Hooks	(b) 20 Caps Elexit Plug Covers	
284	Flemish Brass	\$.20	\$.24	\$.10	\$.14	\$.10	\$.32	\$.10	\$.40	\$.10	\$.04	\$.20	\$.16	\$.30	\$.30	
285	Lemon "	.12	.16	.06	.10	.06	.24	.06	.24	.06	.04	.20	.08	.16	.20	
129	Old or Brushed Brass	*	*	*	*	*	*	*	*	*	*	.20	*	*	*	
162	Oxidized Brass	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
127	Polished Brass	.12	.16	.06	.10	.06	.24	.06	.24	.06	.04	.20	.08	.16	.20	
286	Sand Blast Antique Brass	.44	.48	.22	.26	.22	.60	.22	.88	.22	.04	.20	.24	.50	.60	
287	Sand Blast Brush Brass	.36	.40	.18	.22	.18	.56	.18	.72	.18	.04	.20	.16	.32	.50	
290	Brush Bronze	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
288	Japanese Bronze (Dark)	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
170	Polished Bronze	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
289	Statuary Bronze (Light)	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
169	Antique or Acid Copper	.32	.36	.16	.20	.16	.50	.16	.64	.16	.04	.20	.20	.38	.40	
...	§Matte Brown Lacquer	...	...	...	...	...	...	...	...	...	...	...	...	...	△	
291	Brush Copper	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
114	Mottled Copper	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
168	Oxidized Copper	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
...	¶Grey Enamel	...	...	...	...	...	...	...	...	...	...	¶.20	...	...	...	
171	Polished Copper	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
211	†White Enamel	.12	.16	.06	.10	.06	.24	.06	.24	.06	.04	.20	.08	.16	.20	
292	Gun Metal	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
...	**Matte Nickel Lacquer	...	...	...	...	...	...	...	...	...	...	...	...	...	△	
280	Dull Nickel	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	.20	.16	.30	.30	
173	¶Polished Nickel	.20	.24	.10	.14	.10	.32	.10	.40	.10	.04	*.20	.16	.30	.30	
...	Chromium	...	...	...	...	...	...	...	...	...	...	...	...	...	.72	
175	Ground or Butler's Silver	.40	.60	.20	.40	.20	.50	.20	.80	.20	.20	†	.28	.54	.90	
174	Oxidized Silver	.40	.60	.20	.40	.20	.50	.20	.80	.20	.20	†	.28	.54	.90	
124	Polished Silver	.40	.60	.20	.40	.20	.50	.20	.80	.20	.20	†	.28	.54	.90	
293	Satin Silver	.40	.60	.20	.40	.20	.50	.20	.80	.20	.20	†	.28	.54	.90	
178	†Verde Antique	.12	.16	.06	.10	.06	.24	.06	.24	.06	.04	.20	.08	.16	.20	
101	Wrought Iron or Bauer Barff	.12	.16	.06	.10	.06	.24	.06	.24	.06	.04	.20	.08	.16	.20	
...	§Matte Black Lacquer	...	...	...	...	...	...	...	...	...	...	...	...	...	△	

†White enamel wrought iron and Bauer Barff and verde antique are lacquer finishes. Any other color can be supplied in lacquer finish, the cost depending upon the number of coats required to produce the color desired. Samples should accompany all orders for lacquer finishes in special colors.

\*Standard finish which will be furnished on all orders where no finish is specified.

†Prices on application.

On quantity orders the list prices for special finishes listed in columns 1 to 7 above will be reduced as follows:

250 to 500 Pieces, One Cat. No. One Finish... 10 Per Cent  
500 to 1000 Pieces, One Cat. No. One Finish... 20 Per Cent  
1000 Pieces and Over One Cat. No. One Finish... 50 Per Cent

On quantity orders for materials in columns 8 and 9, the list prices for special finishes listed above will be reduced as follows:

250 to 500 Pieces, One Cat. No. One Finish... 10 Per Cent  
500 to 1000 Pieces, One Cat. No. One Finish... 20 Per Cent  
1000 Pieces and Over, One Cat. No. One Finish... 30 Per Cent

On quantity orders for flush plates in gangs the list prices for special finishes listed above will be reduced as follows:

100 to 500 Gangs, One Finish... 10 Per Cent  
500 to 1000 Gangs, One Finish... 20 Per Cent  
1000 Gangs or Over, One Finish... 50 Per Cent

¶Ceiling, pull and rotary switches only.

§Matte brown lacquer and Matte black lacquer finish for

brass flush plates correspond to the finishes on bakelite plates.

Unbroken cartons of any catalogue number in special finish may be assorted with unbroken cartons of the same catalogue number in standard finish to make up a standard package quantity.

††Prices given are for single flush plates. For additional gangs, add 20 cents list per gang.

Unfinished flush plates, polished and buffed will be furnished at same list price as brush brass plates.

Unfinished flush plates, neither polished nor buffed, will be furnished at same list price as lacquer finish plates.

Devices, except flush plates, polished but not lacquered or unfinished will be supplied at same list price as devices in standard finish.

Prices on all special finishes, other than those listed above, will be quoted on application. Sample of desired finish should accompany order.

Any special finish, other than silver and gold, will be furnished on chains not longer than one foot, chain guides, chain pendants, chain connectors, and chain insulators at 4 cents each list. For silver finishes, 20 cents each list.

¶Tumbler switches only.

\*\*Matte nickel lacquer is a dull-nickel lacquer finish for brass flush plates.

△Furnished on any brass flush plates at same price as old or brush brass.

## G-E Parts for Metal Shell Lampholders

Schedule B

### Caps without Linings

Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
*1/8-Inch	50	250	...	\$.19
*1/4-Inch	50	100	...	.31
*3/8-Inch	50	100	...	.31
*1/2-Inch	50	250	...	.37
*3/4-Inch Male Thread	50	250	...	.31
*Pendent Less Either Compound or Porcelain Bushing	50	250	...	.17
1/8-Inch—Angle, 90 Degrees	50	250	...	.41
3/8-Inch—Angle, 90 Degrees	50	250	...	.47
600-Volt Threaded	10	50	...	.34

### Cap Linings

All Cap Linings, except 600-Volt	50	250	...	\$.01
Cap Linings, 600-Volt	10	50	...	.06
Porcelain Bushings for Pendent Caps	50	250	...	.08
Composition Bushings for Pendent Caps	50	250	...	.06

### Metal Keys

1-Inch Keys	20	100	...	\$.10
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### Standard Chain Guides

For All Pull Devices	50	250	...	\$.10
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### Extension Guides

3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, and 2-In.	10	150	...	\$.30
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### 2-Piece Chain Guides

For Removable Ring Pull Lampholders	50	250	...	\$.08
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### 5-Inch No. 3 Candelabra Pull-Chain

With Connector and Pendant	50	250	...	\$.28
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### 7-Inch No. 6 Standard Pull Chains

With Pendant	50	250	...	\$.26
With Insulating Link and Pendant	50	250	...	.42

**Short No. 6 Standard Chain with Cord and Pendant**

With 4-Foot Small Size Linen Cord	50	250	...	\$.32
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**7-Inch No. 6 Standard Chain with Cord and Pendant**

With 4-Foot Small Size Linen Cord	50	250	...	\$.44
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**7-Inch No. 6 Standard Chain with Insulator, Cord and Pendant**

With 4-Foot Small Size Linen Cord	50	250	...	\$.60
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### Small Compound Cord Balls

For Brass Shell Pull Switch Devices	50	250	...	\$.10
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### Chain

For Medium Base Pull Devices	per ft.	200 ft.	1000 ft.	...	\$.10
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### No. 1 1/2 Small Size Black Linen Cord

For Brass Shell Pull Devices	per ft.	200 ft.	1000 ft.	...	\$.02
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### Screw Shells

Mogul	10	50	...	\$.24
Medium	50	250	...	.07
Candelabra and Miniature	50	250	...	.04

### Detachable Ball Pendant

For Brass Shell Pull Devices	50	250	...	\$.12
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### Porcelain Rings for Removable-Ring Lampholders

Deep (GE079 Type)	50	250	...	\$.12
Shallow (GE292 Type)	50	250	...	.12

\*For threaded-catch caps, deduct 4 cents from list prices shown above.

†100 extension chain guides of assorted lengths also constitute a standard package quantity.

For threaded-catch shells complete with ring, add 4 cents each list to these prices.

Separate threaded rings, 4 cents each list. Standard package, 250. Carton, 50.

### Lampholders Unassembled

When it is intended to put on a special finish to match finish on individual fixtures it is often convenient to have lampholders unassembled. When so ordered the lampholder interiors slipped into the shell linings and the cap linings will be packed in one set of cartons, and the shells and caps in another set.

The term "unassembled" and "knocked-down" must not be confused. The former has reference to lampholders unassembled, mentioned above. The latter means that the lampholder is separated into two parts: the body, consisting of shell, shell lining and interior complete; the cap, consisting of cap and cap lining complete.

Unassembled lampholders are usually desired unlacquered.

Unassembled lampholders will be furnished without extra charge.

Standard package and carton same as for corresponding standard lampholders. No assortment is permitted.

## P & S Fluto Porcelain Interchangeable Cleat Bases



Holes for supporting screws are spaced 2 1/8 inches on centers. Outside dimensions of base, 3 1/8 x 2 3/4 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BA	10	100	32	\$.23

## P & S Fluto Porcelain Interchangeable Round Slotted Bases

Holes for supporting screws are spaced 1 1/8 inches on centers. Outside diameter of base is 2 1/16 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BB	10	100	19	\$.18



## P & S Fluto Porcelain Interchangeable Round Concealed Bases

Holes for supporting screws are spaced 1 1/8 inches on centers. Outside diameter is 2 1/16 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BC	10	100	19	\$.18



## P & S Fluto Porcelain Interchangeable Large Concealed Bases

Holes for supporting screws are spaced 2 3/16 inches on centers. Recess in base is 1/2 inch deep, 1 1/8 inches wide. Outside diameter of base, 2 5/8 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BD	10	100	25	\$.23



## P & S Fluto Porcelain Interchangeable Angle Wall Bases

Holes for supporting screws are spaced 1 1/8 inches on centers. Dimensions of base on diameters, 2 3/8 x 2 1/16 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BE	10	100	25	\$.23



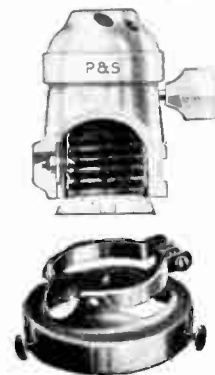
## P & S Fluto Porcelain Interchangeable Molding Bases

Holes for supporting screws are spaced 2 1/8 inches on centers. Outside dimensions of base 2 3/4 x 2 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BF	10	100	20	\$.18



## P & S Porcelain Shurlok Sockets and No. 1245 Shade Holders



The illustration shows how P & S Shurlok Sockets prevent the loss of lamps. The special screw can be operated only with P & S No. 1299 Key.

P & S No. 1299 Keys for use with all Shurlok devices are supplied only when ordered.

The price is 35 cents each net regardless of quantity.

P & S No. 1245 Shade Holders can be used with all porcelain Shurlok devices.

**P & S Porcelain Assembled Sockets**

Key, 250 Watts, 250 Volts  
Keyless, 660 Watts, 250 Volts



No. 61317

No. 61227

No. 61327

The popular numbers for special requirements demanding assembled devices are shown below.

The standard finish of brass caps and brass chain for porcelain sockets is nickel flash, but brush brass can be supplied on special order.

Carton quantity, 10; standard package, 100.

Cat. No.	Parts Nos.	Description	Wt., Lbs. Std. Pkg.	Price Each
61317	PA-S26	Pendant Cap Key Body	35	\$.36
60317	PA-S27	Pendant Cap Keyless Body	30	.33
61227	PC-S26	3/8-Inch Cap Key Body	36	.46
60227	PC-S27	1/2-Inch Cap Keyless Body	30	.43
61327	PE-S26	3/8-Inch Cap Key Body	36	.50
60327	PE-S27	1/2-Inch Cap Keyless Body	30	.47

**P & S Porcelain Interchangeable Pull Socket Bodies**



No. S-4700

**Brass Pendant**

No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-47	250	10	100	30	\$.59
S-66	600	10	100	30	.81

**Porcelain Pendant**

No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-4700	250	10	100	31	\$.59
S-6600	660	10	100	36	.81

**P & S Porcelain Shurlok Interchangeable Pull Socket Bodies**

**Brass Pendant**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-57	250	10	100	35	\$.86

**Porcelain Pendant**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-5700	250	10	100	31	\$.86



No. S-57 Shurlok

**P & S Porcelain Interchangeable Key Socket Bodies**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-26	250	10	100	28	\$.26



**P & S Porcelain Shurlok Interchangeable Key Socket Bodies**



Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-38	250	10	100	30	\$.53

**P & S Porcelain Interchangeable Keyless Socket Bodies**



Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-27	660	10	100	18	\$.23

**P & S Porcelain Shurlok Interchangeable Keyless Socket Bodies**



Cat. No.	Watts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S-39	660	10	100	20	\$.50

**P & S Porcelain Interchangeable Caps**

**Pendant for Reinforced Cord**



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PA	10	100	12	\$.10

**P & S Porcelain Interchangeable Caps**

**Pendant for Lamp Cord**



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PB	10	100	12	\$.10



**P & S Porcelain Interchangeable Caps**

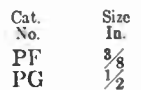
**Straight Nipple—Brass**



Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PC	1/8	10	100	15	\$.20
PD	1/4	10	100	15	.30
PE	3/8	10	100	16	.24
PZ	1/2	10	100	23	.37

**P & S Porcelain Interchangeable Caps**

**Straight Nipple—Aluminum**



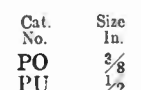
Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PF	3/8	10	100	16	\$.40
PG	1/2	10	100	14	.42



No. PF

**P & S Porcelain Interchangeable Caps**

**90-Degree Angle—Brass**



Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PO	3/8	10	100	28	\$.50
PU	1/2	10	100	30	.60



## P & S Porcelain Interchangeable Caps



90-Degree Angle—Aluminum

Cat. No.	Size In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PQ	3/8	10	100	28	\$.65
PR	1/2	10	100	25	.75

## P & S Porcelain Interchangeable Parts

Pendent Porcelain Cap with Cord Grip

For 1/2-Inch Cord

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PY	10	100	28	\$.20



## P & S Porcelain Interchangeable Caps

1/2-Inch Nipple for Pipe

3/4-Inch Hexagonal Left-Hand Lock Nut



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PW	10	100	32	\$.32

## P & S Porcelain Interchangeable Closed Bases

Holes for supporting screws are spaced 1 3/16 inches on centers. Outside diameter of base, 2 inches.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PH	10	100	15	\$.12

## P & S Porcelain Interchangeable Cleat Bases

Holes for supporting screws are spaced 1 inch diagonally on centers. Outside dimensions of base, 3 1/8 x 2 inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PI	10	100	28	\$.14



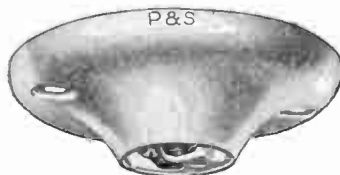
## P & S Porcelain Interchangeable Concealed Bases

Holes for supporting screws are spaced 2 1/4 inches on centers. Outside diameter of base, 2 1/32 inches. Recess in base, 1/2 inch deep and 1 1/8 inches wide.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PL	10	100	30	\$.15

## P & S Porcelain Interchangeable Box Bases



No. PN

PM.—Holes for supporting screws are spaced 2 3/4 inches on centers. Outside diameter of base, 3 3/32 inches.

PN.—Holes for supporting screws are spaced 3 1/2 inches on centers. Outside diameter of base, 4 2/32 inches.

Cat. No.	Size Box Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PM	3 1/4	10	50	30	\$.30
PN	4	10	50	42	.40

## P & S Porcelain Husk or Fixture Sockets

660 Watts, 250 Volts

Keyless, porcelain with 1/8, 1/4 and 3/8-inch brass caps.

The special wrench for inserting the socket cap in husks is No. 1260.

Brass finish for cap will be furnished unless otherwise specified.



Cat. No.	Cap. In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
831	1/8	10	100	30	\$.43
854	1/4	10	100	31	.47
843	3/8	10	100	31	.47

## P & S Husk Sockets

With Body Terminals

660 Watts, 250 Volts

The shoulder of the nipple is wide and it holds the socket rigid, prevents vibration and makes a tight assembly of the lighting unit.

A special wrench for inserting the socket cap in husks is No. 1277.



Cat. No.	Cap. Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
856	1/8	10	100	30	\$.35
857	1/4	10	100	30	.35
858	3/8	10	100	30	.35
861	1/2	10	100	30	.35

Wrench

1277	1	1			\$.50
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## No. 877 P & S Porcelain Angle Sockets

With Body Terminals

Useful in show window, show case lighting and other installations where a small angle socket is desired.

Cat. No.	Cap. Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
877	3/8	10	100	38	\$.54

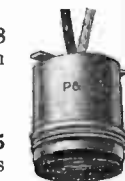
## No. 7047 P & S Armored Fixture Sockets

660 Watts, 250 Volts

Keyless. Fitted with 16-inch leads of No. 18 stranded wire. Supplied on special order with No. 14 stranded wire; prices on request.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7047	100	500	60	\$.15

Wrench No. 1261 is designed for use with this socket.



## P & S Bayonet Shell Receptacles

660 Watts, 250 Volts

A brass fibre-lined shell, threaded for Uno shadeholders, is firmly secured to porcelain base by two screws. Terminal is located at a convenient angle and provision is made for large service wire.

Brush brass is standard finish. Diameter of base, 2 inches; height over all—No. 50717, 1 1/2 inches; No. 108, 2 inches.

Holes for supporting screws are on 1 1/4-inch centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50717	Concealed Base...	10	100	20	\$.25
108	Slotted Base....	10	100	20	.25



No. 50717



No. 108

**P & S Chain Pull Candle Fixture Sockets**

With Fiber Cover  
250 Watts, 250 Volts



No. 1215



No. 4120



No. 4230

Designed to eliminate awkward and difficult wiring in a limited space, as the wires are brought through the fixture arms and thence directly to the terminals on the outside of the socket body. These sockets are of standard diameter.

Cat. No.	Nipple Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1215	1/8	10	100	18	\$.75
4120	1/8	10	100	18	.75
4230	1/8	10	100	18	.75

**P & S Keyless Candle Sockets**

With Fiber Cover  
660 Watts, 250 Volts



No. 198



No. 4004



No. 4005

These sockets are standard Edison base. They are of standard diameter.

Cat. No.	Nipple Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
198	1/8	25	250	25	\$.16
4004	1/8	25	250	30	.16
4005	1/8	25	250	25	.16

**With Adjustable Hickey**

Cat. No.	Adjustable Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4007	3 7/8 to 5 1/2	25	250	33	\$.17
4008	3 15/16 to 5 5/8	25	250	44	.17



No. 4008

**P & S Extension or Candle**

**Length Sockets**

With Enamelled Cover

Length over all is 4 1/16 inches. Interior is supported by a rigid hickey or leg which gives ample room for free wiring. This socket may be used in candles or tubing measuring not less than 1 1/4 inches inside diameter. The fibre casing having a highly finished white glazed enamel surface allows the socket to be used without candles or tubing if desired.



<b>Keyless Sockets</b> 660 Watts, 250 Volts					
Cat. No.	Nipple Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1900	1/8	10	50	10	\$.50

<b>Pull Sockets</b> 250 Watts, 250 Volts					
Cat. No.	Nipple Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1901	1/8	10	50	14	\$.90

**P & S Chain Pull Candle Fixture Sockets**

With Fiber Cover  
250 Watts, 250 Volts



No. 4192



No. 4191



No. 4190

These sockets are designed to give particularly rigid construction.

The standard chain is No. 3 size, and the standard finish is brush brass, but nickel will be furnished without extra charge.

The illustration of the No. 4190 Socket does not show the fiber cover which is furnished the same as shown on Nos. 4191 and 4192.

Cat. No.	Nipple Inches	Length Over All Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4192	1/8	3 3/16	10	100	18	\$.75
4191	1/8	3 3/8	10	100	20	.75

**With Adjustable Hickey**

The hickey is adjustable from 4 to 5 1/16 inches over all.

4190	1/8	...	10	100	21	\$.75
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**P & S Candelabra Base Sockets**

75 Watts, 125 Volts

**Female Thread**

With 1/8-Inch Female Thread Nipple

Outside diameter of porcelain body is 3/4 inch.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
347	50	100	5	\$.21



**Male Thread**

With 3/16-Inch Male Thread

27 Threads per Inch

Outside diameter of porcelain body is 3/4 inch.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
328	50	100	5	\$.21



**P & S Candelabra Base Sockets**

75 Watts, 125 Volts

With 1/8-Inch Nipple and Hickey

Designed for use on fixtures equipped with glass candles.

Outside diameter of porcelain body is 3/4 inch.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
327	50	100	5	\$.21



**P & S Porcelain Candelabra Adapters**

75 Watts, 250 Volts

An adapter to convert a medium base to a candelabra base.

Designed for use with candle sockets and candelabra base lamps.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1262	25	100	10	\$.15





**P & S Brass-Covered Outlet Receptacles**

For 3/4-Inch Outlet Boxes

660 Watts, 250 Volts



No. 1009

Brass fibre-lined shell, threaded for Uno shade holder.

Brush brass is standard finish and will be furnished unless otherwise specified.

Diameter of base, 3 21/32 inches; height over all, 1 1/2 inches. Holes for supporting screws are spaced on 2 3/4-inch centers.

With Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1009	10	50	32	\$ .45

\*With 6-Inch No. 14 Rubber-Covered Wires

\*85 10 50 36 \$ .50  
 \*Furnished with longer No. 14 rubber-covered wire leads at an advance of 4 1/2 cents per foot, each conductor.

**P & S Brass-Covered Outlet Receptacles**

For 3/4 and 4-Inch Outlet Boxes

660 Watts, 250 Volts

Brass fibre-lined shell, threaded for Uno shade-holder.

Brush brass is standard finish and will be furnished unless otherwise specified.

Diameter of base, 4 21/32 inches; height over all, 1 1/2 inches. Holes for supporting screws are spaced on 2 3/4 and 3 1/2-inch centers.



No. 1010

With Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1010	10	50	48	\$ .60

\*With 6-Inch No. 14 Rubber-Covered Wires

\*78 10 50 50 \$ .65  
 \*Furnished with longer No. 14 rubber-covered wire leads at an advance of 4 1/2 cents per foot, each conductor.

**No. 428 P & S Brass-Covered Outlet Receptacles**

For 3/4 and 4-Inch Outlet Boxes

250 Watts, 250 Volts



Brass fibre-lined shell, threaded for Uno shade holder.

Brush brass is standard finish and will be furnished unless otherwise specified.

Diameter of base, 4 21/32 inches; height over all, 2 1/4 inches.

Holes for supporting screws are spaced on 2 3/4 and 3 1/2-inch centers.

Furnished with short chain and 6 feet of linen cord and ball.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
428	10	50	66	\$1.30

**No. 1410 P & S Brass Sub-Bases**

For Outlet Boxes



The sub-base adapter is designed for use with 4-inch box base receptacles and rosettes where the outlet boxes are not flush with the surface of the wall or where the outlet boxes are tilted.

The sub-base adapter carries the receptacle or rosette base 1 inch from the wall. It is held in place by a circular lip which surrounds the devices.

Standard finish is brush brass.

Cat. No.	For Box Base Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1410	4	10	20	7	\$ .35

**P & S Porcelain 2-Piece Receptacles**

For Outlet Boxes and Ceiling Plates

Open or Concealed Wiring

660 Watts, 600 Volts



Slotted holes for supporting screws are spaced 1 15/32 inches on centers.

Outside diameter, 1 7/8 inches across flats; 2 1/8 inches across corners.

Height of receptacle, 1 7/8 inches.

The collar is threaded on the metal lamp shell and it cannot become loose nor will it turn from vibration or jar.

The base is slotted for open and concealed wiring. P & S Nos. 1160 and 1161 may be used with No. 598.

Without Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
598	10	100	28	\$ .25

With Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
599	10	100	28	\$ .30

**P & S Porcelain 2-Piece Receptacles**

For Outlet Boxes and Ceiling Plates

Open or Concealed Wiring

660 Watts, 600 Volts

Slotted holes for supporting screws are spaced 1 1/2 inches on centers.

Outside diameter, 2 5/16 inches.

The collar is held in place by a spring ratchet.

Ample wiring room is provided.

Heavy terminals.



Without Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
698	10	100	30	\$ .25

With Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
699	10	100	30	\$ .30

**P & S Porcelain Concealed Receptacles**

For Outlet Boxes and Ceiling Plates

660 Watts, 600 Volts



Holes for supporting screws are spaced 1 5/8 inches on centers.

Outside diameter of base, 2 5/16 inches.

Height of receptacle, 1 15/16 inches.

The base is cupped 5/32 inch.

Ample wiring room and rugged terminals.

Base is secured to the outside shell by twin screws in the lamp base.

Without Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4000	10	100	30	\$ .25

With Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4001	10	100	30	\$ .30

**P & S Porcelain Concealed Receptacles**

For Conduit Fittings

660 Watts, 600 Volts

Slotted holes for supporting screws are spaced 1 3/8 inches on centers. Outside diameter of base, 2 1/8 inches.

Height of receptacle, 2 inches.

The body is secured to the base by a center retaining screw and when the body is separated from the base the terminals are exposed for wiring.



Without Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
451	10	100	36	\$ .25

With Shade-Holder Groove

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
88259	10	100	36	\$ .30

Shade-holder groove is 1 1/8 inches in diameter.

**P & S Porcelain Cleat Receptacles**

For Electric Signs and Damp Places

660 Watts, 600 Volts



Provided with square recess for stove bolts in the base. Base is  $2\frac{7}{16} \times 2\frac{7}{32}$  inches. Height,  $1\frac{5}{8}$  inches. Holes for supporting bolts or screws are spaced  $1\frac{5}{8}$  inches on centers.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62358	10	100	34	\$.25

**P & S Porcelain Cleat Receptacles**

With Brass Shell for Shade-Holder

660 Watts, 250 Volts



Base is  $2\frac{5}{16} \times 2\frac{11}{16}$  inches. Height,  $1\frac{9}{16}$  inches. Supporting screws are spaced  $2\frac{3}{8}$  inches on centers.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9403	10	100	33	\$.27

**P & S Porcelain Cleat Receptacles**

For Heavy Duty

660 Watts, 250 Volts



Base is  $2\frac{5}{16} \times 2\frac{11}{16}$  inches. Height,  $1\frac{5}{8}$  inches. Supporting screws are spaced  $2\frac{3}{8}$  inches on centers.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9402	10	100	35	\$.17

**With Shade-Holder Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4013	10	100	35	\$.22

**P & S Porcelain Cleat Receptacles**

With Single Center Supporting Screw

660 Watts, 250 Volts

Diameter of base,  $1\frac{5}{8}$  inches. Height,  $1\frac{5}{8}$  inches.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*9171	10	100	27	\$.12

\*Not N. E. C. Standard.



**P & S Porcelain Cleat Receptacles**

For Signs and Surface Wiring

660 Watts, 250 Volts



Known to the trade as a Pony receptacle. Diameter of base,  $2\frac{1}{2}$  inches. Height,  $1\frac{5}{8}$  inches. Screw holes are spaced  $1\frac{3}{4}$  inches.

**With Screw Terminals**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50715	10	100	25	\$.12

**With Loop Terminals**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
50716	10	100	25	\$.12

**P & S Porcelain Cleat Receptacles**

With Concealed Terminals

660 Watts, 600 Volts



For use with decorative lighting. Designed to mount on the sharp corner of a building or structure.

Base is  $3\frac{1}{4} \times 1\frac{11}{16}$  inches. Height,  $2\frac{3}{8}$  inches. Supporting screws are spaced  $1\frac{3}{4}$  inches on centers.

Wires are carried 1 inch from surface,  $2\frac{1}{2}$  inches apart.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61971	10	100	55	\$.28

**P & S Porcelain Cleat Receptacles**

With Concealed Terminals

660 Watts, 250 Volts



Base is  $3\frac{1}{4} \times 1\frac{11}{16}$  inches. Height,  $1\frac{5}{8}$  inches. Supporting screws are spaced  $1\frac{3}{4}$  inches on centers.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
64369	10	100	43	\$.28

**With Shade-Holder Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66612	10	100	43	\$.33

**P & S Porcelain Concealed Receptacles**

For Wood Moulding or Conduit Fittings

660 Watts, 250 Volts



Base is  $2\frac{3}{4} \times 1\frac{7}{8}$  inches. Height, 2 inches. Supporting screws are spaced  $2\frac{3}{32}$  inches on centers.

**Without Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61770	10	100	35	\$.30

**With Shade-Holder Groove**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61670	10	100	35	\$.35

**P & S Conduit Box Straps**

For Attaching Receptacles to Outlet Boxes with or without Studs



Nos. 1179, 1182

Nos. 1180, 1181

Cat. No.	With Locknut Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1179	$\frac{3}{8}$	10	50	8	\$.05
1182	$\frac{1}{2}$	10	50	8	.05
1180	$\frac{3}{8}$	10	50	8	.07
1181	$\frac{1}{2}$	10	50	8	.07

## P & S Weatherproof Outlet Box Receptacles

With Removable Metal Cover

660 Watts, 600 Volts

Japanned iron cover.

Height,  $1\frac{3}{16}$  inches. Outside diameter of cover,  $3\frac{7}{16}$  inches. Holes for supporting screws are spaced  $2\frac{3}{4}$  inches on centers.

Longer wires furnished to order at  $4\frac{1}{2}$  cents per foot each conductor.



For  $3\frac{1}{4}$ -Inch Outlet Boxes

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
442	6-Inch Wires	10	100	60	\$ .35
456	Screw Terminals	10	100	51	.30

## P & S Weatherproof Outlet Box Receptacles

With Removable Metal Cover

660 Watts, 600 Volts

Japanned iron cover. With a pivot for quick removal.

Height,  $1\frac{3}{16}$  inches. Outside diameter of cover,  $4\frac{1}{16}$  inches. Holes for supporting screws are spaced  $3\frac{1}{2}$  inches on centers.

Longer wires furnished to order at  $4\frac{1}{2}$  cents per foot each conductor.



For 4-Inch Outlet Boxes

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
443	6-Inch Wires	5	100	75	\$ .40
457	Screw Terminals	5	100	72	.35

## P & S Porcelain Outlet Receptacles

With Flush Back

660 Watts, 250 Volts

These receptacles are easy to wire and are built for long severe service.



For  $3\frac{1}{4}$ -Inch Outlet Boxes

Height,  $1\frac{1}{8}$  inches. Outside diameter,  $3\frac{1}{2}$  inches. Holes for supporting screws are spaced  $2\frac{3}{4}$  inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
41	With Shade-Holder Groove	10	100	60	\$ .40

For 4-Inch Outlet Boxes

Height,  $1\frac{2}{32}$  inches. Outside diameter,  $4\frac{1}{2}$  inches. Holes for supporting screws are spaced  $3\frac{1}{2}$  inches on centers.

110	With Shade-Holder Groove	10	50	43	\$ .50
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## P & S Porcelain Weatherproof Outlet Box Receptacles

660 Watts, 600 Volts

Weatherproof highly glazed finish. With 6-inch No. 14 stranded rubber covered wires. Longer wires to order at  $4\frac{1}{2}$  cents per foot each conductor.

For  $3\frac{1}{4}$ -Inch Outlet Boxes

Height,  $1\frac{1}{8}$  inches. Outside diameter,  $3\frac{1}{2}$  inches. Holes for supporting screws are spaced  $2\frac{3}{4}$  inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
40	With Groove	10	100	76	\$ .50

For 4-Inch Outlet Boxes

Height,  $1\frac{1}{8}$  inches. Outside diameter,  $4\frac{1}{2}$  inches. Holes for supporting screws are spaced  $3\frac{1}{2}$  inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
122	With Groove	10	50	56	\$ .60

## P & S Mogul Porcelain Screw Ring Receptacles

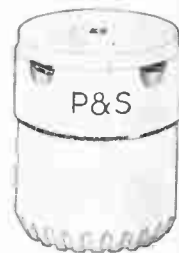
1500 Watts, 600 Volts

Diameter of hole required,  $2\frac{1}{16}$  inches.

Especially adapted to commercial units, stage lighting, theatre spot lights, and projectors.



No. 424



No. 425

Cat. No.	Description	Length Back Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
424	Exposed Terminals	$\frac{5}{16}$	10	100	72	\$ .80
425	Enclosed Terminals	$1\frac{1}{16}$	10	100	81	.90

## No. 418 P & S Mogul Porcelain Receptacles

For Conduit Box and Sign Work

1500 Watts, 600 Volts

Especially adapted to stage lighting.

Punch required is  $2\frac{3}{16}$  inches in diameter.

Supporting screws are spaced  $2\frac{3}{4}$  inches on centers.

Special spring center contact prevents loosening of lamps.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
418	1	100	70	\$ .85

## P & S Mogul Porcelain Receptacles

1500 Watts, 600 Volts



Base is  $3\frac{1}{2} \times 3\frac{1}{2}$  inches. Height,  $2\frac{7}{16}$  inches. Supporting screws are spaced  $2\frac{13}{16}$  inches on centers.

Lamp grip is furnished as standard equipment. Very rugged construction. Desirable for all types of installation.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
520	Without Groove	10	50	35	\$ .75

## P & S Mogul Porcelain Receptacles

For Battery Charging Apparatus



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
†417	Less Collar	10	50	25	\$ .60

†Not approved for general wiring.

## P & S Mogul Porcelain Receptacles

Open or Concealed Base

1500 Watts, 600 Volts

Diameter of base,  $2\frac{5}{8}$  inches. Supporting screws are spaced 2 inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
516	With Collar	10	50	38	\$ .78



**P & S Mogul Porcelain Interchangeable 2-Piece Socket Bodies**

1500 Watts, 600 Volts

The Mogul Porcelain Bodies are fitted with lamp grip as standard equipment.

Height, 3 1/4 inches. Diameter, 2 5/8 inches.

Screws are spaced 1 1/2 inches on centers.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S53	10	50	35	\$.70

**P & S Mogul Porcelain Interchangeable 1-Piece Socket Bodies**

1500 Watts, 600 Volts

Fitted with lamp grip as standard equipment.

Height, 2 1/2 inches. Diameter, 2 5/8 inches. Screws are spaced 1 1/2 inches on centers.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S54	10	50	35	\$.55

**P & S Mogul Porcelain Interchangeable Socket Bodies**

With 15-Inch Slow Burning Triple Braid No. 14 Wires

1500 Watts, 600 Volts

The Mogul Porcelain Bodies are fitted with lamp grip as standard equipment.

Height, 2 1/2 inches. Diameter, 2 5/8 inches. Screws are spaced 1 1/2 inches on centers.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S56	10	50	50	\$.70

**P & S Interchangeable Metal Caps**

For Porcelain Mogul Bodies

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MC	3/8	10	50	10	\$.30
MD	1/2	10	50	16	.30
ME	3/4	10	50	16	.30



**P & S Interchangeable Brass Lock Nut Caps**

For Porcelain Mogul Bodies

With 3/4-Inch Male Thread and Lock Nut for Shades or Fixture Fittings



Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MF	1/2	10	50	16	\$.40

**P & S Interchangeable Metal Yokes**

For Porcelain Mogul Bodies

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MG	3/8	10	50	17	\$.15
MH	1/2	10	50	17	.15
MI	3/4	10	50	17	.15



**P & S Spring Stud Receptacles**

With Bronze Washer Washer Head Spring Stud and Screw

660 Watts, 600 Volts

The spring stud has a washer head 2 5/8 inch in diameter. A heavy coil spring makes the stud self-adjusting for varying thickness of metal. The receptacle snaps into place; run one screw in from the front.

Punch required, 1 3/8 inches. Stud to screw centers, 1 13/16 inches. Length of back, 1 1/8 inches. Wires carried 1 1/4 inches from surface.



With Screw Terminals

No. 5403

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5403	25	250	60	\$.17

With Loop Terminals

5404	25	250	60	\$.17
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**P & S One-Piece Porcelain Receptacles**

For Metal Signs, Lighting Units and Outlet Boxes With Bronze Washer Head Screws

660 Watts, 600 Volts



No. 54



No. 5401

Punch required for above receptacles, 1 3/8 inches. Supporting screws are spaced 1 3/8 inches on centers. Length of back, 1 1/8 inches. Exposed screws are bronze.

With Screw Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
54	25	250	25	\$.17

With Loop Terminals

5400	25	250	25	\$.17
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With Cupped Back and Screw Terminals

5401	25	250	25	\$.17
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**P & S Anti-Paint Plugs**

Anti-Paint Plugs protect the contact shell cavity during the construction and painting of the sign. Slivers of metal and paint cannot lodge against the current carrying parts. Plugs are easily removed by piercing them with a sharp instrument or blade.

Optional equipment without charge on the following normal Edison base sign receptacles—one-piece: Nos. 54, 5400, 5401, 5403, 5404 and 61777—two-piece: Nos. 427, 432, 4003, 4035, 4109, 4132, 59108, 59427, 61988, 102704. When the plug is desired, specify "With Anti-Paint Plugs."

Standard equipment without charge on Nos. 6054, 6403 and 6878 intermediate base sign receptacles. If desired without anti-paint plugs, the fact should be specified on the order.

**No. 1169 P & S 2-Piece Threaded Chain Guide**

For use with ceiling bands and special spinnings using chain pull devices.

Punch required is 1/8-inch pipe size.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1169	50	50		\$.05



Anti-Paint Plug in No. 5403 Sign Receptacle



## P & S Porcelain Receptacles

For Stage Work, Metal Signs and Outlet Boxes

660 Watts, 600 Volts



Punch required for this receptacle is  $1\frac{3}{8}$  inches in diameter.

Holes for supporting screws are spaced  $1\frac{1}{16}$  inches on centers.

Length of back,  $1\frac{5}{16}$  inches.

Wires carried from surface 1 inch.

No. 61777 is used extensively by manufacturers of stage lighting equipment for foot lights, border lights and various other purposes.

Furnished complete with bronze screws.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61777	25	100	25	\$ .18

## P & S Porcelain Candelabra Sign Receptacles

Approved for indoor use only, for metal signs. Diameter punch required,  $2\frac{5}{32}$  inch. Holes for supporting screws, spaced  $1\frac{3}{16}$  inches on centers. Length of back,  $\frac{15}{16}$  inch. Wires carried from surface,  $\frac{13}{16}$  inch. Furnished complete with bronze screws.



Cat. No.	Watts	Volts	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
778	75	125	25	100	10	\$ .18

## P & S Porcelain Sign Receptacles

With 1-Inch Skirt—For Wood Signs

660 Watts, 250 Volts

Not N. E. C. Standard.

The hole required for this receptacle is  $1\frac{1}{2}$  inches in diameter.

Holes for supporting screws are spaced  $1\frac{3}{16}$  inches on centers.

Length of back  $\frac{1}{2}$  inch, on which wires are carried.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61072	25	100	21	\$ .17

## P & S Porcelain Receptacles

For Metal Signs and Outlet Boxes

Punch required  $1\frac{3}{8}$  inches in diameter. Holes for supporting screws are spaced  $1\frac{3}{16}$  inches on centers. Length of back,  $\frac{15}{16}$  inches. Wires carried 1 inch from surface.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61977	25	100	21	\$ .18

## P & S Porcelain Sign Receptacles

For Metal Signs—Candelabra Base

75 Watts, 125 Volts

Approved for indoor use only.

Punch required for this receptacle is  $2\frac{5}{32}$  inch in diameter.

Holes for supporting screws are spaced  $1\frac{3}{16}$  inches on centers.

Length of back,  $\frac{15}{16}$  inch.

Wires carried from surface,  $\frac{13}{16}$  inch.

Furnished complete with bronze screws.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
677	25	100	10	\$ .18

## P & S Porcelain Screw Ring Receptacles

For Signs, Fixtures and Outlet Boxes

660 Watts, 600 Volts



No. 61988

Punch required,  $1\frac{1}{2}$  inches in diameter. Wires carried from surface, 1 inch.



No. 102704

With Screw Terminals

Cat. No.	Length Back Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61988	$1\frac{1}{8}$	25	100	23	\$ .20

With Loop Terminals

439	$1\frac{1}{8}$	25	100	23	\$ .20
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With Screw Terminals Enclosed

102704	$1\frac{3}{8}$	25	100	30	\$ .25
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## P & S Porcelain Screw Ring Receptacles

For Signs, Fixtures and Outlet Boxes

660 Watts, 250 Volts



No. 59108

Punch required,  $1\frac{1}{2}$  inches in diameter. Length,  $1\frac{1}{16}$  inches with button; without button,  $\frac{13}{16}$  inch. Wires carried from surface,  $\frac{5}{8}$  inch.



No. 4109

With Screw Terminals

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59108	25	100	20	\$ .20

With Loop Terminals

4132	25	100	20	\$ .20
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With Screw Terminals Enclosed

4109	25	100	25	\$ .25
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With Cupped Back, Screw Terminals

59427	25	100	20	\$ .20
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## P & S Porcelain Screw Ring Receptacles

For Signs, Fixtures and Outlet Boxes

660 Watts, 600 Volts

Punch required,  $1\frac{1}{2}$  inches in diameter. Length,  $1\frac{3}{16}$  inches. Wire carried from surface,  $1\frac{3}{16}$  inches.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
427	25	100	25	\$ .20



## P & S Porcelain Screw Ring Receptacles

For Signs, Fixtures and Outlet Boxes

660 Watts, 250 Volts

Grooved ring for shade-holders. Punch required,  $1\frac{1}{2}$  inches in diameter. Length of back,  $\frac{13}{16}$  inch. Wires carried from surface,  $\frac{5}{8}$  inch.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4036	25	100	24	\$ .25

## P & S Wrenches

For Porcelain Ring Type Sign Receptacles

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1140	1	1	1	\$ .50

For Intermediate Base Porcelain Ring Type Sign Receptacles

1279	1	1	1	\$ .50
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## No. 1197 P & S Ring Receptacle Pliers

For use when installing standard ring receptacles in signs or lighting units. The lug formed by pliers in the metal sign face or the supporting collar of the lighting unit, engages a notch in the body and prevents turning or rotating of the receptacle.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1197	1	1	1	\$1.50



**P & S Porcelain Screw Ring Receptacles**  
For Signs, Fixtures and Outlet Boxes

660 Watts, 600 Volts

With 6-inch stranded No. 14 rubber covered wires.

Punch required, 1½ inches. Length of back, ⅞ inch.

For longer wires furnished to order, add 4½ cents list per foot each conductor.

Devices with wires can be supplied with slow burning wires on order.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4003	10	100	30	\$.28

**Porcelain Screw Rings for Receptacles**  
Nos. 59108, 4132, 4109, 59427 and 4003

61990	10	100		\$.05
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**P & S Porcelain Screw Ring Receptacles**  
For Signs, Fixtures and Outlet Boxes

660 Watts, 600 Volts

Punch required, 1½ inches in diameter. Length of back, 1 inch. With 6-inch stranded No. 14 rubber covered wires.

For longer wires furnished to order, add 4½ cents list per foot each conductor.

Devices with wires can be supplied with slow burning wires on order.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4035	10	100	30	\$.28

**Porcelain Screw Rings for Receptacles**  
Nos. 427, 61988, 439, 102704 and 4035

61989	10	100		\$.06
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**P & S Porcelain Screw Ring Receptacles**  
For Signs, Fixtures and Outlet Boxes

660 Watts, 600 Volts

Grooved ring for shade holders. Punch required, 1½ inches. Length of back, ⅞ inch.

With 6-inch stranded No. 14 rubber covered wire.

For longer wires furnished to order, add 4½ cents list per foot each conductor.

Devices with wires can be supplied with slow burning wires on order.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4037	10	100	28	\$.33
61991 Ring	10	100		.10

**P & S Porcelain Sign Receptacles**  
For Metal Signs—Candelabra Base

75 Watts, 125 Volts

Approved for indoor use only. Punch required, 2½ inch in diameter. Length of back, ⅝ inch. Wires, ¾ inch from surface. Porcelain ring and gasket.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
878	25	100	10	\$.20

**No. 1260 P & S Wrenches**  
For Porcelain Fixture Sockets

For use when installing P & S porcelain fixture sockets and P & S porcelain fixture receptacles like P & S 4103 and 4135.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1260	1	1	1	\$.50



**P & S Porcelain Screw Ring Receptacles**  
For Shallow Ceiling Pans or Spinnings

660 Watts, 250 Volts

Two-way corner slots permit the wires to swing to the side or back for close assembly.

Punch required is 1½ inches in diameter.

Length of back, ⅝-inch.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4103	With Slow Burning Wires, Non-Weatherproof	10	100	25	\$.28
4203	With Rubber-Covered Wires	10	100	25	.28
61993	Ring	10	100		.06

**P & S Porcelain Screw Ring Receptacles**  
For Shallow Ceiling Pans or Spinnings

660 Watts, 250 Volts

Two-way corner slots permit the wires to swing to the side or back for close assembly.

Punch required is 1½ inches in diameter.

Length of back, 1 inch.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4135	With Slow Burning Wires, Non-Weatherproof	10	100	25	\$.28
4235	With Rubber-Covered Wires	10	100	25	.28
61994	Ring	10	100		.06

**P & S Porcelain Screw Ring Receptacles**  
With Embossed Ring, 2⅝ Inches Wide, ¾ Inch High  
For Lighting Fixtures, Ceiling Pans and Spinnings

660 Watts, 250 Volts

Punch required is 1½ inches in diameter.

Length of back is 1⅞ inch.

The embossed ring may also be furnished on the following receptacles: 4132, 59427, 4109, 4003, 4103 and 4203.

Add the net for the proper quantity of the embossed ring to the net price for the corresponding quantity of the desired receptacle.



No. 4014

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4014	Complete Device, Screw Terminal	10	100	35	\$.30
4023	Glazed Ring Only	25	250	45	.07
4024	Unglazed Ring Only	25	250	45	.06

**P & S Porcelain Pull Receptacles**

For Lighting Fixtures

250 Watts, 250 Volts

These receptacles are fitted with porcelain clamping rings and gaskets, and are for use with units having 1½-inch throat.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
994	Insulated Chain, Cord	10	100	40	\$.91
995	8-Inch Chain	10	100	40	.75
996	Cord Only	10	100	40	.75
997	8-Inch Insulated Chain	10	100	40	.83
998	Short Chain, Cord	10	100	40	.83
999	3-Foot Chain	10	100	40	.98
61992	Skirted Ring	10	100		.08
99700	8-Inch Insulated Chain, Pendant	10	100	41	.83



## P & S Porcelain Pull Receptacles

These devices are neat in appearance. They are easy to wire and install, and are made of genuine P & S porcelain.

### For 3/4-Inch Boxes Only



No. 4010

These receptacles are regularly equipped with 8 inches of chain, nickel finish, with an insulator and pendant. They can also be supplied with short chain, long cord and ball for ceiling application, without additional charge. Diameter of base, 3/8 inches; height over all, 1 1/2 inches. Holes for supporting screws are spaced on 2 3/4-inch centers.

### Without Shadeholder Groove

Cat. No.	Description	Watts	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4010	8-Inch Insulated Nickel	250	10	50	33	\$ .50
4027	Chain.....	660	10	50	33	.78

### With Shadeholder Groove

4026	8-Inch Insulated Nickel	250	10	50	33	\$ .50
4032	Chain.....	660	10	50	33	.78

When similar device is desired in keyless, order P & S No. 41.

### With Deep Recessed Back For 3/4 and 4-Inch Boxes

Designed with a deep recessed back to simplify installation when boxes are tilted or projecting from the wall.

All of the following catalogue numbers are regularly supplied with the shadeholder groove ring and with short chain, long cord and ball. They may also be supplied with the plain ring and 8-inch chain, nickel finish with an insulator and pendant, for use as a wall bracket without additional charge.

Receptacles for 3/4-inch boxes: Diameter of base, 4 inches; height over all, 2 inches. Holes for supporting screws spaced on 2 3/4-inch centers.

Receptacles for 4-inch boxes: Diameter of base, 4 3/4 inches; height over all, 2 inches. Holes for supporting screws spaced on 3 1/2-inch centers.



No. 4012

### For Mounting on Boxes with Ears

Provided with screws for direct mounting on outlet boxes with ears.

Cat. No.	Watts	Description	Size Box In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4011	250	Short Chain, Long	3 1/4	10	50	40	\$ .50
4028	660	Cord and Ball....	3 1/4	10	50	40	.68
4058	660	Keyless.....	3 1/4	10	50	39	.32
4012	250	Short Chain, Long	4	10	50	40	.50
4029	660	Cord and Ball....	4	10	50	40	.78
4057	660	Keyless.....	4	10	50	39	.42

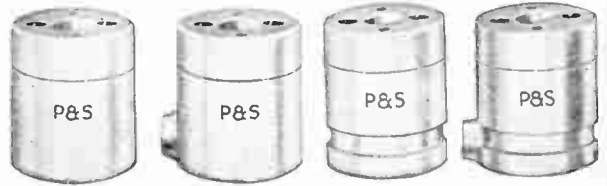
### For Mounting on Stud Boxes, Etc.

Provided with steel mounting strap, washer head screws and 3/8-inch lock nut, the following catalogue numbers are easily and quickly installed on stud boxes.

4021	250	Short Chain, Long	3 1/4	10	50	48	\$ .57
4030	660	Cord and Ball....	3 1/4	10	50	48	.75
4060	660	Keyless.....	3 1/4	10	50	47	.39
4022	250	Short Chain, Long	4	10	50	48	.57
4031	660	Cord and Ball....	4	10	50	48	.85
4059	660	Keyless.....	4	10	50	47	.49

## P & S Medium Base Porcelain 2-Piece Reflector Socket Bodies

Standard Body 660 Watts, 600 Volts  
Shurlok Body 660 Watts, 250 Volts



No. S62

No. S72

No. S63

No. S73

Standard bodies are fitted with lamp grip as standard equipment. Length of bodies, 2 1/4 inches. Diameter, 1 3/4 inches. Screws are spaced 1 3/16 inches on centers. Supporting screws are supplied with each body.

### Without Shade-Holder Groove

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S62	10	100	36	\$ .35
S72 Shurlok	10	100	48	.62

### With Shade-Holder Groove

S63	10	100	36	\$ .40
S73 Shurlok	10	100	48	.67

## P & S Interchangeable Metal Caps

### For Reflector Socket Bodies

Cat. No.	Size In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RA	3/8	10	100	30	\$ .20
RB	1/2	10	100	25	.20



No. RA



No. RB

## P & S Keyless Aluminum Shell Sockets

### Aluminum Bayonet Type Shell 660 Watts, 600 Volts

The terminals are easily reached when the body is seated in the cap.

Cat. No.	Cap Inches	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
486	3/8	10	50	15	\$ .50
487	1/2	10	50	13	.50



## P & S Keyless Aluminum Shell Sockets

### Aluminum Sleeve Type Shell 660 Watts, 600 Volts

Cat. No.	Cap. Inches	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
486-B	3/8	10	50	18	\$ .50
487-B	1/2	10	50	18	.50



## No. 8137 P & S Keyless Aluminum Shell Sockets

### With Cord Grip for Use with 1/4 to 1/2-Inch Cord

660 Watts, 600 Volts



Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
8137	10	50	15	\$ .40

## P & S Keyless Aluminum Shell Sockets

### One-Piece Body 660 Watts, 600 Volts

Cat. No.	Size In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
8138	3/8	10	50	15	\$ .40
8139	1/2	10	50	15	.40



**P & S Cold Molded Composition Weatherproof Sockets**

660 Watts, 600 Volts

These sockets are fitted with 6-inch stranded No. 14 rubber covered wires.



No. 43310

Sockets with longer wires to order, at 4½ cents list per foot each conductor.

**With Shade-Holder Bead**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43310	10	100	24	\$ .18



No. 60666

**With Shade-Holder Groove**

60666	10	100	26	\$ .20
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**P & S Colasta Weatherproof Sockets**

660 Watts, 600 Volts

These sockets are molded in material similar to bakelite, and will resist high temperature and rough handling.



No. 540 Shurlok

**With Shade-Holder Groove**

These sockets are fitted with 6-inch rubber covered wires.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
540 Shurlok	10	100	20	\$ .65
630	10	100	20	.39



No. 630

**Bracket Sockets with 3/8-Inch Female Nipple**

Fitted with 6-inch No. 18 rubber covered fixture wires.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
542	10	100	25	\$ .65
542 Shurlok	10	100	25	.92



No. 542



No. 542 Shurlok

**Bracket Sockets with 1/2-Inch Female Nipple**

Fitted with 6-inch No. 18 rubber covered fixture wires.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
633	10	100	25	\$ .65
633 Shurlok	10	100	25	.92



No. 633

Longer leads on these sockets can be supplied, and prices will be given upon application.

**P & S Porcelain Weatherproof Sockets**

660 Watts, 600 Volts

Has shade-holder groove. Fitted with 6-inch stranded No. 14 rubber covered wires. Sockets with longer wires furnished to order at 4½ cents list per foot each conductor.



**P & S Shurlok Weatherproof Sockets**

660 Watts, 600 Volts

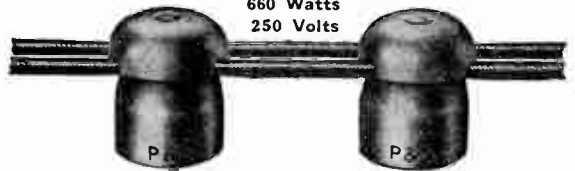
Has shade-holder groove. Fitted with 6-inch stranded No. 14 rubber covered wires. Sockets with longer wires furnished to order at 4½ cents list per foot each conductor.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9366 Shurlok	10	100	35	\$ .49



**P & S Ready Wired Cold Moulded Sockets**

660 Watts  
250 Volts



These sockets are put up in lengths of about 500 feet and will be shipped in these lengths unless otherwise specified.

Special lengths will be supplied, subject to specifications, and if wanted, extra lengths of wire can be supplied on each end of the streamer. Extra wire on the ends of the streamers will be charged for at 4½ cents per foot, list, each conductor, for No. 14 wire, and 5 cents per foot, list, each conductor, for No. 12 wire. These sockets are wired up with New Code, single braid, rubber covered, stranded wire.

Quotations furnished on any spacing of sockets and delivery. These goods are packed in barrels unless reels are specified. Extra charge to cover cost of reels.

**Wired with No. 14 Wires**

**Wired with No. 12 Wires**

Cat. No.	Sockets Centered Inches	Std. Pkg.	Price per 100	Cat. No.	Sockets Centered Inches	Std. Pkg.	Price per 100
220	4	250	\$31.00	255	4	250	\$33.60
222	6	250	32.50	257	6	250	35.50
229	12	250	37.00	263	12	250	40.20
236	18	250	41.50	269	18	250	45.15
248	24	250	46.00	275	24	250	50.10
254	30	250	50.50	281	30	250	55.10

**P & S Decorative Sockets**

For Temporary Work

Edison Base Size

660 Watts, 250 Volts



No. 464

Contact screws are sharp-pointed; designed to puncture insulation and make contact with the wires.

Wires may be used repeatedly as the insulation heals when sockets are removed.

Stranded wires are recommended for these sockets.

**Cold Moulded Type**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
464	10	250	62	\$ .30

**Porcelain Type**

61417	10	250	73	\$ .24
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**P & S Porcelain Suspension Cleats**

660 Watts, 600 Volts

Intended for use in decorative festoon work to relieve conductor wires of strain. For use where streamers are of considerable length.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
430	Wires 3/4 In. Apart	10	100	10	\$ .07
291	Wires 2 1/2 In. Apart	10	100	22	.12



**P & S Porcelain Weatherproof Sockets**

660 Watts, 600 Volts

Has shade-holder bead.

Fitted with 6-inch stranded No. 14 rubber covered wires. Sockets with longer wires furnished to order at 4½ cents list per foot each conductor.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
80	10	100	30	\$ .16

**P & S Miniature Weatherproof Receptacles**

75 Watts, 125 Volts

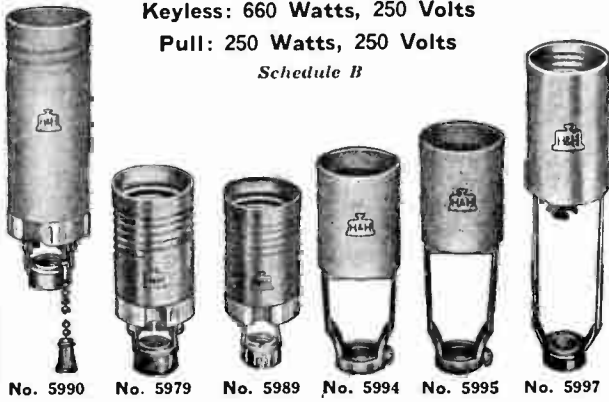
Fitted with 6-inch No. 18 rubber covered fixture wires. Sockets with longer wires furnished to order at 4½ cents list per foot each conductor. Punch required is 3/32 inch in diameter.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
422	Keyless	50	100	7	\$ .25

## H & H Fixed Length Candle Sockets

Keyless: 660 Watts, 250 Volts  
 Pull: 250 Watts, 250 Volts  
 Schedule B



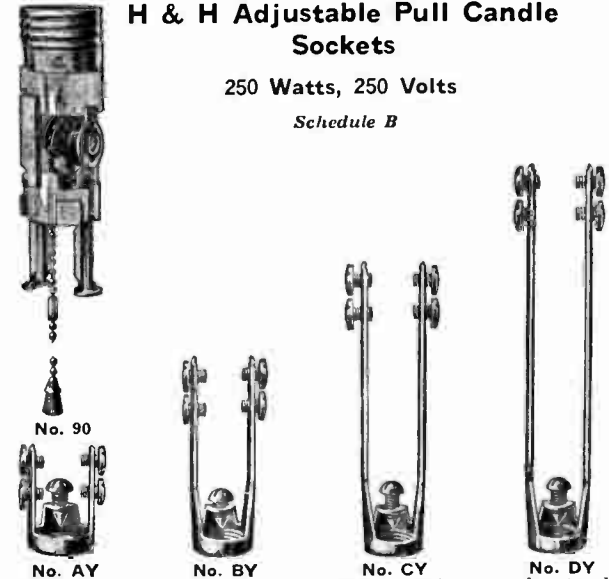
H & H removable golden tassel is standard equipment on No. 5990. Chain has easily removable splicing link. The standard finish on pull chain is brush brass, but nicked finish will be supplied without extra charge when specified. For other finishes, add the difference between the pull and key sockets.

The standard length of chain on pull-candle sockets is 5 inches below the bottom of threaded nipple. For longer chain add 10 cents per foot for standard finishes, 12 cents for special and 20 cents for silver finish.

Cat. No.	Description	Ht. Over All, In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5990	Pull, with 1-Piece Yoke.....	3 3/4	10	100	30	\$.75
5979	Keyless, with 2-Piece Yoke..	2 5/8	25	250	20	.16
5989	Keyless, with Center Hole and 1-Piece Yoke.....	2 3/4	25	250	30	.16
5994	Keyless with Solid 1-Piece Yoke.....	3 1/8	25	250	35	.16
5995	Keyless with Solid 1-Piece Yoke...	3 1/2	25	250	37	.16
5997	Keyless with Solid 1-Piece Yoke...	5	25	250	40	.16

## H & H Adjustable Pull Candle Sockets

250 Watts, 250 Volts  
 Schedule B



Yokes may be assorted in carton quantities to make standard packages. Yokes only tapped for 1/8-inch fixture stud. All yokes are provided with set screw for locking socket rigidly to fixture stud.

Cat. No.	Description	OVER ALL LENGTH, IN.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Min.	Max.				
AY	1-Inch Yoke.....	25	100	3	\$.05		
BY	2-Inch Yoke.....	25	100	4	.05		
CY	3-Inch Yoke.....	25	100	5	.05		
DY	4-Inch Yoke.....	25	100	6	.05		
AY-90	Pull Body with 1-Inch Yoke	4	4 11/16	10	100	12	.75
BY-90	Pull Body with 2-Inch Yoke	5	5 11/16	10	100	13	.75
CY-90	Pull Body with 3-Inch Yoke	6	6 11/16	10	100	14	.75
DY-90	Pull Body with 4-Inch Yoke	7	7 11/16	10	100	15	.75
90	Pull Body without Yoke			10	100	10	.70

## H & H Adjustable Keyless Candle Sockets

660 Watts, 250 Volts  
 Schedule B



When specified, No. 5998 will be furnished with hole in end of slots so that the yoke may be removed without taking out the adjusting screws. This is called button-hole type and is designated by adding the letter B to the catalogue number, thus: No. 5998-B. There is no extra charge for sockets with button-hole yokes.

Sockets may be supplied with set screws without extra charge when specified.

Cat. No.	Adjustment Inches	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5998	3 15/16 to 5 5/8	25	250	44	\$.17
5996	3 7/8 to 5 3/16	25	250	44	.17
6000	5 11/16 to 7 1/2	25	100	20	.18

## No. 860 H & H Porcelain Keyless Outlet Box Receptacles

With Weatherproof Shadeholder Groove  
 For 3 1/4 and 4-inch Outlet Boxes  
 660 Watts, 250 Volts



Diameter, 4 5/8 inches.  
 Screw hole spacings, 2 3/4 and 3 1/2 inches on centers.

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
860	B	1	24	30	\$.60

## H & H Porcelain Pull Outlet Box Receptacles

For 3 1/4 and 4-inch Outlet Boxes  
 250 Watts, 250 Volts



No. 829 is furnished with 6-foot cord and short chain; No. 830 is furnished with 7-inch chain and insulator. Nickel chain is standard.

Cat. No.	Diam. In.	Screw Hole Spacings on Centers, In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
829	4 5/8	2 3/4 and 3 1/2	1	24	32	\$1.20
830	4 5/8	2 " 3 1/2	1	24	31	1.20

## H & H Sign Receptacle Wrenches and Pliers

Schedule B



Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6090	Sign Receptacle Pliers....	1	1	3 1/4	\$1.50
1140	Porcelain Ring-Type Sign Receptacle Wrench.....	1	10	2	.50

## No. 98 Benjamin Mogul Socket Reducers

660 Watts, 250 Volts

For adapting mogul screw base sockets for use with medium screw base lamps. Both threaded shells are made of copper. Standard package, 10.

Weight, standard package, 1 1/2 pounds.

Price, No. 98.....each \$3.50



**H & H 2-piece Sign Receptacles**  
With Removable Ring

Schedule B



No. 6092



No. 6094



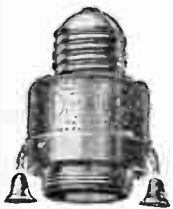
No. 4003

Have notched bases and may be fitted into corresponding projections in the metal sign. It cannot be turned or twisted out of position. Rubber gaskets are standard but asbestos gaskets furnished without extra charge when specified.

No.	Description	Ring Dpth. In.	Car-Back In.	Std. ton	Wt. Pkg.	Lbs. Std.	Price Pkg. Each
6092	Shallow; Covered Terminals and Wire Grooves	5/8	1 3/8	10	100	27	\$ .25
6093	Covered Terminals and Wire Grooves	7/16	1 23/32	10	100	36	.25
*4003	Shallow with No. 14 B & S Stranded Rubber Covered Wires	5/8	1 3/8	10	100	28	.28
6094	Same as 4003 without Wire Leads	5/8	1 3/8	10	100	26	.20

\*Longer wires at 4 1/2 cents per foot per conductor.

**No. 23W Dim-A-Lite Attachments**



For dimming or turning down a single incandescent lamp.

Can be used with either carbon or Mazda lamps up to 40 watts. Suitable for any current, either d.c. or a.c. Operated by a simple pull of chain which gives five changes of light: full, low, dim, nitelite and out.

Portable, interchangeable type. Brush brass finish. Fits any fixture or chandelier socket and takes any ordinary lamp.

Approved by Underwriters. Standard package 100. Weight of standard package, 33 pounds.

Price, No. 23W ..... each \$ .75  
110 volts furnished unless otherwise ordered. Add 10 cents for 220 volts. Add 10 cents for 32 volts.  
For special finishes, add 25 cents.

**No. 33 Dim-a-lite Pull-chain Sockets**



Dim-a-lite pull-chain socket is permanently wired to any electric light fixture or lamp, just the same as an ordinary pull-chain socket. It replaces and improves upon standard pull-chain sockets.

Giving maximum comfort and convenience at minimum cost, Dim-a-lite socket gives five changes of light and saves 30% to 80% current at the meter.

For dimming or turning down a single incandescent lamp. Can be used with either carbon or Mazda lamps up to 50 watts. Suitable for any current, either direct or alternating. Standard package, 100.

Price, No. 33 ..... each \$1.25  
110 volts furnished unless otherwise ordered. Add 10 cents for 220 volts. Add 10 cents for 32 volts.  
For special finishes, add 25 cents.

**No. 732 Bryant Banner Shade-holders**

A two-part device which holds the shade between the two parts. Can be used with shades which have no shade-holder rim and presents a neat appearance. Fastens to the socket by means of the Uno thread.

Standard finish, brush brass.



Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price 100 Fin.
732	D	2 1/4-inch	50	500	49		\$8.00

**Benco Weatherproof Sockets**

Keyless Type—Medium Base

660 Watts, 600 Volts



No. 4200

Benjamin Type S Shade Holders and Reflectors may be attached to screw thread at bottom of socket. Three finishes: Brushed brass for interior lighting, polished aluminum for general weatherproof work and natural copper for severe conditions such as seaboard service. Benjamin Lamp Grip, to prevent loosening of lamps under conditions of severe vibration supplied with sockets at 15 cents advance in list.

**Tapped for 1/2-Inch Iron Pipe Connection**

No.	Casing Material	Finish	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4200	Aluminum	Pol. Alum.	10	3	\$ .70
4202	Brass	Brush. Brass	10	3	.85
4204	Copper	Nat. Copper	10	3	.70

**Tapped for 3/8-Inch Iron Pipe Connection**

No.	Casing Material	Finish	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4201	Aluminum	Pol. Alum.	10	3	\$ .70
4203	Brass	Brush. Brass	10	3	.85
4205	Copper	Nat. Copper	10	3	.70

**Bushed for Drop Cord Up to 1/2-Inch Diameter**  
Have strain relief effective on 16 gauge and larger conductors.

No.	Casing Material	Finish	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4335	Aluminum	Pol. Alum.	10	3	\$ .70
4336	Brass	Brush. Brass	10	3	.85
4337	Copper	Nat. Copper	10	3	.70

**Benco Pull Chain Sockets**

660 Watts, 250 Volts—Medium Base



No. 4207

Benjamin Type S Shade Holders and Reflectors may be attached to screw threads at bottom of socket. Enclosing shell has no opening to admit moisture. Chain passes down through a space inside, thoroughly insulated from current carrying parts. Interior is of molded composition.

Sockets have Benjamin lamp grip.

Cat. No.	Description	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4225	Polished Aluminum	1/2	10	3 1/4	\$1.40
4207	Brushed Brass	1/2	10	3 1/4	1.40
4236	Natural Copper	1/2	10	3 1/4	1.40
4226	Polished Aluminum	3/8	10	3 1/4	1.40
4208	Brushed Brass	3/8	10	3 1/4	1.40
4237	Natural Copper	3/8	10	3 1/4	1.40

**Pull Socket Interior Only**

4209	Molded Composition		10	2 1/4	\$1.05
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**Benco Threaded Type S Holders**

For Medium Screw Base Benco Sockets and Outlet Box Fittings



2 1/4-Inch Holder

These holders are equipped with holder screws and are made to fit any glass or metal reflectors with standard neck sizes.

**Polished Aluminum Holders—Weatherproof**

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4215	2 1/4	10	3 3/8	\$ .28
4217	3 1/4	10	3 1/4	.50

**Natural Copper Holders—Weatherproof**

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4370	2 1/4	10	7/8	\$ .30
4372	3 1/4	10	1 5/8	.50
4373	4	10	2	.80



3 1/4-Inch Holder

**Brushed Brass Holders**

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4377	2 1/4	10	7/8	\$ .30
4379	3 1/4	10	1 1/4	.50
4380	4	10	1 7/8	.80



4-Inch Holder

## Benjamin 1-Piece Mogul Base Porcelain Sockets

1500 Watts, 600 Volts



No. 69



No. 169

Screw holes are spaced  $1\frac{1}{2}$  inches on centers.

### Open Terminals

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
69	Less Lamp Grip	10	4 $\frac{1}{2}$	\$.77
691	With Lamp Grip	10	4 $\frac{1}{2}$	.92

### Concealed Terminals

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
169	Less Lamp Grip	10	4 $\frac{1}{2}$	\$.77
692	With Lamp Grip	10	4 $\frac{1}{2}$	.92

## Benjamin 2-Piece Mogul Base Porcelain Sockets

1500 Watts, 600 Volts



No. 695



No. 698

Nos. 693 and 695 have screw holes spaced  $1\frac{1}{4}$  inches on centers.

Nos. 696 and 698 are slotted for  $1\frac{1}{2}$  to  $1\frac{3}{4}$  inches on centers.

### Open Terminals

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
693	Less Lamp Grip	10	6	\$.98
695	With Lamp Grip	10	6	1.13

### Concealed Terminal

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
696	Less Lamp Grip	10	6	\$.98
698	With Lamp Grip	10	6	1.13

## Benjamin Metal Caps and Yokes

For Mogul Base Porcelain Sockets

1500 Watts, 600 Volts



No. 2567 Cap



No. 3846 Yoke



No. 2568 Cap



No. 3847 Yoke

Nos. 2567 and 2568 have screw holes spaced on both  $1\frac{1}{2}$  and  $1\frac{1}{2}$ -inch centers.

Nos. 3846 and 3847 have screw holes spaced on both  $1\frac{1}{2}$  and  $1\frac{3}{4}$ -inch centers.

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2567	$1\frac{1}{2}$	Cast Aluminum Cap	10	1 $\frac{1}{2}$	\$.42
3846	$1\frac{1}{2}$	Cast Iron Yoke	10	2 $\frac{1}{2}$	.21
2568	$3\frac{3}{8}$	Cast Aluminum Cap	10	1 $\frac{1}{2}$	.42
3847	$3\frac{3}{8}$	Cast Iron Yoke	10	2 $\frac{1}{2}$	.21

## Bryant Ventilated Uno Shade-holders

Schedule D



No. 501



No. 504

The Uno shade-holders are designed to attach directly to the threaded bead which is a standard feature of all Bryant brass shell medium base sockets and receptacles.

Made in one piece, economical in first cost and to attach. Brush brass is standard finish.

### With Screws to Hold Shade

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	PRICE, PER 100	
					Finished	Unfinished
501	2 $\frac{1}{4}$	50	500	33	\$6.00	*\$5.50
503	H & 2 $\frac{1}{4}$	25	250	31	15.50	*13.75
505	3 $\frac{1}{4}$	25	250	34	14.85	*13.05
511	4	10	100	27	20.55	*18.35

### With Spring Grip to Hold Shade

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, per 100 Finished	Price, per 100 Unfinished
502	2 $\frac{1}{4}$	50	250	20	\$9.25	\$8.75
504	H & 2 $\frac{1}{4}$	25	100	17	\$15.90	14.20
506	3 $\frac{1}{4}$	25	100	19	19.90	17.50

### Wires only, for Spring Grip Shade-holders

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, per 100 Finished	Price, per 100 Unfinished
...	2 $\frac{1}{4}$ H	..	250	..	\$3.00	\$3.00
...	3 $\frac{1}{4}$	..	250	..	4.00	4.00

\*Unfinished shade-holders are furnished with shade-holder screws separate from the shade-holders.

## Bryant Solid Uno Shade-holders

Schedule D

Uno Shade-holders are designed to attach directly to the threaded bead of all Bryant brass shell medium base sockets and receptacles. Standard finish, brush brass.

### With Screws to Hold Shade



No. 533

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, per 100 Finished	Price, per 100 Unfinished
532	2 $\frac{1}{4}$	50	500	33	\$8.50	*\$7.75
534	3 $\frac{1}{4}$	25	250	39	15.90	*14.20
536	4	10	100	27	23.45	*21.65

### With Spring Grip to Hold Shade

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, per 100 Finished	Price, per 100 Unfinished
533	2 $\frac{1}{4}$	50	250	22	\$9.05	\$8.00
535	3 $\frac{1}{4}$	25	100	20	19.35	17.85

### Wires only, for Spring Grip Shade-holders

Cat. No.	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, per 100 Finished	Price, per 100 Unfinished
...	2 $\frac{1}{4}$ H	..	250	..	\$3.00	\$3.00
...	3 $\frac{1}{4}$	..	250	..	4.00	4.00

\*Furnished with screws separate from shadeholders.

## Bryant Shade-holders for Screw Ring Porcelain Receptacles



No. 521



No. 522

Supported by porcelain ring which forms part of the receptacle. Ventilated. Standard finish, brush brass.

Cat. No.	Sched-ule	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100 Finished
521	D	2 $\frac{1}{4}$	25	100	16	\$15.00
522	D	3 $\frac{1}{4}$	25	50	9	20.00

## Bryant Weatherproof Shade-Holders

May be used with any porcelain or composition socket or receptacle which is provided with a shade-holder groove.



Cat. No.	Sched-ule	Size Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100 Finished
628	D	2 $\frac{1}{4}$	25	250	23	\$8.50
629	D	3 $\frac{1}{4}$	10	100	17	16.25

**Bryant Emergency Shade-holders**



No. 443

Designed specially for use in connection with medium screw base porcelain sockets and receptacles on not over 250 volts. The method of attachment is by means of a screw shell, thoroughly insulated from the holder itself, which threads onto the outside of the screw shell of the lamp socket without in any way interfering with the use of the lamp. May also be used with most porcelain sockets and receptacles of other manufacture. Emergency shade-holders are made with spring grip only.

Standard finish, brush brass.

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price per 100 Fin.
443	D	2 1/4-inch, Solid	25	100	10		\$20.00
444	D	Form H (2 1/4-inch, Ventilated)	10	50	9		25.00
445	D	3 1/4-inch, Ventilated	10	50	9		30.00

**Bryant Threaded Weatherproof Shade-holders**

Schedule D



No. 3702

Fit sockets Nos. 3706-8 and 3726-8. Standard finish, brush brass.

**Without Ventilating Holes, Aluminum**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price per 100 Each
3700	2 1/4-inch with 3 Screws	10	50	8		\$ .20
3702	3 1/4 " " 3 " "	10	50	10		.30
3704	4 " " 3 " "	10	50	12		.40

**Without Ventilating Holes, Copper**

3720	2 1/4-inch with 3 Screws	10	50	10		\$ .20
3722	3 1/4 " " 3 " "	10	50	13		.30
3724	4 " " 3 " "	10	50	15		.40

**With Ventilating Holes, Aluminum**

3710	2 1/4-inch with 3 Screws	10	50	7		\$ .20
3712	3 1/4 " " 3 " "	10	50	9		.30
3714	4 " " 3 " "	10	50	11		.40

**With Ventilating Holes, Copper**

3730	2 1/4-inch with 3 Screws	10	50	9		\$ .20
3732	3 1/4 " " 3 " "	10	50	12		.30
3734	4 " " 3 " "	10	50	14		.40

**G-E Ventilated Type Uno Shade Holders**

Brushed brass, standard finish.



No. 501

Cat. No.	Size In.	Equipped With	Std. Pkg.	Sched-ule	Car-ton	PRICE, PER 100 Fin-ished	Unfin-ished
501	2 1/4	Screws	500	B	50	\$12.00	\$11.00
505	3 1/4	"	250	B	25	29.70	26.10
511	4	"	100	B	10	41.10	36.70

**G-E Solid Type Uno Shade Holders**

Brushed brass, standard finish.



No. 532

Cat. No.	Size In.	Equipped With	Std. Pkg.	Sched-ule	Car-ton	PRICE, PER 100 Fin-ished	Unfin-ished
532	2 1/4	Screws	500	B	50	\$17.00	\$15.50
534	3 1/4	"	250	B	25	31.80	28.40
536	4	"	100	B	10	46.90	43.30

**G-E Solid Type Uno Shade Holders**

Brushed brass, standard finish.



No. 533

Cat. No.	Size In.	Equipped With	Std. Pkg.	Sched-ule	Car-ton	PRICE, PER 100 Fin-ished	Unfin-ished
533	2 1/4	Spring	250	B	50	\$18.10	\$16.00

**G-E Ventilated Type Uno Shade Holders**

Brushed brass, standard finish.



No. 502

Cat. No.	Size In.	Equipped with	Std. Pkg.	Sched-ule	Car-ton	PRICE, PER 100 Fin-ished	Unfin-ished
502	2 1/4	Spring	250	B	50	\$18.50	\$17.50

**Hubbell Shade Holders**

Hubbell Shade Holders with contractile collar will fit threaded shell sockets equally as well as the beaded shell. Standard finish is brush brass.

The contractile collar type is recommended where absolute security is desired.

Special finishes listed on another page.

**Hubbell 3-Screw Type Shade Holders**

With Contractile Collars

Schedule D



No. 5339



No. 5594

Standard finish, brush brass.

Cat. No.	Size Inches	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price per 100
5339	2 1/4	Ventilated, Finished	50	500	30		\$6.00
5339	2 1/4	Ventilated, Unfinished	50	500	30		5.50
5594	2 1/4	Solid Top, Finished	50	500	32		8.50
5594	2 1/4	Solid Top, Unfinished	50	500	32		7.75
5340	3 1/4	Ventilated, Finished	25	250	27		14.85
5340	3 1/4	Ventilated, Unfinished	25	250	27		13.05
5596	3 1/4	Solid Top, Finished	25	250	30		15.90
5596	3 1/4	Solid Top, Unfinished	25	250	30		14.20
5595	4	Ventilated, Finished	25	100	15		20.55
5595	4	Ventilated, Unfinished	25	100	15		18.35
5597	4	Solid Top, Finished	25	100	16		23.45
5597	4	Solid Top, Unfinished	25	100	16		21.65

Price, No. D1675, Finished, Separate Split Rings, Standard Package, 200..... per 100 \$2.00

**Hubbell Direct Threading 3-Screw Type Shade Holders**

Schedule G



No. 501



No. 505

These shade holders can be furnished less screws, un-tapped and unfinished. Prices quoted upon application. Standard finish is brush brass.

Cat. No.	Size Inches	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price per 100
501	2 1/4	Finished, Ventilated	50	500	30		\$6.00
501	2 1/4	Unfinished, Ventilated	50	500	30		5.50
505	3 1/4	Finished, Ventilated	25	250	37		14.85
505	3 1/4	Unfinished, Ventilated	25	250	37		13.05

**No. 5528 Hubbell Shade Holders**

Locking Spring Type  
Schedule D



Ventilated. Size, 2 1/4 inches. Carton, 50. Standard package, 250. Weight, 17 pounds. Standard finish, brush brass.

Price, Finished..... per 100 \$9.25  
Price, Unfinished..... per 100 8.75



## Hubbell Shade Holders

For Medium Base Weatherproof Sockets



No. 6633



No. 6634

Standard finish is brush brass.

Cat. No.	Schedule	Size Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
6633	D	2 1/4	25	200	25	\$8.50
6634	D	3 1/4	10	100	15	16.25
6635	D	4	10	100	20	32.00

## Hubbell Pull Socket Attachments

The No. 5957 line listed below is of the same general design as the No. 5828 line. To adapt them for use with porcelain pull sockets the diameter of the shell band is slightly increased. All attachments for 14, 16, 18, 20 and 22-inch reflectors are supplied with a reinforced arm extending from the shell band to the rocker arm to neutralize the increased leverage.



The prices below cover attachments in brush brass finish. Special finishes same advance as socket caps.

### For Brass Shell Pull Sockets

Cat. No.	Schedule	For Reflectors Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5828	F	8, 10 and 12	25	100	8	\$.25
5829	F	14	25	100	9	.25
5953	F	16	25	100	24	.30
5954	F	18 and 20	25	100	24	.30
6317	F	22	25	100	25	.40

### For Porcelain Pull Sockets

Cat. No.	Schedule	For Reflectors Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5957	F	8, 10 and 12	25	100	8	\$.25
5958	F	14	25	100	9	.25
5959	F	16	25	100	24	.30
5960	F	18 and 20	25	100	24	.30
5961	F	22	25	100	25	.40

## P & S Aluminum Shade-Holders

For Nos. 486-B and 487-B Aluminum Sockets



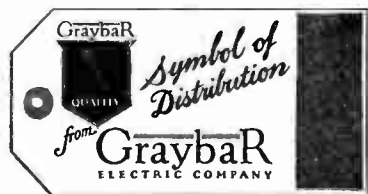
No. 1247



No. 1248

The shade-holders are gripped firmly between the shell and the bead on the porcelain body of Nos. 486-B and 487-B.

Cat. No.	Size In.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
1247	2 1/4	10	50	3	\$20.00
1248	3 1/4	10	50	4	30.00



## Bryant Unit Wall Brackets

250 Watts, 250 Volts

With Brass Covered Base

Distance from wall to center of socket, 3 1/8 inches. Fitted with 8 inches of No. 6 chain. Standard finish, brush brass. For small Undark luminous pendant, add 25 cents. For Brylock feature, add 27 cents.

### For 3/4-Inch Boxes

Diameter of base, 3 5/8 inches. Supporting screw spacings, 2 3/4 inches.



No. 674

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
674	H	1	10	9	\$2.00

### For 3/4-Inch and 4-Inch Boxes

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
675	H	1	10	13	\$2.15

## Bryant Compact Wall Brackets

250 Watts, 250 Volts

With Porcelain Base

Distance from wall to center of socket, 2 3/8 inches. Fitted with 8 inches of No. 6 chain. Standard finish, brush brass. For small Undark luminous pendant, add 25 cents. For Brylock feature, add 27 cents.

### For 3/4-inch Boxes

Diameter of base, 3 1/2 inches. Supporting screw spacings, 2 3/4 inches.



No. 684

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
684	H	1	50	60	\$1.10

### For 3/4-inch and 4-inch Boxes

Diam. of base, 4 5/8 inches. Screw spacings, 2 3/4 and 3 1/2 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
685	H	1	50	82	\$1.17

## Bryant Brass-covered Wall Bracket Bases

With 3/8-inch Male Stud

Distance from surface of wall to end of stud, 2 1/4 inches.

Standard finish, brush brass.

Machine screws for mounting, furnished.

### For 3/4-inch Box

Diameter of base, 3 5/8 inches.

Supporting screw spacings, 2 3/4 inches.



No. 694

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
694	H	10	50	36	\$.60

### For 3/4-inch and 4-inch Boxes

Diameter of base, 4 5/8 inches.

Supporting screw spacings, 2 3/4 and 3 1/2 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
695	H	10	50	60	\$.70

## Bryant Porcelain Wall Bracket Bases

With 3/8-inch Male Stud

Suitable machine screws for mounting are furnished with these bases.

### For 3/4-inch Box

Diameter of base, 3 1/2 inches.

Height, 1 inch.

Supporting screw spacings, 2 3/4 inches.



No. 772

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
772	H	10	100	66	\$.24

### For 3/4-inch and 4-inch Boxes

Diameter of base, 4 5/8 inches.

Height, 1 inch.

Supporting screw spacings, 2 3/4 and 3 1/2 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
773	H	10	100	110	\$.31

**Bryant Porcelain Junior 2-Piece Rosettes**

**Cleat Base**

Main diam., 2 1/2 in. Diam. over lugs, 2 3/4 in. Ht., 1 3/4 in. Screw spacings, 1 5/8 in.

With Fusible Cap—2 Amp., 125 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1501	H	10	100	41	\$ .20
297	H	10	100	42	\$ .16



No. 1501

**No. 39235 Geco Ceiling Rosettes**

660 Watts, 250 Volts

Schedule G, Class 2

Double pole, fuseless, for cleat work.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
39235	10	100	41	\$ .32

**No. 39237 Geco Ceiling Rosettes**

660 Watts, 250 Volts

Schedule G, Class 1

Double pole, fuseless, for concealed work.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
39237	10	100	44	\$ .32

**No. 39239 Geco Ceiling Rosettes**

660 Watts, 250 Volts

Schedule G, Class 1

Double pole, fuseless, for moulding work.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
39239	10	100	41	\$ .32

**No. 43111 G-E Ceiling Rosettes**

Schedule G Class 1

660 Watts, 250 Volts

One-piece, fuseless, for cleat or concealed work.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
43111	10	100	23	\$ .20

**P & S Little Gem Concealed Rosettes**

Diameter of base, 2 1/4 inches. Height, 1 5/8 inches. Holes for supporting screws are spaced 1 13/32 inches on centers.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*390	10	100	46	\$ .20

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
79	10	100	46	\$ .16

\*Not N. E. C. Standard.

**P & S Little Gem Cleat Rosettes**

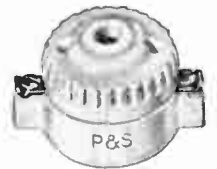
Base is 2 1/16 x 2 7/8 inches. Holes for supporting screws are spaced 1 1/2 inches on centers.

2-Piece Fusible  
2 Amperes, 125 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*400	10	100	40	\$ .20

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
76	10	100	40	\$ .16

\*Not N. E. C. Standard.



**P & S Little Gem Moulding Rosettes**

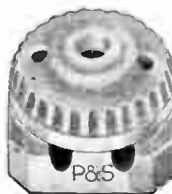
Base is 2 1/16 x 2 1/16 inches. Holes for supporting screws are spaced 1 21/32 inches on centers.

2-Piece Fusible  
2 Amperes, 125 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*810	10	100	42	\$ .20

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
176	10	100	42	\$ .16

\*Not N. E. C. Standard.



**Bryant Porcelain Junior Two-piece Rosettes**

**Concealed Base**

Outside diam. of base, 2 1/2 in. Ht., 2 1/8 in. Supporting screw spacings, 1 5/8 in.

With Fusible Cap—2 Amp., 125 Volts

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1502	H	10	100	49	\$ .20
298	H	10	100	50	\$ .16



No. 1502

**Bryant Junior One-piece Rosettes**

**Cleat and Concealed Combined—Fuseless**

660 Watts, 250 Volts

Main diameter, 2 5/8 inches; diameter over lugs, 2 3/4 inches. Height, 1 5/8 inches. Screw holes spaced 1 1/4 in. on centers.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1999	H	10	100	20	\$ .10



**Bryant Porcelain 1-Piece Fuseless Rosettes**

660 Watts, 250 Volts

For 3 1/4-Inch Outlet Boxes

Outside diameter, 3 1/2 inches. Height, 1 inch. Supporting screw spacings, 2 3/4 inches. Machine screws furnished for mounting.



No. 572

Plain Rosettes

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
572	H	10	50	29	\$ .10

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
574	H	10	50	31	\$ .22

Rosettes with Binding Screw Terminals

For 4-Inch Outlet Boxes

Outside diameter, 4 1/2 inches. Height, 1 inch. Supporting screw spacings, 3 1/2 inches. Machine screws furnished.

Plain Rosettes

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
573	H	5	50	52	\$ .17

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
575	H	5	50	55	\$ .30



No. 574

**Bryant Outlet Box Covers**

Center holes of these outlet box covers are filled with white wax knock-outs.

Suitable machine screws for mounting these devices are furnished.



No. 672

For 3 1/4-inch Box

Diameter of base, 3 1/2 inches. Height, 1 inch. Supporting screw spacings, 2 3/4 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
672	II	10	100	64	\$ .12

For 3 1/4-inch and 4-inch Boxes

Diameter of base, 4 5/8 inches. Height, 1 inch. Supporting screw spacings, 2 3/4 and 3 1/2 inches.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
673	II	5	100	110	\$ .20

## P & S Porcelain Concealed Rosettes

Diameter, 2½ inches. Height, 1¾ inches. Holes for supporting screws are spaced 1¾ inches on centers.

**2-Piece Fuseless**  
660 Watts, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
604	10	100	44	\$ .19



## P & S Porcelain Concealed Terminal Cleat Rosettes

Base is 1x3 inches. Height, 1½ inches. Holes for supporting screws are 1¾ inches on centers.

**2-Piece Fuseless**  
660 Watts, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
607	25	100	27	\$ .17



## P & S Concealed Porcelain Rosettes

**For Wood Moulding or Conduit Fittings**

Base is 2¾x1½ inches. Height, 1½ inches. Holes for supporting screws are spaced 2¾ inches on centers.

**2-Piece Fuseless**  
660 Watts, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
610	10	100	25	\$ .17



## P & S Cleat or Concealed Rosettes

Base is 2¾x2¾ inches. Height, 1¼ inches. Holes for supporting screws are spaced 1¾ inches on centers.

**1-Piece Fuseless**  
660 Watts, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1999	10	100	24	\$ .10



## P & S Porcelain Outlet Box Covers

These covers are without brass fittings.

Each carton contains extra outlet box screws.



### For Use on 3¼-Inch Boxes Only

Screw holes spaced 2¾ inches. Outside diameter, 3½ inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1172	Fuseless for Pendant	10	100	43	\$ .10
1167	Porcelain Blank Cover	10	100	46	.12

### For Use on 4-Inch Boxes Only

Screw holes spaced 3½ inches. Outside diameter, 4½ inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1173	Fuseless for Pendant	5	100	90	\$ .17
1168	Porcelain Blank Cover	5	100	90	.20

## P & S Porcelain Outlet Box Rosettes

660 Watts, 250 Volts

These rosettes are fitted with brass terminals.

Each carton contains extra outlet box screws.



### For Use on 3¼-Inch Boxes Only

Screw holes spaced 2¾ inches. Outside diameter, 3½ inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1174	Fuseless for Pendant	10	100	52	\$ .22

### For Use on 4-Inch Boxes Only

Screw holes spaced 3½ inches. Outside diameter, 4½ inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1175	Fuseless for Pendant	5	100	90	\$ .30

## No. 170 P & S Porcelain Rosette Ceiling Buttons

Glazed



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
170	50	250	50	\$ 5.70

## P & S Pull Canopy Fixture Switch Rosettes

10 Amperes, 125 Volts  
5 Amperes, 250 Volts

Can be used on 3¼ or 4-inch outlet boxes. Supplied with cord and ball.

Outside diameter of base is 4½ inches. Height of rosette, 3¾ inches. Brass canopy snaps on or off without the use of tools.



With ¾-Inch Nipple

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1211	5	20	35	\$ 1.75

With Porcelain Bushing

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1213	5	20	35	\$ 1.75

Keyless, with Porcelain Bushing

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1214	5	20	30	\$ 1.00

## No. 1170 P & S Brass Socket Loops

Has threaded shank ¼ inch long and ½-inch male thread.

For other than brass finish add 2 cents list each.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1170	50	100	5	\$ .11

## No. 1171 P & S Brass Fixture Loops

Has ⅛-inch threaded shank ⅞ inch long complete with hexagon locknut.

For other than brass finish add 2 cents list each.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1171	50	100	6	\$ .13

## No. 1217 P & S Brass Fixture Loops

Fixture loop is so tapered that a wide variety of chains may be used. Size of thread, ¾-inch male.

For other than brass finish add 2 cents list each.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1217	50	100	13	\$ .24

## No. 1178 P & S Brass-Plated Iron Fixture Chain

Brush brass is regular finish. All other finishes add 10 cents to price, per foot. Cannot be supplied in special finishes in lengths greater than 3 feet. Standard unit 3 feet.

Cat. No.	Car-ton Feet	Std. Pkg. Feet	Wt., Lbs. Std. Pkg.	Price per Foot
1178	9	30	7	\$ .20



**Bryant Flush Tumbler Switches**

*Schedule II*



No. 2951



No. 2963

Regular and lock switches of the same description may be assorted to make up a standard package quantity, for example, Nos. 2951 and 2871.

Dimensions of porcelain and composition cups: Single-pole switches; length,  $2\frac{9}{16}$  inches; width,  $1\frac{3}{8}$  inches; depth,  $1\frac{1}{16}$  inches. All other switches: length,  $2\frac{9}{16}$  inches; width,  $1\frac{1}{16}$  inches; depth,  $1\frac{1}{16}$  inches. Supporting screw spacings: Outside,  $3\frac{3}{32}$  inches; inside,  $2\frac{1}{16}$  inches.

When ordering composition plates, specify S sections to accommodate the tumbler switches listed below by number. Machines screws for mounting are furnished.

Can be furnished with luminous handle tip at an addition to price of 25 cents each. Identical switches, regular and luminous, may be assorted.

Furnished with brown composition handles and shields to match Templus plates without extra charge.

One No. 2126 key is furnished with each Lock Type Switch.

**Porcelain Cups, Black Composition Handles**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 Volts	250 Volts				
2951	Single-Pole, Ind.	10	5	10	100	47	\$ .35
2951	Lum. Single-Pole, Ind.	10	5	10	100	47	.60
2952	Double-Pole, Ind.	10	10	10	50	27	.70
2953	3-Point	10	5	10	50	28	.50
2953	Lum. 3-Point	10	5	10	50	28	.75
2954	4-Point	5	2	10	10	5	1.00
2955	Double-Pole, Ind.	20	10	10	10	5	.80

**Composition Cups, Black Composition Handles**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 Volts	250 Volts				
2961	Single-Pole, Indicating	10	5	10	50	27	\$ .55
2962	Double-Pole, Indicating	10	10	10	10	5	.90
2963	3-Point	10	5	10	20	10	.70
2964	4-Point	5	2	10	10	5	1.20
2965	Double-Pole, Indicating	20	10	10	10	5	1.00

**Porcelain Cups, Lock Type**



No. 2871 Switch With No. OS61 Plate and No. 2126 Key

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 Volts	250 Volts				
2871	Single-Pole, Indicating	10	5	10	100	45	\$ .80
2872	Double-Pole, Indicating	10	10	10	50	26	1.15
2873	3-Point	10	5	10	50	27	.95
2874	4-Point	5	2	10	10	5	1.45
2875	Double-Pole, Indicating	20	10	10	10	5	1.25

**Composition Cups, Lock Type**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 V.	250 V.				
2881	Single-Pole, Indicating	10	5	10	50	26	\$ 1.00
2882	Double-Pole, Indicating	10	10	10	10	5	1.35
2883	3-Point	10	5	10	20	9	1.15
2884	4-Point	5	2	10	10	5	1.65
2885	Double-Pole, Indicating	20	10	10	10	5	1.45

**Bryant Glo-Guide Flush Tumbler Switches**

*Schedule II*



No. 2951-BH

These switches have handles of transparent Templus which contain glass rods painted with radium luminous paint. This locator is a permanent non-detachable part of the switch and the handle can be seen in the dark from any angle.

Dimensions of porcelain and composition cups: Single-pole switches, length  $2\frac{9}{16}$  inches, width  $1\frac{3}{8}$  inches, depth  $1\frac{1}{16}$  inches; all other switches, length  $2\frac{9}{16}$  inches, width  $1\frac{1}{16}$  inches, depth  $1\frac{1}{16}$  inches. Screw spacings: Outside,  $3\frac{3}{32}$  inches; inside,  $2\frac{1}{16}$  inches.

Switches can be furnished with brown shields to match Templus plates at no extra charge.

When ordering combination plates, specify S sections to accommodate the tumbler switches listed below.

Switches may be assorted with corresponding regular switches.

**Porcelain Cups, Transparent Templus Handles**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 Volts	250 Volts				
2951-BH	Single-Pole, Indicating	10	5	5	50	20	\$ 1.00
2952-BH	Double-Pole, Indicating	10	10	5	10	5	1.35
2953-BH	3-Point	10	5	5	20	9	1.15
2954-BH	4-Point	5	2	5	5	3	1.65
2955-BH	Double-Pole, Indicating	20	10	5	5	3	1.45

**Composition Cups, Transparent Templus Handles**

Equipped with silencers, making them practically noiseless.

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wts. Lbs. Std. Pkg.	Price Each
		125 Volts	250 Volts				
2961-BH	Single-Pole, Indicating	10	5	5	20	7	\$ 1.20
2962-BH	Double-Pole, Indicating	10	10	5	5	2	1.55
2963-BH	3-Point	10	5	5	10	4	1.35
2964-BH	4-Point	5	2	5	5	3	1.85
2965-BH	Double-Pole, Indicating	20	10	5	5	3	1.65

**Type Y Bryant Yankee Flush Push Switches**

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Porcelain cup is  $2\frac{9}{16}$  inches long, and  $1\frac{5}{8}$  inches deep. No. 2901 is  $1\frac{3}{8}$  inches wide and No. 2903 is  $1\frac{1}{2}$  inches wide.

Outside supporting screw holes  $3\frac{3}{32}$  inches on centers. Inside supporting screw holes  $2\frac{1}{16}$  inches on centers.

For switches with supporting screws soldered, add to price 10 cents. For switches with both buttons white ivory, regular length, add to price \$1.00.

When ordering combination plates, specify P sections to accommodate Type Y switches.



Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price, Each	
						Regu-lar	With Luminous Tip
2901	H	Single-Pole	10	100	51	\$ .35	\$ .60
2903	H	3-Point	10	50	29	.50	.75

**Type P Perkins Flush Push Lock Switches**

*Schedule II*

One No. 2299 key is furnished with each lock switch. Half-lock switches with one regular button and one lock attachment can be furnished on special order at the same prices as lock switches.

Length of porcelain cup,  $2\frac{9}{16}$  inches. Width,  $1\frac{1}{16}$  inches. Depth,  $1\frac{1}{16}$  inches.

Supporting screw spacings: Outside,  $3\frac{3}{32}$  inches; inside,  $2\frac{1}{16}$  inches.

Machine screws for mounting on box furnished with each switch.



No. 2295

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		125 V.	250 V.				
2295	Single-Pole	10	5	10	100	56	\$ .80
2298	Double-Pole	10	10	10	50	32	1.15
2296	3-Point	10	5	10	50	31	.95
2297	4-Point	10	5	10	10	7	1.45
2624	Double-Pole	20	10	10	20	12	1.25

## Perkins Shallow Cup Switches

### Schedule II

Extremely shallow switches for use in thin partitions, two-button, flush, push types.

Porcelain cups are 2 1/8 inches long, 1 3/8 inches deep. No. 5501 is 1 1/8 inches wide; Nos. 5502, 5503, 5504 and 5505, are 1 1/8 inches. Supporting screw spacings: outside, 3 3/8 inches, inside, 2 3/8 inches.

When ordering combination plates, specify P sections to accommodate two-button flush push switches.

Machine screws for mounting are furnished.

Prices of switches with metal or fibre buttons longer than regular will be quoted upon application. The standard moulded composition button

in other than regular lengths cannot be furnished. For switches with metal buttons, regular length, add 10 cents. For switches waxed with a compound that will not melt add, 20 cents which includes metal buttons regular length. Metal buttons are necessary where switches are subjected to heat. For switches with both buttons ivory add \$1.00. Luminous button, 25 cents extra.

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs.		Price Each
		125 V.	250 V.			Std. Pkg.	Std. Pkg.	
5501	Single-pole	10	5	10	100	40		\$ .35
5502	Double-pole	10	10	10	50	25		.70
5503	Three-point	10	5	10	50	25		.50
5504	Four-point	5	2	10	10	5		1.00
5505	Double-pole	20	10	10	50	25		.80

## Type B Bryant Flush Push Switches

Mechanism is enclosed in a dirt-proof case. Equipped with a self-adjusting yoke which accommodates the switch and the plate to the box, holding both switch and plate in their proper positions on the wall.

Composition cup is 2 3/8 inches long, 1 1/8 inches wide and 1 1/2 inches deep.

Outside supporting screw holes 3 3/8 inches on centers. Inside supporting screw holes 2 13/16 inches on centers. Button and lock switches of the same description may be assorted to make up standard package.

Cat. No.	Schedule	Description	CAPACITY AMPERES		Car-ton	Wt., Lbs.		Price Each
			125 V.	250 V.		Std. Pkg.	Std. Pkg.	
601	H	Single-Pole	10	5	10	50	31	\$ .72
603	H	Three-Point	10	5	10	20	12	.88
604	H	Four-Point	10	5	10	10	6	1.00
602	H	Double-Pole	10	10	10	10	6	.88
609	H	Double-Pole	20	10	10	10	6	.98

### Push Lock Switches

One No. 2299 key is furnished with each lock switch.

605	H	Single-Pole	10	5	10	50	33	\$ 1.17
607	H	Three-Point	10	5	10	20	12	1.33
608	H	Four-Point	10	5	10	10	7	1.45
606	H	Double-Pole	10	10	10	10	6	1.33
610	H	Double-pole	20	10	10	10	7	1.43

## Perkins Removable Mechanism Flush Switches and Receptacles

### Schedule II

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Connections are made to the terminals of the receptacle. The switch mechanism fits into the receptacle and makes contact with the terminal plates on the cup. Switch and cup are both necessary to make a complete unit.

Dimensions No. 2520, 2 9/16 x 1 1/8 x 1 1/8 inches. Supporting screw spacings, outside, 3 3/8 in., inside, 2 3/8 inches.

### Special Emergency Switch for Hospital Signal System

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
488	..	..	..	\$ 1.10

### Porcelain Receptacles for Nos. 488 and 2523 Switches

2520	10	50	24	\$ .40
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No. 2520

## Type P Perkins Flush Push Switches

### Schedule II



No. 2201

Single-pole and double-pole switches are regularly made with one pearl and one black button; three-point and four-point switches with two black buttons. On special order these switches will be furnished with two pearl buttons without extra charge.

Length of porcelain cup, 2 3/8 inches. Width, 1 1/8 inches. Depth, 1 3/8 inches. Supporting screw spacings: Outside, 3 3/8 inches; inside, 2 3/8 inches.

When ordering combination plates, specify P sections to accommodate two-button flush push switches.

Prices of switches with metal or fibre buttons longer than regular will be quoted on application. Standard molded composition buttons in other than regular lengths cannot be furnished. For switches with metal buttons, regular length, add 10 cents extra. For switches waxed with a compound that will not melt, add 20 cents to price, which includes metal buttons regular length. For switches with assembling screws soldered, add 10 cents. White ivory buttons, add \$1.00. Luminous button, 25 cents each.

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs.		Price Each
		125 V.	250 V.			Std. Pkg.	Std. Pkg.	
2201	Single-pole	10	5	10	100	55		\$ .45
2202	Double-pole	10	10	10	50	31		.70
2203	Three-point	10	5	10	50	30		.70
2204	Four-point	10	5	10	10	7		1.00
2623	Double-pole	20	10	10	20	12		.80

## Type P Perkins Electrolier Flush Push Switches

### Schedule II

5 Amperes, 125 Volts; 2 Amperes, 250 Volts



No. 2625

These switches have one metal button operating a type O switch mechanism. The other button is composition and does not move.

When ordering combination plates, specify P sections to accommodate two-button flush push switches.

Length of porcelain cups, 2 3/8 inches. Width, 1 1/8 inches. Depth, 1 3/8 inches.

Supporting screw spacings: Outside, 3 3/8 inches; inside, 2 3/8 inches.

Machine screws for mounting on box furnished with each switch.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2625	Electrolier, 1-2-1 & 2-Off	10	10	7	\$ 1.05
2626	" 1-1 & 2-1-Off	10	10	7	1.05
2627	" 1-1 & 2-1 & 2 & 3-Off	10	10	7	1.05
2628	" 1-Off 2-Off	10	10	7	1.05
2629	" 1-Off-1 & 2-Off	10	10	7	1.05
2630	" 1-1 & 2-Off	10	10	7	1.05
2631	Motor Speed Control, 1-2-Off	10	10	7	1.05
2632	" " 1-2-3-Off	10	10	7	1.05

## Perkins Panelboard Switches

### Polished Composition Cover and Base

### Schedule II



No. 2596



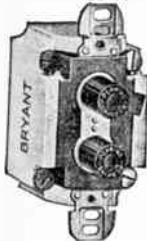
No. 2645

Cat. No.	Cap. Amp. 125V 250V	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2596	10 10	Double Pole, Rotary, Ind.	10	50	30	\$ .75
2645	10 10	Double Pole, Push Button	10	50	30	1.00
2646	20 10	Double Pole, Push Button	10	50	30	1.10
2767	10 5	3-Point Push Button	10	50	30	1.00
....	.. ..	Cover Only, Either Style	..	50	..	.30

**Type D Perkins Flush Push Switches**

*Schedule II*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts



No. 2709

The Type D switch consists of two type O switch mechanisms mounted in a single porcelain cup of standard dimensions.

Shipped with black buttons unless otherwise specified, but buttons can be finished to match plates without extra charge.

Length of cup, 2 5/8 in. Width, 1 1/8 in. Depth, 1 3/4 in. Supporting screw spacings: Outside, 3 3/4 in.; inside, 2 5/8 in.

No. 2639 can also be used as a two-circuit electrolier by making proper connections.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Std. Pkg. Each
2709	Two Single Pole, Separate Feed...	10	10	7	\$2.00
2639	" " Common " ...	10	10	7	1.80
2710	One S. P. and One 3-point Switch Common Feed.....	10	10	7	2.00

**Type D Perkins Two-button Flush Push Switches**

With One Single-pole and One Electrolier Switch Common-feed

*Schedule II*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts—Single-pole  
5 Amperes, 125 Volts; 2 Amperes, 250 Volts—Electrolier



No. 2738

Black buttons unless otherwise specified, or finished to match plates without extra charge.

Porcelain cups, 2 5/8 x 1 1/8 x 1 3/4 inches. Screw spacings: Outside, 3 3/4 in., inside, 2 5/8 inches. Machine screws furnished.

Cat. No.	Operating Positions	Car-ton	Std. Pkg.	Wt., Lbs.	Price Std. Pkg. Each
2738	1-2-1 & 2-Off.	10	10	7	\$2.00
2739	1-1 & 2-1-Off.	10	10	7	2.00
2740	1-Off-2-Off...	10	10	7	2.00
2741	1-Off-1 & 2-Off	10	10	7	2.00
2742	1-1 & 2-Off...	10	10	7	2.00
*2743	1-2-Off.....	10	10	7	2.00

\*Single-pole, and motor control.

**Type D Perkins Flush Push Switches**

*Schedule II*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts on Single-pole End  
5 Amperes, 125 Volts; 2 Amperes, 250 Volts on Electrolier End



Selective, one single-pole switch in series with one 3-circuit electrolier switch.

Successive pushes on the electrolier switch button (black button) select the desired combination of circuits. Successive pushes on the single-pole switch button (nickeled) alternately open and close the main line circuit which feeds the various branch circuits through the electrolier switch.

Length of porcelain cup, 2 5/8 in. Width, 1 1/8 in. Depth, 1 3/4 in. Screw spacings: Outside, 3 3/4 in.; inside, 2 5/8 in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Std. Pkg. Each
2640	S. P. and Elect'r, 1-1 & 2-1 & 2 & 3	10	10	7	\$2.00

**Perkins Flush Push-button Battery Switches**

Style A with Attached Flush Plate with Beveled Edges and Square Corners

Single-pole, Flat Plate, Red and Black Composition Buttons

*Schedule II*



No. 2441

Supporting screw spacings, 1 5/8 inches. Cups, 1 inch deep. Switches in gangs spaced 3/4 inch on centers. No extra charge for switches arranged in tandem.

Standard finish is polished nickel. Brush brass will be furnished, when specified, without extra charge. Mounting screws furnished.

Cat. No.	No. of Gangs	Plate Inches	Car-ton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2441	1	2 3/8 x 1 5/8	10	100	17	\$ .50
2442	2	2 3/8 x 1 3/4	5	50	16	1.00
2443	3	2 3/8 x 2 1/2	1	30	15	1.50
2444	4	2 3/8 x 3 1/4	1	25	16	2.00

\*The above switches may be assorted to make a standard package of 100 gangs.

**Bryant Flush Tumbler Switches**

*Schedule II*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts



No. 2892 Dugle

Dimensions of porcelain cup: 2 13/16 inches long, 1 11/16 inches wide; 1 1/2 inches deep. Supporting screw spacing 3 3/4 inches.

These switches can be furnished with Glo-Guide handles. For this feature add 65 cents list per handle and specify BH after catalogue number.

When ordering combination plates, specify S2 or S3 sections to accommodate Nos. 2892 or 2860 Switches respectively.



No. 2860 Trigle

Suitable machine screws are furnished for mounting these devices in boxes.

Black composition handles.

Carton, 2 switches. Standard package, 10 switches.

**Dugle Switches**

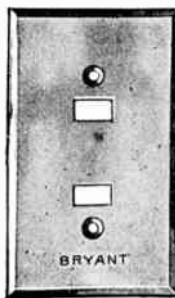
Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price Each
2892	2 Indicating Tumbler Switches in One Cup, with Common Feed.....	2	\$ .85
2894	2 Indicating Tumbler Switches in One Cup, with 2 Separate Feeds.....	2	.85
2896	2 Tumbler Switches in One Cup, One Single Pole Indicating Tumbler Switch and One 3-Point Tumbler Switch.....	2	.95

**Trigle Switches**

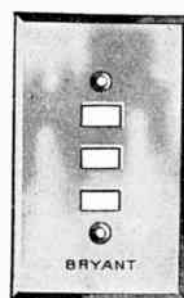
Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price Each
2860	3 Indicating Tumbler Switches in One Cup, with Common Feed.....	2	\$1.10
2864	3 Indicating Tumbler Switches in One Cup, with 3 Separate Feeds.....	2	1.10

**Bryant 1-Gang Flush Plates**

*Schedule II*



Symbol S-2



Symbol S-3

A standard package of S2 or S3 plates consists of a sufficient quantity to accommodate 10 devices. A carton is one-fifth of a standard package. S2 and S3 plates may be assorted in various finishes, thicknesses and gangs to make a carton or a standard package, but S2 and S3 plates cannot be assorted with each other. Templus plates cannot be assorted with brass plates. Black Templus, when specified, can be supplied without extra charge.

**For 2-Circuit Dugle Switch No. 2892 Series**

Description	STANDARD FINISH			PERMA FINISH	
	Wt., Lbs. Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
Solid Brass.....	5	OS211	\$ .34	OS211-P	\$ .30
Stamped Brass, .040" Metal	2	OS241	.14	OS241-P	.10
Brown Templus.....	2	OS251	.15		
Stamped Brass, .060" Metal	2	OS261	.18	OS261-P	.14

**For 3-Circuit Trigle Switch No. 2860 Series**

Description	STANDARD FINISH			PERMA FINISH	
	Wt., Lbs. Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
Solid Brass.....	5	{ OS311 } 2861	\$ .34	OS311-P	\$ .30
Stamped Brass, .040" Metal	2	OS341	.14	OS341-P	.10
Brown Templus.....	2	OS351	.15		
Stamped Brass, .060" Metal	2	OS361	.18	OS361-P	.14



## Type O Bryant Perkins Flush Push Switches

Schedule H



These switches can also be supplied to make the same connections as Nos. 2626, 2628, 2629 and 2632.

Switches will be shipped with black buttons, unless otherwise specified, but buttons can be finished to match plates without extra charge.

Porcelain cups measure 2 1/2 inches high, 1 1/8 inches wide, and 1 3/8 inches deep. Outside supporting screw holes, 3 3/8 inches on centers. Inside supporting screw holes 2 3/8 inches on centers.

### Single-pole

Cat. No.	CAPACITY AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	125 V.	250 V.				
2457	10	5	10	50	30	\$1.00
<b>Three-point</b>						
2458	10	5	10	50	32	\$1.05
<b>Four-point</b>						
2459	5	2	10	10	6	\$1.05

### Electrolier 1-2-1 and 2-off

1st, circuit 1 on; 2nd, circuit 1 off and circuit 2 on; 3rd, circuit 1 and 2 on. 4th, all off.

2460	5	2	10	10	6	\$1.05
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### Electrolier 1-1 and 2-1 and 2 and 3-off

1st, circuit 1 on; 2nd, circuits 1 and 2 on; 3rd, circuits 1, 2 and 3 on. 4th, all off.

2461	5	2	10	10	6	\$1.05
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## No. 0061 Bryant Brass Plates

For Perkins Type O One-button Flush Push Switches

Schedule H

Standard finish, brush brass, will be furnished unless other finish is specified.

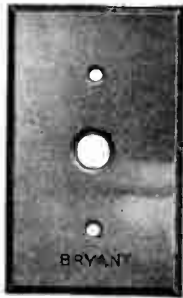
Perma finish, 4 cents less per gang.

A standard package consists of a sufficient number to accommodate 100 type O switches. May be assorted in any finishes, thicknesses and gangs to make up standard package or carton.

Symbol O plates, brush brass, standard spacings and dimensions, less than five gangs, per gang: solid, \$.34; .060 in., \$.18; .040 in. \$.14. Five gangs or more: solid, \$.40; .060 in., \$.26; .040 in., \$.22.

Tandem plates, solid only, add 20 per cent.

Cat. No.	Old Schedule No.	Description	DIMEN. IN. Lgth. Wdth.	Car-ton	Wt., Lbs. Std. Pkg.	Price Each
0061	3641	H One-gang, .060 in.	4 1/2 2 3/4	10	32	\$.18



## Perkins Flush Push Self-Restoring Momentary Contact Switches

Schedule H

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

In these switches the circuit is closed or opened as the case may be, only while the button is held in. As soon as pressure is released, the switch automatically restores itself to its normal position with a quick action.

Length of porcelain cup, 2 3/8 inches. Width, 1 3/8 inches. Depth, 1 3/8 inches.

Supporting screw spacings: Outside, 3 3/8 inches; inside, 2 3/8 inches.

When ordering combination plates specify P sections to accommodate two-button flush push switches.

Machine screws for mounting these devices on boxes are furnished.

Push-button and push lock switches of the same description may be assorted to make up a standard package quantity, and no other assortment is permissible.

### Push-button Type

Regularly made with one pearl and one black button.

Prices of switches with metal or fibre buttons longer than regular will be quoted upon application. Regular lengths only of standard moulded buttons. Metal buttons are necessary where switches are subjected to heat, add 5 cents for each regular length button. For switches waxed with a compound that will not melt add 20 cents to price of switch which includes metal buttons regular length. For switches with assembling screws soldered, add 10 cents. For switches with buttons of white ivory add 50 cents per button. Luminous buttons, 25 cents each extra.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2641	Normally Open	10	10	6	\$.85
2707	" Closed	10	10	6	.85

### \*Lock Type

2643	Normally Open	10	10	6	\$1.30
2708	" Closed	10	10	6	1.30

\*One No. 2299 key is furnished with each lock type switch.



No. 2641

## Perkins Self-restoring Door Switches

Single-pole, 6 Amperes, 125 Volts—3 Amperes, 250 Volts

Schedule H

The brass plate measures 4 5/8 x 1 1/4 inches and the holes for supporting screws are spaced 3 3/4 inches on centers.

The porcelain body is 3 3/2 inches long, 3 1/2 inch wide and 1 1/2 inches deep.



No. 2355

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2355	Circuit Closed when Door Is Open	1	25	20	\$2.25
2356	Circuit Closed when Door Is Closed	1	10	10	2.25

## No. 174 Eco Edwards Door Switches

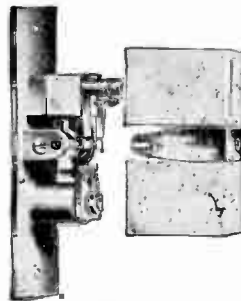
Schedule E

Used in places where lights are to be turned on and off automatically by the opening and closing of a door. Finished in polished brass.

Operation: door shut, light off; open door, light on; enter and close door, light stays on; open door for exit, light off; shut door, light stays off.

Standard package, 12. Weight, 11 ounces.

Price, No. 174 ..... each \$8.50



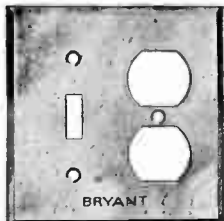
No. 174

## No. 2000 Conduit Boxes for Switches

Standard package, 10. Weight, 12 ounces.  
Price, No. 2000 ..... each \$1.25

## Bryant Brass Plates for One Tumbler Switch and One Flush Receptacle

Two-gang, .040-inch Stamped



Brass mounting screw packed in carton with each plate.

Standard package consists of 10 plates, all of the same style. Carton consists of 2 plates. Plates of the same style may be assorted, in various thicknesses, finishes and gangs.

Reversible plate can be turned end for end without affecting the proper operation of devices which it covers.

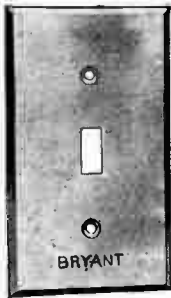
## Plates without Doors for Duplex Flush Receptacles

Nos. 122, 762 and 9022

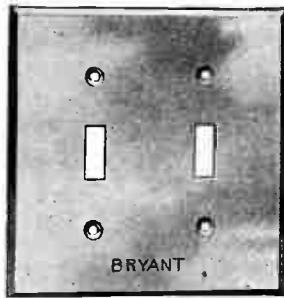
Description	Pkg. Lbs.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
Reversible Plate	5	OSV42	3719	\$.38	OSV42-P	2919	\$.30

**Bryant Flush Plates for Tumbler Switches**

*Schedule II*



1-Gang



2-Gang

Brass mounting screws packed in the carton with each plate.

Standard finish is brush brass.

A standard package of S plates consists of a sufficient quantity to accommodate 100 flush tumbler switches of the same style. A carton is one-fifth of a standard package quantity; except where otherwise stated, S plates may be assorted in various finishes, thicknesses and gangs to make up carton and standard package quantities. No other assortment permitted. Carton quantity for single gang brass plates is 10.

Standard finish is brush brass which will be furnished when no finish is specified.

**Solid Brass Plates, 1 Horizontal Row**

Description	Wt. Lbs. Pkg.	STANDARD FINISH		PERMA FINISH		Old No.	Price Each
		Cat. No.	Old No.	Cat. No.	Old No.		
1-Gang	36	OS11	3691	OS11-P	.....		\$ .30
2-Gang	34	OS12	3692	OS12-P	.....		.60
3-Gang	32	OS13	3693	OS13-P	.....		.90
4-Gang	31	OS14	3694	OS14-P	.....		1.20
5-Gang	30	OS15	3695	OS15-P	.....		1.80
6-Gang	33	OS16	3696	OS16-P	.....		2.16
7-Gang	31	OS17	3697	OS17-P	.....		2.52
8-Gang	32	OS18	3698	OS18-P	.....		2.88

The price of brush brass solid S plates above 8 gangs, when dimensions and spacings are standard, is 40 cents per gang.

**Stamped Brass Plates, .060-Inch  
1 Horizontal Row**

1-Gang	32	OS61	4171	OS61-P	.....		\$.14
2-Gang	26	OS62	4172	OS62-P	.....		.28
3-Gang	24	OS63	4173	OS63-P	.....		.42
4-Gang	23	OS64	4174	OS64-P	.....		.88
5-Gang	22	OS65	4175	OS65-P	.....		1.10
6-Gang	20	OS66	4176	OS66-P	.....		1.32
7-Gang	19	OS67	4177	OS67-P	.....		1.54
8-Gang	21	OS68	4178	OS68-P	.....		1.76

The price of brush brass .060-inch S plates above 8 gangs, when dimensions and spacings are standard, is 26 cents per gang.

**Stamped Brass Plates, .040-Inch  
1 Horizontal Row**

1-Gang	24	OS41	3681	OS41-P	2981		\$.10
2-Gang	22	OS42	3682	OS42-P	2982		.20
3-Gang	21	OS43	3683	OS43-P	2983		.30
4-Gang	20	OS44	3684	OS44-P	2984		.72
5-Gang	19	OS45	3685	OS45-P	2985		.90
6-Gang	20	OS46	3686	OS46-P	2986		1.08
7-Gang	18	OS47	3687	OS47-P	2987		1.26
8-Gang	17	OS48	3688	OS48-P	2988		1.44

The price of brush brass .040-inch S plates above 8 gangs, when dimensions and spacings are standard, is 22 cents per gang.

**Solid Brass Plates, 1 Vertical Row (Tandem)**

2-Gang	26	No.	3792	3792-P	.....		\$.72
3-Gang	24	Descrip.	3793	3793-P	.....		1.08
4-Gang	37	Cat. No.	3794	3794-P	.....		1.44

The price of brush brass solid S plates in one vertical row (tandem) above 4 gangs, when dimensions and spacings are standard, is 40 cents per gang.

**Bryant DeLuxe Wood Inlaid Plates**

*Schedule II*



No. OS71

Genuine mahogany or Circassian walnut inlaid on genuine bronze or nickel silver plates with ornamental borders.

Bronze or nickel silver all-metal plates with a lacquered or electroplated finish having the same border design can be furnished.

Standard package quantity is 30 gangs, carton 10 gangs, of one symbol. Wood Inlaid Plates and all-metal plates in various finishes of the same symbol may be assorted to make a standard package.

Screw hole spacings are standard. Single gang plates, 2 7/8 x 4 1/8 inches. Suitable mounting screws are provided with each plate.

**For Flush Tumbler Switches**

Cat. No.	Old No.	Description	Wt., Lbs. Std. Pkg.	Price Each
OS71	33791	1-Gang.....	24	\$1.50
OS72	33792	2-Gang.....	22	2.60
OS73	36793	3-Gang.....	21	4.25

**For 2-Button Flush Push Switches**

OP71	33739	1-Gang.....	24	\$1.50
OP72	33740	2-Gang.....	22	2.60
OP73	31767	3-Gang.....	21	4.25

**For Single Flush Receptacles**

For Receptacles Nos. 120, 140, 475, 558, 760, 790, 1708 and 9020				
OF71	77515	1-Gang.....	24	\$1.50

**For Duplex Flush Receptacles**

For Receptacles Nos. 122, 142, 762, 792 and 9022				
OV71	77551	1-Gang.....	24	\$1.50

The above prices are for plates with either mahogany or Circassian walnut inlay with metal borders in dull silver or dull bronze finish.

On all orders a description must follow the catalogue number, showing whether mahogany or Circassian walnut inlay is desired and whether on bronze or nickel silver.

**Bryant De Luxe All-Metal Plates**

*Schedule II*

All-Metal Deluxe Plates are made of either genuine bronze or nickel silver. Unless otherwise specified, these plates will be furnished in dull bronze or dull silver. Specify which. These finishes and brush brass finish will be provided without extra charge. These plates are especially suitable for oxidized finishes. Polished finishes cannot be successfully produced because of the raised surfaces of the plates.

Standard package quantity is 30 gangs, carton 10 gangs, of one symbol. All-Metal Plates and wood inlaid plates in various finishes of the same symbol may be assorted to make a standard package.

Screw hole spacings are standard.

Single gang plates, 2 7/8 x 4 1/8 inches.

Suitable mounting screws are provided with each plate.

**For Flush Tumbler Switches**

Cat. No.	Old No.	Description	Wt., Lbs. Std. Pkg.	Price Each
OS71-B	4791	1-Gang.....	24	\$.55
OS72-B	4792	2-Gang.....	22	.95
OS73-B	4793	3-Gang.....	21	1.35

**For Push Button Switches**

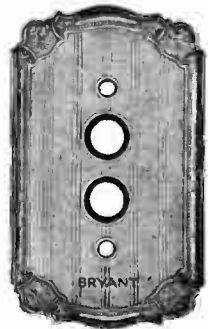
OP71-B	4739	1-Gang.....	24	\$.55
OP72-B	4740	2-Gang.....	22	.95
OP73-B	4767	3-Gang.....	21	1.35

**For Single Flush Receptacles**

For Receptacles Nos. 120, 140, 475, 556, 760, 790, 1708 and 9020				
OF71-B	4745	1-Gang.....	24	\$.55

**For Duplex Flush Receptacles**

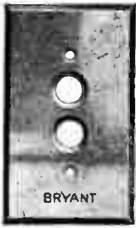
For Nos. 122, 142, 762, 792 and 9022				
OV71-V	4751	1-Gang.....	24	\$.55



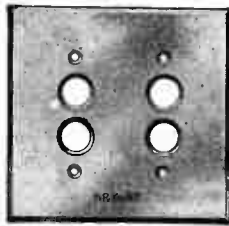
No. OP71-B

## Bryant Brass Flush Plates For 2-Button Type Push Switches

Schedule H



1-Gang



2-Gang

The standard finish is brush brass which will be furnished when no finish is specified.

A standard package of "P" plates consists of a sufficient number to accommodate 100 two button flush push switches. A carton is one-fifth of a standard package, unless otherwise stated. "P" plates may be assorted in various thicknesses, finishes and gangs to make up carton and standard package quantities. No other assortment permitted. Carton for single gang brass plates is 10.

Brass mounting screws are packed in the carton with each plate.

### Solid Brass Plates, 1 Horizontal Row

Description	Wt. Lbs.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
1-Gang	41	OP11	3639	\$.34	OP11-P	....	\$ .30
2-Gang	35	OP12	3640	.68	OP12-P	....	.60
3-Gang	32	OP13	3167	1.02	OP13-P	....	.90
4-Gang	30	OP14	3168	1.36	OP14-P	....	1.20
5-Gang	28	OP15	3169	2.00	OP15-P	....	1.80
6-Gang	26	OP16	3170	2.40	OP16-P	....	2.16
7-Gang	24	OP17	3171	2.80	OP17-P	....	2.52
8-Gang	22	OP18	3172	3.20	OP18-P	....	2.88

The price of brush brass solid "P" plates above 8 gangs, when dimensions and spacings are standard, is 40 cents per gang.

### Stamped Brass Plates, .060-Inch, 1 Horizontal Row

1-Gang	30	OP61	3165	\$.18	OP61-P	....	\$ .14
2-Gang	27	OP62	3166	.36	OP62-P	....	.28
3-Gang	25	OP63	3743	.54	OP63-P	....	.42
4-Gang	23	OP64	3744	1.04	OP64-P	....	.88
5-Gang	21	OP65	3745	1.30	OP65-P	....	1.10
6-Gang	23	OP66	3746	1.56	OP66-P	....	1.32
7-Gang	21	OP67	3747	1.82	OP67-P	....	1.54
8-Gang	22	OP68	3748	2.08	OP68-P	....	1.76

The price of brush brass .060 in. "P" plates, above 8 gangs, when dimensions and spacings are standard, is 26 cents per gang.

### Stamped Brass Plates, .040-Inch, 1 Horizontal Row

1-Gang	24	OP41	3665	\$.14	OP41-P	2921	\$ .10
2-Gang	21	OP42	3666	.28	OP42-P	2922	.20
3-Gang	20	OP43	3667	.42	OP43-P	2923	.30
4-Gang	19	OP44	3634	.88	OP44-P	2924	.72
5-Gang	18	OP45	3635	1.10	OP45-P	2975	.90
6-Gang	22	OP46	3636	1.32	OP46-P	2976	1.08
7-Gang	20	OP47	3637	1.54	OP47-P	2977	1.26
8-Gang	23	OP48	3638	1.76	OP48-P	2978	1.44

The price of brush brass .040 in. "P" plates above 8 gangs, when dimensions and spacings are standard, is 22 cents per gang.

### Solid Brass Plates, 1 Vertical Row (Tandem)

2-Gang	38	No	3369	\$.80	3369-P	....	\$ .72
3-Gang	37	Descriptive	3370	1.20	3370-P	....	1.08
4-Gang	36	Cat. No.	3371	1.60	3371-P	....	1.44

The price of brush brass solid "P" plates in one vertical row ("tandem") above 4-gang when dimensions and spacings are standard, is 40 cents per gang.

### Solid Brass Plates, 2 Vertical Rows (Tandem)

4-Gang	34	No	3672	\$2.12	3672-P	....	\$1.96
6-Gang	32	Descriptive	3673	3.18	3673-P	....	2.94
8-Gang	34	Cat. No.	3674	4.24	3674-P	....	3.92

The price of brush brass solid "P" plates in 2 vertical rows ("tandem") above 8-gang, when dimensions and spacings are standard, is 53 cents per gang.

## Bryant Templus Flush Plates

Schedule H

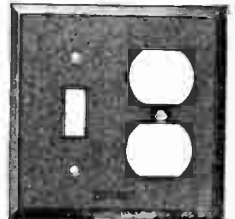
Chocolate brown plates will be furnished when no color is specified. Black can be supplied without extra charge. One-piece Templus headed mounting screws are furnished with each plate.



No. OF51



No. OS51



No. OSV52

### For One Single Flush Receptacle, Symbol F

Cat. No.	Old No.	Description	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
OF51	55545	1-Gang.....	10	*100	15	\$ .15

### For One Duplex Flush Receptacle, Symbol V

OV51	55551	1-Gang.....	10	100	8	\$ .15
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A standard package is 100 OV51 plates which may be an assortment of brown and black. No other assortment permitted.

### For One Flush Switch and One Flush Receptacle 2-Gang

OPF52	36550	†For Push-Button Switch and Single Receptacle.	2	10	3	\$ .30
OPV52	37509	For Push-Button Switch and Duplex Receptacle	2	10	3	.30
OSF52	37518	†For Tumbler Switch and Single Receptacle.....	2	10	3	.30
OSV52	37519	For Tumbler Switch and Duplex Receptacle	2	10	3	.30

### For 2-Button Flush Push Switches, Symbol P

OP51	36539	1-Gang.....	10	*100	15	\$ .15
OP52	36540	2-Gang.....	20	*100	15	.30
OP53	31567	3-Gang.....	20	*100	15	.45
OP54	31568	4-Gang.....	20	*100	15	.60

### For Flush Tumbler Switches, Except 2860, Symbol S

OS51	36591	1-Gang.....	10	*100	15	\$ .15
OS52	36592	2-Gang.....	20	*100	15	.30
OS53	36593	3-Gang.....	20	*100	15	.45
OS54	36594	4-Gang.....	20	*100	15	.60

### Telephone Plates, with 1 3/32-Inch Holes, Symbol G or H

OG51	....	†1-Gang.....	10	*100	15	\$ .15
OH51	....	†1-Gang, 2-Hole.....	10	*100	15	.15

### Blank Plates, Symbol K; Bell Push Plate, Symbol T

OK51	36546	1-Gang.....	10	*100	15	\$ .15
OK52	36547	2-Gang.....	20	*100	15	.30
OT51	....	1-Gang.....	10	*100	15	.15

### No. 2892 Switch, Symbol S2; No. 2957 Receptacles, Symbol W2

OS251	....	1-Gang.....	2	10	2	\$ .15
OW251	....	1-Gang.....	2	10	2	.15

\*A standard package consists of a sufficient number, all of the same one style, to accommodate 100 similar flush devices. A carton is 1/5 of a standard package. Templus plates of same style may be assorted in black and brown to make a standard package. No other assortment permitted except that carton quantity of single gang brass plates is 10.

†By installing No. 736 or 737 jewel, a bull's eye plate is made. ‡Can be furnished in 2 gangs on order.

## No. 555 Templus Headed Studs and Brass Mounting Screws

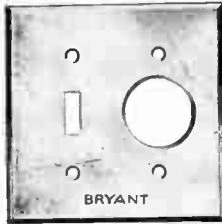


Not furnished as regular equipment with Templus plates but must be ordered separately.

No.	Schedule	Carton	Std. Pkg.	Wt. Lbs.	Price per Set
555	H	20 Sets	100 Sets	3	\$ 1.10
779	H	20 Sets	100 Sets	3	.05

**Bryant Brass Plates for One Tumbler Switch and One Flush Receptacle**

Two-Gang, .040-Inch Stamped



Brass mounting screws packed in carton with each plate.

A standard package consists of 10 plates, all of the same style. A carton consists of 2 plates, both alike in style. Plates of the same style may be assorted in various finishes, thicknesses and gangs to make up a standard package or carton. No other assortment permitted.

**Plates without Door for Single Flush Receptacles**  
Nos. 120, 140, 475, 556, 760, 790, 1708 and 9020

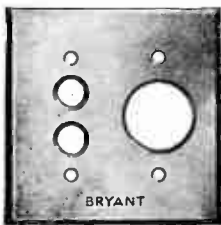
Description	Pkg. Wt. Lbs.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
*Reversible Plate	4	OSF42	3718	\$.38	OSF42-P	2918	\$.30

**Plates with Door for Single Flush Receptacles**  
Nos. 124, 144, 764, 1708 and 9024

Switch on Right	5	OES42	3736	\$.43	OES42-P	2936	\$.35
Switch on Left	5	OSE42	3717	.43	OSE42-P	2917	.35

\*A reversible plate can be turned end for end without affecting the proper operation of the devices which it covers.

**Bryant Brass Plates for One Two-button Push Switch and One Flush Receptacle**  
Two-gang, .040-inch Stamped



No. OPF42  
(Old No. 3650)



No. OPE42  
(Old No. 3680)

Brass mounting screws packed in carton with each plate. Standard package of combination plates consists of 10 plates, all of the same style. A carton is 2 plates, both alike in style. Plates of the same style may be assorted in various finishes, thicknesses, and gangs to make up a standard package or carton. No other assortment permitted.

**Plates without Door for Single Flush Receptacles**  
Nos. 120, 427, 475, 556, 760, 1708 and 9020

Description	Pkg. Wt. Lbs.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
Reversible Plate	4	OPF42	3650	\$.38	OPF42-P	2950	\$.30

**Plates with Door for Single Flush Receptacles**  
Nos. 124, 764, 1708 and 9024

Switch on Right	4	OEP42	3679	\$.43	OEP42-P	2991	\$.35
" " Left	4	OPE42	3680	.43	OPE42-P	2990	.35

**Plates without Doors for Duplex Flush Receptacles**  
Nos. 122, 762 and 9022

*Reversible Plate	5	OPV42	3709	\$.38	OPV42-P	2909	\$.30
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\*A reversible plate can be turned end for end without affecting the proper operation of the devices which it covers.

**Bryant Blank Brass Flush Plates**

Schedule II  
One Horizontal Row



Standard finish, brush brass which will be furnished when no other finish is specified.

Brass mounting screws are packed in the carton with each plate.

A standard package of K plates consists of a sufficient number to cover 100 gangs. A carton is one-fifth of a standard package. K plates may be assorted in various finishes, thicknesses and gangs to make up carton and standard package quantities. No other assortment permitted.

Solid blank plates, brush brass finish, one horizontal row only, when spacings and dimensions are standard, can be furnished at 44 cents per gang, and under the same conditions struck-up blank plates can be furnished at 30 cents per gang when .060 inch thick and at 26 cents per gang when .040 inch thick. For tandem plates, solid only, add 20 per cent.

Unless otherwise specified supporting screws are spaced 3 3/8 inches on centers vertically and 1 3/8 inches on centers horizontally, so that the plate will be attached directly to the ears of the box. When mounting yokes are wanted with the plates, add to the prices shown, 5 cents per gang. When yokes are furnished the plate supporting screws are spaced 2 3/8 inches on centers vertically.

Description	Wt. Lbs. Pkg.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
One-gang, Solid	49	OK11	3646	\$.38	OK11-P	2946	\$.34
Two " " "	44	OK12	3647	.76	OK12-P	2947	.68
Three-gang " " "	41	OK13	3648	1.14	OK13-P	2948	1.02
One-gang, .060 in. Stpd.	33	OK61	3546	.22	OK61-P	2946	.18
Two " .060 " " "	29	OK62	3628	.44	OK62-P	2946	.36
One " .010 " " "	27	OK41	3551	.18	OK41-P	2927	.14
Two " .010 " " "	23	OK42	3624	.36	OK42-P	2945	.28
Three-gang, .040 in. " " "	21	OK43	3625	.54	OK43-P	2946	.42

**Bryant Tumbler Type Surface Switches**  
Indicating, with Black Composition Handle  
Porcelain Base and Metal Cover

Schedule II



No. 2933

Diameter of base, 2 inches.  
Height over cover, 1 3/8 inches.  
Height over handle, 1 5/8 inches.  
Supporting screw spacings, 1 3/8 inches.

The standard finish on metal covers is polished nickel which will be furnished when the finish is not specified.

For covers in any other finish, except gold, add 10 cents each.

Indications are stamped on the covers.

Polished nickel brass handle can be furnished on special order instead of black composition handle at no increase in cost. Identical switches with composition and metal handles may be assorted.

**Solid Base**  
Single-pole

Cat. No.	125 V. AMPERES	250 V.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2931	5	3	10	100	30	\$.28
2932	10	5	10	100	30	\$.56
2933	5	3	10	100	30	\$.48
<b>Slotted Base</b>						
2941	5	3	10	100	30	\$.28
2942	10	5	10	100	30	\$.56
2943	5	3	10	100	30	\$.48

\*Non-indicating.

## Bryant Special Finishes

### Special Finishes for Brass Shell Sockets, Socket Type Devices and Parts, Canopy Switches Shade-Holders, Fixture Specialties, Attachment Plug Caps and Flush Plates

**GENERAL.**—The standard finish of all brass shell devices and brass flush plates, unless otherwise noted, is brush brass, which will be supplied when the finish is not specified. Standard and special finishes on all devices of one catalogue number may be assorted to make up the standard package quantity, which will be the same as though all were standard finish.

Assortment of catalog numbers may be made only as indicated in the catalog pages where the devices are listed. Prices on all special finishes other than those listed, including gold, will be quoted on application. Sample of finish desired should always be submitted to avoid mistakes and delays.

Devices will be supplied polished but not lacquered at the same prices as brush brass.

**QUANTITY DISCOUNTS (EXCEPT FLUSH PLATES).**—When devices in special finishes are ordered in quantities the list prices for finishes only will be reduced as follows: Lots of 250-499, one catalogue number, one shipment, one finish, 10 per cent; lots of 500-999, one catalogue number, one shipment, one finish, 20 per cent; lots of 1000 or over, one catalogue number, one shipment, one finish, 50 per cent.

**SURFACE SWITCH COVERS.**—The standard finish on all metal covers of surface switches unless otherwise noted is polished nickel which will be supplied when the finish is not specified. For covers in any other finish, except gold, add to list 10 cents each. Gold finish prices upon application.

**CHAINS AND METAL CHAIN PARTS.**—Chain guides, chains cut in lengths not longer than one foot, and chain parts, singly or in combination, can be supplied in any special finish, except silver and gold, at an addition to list price of 2 cents per unit. For silver finishes add 10 cents list per unit. Gold finish prices on application. These unit prices apply to each foot of chain in cut or uncut lengths. For pull devices in one finish and chain parts in another finish add 2 cents (10 cents for silver) to the list prices given in columns 1, 3 and 6 below.

**FLUSH PLATES.**—The charges given below in column 9 cover all one gang plates. For multiple gang plates these charges cover the first gang only; for the second or any additional gangs of a multiple gang plate the charge is 10 cents list per gang for all special finishes except gold. The prices of gold finishes will be quoted on application.

The list prices for finishes only will be reduced as follows, one finish, one shipment: 100-499 gangs 10 per cent, 500-999 gangs 20 per cent, 1000 or more gangs 50 per cent.

“Perma” Finish is a durable colored lacquer or varnish that resembles brush brass. Any brass flush plate can be supplied in “Perma” finish (the symbol for which is “-P” following the catalogue number) for 4 cents list per gang less than the price of the same plate in brush brass finish.

	Finish	Class		Finish	Class		Finish	Class
*Barff, Bauer Imitation (Lacquer)		A	Black Lacquer		A	Lacquer, Colored, 1 Coat		L1
Brass, Sand Blast Antique		E	Colored Lacquers, 1 Coat		L1	Lacquer, Colored, 2 Coats		L2
Brass, Sand Blast Brush		D	Colored Lacquers, 2 Coats		L2	Lacquer, Colored, 3 Coats		L3
Brass, Flemish		B	Colored Lacquers, 3 Coats		L3	Nickel, Dull		B
Brass, Lemon		A	Copper, Antique		C	Nickel, Polished		B
Brass, Oxidized		B	Copper, Mottled		B	Silver, Butler's (Brushed)		F
Brass, Polished		A	Copper, Brush		B	Silver, Satin		F
Bronze, Brush		B	Copper, Oxidized		B	Silver, Oxidized		F
Bronze, Japanese (Dark)		B	Copper, Polished		B	Silver, Polished		F
Bronze, Polished		B	*Enamel, White (Imit. Lacquer)		A	Verde Antique (Lacquer)		A
Bronze, Statuary (Light)		B	Gun Metal		B			

\*Genuine Bauer Barff and White Vitreous Enamel finishes can be made only on iron and steel because the brass of which the devices are made, will not endure the heat of baking.

	1 Brass Shell Key, Keyless and Push Devices with Caps Includ- ing Pendant Switches and Canopy Switches Complete Add to List	2 Brass Shell Pull Device with Caps Complete Add to List	3 Brass Shell Key, Keyless and Push Bodies, All Shade- Holders and Chain with Chain Guide Add to List	4 Brass Shell Pull Bodies Add to List	5 Brass Shell Socket Caps Brass- Mounted Porcelain Socket Caps and Canopy Switch Nuts and Knob Handles Add to List	6 One-Piece Brass Shell Wall and Ceiling Sockets and Receptacles and "New Wrinkle" Bases Add to List	7 10 Ampere Caps Add to List	8 METAL COVERED ATTACH- MENT PLUG CAPS AND FLUSH RECEPTACLE PLUGS 20 and 25 Ampere Caps Add to List	9 Brass Flush Plates Add to List
A	\$.06	\$.08	\$.03	\$.05	\$.03	\$.12	\$.04	\$.08	\$.10
B	.10	.12	.05	.07	.05	.16	.08	.15	.15
C	.16	.18	.08	.10	.08	.25	.10	.19	.20
D	.18	.20	.09	.11	.09	.28	.08	.16	.25
E	.22	.24	.11	.13	.11	.30	.12	.25	.30
F	.20	.30	.10	.20	.10	.25	.14	.27	.45
L1	.04	.06	.02	.04	.02	.10	...	...	...
L2	.06	.08	.03	.05	.03	.12	...	...	...
L3	.08	.10	.04	.06	.04	.14	...	...	...

When ordering brass shell devices in colored lacquers send a sample of the finish desired, otherwise it is not possible to definitely state whether 1, 2 or 3 coats are necessary.

**Bryant Flush Devices**

**EXPLANATION OF GANG.**—All flush plates and flush devices of standard design are made to fit into switch or outlet boxes. When flush devices are arranged side by side they are said to be arranged in gangs and the number of such gangs so arranged is specified.

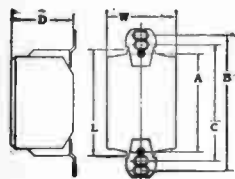
In this catalogue standard flush plates, one horizontal row only, are designated by the number of such gangs as they are designed to cover. Thus a one-gang plate will cover a one-gang box and the one-gang flush device contained by it; likewise a five-gang plate will cover a five-gang box.

When flush devices are arranged end to end they are said to be "in tandem" and flush plates designed to cover them are called tandem plates, the length of the plates being expressed in gangs to show the number of boxes arranged end to end which they are designed to cover.

Tandem plates are not designated by descriptive catalogue numbers.

**Standard Spacings and Dimensions**

**One-gang Flush Device**



- A—Plate screw spacings usually  $2\frac{3}{8}$  in.
- B—Supporting screw spacings, outside  $3\frac{3}{4}$  in.
- C—Supporting screw spacings, inside  $2\frac{5}{8}$  in.
- L—Length of body or cup, not over  $2\frac{5}{8}$  in.
- W—Width of body or cup, not over  $1\frac{1}{8}$  in.
- D—Depth of body or cup.

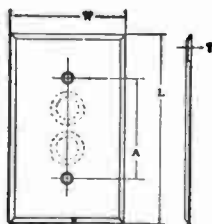
**One-gang Flush Plate**

A—Plate screw spacings, usually  $2\frac{3}{8}$  in. On G, H, K, T, T2 and T3 plates it is  $3\frac{3}{8}$  in.

L—Length of plate,  $4\frac{1}{2}$  in.

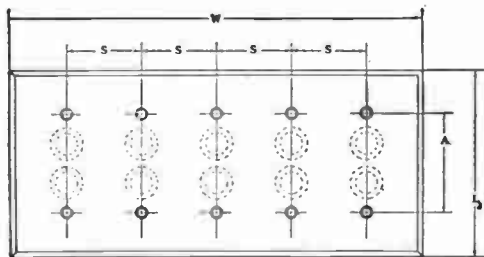
W—Width of plate,  $2\frac{3}{4}$  in.

T—Thickness of plate, solid, 0.100 in.; .060 stamped, 0.060 in.; .040 stamped, 0.040 in.



**Five-gang Flush Plate**

**One Horizontal Row**



A—Plate screw spacings, usually  $2\frac{3}{8}$  in.

S—Spacings between centers of adjacent gangs always  $1\frac{5}{8}$  in.

L—Length of plate,  $4\frac{1}{2}$  in.

W—Width of plate varies for different number of gangs as follows:

1 Gang . . . . .	$2\frac{3}{4}$ in.	5 Gang . . . . .	10 in.
2 " . . . . .	$4\frac{3}{8}$ "	6 " . . . . .	$11\frac{3}{8}$ "
3 " . . . . .	$6\frac{3}{8}$ "	7 " . . . . .	$13\frac{5}{8}$ "
4 " . . . . .	$8\frac{3}{8}$ "	8 " . . . . .	$15\frac{7}{8}$ "

**Bryant Flush Devices  
Standard Spacings and Dimensions**

Continued

**Three-Gang  
Tandem Flush Plate**  
One Vertical Row

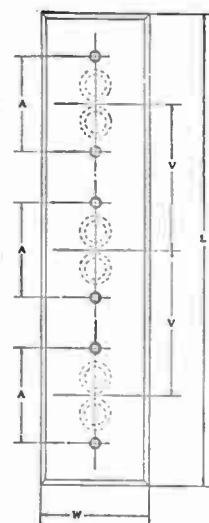
A—Plate screw spacings usually  $2\frac{3}{8}$  inches.

V—Spacings between centers of adjacent tandem devices always  $3\frac{3}{8}$  inches.

W—Width of plate varies according to number of vertical rows.

L—Length of plate varies according to number of devices in tandem as follows:

- 2—tandem  $8\frac{1}{8}$  inches.
- 3—tandem  $11\frac{1}{4}$  inches.
- 4—tandem  $15\frac{3}{8}$  inches.
- 5—tandem 19 inches.
- 6—tandem  $22\frac{5}{8}$  inches.
- 7—tandem  $26\frac{1}{4}$  inches.



**Information Regarding Flush Plates**

**Plates of Special Dimensions  
and Spacings, Solid Only**

Plates of special dimensions or spacings will be billed at 7 cents per square inch in addition to the price of the corresponding standard solid plate. The standard package quantity will be ten plates of one style and size. Schedule H. On quantity orders for identical plates the following list price per square inch reductions will be allowed: 100-499 plates, 10%; 500-999 plates, 20%; 1000 and over, 30%. When plates are other than rectangular in shape the area by which the price is determined will be the size of the smallest rectangular piece from which the specified plate can be cut.

**Hammered Plates, Solid Only**

Plates with hammered finish can be supplied at an advance in list price of 20 cents per gang over the cost of the plate plus any special finish desired.

**Plates to Fit Condulets  
Solid Only**

Flush plates to properly fit FD and FS Condulets should be solid, with round corners and beveled edges and of the following dimensions:

Description	Length Inches	Width Inches
Single . . . . .	4	$2\frac{1}{2}$
Two-Gang . . . . .	4	$4\frac{5}{8}$
Three-Gang . . . . .	4	$6\frac{1}{8}$
Four-Gang . . . . .	4	$7\frac{5}{8}$

When plates are specified, Condulet dimensions, the only extra charge will be 15 cents per plate for the round corners and beveled edges when dimensions and spacings are standard.

The standard package quantity and schedule will be the same as the standard plate. Single and gang plates to fit the same devices may be assorted to make up the standard package quantity. No other assortment is permitted.

**Plates of Special Metals**

Plates of genuine rolled bronze will be furnished at 10 cents list per gang more than the list prices of the corresponding brass plates, and the standard finish will be brush bronze. For genuine bronze plates in polished bronze finish add 10 cents list per gang to the list price of the brush bronze finished genuine bronze plate. Plates of Benedict metal will be furnished at 25 cents list per gang more than the list prices of the corresponding solid brass plates and the standard finish will be polished, which has the appearance of polished nickel. Prices for plates of other metals will be quoted upon application. Plates of special metal may not be assorted with standard plates to make up a standard package. The standard package quantity and schedule will be the same as for the corresponding standard solid brass plate.



## Bryant Flush Plates

### Explanation of Catalogue Numbers for Flush Plates

When specifying flush plates there are three things that must be known: Style of plate; material of which it is made, and the number of gangs.

Except for tandem plates (plates arranged vertically) and combination plates, each listed Bryant flush plate has a catalogue number which describes the kind of plate it is.

OP52 is the catalogue number for a 2-button push switch plate, Templus composition, 2-gang.

OV61 is the catalogue number for a duplex flush receptacle plate, .060-inch stamped brass, 1-gang.

OPF42 is the catalogue number for a plate for one 2-button push switch and a single flush receptacle, .040-inch stamped brass, 2-gang.

OV211 is the catalogue number for a plate with doors for a duplex flush receptacle, solid brass, 1-gang.

In each case the left number 0 indicates a flush plate. See examples.

1. The symbol letter or letters immediately following describe the style of plate. See examples, letters P, V, PF and V2.

2. The figure next to the right-hand figure indicates the material of which the plate is made.

- 1. Indicates brass, .100 inch thick (solid).
- 6. Indicates brass, .060 inch thick, stamped.
- 5. Indicates Templus moulded composition.
- 4. Indicates brass, .040 inch thick, stamped.
- 7. Indicates De Luxe wood veneer plates.

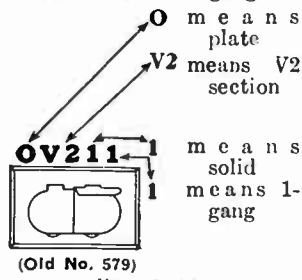
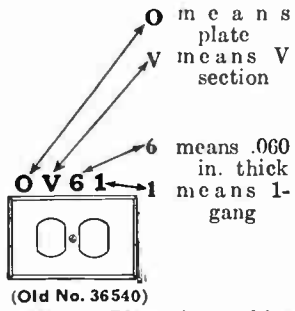
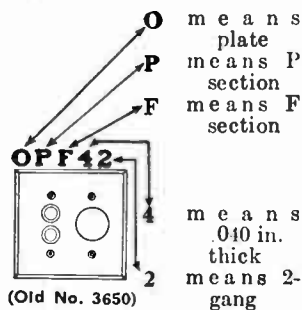
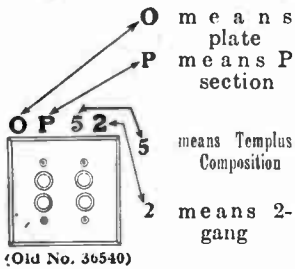
—B used in conjunction with No. 7 indicates the all metal plate of the De Luxe type.

—P after any plate catalogue number indicates that Perma finish is desired.

3. The right-hand figure indicates the number of horizontal gangs wide.

When the simple elements of this number system are learned it will be found easy to specify Bryant plates by catalogue number.

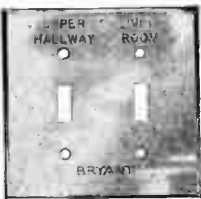
### Examples



NOTE.—Plates in combinations exceeding 10 gangs cannot be furnished in .060-inch or .040-inch. Combination plates can only be furnished in the thickness specified with each section.

### Engraving

Flush plates will be engraved with words or numbers at an addition to the list price of 10 cents per character, standard package quantity 100 characters. Wide and narrow block letters and figures,  $\frac{3}{64}$ , .053,  $\frac{1}{16}$ ,  $\frac{5}{64}$ ,  $\frac{3}{32}$ ,  $\frac{1}{8}$ ,  $\frac{5}{32}$ ,  $\frac{3}{16}$ ,  $\frac{1}{4}$ ,  $\frac{5}{16}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{8}$ ,  $\frac{3}{4}$  and 1 in. high, as selected, filled with black, can be made. Schedule will be the same as the plate engraved. Engraved plates may be assorted with standard plates to make up the standard package quantity.



No. OS12  
(Old No. 3692)  
Engraved with  
 $\frac{3}{16}$  In. Wide  
Block Letters

## Bryant Flush Plates

### Plates with Round Corners and Round Edges Solid Only



No. OS11  
(Old No. 3691)

Plates with round corners and round edges, when dimensions and spacings are standard, will be furnished at an addition to the list of solid plates of 15 cents for single plates and 5 cents for each additional section in gang plates.

The standard package quantity and schedule will be the same as the standard plate. Single and gang plates with round corners and round edges to fit the same device may be assorted to make up the standard package quantity. No other assortment permitted.

### Plates with Round Corners and Beveled Edges Solid Only

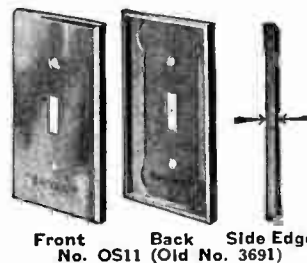
Plates with round corners and beveled edges, when dimensions and spacings are standard, will be furnished at an addition to the list price of solid plates of 15 cents per plate.

The standard package quantity and schedule will be the same as the standard plate. Single and gang plates with round corners and beveled edges to fit the same device may be assorted to make up the standard package quantity. No other assortment permitted.



No. OS11  
(Old No. 3691)

### Plates with Raised Edges, Solid Only



When ordering plates with raised edges, always give dimension indicated between arrows.

Plates with raised edges are sometimes required when the outlet box projects beyond the surrounding surface. For plates with raised edges not more than  $\frac{1}{2}$  inch high, add to the price of each plate \$1.00 net for one gang and 50 cents net for each additional gang. Upon application, prices will be quoted for plates with edges raised more than  $\frac{1}{2}$  inch.

Round plates with square edges only, no advance in list price over solid plate with beveled edges.

### Plates with Square Edges, Solid Only

Plates with square corners and square edges, when dimensions and spacings are standard, will be furnished at the same price as regular solid plates and may be assorted with regular plates to make up the standard package quantity. Plates with round corners and square edges will be furnished at an addition to the list price of solid plates of 15 cents. The standard package quantity and schedule will be the same as the standard plate. For round plates with square edges, the list price will be the same as the list price of the corresponding solid plate with beveled edges.



No. OS11  
(Old No. 3691)

### Flush Plate Mounting Screws

The requisite flush plate mounting screws are included with each flush plate. When bought separately they will be billed at 75 cents per 100, standard package quantity 100, Schedule H.

Wood screws are sometimes wanted for use in connection with flush plates.  $\frac{3}{4}$ -inch No. 6 oval head brass wood screws can be furnished at \$3.00 per 100, standard package quantity 100, Schedule H.

The standard finish for these screws is brush brass; however, special finishes, when specified, will be furnished without extra charge.



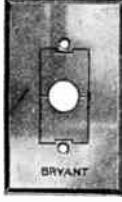
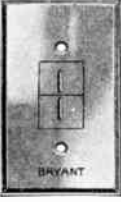














## Bryant Solid Flush Plate Sections

## Schedule H

Combination plates should be described by using the letters shown on cuts of the respective plates, giving the letters in order from left to right, or from top to bottom, as the devices are to be mounted. The standard package quantity is ten plates of one description (not ten gangs). The carton quantity is two plates.

A combination plate cannot be so considered unless it is described by at least two different letters, but letters may be used to describe any desired arrangement of plate sections.

The standard finish of plates is brush brass which will be supplied if no finish is specified. For special finishes see another page.

 <p><b>A</b> List, Solid, \$0.94 Bull's Eye With Removable Sub-Plate  Used largely for Bryant Silent Call Hospital Signal System Calling Stations</p>	 <p><b>B</b> List, Solid, \$0.69 List, .060 in., .48 List, .040 in., .44 Bull's Eye Consists of "F" Plate with No. 736 Bull's Eye Jewel For Cat. Nos. 427 and 627 Lamp Holder Receptacles</p>	 <p><b>C</b> List, Solid, \$0.80 List, .060 in., .50 Chapman Receptacle Plate  For Cat. No. 1363 Chapman Receptacle</p>
 <p><b>D</b> List, Solid, \$0.80 List, .060 in., .50 "D.D." Receptacle Plate  For Cat. Nos. 430 and 630 "D.D." Receptacles</p>	 <p><b>E</b> List, Solid, \$0.49 List, .060 in., .28 List, .040 in., .24 Single Flush Receptacle Plate With Door For Cat. Nos. 124, 144, 764, 1708 and 9024 Flush Receptacles</p>	 <p><b>E2</b> List, Solid, \$0.90 Duplex Flush Receptacle Plate With Doors  For Cat. No. 546 Flush Receptacle</p>
 <p><b>F</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Single Flush Receptacle Plate Without Door Will take Cat. Nos. 736 and 737 Bull's Eye Jewels to make "B" Plate. Also for Cat. Nos. 120, 140, 475, 556, 760, 790, 1708 and 9020 Flush Receptacles</p>	 <p><b>F2</b> List, Solid, \$0.70 List, .060 in., .49 List, .040 in., .44 Duplex Flush Receptacle Plate Without Doors  For Cat. No. 546 Flush Receptacle</p>	 <p><b>G</b> List, Solid, \$0.50 List, .060 in., .29 List, .040 in., .25 ★Telephone Plate With one Cord Hole</p>
 <p><b>H</b> List, Solid, \$0.54 List, .060 in., .33 List, .040 in., .29 ★Telephone Plate With two Cord Holes  (Cannot be used for Flush Switches)</p>	 <p><b>I</b> List, Solid, \$0.74 List, .060 in., .53 List, .040 in., .49  Plate for Cat. No. 121 "Spartan" Pilot Receptacle</p>	 <p><b>J</b> List, Solid, \$0.44 List, .060 in., .33 List, .040 in., .19 Plate for Cat. Nos. 411 and 411S "Junior" Flush Receptacle</p>
 <p><b>K</b> List, Solid, \$0.48 List, .060 in., .27 List, .040 in., .23  ★Blank Plate</p>	 <p><b>M</b> List, Solid, \$0.74 List, .060 in., .53 List, .040 in., .49  Plate for Cat. Nos. 465, 495 and 469 Combinations</p>	 <p><b>M2</b> List, Solid, \$0.74 List, .060 in., .53 List, .040 in., .49  Plate for Cat. No. 2959 Tumbler Switch and Pilot Lamp Receptacle</p>
 <p><b>N</b> List, Solid, \$0.75 Old Style "Chapman" [Receptacle Plate] For Cat. Nos. 281 and 613 Chapman Receptacles  Supporting Screw Spacing 2 3/8 in.</p>	 <p><b>O</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 One-Button Push Switch Plate For all Type "O" Flush Switches</p>	 <p><b>P</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Two-Button Push Switch Plate  For all Two-Button Flush Switches</p>

★Supporting screw spacing on this plate is 3 3/8 in. on centers in single gangs and 2 3/8 in. on centers when combined with other sections in .060 in. or .040 in.












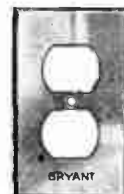


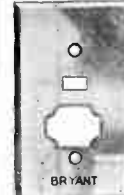

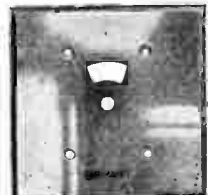
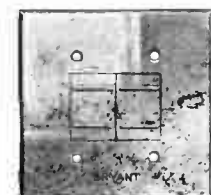
## Bryant Solid Flush Plate Sections

### Schedule II

The list price, in brush brass finish when dimensions and spacings are standard and the devices are arranged in one horizontal row, will be the sum of the lists as shown. For plates with devices mounted tandem or in more than one horizontal row, add 20 per cent to the sum of the list prices.

The standard package quantity is ten plates of one description (not ten gangs). The carton quantity is two plates.

The standard finish of plates is brush brass which will be supplied if no finish is specified. For special finishes see another page.

 <p><b>Q</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Plate for Magnetic Control Switches Hospital Signal System Cat. Nos. 480 and 481</p>	 <p><b>Q2</b> List, Solid, \$0.54 List, .060 in., .33 List, .040 in., .29 Plate for Pull Control Switch Hospital Signal System Cat. No. HIS-56</p>	 <p><b>Q3</b> List, Solid, \$0.54 List, .060 in., .33 List, .040 in., .29 Plate for Pull Control Switch Hospital Signal System Cat. No. HIS-58</p>
 <p><b>R</b> List, Solid, \$0.50 List, .060 in., .29 List, .040 in., .25 Rotary Switch Plate  For All Rotary Flush Switches</p>	 <p><b>S</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Tumbler Switch Plate  For All Single Handle Flush Tumbler Switches</p>	 <p><b>S2</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19  Tumbler Switch Plate for Cat. No. 2892</p>
 <p><b>S3</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Tumbler Switch Plate  For "Trigle" Switch Cat. No. 2860</p>	 <p><b>T</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 ★Push-Button Plate  For 12 Volt Push Button Cat. No. 3675</p>	 <p><b>T2</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 ★Telephone Jack Plate for Western Electric Telephone Jack No. 190</p>
 <p><b>T3</b> List, Solid, \$3.00 ★Push- Button Plate With 110 Volt Push Button  Push Button and Plate cannot be separated</p>	 <p><b>U</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19  Plate for Cat. No. 624 Combination of Type "O" Switch and Junior Receptacle</p>	 <p><b>V</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19 Duplex Flush Receptacle Plate Without Doors For Cat. Nos. 122, 142, 762, 792 and 9022 Duplex Flush Receptacles</p>
 <p><b>V2</b> List, Solid, \$0.90 Duplex Flush Receptacle Plate With Doors  For Cat. Numbers 125, 145, 765 and 9025 Duplex Receptacles</p>	 <p><b>W</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19  Plate for Cat. No. 117 Switch and Receptacle</p>	 <p><b>W2</b> List, Solid, \$0.44 List, .060 in., .23 List, .040 in., .19  Plate for Cat. Nos. 2957 and 2967 Switch and Receptacle Combination</p>
 <p><b>X</b> List, Solid, \$1.19 List, .060 in., .88 List, .040 in., .84 Two-Gang Bull's Eye Plate For two Cat. No. 427 Lamp Holder Receptacles</p>	 <p><b>Y</b> List, Solid, \$1.00 List, .060 in., .69 List, .040 in., .65 Two-Gang Rotary Switch Plate For Cat. No. 2568 30 Amp., D. P. Rotary Flush Switch</p>	 <p><b>Z</b> List, Solid, \$2.00 Two-Gang "D.D." Receptacle Plate  For Cat. No. 446 25 Amp. "D.D." Flush Receptacle</p>

★Supporting screw spacing on this plate is  $3\frac{1}{2}$  in. on centers in single gangs and  $2\frac{3}{8}$  in. on centers when combined with other sections in .060 in. or .040 in.



No. 2205

**Type R Perkins Flush Rotary Switches**

*Schedule H*

With No. 2779 Composition Handle  
Porcelain cups, 2 $\frac{1}{8}$  inches long, 1 $\frac{1}{8}$  inches wide, 1 $\frac{1}{8}$  inches deep. Supporting screw spacings: outside, 3 $\frac{3}{7}$  inches; inside, 2 $\frac{1}{2}$  inches.

When ordering combination plates, specify R sections to accommodate these switches.

Machine screws for mounting furnished.

Can be converted into lock switches by removing handles and substituting No. 2384 universal rotary switch lock attachment.

Cat. No.	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	125 V.	250 V.				
2205	5	3	10	100	58	\$ .62
2206	10	5	10	50	31	.71
<b>Single-pole</b>						
2207	10	10	10	50	31	\$1.05
<b>Double-pole</b>						
2325	5	3	10	50	31	\$ .82
2208	10	5	10	50	31	1.05
<b>Three-point</b>						
2209	5	2	10	10	7	\$1.05
<b>Four-point</b>						
<b>Electrolier, 1-2-1 and 2-off</b>						
2224	5	2	10	10	7	\$1.05
<b>Electrolier, 1-1 and 2-1 and 2 and 3-off</b>						
2210	5	2	10	10	7	\$1.05

**Bryant Brass Flush Plates**

For Type R Perkins Switches—One Horizontal Row

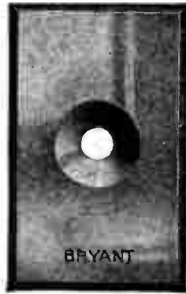
*Schedule H*

The dimensions of these plates are: length, 4 $\frac{1}{2}$  inches; width, 2 $\frac{3}{4}$  inches.

The standard finish is brush brass which will be furnished when no special finish is specified. Perma finish is 4 cents per gang less in price.

Brass mounting screws are packed in carton with each plate.

A standard package consists of a sufficient number of plates to accommodate 100 type R switches. R plates may be assorted in various finishes, thicknesses and gangs to make up a standard package (100 gangs) or a carton (20 gangs). No other assortment is permitted.



No. OR61

Cat. No.	Old No.	Description	Wt., Lbs. Std. Pkg.	Price Each
OR41	3629	One-gang, .040-in., Stamped.....	27	\$ .20
OR61	3630	“ .060 “ “ .....	29	.24
OR11	3181	“ Solid.....	35	.40

R plates, brush brass, standard spacings and dimensions, less than five gangs, per gang: solid, \$.40; .060-in., \$.24; .040-in., \$.20. Five gangs or more, per gang: solid, \$.46; .060-in., \$.32; .040-in., \$.28. For tandem plates, solid only, add 20 per cent.

**Perkins High Capacity Flush Rotary Switches**

30-ampere, All Voltages to 250 Volts Maximum



This switch is 1 $\frac{1}{8}$  inches deep and requires a two-gang box. There are holes for four supporting screws spaced 3 $\frac{1}{2}$  inches on centers vertically and 1 $\frac{1}{8}$  inches on centers horizontally. Gang plates for high capacity switches will be made only on special order at a price of \$1.50 per gang.

With Indicating Plate

Cat. No.	Sched-ule	Length In.	Width In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2568	H	2 $\frac{3}{8}$	3 $\frac{1}{2}$	1	10	13	\$2.00
<b>Single Solid Brass Plate for No. 2568</b>							
OY12	H	4 $\frac{1}{2}$	4 $\frac{3}{8}$	1	10	9	\$1.00

**Perkins Small Size Surface Switches**

Single-Pole

6 Amperes, 125 Volts; 3 Amperes, 250 Volts



2000, without Cover

Outside diameter of base is 2 inches. Nos. 2220 and 2035 can be supplied, on special order, on a base measuring 1 $\frac{3}{4}$  inches in diameter, which is likewise the diameter of the cover.

Height over cover, 1 $\frac{1}{2}$  inches; over handle, 1 $\frac{5}{8}$  in. Screw holes are spaced 1 $\frac{3}{8}$  inches on centers.

No.	Schedule	Description	Car-ton	Std. Wt., Lbs. Pkg.	Price Each
2000	H	Slotted.....	10	100 32	\$ .28
2220	H	Solid.....	10	100 32	.28
2047	H	Slotted, Indicating.....	10	100 32	.32
2035	H	Solid, Indicating.....	10	100 32	.32

**Perkins Large Size Surface Switches**

Single-pole

5 Amperes, 125 Volts; 3 Amperes, 250 Volts

Outside diameter of base is 2 inches.

Height over cover, 1 $\frac{1}{2}$  inches.

Height over handle, 1 $\frac{5}{8}$  inches.

Holes for supporting screws are spaced 1 $\frac{1}{2}$  inches on centers.



No. 2170

Cat. No.	Sched-ulo	Description	Car-ton	Std. Wt., Lbs. Pkg.	Price Each
2170	H	Solid.....	10	100 40	\$ .36
2002	H	Slotted.....	10	100 40	.36
2254	H	Solid, Indicating.....	10	100 40	.40
2255	H	Slotted “.....	10	100 40	.40

**Perkins Large Size Surface Switches**

Single-Pole

10 Amperes, 125 Volts; 5 Amperes, 250 Volts



No. 2221 without Cover

Outside diameter of base, 2 $\frac{1}{8}$  inches. Nos. 2221 and 2036 can be supplied, on special order, on a base measuring 2 $\frac{1}{4}$  inches in diameter, which is likewise diameter of cover.

Height over cover, 1 $\frac{1}{8}$  inches. Height over handle, 2 $\frac{1}{4}$  inches.

Screw holes spaced 1 $\frac{3}{4}$  inches on centers.

Cat. No.	Sched-ule	Description	Car-ton	Std. Wt., Lbs. Pkg.	Price Each
2001	H	Slotted.....	10	100 50	\$ .48
2221	H	Solid.....	10	100 50	.48
2048	H	Slotted, Indicating.....	10	100 50	.54
2036	H	Solid, Indicating.....	10	100 50	.54

**Perkins Single-Pole Surface Switches**

With Composition Base and No. 2778

Composition Handle

10 Amperes 125 Volts; 5 Amperes 250 Volts

*Schedule H*

Diameter of composition base, 2 $\frac{1}{2}$  in.

Height over cover, 1 $\frac{5}{8}$  inches.

Height over handle, 2 $\frac{3}{8}$  inches.

Supporting screw spacing, 1 $\frac{1}{4}$  inches.

The standard finish on all metal covers of surface switches unless otherwise noted is polished nickel which will be supplied when the finish is not specified. For covers in any other finish, except gold, add to list 10 cents each.



No. 2755 with Cover Off

Cat. No.	Description	Car-ton	Std. Wt., Lbs. Pkg.	Price Each
2755	Solid.....	10	30 15	\$ .60
2756	Solid, Indicating.....	10	30 15	.70

## Perkins Three-point Surface Switches

3 Amperes, 125 Volts; 1 Ampere, 250 Volts



No. 2455 without Cover

Outside diameter of base is 2 inches. No. 2455 can be supplied, on special order, on a base measuring 1 3/4 inches in diameter, which is likewise the diameter of the cover.

Height over cover is 1 1/2 inches. Height over handle is 1 5/8 in. Holes for supporting screws are spaced 1 3/8 inches on centers.

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2455	H	Solid	10	100	37	7	\$.48
2456	H	Slotted	10	100	37	7	.48

## Perkins Three-point Surface Switches

5 Amperes, 125 Volts  
3 Amperes, 250 Volts

Outside diameter of base is 2 1/4 inches. Height over cover is 1 1/2 inches. Height over handle is 1 5/8 inches.

Holes for supporting screws are spaced 1 1/2 inches on centers.



No. 2175

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2175	H	Solid	10	100	40	40	\$.56
2027	H	Slotted	10	100	40	40	.56

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Outside diameter of base, 2 5/8 inches. No. 2176 can be supplied on 2 1/4 inch in diameter base. Height over cover, 1 5/8 inches; over handle, 2 1/4 inches. Holes spaced 1 1/8 inches.

2176	H	Solid	10	50	25	25	\$.76
2030	H	Slotted	10	50	25	25	.76

## Perkins Four-point Surface Switches

5 Amperes, 125 Volts; 2 Amperes, 250 Volts

Four-point switches are used in connection with two three-point switches where current is to be controlled from any one of more than two points. A four-point switch is installed between the three-point switches at each additional point.

Four-point switches can also be used individually as pole-changing switches.

Outside diameter of base is 2 5/8 inches.

No. 2183 can be supplied, on special order, on a base measuring 2 1/4 inches in diameter, likewise the diameter of the cover. Height over cover is 1 5/8 inches. Height over handle, 2 1/4 inches. Holes for supporting screws are spaced 1 3/4 inches on centers.

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2183	H	Solid	10	30	15	15	\$.86
2033	H	Slotted	10	30	15	15	.86

## Perkins Two-circuit Electroliner Surface Switches

2-circuit, 1-2-1 and 2-off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, circuit 1 off and circuit 2 on; 3rd position, circuits 1 and 2 on; 4th position, all circuits off.

Outside diameter of base is 2 5/8 inches. Nos. 2216 and 2188 can be supplied, on special order, on a base measuring 2 1/4 inches in diameter.

Height over cover, 1 5/8 inches; over handle, 2 1/4 inches. Holes spaced 1 3/4 inches on centers.



No. 2188

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2216	H	Solid	10	10	7	7	\$.76
2215	H	Slotted	10	10	7	7	.76
2188	H	Solid, Indicating	10	10	7	7	.86
2074	H	Slotted	10	10	7	7	.86

## Perkins 2-circuit Electroliner Surface Switches

2-circuit, 1, 1 and 2, 1, Off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts



No. 2651 Without Cover

1st position, circuit 1 on; 2nd position, circuits 1 and 2 on; 3rd position, circuit 1 on; 4th position, all circuits off.

Outside diameter of base is 2 5/8 inches.

Height over cover, 1 5/8 inches.

Height over handle, 2 1/4 inches.

Supporting screw spacings, 1 3/4 inches.

No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2649	H	Solid	10	10	7	7	\$.90
2650	H	Slotted	10	10	7	7	.90
2651	H	Solid, Indicating	10	10	7	7	1.00
2652	H	Slotted	10	10	7	7	1.00

## Perkins 2-circuit Electroliner Surface Switches

2-circuit, 1, Off, 2, Off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, all circuits off; 3rd position, circuit 2 on; 4th position, all circuits off.

Outside diameter of base is 2 5/8 inches.

Height over cover, 1 5/8 inches.

Height over handle, 2 1/4 inches.

Supporting screw spacings, 1 3/4 inches.



No. 2655

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2653	H	Solid	10	10	7	7	\$.90
2654	H	Slotted	10	10	7	7	.90
2655	H	Solid, Indicating	10	10	7	7	1.00
2656	H	Slotted	10	10	7	7	1.00

## Perkins 2-circuit Electroliner Surface Switches

2-circuit, 1, Off, 1 and 2, Off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, all circuits off; 3rd position, circuits 1 and 2 on; 4th position, all circuits off.

Outside diameter of base is 2 5/8 inches.

Height over cover, 1 5/8 inches.

Height over handle, 1 5/8 inches.

Supporting screw spacings, 1 3/4 inches.



No. 2657

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2657	H	Solid	10	10	7	7	\$.90
2658	H	Slotted	10	10	7	7	.90
2659	H	Solid, Indicating	10	10	7	7	1.00
2660	H	Slotted	10	10	7	7	1.00

## Perkins Three-circuit Electroliner Surface Switches

1-1 and 2-1 and 2 and 3-off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, circuits 1 and 2 on; 3rd position, circuits 1 and 2 and 3 on; 4th position, all circuits off.

Outside diameter of base is 2 5/8 inches. Nos. 2185 and 2187 can be supplied, on special order, on a 2 1/4-inch base.

Height over cover, 1 5/8 inches; over handle, 2 1/4 inches. Holes for supporting screws are spaced 1 3/4 inches on centers.



2072 without Cover

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt. Std. Pkg.	Lbs. Pkg.	Price Each
2185	H	Solid	10	10	7	7	\$.90
2070	H	Slotted	10	10	7	7	.90
2187	H	Solid, Indicating	10	10	7	7	1.00
2072	H	Slotted	10	10	7	7	1.00

**Perkins Three-circuit Electroliner or Three-speed Fan Motor Switches**

1-2-3-off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, circuit 1 off and circuit 2 on; 3rd position, circuits 1 and 2 off, circuit 3 on; 4th position, all circuits off. Outside diameter of base is 2 1/8 inches. Nos. 2664 and 2666 can be supplied on special order, on a 2 1/4-inch base. Height over cover is 1 1/8 inches, height over handle, 2 1/4 inches. Holes for screws spaced 1 3/4 inches.



No. 2665 without Cover

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2664	H	Solid	10	10	7	7	\$ .90
2665	H	Slotted	10	10	7	7	.90
2666	H	Solid, Indicating	10	10	7	1.00	1.00
2667	H	Slotted	10	10	7	1.00	1.00

**Perkins Two-circuit Electroliner Surface Switches**

2-circuit, 1-1 and 2-off

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

1st position, circuit 1 on; 2nd position, circuits 1 and 2 on; 3rd position, all circuits off.

Outside diameter of base is 2 1/4 inches. Height over cover is 1 1/8 inches, height over handle, 2 1/4 inches. There are three supporting screw holes equally spaced on a circle having a diameter of 1 3/4 inches. These switches cannot be supplied on slotted bases.



Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2661	H	Solid	10	10	7	\$ .90	.90
2662	H	Indicating	10	10	7	1.00	1.00

**Perkins Double-pole Surface Switches**

5 Amperes, 250 Volts; 10 Amperes, 125 Volts

Outside diameter of base is 2 inches. Nos. 2391 and 2393 can be supplied on special order, on a base measuring 1 3/4 inches in diameter which is likewise the diameter of the cover.

Height over cover, 1 1/8 inches. Height over handle, 2 1/8 inches.

Holes for supporting screws are spaced 1 3/8 inches on centers.



No. 2391

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2391	H	Solid	10	100	37	\$ .56	.56
2392	H	Slotted	10	100	37	.56	.56
2393	H	Solid, Indicating	10	100	37	.64	.64
2394	H	Slotted	10	100	37	.64	.64

**Perkins Double-Pole Double-Throw Surface Switches**

Schedule H

10 Amperes, 125 Volts

10 Amperes, 250 Volts

Porcelain base and No. 2779 composition handle. Diam. of base, 2 1/8 in. Height over cover, 1 3/8 in.; over handle, 2 5/8 in. Supporting screw spacings, 2 1/2 in. Standard finish cover, polished nickel. For special finish, add 10 cents.

Rotary switches can be converted into lock switches by use of No. 2384 lock.



No. 2611 with Cover Off

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2611	Solid	1	10	8	\$ 2.40	2.40
2612	Slotted	1	10	8	2.40	2.40
2613	Solid, Indicating	1	10	8	2.50	2.50
2614	Slotted, Indicating	1	10	8	2.50	2.50

**Perkins Double-pole Surface Switches**

10 Amperes, 250 Volts

Outside diameter of base is 2 1/8 inches. Nos. 2009 and 2038 can be supplied, on a base measuring 2 1/4 inches in diameter, which is likewise the diameter of the cover.

Height over cover, is 1 1/8 inches. Height over handle, 2 1/4 inches. Holes for supporting screws are spaced 1 3/4 inches on centers.



2017 without Cover

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2009	H	Solid	10	100	50	\$ .66	.66
2017	H	Slotted	10	100	50	.66	.66
2038	H	Solid, Indicating	10	100	50	.76	.76
2050	H	Slotted	10	100	50	.76	.76

20 Amperes, 250 Volts

Outside diameter of base is 3 1/2 inches. Height over cover is 1 3/4 inches. Height over handle, 2 3/4 inches. Holes for supporting screws are spaced 2 3/8 inches on centers.

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2011	H	Solid	1	30	25	\$ 1.40	1.40
2019	H	Slotted	1	30	25	1.40	1.40
2040	H	Solid, Indicating	1	30	25	1.50	1.50
2052	H	Slotted	1	30	25	1.50	1.50

30 Amperes, 250 Volts

Outside diameter of base, 3 3/8 inches. Height over cover is 1 5/8 inches; over handle, 2 3/4 inches. Holes for supporting screws spaced 2 5/8 inches on centers. Holes are elongated to provide 2 3/4 inches spacing, making them suitable for attachment to 3 1/4-inch outlet boxes, Type WD octagonal Unilets, Type 700 Adaptiboxes and Type SE Condulets.

30-ampere switches regularly furnished with flat handles.

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2013	H	Solid	1	30	41	\$ 1.70	1.70
2021	H	Slotted	1	30	41	1.70	1.70
2042	H	Solid, Indicating	1	30	41	1.80	1.80
2054	H	Slotted	1	30	41	1.80	1.80

**Perkins Double-pole Surface Switches**

Schedule H

10 Amperes, 125 Volts; 10 Amperes, 250 Volts

With metal cover, composition base and No. 2778 composition handle. Diameter of base, 2 1/2 inches. Height over cover, 1 5/8 inches; over handle, 2 5/8 inches. Supporting screw spacings, 1 3/4 inches.



No. 2765

Unless otherwise specified standard finish metal covers, polished nickel, will be supplied. For any other finish, except gold, add 10 cents for each cover. Rotary switches can be converted into lock switches by removing the handles and substituting No. 2384 universal rotary switch lock attachments.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2765	Solid	10	10	6	\$ .78	.78
2766	Indicating	10	10	6	.88	.88

**Perkins Triple-pole Surface Switches**

10 Amperes, 125 Volts

10 Amperes, 250 Volts

Outside diameter of base is 2 1/8 inches. Height over cover is 1 3/8 inches. Height over handle, 2 5/8 inches.

Holes for supporting screws are spaced 2 3/8 inches on centers.

These switches are regularly furnished with flat handles.



No. 2633 without Cover

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2025	H	Solid	1	10	7	\$ 1.90	1.90
2633	H	Slotted	1	10	7	1.90	1.90
2046	H	Solid, Indicating	1	10	7	2.00	2.00
2634	H	Slotted	1	10	7	2.00	2.00



## Perkins Surface Switches

With Cover Extending over Porcelain Base  
*Schedule II*



No. 2430

Outside diameter base, 1 $\frac{3}{8}$  inches. Screw holes spaced 1 $\frac{3}{8}$  inches. Height, over cover, 1 $\frac{1}{2}$  inches; over handle, 2 $\frac{1}{2}$  inches.

May be converted into lock switch by removing handle and substituting lock attachment.

5 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2429	Single-Pole Solid	10	100	31	\$ .36
2430	Single-Pole Solid Indicating	10	100	31	.40
3 Amperes, 125 Volts; 1 Ampere, 250 Volts					
2615	Three-Point Solid	10	100	35	\$ .56
2616	Four-Point Solid	10	50	15	.64
5 Amperes, 125 and 250 Volts					
2617	Double-Pole Solid	10	100	35	\$ .64
2618	Double-Pole Solid Indicating	10	100	35	.72

## Perkins Surface Switches

With Porcelain Outlet Box Base for Type 500 Adaptiboxes, Types GN, HM, and W (Forms 5 and 10) Octagonal Unilets and Form 10 Round Opening

Pipe Taplets

*Schedule II*



No. 2690

Suitable machine screws are furnished for mounting these devices on boxes.

The metal cover is furnished unless a special finish is specified in standard finish, polished nickel. For special finishes, except gold, add 10 cents each.

Rotary switches can be converted into lock switches by removing the handles and substituting No. 2384 switch lock.

With No. 2777 Composition Handle

5 Amperes, 125 Volts; 3 Amperes, 250 Volts

Diameter of base, 2 $\frac{7}{8}$  inches. Height over cover, 1 $\frac{1}{2}$  inches. Heights over handle, 2 $\frac{1}{2}$  inches.

Supporting screw spacings, 2 $\frac{5}{8}$  inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2690	Single-pole	10	100	60	\$ .36
2691	Indicating	10	100	60	.40

With No. 2778 Composition Handle

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Diameter of base, 2 $\frac{7}{8}$  inches. Height over cover, 1 $\frac{1}{2}$  inches. Height over handle 2 $\frac{1}{2}$  inches.

Supporting screw spacings, 2 $\frac{5}{8}$  inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2692	Single-pole	10	50	35	\$ .48
2693	Indicating	10	50	35	.54

## Perkins Three-circuit Electrolier Surface Switches

Operating 1-1 & 2-1 & 2 & 3-Off

*Schedule H*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

With porcelain base, cover and No. 2781 porcelain handle.

Diameter of base, 2 $\frac{1}{2}$  inches. Height over cover, 1 $\frac{5}{8}$  inches; over handle, 2 $\frac{3}{8}$  inches.

Supporting screw spacings, 1 $\frac{3}{4}$  inches.



No. 2762

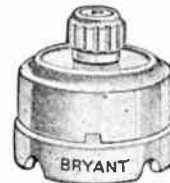
Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2263	Solid	1	10	7	\$ .98
2761	Slotted	1	10	7	.98
2437	Solid, Indicating	1	10	7	1.08
2762	Slotted	1	10	7	1.08

## Perkins Surface Switches With Porcelain Cover and Handle

*Schedule II*



Solid



Slotted

Single-Pole—6 Amperes, 125 Volts; 3 Amperes, 250 Volts  
Outside diameter base, 2 in. Screw holes spaced 1 $\frac{3}{8}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2601	Solid	1	100	47	\$ .32
2602	Slotted	1	100	47	.32
2603	Solid, Indicating	1	100	47	.36
2604	Slotted, Indicating	1	100	47	.36

Single-Pole—10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Outside diameter base, 2 $\frac{1}{2}$  in. Screw holes spaced 1 $\frac{3}{4}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{3}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2141	Solid	1	30	20	\$ .56
2753	Slotted	1	30	20	.56
2435	Solid, Indicating	1	30	20	.62
2754	Slotted, Indicating	1	30	20	.62

3-Point—5 Amperes, 125 Volts; 3 Amperes, 250 Volts

Outside diameter base, 2 in. Screw holes spaced 1 $\frac{3}{8}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{5}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2605	Solid	1	10	5	\$ .52
2606	Slotted	1	10	5	.52

3-Point—10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Outside diameter base, 2 $\frac{1}{2}$  in. Screw holes spaced 1 $\frac{3}{4}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{3}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2140	Solid	1	10	7	\$ .84
2757	Slotted	1	10	7	.84

4-Point—5 Amperes, 125 Volts; 2 Amperes, 250 Volts

Outside diameter base, 2 $\frac{1}{2}$  in. Screw holes spaced 1 $\frac{3}{4}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{3}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2142	Solid	1	10	7	\$ .94
2758	Slotted	1	10	7	.94

Double-Pole—10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Outside diameter base, 2 in. Screw holes spaced 1 $\frac{3}{8}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{5}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2607	Solid	1	10	5	\$ .60
2608	Slotted	1	10	5	.60
2609	Solid, Indicating	1	10	5	.68
2610	Slotted, Indicating	1	10	5	.68

Double-Pole—10 Amperes, 125 Volts; 10 Amperes, 250 Volts

Outside diameter base, 2 $\frac{1}{2}$  in. Screw holes spaced 1 $\frac{3}{4}$  in. Height over cover, 1 $\frac{5}{8}$  in.; over handle, 2 $\frac{3}{8}$  in.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2139	Solid	1	10	7	\$ .74
2763	Slotted	1	10	7	.74
2438	Solid, Indicating	1	10	7	.84
2764	Slotted, Indicating	1	10	7	.84

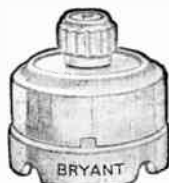
## Perkins Two-circuit Electrolier Surface Switches

Operating 1-2-1 & 2-Off  
*Schedule H*

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

With porcelain base, cover and No. 2781 porcelain handle.

Diameter of base, 2 $\frac{1}{2}$  inches. Height over cover, 1 $\frac{5}{8}$  inches; over handle, 2 $\frac{3}{8}$  inches. Supporting screw spacing, 1 $\frac{3}{4}$  inches.



No. 2759

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2264	Solid	1	10	7	\$ .84
2759	Slotted	1	10	7	.84
2436	Solid, Indicating	1	10	7	.94
2760	Slotted,	1	10	7	.94

**Perkins Expulsion Type Surface Switches**  
For Inductive Loads and Electric Railway Circuits  
With Porcelain Base and Handle, Metal Cover

Schedule II



No. 2171  
with Cover Off



No. 2060, Indicating  
with Cover Off

Expulsion type switches are designed with barriers between parts of opposite polarity which are effective in limiting the arc formed when the circuit is broken. For this reason, they should be used to control inductive loads such as motors.

Because of the difference in operating characteristics of inductive apparatus it is not possible to guarantee expulsion type switches on all inductive loads but they will give better results on inductive loads than the regular type of rotary switches.

While only the 600-volt rating of these switches is National Electric Code standard, the suggested rating at 250 volts is also given for each switch.

It is not advisable, though possible, to convert 600-volt switches into lock switches by the use of No. 2384 rotary switch lock attachment.

The standard finish on all metal covers of surface switches unless otherwise noted is polished nickel which will be supplied when the finish is not specified. For covers in any other finish, except gold, add to price 10 cents each.

**\*Single-pole—5 Amp., 250 Volts; 3 Amp., 600 Volts**  
With No. 2781 Porcelain Handle

Diameter of base, 2 1/4 inches; height over cover, 1 1/8 inches; height over handle, 2 3/8 inches.

Supporting screw spacings, 1 1/2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
2171	Solid	10	50	23	\$ .54
2003	Slotted	10	50	23	.54
*2226	Solid, Indicating	10	50	23	.60
*2225	Slotted, "	10	50	23	.60

**Single-pole—10 Amp., 250 Volts; 5 Amp., 600 Volts**  
With No. 2781 Porcelain Handle

Diameter of base, 2 7/8 inches; height over cover, 1 3/8 inches; height over handle, 2 3/8 inches.

Supporting screw spacings, 1 3/4 inches.

2211	Solid	1	50	27	\$ .66
2212	Slotted	1	50	27	.66
*2049	Solid, Indicating	1	50	27	.76
*2103	Slotted, "	1	50	27	.76

**Single-pole—20 Amp., 250 Volts; 10 Amp., 600 Volts**  
With No. 2784 Porcelain Handle

Diameter of base, 3 1/2 inches; height over cover, 1 3/4 inches; height over handle, 2 3/4 inches.

Supporting screw spacings, 2 3/8 inches.

2227	Solid	1	50	46	\$ 1.60
2228	Slotted	1	50	46	1.60
*2060	Solid, Indicating	1	50	46	1.70
*2066	Slotted, "	1	50	46	1.70

**Single-pole—30 Amp., 250 Volts; 20 Amp., 600 Volts**  
With No. 2784 Porcelain Handle

Diameter of base, 3 3/8 inches; height over cover, 1 5/8 inches; height over handle, 2 7/8 inches.

Supporting screw spacings, 2 9/16 inches.

2301	Solid	1	50	71	\$ 1.90
2302	Slotted	1	50	71	1.90
*2303	Solid, Indicating	1	50	71	2.00
*2304	Slotted, "	1	50	71	2.00

\*The window in the cover of this switch is located so that, when the switch is mounted on a wall above eye level, the indications can be read right side up under the handle.

**Perkins Expulsion Type Surface Switches**  
For Inductive Loads and Electric Railway Circuits  
With Porcelain Base and Handle, Metal Cover

Schedule II



No. 2773



No. 2448, with Cover off

Designed with barriers between parts of opposite polarity which are effective in limiting the arc formed when the circuit is broken.

The 600-volt rating only is N. E. C. S. It is not advisable, though possible, to convert 600-volt switches to lock switches by the use of No. 2384 universal lock attachment.

The standard finish of metal cover is polished nickel. For other finishes, except gold, add 10 cents each.

**\*Double-pole—10 Amp., 250 Volts; 5 Amp., 600 Volts**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
2771	Solid	1	50	25	\$ .90
2772	Slotted	1	50	25	.90
2773	Solid, Indicating	1	50	25	1.00
2774	Slotted, "	1	50	25	1.00

**†Double-pole—20 Amp., 250 Volts; 10 Amp., 600 Volts**

2445	Solid	1	50	45	\$ 1.80
2446	Slotted	1	50	45	1.80
2447	Solid, Indicating	1	50	45	1.90
2448	Slotted, "	1	50	45	1.90

**\*Three-point—10 Amp., 250 Volts; 5 Amp., 600 Volts**

2179	Solid	1	50	25	\$ .90
2100	Slotted	1	50	25	.90
2413	Solid, Indicating	1	50	25	1.00
2414	Slotted, "	1	50	25	1.00

**†Three-point—20 Amp., 250 Volts; 10 Amp., 600 Volts**

2397	Solid	1	50	45	\$ 1.70
2398	Slotted	1	50	45	1.70
2415	Solid, Indicating	1	50	45	1.80
2416	Slotted, "	1	50	45	1.80

**\*Four-point—10 Amp., 250 Volts; 5 Amp., 600 Volts**

2719	Solid	10	20	12	\$ 1.00
2720	Slotted	10	20	12	1.00

**†Four-point—20 Amp., 250 Volts; 10 Amp., 600 Volts**

2721	Solid	10	20	16	\$ 1.80
2722	Slotted	10	20	16	1.80

**Two-circuit, Expulsion Type Surface Switches**

Operating 1, Off, 2, Off

These switches will break the circuit without the use of an additional switch and are especially adapted for use on electric cars as headlight switches and to control interior lights. The 600-volt rating only is N. E. C. S.

*5 Amp., 250 Volts; 3 Amp., 600 Volts					
2181	Solid	10	50	25	\$ .76
2028	Slotted	10	50	25	.76
2062	Solid, Indicating	10	50	25	.86
2068	Slotted, "	10	50	25	.86
†20 Amp., 250 Volts; 10 Amp., 600 Volts					
2409	Solid	1	50	45	\$ 1.70
2410	Slotted	1	50	45	1.70
2411	Solid, Indicating	1	50	45	1.80
2412	Slotted, "	1	50	45	1.80

\*With No. 2781 porcelain handle.

Diameter of base, 2 7/8 inches; height over cover, 1 1/8 inches; height over handle, 2 3/8 inches.

Supporting screw spacings, 1 3/4 inches.

†With No. 2784 porcelain handle.

Diameter of base, 3 1/2 inches; height over cover, 1 3/4 inches; height over handle, 2 3/4 inches.

Supporting screw spacings, 2 3/8 inches.

## Perkins Expulsion Type Surface Switches For Inductive Loads and Railway Circuits, Single-pole, Fusible, Slotted, Indicating Porcelain Base, Handle and Cover

5 Amperes, 250 Volts; 3 Amperes, 600 Volts



No. 2077

An open link fuse is laid in a groove near the edge of the cover. These switches cannot be supplied on solid bases.

Diameter of base, 3 3/8 inches. Height over cover, 1 5/8 inches; over handle, 2 3/8 inches.

Supporting screw spacings, 1 1/2 inches.

Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2077	H	White Porcelain	1	10	15	\$1.60
2277	H	Brown	1	10	15	1.60

## Perkins Expulsion Type Surface Switches For Inductive Loads and Railway Circuits

Connections for One Enclosed Fuse No. 2316  
Single-pole, Solid, Indicating,  
Brown Porcelain Base, No. 2782  
Handle and Cover

Base, 3 1/4 x 3 in. Height over cover, 1 3/4 in.; over handle, 2 3/8 in. Supporting screw spacings, 3 1/2 x 3/8 inches

Price does not include fuse.



No. 2316

Cat. No.	Schedule	AMPERES	250 V.	600 V.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2315	H	5	3		1	25	43	\$1.50

### \*Ferrule Type Cartridge Fuse for No. 2315

Enclosed, Indicating

Cat. No.	Schedule	AMPERES	250 V.	600 V.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2316	E2	3	3		25	100	5	\$.25

\*Length, 3 3/8 inches. Diameter, 5/8 inches.

## Bryant and Perkins Surface Switch Covers

Schedule II



Angle Dial Metal Cover



Range Switch Cover



Porcelain Cover Non-indicating



Flat Metal Cover Indicating

Metal covers have insulating linings. Porcelain covers have no linings. Orders should specify whether indicating or non-indicating covers are desired.

Standard finish on metal covers is polished nickel. Other finishes, except gold, add 10 cents each extra.

Description	Std. Pkg.	Price Each	Allowance for Omission
Flat Metal, for 10 A., 250 V. and Smaller Rotary Switches	50	\$.08	\$.03
Flat Metal, for 20 A., 250 V. Rotary Switches	50	.20	.08
" " " 30 " 250 " " " "	50	.20	.08
" " " 50 " 250 " " " "	50	.50	.17
" " " with Extension Covering Base, for Nos. 2129, 2130, 2463 and 2615-2618 Switches	50	.20	.08
Angle Dial Metal, for 10 A., 250 V. Heater Switches	50	.25	.08
" " " 15 " 250 " " " "	50	.35	.12
" " " 20 " 250 " " " "	50	.45	.15
Flat Metal, for Surface Tumbler Switches	50	.08	.03
Black Finished Metal for Range	30	.30	...
For Wall and Ceiling Pull Switches	50	.20	.08
" Nos. 2315, 2077 or 2277 Switches	50	.30	.10
Porcelain, for 10 A., 250 V. and Smaller Rotary Switches	50	.10	.05
Porcelain, for Rotary Switches Larger Than 10 A., 250 V., Except Nos. 2315, 2077 and 2277	50	.14	.07

## Perkins Rotary Switch Handles

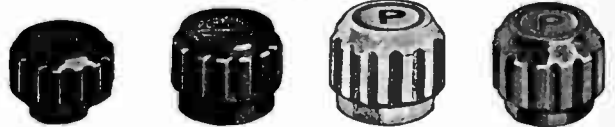
Schedule H

All Perkins rotary switch handles, except the handle of No. 2597, lock attachments and switch center posts, except Nos. 2635 and 2636 and range switches, are threaded alike, regardless of the size of the switch. Handles differ in external shape and size for purposes of leverage appropriate to the size of the switch. In an emergency, any available handle can be attached to any switch.

Refer to switch listings for definite information regarding handles. Any switch regularly equipped with one of these handles can, on special order, be furnished with any other of these handles without extra charge.

When switches are ordered without handles, deduct 2 cents.

### Round Handles



Cat. No.	Description	SIZE SWITCH IN AMPS.	125 and 250 Volts	250 and 600 Volts	Std. Pkg.	Price Each
2777	Composition	3 and 5			100	\$.06
2778	"	10			100	.06
2781	White Porcelain	3, 5 and 10	3 and 5		100	.06
2782	Brown	"	3		100	.06

### Flat Handles



Cat. No.	Description	SIZE SWITCH IN AMPS.	125 and 250 Volts	250 and 600 Volts	Std. Pkg.	Price Each
2779	Composition	20 and Flush			100	\$.06
2780	"	30 " 50			100	.06
2783	White Porcelain	10 " 15			100	.06
2784	"	20 " 30	10 and 20		100	.06

## Perkins Security Ratchet-lock Handles

Schedule H



No. 2775

These handles may be substituted for standard round or flat handles on any of the rotary switches listed in this catalogue except Nos. 2597, 2635, 2636 and range switches.

They are attached in the usual manner, but can be removed only with screw driver.

The ratchet principle is employed so that turning the handle backward does no damage either to handle or switch.

For switches fitted with these handles, add 5 cents extra.

Cat. No.	Description	Substitute for No.	Std. Pkg.	Price Each
2775	Round, Composition	2777 and 2778	100	\$.10
2776	" White Porcelain	2781	100	.10
2797	Flat " "	2783	100	.10
2808	" " "	2784	100	.10
2824	" Composition	2780	100	.10

## Bryant and Perkins Rotary Switch Lock Attachments and Keys

Schedule H



No. 2384



No. 2126

By substituting this lock attachment for the handle on any Perkins rotary switch either surface or flush, except Nos. 2597, 2635, 2636 and range switches, lock switches are obtained.

The lock attachment can only be screwed on or removed and the switch operated only by means of the key. Key No. 2126 is also used for operating tumbler lock switches.

Cat. No.	Description	Std. Pkg.	Price Each
2384	Lock Attachment, Polished Nickel	100	\$.16
2126	Key for Rotary Lock Switches	100	.06

**Bryant Double-pole Range Switches**

*Schedule H*



**Series-parallel, Operating High, Medium, Low, Off**

Porcelain base and indicating handle, bakelite insulation, for surface mounting with separable mechanism, black metal cover with embossed dial indications.

Diameter of bases, 3 inches.  
Diameter of covers, 2 3/4 inches.  
Supporting screw spacings, 1 1/8 inches.

No. 2800

**No. 2800, Indicating**

20 Amperes, 125 Volts; 10 Amperes, 250 Volts

Consists of No. 2815 switch mechanism, No. 2804 sub-base, No. 2816 cover and No. 2822 porcelain handle.

Height over cover, 2 3/7 inches; over handle, 2 5/8 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2800	Clockwise Rotation	1	10	14	\$1.60

**No. 3800, Indicating**

30 Amperes, 125 Volts, 15 Amperes, 250 Volts

Consists of No. 3815 switch mechanism, No. 2804 sub-base, No. 3816 cover and No. 3822 porcelain handle.

Height over cover, 2 1/2 inches; over handle, 3 1/2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
3800	Reversible Rotation	1	10	20	\$1.70

**Bryant Double-Pole Range Switches**

*Schedule H*

**On and Off, Operating On, Off, On, Off**

Porcelain base and indicating handle, bakelite insulation, for surface mounting with separable mechanism, black metal cover with embossed dial indications.

Diameter of bases, 3 inches.  
Diameter of covers, 2 3/4 inches.  
Supporting screw spacings, 1 1/8 inches.



No. 2818

**No. 2818, Indicating**

20 Amperes, 125 Volts; 10 Amperes, 250 Volts

Consists of No. 2819 switch mechanism, No. 2804 sub-base, No. 2820 cover and No. 2820 porcelain handle.

Height over cover, 2 3/8 inches; over handle, 2 15/16 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2818	Clockwise Rotation	1	10	14	\$1.60

**No. 3818, Indicating**

30 Amperes, 125 Volts; 15 Amperes, 250 Volts

Consists of No. 3819 switch mechanism, No. 2804 sub-base, No. 3820 cover and No. 3820 porcelain handle.

Height over cover, 2 1/2 inches; over handle, 3 1/2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
3818	Reversible Rotation	1	10	14	\$1.70

**Perkins Heater Control Surface Switches**

**Single-pole, Indicating, Porcelain Base and No. 2784 Porcelain Handle, Metal Cover, Bakelite Insulation**

**Series-Parallel, Operating High, Medium, Low, Off**

20 Amperes, 125 Volts; 15 Amperes, 250 Volts

*Schedule H*

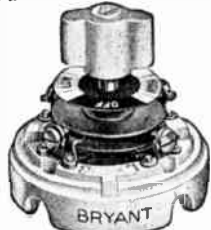
Diameter of base, 3 1/2 in. Height over flat cover, 1 7/8 in.; over handle of switch with flat cover, 2 5/8 in.; over angle dial cover, 1 5/8 in.; over handle of switch with angle dial cover, 2 3/8 in. Supporting screw spacings, 2 3/8 in.

**With Flat Cover**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2672	Solid	1	10	9	\$1.00
2673	Slotted	1	10	9	1.00

**With Angle Dial Cover**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2679	Solid	1	10	9	\$1.10
2680	Slotted	1	10	9	1.10



No. 2673 With Cover Off

**Perkins Heater Control Surface Switches**

**Single-pole, Indicating, Porcelain Base and Handle Metal Cover, Bakelite Insulation**

**Series-Parallel, Operating High, Medium, Low, Off**

*Schedule H*



No. 2635

Standard finish metal cover, polished nickel, will be supplied unless special finish is specified. For special finishes, except gold, add 10 cents.

By substituting No. 2384 universal rotary switch lock attachment for handle these switches can be converted into lock switches.

**Indicating with No. 2783 Porcelain Handle**

15 Amperes, 125 Volts; 10 Amperes, 250 Volts

Diameter of base, 2 1/4 inches. Height over flat cover, 1 1/2 inches. Height over angle dial cover, 1 5/8 inches. Height over handle of switch with flat cover, 2 1/4 inches. Height over handle of switch with angle dial cover, 2 3/4 inches.

Supporting screw spacings, 1 3/4 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
*2669	Solid, Flat Cover	1	10	6	\$.81
2670	Slotted, Flat Cover	1	10	6	.81
*2619	Solid, Angle Dial Cover	1	10	6	.81
2620	Slotted, Angle Dial Cover	1	10	6	.81

**With No. 2825 Arrow Indicating Porcelain Handle**

20 Amperes, 125 Volts; 10 Amperes, 250 Volts

Diameter of base, 2 1/8 inches. Height over cover, 1 1/2 inches. Height over handle, 2 1/4 inches. Supporting screw spacings, 1 3/4 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
*2635	Solid, Flat Cover	1	10	6	\$.81
2636	Slotted, Flat Cover	1	10	6	.81

\*Can be supplied, on special order, at no advance in price, on base 2 1/4 inches in diameter, which is the diameter of the cover.

**Perkins Heater Control Surface Switches**

**Single-pole, Indicating, Porcelain Base and No. 2784 Porcelain Handle, Metal Cover, Bakelite Insulation**

**Series-Parallel, Operating High, Medium, Low, Off**

40 Amperes, 125 Volts; 20 Amperes, 250 Volts

*Schedule H*

Diameter of base, 3 3/8 in. Height over flat cover, 1 5/8 in.; over handle of switch with flat cover, 2 7/8 in.; over angle dial cover, 2 in.; over handle of switch with angle dial cover, 2 5/8 in. Supporting screw spacings, 2 3/4 inches.

**With Flat Cover**



No. 2621

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2675	Solid	1	10	17	\$2.00
2676	Slotted	1	10	17	2.00

**With Angle Dial Cover**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2621	Solid	1	10	17	\$2.00
2622	Slotted	1	10	17	2.00

**Bryant Range Switch Fusible Sub-bases**

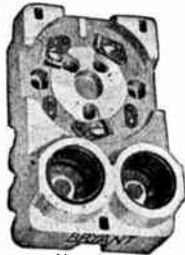
These sub-bases are designed to be mounted in a row and have provisions for bus-wires, heater-wire connections and means for supporting the switch.

The housings for the switches are supplied by the range manufacturer and include supports for the sub-bases, a cover plate bearing the proper dial indications and through which the center posts of the switch mechanisms project, and an easily removed cover for ready access to the fuses. The porcelain indicating handles plainly show the connections to the various heaters.

The main-line connections, or bus-wires, are supported in parallel grooves on the backs of the sub-bases. The wires from the switches to the heating units are connected to the terminal plates on the sub-bases and are carried through holes in the porcelain to suitable terminals on the heater units. To determine the height of any switch mounted on any sub-base add the dimensions "Height to mounting surface," and "Height under handle," or "Height over handle."

## Bryant Range Switch Fusible Porcelain Sub-bases

**Schedule H**  
30 Amperes, 125 Volts  
With Fuse Receptacles Parallel to Switch Center Post



No. 3806

This sub-base may be installed in the range with the fuses either above or below the switch. The bus-wire connections are so devised that the load of the range may be balanced between the neutral wire and each of the two pressure wires. This is accomplished by shifting the contact plate from one pressure wire groove to the other making the proper connections.

Cat. No.	Lgth.	Wdth.	DIMENSIONS, INCHES			Car-ton	Std. Pkg.	Wt., Lbs.		Price Each
			Height to Mounting Surface	Height to Supporting Screw Spacings	Std. Pkg.			Std. Pkg.		
2806	4 3/4	3	1 7/8	1 1/8	2 1/8	1	10	19	\$ .60	
3806	4 3/4	3	1 3/4	3/4	2 1/8	1	10	9	\$ .60	

## No. 2807 Bryant Range Switch Fusible Porcelain Sub-bases

**Schedule H**  
30 Amperes, 125 Volts  
With Fuse Receptacles at Right Angle to Switch Center Post



The bus-wire connections are so devised that the load is balanced between the neutral wire and each of the two pressure wires by arranging the 3 feed wires in the 3 grooves on the back and on the end of the cut-out base so that the proper wires will be connected to the terminal plates of the proper sub-bases.

Cat. No.	Lgth.	Wdth.	DIMENSIONS, INCHES			Car-ton	Std. Pkg.	Wt., Lbs.		Price Each
			Height to Mounting Surface	Height to Supporting Screw Spacings	Std. Pkg.			Std. Pkg.		
2807	3 3/8	3	1 1/2	2 3/8	1	10	8	\$ .60		

## No. 136 Bryant Range Switch Fusible Porcelain Sub-bases

**Schedule R**  
10 Amperes, 125 Volts—Voltage Limited by Plug Fuses  
Separable Spartan Attachment Plug Receptacle and Fusible Sub-base Connecting Block



Supporting screw spacings, 2 3/8 inches. The hole required for the boss of the Spartan receptacle is 1 1/2 inches in diameter.

Length, 3 3/8 inches; width, 2 5/8 inches; extreme height, 2 1/4 inches.

Combines a No. 79 Spartan receptacle body with a special double-pole plug fuse porcelain cut-out base and is intended to be installed against the inside of the

range base with the receptacle boss projecting through a hole provided for the purpose.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
136	5	100	122	\$ .50

## Bryant Double-pole Switch Mechanisms Units for Range Switches



**Schedule H**  
Series-parallel Operating High, Medium, Low, Off  
20 Amperes, 125 Volts; 10 Amperes, 250 Volts  
Indicating, with mounting screws, but without covers. No. 2822 porcelain indicating handle. Clockwise rotation.  
No. 2802

For sub-bases Nos. 2804, 2806, 3806 and 2807 without cover. Can be supplied with center post any specified length.

Cat. No.	DIMENSIONS, INCHES			Car-ton	Std. Pkg.	Wt., Lbs.		Price Each
	Diam. Base	Ht. Under Handle	Ht. Over Handle			Std. Pkg.	Std. Pkg.	
2802	2 5/8	1 5/8	2 1/8	1	10	8	\$ 1.00	

For use with No. 2804 sub-base and No. 2816 cover to make No. 2800 switch.  
2815 2 5/8 1 5/8 2 1/4 1 10 8 \$ 1.00

## Bryant Double-Pole Range Switch Mechanism Units

Indicating, Complete with Mounting Screws But without Cover, with No. 3822 Porcelain Handle

Series—Parallel, Operating High, Medium, Low, Off  
30 Amperes, 125 Volts; 15 Amperes, 250 Volts



No. 3802

The No. 3822 indicating handles of these mechanisms are so arranged that they may be turned backward or forward. This permits a switch to be operated from Off to either High or Low or from High or Low to Off or Medium without going through any other position.

No. 3802 can be used with sub-bases Nos. 2804, 2806, 3806 and 2807, but is not intended for use with any cover. Can be supplied on special order, with center post of any specified length to fit standard or special handles.

Diameter of base, 2 5/8 inches; height under handle, 2 inches; over handle, 3 inches.

No. 3815 is intended for use with No. 2804 sub-base and No. 3816 cover to make No. 3800 switch.

Diameter of base, 2 5/8 inches; height under handle, 1 25/32 inches; over handle, 2 25/32 inches.

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3802	H	Reversible Rotation.....	1	10	9	\$ 1.10
3815	H	Reversible Rotation.....	1	10	9	1.10

## Bryant Double-pole Range Switch Mechanism Units

Complete with Mounting Screws but without Covers

Operating On, Off, On, Off

Nos. 2819 and 3819 can be used with sub-bases Nos. 2804, 2806, 3806 and 2807. When mounted upon any but No. 2804 sub-base, cannot be used with cover.

Nos. 2821 and 3821 can be used with sub-bases Nos. 2804, 2806, 3806 and 2807, but are not intended for use with any cover. Can be supplied, on special order, with center post of any specified length to fit standard handles or special handles made to order.



With No. 2822 Porcelain Indicating Handle

20 Amperes, 125 Volts; 10 Amperes, 250 Volts  
Diameter of base, 2 5/8 in. Height under handle, 1 7/8 in. Height over handle, 2 1/4 in. Intended for use with No. 2804 sub-base and No. 2820 cover to make No. 2818 switch.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2819	Clockwise Rotation.....	1	10	20	\$ 1.00

With No. 3822 Porcelain Indicating Handle

30 Amperes, 125 Volts; 15 Amperes, 250 Volts  
Diameter of base, 2 5/8 in. Height under handle, 1 3/4 in. Height over handle, 2 1/2 in. Intended for use with No. 2804 sub-base and No. 3820 cover to make No. 3818 switch.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3819	Reversible Rotation.....	1	10	20	\$ 1.10

With No. 2822 Porcelain Indicating Handle

20 Amperes, 125 Volts; 10 Amperes, 250 Volts  
Diameter of base, 2 5/8 inches. Height under handle, 1 5/8 inches. Height over handle, 2 7/8 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2821	Clockwise Rotation.....	1	10	7	\$ 1.00

With No. 3822 Porcelain Indicating Handle

30 Amperes, 125 Volts; 15 Amperes, 250 Volts  
Diameter of base, 2 5/8 inches. Height under handle, 2 inches Height over handle, 3 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3821	Reversible Rotation.....	1	10	9	\$ 1.10

**No. 2804 Bryant Double-pole Round Porcelain Fuseless Sub-bases with Terminals**

*Schedule II*  
30 Amperes, 125 Volts; 15 Amperes, 250 Volts



Can be used with Nos. 2802, 3802, 2815, 3815, 2819 and 3819 mechanisms and with Nos. 2816, 3816, 2820 and 3820 covers. No. 2802 and 3802 cannot be used with covers.

Supporting screw spacings, 1 1/8 inches.

Cat. No.	Dimensions, Inches Diameter Thickness	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2804	3 1/16	1	10	6	\$.30

**No. 665 Bryant High Capacity Canopy Pull Switches**

6 Amp., 125 Volts; 3 Amp., 250 Volts



No bracket.

For use by manufacturers and dealers who want to furnish their own brackets.

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
665	H	10	100	28	\$.65

**No. 666 Bryant High Capacity Canopy Pull Switches**

6 Amp., 125 Volts, 3 Amp., 250 Volts

Has an angle bracket for use in flat pans of indirect and semi-indirect fixtures.

Chain guide is thrust through a hole in the pan and knurled nut secures the switch in place.



Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
666	H	10	100	36	\$.75

**No. 655 Bryant High Capacity Canopy Pull Switches**

6 Amp., 125 Volts, 3 Amp., 250 Volts



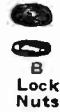
The bracket is a clamp which secures the switch to the pipe.

A hole must be drilled or punched in the rim of the canopy for the chain guide.

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
655	H	10	100	27	\$.75

**Bryant Canopy Switches and Parts**

*Schedule II*



All switch stems are 3/8 inch outside diameter, 27 threads per inch. Each switch stem is fitted with two lock nuts, 3/16 inch outside diameter; the outer one 1/4 inch thick, the inner one 3/64 inch thick.

On special order switches will be furnished with the outer lock nut 1/2 inch thick without extra charge. To obtain this assembly add B after any of the following numbers. Also, on special order, switches will be supplied with both lock nuts 3/4 inch diameter, the outer one 1/4 inch thick, the inner one 3/64 inch thick, without extra charge. To obtain this assembly add C after any of the following numbers.



Handle stems are threaded 6x32; length of thread 3/16 inch.

On special order, switches will be supplied with set screw which passes through the center of the handle stem to prevent the handle from unscrewing, at an additional price of five cents. To obtain this assembly, add A after any of the following catalogue numbers.

Standard finish is brush brass. Flash silver will be furnished when specified without extra charge.

**Canopy Switches with Binding Screw Terminals**  
3 Amperes, 125 Volts; 1 Ampere, 250 Volts

Cat. No.	Lgth. Stem In.	Car- ton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
451	3/16	10	100	8	\$.60
642	5/16	10	100	9	.60
452	7/16	10	100	9	.60
643	3/4	10	100	10	.60
452	1	10	100	11	.60

**Canopy Switches with Wire Leads**

3 Amperes, 125 Volts; 1 Ampere, 250 Volts

Regularly fitted with 6-inch leads of No. 18 B. & S. stranded rubber-covered wire, but can be fitted with leads up to 8 inches without extra charge. Longer than 8-inch leads, add 4 1/2 cents per foot each conductor.

For switches with wire leads omitted deduct 2 cents each.

**With Wire Leads Entering Bottom**

Cat. No.	Length Stem In.	Car- ton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
491	3/16	10	100	10	\$.60
645	5/16	10	100	11	.60
492	7/16	10	100	11	.60
646	3/4	10	100	12	.60
647	1	10	100	13	.60



**With Wire Leads Entering Side**

These switches are very thin and require only 1/16-inch clearance between front of canopy and wall to be easily accommodated.

Cat. No.	Length Stem Inches	Car- ton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
681	3/16	10	100	9	\$.60
682	5/16	10	100	10	.60
683	7/16	10	100	11	.60
686	3/4	10	100	12	.60
687	1	10	100	13	.60



**Junior Canopy Switches with Wire Leads Entering Bottom**

1/2 Ampere, 125 Volts

Regularly fitted with 6-inch leads of No. 18 B. & S. stranded rubber-covered wire, but can be fitted with leads up to 8 inches without extra charge. Longer than 8-inch leads, add 4 1/2 cents per foot each conductor.

For switches with wire leads omitted deduct 2 cents each.

Cat. No.	Lgth. Stem In.	Car- ton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
541	3/16	10	100	9	\$.60
542	1/16	10	100	10	.60



\*Canopy switches of all Cat. Nos. may be assorted to make up standard package quantities, provided carton quantities are not broken. Luminous inserts, 25 cents extra.



## No. 656 Bryant High Capacity Canopy Pull Switches

6 Amperes, 125 Volts; 3 Amperes, 250 Volts



The bracket is intended for support between the fixture stud and the joint or hickey of the fixture.

A hole must be punched in the bell or rim of the canopy for the chain guide.

Standard finish, brush brass.

Undark luminous pendant furnished, 28 cents additional.

Separable chain guide, 10 cents.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
656	H	10	100	35	\$ .75

## No. 662 Bryant High Capacity Canopy Pull Switches

6 Amp., 125 Volts, 3 Amp., 250 Volts

The bracket has a threaded chain guide with a knurled nut.

Punch a hole in the rim of the canopy, insert the chain guide from the inside and secure it by screwing on the nut from the outside.

The canopy must be rigid when this switch is used.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
662	H	10	100	29	\$ .75

## No. 663 Bryant High Capacity Canopy Pull Switches

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

The bracket is a clamp which secures the switch to a pipe in a vertical position.

A hole must be punched in the bell of the canopy for the chain guide.

Standard finish, brush brass.

Undark luminous pendant furnished, 28 cents additional.

Separable chain guides, 10 cents each.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
663	H	10	100	30	\$ .75

## Perkins Type T Straight-Through Switches



The standard finish of these switches is polished nickel, which will be shipped when the finish is not specified. For any other finish, except gold add \$.10 to price.

### Single-Pole

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2592	H	Brass Shell 1 1/2 in. Cord Hole	10	50	14	\$ .50

## Perkins Type T Pendent Switches



No. 2572

The standard finish of pendent switches is brush brass which will be shipped when the finish is not specified.

For switches in any other finish, add \$.10 to price.

### Single-Pole, Buttons at Side

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2572	H	Pendent Cap.	10	100	20	\$ .50
2573	H	1/8-Inch Cap.	10	100	22	.50
2574	H	3/8-Inch Cap.	10	100	24	.60

### Self-Restoring—Momentary Contact Buttons on Bottom

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

2786	H	Pend., S. P. Normally Open	10	30	7	\$ .70
2789	H	Pend., S.P. Normally Closed	10	30	7	.70

### Single-Pole, Buttons on Bottom

6 Amperes, 125 Volts; 3 Amperes, 250 Volts

Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2370	H	Pendent Cap.	10	100	33	\$ .50
2250	H	1/8-Inch Cap.	10	100	36	.50
2270	H	3/8-Inch Cap.	10	100	40	.60

### Single-Pole, Buttons at Bottom

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

2359	H	Pendent Cap.	10	100	46	\$ .80
2353	H	1/8-Inch Cap.	10	100	48	.80
2354	H	3/8-Inch Cap.	10	100	50	.90



No. 2370

## Type O Perkins Pull Switches

Schedule H

125-250 Volts

With 3/8-inch Cap



The standard finish of metal covers is brush brass. For special finishes, except gold, add 10 cents each.

For small Undark luminous pendant, add 28 cents each.

Each switch is equipped with 10 feet small linen cord and a small composition ball. Extra cord, 1 cent per foot; cord in bulk, 1 cent per foot, Schedule H, standard package quantity, 100 feet.

Extra composition balls, 6 cents each. Schedule H, standard package quantity, 250.

### Single-pole

Cat. No.	AMPERES 125 V.	250 V.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2473	10	5	10	30	18	\$ 1.30
2478	10	5	10	10	5	\$ 1.30
2474	10	5	10	10	5	\$ 1.30
2475	5	2	10	10	5	\$ 1.30

### Electrolier, Two-circuit

Cat. No.	Description	AMPERES 125V. 250V.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2476	1-2-1 & 2-Off	5 2	10	10	5	\$ 1.30
2477	1-1 & 2-1 & 2 & 3-Off	5 2	10	10	5	\$ 1.30
2479	1-2-Off	10 5	10	10	5	\$ 1.30
2480	1-2-3-Off	10 5	10	10	5	\$ 1.30

**Type O Perkins Push Switches**

*Schedule H*

125-250 Volts

**With Pendant Cap**

The standard finish of metal cover is brush brass which will be furnished when no finish is specified.

For special finishes other than gold, add 10 cents to price each.



**Single-pole**

Cat. No.	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	125 V.	250 V.				
2440	10	5	10	30	18	\$1.20

**Double-pole**

2421	10	5	10	10	5	\$1.20
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**Three-point**

2417	10	5	10	10	5	\$1.20
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**Four-point**

2418	5	2	10	10	5	\$1.20
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**Electrolier, Two-circuit**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		125 V.	250 V.				
2419	1-2-1 & 2-Off	5	2	10	10	5	\$1.20

**Electrolier, Three-circuit**

2420	1-1 & 2-1 & 2 & 3-Off	5	2	10	10	5	\$1.20
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**Two-speed Motor Control**

2422	1-2-Off	10	5	10	10	5	\$1.20
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**Three-speed Motor Control**

2423	1-2-3-Off	10	5	10	10	5	\$1.20
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**Perkins Type O Straight Through Switches**

*Schedule H*



No. 2678

The indication on Nos. 2490 and 2678 is obtained by a dial that is visible through a hole in the end of the button. The standard finish is polished nickel which will be supplied when the finish is not specified.

For special finishes, except gold, add 10 cents.

**Double-pole**

10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2490	Indicating	10	30	17	1.30

**Single-pole**

Series Parallel, Operating High, Medium, Low, Off 5 Amperes, 125 Volts; 2 Amperes, 250 Volts

2678	Indicating	10	10	5	\$1.30
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**Perkins Ceiling Pull Switches**

*Schedule H*

Standard finish of non-indicating metal covers is polished nickel. Special finishes, except gold, add 10 cents each cover.

Switch with short chain and 10 feet linen cord and large black composition ball. Extra cord, 2 cents per foot. Cord in bulk, 2 cents per foot, Schedule H, standard package, 100 feet: Extra balls, 6 cents each, Schedule H, standard package quantity, 50. For Undark luminous pendant No. 2915, add 55 cents each. Diameter base, 2 5/16 inches. Height over cover, 2 3/8 inches. Supporting screw spacings, 1 3/4 inches.



No. 2387

**Single-Pole**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		125 V.	250 V.				
2387	Solid	10	5	10	30	22	\$1.00
2309	Slotted	10	5	10	30	22	1.00

**Double-Pole**

2396	Solid	10	10	10	10	8	\$1.18
2314	Slotted	10	10	10	10	8	1.18

**Three-Point**

2388	Solid	10	5	10	10	8	\$1.18
2310	Slotted	10	5	10	10	8	1.18

**Four-Point**

2389	Solid	5	2	1	10	8	\$1.18
2311	Slotted	5	2	1	10	8	1.18

**Electrolier, Two-Circuit**

Operating 1-2-1 & 2-Off

2390	Solid	10	5	1	10	8	\$1.18
2312	Slotted	10	5	1	10	8	1.18

**Electrolier, Three-Circuit**

Operating 1-1 & 2-1 & 2 & 3-Off

2395	Solid	10	5	1	10	8	\$1.18
2313	Slotted	10	5	1	10	8	1.18

**Three-Speed Motor Control**

Operating 1-2-3-Off

Diameter of base, 2 1/4 inches. Height over cover, 2 1/8 inches. Supporting screw spacings, 1 3/8 inches.

2863	Solid	10	5	10	10	8	\$1.18
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**For 3 1/4-Inch and 4-Inch Standard Outlet Boxes**

Diam. of base, 4 3/8 in. Screw spacings, 2 3/4 and 3 1/2 in.

2769	Single-Pole	10	5	1	10	20	\$1.25
2770	Double-Pole	10	10	1	10	20	1.43

**For Type 500 Adaptiboxes, Types GN, HM and W (Forms 5 and 10) Octagonal Unilets and Size 10 Round Opening Pipe Taplets**

Diameter of base, 2 7/8 inches. Screw spacings, 2 5/16 inches.

2694	Single-Pole	10	5	10	20	15	\$1.00
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**Perkins Wall Pull Switches**

*Schedule H*

Standard finish of non-indicating metal covers is polished nickel. Special finishes, except gold, 10 cents extra.

Equipped with 10 feet best quality linen cord and black composition ball.

For Undark luminous pendant, add 55 cents. No. 2915.

Diameter of base, 2 5/16 inches. Height over cover, 2 5/8 inches. Supporting screw spacings, 1 3/4 inches.



No. 2546

**Single-Pole**

Cat. No.	Description	AMPERES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		125 V.	250 V.				
2546	Solid	10	5	10	30	22	\$1.00
2547	Slotted	10	5	10	30	22	1.00

**Double-Pole**

2565	Solid	10	10	10	10	8	\$1.18
2566	Slotted	10	10	10	10	8	1.18

**Three-Point**

2549	Slotted	10	5	10	10	8	\$1.18
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**Four-Point**

2560	Slotted	5	2	1	10	8	\$1.18
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**Electrolier, Two-Circuit**

Operating 1-2-1-2-Off

Diameter of base, 2 5/16 inches. Height over cover, 2 1/8 inches. Supporting screw spacings, 1 3/4 inches.

2562	Slotted	10	5	1	10	8	\$1.18
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## Perkins Push Panel Switches Double-pole Fusing

Each branch is fitted with a double pole switch, which is mounted on a separate base and may be removed without disturbing either main or branch connections.

These switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be specified to the exact size of the switch bases as there is 1/2-inch of insulation outside of all current carrying parts.

The covers of these switches are steel, lined with insulating material. Each cover has an overhanging edge which engages with the cover of the adjoining switch, thereby effectively preventing accidental contact with any live parts.

Orders will be filled with switches having glossy black covers.

White enamel covers will be supplied when specified without extra charge. All other finishes on covers, add 50 cents to list.

Can be furnished with luminous button at an addition to list price of 25 cents for each switch button so fitted. Identical switches, regular and luminous, may be assorted.

**With Connections for Two-plug Fuses in Each Branch  
With Safety Covers—Dead Front**



No. 2700

**10 Amperes, 125 Volts**

**Double-pole, Single Branch**

Cat. No.	Schedule	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2698	H	6 5/8 x 3	1	10	31	\$2.25
2699	H	10 1/2 x 3	1	10	47	\$3.50
2700	H	11 5/8 x 3	1	10	50	\$3.75

**20 Amperes, 125 Volts**

**Double-pole, Single Branch**

2723	H	6 5/8 x 3	1	10	30	\$2.50
2724	H	10 1/2 x 3	1	10	47	\$4.00
2725	H	11 5/8 x 3	1	10	49	\$4.25

**With Connections for Two Cartridge Fuses in Each Branch**

**With Safety Covers—Dead Front**



No. 2685

**10 Amperes, 250 Volts**

**Double-pole, Single Branch**

Cat. No.	Schedule	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2684	H	7 7/8 x 3	1	10	35	\$2.50
2685	H	12 7/8 x 3	1	10	59	\$4.75
2686	H	14 x 3	1	10	61	\$5.25

**20 Amperes, 250 Volts**

**Double-pole, Single Branch**

2726	H	7 7/8 x 3	1	10	35	\$2.50
2727	H	12 7/8 x 3	1	10	58	\$4.75
2728	H	14 x 3	1	10	60	\$5.25

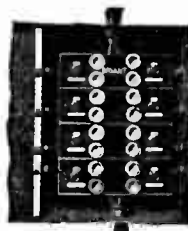
**Double-pole Switch Mechanisms Only  
For Push Panel Switches**

Nos. 2523 and 2729 are push-button type; Nos. 2526 and 2730 are push-lock type.

Cat. No.	Schedule	Amperes	Volts	Carton	*Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2523	H	10	250	10	50	12	\$ .80
2729	H	20	250	10	50	12	1.05
2526	H	10	250	10	50	12	1.30
2730	H	20	250	10	50	12	1.55

\*100 assorted also constitute a standard package.

## Perkins Rotary Panel Switches Double-pole Fusing



These switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be specified to the exact size of the switch bases, as there is 1/2 inch of insulation outside of all current carrying parts as required.

Can be converted into lock switches by substituting, for the handles No. 2384 Universal Lock Attachments.

**With Connections for 2 Plug Fuses in Each Branch  
\*†With Safety Dead Front Covers and No. 2778  
Composition Handle  
10 Amperes, 125 Volts**



No. 2600

**Double-pole, Single-branch**

Cat. No.	Schedule	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2598	H	6 5/8 x 3	1	10	31	\$2.00
2599	H	10 1/2 x 3	1	10	45	\$3.00
2600	H	11 5/8 x 3	1	10	50	\$3.25

**With Open Fronts and White Enamel Switch Covers  
Wth No. 2781 Porcelain Handle**

**10 Amperes, 250 Volts**

**Double-pole, Single-branch**

2400	H	6 5/8 x 3	1	10	30	\$1.60
2300	H	10 1/2 x 3	1	10	43	\$2.75
2360	H	11 5/8 x 3	1	10	47	\$3.00

**With Connections for 2 Cartridge Fuses in Each Branch  
\*†With Safety Dead Front Covers and No. 2778**

**Composition Handle**

**10 Amperes, 250 Volts**

**Double-pole, Single-branch**

Cat. No.	Schedule	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2687	H	7 7/8 x 3	1	10	40	\$2.25
2688	H	12 7/8 x 3	1	10	58	\$4.50
2689	H	14 1/2 x 3	1	10	63	\$5.00

**With Open Fronts and White Enamel Switch Covers  
With No. 2781 Porcelain Handle**

**10 Amperes, 250 Volts**



No. 2535

**Double-pole, Single-branch**

2534	H	7 7/8 x 3	1	10	35	\$2.00
2535	H	12 7/8 x 3	1	10	56	\$3.75
2536	H	14 x 3	1	10	59	\$4.25

\*The covers of these switches are steel, lined with insulating material. Each cover has an overhanging edge which engages with the cover of the adjoining switch.

†Orders will regularly be filled with switches having glossy black covers. White enamel covers will be supplied, when specified, without extra charge. All other finishes on covers, add to price, 50 cents each.

**Double-pole Switch Mechanisms Only**

**Indicating, for Rotary Panel Switches**

**20 Amperes, 125 Volts**

**10 Amperes, 250 Volts**

**Rotary, without Handle**

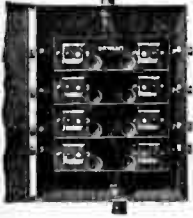
Cat. No.	Schedule	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2595	H	....	10	10	4	\$ .71
2794	H	....	10	10	4	\$1.01



No. 2595

**Perkins Push Panel Switches**

**Single-pole Fusing—125-250 Volts**



The catalogue numbers of panel switches with fuse omitted from one side of the line in each branch are the same as for similar panel switches with two fuses in each branch, except that the numeral 0 is added between the second and third figures to make a catalogue number with five figures instead of four figures.

**With One Plug Fuse Receptacle in Each Branch**

**\*With Safety Covers—Dead Front**



**10 Amperes, 125 Volts†**  
**Double-pole, Single Branch**

Cat. No.	Sched-ule	Dimen. In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
26098	H	6 $\frac{5}{8}$ x3	1	10	31	\$2.25
26099	H	10 $\frac{1}{2}$ x3	1	10	47	\$3.50
27000	H	11 $\frac{3}{8}$ x3	1	10	50	\$3.75
27023	H	6 $\frac{5}{8}$ x3	1	10	30	\$2.50
27024	H	10 $\frac{1}{2}$ x3	1	10	47	\$4.00
27025	H	11 $\frac{3}{8}$ x3	1	10	49	\$4.25

**With Clips for One Cartridge Fuse in Each Branch**

**With Safety Covers—Dead Front**



**10 Amperes, 250 Volts†**  
**Double-pole, Single Branch**

Cat. No.	Sched-ule	Dimen. In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
26084	H	7 $\frac{7}{8}$ x3	1	10	35	\$2.50
26085	H	12 $\frac{7}{8}$ x3	1	10	59	\$4.75
26086	H	14x3	1	10	61	\$5.25
27026	H	7 $\frac{7}{8}$ x3	1	10	35	\$2.50
27027	H	12 $\frac{7}{8}$ x3	1	10	58	\$4.75
27028	H	14x3	1	10	60	\$5.25

\*The covers of these switches are steel, lined with insulating material. Each cover has an overhanging edge which engages with the cover of the adjoining switch, thereby effectively preventing accidental contact with any live parts. Covers are the same lengths as the bases.

Push-button switches can be converted into push lock switches by substituting, for No. 2523 or No. 2729 push-button mechanisms, No. 2526 or No. 2730 push lock mechanisms respectively.

Orders will regularly be filled with switches having glossy black covers. White enamel covers will be supplied when specified without extra charge. For other finishes on covers, add to price \$.50 each.

†Can be furnished with luminous button at an addition to price of \$.25 for each switch button so fitted. Identical switches, regular and luminous, may be assorted.

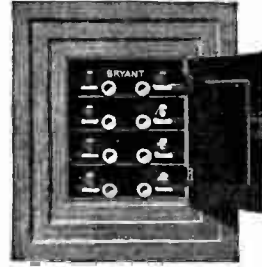
\*\*National Electrical Code Standard.

**Perkins Rotary Panel Switches**

**Single-pole Fusing**

Each branch is fitted with a double-pole switch, which is mounted on a separate base and may be removed without disturbing either main or branch connections. On special order, switches will be fitted with expulsion type mechanisms for inductive loads at an additional list price of 30 cents per branch.

These switches may be installed in any standard cabinet having a minimum depth of 3 inches. Gutter cabinets may be



specified to the exact size of the switch bases, as there is  $\frac{1}{2}$  inch of insulation outside of all current carrying parts as required.

One plug fuse receptacle or clips for one cartridge fuse are omitted from one side of the line in each branch. This unfused side should always be the grounded side of the line.

The catalogue numbers of panel switches with fuse omitted from one side of the line in each branch, are the same as similar panel

switches with two fuses in each branch, except that the numeral 0 is added between the second and third figures.

Can be converted into lock switches by removing the handles and substituting Cat. No. 2384 universal rotary switch lock attachment.

**With One Plug Fuse Receptacle in Each Branch**

**\*†With Safety Dead Front Covers and No. 2778 Composition Handle**

**10 Amperes, 125 Volts**



Cat. No.	Sched-ule	Dimen-sions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
25098	H	6 $\frac{5}{8}$ x3	1	10	31	\$2.00
25099	H	10 $\frac{1}{2}$ x3	1	10	45	\$3.00
26000	H	11 $\frac{3}{8}$ x3	1	10	50	\$3.25

**With Open Fronts and White Enamel Switch Covers**

**With No. 2781 Porcelain Handle**

**10 Amperes, 125 Volts**

Cat. No.	Sched-ule	Dimen-sions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
24000	H	6 $\frac{5}{8}$ x3	1	10	30	\$1.60
23000	H	10 $\frac{1}{2}$ x3	1	10	43	\$2.75
23060	H	11 $\frac{3}{8}$ x3	1	10	47	\$3.00

**With Clips for One Cartridge Fuse in Each Branch**

**\*†With Safety Dead Front Covers and No. 2778 Composition Handle**

**10 Amperes, 250 Volts**

Cat. No.	Sched-ule	Dimen-sions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
26087	H	7 $\frac{7}{8}$ x3	1	10	40	\$2.25
26088	H	12 $\frac{7}{8}$ x3	1	10	58	\$4.50
26089	H	14 $\frac{1}{2}$ x3	1	10	63	\$5.00

**With Open Fronts and White Enamel Switch Covers**

**with No. 2781 Porcelain Handle**

**10 Amperes, 250 Volts**



Cat. No.	Sched-ule	Dimen-sions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
25034	H	7 $\frac{7}{8}$ x3	1	10	35	\$2.00
25035	H	12 $\frac{7}{8}$ x3	1	10	56	\$3.75
25036	H	14 x3	1	10	59	\$4.25

\*The covers of these switches are steel, lined with insulating material. Each cover has an overhanging edge which engages with the cover of the adjoining switch.

†Orders will regularly be filled with switches having glossy black covers. White enamel covers will be supplied, without extra charge. All other finishes on covers, add to price, 50 cents each.

## Single-Pole Flush Porcelain Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2513	GE1688	10	100	35	\$ .70



## Single-Pole Flush Composition Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow Textolite box. Muted mechanism. Totally enclosed.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2591	GE2588	10	100	30	\$1.10



## Double-Pole Flush Porcelain Tumbler Switches

10 Amperes, 250 Volts  
*Schedule S*

Shallow box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2516	GE1689	10	50	21	\$1.40



## Double-Pole Flush Composition Tumbler Switches

10 Amperes, 250 Volts  
*Schedule S*

Shallow Textolite box. Muted mechanism. Totally enclosed.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2592	GE2589	10	50	17	\$1.80



## No. GE1755 Single-pole Flush Porcelain Locking Tumbler Switches

5 Amp., 250 Volts; 10 Amp., 125 Volts

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1755	S	10	100	37	\$1.60



## No. GE2670 Single-Pole Flush Composition Locking Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow textolite box. Totally enclosed. Muted mechanism.

Cat. No.	Car- ton	Std. Pkg.	Price Each
GE2670	10	100	\$2.00



## 3-Way Flush Porcelain Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2514	GE1690	10	50	18	\$1.00



## 3-Way Flush Composition Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow Textolite box. Muted mechanism. Totally enclosed.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2593	GE2590	10	50	19	\$1.40



## No. GE1756 Double-pole Flush Porcelain Locking Tumbler Switches

10 Amp., 250 Volts  
Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1756	S	10	50	20	\$2.30



## No. GE2672 3-Way Flush Composition Locking Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow textolite box. Totally enclosed. Muted mechanism.

Cat. No.	Car- ton	Std. Pkg.	Price Each
GE2672	10	50	\$2.30



## No. GE1757 3-Way Flush Porcelain Locking Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1757	S	10	50	20	\$1.90



## 4-Way Flush Porcelain Tumbler Switches

2 Amperes, 250 Volts; 5 Amperes, 125 Volts  
*Schedule S*

Shallow box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2515	GE1691	1	10	4	\$2.00



## No. GE1758 Four-way Flush Porcelain Locking Tumbler Switches

2 Amp., 250 Volts; 5 Amp., 125 Volts

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1758	S	1	10	5	\$2.90



## No. GE2673 4-Way Flush Composition Locking Tumbler Switches

2 Amperes; 250 Volts; 5 Amperes, 125 Volts  
*Schedule S*

Shallow textolite box. Totally enclosed.

Cat. No.	Car- ton	Std. Pkg.	Price Each
GE2673	1	10	\$3.30



## 3-Circuit Flush Porcelain Tumbler Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
*Schedule S*

Deep box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2519	GE1693	1	10	6	\$2.10



**2-Circuit Flush Porcelain Tumbler Switches**

5 Amperes, 250 Volts; 10 Amperes, 125 Volts  
Schedule S

Deep box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2518	GE1692	1	10	6	\$2.10



**Double-Pole Flush Composition Tumbler Switches**

20 Amperes, 250 Volts  
Schedule S

Deep box, dustproof cover.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2524	GE1699	1	20	12	\$2.00



**Double-Pole Flush Porcelain Tumbler Switches**

20 Amperes, 250 Volts  
Schedule S

Deep box.

Cat. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Handle	Black Handle				
GE2517	GE1698	1	20	12	\$1.60



**No. GE632 Geco Single-pole Flush Porcelain Push Button Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE632	S	10	100	35	\$.70

**No. GE634 Three-way Geco Flush Porcelain Push Button Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE634	S	10	50	20	\$1.00



**No. 68250 G-E Four-way Flush Porcelain Push Button Switches**

2 Amp., 250 Volts; 5 Amp., 125 Volts

Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68250	S	1	10	6	\$2.00



**G-E No. 68248 Double-pole Flush Porcelain Push Button Switches**

10 Amp., 250 Volts  
Shallow Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68248	S	10	50	22	\$1.40



**No. GE 630 Double-Pole Flush Porcelain Push Button Switches**

20 Amp., 250 Volts  
Deep Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE630	S	1	20	10	\$1.60



**No. GE635 Two-circuit Flush Porcelain Push Button Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Deep Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE635	S	1	10	5	\$2.10



**No. GE636 Three-circuit Flush Porcelain Push Button Switches**

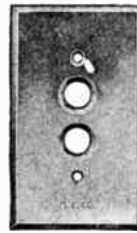
5 Amp., 250 Volts; 10 Amp., 125 Volts  
Deep Porcelain Box

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE636	S	1	10	5	\$2.10

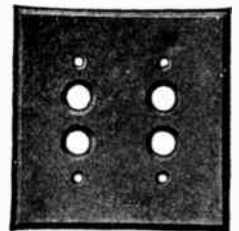


**G-E Flush Plates for Push Button Switches**

Schedule S



Single-Gang



2-Gang Horizontal

**Struck-Up Brass Plates—Horizontal Gangs**

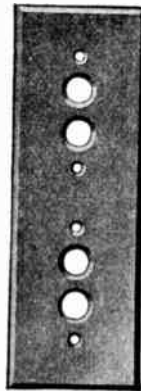
No. of Switches	Car- ton	Std. Pkg.	.040-Inch Metal Brush Brass		Lacquer			
			Cat. No.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
1	20	100	GE232	19	\$ .28	GE1587	19	\$ .20
2	10	50	GE233	16	.56	GE1588	16	.40
3	5	25	GE234	19	.84	GE1589	19	.60
4	1	10	GE1734	14	1.76	GE1744	14	1.44
5	1	10	GE1735	14	2.20	GE1745	14	1.80
6	1	5	GE1736	11	2.64	GE1746	11	2.16
7	1	5	GE1737	18	3.08	GE1747	18	2.52
8	1	5	GE1738	16	3.52	GE1748	16	2.88

**Struck-Up Brass Plates—Horizontal Gangs**

Cat. No.	No. of Switches	Car- ton	Std. Pkg.	.060-Inch Metal—Brush Brass		Price Each
				Wt., Lbs. Std. Pkg.	Price Each	
GE1731	1	20	100	19	\$ .36	
GE1732	2	10	50	22	.72	
GE1953	3	5	25	36	1.08	
GE1954	4	1	10	25	2.08	
GE1955	5	1	10	23	2.60	
GE1956	6	1	5	21	3.12	
GE1957	7	1	5	20	3.64	
GE1958	8	1	5	20	4.16	

**Solid Brass Plates—Horizontal Gangs**

Cat. No.	No. of Switches	Car- ton	Std. Pkg.	.100-Inch Metal—Brush Brass		Price Each
				Wt., Lbs. Std. Pkg.	Price Each	
49752	1	10	50	34	\$ .68	
60492	2	5	25	27	1.36	
60493	3	1	10	24	2.04	
60494	4	1	10	24	2.72	
60495	5	1	10	23	4.00	
60496	6	1	5	10	4.80	
60497	7	1	5	10	5.60	
60498	8	1	5	10	6.40	



2-Gang Vertical

Solid plates larger than 8-gang of standard dimensions and screw spacings furnished at 80 cents list per gang.

**Solid Brass Plates—Vertical Gangs**

Cat. No.	No. of Switches	Car- ton	Std. Pkg.	.100-Inch Metal—Brush Brass		Price Each
				Wt., Lbs. Std. Pkg.	Price Each	
60499	2	5	25	27	\$1.60	
60500	3	1	10	24	2.40	
60501	4	1	5	26	3.20	

Plates larger than 4-gang of standard dimensions and screw spacings furnished at 96 cents list per gang. Standard package and carton same as for 4-gang plates. Standard finish is brush brass.

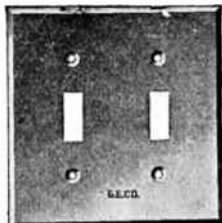


## G-E Flush Plates for Tumbler Switches

Schedule S



Single-Gang



2-Gang Horizontal

### Struck-Up Brass Plates, Horizontal Gangs

.040-Inch Metal

No. of Switches	Car-ton Pkg.	Std. Pkg.	Brush Brass			Lacquer		
			Cat. No.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
1	20	100	GE1701	19	\$.28	GE1711	16	\$.20
2	10	50	GE1702	15	.56	GE1712	16	.40
3	5	25	GE1703	14	.84	GE1713	13	.60
4	1	10	GE1704	30	1.76	GE1714	13	1.44
5	1	10	GE1705	13	2.20	GE1715	14	1.80
6	1	5	GE1706	13	2.64	GE1716	14	2.16
7	1	5	GE1707	17	3.08	GE1717	14	2.52
8	1	5	GE1708	38	3.52	GE1718	12	2.88

### Struck-Up Brass Plates, Horizontal Gangs

.060-Inch Metal—Brush Brass

Cat. No.	No. of Switches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1741	1	20	100	26	\$.36
GE1742	2	10	50	22	.72
GE1853	3	5	25	36	1.08
GE1854	4	1	10	25	2.08
GE1855	5	1	10	23	2.60
GE1856	6	1	5	21	3.12
GE1857	7	1	5	20	3.64
GE1858	8	1	5	20	4.16

### Solid Brass Plates, Horizontal Gangs

.100-Inch Metal—Brush Brass

GE	No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1721	1	10	50	30	\$.68
GE1722	2	5	25	24	1.36
GE1723	3	1	10	16	2.04
GE1724	4	1	10	21	2.72
GE1725	5	1	10	20	4.00
GE1726	6	1	5	20	4.80
GE1727	7	1	5	21	5.60
GE1728	8	1	5	21	6.40

Solid plates larger than 8-gang of standard dimensions and screw spacings furnished at 80 cents list per gang.



2-Gang Vertical

### Solid Brass Plates, Vertical Gangs

.100-Inch Metal—Brush Brass

GE	No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1795	2	5	25	15	\$.60
GE1796	3	1	10	15	2.40
GE1797	4	1	5	15	3.20

Solid plates larger than 4-gang of standard dimensions and screw spacings can be furnished in brush brass at 96 cents list per gang. Standard package and carton quantities same as for 4-gang plates.

Standard finish is brush brass.

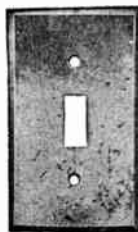
### Solid Textolite Plates

Have stippled finish, either black or brown.

Strong, stainless and non-corrosive.

Textolite switch plates larger than 4-gang or combination plates cannot be furnished.

One-piece Textolite head screws are regularly furnished.

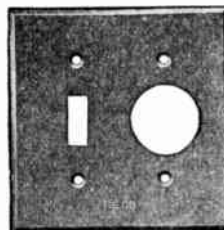


Cat. Nos.		No. of Switches	Car-ton	Std. Pkg.	Price Each
Black Finish	Brown Finish				
GE1834	GE2316	1	20	100	\$.30
GE2319	GE2317	2	10	50	.60
GE2320	GE2318	3	5	25	.90
GE2551	GE2552	4	1	10	1.20

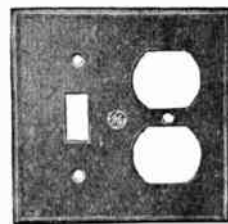
## G-E 2-Gang Combination Flush Plates

Textolite—Horizontal Gangs

Schedule G—Class I



No. GE2486



No. GE2599

A No. GE2296 Removable Bull's Eye may be inserted in the convenience outlet opening in the plates listed, thus adapting them for use with tumbler switches and pilot lamp receptacles combined.

One-piece Textolite head screws regularly furnished. Standard package, 10 gangs of one Cat. No.

### For Tumbler Switch and Single Convenience Outlet without Door

Black		Price Each	Brown		Price Each
Cat. No.	Cat. No.				
GE2486	GE2487	\$.60	GE2487	\$.60	

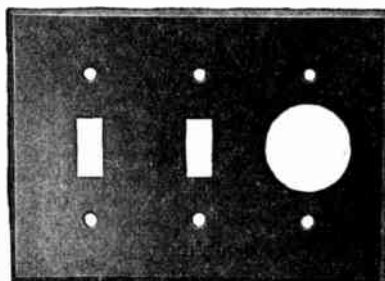
### For Tumbler Switch and Twin Convenience Outlet without Door

Black		Price Each	Brown		Price Each
Cat. No.	Cat. No.				
GE2600	GE2599	\$.60	GE2599	\$.60	

## G-E 3-Gang Combination Flush Plates

Textolite—Horizontal Gangs

Schedule G—Class I



For 2 tumbler switches and single convenience outlet. Textolite switch plates larger than 3-gang cannot be furnished. One-piece Textolite head screws regularly furnished.

Black		Price Each	Brown		Price Each
Cat. No.	Cat. No.				
GE2484	GE2485	\$.90	GE2485	\$.90	

## One-Piece Textolite Head Plate Screws



Carton, 40; standard package, 200.

CAT. NOS.		Length Inches	Price Each
Black	Brown		
GE2554	GE2555	3/16	\$.10
GE2556	GE2557	3/4	.10

## 2-Piece Textolite Head Plate Screws

Carton, 40; standard package, 200.

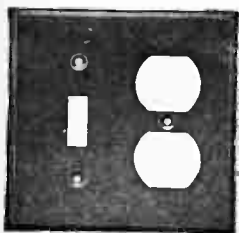
Price, No. GE2445, Black	each	\$.10
Price, No. GE2447, Brown	each	.10



**G-E Two-gang Combination Flush Plates**

Struck-up Brass—Horizontal Gangs

Schedule G—Class 1



For G-E tumbler switch and twin convenience outlet.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1792	\$ .76	GE2012	\$ .60

0.060-inch Metal

GE2022	\$ .92
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No. GE1792

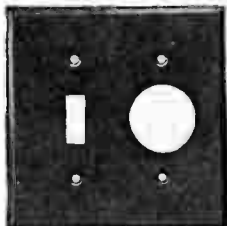
For G-E tumbler switch and single convenience outlet without door.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1791	\$ .76	GE2011	\$ .60

0.060-inch Metal

GE2021	\$ .92
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No. GE1791

For G-E tumbler switch and single convenience outlet or medium screw base receptacle with door at right.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1793	\$ .82	GE2013	\$ .66

0.060-inch Metal

GE2023	\$ .98
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No. GE1793

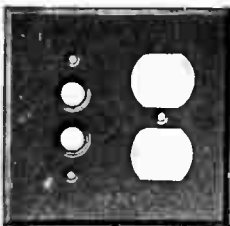
For push button switch and twin convenience outlet.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1783	\$ .76	GE2042	\$ .60

0.060-inch Metal

GE2052	\$ .92
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No. GE1783

For push button switch and single convenience outlet without door.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1782	\$ .76	GE2041	\$ .60

0.060-inch Metal

GE2051	\$ .92
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No. GE1782

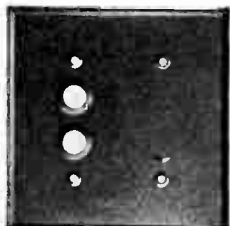
For push button switch and single convenience outlet or medium screw base receptacle with door at right.

0.040-inch Metal

BRUSH BRASS		LACQUER	
Cat. No.	Price Each	Cat. No.	Price Each
GE1784	\$ .82	GE2043	\$ .66

0.060-inch Metal

GE2053	\$ .98
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No. GE1784

The standard package of any of the above plates is 10 plates of one catalogue number. (Not 10 gangs.) Weight, 0.040-inch metal, 4 pounds; 0.060-inch metal, 5 pounds.

One plate constitutes a carton quantity.

Standard finish is brush brass.

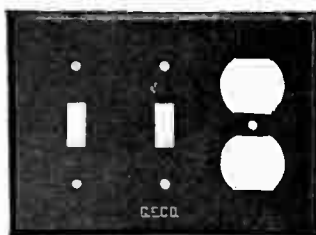
Special finishes are shown on another page of this catalogue.

Dimensions: height, 4½ inches; width, 4¾ inches.

**G-E 3-Gang Combination Flush Plates**

Struck-Up Brass—Horizontal Gangs

Schedule G Class 1



For two tumbler switches and twin convenience outlet.

0.040-Inch Metal

Brush Brass		Lacquer	
Cat. No.	Price Each	Cat. No.	Price Each
GE2473	\$1.14	GE2454	\$ .90

0.060-Inch Metal

GE2455	\$1.38
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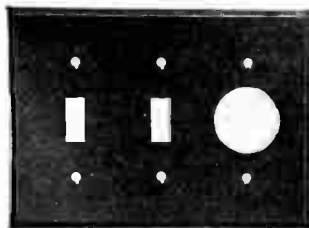
For two tumbler switches and single convenience outlet.

0.040-Inch Metal

Brush Brass		Lacquer	
Cat. No.	Price Each	Cat. No.	Price Each
GE2456	\$1.14	GE2457	\$ .90

0.060-Inch Metal

GE2458	\$1.38
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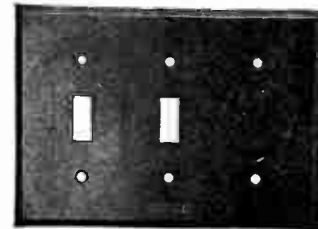
For two tumbler switches and single convenience outlet with door.

0.040-Inch Metal

Brush Brass		Lacquer	
Cat. No.	Price Each	Cat. No.	Price Each
GE2459	\$1.24	GE2460	\$1.00

0.060-Inch Metal

GE2461	\$1.48
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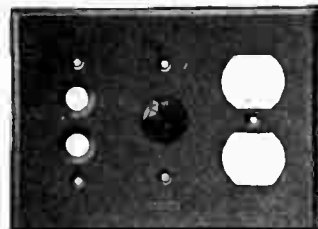
Standard package is 10 plates of one catalogue number (not 10 gangs). Standard package weight, 8 pounds. Carton quantity, one plate.

Standard finish is brush brass.

**G-E 3-Gang Combination Flush Plates**

Struck-Up Brass—Horizontal Gangs

Schedule G Class 1



For push button switch, pilot receptacle and twin convenience outlet.

0.040-Inch Metal

Brush Brass		Lacquer	
No. Each	No. Each	No. Each	No. Each
GE2072	\$1.64	GE2082	\$1.40

0.060-Inch Metal

GE2092	\$1.88
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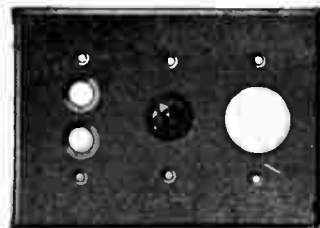
For push button switch, pilot lamp receptacle and single convenience outlet without door.

0.040-Inch Metal

Brush Brass		Lacquer	
No. Each	No. Each	No. Each	No. Each
GE2071	\$1.64	GE2081	\$1.40

0.060-Inch Metal

GE2091	\$1.88
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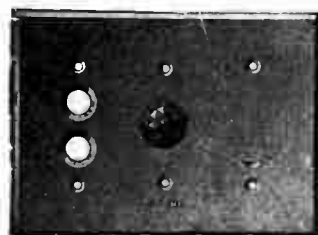
For push button switch, pilot lamp receptacle and single convenience outlet or medium screw base receptacle with door at right.

0.040-Inch Metal

Brush Brass		Lacquer	
No. Each	No. Each	No. Each	No. Each
GE2073	\$1.74	GE2083	\$1.50

0.060-Inch Metal

GE2093	\$1.98
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Standard package is 10 plates of one catalogue number (not 10 gangs). Weight, 5 pounds. Carton quantity, one plate.

Standard finish is brush brass.

Dimensions: height, 4½ inches; width, 6¾ inches.

## G-E Solid Brass Combination Plates

Schedule G, Class 1



**I**  
For GE1688 Type  
Tumbler  
Switches  
\$.88 Each



**K**  
For GE1428 or  
GE1429 Type Tumbler  
Switches with Metal  
Covered Handles  
\*.98 Each



**P**  
For GE632 Type  
Push Button  
Switches  
\$.88 Each

\*Price includes escutcheon plate.



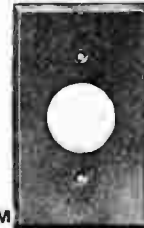
**D**  
For GE694 Twin  
Convenience  
Outlets  
\$.88 Each



**F**  
For GE658 Type  
Single  
Convenience  
Outlets or  
GE1805  
Polarity Type  
Receptacles  
\$.88 Each



**E**  
For GE2254 Single  
Convenience  
Outlets  
or 36817  
Medium Screw  
Base Receptacles  
with Lift Covers  
\$.98 Each



**M**  
For GE996 or  
GE1367 Type  
Plug Receptacles  
\$1.00 Each



**L**  
Blank  
\*.96 Each



**G**  
Telephone Plate  
with 3/8-Inch  
Compound  
Bushing  
\*\$.00 Each

The arrangement of the devices to be mounted will govern the order of the letters identifying the combination plate desired. For example, a plate for GE1688 Tumbler Switch, GE853 Pilot Lamp Receptacle and GE694 Twin Convenience Outlet mounted horizontally in that order is identified as an IID plate, while a plate for the same devices mounted vertically is identified as an I plate.

Example:  $\begin{matrix} I \\ D \end{matrix}$  plate in brush brass finish is 88 cents +

88 cents + 88 cents which equals \$2.64 + \$0.528 (20 per cent) which is equal to \$3.168.

Standard package—10 plates of one description (not 10 gangs). Carton quantity, one plate. Standard finish is brush brass. Screw holes 2 3/8 inches on centers. Openings on horizontal plates are 1 1/2 inches on centers and on vertical plates 3 3/8 inches on centers.

\*Steel box mounting support furnished.

## G-E Special Flush Plates and Accessories

Plates of Special Dimensions and Screw Spacings  
.100-inch Metal Only

Plates of special dimensions and screw spacings will be billed at 14 cents list per square inch plus the list price of nearest regular solid plate. In no case will charge be less than for a single solid plate. Example: the list price of an ID plate measuring 5 in. x 5 in. would be computed thus:  $5 \times 5 = 25$  sq. in.;  $25 \times 14$  cents = \$3.50;  $\$3.50 + \$1.76 = \$5.26$ .

Standard package quantity—10 plates of one style and size. Carton quantity, one plate.

Schedule G (Class 1).

Detail sketch giving all dimensions and specifications will be required.

Plates with Round Corners and Round Edges  
.100-inch Metal Only

For single plates with round corners and round edges having standard dimensions and screw spacings add 30 cents list to the price of single solid plates. For gangs or combination plates with round corners and round edges add 30 cents list for the first section and 10 cts. list for each additional section.

Standard package, 10 plates of one style.

Carton quantity, one plate.

Plates with Round Corners and Beveled Edges  
.100-inch Metal Only

For single or gang plates with round corners and beveled edges add 30 cents list per plate.

Standard package, 10 plates of one style.

Carton quantity, one plate.

Plates with Square Edges—.100-inch Metal Only

Plates with square corners and square edges having standard dimensions and screw spacings can be furnished at the same price as regular solid plates. For plates with round corners and square edges the additional charge will be the same as given above for round corners and beveled edges.

Standard package, 10 plates of one style.

Carton quantity, one plate.

Plates with Raised Edges—.100-inch Metal Only

Where it is desirable to raise the plate because of obstructions or projections solid plates can be furnished with a raised edge. Quotations for plates of this character will be given upon receipt of detail information, as to the style of plate and height of offset required.

Standard package, 10 plates of one style.

Carton quantity, one plate.

Plates of Special Metal—.100-inch Metal Only

Plates of genuine rolled bronze having standard dimensions and screw spacings can be furnished at 100 per cent. additional to the list price of the corresponding solid brass plate. Plates of Benedict metal can be furnished at double the price of the corresponding solid brass plate. For plates of other metals prices will be quoted upon application.

Standard package quantity, carton quantity and schedule same as for the corresponding standard plate.

No assortment permitted.

### Engraving

Flush plates may be engraved with identifying words or numbers, deeply etched in block design of any desired height. For engraving on plates, add 20 cents per character to the list price of plate to be engraved.

Standard package, 10 plates of one style.

Carton quantity, one plate.

### Flush Plate Screws

Oval head flush plate screws finished to match plates are regularly supplied with all flush plates. When purchased separately these will be billed at \$1.50 list per hundred.

Standard package—100. Schedule G (Class 1).

### Special Finishes

The standard finish on all brass flush plates is brush brass, and this finish will be furnished on all orders where no finish is specified (excepting, of course, where a catalogue number designates a particular finish as is the case on standard lacquer finish plates).

**No. GE970 Single-Pole Surface Tumbler Switches**

3 Amperes, 250 Volts; 5 Amperes 125 Volts  
1/8 H.P., 110 Volts

Pony type. Closed base, indicating. Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE970	S	10	100	24	\$ .56

**No. GE969 Single-Pole Surface Tumbler Switches**

3 Amperes, 250 Volts; 5 Amperes, 125 Volts  
1/8 H.P., 110 Volts

Pony type. Slotted base, indicating. Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE969	S	10	100	25	\$ .56

**No. GE984 Single-pole Surface Tumbler Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Closed Base

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE984	S	10	100	34	\$ .96

**No. GE985 Single-pole Surface Tumbler Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Slotted Base

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE985	S	10	100	34	\$ .96

**No. GE973 Three-way Surface Tumbler Switches**

2 Amp., 250 Volts; 5 Amp., 125 Volts  
Closed Base, Pony Type

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE973	S	10	100	22	\$ .96

**No. GE971 Three-way Surface Tumbler Switches**

2 Amp., 250 Volts; 5 Amp., 125 Volts  
Slotted Base, Pony Type

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE971	S	10	100	24	\$ .96

**No. GE988 Three-way Surface Tumbler Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Closed Base

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE988	S	10	50	18	\$1.52

**No. GE989 Three-way Surface Tumbler Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Slotted Base

Standard finish, grey enamel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE989	S	10	50	18	\$1.52

**No. GE2607 4-Way Indicating Surface Tumbler Switches**

Closed Base  
2 Amperes, 250 Volts  
5 Amperes, 125 Volts  
Schedule S



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2607	10	30	18	\$1.72

**No. GE2608 4-Way Indicating Surface Tumbler Switches**

Slotted Base  
2 Amperes, 250 Volts  
5 Amperes, 125 Volts  
Schedule S



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2608	10	30	18	\$1.72

**No. GE986 Double-pole Surface Tumbler Switches**

10 Amp., 250 Volts  
Closed Base

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE986	S	10	100	34	\$1.32

**No. GE987 Double-pole Surface Tumbler Switches**

10 Amp., 250 Volts  
Slotted Base

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE987	S	10	100	37	\$1.32

**No. GE1687 Double-pole Surface Tumbler Switches**

20 Amp., 250 Volts  
Closed Base

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1687	S	1	30	40	\$2.80

**No. GE241 Single-pole Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts  
Closed Base, Indicating, Pony Type

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE241	S	10	100	24	\$ .64

**No. GE242 Single-pole Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts  
Closed Base, Pony Type

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE242	S	10	100	24	\$ .56

**No. GE239 Single-pole Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts  
Slotted Base, Indicating, Pony Type

Standard finish, polished nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE239	S	10	100	24	\$ .64

## No. GE240 Single-pole Surface Rotary Switches

3 Amp., 250 Volts; 5 Amp., 125 Volts

Slotted Base, Pony Type

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE240	S	10	100	24	\$ .56

## No. 60449 G-E Single-pole Surface Rotary Switches

5 Amp., 250 Volts; 10 Amp., 125 Volts

Closed Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60449	S	10	100	33	\$1.08

## No. 60447 G-E Single-Pole Surface Rotary Switches

5 Amperes, 250 Volts; 10 Amperes, 125 Volts

Slotted base, indicating.  
Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60447	S	10	100	34	\$1.08

## No. 60955 G-E Three-way Surface Rotary Switches

3 Amp., 250 Volts; 5 Amp., 125 Volts

Closed Base

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60955	S	10	100	30	

## No. 60954 G-E Three-way Surface Rotary Switches

3 Amp., 250 Volts; 5 Amp., 125 Volts

Slotted Base

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60954	S	10	100	31	\$ .96

## No. 60456 G-E Three-way Surface Rotary Switches

5 Amp., 250 Volts; 10 Amp., 125 Volts

Closed Base

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60456	S	10	50	18	\$1.52

## No. 60455 G-E Three-way Surface Rotary Switches

5 Amp., 250 Volts; 10 Amp., 125 Volts

Slotted Base

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60455	S	10	50	18	\$1.52

## No. 60459 G-E Four-way Surface Rotary Switches

2 Amp., 250 Volts; 5 Amp., 125 Volts

Closed Base

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60459	S	10	30	12	\$1.72

## No. 60458 G-E Four-way Surface Rotary Switches

2 Amp., 250 Volts; 5 Amp., 125 Volts

Slotted Base

Standard finish, polished nickel.



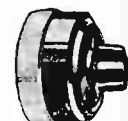
Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60458	S	10	30	12	\$1.72

## No. 60952 G-E Double-pole Surface Rotary Switches

5 Amp., 250 Volts

Closed Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60952	S	10	100	31	\$1.28

## No. 60950 G-E Double-pole Surface Rotary Switches

5 Amp., 250 Volts

Slotted Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60950	S	10	100	30	\$1.28

## No. 60453 G-E Double-pole Surface Rotary Switches

10 Amp., 250 Volts

Closed Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60453	S	10	100	38	\$1.52

## No. 60451 G-E Double-pole Surface Rotary Switches

10 Amp., 250 Volts

Slotted Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60451	S	10	100	34	\$1.52

## No. 68388 G-E Double-pole Surface Rotary Switches

20 Amp., 250 Volts

Closed Base, Indicating

Standard finish, polished nickel.



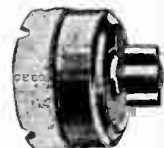
Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68388	S	1	30	28	\$3.00

## No. 68386 G-E Double-pole Surface Rotary Switches

20 Amp., 250 Volts

Slotted Base, Indicating

Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68386	S	1	30	25	\$3.00

## G-E Surface Rotary Switches

2 Amperes, 250 Volts; 5 Amperes, 125 Volts


Closed base, indicating.  
Standard finish, polished nickel.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60462	S	10	30	12	\$1.72
60466	S	10	30	12	\$2.00

**G-E Surface Rotary Switches**  
2 Amperes, 250 Volts; 5 Amperes, 125 Volts

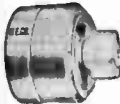
Slotted base, indicating.  
Standard finish, polished nickel.

2-Circuit						
Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
60461	S	10	30	11	\$1.72	
3-Circuit						
60465	S	10	30	12	\$2.00	

**No. GE890 Single-pole Porcelain Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts

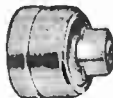
Closed Base, Indicating, Pony Type

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE890	S	10	100	48	\$ .72	

**No. GE891 Single-pole Porcelain Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts

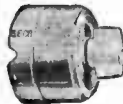
Closed Base, Pony Type

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE891	S	10	100	47	\$ .64	

**No. GE888 Single-pole Porcelain Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts


Slotted Base, Indicating, Pony Type

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE888	S	10	100	48	\$ .72	

**No. GE889 Single-pole Porcelain Surface Rotary Switches**

3 Amp., 250 Volts; 5 Amp., 125 Volts


Slotted Base, Pony Type

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE889	S	10	100	47	\$ .64	

**No. GE834 Single-pole Porcelain Surface Rotary Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts

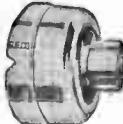
Closed Base, Indicating

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE834	S	10	30	20	\$1.24	

**No. GE832 Single-pole Porcelain Surface Rotary Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts


Slotted Base, Indicating

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE832	S	10	30	18	\$1.24	

**No. GE837 Three-way Porcelain Surface Rotary Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts

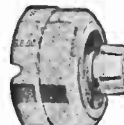
Closed Base

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE837	S	1	10	6	\$1.68	

**No. GE836 Three-way Porcelain Surface Rotary Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts


Slotted Base

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE836	S	1	10	6	\$1.6	

**No. GE843 Four-way Porcelain Surface Rotary Switches**

2 Amp., 250 Volts; 5 Amp., 125 Volts


Closed Base

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE843	S	1	10	6	\$1.88	

**No. GE842 Four-way Porcelain Surface Rotary Switches**

2 Amp., 250 Volts; 5 Amp., 125 Volts


Slotted Base

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE842	S	1	10	6	\$1.88	

**No. GE840 Double-pole Porcelain Surface Rotary Switches**

10 Amp., 250 Volts


Closed Base, Indicating

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE840	S	1	10	6	\$1.68	

**No. GE838 Double-pole Porcelain Surface Rotary Switches**

10 Amp., 250 Volts


Slotted Base, Indicating

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE838	S	1	10	6	\$1.68	

**G-E Porcelain Surface Rotary Switches**  
2 Amperes, 250 Volts; 5 Amperes, 125 Volts

Slotted base, indicating.


2-Circuit

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE844	S	1	10	6	\$1.88	
3-Circuit						
GE848	S	1	10	6	\$2.16	

**No. GE1172 Double-Pole Surface Pull Switches**

10 Amp., 250 Volts


Closed base, side outlet.  
With 8-foot No. 31/2 black ventilator cord.  
Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
GE1172	S	1	10	6	\$2.36	

**No. 280492 G-E Reversing Pull Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts

Closed base, side outlet.  
With 8-foot black ventilator cord. Cir-  
cuits, 1, 2 and off. Polished nickel finish.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
280492	S	1	10	6	\$2.36	



### No. GE911 Single-pole Surface Rotary Switches



**5 Amp., 600 Volts**  
**Closed Base, Indicating**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE911	S	10	50	18	\$1.52

### No. GE909 Single-pole Surface Rotary Switches



**5 Amp., 600 Volts**  
**Slotted Base, Indicating**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE909	S	10	50	18	\$1.52

### No. GE921 Single-pole Surface Rotary Switches



**10 Amp., 600 Volts**  
**Closed Base, Indicating**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE921	S	10	50	40	\$3.40

### No. GE919 Single-pole Surface Rotary Switches



**10 Amp., 600 Volts**  
**Slotted Base, Indicating**  
 Standard finish, polished nickel.

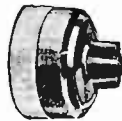
Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE919	S	10	50	40	\$3.40

### No. GE913 Three-way Surface Rotary Switches

**5 Amp., 600 Volts**  
**Closed Base**

Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE913	S	10	50	20	\$1.80



### No. GE912 Three-way Surface Rotary Switches



**5 Amp., 600 Volts**  
**Slotted Base**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE912	S	10	50	18	\$1.80

### No. GE923 Three-way Surface Rotary Switches

**10 Amp., 600 Volts**  
**Closed Base**

Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE923	S	1	50	45	\$3.40



### No. GE922 Three-way Surface Rotary Switches



**10 Amp., 600 Volts**  
**Slotted Base**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE922	S	1	50	45	\$3.40

### No. GE917 Double-pole Surface Rotary Switches



**5 Amp., 600 Volts**  
**Closed Base, Indicating**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE917	S	10	50	20	\$2.00

### No. GE915 Double-pole Surface Rotary Switches



**5 Amp., 600 Volts**  
**Slotted Base, Indicating**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE915	S	10	50	20	\$2.00

### No. GE927 Double-Pole Surface Rotary Switches

**10 Amperes, 600 Volts**

**Closed base, indicating.**  
 Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE927	S	1	50	45	\$3.80



### G-E No. 21644 Porcelain Surface Rotary Switches



**3 Amperes, 600 Volts**  
**3-Way Closed Base**  
 Chocolate glazed finish.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
21644	S	1	20	20	\$1.52

### G-E Single-Pole Combined Rotary Switches and Enclosed Fuse Cutouts

**Slotted Base**  
**Schedule S**  
**Porcelain**

**Non-Indicating—5 Amperes, 600 Volts**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
27682	1	25	44	\$2.80

**Indicating—5 Amperes, 600 Volts**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE116	1	25	50	\$3.00

**Indicating—10 Amperes, 600 Volts**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE626	1	25	53	\$3.60



No. GE116

### Composition

**Indicating—3 Amperes, 600 Volts**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
88984	1	25	53	\$4.20

**Indicating—10 Amperes, 600 Volts**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE628	1	25	53	\$4.60



No. 88984

### G-E Enclosed Indicating Fuses

**600 Volts**  
**Schedule F Class 1**

Used with combined rotary switches and cutouts.



Cat. No.	Am-peres	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
28839	3	10	100	5	\$ .30
GE439	5	10	100	5	.40
GE679	10	10	100	5	.40

**No. 60598 G-E Lock Attachments**

For Rotary Switches with Handles, Tapped 8-32



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60598	S	10	100	3	\$ .32

**No. GE299 Lock Attachments**

For Rotary Switches with Handles, Tapped 10-32



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE299	S	10	100	3	\$ .32

**No. 60599 G-E Locking Keys**

For Nos 60598 and GE299



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60599	S	10	100	2	\$ .20

**No. GE2308 Keys for Locking Tumbler Switches**

For Nos. GE1755 to GE1758, Inclusive

*Schedule S*



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2308	10	100	2	\$ .20

**No. GE2250 Keys for Locking Push Switches and Locking Plugs**



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2250	S	10	100	2	\$ .20

**No. 170717 G-E Surface Rotary Switch Handles**

For 5 and 10-amp., 250-volt and 5-amp. 600-volt Rotary Switches—Tapped 8-32  
Round Compound Handles



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
170717	S	10	100	3	\$ .12

**No. 170713 G-E Surface Rotary Switch Handles**

For 5 and 10-amp., 250-volt and 5-amp. 600-volt Rotary Switches—Tapped 8-32  
Winged Compound Handles

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
170713	S	10	100	5	\$ .12

**No. 170714 G-E Surface Rotary Switch Handles**

For 5 and 10-amp., 250-volt and 5-amp. 600-volt Rotary Switches—Tapped 8-32  
Winged Porcelain Handles



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
170714	S	10	100	5	\$ .12



**No. GE857 Single-pole Ceiling Pull Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Slotted Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE857	S	10	30	18	\$2.00

**No. GE248 Single-pole Ceiling Pull Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Closed Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE248	S	10	30	18	\$2.00

**No. GE859 Double-pole Ceiling Pull Switches**

10 Amp., 250 Volts  
Slotted Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE859	S	1	10	6	\$2.36

**No. GE250 Double-pole Ceiling Pull Switches**

10 Amp., 250 Volts  
Closed Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE250	S	1	10	7	\$2.36

**No. GE858 Three-way Ceiling Pull Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Slotted Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE858	S	1	10	6	\$2.36

**No. GE249 Three-way Ceiling Pull Switches**

5 Amp., 250 Volts; 10 Amp., 125 Volts  
Closed Base, Bottom Outlet

With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE249	S	1	10	7	\$2.36

**No. GE1294 Single-Pole Ceiling Pull Switches**

5-Amperes, 250 Volts  
10 Amperes, 125 Volts

Has 3/4 and 4-inch box base, bottom outlet. With 8-foot black ventilator cord. Standard finish, polished nickel.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1294	S	1	10	13	\$2.50

**No. GE1296 3-Way Ceiling Pull Switches**

5 Amperes, 250 Volts; 10 Amperes, 125-Volts

Has 3/4 and 4-inch box base, bottom outlet. With 8-foot black ventilator cord. Standard finish, polished nickel

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1296	S	1	10	14	\$2.86



**G-E Combined Switches and Current Taps**

660 Watts, 250 Volts  
Schedule G (Class 6)

Fits any standard plug cap. Independent control of light and outlet for appliances.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2295	10	50	15	\$1.50



## No. GE558 Single-pole Pendant Push-through Switches

3 Amp. 250 Volts; 6 Amp., 125 Volts

Pendant Cap

Standard finish, brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE558	G (Class 1)	10	100	14	\$1.00

## No. GE1305 Single-Pole Pendant Push-Through Switches

3 Amp., 250 Volts; 6 Amp., 125 Volts

Pendant Cap with Porcelain Strain Relief



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1305	G (Class 1)	10	100	23	\$1.00

## No. GE683 Single-pole Porcelain Pendant Push-through Switches

3 Amp., 250 Volts; 6 Amp., 125 Volts

Pendant Cap



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE683	G (Class 1)	10	100	13	\$.80

## Single-Pole Through Cord Composition Tumbler Switches

3 Amperes, 250 Volts; 6 Amperes, 125 Volts

Schedule G—Class 1

3/32-Inch Cord Holes



Cat. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	GE2532	10	50	6	\$1.00
Black Textolite	GE1584				

## Single-Pole Through Cord Composition Tumbler Switches

3 Amperes, 250 Volts; 6 Amperes, 125 Volts

Schedule G—Class 1

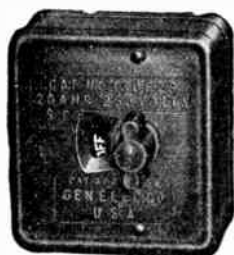
1 3/32-Inch Cord Holes



Cat. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	GE2531	10	50	6	\$1.00
Black Textolite	GE1301				

## No. GE629 Single-Pole Surface Rotary Switch and Cutout

20 Amperes, 250 Volts



Compound. Slotted base, indicating.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE629	S	1	25	53	\$4.60

## No. GE1299 Single-Pole Flush Miniature Tumbler Switches

3 Amperes, 250 Volts; 5 Amperes, 125 Volts

Schedule S



Textolite

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1299	S	10	100	11	\$.85

## No. GE1300 Single-pole Miniature Flush Switch Plates

Standard finish, frosted nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1300	S	25	100	4	\$.20

## No. GE1372 Two-gang Miniature Flush Switch Plates

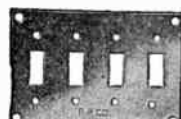
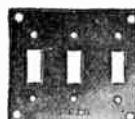
Standard finish, frosted nickel.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1372	S	10	50	10	\$.40

## G-E 3 and 4-gang Miniature Flush Switch Plates

Standard finish, frosted nickel.



Cat. No.	No. in Gang	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1373	3	S	5	25	12	\$.60
GE1374	4	S	1	10	10	\$.80

## No. GE2325 Canopy Rotary Switches

3 Amperes, 125 Volts—1 Ampere, 250 Volts

Schedule G—Class 1

Reversible lock-nut of special design adapts switch to canopies of design adapts switch to canopies from 1/2 to 1/16 inch thick. Six-inch leads of No. 18 stranded rubber-covered fixture wire furnished.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2325	10	100	6	\$1.20

## No. GE2381 Canopy Tumbler Switches

3 Amperes, 125 Volts—1 Ampere, 150 Volts

Schedule G—Class 1

Six-inch leads of No. 18 stranded rubber-covered fixture wire are regularly furnished. Leads up to 8 inches will be supplied without extra charge. For extra length leads add 18 cents list per foot or fraction thereof.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2381	10	100	5	\$1.20



## No. GE2509 Canopy Pull Switches

Black Compound without Bracket

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Schedule G—Class 1

Six-inch leads of No. 18 stranded rubber-covered fixture wire are regularly furnished. Leads up to 8 inches without extra charge.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2509	10	100	17	\$1.30

## No. GE1828 Canopy Pull Switches

Black Compound with Bracket For Horizontal Mounting

6 Amperes, 125 Volts—3 Amperes, 250 Volts

Schedule G—Class 1

Six-inch leads of No. 18 stranded rubber-covered fixture wire are regularly furnished.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1828	10	100	22	\$1.50



**No. 218159 G-E Triple-Pole Surface Rotary Switches**



20 Amperes, 250 Volts

Black marine finish.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
218159	S	1	30	32	\$4.00

**No. 179532 G-E Double-Pole Double-Throw Surface Rotary Switches**

20 Amperes, 250 Volts

Black japan finish.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
179532	S	1	30	12	\$6.00

**No. 62412 G-E 3-Point Ceiling Fan Surface Rotary Switches**

2 Amperes, 250 Volts; 4 Amperes, 125 Volts

Closed base, indicating. Oxidized copper finish. Circuits: 1-2 3-off.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62412	S	10	100	32	\$1.64

**G-E No. 218910 Double-pole Heavy Duty Tumbler Switches**

30 Amp., 250 Volts; 60 Amp., 125 Volts

Compound Base Binding Post Terminals



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
218910	S	1	20	20	\$3.70

**G-E No. 219529 Triple-pole Heavy Duty Tumbler Switches**

30 Amp., 250 Volts; 60 Amp., 125 Volts  
Black Porcelain Base—Busbar Terminals



Cat. No.	Schedule	Carton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
219529	S	1	20	20	\$5.00

**G-E Momentary Contact Push Button Surface Switches**

With Silver Contacts Single Pole

2.5 Amperes, 500 Volts; 5 Amperes, 250 Volts

Schedule G Class 1

Front Connected

Cat. No.	Circuit	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68245	Normally Open.	10	50	35	\$2.70
100828	Normally Closed.	10	50	41	2.70

Back Connected

Cat. No.	Circuit	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
68246	Normally Open.	10	50	35	\$3.00
100829	Normally Closed.	10	50	41	3.00



No. 68245



No. 68246

**G-E Momentary Contact Push Button Surface Switches**

With Brass Contacts Single Pole

Front Connected

1.5 Amperes, 250 Volts—Schedule G Class 1

Cat. No.	Circuit	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
33559	Normally Open	10	50	20	\$1.50
28856	Normally Closed	10	50	20	1.50



**Levolier Conduit Box and Fixture Switches**

6 Amperes, 125 Volts  
3 Amperes, 250 Volts

A small 6-ampere pull switch. Designed to individually control kitchen lighting units, and industrial lighting units.

Individual control is an economic necessity from the standpoint of saving in wiring and current.

This switch is quickly installed; no extra wire, no solder or tape arc required.



No. 61

Cat. No.	Stem Diam. Inches	Stem Length Inches	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61	7/16	3/16	10	100	14	\$.55
62	7/16	3/8	10	100	12	.60
63	7/16	3/4	10	100	13	.60

**No. 59 Levolier Link Switches**

Used between 2 links of chain on lighting units having small canopies. Takes the place of the pendant switch. No extra wire needed.

Carton, 10; standard package, 100.

Price, No. 59..... each \$ .55



**No. 3316 P & S Pull Canopy Switches**

With Stem and Lock Nut

3 Amperes, 125 Volts; 1 Ampere, 250 Volts



Standard finish of chain, stem and lock nut is brush brass. For special finish on chain and lock nut, add 2 cents.

The diameter of the switch stem is 13/32 inch.

Punch, 1/8 inch pipe size.

Fitted with short chain and cord. Outlet box fitters or washers for 1/2-inch knockout supplied with each switch.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3316	10	100	19	\$.75

**P & S Porcelain Pull Canopy Switches**

250 Watts, 250 Volts

Standard finish of chain, stem and lock nut is brush brass.

The diameter of the switch stem is 13/32 inch. Punch 1/8-inch pipe size.

Fitted with short chain and cord with ball. For special finish on chain and lock nut, add 2 cents to list.

Outlet box fitters or washers for 1/2-inch knockout supplied with each switch.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3317	10	100	19	\$.65



## P & S Canopy Switches

3 Amperes, 125 Volts; 1 Ampere, 250 Volts

### Narrow Canopy Switches with Parallel Wires

The stem on P & S 3306 is of sufficient length to use with canopies not more than 1/16-inch thick. P & S 3307 may be used with canopies up to 1/4 inch thick.

Fitted with 6 inches of No. 18 B & S stranded fixture wire. Longer wires furnished specially at 4 1/2 cents per foot each conductor.

P & S 3306 and 3307 may be assorted to make standard package quantities.



No. 3307

Cat. No.	For Canopies Thickness Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3306	1/16	10	100	7	\$.60
3307	1/4	10	100	8	.60



### Fixture Supporting Canopy Switches

With Rotating Stem and Locknuts

P & S 3312 is a combination canopy switch and bracket supporting stem. The stem is 1/8-inch pipe size and 1 5/16 inches long. Stem turns on switch body for adjusting in assembly.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3312	10	100	11	\$.65

## P & S Pull Fixture-Body Switches

For Lighting Units

3 Amperes, 125 Volts; 1 Ampere, 250 Volts



No. 3055

Standard finish of chain is brush brass. No extra charge for nickel. Special finish on short chain, 2 cents list extra; on long chain, 10 cents list extra.

Bottom nipple on all Fixture-Body Switches is 1/8 inch.

Each switch is fitted with 6-inch No. 16 stranded rubber-covered N.E.C. standard wires.

Each chain is fitted with chain connector and tassel.

Short chain and 6-foot linen cord with ball can be supplied instead of 3-foot chain, without extra charge. Extra cord beyond 6 feet, 1 cent list per foot.

Cat. No.	Top Nipple Inches	LENGTH OF CHAIN		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Ft.	In.				
3055	1/4	..	8	10	20	7	\$.85
3056	1/4	3	..	10	20	7	.95
3057	3/8	3	..	10	20	7	.95
3058	3/8	..	8	10	20	7	.85
3059	1/8	3	..	10	20	7	.95
3060	1/8	..	8	10	20	7	.85

## Bryant Porcelain Sub-bases

Schedule H

For Surface Work



Cat. No.	DEVICE BASE, IN. DIAMETER			Screw Spac-ings	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
	Maxi-mum	Mini-mum	mum					
2381	2 5/8	1 7/8	3/4	1-1 3/8	10	100	24	\$.06
2357	2 5/8	2 1/4	3/4	1-1 3/4	10	100	36	.08
2379	3 1/2	3	2 1/8	2-2 5/8	5	25	19	.15

## P & S Cold-Molded Pendent Switch and Convenience Outlet

6 Amperes, 125 Volts; 3 Amperes, 250 Volts



No. 1550

Controls light above and serves appliance below.

Bottom outlet, for parallel or tandem blade plug, is independent of switching mechanism.

No. 1551 is the same as No. 1550 but is supplied with 5 feet of 3-conductor black cotton covered cord.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1550	10	50	12	\$.75
1551	10	50	42	1.50

## No. 60938 G-E Porcelain Sub-bases

For switches or receptacles not over 2 1/4 inches in diameter.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60938	G-1	10	250	41	\$.12

## No. 60939 G-E Porcelain Sub-bases

For switches or receptacles not over 2 3/4 inches in diameter.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
60939	G-1	10	100	25	\$.12

## No. GE761 Porcelain Sub-bases

For use with 20-ampere switches.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE761	G-1	5	25	10	\$.30

## No. 16 P & S Round Switch Bases

5 or 10 Amperes

May be used for various types of wall and ceiling receptacles.

Outside diameter, 2 1/2 inches.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
16	25	100	23	\$.06

## No. 17 P & S Square Switch Bases

5 or 10 Amperes

For moulding work. Also for various types of wall and ceiling receptacles, or 5 and 10-ampere standard snap switches. Outside dimensions, 2 1/2 inches.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
17	25	100	25	\$.06

## Bryant Porcelain Sub-bases

Schedule H

For Concealed Work



Cat. No.	DEVICE BASE, IN. DIAMETER			Screw Spac-ings	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
	Maxi-mum	Mini-mum	mum					
2382	2 5/8	1 7/8	3/4	1-1 3/8	10	100	28	\$.06
2252	2 5/8	2 1/4	3/4	1-1 3/4	10	100	38	.08
2380	3 1/2	3	2 1/8	2-2 5/8	5	25	21	.15

**Hubbell Shallow Flush Toggle Switches**

**With Porcelain Base and Square Handle**

*Schedule F*



No. 8801

Will fit in 1½-inch switch boxes. Supporting screw holes spaced 3¼ inches on centers.

Wide plaster cars are standard equipment on the 8801 line of switches.

These wide cars are scored so as to be readily removed if desired.

Switches with narrow aligning lugs are recommended for use with screwless bakelite plates and may be had when so specified. Wide plaster cars can not be used with screwless bakelite plates.

Both brown and black handles are standard.

Brown furnished unless otherwise specified.

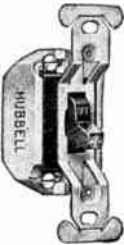
These switches are regularly furnished not grounded. If desired with ground shunt to frame, suffix letter G.

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8801	Single-Pole, Indicating..	10 5	10	100	25	\$ .35
8941	Single-Pole, Indicating..	20 ..	10	10	6	.70
8802	Double-Pole, Indicating.	.. 10	10	50	15	.70
8803	3-Way.....	10 5	10	50	15	.50
8804	4-Way.....	5 2	10	10	8	1.00

**Hubbell Recessed Flush Toggle Switches**

**With Porcelain Base and Square Handle**

*Schedule F*



No. 8901

The purpose of the recessed line is to provide a flush toggle switch with handle recessed to prevent possible breakage. This arrangement protects the toggle handle; at the same time the depression in the plate is large enough to permit easy manipulation. Will fit 2-inch switch boxes. Regularly furnished not grounded. If desired with ground shunt to frame,



No. 8911

suffix letter G. Both brown and black composition handles are standard on all of the square handle switches. Brown handles furnished unless otherwise specified. Supporting screw holes of switches are spaced 3¼ inches on centers. Standard finish of No. 8911 plate is brush brass; special finishes listed on another page.

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8901	Single-Pole, Indicating..	10 5	10	100	25	\$ .35
8902	Double-Pole, Indicating.	.. 10	10	50	15	.70
8903	3-Way.....	10 5	10	50	15	.50
8904	4-Way.....	5 2	10	10	8	1.00
8911	.060 Brush Brass Plate..	.. ..	20	100	32	.40

**Hubbell DeLuxe Flush Toggle Switches**

**With Composition Base, Brass Handle**

*Schedule F*



Will fit 1½-inch switch boxes. Screw holes spaced 3¼ inches on centers.

When ordering Toggle Switches to be used with specially finished plates, care should be taken to specify the finish for Toggle handles of the switches.

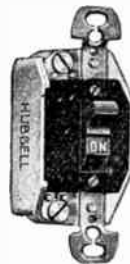
Standard finish is brush brass.

For switches with luminous tipped handles, add 25 cents to price.

Cat. No.	Description	AMPERES 125 V. 250 V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8121	Single Pole	10 5	10	50	25	\$ .72
8122	Doub. Pole	.. 10	10	10	8	.90
8132	Doub. Pole	20 ..	10	10	8	1.20
8123	3-Way	10 5	10	20	10	.88
8124	4-Way	5 2	10	10	8	1.20

**Hubbell Shallow Flush Toggle Switches**

*Schedule F*



No. 8791

Will fit in 1½-inch switch boxes. Supporting screw holes spaced 3¼ inches on centers.

Both brown and black handles are standard; brown furnished unless otherwise specified.



No. 8811

**With Porcelain Base and Square Handle**

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8791	Single-Pole, Indicating..	10 5	10	100	25	\$ .45
8931	Single-Pole, Indicating..	20 ..	10	10	6	.80
8792	Double-Pole, Indicating.	.. 10	10	50	15	.70
8822	Double-Pole, Indicating.	20 ..	10	10	8	.80
8793	3-Way.....	10 5	10	50	15	.70
8794	4-Way.....	5 2	10	10	8	1.00

**With Composition Base and Square Handle**

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8811	Single-Pole, Indicating..	10 5	10	50	15	\$ .55
8921	Single-Pole, Indicating..	20 ..	10	10	6	.90
8812	Double-Pole, Indicating.	.. 10	10	10	8	.90
8832	Double-Pole, Indicating.	20 ..	10	10	8	1.00
8813	3-Way.....	10 5	10	20	10	.70
8814	4-Way.....	5 2	10	10	8	1.20

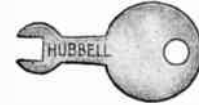
**Hubbell Flush Locking Toggle Switches**

**For Round Handle Switch Plates**

*Schedule F*



No. 8701



No. 8700

Will fit in 1½-inch switch boxes. Supporting screw holes spaced 3¼ inches on centers.

One No. 8700 key furnished with each lock switch.

Standard finish is brush brass.



No. 8721

**With Porcelain Base**

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8701	Single-Pole.....	10 5	10	100	25	\$ .80
8702	Double-Pole.....	.. 10	10	50	15	1.15
8703	3-Way.....	10 5	10	50	15	.95
8704	4-Way.....	5 2	10	10	8	1.45
8700	Separate Key.....	.. ..	..	100	2	.10

**With Composition Base**

Cat. No.	Description	AMPERES 125-V. 250-V.	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8721	Single-Pole.....	10 5	10	50	25	\$ 1.00
8722	Double-Pole.....	.. 10	10	10	8	1.35
8723	3-Way.....	10 5	10	20	15	1.15
8724	4-Way.....	5 2	10	10	8	1.65

**Hubbell Battery Toggle Switches**

**With Square Composition Handles**

20 Watts—Schedule S



No. 8270

Standard finishes for plates are polished nickel, satin nickel and black enamel. Polished nickel furnished unless otherwise specified.

Special quantity prices quoted upon application.



No. 8270 Switch with No. 8271 Plate

No.	Description	Screw Spacing Inches	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8270	Single Pole Switch.....	1½	25	100	3	\$ .35
8273	3-Way Switch.....	1½	25	100	3	.56

**Flush Face Plate**

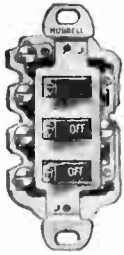
No.	Description	Screw Spacing Inches	Car-ton	Std. Pkg.	Lbs. Std. Pkg.	Price Each
8271	Single Brass Plate.....	1½	25	100	2	\$ .20



## Hubbell Duplex and Triplex Switches

Individual Switches Rated at 5 Amperes, 125 Volts;  
2 Amperes, 250 Volts  
*Schedule F*

### Common Feeds



No. 8833

Each switch consists of a small trigger action toggle switch movement, made up in gangs of two or three, mounted in a single porcelain box which is small enough to be installed in a standard single outlet box.

All switches in the gang have a common terminal on one side which simplifies the wiring as compared to the ordinary three-gang installation.

The Nos. 8821 and 8831 Switches may be used as electrolier switches and all the circuits or any part of them may be thrown off by a single movement of the hand. Brown toggle handles are standard.

### Duplex Switches—2-Gang

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8821	Two Single-Pole Units	2	10	3		\$ .85
8823	One Single-Pole, One 3-Way Unit	2	10	3		.95

### Triplex Switches—3-Gang

8831	Three Single-Pole Units	2	10	3		\$ 1.10
8833	Two Single-Pole, One 3-Way Unit	2	10	3		1.30

### Separate Feeds

Although common feed switches are desirable from the standpoint of facilitating installing, separate feed Duplex and Triplex Switches are furnished so that if trouble develops on one line the other circuit will not be affected.

Brown toggle handles are standard.

### Duplex Switches—2-Gang

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
9821	Two Single-Pole Units	2	10	3		\$ .85
9823	One Single-Pole, One 3-Way Unit	2	10	3		.95
9824	Two 3-Way Units	2	10	3		1.05

### Triplex Switches—3-Gang

9831	Three Single-Pole Units	2	10	3		\$ 1.10
9833	Two Single-Pole, One 3-Way Unit	2	10	3		1.30

### Switch Plates



No. 8852 Plate with Switch



No. 8853 Plate with Switch

### For Duplex Switches

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8842	Bakelite, Screwless	2	10	1 1/2		\$ .35
8852	Brass, Screw Type, Brush Brass	2	10	2		.18
8952	Brass, Lacco Finish	2	10	2		.14

### For Triplex Switches

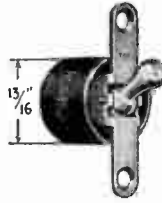
8843	Bakelite, Screwless	2	10	1 1/2		\$ .35
8853	Brass, Screw Type, Brush Brass	2	10	2		.18
8953	Brass, Lacco Finish	2	10	2		.14

No. 8844 under-plate designed for No. 8842 and 8843 bakelite plates is furnished with these plates.

## Hubbell Battery Toggle Switches

With Round Metal Handles

20 Watts  
*Schedule S*



No. 8250



No. 8260



No. 8254

### Flush Switches without Face Plate

No.	Description	Screw Spacings Inches	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8250	Single Pole Switch	1 1/2	25	100	3		\$ .35
8260	Single Pole Recessed Switch	1 1/4 x 1 3/8	25	100	3		.35
8254	Single Pole Switch	1 3/16	25	100	3		.35
8253	3-Way	1 1/2	25	100	3		.56
8263	3-Way	1 1/4 x 1 3/8	25	100	3		.56

### Flush Face Plates



No. 8250 Switch with No. 8251 Plate

Standard finishes for plates and toggle handles as follows: Polished nickel, satin nickel and black enamel. Polished nickel furnished unless otherwise specified. Special quantity prices quoted upon application.



No. 8260 Switch with No. 8262 Plate

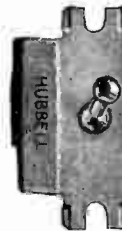
No.	Description	Screw Spacings Inches	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8076	Single Brass Plate	1 3/16	25	100	4		\$ .20
8251	Single Brass Flush Plate	1 1/2	25	100	2		.15
8262	Single Brass Recessed Plate	1 3/8	25	100	2		.20

## Hubbell Battery Toggle Switches and Flush Plates

20 Watts  
*Schedule S*

### Switches without Face Plates

Screw spacings, 1 3/16 inches. Any switch may be furnished with luminous tipped handle at an addition to the list price of 20 cents each.



No. 8051

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8051	Single-Pole	25	100	15		\$ .60
8053	3-Way	25	100	15		.90
8055	Momentary Contact Switch	25	100	15		.85
8060	Combination Starter Magneto Switch	5	50	10		1.30

### Separate Face Plates for Battery Switches

No. 8071 has square corners and beveled edges.

No. 8076 has round corners and edges.

Screw spacings, 1 3/16 inches. Combinations of any of the above units can be furnished in gangs up to 5 gangs. Prices for special combinations quoted upon application. Special quantity prices on toggle battery switches upon application.



No. 8071



No. 8076

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
8071	Single Plate	25	100	4		\$ .20
8076	Single Plate	25	100	4		.20
8072	2-Gang Plate	10	50	4		.40
8073	3-Gang Plate	10	35	4		.60
8074	4-Gang Plate	10	25	4		.80
8075	5-Gang Plate	1	20	4		1.00

**Hubbell Surface Toggle Switches**

Schedule F

Black porcelain base. Screw holes are elongated. Screw spacings, 1½ to 1¾ inches.  
Outside diameter of base, 2¼ inches.



Single Pole					
5 Amps., 125 Volts; 3 Amps., 250 Volts			5 Amps., 250 Volts		
Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
8171	Solid	10	100	35	\$.28
8191	Slotted	10	100	35	.28
3-Way					
5 Amps., 125 Volts; 3 Amps., 250 Volts			5 Amps., 250 Volts		
★8173	Solid	10	100	35	\$.48
★8193	Slotted	10	100	35	.48
Single Pole					
10 Amps., 125 Volts; 5 Amps., 250 Volts			5 Amps., 250 Volts		
Nos. 8171 or 8421					
8421	Solid	10	100	35	\$.48
8431	Slotted	10	100	35	.48

Black porcelain base. Screw holes are elongated. Screw spacings, 1½ to 1¾ inches.  
Outside diameter of base, 2¾ inches.

Double Pole					
10 Amps., 250 Volts					
Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
8112	Solid	10	100	40	\$.66
8162	Slotted	10	100	40	.66
3-Way					
10 Amps., 125 Volts; 5 Amps., 250 Volts			5 Amps., 250 Volts		
8153	Solid	10	50	20	\$.76
8233	Slotted	10	50	20	.76



No. 8112

Brush brass and nickel plate are standard finishes for switch covers.

Brush brass covers furnished unless otherwise specified. Special finishes listed on another page.

**Hubbell Toggle Appliance Switches**

6 Amperes, 125 Volts  
3 Amperes, 250 Volts

Schedule F



No. 8745



No. 8650



No. 8656

These appliance switches are suitable for use with all kinds of electrically operated apparatus.

When installed, only the short toggle hand and lock nuts are visible, the switch being suspended from the metal surface of appliance or apparatus and held in place by 2 lock washers, making a decidedly neat, convenient and effective switch.

Depth of switch base, ¾ inch; diameter, 1¼ inches.

Standard finishes are brush brass or polished nickel. Brush brass furnished unless otherwise specified. For special finishes, see another page.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
8650	With Short Neck	25	50	4	\$.45
8656	With Long Neck	25	50	4	.50
8745	With Short Neck	25	50	4½	.48
8746	With Long Neck	25	50	5	.53

Nos. 8745 and 8746 with detachable indicating plate.

**Hubbell Plates for Square Handle Toggle Switches**

Schedule F



Single Plate



Tandem Plate

Plates in brush brass, Lacco or special finishes may be assorted to make standard package or carton quantity.

Any of the plates listed below in brush brass may be had in Lacco finish at a reduction of 4 cents from the brush brass list prices.

Special features listed on another page. Special finishes, listed elsewhere.

**Struck-Up—.040-Inch Metal**

Brush Brass					
Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Price Each
8771	Single Plate	4½x 2¾	10	100	30 \$ .14
8772	2-Gang Plate	4½x 4¾	*	†	28 .28
8773	3-Gang Plate	4½x 6¾	*	†	26 .42
8774	4-Gang Plate	4½x 8¾	*	†	24 .88
8775	5-Gang Plate	4½x 10	*	†	22 1.10
8776	6-Gang Plate	4½x 11¾	*	†	20 1.32
8777	7-Gang Plate	4½x 13¾	*	†	18 1.54
8778	8-Gang Plate	4½x 15¾	*	†	16 1.76

**Lacco Brass**

8781	Single Plate	4½x 2¾	10	100	30 \$ .10
8782	2-Gang Plate	4½x 4¾	*	†	28 .20
8783	3-Gang Plate	4½x 6¾	*	†	26 .30
8784	4-Gang Plate	4½x 8¾	*	†	24 .72
8785	5-Gang Plate	4½x 10	*	†	22 .90
8786	6-Gang Plate	4½x 11¾	*	†	20 1.08
8787	7-Gang Plate	4½x 13¾	*	†	18 1.26
8788	8-Gang Plate	4½x 15¾	*	†	16 1.44

**Struck-Up—.060-Inch Metal**

Brush Brass					
Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Price Each
8751	Single Plate	4½x 2¾	10	100	32 \$ .18
8752	2-Gang Plate	4½x 4¾	*	†	30 .36
8753	3-Gang Plate	4½x 6¾	*	†	28 .54
8754	4-Gang Plate	4½x 8¾	*	†	26 1.04
8755	5-Gang Plate	4½x 10	*	†	24 1.30
8756	6-Gang Plate	4½x 11¾	*	†	22 1.56
8757	7-Gang Plate	4½x 13¾	*	†	20 1.82
8758	8-Gang Plate	4½x 15¾	*	†	18 2.08

**Solid Brass—.100-Inch Metal**

Brush Brass					
Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Price Each
8761	Single Plate	4½x 2¾	10	100	35 \$ .34
8762	2-Gang Plate	4½x 4¾	*	†	33 .68
8763	3-Gang Plate	4½x 6¾	*	†	31 1.02
8764	4-Gang Plate	4½x 8¾	*	†	29 1.36
8765	5-Gang Plate	4½x 10	*	†	27 2.00

Solid standard size plates beyond 5 gangs can be furnished at 40 cents list per gang for brush brass.

**Solid Brass—.100-Inch Metal—Tandem**

Brush Brass					
Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Price Each
8795	2-Gang Plate	8½x 2¾	*	†	33 \$ .80
8796	3-Gang Plate	11¾x 2¾	*	†	31 1.20
8797	4-Gang Plate	15¾x 2¾	*	†	29 1.60

Solid brass tandem plates beyond 4 gangs can be furnished at 40 cents list per gang for brush brass.

\*Carton quantity is 10 gangs.  
†A standard package of toggle switch plates consists of 100 single plates or equivalent in gangs.

## Hubbell Flush Plates for Round Handle Toggle Switches

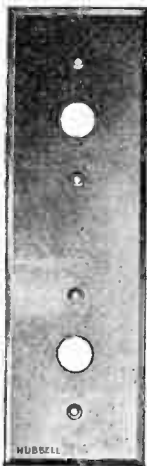
Schedule F



Single Plate

Plates in brush brass, Lacco or special finishes may be assorted to make standard package or carton quantity.

Any of the plates listed below in brush brass may be had in Lacco finish at a reduction of 4 cents list per gang from the brush brass prices.



Tandem Plate

Special finishes on another page.

Special features listed elsewhere.

### Struck-Up—.040-Inch Metal

Brush Brass

Cat. No.	Description	Dimensions Inches	Carton Pkg.	Std. Pkg.	Wt. Lbs. Std.	Lbs. Pkg.	Price Each
8651	Single Plate	4 1/2 x 2 3/4	10	100	20	\$ .14	
8652	2-Gang Plate	4 1/2 x 4 1/16	*	†	19	.28	
8653	3-Gang Plate	4 1/2 x 6 3/8	*	†	18	.42	
8654	4-Gang Plate	4 1/2 x 8 3/16	*	†	17	.88	

Lacco Brass

8661	Single Plate	4 1/2 x 2 3/4	10	100	20	\$ .10
8662	2-Gang Plate	4 1/2 x 4 1/16	*	†	19	.20
8663	3-Gang Plate	4 1/2 x 6 3/8	*	†	18	.30
8664	4-Gang Plate	4 1/2 x 8 3/16	*	†	17	.72

### Struck-Up—.060-Inch Metal

Brush Brass

8291	Single Plate	4 1/2 x 2 3/4	10	100	29	\$ .18
8292	2-Gang Plate	4 1/2 x 4 1/16	*	†	27	.36
8293	3-Gang Plate	4 1/2 x 6 3/8	*	†	25	.54
8294	4-Gang Plate	4 1/2 x 8 3/16	*	†	24	1.04

### Solid Brass—.100-Inch Metal

Brush Brass

8301	Single Plate	4 1/2 x 2 3/4	10	100	35	\$ .34
8302	2-Gang Plate	4 1/2 x 4 1/16	*	†	33	.68
8303	3-Gang Plate	4 1/2 x 6 3/8	*	†	31	1.02
8304	4-Gang Plate	4 1/2 x 8 3/16	*	†	29	1.36
8305	5-Gang Plate	4 1/2 x 10	*	†	27	2.00
8306	6-Gang Plate	4 1/2 x 11 1/16	*	†	25	2.40
8307	7-Gang Plate	4 1/2 x 13 5/8	*	†	23	2.80
8308	8-Gang Plate	4 1/2 x 15 1/16	*	†	21	3.20

### Solid Brass—.100-Inch Metal—Tandem

Brush Brass

8672	2-Gang Plate	8 1/8 x 2 3/4	*	†	33	\$ .80
8673	3-Gang Plate	11 3/4 x 2 3/4	*	†	31	1.20
8674	4-Gang Plate	15 3/8 x 2 3/4	*	†	29	1.60

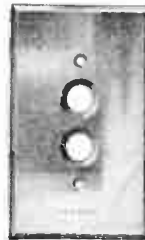
Solid brass tandem plates beyond 4 gangs can be furnished at 40 cents list per gang for brush brass.

\*Carton quantity is 10 gangs.

†A standard package of toggle switch plates consists of 100 single plates or equivalent in gangs.

## Hubbell Plates for Push Switches

Schedule F



Single Plate

Plates in brush brass, Lacco or special finishes may be assorted to make standard package or carton quantity.

Any of the plates listed below can be supplied in Lacco brass finish at a reduction of 4 cents list per gang.

Special features listed elsewhere.

Special finishes, listed on another page.



Tandem Plate

### Struck-Up—.040-Inch Metal

Brush Brass

Cat. No.	Description	Dimensions Inches	Carton Pkg.	Std. Pkg.	Wt. Lbs. Std.	Lbs. Pkg.	Price Each
8511	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .14	
8512	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.28	
8513	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.42	
8514	4-Gang Plate	4 1/2 x 8 3/16	*	†	24	.88	
8515	5-Gang Plate	4 1/2 x 10	*	†	22	1.10	
8516	6-Gang Plate	4 1/2 x 11 1/16	*	†	20	1.32	
8517	7-Gang Plate	4 1/2 x 13 5/8	*	†	18	1.54	
8518	8-Gang Plate	4 1/2 x 15 1/16	*	†	16	1.76	

Lacco Brass

8521	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .10
8522	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.20
8523	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.30
8524	4-Gang Plate	4 1/2 x 8 3/16	*	†	24	.72
8525	5-Gang Plate	4 1/2 x 10	*	†	22	.90
8526	6-Gang Plate	4 1/2 x 11 1/16	*	†	20	1.08
8527	7-Gang Plate	4 1/2 x 13 5/8	*	†	18	1.26
8528	8-Gang Plate	4 1/2 x 15 1/16	*	†	16	1.44

### Struck-Up—.060-Inch Metal

Brush Brass

8551	Single Plate	4 1/2 x 2 3/4	10	100	32	\$ .18
8552	2-Gang Plate	4 1/2 x 4 1/16	*	†	30	.36
8553	3-Gang Plate	4 1/2 x 6 3/8	*	†	28	.54
8554	4-Gang Plate	4 1/2 x 8 3/16	*	†	26	1.04
8555	5-Gang Plate	4 1/2 x 10	*	†	24	1.30
8556	6-Gang Plate	4 1/2 x 11 1/16	*	†	22	1.56
8557	7-Gang Plate	4 1/2 x 13 5/8	*	†	20	1.82
8558	8-Gang Plate	4 1/2 x 15 1/16	*	†	18	2.08

### Solid Brass—.100-Inch Metal

Brush Brass

8571	Single Plate	4 1/2 x 2 3/4	10	100	35	\$ .34
8572	2-Gang Plate	4 1/2 x 4 1/16	*	†	33	.68
8573	3-Gang Plate	4 1/2 x 6 3/8	*	†	31	1.02
8574	4-Gang Plate	4 1/2 x 8 3/16	*	†	29	1.36
8575	5-Gang Plate	4 1/2 x 10	*	†	27	2.00
8576	6-Gang Plate	4 1/2 x 11 1/16	*	†	25	2.40
8577	7-Gang Plate	4 1/2 x 13 5/8	*	†	23	2.80
8578	8-Gang Plate	4 1/2 x 15 1/16	*	†	21	3.20
8579	9-Gang Plate	4 1/2 x 17 1/4	*	†	19	3.60
8580	10-Gang Plate	4 1/2 x 19 1/16	*	†	17	4.00
8506	11-Gang Plate	4 1/2 x 20 7/8	*	†	15	4.40
8507	12-Gang Plate	4 1/2 x 22 1/16	*	†	13	4.80

### Solid Brass—.100-Inch Metal—Tandem

Brush Brass

8592	2-Gang Plate	8 1/8 x 2 3/4	*	†	33	\$ .80
8593	3-Gang Plate	11 3/4 x 2 3/4	*	†	31	1.20
8594	4-Gang Plate	15 3/8 x 2 3/4	*	†	29	1.60

Solid tandem plates beyond 4 gangs can be furnished at 40 cents list per gang for brush brass.

\*Carton quantity is 10 gangs.

†A standard package of push button switch plates consists of 100 single plates or equivalent in gangs.

**Hubbell Screwless Bakelite Plate Assortments, Special Finishes and Features**

**Assortments**

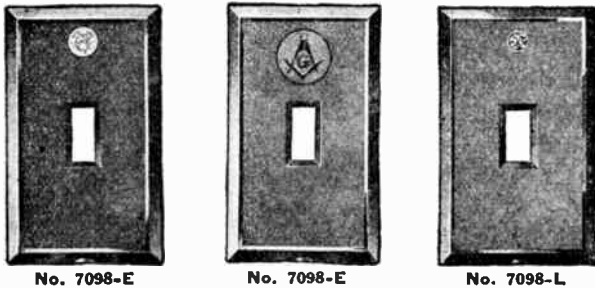
Any and all Hubbell Screwless Bakelite Plates, irrespective of kind, type or number of gangs per plate, may be assorted to make up standard package quantities.

**Special Finishes**

For white, ivory, yellow and blue sprayed-on enamel finishes, add 20 cents per gang to list price of plate. On gang plates, add 20 cents for first gang and 10 cents list for each succeeding gang. For specially tinted colors, to match sample, add 35 cents list to list price of plate. On gang plates, add 35 cents for first gang and 17½ cents list for each succeeding gang.

For grained wood finishes, add 50 cents per gang to list price of plate; and on gang plates, add 50 cents for first gang and 25 cents for each succeeding gang. Samples of special finished bakelite plates should accompany orders for such material, and where they do not come under the above classification of finishes, price will be quoted on application. The additional discounts for quantities in excess of standard package as applied to brass plates do not apply to special finished bakelite plates.

**Engraved, Emblematic and Luminous Insert Plates**



There has been an insistent demand among clubs, fraternity organizations, hotels and theaters for emblematic and decorative plates.

Hubbell Screwless Bakelite Plates may be furnished with engraved emblems, crests or coat of arms. They are particularly suitable for these features, in that no screw heads or exterior fastenings mar the dignity of the design. The plate can also be furnished in colors to harmonize with the emblem. These emblems can be engraved or emblematic buttons may be inserted in the plates.

When ordering plates with emblems or engravings, suffix the letter E with description of engraving or button desired.

Screwless bakelite plates may also be furnished with Cat. No. 7212 luminous insert. When ordering the luminous insert, suffix letter L to Cat. No.

**Engraving—Characters**

Ten cents list per letter on plates having 5 letters or numerals or more. Plates having less than 5 letters or numerals add 50 cents to list price of plate.

**Engraving—Emblems**

Plates with engraved standard emblems add \$1.00 list per engraving to price of plate.

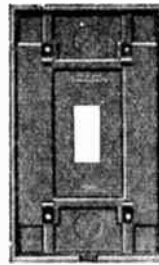
**Emblematic Buttons**

Plates with standard emblematic buttons take an additional list price of 75 cents per button.

**Luminous Insert**

Plates equipped with No. 7212 luminous insert take an additional list price per plate of 25 cents per button.

**Hubbell Bakelite Screwless Plates**



Rear of Plate Showing Spring Holding Clips

These plates are molded of genuine bakelite and have no screws or other external fastenings to mar their finish and beauty. The absence of metal screws insures perfect insulation of plate surface from mechanism.

Screwless plates are regularly furnished in brown. Black bakelite plates supplied when desired without extra charge.

Screwless Bakelite Plates may also be had in attractive special finishes to match color scheme of rooms. Sample of finish should accompany order. For special features and finishes, see another page.

These plates save time in installing. No building up of switches or outlet to bring them up to plaster line. Switches and outlets are wired in usual way. Then, while still out of wall box, metal underplate is secured to them by screws, after which they are fastened to wall box in regular way. Switches or outlets are quickly drawn up to plaster line, and into strict alignment, by simply adjusting under plate screws.

The screwless cover-plates are snapped into position after painting and papering. No screws to bother with.

Cadmium finished steel under-plate supplied with each cover plate except sectional plates, without extra charge.

Under-plates for sectional plates must be ordered separately under their respective catalogue numbers. See another page.



No. 7098



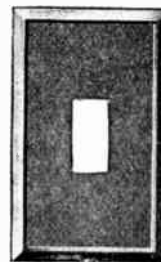
No. 7171 Under-Plate for Single Cover Plate, Either Switch or Receptacle



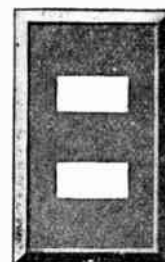
No. 7168 Tool for Lifting Screwless Plates

**For Square Handle Switch**

Cat. No.	No. of Gangs	Schedule	Carton Gangs	Std. Pkg. Gangs	Wt., Lbs. Std. Pkg.	Price Each
7098	1	F	20	100	10	\$ .35
7152	2	F	20	100	10	.70
7153	3	F	20	100	10	1.05
7242	4	F	20	100	10	1.40



No. 7096



No. 7097



Under-Plate for Duplex Cover Plate

**For No. 7125 Brown Single Convenience Outlet**

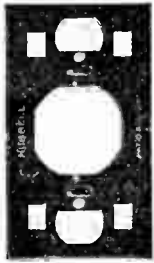
7096	1	II	20	100	10	\$ .35
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**For No. 7126 Brown Duplex Convenience Outlet**

7097	1	H	20	100	10	\$ .35
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## Hubbell Steel Under-Plates

For Sectional Screwless Bakelite Cover Plates



No. 7171



No. 7188

These under-plates are made of steel, cadmium-plated finish.

Duplex bakelite coverplates are not made in gangs.

### Under-Plates for Square Handle Switch, Pilot Light or No. 7125 Convenience Outlet Openings

Cat. No.	Schedule	Description	Car-ton Gangs	Std. Pkg. Gangs	Wt., Lbs. Std. Pkg.	Price Each
7171	H	Single Under-Plate	20	100	12	\$.05
7172	H	2-Gang Under-Plate	20	100	12	.10
7173	H	3-Gang Under-Plate	20	100	12	.15
7174	H	4-Gang Under-Plate	20	100	12	.20
7175	H	5-Gang Under-Plate	20	100	12	.25
7176	H	6-Gang Under-Plate	20	100	12	.30
7177	H	7-Gang Under-Plate	20	100	12	.35
7178	H	8-Gang Under-Plate	20	100	12	.40
7179	H	9-Gang Under-Plate	20	100	12	.45
7180	H	10-Gang Under-Plate	20	100	12	.50
7181	H	11-Gang Under-Plate	20	100	12	.55
7182	H	12-Gang Under-Plate	20	100	12	.60

### Miscellaneous Under-Plates

2151	F	For one No. 2145 Duplex Radio Receptacle	10	30	5	\$.05
7159	H	2-Gang, for One Standard Round Single Convenience Outlet and One No. 7126 Duplex Receptacle	4	20	2	.10
7188	H	For One No. 7126 Duplex Convenience Outlet	20	100	12	.05
7206	H	Single Steel Under-Plate for Telephone and Blank Screwless Bakelite Plates	20	100	13	.05
7324	H	2-Gang, for Telephone and Blank Plates	20	100	12	.10
7325	H	3-Gang, for Telephone and Blank Plates	20	100	12	.15
8844	F	Single Steel Under-Plate for Nos. 8842 and 8843 Screwless Bakelite Plates	2	10	3	.05

## Hubbell Special 2-Gang Combination Plates

For Round Bull's Eye and Square Handle Toggle Switch

Schedule II

Size of plates  $4\frac{1}{2} \times 4\frac{1}{16}$ "  
Standard finish on flush plates is brush brass. For special finishes, see another page.

Lacco is a sprayed lacquer finish imitating brush brass.

Carton, 1; standard package, 10.

Struck-Up—.040" Metal		Lacco	
Cat. No.	Price Each	Cat. No.	Price Each
7073	\$.63	7074	\$.55

Struck-Up—.060" Metal	
Cat. No.	Price Each
7110	\$.71



## Hubbell Bakelite Switch Plates

Sand Blast and Ribbed Finish

Schedule F

The top surface of the Sand Blast plate has a Sand Blast finish, set off by a narrow polished border. The top surface of the Ribbed plate gives a satin finish effect and is moulded into the plate.

Regularly furnished in brown. Black plates supplied on order at no extra charge.



No. 7095



No. 7141

Switch plates may be assorted to make standard package or carton quantities.

### For Square Handle Switches

Cat. No.	Sand Blast Surface	Ribbed Surface	Description	Car-ton Gangs	Std. Pkg. Gangs	Wt. Lbs. Std. Pkg.	Price, Each
7095	9095		Single Plate	10	100	10	\$.15 \$ .12
7121	9121		2-Gang Plate	10	100	10	.30 .24
7122	9122		3-Gang Plate	10	100	10	.45 .36
7138	9138		4-Gang Plate	10	100	10	.60 .48
7139	9139		2-Gang Plate, Tandem	10	100	10	.80 .50

### For 2-Button Push Switches

7141	9141		Single Plate	10	100	10	\$.15 \$ .12
7142	9142		2-Gang Plate	10	100	10	.30 .24
7143	9143		3-Gang Plate	10	100	10	.45 .36

## Hubbell Blank Bakelite Plates

Schedule II

7124	9124		For Single-Gang Box	10	100	16	\$.15 \$ .12
7222	9222		For 2-Gang Box	10	100	12	.30 .24

## Hubbell Bakelite Telephone Outlet Plates

Schedule II

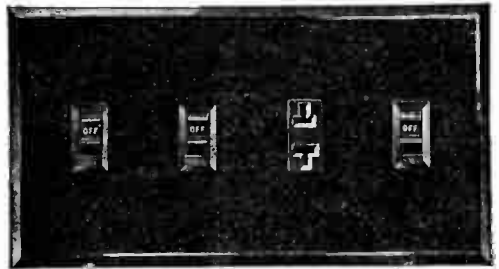
7128	9128		Single (Single Bushing)	10	100	15	\$.15 \$ .12
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## Hubbell Bakelite Radio Outlet Plates

For No. 2139 Outlet

Cat. No.	Sand Blast Surface	Ribbed Surface	Description	Car-ton Gangs	Std. Pkg. Gangs	Wt. Lbs. Std. Pkg.	Price, Each
2142	2143		Single Plate	10	30	4	\$.15 \$ .12

## Hubbell Bakelite Screwless Combination Plates—With Metal Under-Plate



Schedule II

Cat. No.	No. of Gangs	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7151	2	For Square Handle Switch and 1 No. 7125 Receptacle	1	10	1 1/2	\$.70
7156	3	For 2 Square Handle Switches and 1 No. 7125 Receptacle	1	5	2	1.05
7157	3	For 1 Square Handle Switch and 2 No. 7125 Receptacles	1	5	2	1.05
7167	4	For 2 Square Handle Switches, 1 No. 7125 Receptacle and 1 Square Handle Switch	1	5	2 1/2	1.40
7160	2	For Round Single Convenience Outlet and No. 7126 Duplex Receptacle	2	10	1 1/2	.70

**Hubbell Sectional Bakelite Screwless Plates**

Sections for switches and convenience outlets are of same dimensions and may be interchanged to form combinations. Sectional plates are not made in duplex type.

To insure perfect alignment of Sectional Cover Plates, it is necessary that steel under plates be in one piece. Sections are, therefore, packed without under plates and under plates should be ordered separately under their respective Cat. Nos.

**For Square Handle Switch**

*Schedule F*



No. 7145



No. 7147



No. 7146

Cat. No.	Description	Carton Gangs	Std. Pkg. Gangs	Wt., Lbs. Std. Pkg.	Price Each
7145	Single, Left Panel	20	100	10	\$ .30
7146	Single, Right Panel	20	100	10	.30
7147	Single, Center Panel	20	100	10	.20

**For No. 7125 Single Convenience Outlet**

*Schedule H*



No. 7148



No. 7150



No. 7149

7148	Single, Left Panel	20	100	10	\$ .30
7149	Single, Right Panel	20	100	10	.30
7150	Single, Center Panel	20	100	10	.30

**Screws for Hubbell Bakelite Plates**

French head brass screws to match bakelite are supplied on all bakelite plates but bakelite headed screw No. 7213 may be had on special order at no advance in price.

Special ornamental head screws and special screwdriver will be supplied with standard package quantities of plates when so specified, without extra charge, or may be purchased separately.



No. 7169  
Screw, 7170  
Screwdriver  
(Special  
Equipment)



No. 7213

Ornamental Plate Screws					
Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7169	H	100	100	1/4	*\$ .75
Special Screwdrivers for Above					
7170	H	5	5	1/4	\$ .10
Bakelite Headed Screws					
7213	H	100	1000	1/2	\$ .025

\*Per 100.

**No. 678 Hubbell Composition Feed Through Push Switches**

6 Amp., 125 Volts; 3 Amp., 250 Volts

Single-pole. Length of switch, 2 1/4 inches; width, 1 3/8 inches; thickness 1 5/16 inch; width over buttons, 1 3/4 inches.



Cat. No.	Schedule	Cord Hole, In.	Carton Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
678	F	1 3/32	10	50	15	\$ .50

**Hubbell Miscellaneous Bakelite Screwless Plates**

Cat. No.	Schedule	Description	Carton Gangs	Std. Pkg. Gangs	Wt., Lbs. Std. Pkg.	Price Each
2144	F	Single plate for Single Radio Receptacle No. 2139, with Metal Under-Plate	10	30	10	\$ .35
2150	F	Single Plate for Duplex Radio Receptacle No. 2145, with Metal Under-Plate	10	30	10	.35
7211	H	Single Plate for Standard Round Convenience Outlet or Switch Taps, with Metal Under-Plate	20	100	10	.35
7154	H	Single Plate for Single Telephone Outlet, with Under-Plate	20	100	10	.35
7320	H	2-Gang Plate for Single Telephone Outlet, with Metal Under-Plate	20	100	10	.70
7321	H	3-Gang Plate for Single Telephone Outlet, with Metal Under-Plate	20	100	10	1.05
7155	H	Single Plate for Double Telephone Outlet, with Under-Plate	20	100	10	.35
7322	H	2-Gang Plate for Double Telephone Outlet, with Metal Under-Plate	20	100	10	.70
7323	H	3-Gang Plate for Double Telephone Outlet, with Metal Under-Plate	20	100	10	1.05
7166	H	Single Blank Plate, with Under-Plate	20	100	10	.35
8842	F	Single Plate for Duplex Switches, with Under-Plate	2	10	1 1/2	.35
8843	F	Single Plate for Triplex Switches, with Under-Plate	2	10	1 1/2	.35

**Hubbell Interchangeable Inserts for Screwless Bakelite Plates**



No. 7194 No. 7193 No. 7195

These inserts fit the single convenience outlet opening for No. 7125 receptacle in screwless bakelite plates. By their use the flexibility of screwless bakelite plates is enhanced and they afford economical substitution for future contingencies.

**Blank Insert**

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7194	H	10	30	1	\$ .25
<b>Bull's Eye Jewel</b>					
7193	F	10	30	1	.25
<b>Telephone Outlet</b>					
7195	H	10	30	1	.25

**Hubbell Detachable Bulls Eyes**

**For Rectangular Hole Toggle Switch Plates**  
Brass ring has projecting prongs which can be bent over in back of plate. Brass ring will be furnished in any finish without extra charge.

Ruby glass standard; clear, green, blue, amber and other colors furnished upon special order at same price.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7298	F	10	30	3	\$ .25





## Diamond H Single-pole Surface Switches



These switches may be converted into lock switches by removing the handle and using lock attachments.

Nickel plated switch covers and black rubber handles furnished as standard.

### 5 Amperes, 125 Volts—3 Amperes, 250 Volts

Diam. base, 2 $\frac{3}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Cat. No.	Style Base					
220	Solid	Plain	10	100	35	\$ .36
D-220	"	Indicating	10	100	35	.40
2200	Slotted	Plain	10	100	35	.36
D-2200	"	Indicating	10	100	35	.40

### 10 Amperes, 125 Volts—5 Amperes, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
221	Solid	Plain	10	100	50	\$ .48
D-221	"	Indicating	10	100	50	.54
2210	Slotted	Plain	10	100	50	.48
D-2210	"	Indicating	10	100	50	.54

### 20 Amperes, 125 Volts

Diam. base, 3 $\frac{3}{8}$ in. Screws spaced 2 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
321	Solid	Plain	3	30	25	\$ .90
D-321	"	Indicating	3	30	25	1.00
3210	Slotted	Plain	3	30	25	.90
D-3210	"	Indicating	3	30	25	1.00

### 30 Amperes, 125 Volts

Diam. base, 3 $\frac{5}{8}$ in. Screws spaced 2 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
421	Solid	Plain	1	30	32	\$ 1.40
D-421	"	Indicating	1	30	32	1.50
4210	Slotted	Plain	1	30	32	1.40
D-4210	"	Indicating	1	30	32	1.50

## Diamond H Double-pole Surface Switches

These switches may be converted into lock switches by removing the handle and using lock attachments.

Nickel-plated switch covers and black rubber handles furnished as standard.



### 5 Amperes, 250 Volts

Diam. base, 2 $\frac{5}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Cat. No.	Style Base					
122	Solid	Plain	10	100	40	\$ .56
D-122	"	Indicating	10	100	40	.64
1220	Slotted	Plain	10	100	40	.56
D-1220	"	Indicating	10	100	40	.64

### 10 Amperes, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
222	Solid	Plain	10	100	50	\$ .66
D-222	"	Indicating	10	100	50	.76
2220	Slotted	Plain	10	100	50	.66
D-2220	"	Indicating	10	100	50	.76

### 20 Amperes, 250 Volts

Diam. base, 3 $\frac{3}{8}$ in. Screws spaced 2 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
322	Solid	Plain	3	30	25	\$ 1.40
D-322	"	Indicating	3	30	25	1.50
3220	Slotted	Plain	3	30	25	1.40
D-3220	"	Indicating	3	30	25	1.50

### 30 Amperes, 250 Volts

Diam. base, 3 $\frac{5}{8}$ in. Screws spaced 2 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
422	Solid	Plain	1	30	44	\$ 1.70
D-422	"	Indicating	1	30	44	1.80
4220	Slotted	Plain	1	30	44	1.70
D-4220	"	Indicating	1	30	44	1.80

## Diamond H Electrolier Surface Switches



These switches may be converted into lock switches by removing the handle and using lock attachments.

Nickel-plated covers and black rubber handles furnished as standard.

### Two-point

#### 3 Amperes, 125 Volts—1 Ampere, 250 Volts

Diam. base, 2 $\frac{5}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Cat. No.	Style Base					
125	Solid	Plain	10	30	17	\$ .60
D-125	"	Indicating	10	30	17	.64
1250	Slotted	Plain	10	30	17	.60
D-1250	"	Indicating	10	30	17	.64

### Three-point

#### 3 Amperes, 125 Volts—1 Ampere, 250 Volts

Diam. base, 2 $\frac{5}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
126	Solid	Plain	10	30	17	\$ .76
D-126	"	Indicating	10	30	17	.86
1260	Slotted	Plain	10	30	17	.76
D-1260	"	Indicating	10	30	17	.86

### Two-point

#### 5 Amperes, 125 Volts—1 Ampere, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
225	Solid	Plain	10	30	20	\$ .76
D-225	"	Indicating	10	30	20	.86
2250	Slotted	Plain	10	30	20	.76
D-2250	"	Indicating	10	30	20	.86

### Three-point

#### 5 Amperes, 125 Volts—2 Amperes, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
226	Solid	Plain	10	30	20	\$ .90
D-226	"	Indicating	10	30	20	1.00
2260	Slotted	Plain	10	30	20	.90
D-2260	"	Indicating	10	30	20	1.00

## Diamond H Three and Four-way Surface Switches

These switches may be converted into lock switches by removing the handle and using lock attachments.

Nickel-plated covers and black rubber handles furnished as standard.



### Three-way

#### 5 Amperes, 115 Volts—3 Amperes, 250 Volts

Diam. base, 2 $\frac{5}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Cat. No.	Style Base					
123	Solid	Plain	10	100	37	\$ .56
D-123	"	Indicating	10	100	37	.64

#### 10 Amperes, 125 Volts—5 Amperes, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
223	Solid	Plain	10	50	40	\$ .76
D-223	Slotted	"	10	50	40	.76

### 20 Amperes, 125 Volts

Diam. base, 3 $\frac{3}{8}$ in. Screws spaced 2 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
323	Solid	Plain	1	10	14	\$ 1.50
D-323	Slotted	"	1	10	14	1.50

### Four-way

#### 3 Amperes, 125 Volts—1 Ampere, 250 Volts

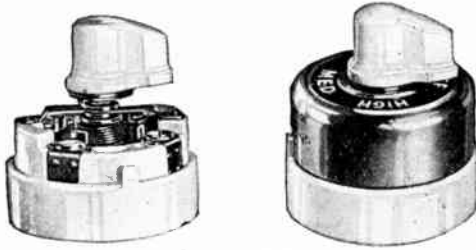
Diam. base, 2 $\frac{5}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
124	Solid	Plain	10	10	7	\$ .76
D-124	Slotted	"	10	10	7	.76

#### 5 Amperes, 125 Volts—2 Amperes, 250 Volts

Diam. base, 2 $\frac{17}{32}$ in. Screws spaced 1 $\frac{1}{8}$ in.		Style Cover	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
224	Solid	Plain	10	10	7	\$ .86
D-224	Slotted	"	10	10	7	.86

**Diamond H Reciprocating Type Heater Switches**

With Round Porcelain Base, Porcelain Handle and Insulated Nickel Silver Cover



Cat. No. 1899

**Single Pole—Series Parallel**  
Operating: High, Medium, Low, Off

Cat. No.	Diameter Base Inches	Over All Dimensions Inches	Supporting Screw Spacings Inches	AMPERE RATING		Carton	Wt. per 100	Price Each
				125 Volts	250 Volts			
1712	2	2 3/16	1 15/32	6	3	10	25	\$ .60
1897	2 3/16	2 1/16	1 7/16	10	5	10	30	.86
1898	2 3/16	2 1/16	1 11/16	15	7 1/2	10	37	1.00
1899	2 13/16	3 1/16	1 11/16	20	10	10	45	1.10
1896	3	3 1/16	2 1/8	24	12	3	65	1.30
1895	3 3/8	3 3/8	2 1/8	30	15	3	125	1.60
17941	4	3 3/4	2 5/8	42	21	1	225	2.40

**Single Pole—On and Off**

1711	2	2 3/16	1 15/32	6	3	10	25	\$ .35
1892	2 3/16	2 1/16	1 7/16	10	5	10	30	.70
1891	2 3/16	2 1/16	1 11/16	15	7 1/2	10	37	.84
1890	2 13/16	3 1/16	1 11/16	20	10	10	45	.94
1889	3	3 1/16	2 1/8	24	12	3	65	1.14
1888	3 3/8	3 3/8	2 1/8	30	15	3	125	1.44
17944	4	3 3/4	2 5/8	42	21	1	225	2.24

**Double Pole—On and Off**

1709	2	2 3/16	1 15/32	6	3	10	25	\$ .60
1885	2 3/16	2 1/16	1 7/16	10	5	10	30	.86
1884	2 3/16	2 1/16	1 11/16	15	7 1/2	10	37	1.00
1883	2 13/16	3 1/16	1 11/16	20	10	10	45	1.10
1882	3	3 1/16	2 1/8	24	12	3	65	1.30
1881	3 3/8	3 3/8	2 1/8	30	15	3	125	1.60
17942	4	3 3/4	2 5/8	42	21	1	225	2.40

**Single Pole—2-Circuit Multiple Switch**

Operating: High, Medium, Low, Off

1878	2 3/16	2 1/16	1 7/16	10	5	10	..	\$ .86
1876	2 3/16	2 1/16	1 11/16	15	7 1/2	10	..	1.00
1875	2 3/16	3 1/16	1 11/16	20	10	10	..	1.10
1874	3	3 1/16	2 1/8	24	12	3	..	1.30
1873	3 3/8	3 3/8	2 1/8	30	15	3	..	1.60

**Two-Pole—Series Parallel**

Operating: High, Medium, Low, Off

1794	4	3 3/4	..	42	21	1	..	\$3.10
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**Diamond H Automatic Door Switches**

Made in two types, No. 601 light on with door open and No. 602 light off with door open. Strike plates for door switches are made of hard brass 3/8 inch thick. The conduit box for door switches is made of cold rolled steel .085 of an inch thick, galvanized or black enamel finish. It is furnished with a clamping device suitable for use with all kinds of flexible conduit. A liberal number of knock-outs is provided. Regular plate dimensions are 1 1/4 x 4 1/2 inches. Special size plates can be furnished to order.



Cat. No.	Description	Carton	Switch only		
			Std. Pkg.	Price Each	
601	Light On with Door Open	5	25	19	\$2.25
602	" " " Closed	5	10	19	2.25
603	No. 601 Door Sw. without Plate	5	25	12	1.80
604	" 602 " " "	5	10	12	1.80
681	Black Japan Conduit Box	5	25	12	.40

**Diamond H 600-volt Surface Switches**  
For Electric Railway Use



Similar to 250-volt switches except that the switch blades are longer, giving the switch a longer and quicker break. Porcelain covers and handles can be furnished at 12 cents additional list.

**Single-pole**

3 Amperes, 600 Volts

Cat. No.	Style Base	Style Cover	Carton	Std. Pkg.	Wt. Std. Pkg.	Lbs.	Price Each
501	Solid	Plain	10	50	26		\$ .54
D-501	"	Indicating	10	50	26		.60
5010	Slotted	Plain	10	50	26		.54
D-5010	"	Indicating	10	50	26		.60

**Three-way**

3 Amperes, 600 Volts

Diam. base, 2 1/2 in. Screws spaced, 1 5/8 in.					
503	Solid Plain	10	50	27	\$ .76
5030	Slotted "	10	50	27	.76

**Two-circuit**

3 Amperes, 600 Volts

Diam. base, 2 1/2 in. Screws spaced, 1 5/8 in.					
506	Solid Plain	10	50	27	\$ .90
D-506	" Indicating	10	50	27	1.00
5060	Slotted Plain	10	50	27	.90
D-5060	" Indicating	10	50	27	1.00

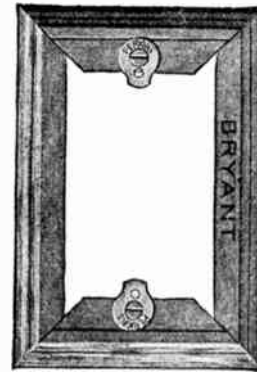
**Three-circuit**

3 Amperes, 600 Volts

Diam. base, 2 1/2 in. Screws spaced, 1 5/8 in.					
507	Solid Plain	10	50	27	\$ .90
D-507	" Indicating	10	50	27	1.00
5070	Slotted Plain	10	50	27	.90
D-5070	" Indicating	10	50	27	1.00

**Wood Mats**

Schedule H



For flush switches and flush receptacles. May be used either with or without outlet boxes.

**Quartered Oak, Varnished and Rubbed**

Cat. No.	No. of Switches	DIMEN., IN.		Carton	Std. Pkg.	Wt. Std. Pkg.	Lbs.	Price Each
		Vert.	Horiz.					
2361	1	5 1/2	3 3/4	10	*	32		\$ .50
2362	2	5 1/2	5 3/16	5	*	24		.70
2363	3	5 1/2	7 3/8	5	*	16		.90
2364	4	5 1/2	9 3/16	5	*	14		1.10

**White Wood, Unfinished**

Suitable for finishing to match any desired wood.

2371	1	5 1/2	3 3/4	10	*	27		\$ .50
2372	2	5 1/2	5 3/16	5	*	19		.70
2373	3	5 1/2	7 3/8	5	*	11		.90
2374	4	5 1/2	9 3/16	5	*	9		1.10

\*A standard package of wood mats consists of a sufficient number assorted from all of these listed, to accommodate 100 switches.

## Diamond H Push Button Switches Standard Type



No. 050 Switch



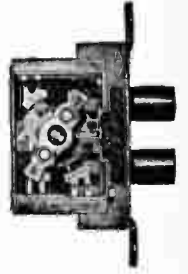
No. 050 Switch with  
No. 111 Plate

Can be furnished with luminous buttons. Add to list price of any switch 25c per switch list. For switches with buttons longer than regular add to list price 40c per switch. White or red ivory switch buttons 50c per button list extra.

Cat. No.	Description	-CAP. AMP.-		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		125V	250V				
050	Single Pole	10	5	1	100	60	\$ .45
060	Double "	10	10	1	50	30	.70
070	Three-way	10	5	1	50	30	.70
080	Four "	5	2	1	10	8	2.00

## Diamond H Momentary Contact Switches

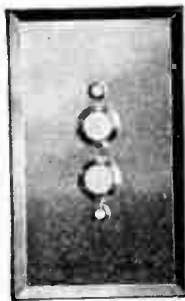
This is a special push button switch for use in connection with remote control switches. The mechanism is similar to that of the regular diamond H push button switch and is so arranged that a snap contact is made by pressing either of the buttons and a quick break is obtained when the button is released. Both buttons cannot be pressed at the same time. This switch fits all standard conduit boxes and uses a regular Diamond H push button plate. It can be fitted with a lock attachment, if desired.



Can be furnished with luminous buttons. Add to list price of any switch 25c per switch list. For switches with buttons longer than regular add to list price 40c per switch. White or red ivory switch buttons 50c per button list extra.

Cat. No.	Description	Cap. Amp.		Car-Std. Wt. Lbs.	Price
		125V	250V		
090	For Remote Control Sw. . . . .	10	5	10 25	22 \$2.40
091	1 Button Normally Open . . . . .	10	5	10 25	22 2.40
092	1 " " Closed . . . . .	10	5	10 25	22 2.40
093	1 Side Open, 1 Side Closed . . . . .	10	5	10 25	22 2.40
094	2 Circuit Normally Closed . . . . .	10	5	10 25	22 2.40
096	2 " " Open . . . . .	10	5	10 25	22 2.40
097	1 Button Double Pole . . . . .	10	5	10 25	22 2.40
095	No. 090 Lock Type . . . . .	10	5	10 25	22 2.85

## Diamond H Push Button Switch Plates



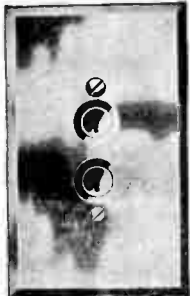
Single Plate  
Solid Brass

Cat. No.	Description	One Horizontal Row		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Dimens., Vert. Inches	Horiz. Inches				
111	1 Gang	4 1/2	2 3/4	20	*	41	\$ .34
112	2 "	4 1/2	4 9/16	10	*	39	.68
113	3 "	4 1/2	6 3/8	10	*	31	1.02
114	4 "	4 1/2	8 3/16	1	*	27	1.36
115	5 "	4 1/2	10	1	*	26	2.00

Struck-up Brass  
.060 Inch

1111	1 Gang	4 1/2	2 3/4	20	*	32	\$ .18
1112	2 "	4 1/2	4 9/16	10	*	30	.36

\*Standard package, 100 gangs.



## Diamond H Lock Type Push Button Switches

Lock attachments are permanently attached to the switches and cannot be substituted for the push buttons on regular switches.

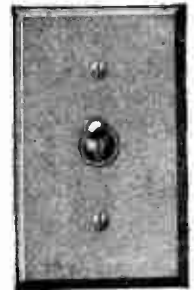
Keys are furnished with these switches when ordered. No. 255 key is used with these switches; price each, 10 cents, list.

Cat. No.	Description	-CAP. AMP.-		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		125V	250V				
055	Single Pole	10	5	1	100	60	\$1.06
065	Double "	10	10	1	50	30	1.30
075	Three-way	10	5	1	50	30	1.30
085	Four "	5	2	1	10	8	2.50

## Diamond H Lever Flush Switches



No. 1500  
Switch



No. 1500 Switch with  
Plate

These switches can be furnished with luminous tips. Add to list price of any switch 25c. per switch list. Prices on Bakelite plates upon request.

Cat. No.	Description	CAP. AMP.		Car-ton	Std. Wt., Lbs.	Price
		125V	250V			
1500	Single Pole . . . . .	10	5	10	100 60	\$ .45
1502	Double " . . . . .	10	10	10	50 30	.70
1503	Three Way . . . . .	10	5	10	50 30	.70
1504	Four " . . . . .	10	5	10	10 8	2.00

## Plates for Lever Flush Switches Solid Brass

Cat. No.	Description	DIMENS. INCHES		Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
		Vert.	Horiz.				
1513	1 Gang	4 1/2	2 3/4	20	*	41	\$ .34
1514	2 "	4 1/2	4 9/16	10	*	39	.68
1515	3 "	4 1/2	6 3/8	10	*	31	1.02
1516	4 "	4 1/2	8 3/16	1	*	27	1.36
1517	5 "	4 1/2	10	1	*	26	2.00

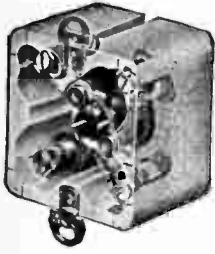
## Struck-up Brass

.040 Inch							
1510	1 Gang	4 1/2	2 3/4	20	*	25	\$ .14
1511	2 "	4 1/2	4 9/16	10	*	26	.28
1512	3 "	4 1/2	6 3/8	5	*	18	.42

.060 Inch							
1525	1 Gang	4 1/2	2 3/4	20	*	32	\$ .18
1526	2 "	4 1/2	4 9/16	10	*	30	.36

\*Standard package, 100 gangs.

**Diamond H 20-ampere Rotary Flush Switches**



No. 1322 Switch

The 20-ampere Flush Switches have the same mechanism as the 20-ampere surface type which is enclosed in a heavy porcelain base which is practically unbreakable. They are made in both single and double pole types, either with or without indicating dial, as may be desired.

Single pole, 20 amperes, 125 volts.  
 Double pole, 20 amperes, 250 volts.  
 Base 3 inches x 2 1/2 inches deep.  
 Supporting screw holes 3 1/2 inches center to center.

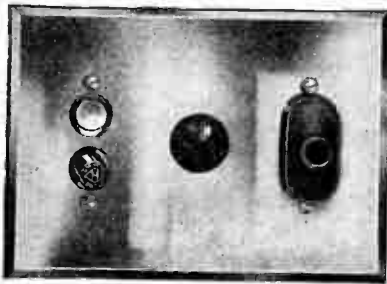
Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
1321	Single Pole	1	30	40	\$1.20
1322	Double "	1	30	45	1.60
1323	D. P. Hobart Type	1	30	45	1.80

**Plates for Rotary Flush Switches**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
1330	Indicating	1	*	39	\$1.00
1331	Plain	1	*	39	.80
1335	Rotary Switch Plate Pull Attachment	1	10	..	1.80

\*100 single plates or assorted in gangs equivalent to a standard package.

**Diamond H Combination Plates**



Push Button Switch      Indicating Bull's-eye      Automatic Receptacle

Combination plates are made in both horizontal and tandem styles, and can be furnished in a number of different combinations and finishes. Special combination made on short notice.

The tandem form of plate is very attractive and is preferred by many to the horizontal gang plate ordinarily used, even when restricted horizontal space does not necessitate its use.

Polished nickel, polished brass, old or brush brass, polished bronze and oxidized copper are standard finishes. Special finishes can be furnished at an additional charge.

Twenty-five units assorted in standard package. Solid brass plates only. Switches, receptacles, etc., not included in the price of combination plates.

Cat. No.	Description	Price Each
1460	Push Button Switch and Bull's-eye	\$1.75
1461	Rotary Switch and Bull's-eye	1.85
1462	Receptacle, Bull's-eye and Push Button Switch	2.65
1463	Bull's-eye Plate Only	1.25
1464	Receptacle and Push Button Switch	1.40
1466	Bull's-eye and Receptacle Tandem	2.10
1468	2 Push Button and Bull's-eye	2.25

**Diamond H Remote Control Switches**

A Remote Control or magnetically operated switch is used where it is desired to control a certain load from a remote point, so remote that it would be inexpedient and expensive to run the heavy mains from the load to the point of control and return. This would mean an unnecessary loss of voltage and a heavy expenditure for copper and conduit.

A Remote Control Switch is installed as near the load as practicable and three small wires, for moderate distances No. 14, are run from this switch to the manual momentary contact switch located at the desired point of control.

By extending these control wires and connecting in momentary contact switches, the points of control may be increased to any desired number.

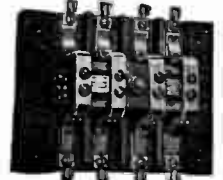
The momentary contact switch is normally in an open position and connects the common control wire alternately with the other two which are in series with the opening and closing coils respectively of a Remote Control Switch.

The principal use of the Remote Control Switch is for the control of large groups of lights in public buildings, theatres, train sheds, isolated sections of plants or docks, individual buildings, etc.

**Type F Single Throw**

For Potential Not Exceeding 250 D. C. Volts or 440 Volts A. C.

Type F Remote Control Switches consist of the required number of contacts mounted on a slate base. Switches of this type are used extensively with auxiliary switches, tank switches, pressure gauges, thermostats, momentary contact switches, etc., to control small motors which can be thrown directly on the line.



Cat. No. 610

Type F Remote Control Switches will operate directly across the line without the use of any other series resistance for the coils. Three control wires are required between the remote control point and the Type F switch.

A 2-button push button switch of the momentary contact type is used as control; one button to open, and one button to close the Remote Control Switch.

**Single-pole**

Cat. No.	Capacity Amperes	Shipping Weight Pounds	Price
716	30	15	\$30.00
717	60	17	43.00
718	75	20	55.00
719	100	24	88.00
723	150	28	100.00
724	200	33	112.00
725	300	37	165.00
726	400	47	192.00

**Double-pole**

730	30	16	\$36.00
740	60	18	48.00
750	75	22	60.00
760	100	25	93.60
770	150	30	108.00
780	200	34	122.40
781	300	40	186.00
782	400	44	216.00

**3-pole**

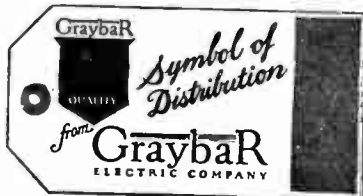
790	30	17	\$43.20
800	60	19	54.00
810	75	23	67.20
820	100	26	108.00
830	150	32	124.80
840	200	35	139.20
850	300	40	214.00
860	400	46	248.00

**4-pole**

610	30	18	\$54.00
620	60	20	68.00
630	75	24	112.00
640	100	27	128.00
650	200	40	168.00

**6-pole**

960	30	20	\$86.40
961	60	23	108.00
962	75	29	134.00
963	100	31	216.00
964	200	46	260.00



## Diamond H Remote Control Switches

### Type A Single Throw, No Voltage, Release

For Potential Not Exceeding 250 Volts D. C. or 440 Volts A. C.



Cat. No. 630

In the Type A switch, the closing coil is of comparatively low resistance and requires current only while the switch is closing, being automatically cut out the instant the switch locks in the closed position. The high resistance coil takes but a small fraction of an ampere and is in circuit while the switch remains closed. An interruption of this circuit either from failure of current supply, or by the opening of the control switch, allows the armature, which this high resistance coil holds suspended, to drop, releasing the ball-locking device of the main armature and allowing the switch to open by gravity. The manual control is effected by a single-pole switch, or when more than one point of control is desired, by 3 and 4-way switches. Switches are furnished for either alternating or direct current, but with different windings. It is necessary, therefore, to specify the type of service on which the switch is to be used. This switch is particularly desirable where the service is subject to interruption. Upon the failure of the service, the switch automatically opens and prevents injury to the device controlled by the switch in case of sudden resumption of service. In many cases, however, it is desired and can be furnished if specified, that the switch will close upon resumption of service.

The Type A switch is suitable for intermittent service, such as vacuum cleaners. One pair of wires and single-pole switches of any type at each point of control can be used, instead of three wires and the more expensive momentary contact switches. When so wired, the switch closes on completion of the circuit by any of the single-pole switches. The switch may be also controlled by the use of 3 and 4-way switches, in which case it can be thrown on at any point of control or off at any other point of control.

### Single-pole

Cat. No.	Capacity Amperes	Shipping Weight Pounds	Price Each
4351	30	20	\$40.00
5351	60	22	48.00
5361	75	26	62.00
6351	100	34	84.00

### Double-pole

4352	30	20	\$48.00
5352	60	22	54.00
5362	75	26	70.00
6352	100	34	98.00

### 3-pole

4353	30	21	\$60.00
5353	60	23	68.00
5363	75	27	78.00
6353	100	35	108.00

## H & H 4-way Surface Switches

### Schedule S

May be converted into lock switches by removing handle and using a lock attachment.

5 Amperes, 125 Volts

2 Amperes, 250 Volts

Screws spaced  $1\frac{3}{4}$  inches. Base,  $2\frac{15}{32}$  inches.

#### Plain Nickeled Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
24	Solid	10	30	17	\$ .86
124	Slotted	10	30	17	.86

10 Amperes, 125 Volts

5 Amperes, 250 Volts

Screws,  $2\frac{1}{8}$  inches.

#### Plain Nickeled Cover

2959	Solid	1	10	9	\$1.90
2960	Slotted	1	10	9	1.90



## H & H Single-Pole Surface Switches

### Schedule S

Furnished with nickeled cover. May be converted into lock switch by the use of the lock attachment.

5 Amperes, 125 Volts—3 Amperes, 250 Volts

#### Small Size

Screw holes spaced  $1\frac{13}{32}$  inches. Base, 2 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2148	Solid	Plain	10	100	23	\$ .28
2161	Slotted	Plain	10	100	22	.28
2162	Solid	Indicating	10	100	24	.32
2163	Slotted	Indicating	10	100	23	.32

#### Large Size

Screw holes spaced  $1\frac{1}{8}$  inches. Base,  $2\frac{1}{8}$  inches.

20	Solid	Plain	10	100	25	\$ .36
120	Slotted	Plain	10	100	24	.36
220	Solid	Indicating	10	100	26	.40
320	Slotted	Indicating	10	100	25	.40

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Screw holes spaced  $1\frac{3}{4}$  inches. Base,  $2\frac{15}{32}$  inches.

21	Solid	Plain	10	100	41	\$ .48
121	Slotted	Plain	10	100	40	.48
221	Solid	Indicating	10	100	41	.54
321	Slotted	Indicating	10	100	40	.54

Quadruple Break, 10 Amperes, 250 Volts

Screw holes spaced  $1\frac{3}{4}$  inches. Base,  $2\frac{15}{32}$  inches.

2983	Solid	Plain	10	100	43	\$ .66
2984	Slotted	Plain	10	100	42	.66
2985	Solid	Indicating	10	100	43	.76
2986	Slotted	Indicating	10	100	42	.76

20 Amperes, 125 Volts

Screw holes spaced  $2\frac{1}{2}$  inches. Base,  $3\frac{1}{8}$  inches.

31	Solid	Plain	1	10	8	\$ .90
131	Slotted	Plain	1	10	8	.90
231	Solid	Indicating	1	10	8	1.00
331	Slotted	Indicating	1	10	8	1.00

30 Amperes, 125 Volts

Screw holes spaced  $2\frac{1}{8}$  inches. Base,  $3\frac{1}{2}$  inches.

640	Solid	Plain	1	10	11	\$1.40
641	Slotted	Plain	1	10	11	1.40
642	Solid	Indicating	1	10	11	1.50
643	Slotted	Indicating	1	10	11	1.50

## H & H 3-Way Surface Switches

### Schedule S

Furnished with nickeled cover.

May be converted into lock switch by removing the handle and using a lock attachment.

Three-way switches are used for controlling lights from two points.



3 Amperes, 125 Volts—1 Ampere, 250 Volts

Screw holes spaced  $1\frac{1}{8}$  inches. Base,  $2\frac{1}{8}$  inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2152	Solid	Plain	10	100	31	\$ .48
2153	Slotted	Plain	10	100	31	.48

5 Amperes, 125 Volts—3 Amperes, 250 Volts

Screw holes spaced  $1\frac{1}{8}$  inches. Base,  $2\frac{1}{8}$  inches.

2089	Solid	Plain	10	100	33	\$ .56
2090	Slotted	Plain	10	100	33	.56

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Screw holes spaced  $1\frac{3}{4}$  inches. Base,  $2\frac{15}{32}$  inches.

23	Solid	Plain	10	50	27	\$ .76
123	Slotted	Plain	10	50	27	.76

20 Amperes, 125 Volts

Screw holes spaced  $2\frac{1}{2}$  inches. Base,  $3\frac{1}{8}$  inches.

33	Solid	Plain	1	10	13	\$1.50
133	Slotted	Plain	1	10	13	1.50

30 Amperes, 125 Volts

Screw holes spaced  $2\frac{1}{8}$  inches. Base,  $3\frac{1}{2}$  inches.

43	Solid	Plain	1	10	17	\$1.80
143	Slotted	Plain	1	10	17	1.80

**H & H Double-pole Surface Switches**



*Schedule S*

Furnished with nickeled cover.  
May be converted into lock switch by removing the handle and using a lock attachment.

**5 Amperes, 250 Volts**

Screw holes spaced 1 1/8 inches. Base, 2 1/8 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2085	Solid	Plain	10	100	33	\$ .56
2086	Slotted	"	10	100	33	.56
2087	Solid	Indicating	10	100	33	.64
2088	Slotted	"	10	100	33	.64

**10 Amperes, 250 Volts**

Screw holes spaced 1 3/4 inches. Base, 2 1/2 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
22	Solid	Plain	10	100	50	\$ .66
122	Slotted	"	10	100	50	.66
222	Solid	Indicating	10	100	50	.76
322	Slotted	"	10	100	50	.76

**20 Amperes, 250 Volts**

Screw holes spaced 2 1/8 inches. Base, 3 1/8 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
32	Solid	Plain	1	30	30	\$1.40
132	Slotted	"	1	30	30	1.40
432	Solid	Indicating	1	30	30	1.50
532	Slotted	"	1	30	30	1.50

**30 Amperes, 250 Volts**

Screw holes spaced 2 3/8 inches. Base, 3 1/2 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
644	Solid	Plain	1	30	44	\$1.70
645	Slotted	"	1	30	44	1.70
646	Solid	Indicating	1	30	44	1.80
647	Slotted	"	1	30	44	1.80

**50 Amperes, 250 Volts**

Screw holes spaced 3 1/8 inches. Base, 4 1/4 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3613	Solid	Plain	1	10	25	\$3.00
3614	Slotted	"	1	10	25	3.00
3615	Solid	Indicating	1	10	25	3.10
3616	Slotted	"	1	10	25	3.10

**H & H Triple-pole Surface Switches**

*Schedule S*



**10 Amperes, 250 Volts**

Screws spaced 2 1/8 inches. Base, 2 1/8 inches.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
26	Solid	1	10	10	\$1.90
126	Slotted	1	10	10	1.90

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
226	Solid	1	10	10	\$2.00
326	Slotted	1	10	10	2.00

**20 Amperes, 250 Volts**

Screws spaced 2 3/8 inches. Base, 3 1/8 inches.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
8511	Solid	1	10	25	\$2.40
8512	Slotted	1	10	25	2.40

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
8513	Solid	1	10	25	\$2.50
8514	Slotted	1	10	25	2.50

**30 Amperes, 250 Volts**

Screws spaced 3 1/8 inches. Base, 4 1/4 inches.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2655	Solid	1	10	25	\$2.90
2656	Slotted	1	10	25	2.90

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2657	Solid	1	10	25	\$3.00
2658	Slotted	1	10	25	3.00

**H & H 3-circuit Electrolier Switches**

*Schedule S*

Connections: 1, 1 & 2, 1 & 2 & 3, Off

5 Amp., 125 V.—2 Amp., 250 V.

Screws spaced 1 3/4 in. Base, 2 1/2 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
25	Solid	10	10	9	\$ .90
125	Slotted	10	10	9	.90

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
225	Solid	10	10	9	\$1.00
325	Slotted	10	10	9	1.00

20 Amp., 125 V.—10 Amp., 250 V.

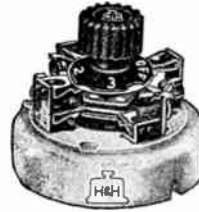
Screws spaced 2 3/8 in. Base, 3 1/8 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2501	Solid	1	10	13	\$1.40
2502	Slotted	1	10	13	1.40

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2503	Solid	1	10	13	\$1.50
2504	Slotted	1	10	13	1.50



No. 325 Cover Removed

**H & H 3-circuit Electrolier Switches**

*Schedule S*

Connections: 1, 2, 3, Off

5 Amp., 125 V.—2 Amp., 250 V.

Screws spaced 1 3/4 in. Base, 2 1/2 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2615	Solid	10	10	9	\$ .90
2616	Slotted	10	10	9	.90

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2617	Solid	10	10	9	\$1.00
2618	Slotted	10	10	9	1.00

20 Amp., 125 V.—10 Amp., 250 V.

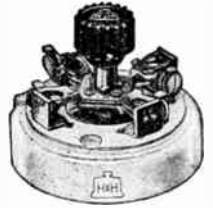
Screws spaced 2 3/8 in. Base, 3 1/8 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2725	Solid	1	10	13	\$1.40
2726	Slotted	1	10	13	1.40

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2727	Solid	1	10	13	\$1.50
2728	Slotted	1	10	13	1.50



No. 2615 Cover Removed

**H & H 2-circuit Electrolier Switches**

*Schedule S*

Connections: 1, Off, 2, Off

5 Amp. 125 V.—2 Amp. 250 V.

Screws spaced 1 3/4 in. Base, 2 1/2 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2721	Solid	10	10	9	\$ .90
2722	Slotted	10	10	9	.90

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2723	Solid	10	10	9	\$1.00
2724	Slotted	10	10	9	1.00

20 Amp. 125V.—10 Amp. 250 V.

Screws spaced 2 3/8 in. Base, 3 1/8 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2594	Solid	1	10	13	\$1.40
2595	Slotted	1	10	13	1.40

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2596	Solid	1	10	13	\$1.50
2597	Slotted	1	10	13	1.50



No. 2721 Cover Removed

**H & H 2-circuit Electrolier Switches**

*Schedule S*

Connections: 1, 2, 1 & 2, Off

5 Amp., 125 V.—2 Amp., 250 V.

Screws spaced 1 3/4 in. Base, 2 1/2 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2661	Solid	10	10	9	\$ .76
2662	Slotted	10	10	9	.76

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2663	Solid	10	10	9	\$ .86
2664	Slotted	10	10	9	.86

20 Amp., 125 V.—10 Amp., 250 V.

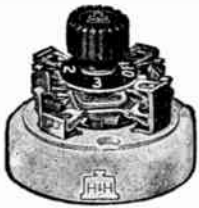
Screws spaced 2 3/8 in. Base, 3 1/8 in.

**Plain Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2669	Solid	1	10	13	\$1.40
2670	Slotted	1	10	13	1.40

**Indicating Nickeled Cover**

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2671	Solid	1	10	13	\$1.50
2672	Slotted	1	10	13	1.50



No. 2663 Cover Removed



## H & H Electrolier 2-circuit Switches

Schedule S

Connections: 1, 1 & 2, 1, Off

5 Amp., 125 V.—2 Amp., 250 V.

Screws spaced 1 3/4 in. Base, 2 1/2 in.

Plain Nickerled Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
29	Solid	10	10	9	\$ .90
129	Slotted	10	10	9	.90

Indicating Nickerled Cover

229	Solid	10	10	9	\$1.00
329	Slotted	10	10	9	1.00

20 Amp., 125 V.—10 Amp., 250 V.

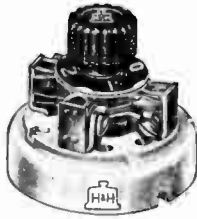
Screws spaced 2 3/4 in. Base, 3 1/8 in.

Plain Nickerled Cover

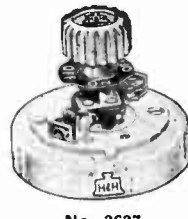
2505	Solid	1	10	13	\$1.40
2506	Slotted	1	10	13	1.40

Indicating Nickerled Cover

2507	Solid	1	10	13	\$1.50
2508	Slotted	1	10	13	1.50



No. 329  
Cover  
Removed



No. 2627  
Cover  
Removed

## H & H Single-pole Surface Switches With Porcelain Covers and Handles

Schedule S

5 Amps., 125 V.—3 Amps., 250 V.

Screws spaced 1 7/8 in. Base, 2 5/8 in.

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2625	Slotted	1	100	33	\$ .32
2626	Solid	1	100	32	.32

Indicating Porcelain Cover

2627	Solid	1	100	33	\$ .36
2628	Slotted	1	100	32	.36

10 Amps., 125 V.—5 Amps., 250 V.

Screws spaced 1 3/4 in. Base, 2 5/8 in.

Plain Porcelain Cover

2231	Solid	1	30	23	\$ .56
2232	Slotted	1	30	23	.56

Indicating Porcelain Cover

2205	Solid	1	30	23	\$ .62
2206	Slotted	1	30	23	.62

## H & H 2-circuit Electrolier Switches

Schedule S

Connections: 1, 2, Off

10 Amp. 125 V.—5 Amp. 250 V.

Screws spaced 1 3/4 in. Base, 2 15/32 in.

Plain Nickerled Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2611	Solid	10	10	9	\$ .90
2612	Slotted	10	10	9	.90

Indicating Nickerled Cover

2613	Solid	10	10	9	\$1.00
2614	Slotted	10	10	9	1.00

20 Amp. 125 V.—10 Amp. 250 V.

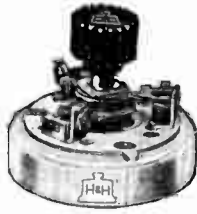
Screws spaced 2 9/16 in. Base, 3 1/2 in.

Plain Nickerled Cover

2496	Solid	1	10	13	\$1.70
2497	Slotted	1	10	13	1.70

Indicating Nickerled Cover

2498	Solid	1	10	13	\$1.80
2499	Slotted	1	10	13	1.80



No. 2611  
Cover  
Removed

## H & H Double-pole Surface Switches With Porcelain Covers and Handles

Schedule S

5 Amperes, 250 Volts

Screws spaced 1 7/8 in. Base, 2 5/8 in.

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2629	Solid	1	10	8	\$ .60
2630	Slotted	1	10	8	.60

Indicating Porcelain Cover

2631	Solid	1	10	8	\$ .68
2632	Slotted	1	10	8	.68

10 Amperes, 250 Volts

Screws spaced 1 3/4 in. Base, 2 5/8 in.

Plain Porcelain Cover

2244	Solid	1	10	10	\$ .74
2245	Slotted	1	10	10	.74

Indicating Porcelain Cover

2207	Solid	1	10	10	\$ .84
2208	Slotted	1	10	10	.84



No. 2630  
with  
Cover

## H & H 2-circuit Electrolier Switches

Schedule S

Connections: 1, 1 & 2, Off

10 Amp. 125 V.—5 Amp. 250 V.

Screws spaced 1 3/4 in. Base, 2 15/32 in.

Plain Nickerled Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2602	Solid	10	10	9	\$ .90
2603	Slotted	10	10	9	.90

Indicating Nickerled Cover

2604	Solid	10	10	9	\$1.00
2605	Slotted	10	10	9	1.00

20 Amp. 125 V.—10 Amp. 250 V.

Screws spaced 2 9/16 in. Base, 3 1/2 in.

Plain Nickerled Cover

2482	Solid	1	10	13	\$1.70
2483	Slotted	1	10	13	1.70

Indicating Nickerled Cover

2484	Solid	1	10	13	\$1.80
2485	Slotted	1	10	13	1.80



No. 2602  
Cover  
Removed



No. 2634  
with  
Cover

## H & H Three-way Surface Switches With Plain Porcelain Covers and Handles

Schedule S

May be converted into lock switches by removing handle and using a lock attachment.

3 Amps., 125 V.—1 Amp., 250 V.

Screws spaced 1 7/8 in. Base, 2 5/8 in.

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
1068	Solid	1	10	5	\$ .52
1069	Slotted	1	10	5	.52

5 Amps., 125 V.—3 Amps., 250 V.

Screws spaced 1 3/4 in. Base, 2 5/8 in.

2633	Solid	1	10	8	\$ .60
2634	Slotted	1	10	8	.60

10 Amps., 125 V.—5 Amps., 250 V.

Screws spaced 1 3/4 in. Base, 2 5/8 in.

2209	Solid	1	10	10	\$ .84
2210	Slotted	1	10	10	.84

## H & H 2-circuit Electrolier Switches

Schedule S

Connections: 1 & 2, 1, Off

10 Amp. 125 V.—5 Amp. 250 V.

Screws spaced 1 3/4 in. Base, 2 15/32 in.

Plain Nickerled Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2607	Solid	10	10	9	\$ .90
2608	Slotted	10	10	9	.90

Indicating Nickerled Cover

2609	Solid	10	10	9	\$1.00
2610	Slotted	10	10	9	1.00

20 Amp. 125 V.—10 Amp. 250 V.

Screws spaced 2 9/16 in. Base, 3 1/2 in.

Plain Nickerled Cover

2486	Solid	1	10	13	\$1.70
2487	Slotted	1	10	13	1.70

Indicating Nickerled Cover

2488	Solid	1	10	13	\$1.80
2489	Slotted	1	10	13	1.80

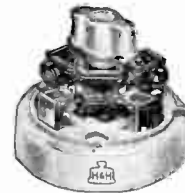


No. 2609  
with  
Cover

## H & H Four-way Surface Switches With Porcelain Covers and Handles

Schedule S

5 Amperes, 125 Volts—2 Amperes, 250 Volts



Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
2234	Solid	1	10	8	\$ .94
2235	Slotted	1	10	8	.94

**H & H Three-circuit Electrolier Switches**

*Schedule S*

With Porcelain Covers and Handles

5 Amperes, 125 Volts—2 Amperes, 250 Volts

Screws, spaced 1 3/4 inches. Base, 2 5/8 inches.

Connections: 1, 2, 3, Off

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Pkg.	Price Each
2747	Solid	1	10	10		\$ .98
2748	Slotted	1	10	10		.98

Indicating Porcelain Cover

2749	Solid	1	10	10		\$1.08
2750	Slotted	1	10	10		1.08

Connections: 1, 1 & 2, 1 & 2 & 3, Off

Plain Porcelain Cover

2240	Solid	1	10	10		\$ .98
2241	Slotted	1	10	10		.98

Indicating Porcelain Cover

2242	Solid	1	10	10		\$1.08
2243	Slotted	1	10	10		1.08



No. 2240  
Cover  
Removed

**H & H Two-circuit Electrolier Switches**

*Schedule S*

With Porcelain Covers and Handles

5 Amperes, 125 Volts—2 Amperes, 250 Volts

Screws spaced 1 3/4 inches. Base, 2 5/8 inches.

Connections: 1, 2, 1 & 2, Off

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Pkg.	Price Each
2673	Solid	1	10	10		\$ .84
2674	Slotted	1	10	10		.84

Indicating Porcelain Cover

2675	Solid	1	10	10		\$ .94
2676	Slotted	1	10	10		.94

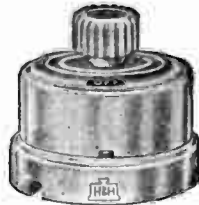
Connections: 1, 1 & 2, 1, Off

Plain Porcelain Cover

2236	Solid	1	10	10		\$ .98
2237	Slotted	1	10	10		.98

Indicating Porcelain Cover

2238	Solid	1	10	10		\$1.08
2239	Slotted	1	10	10		1.08



No. 2676  
with  
Cover

**H & H Two-circuit Electrolier Switches**

*Schedule S*

With Porcelain Covers and Handles

5 Amperes, 125 Volts—2 Amperes, 250 Volts

Screws spaced 1 3/4 inches. Base, 2 5/8 inches.

Connections: 1, 1 & 2, 2, Off

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Pkg.	Price Each
2246	Solid	1	10	10		\$ .98
2247	Slotted	1	10	10		.98

Indicating Porcelain Cover

2248	Solid	1	10	10		\$1.08
2249	Slotted	1	10	10		1.08

Connections: 1, Off, 2, Off

Plain Porcelain Cover

2743	Solid	1	10	10		\$ .98
2744	Slotted	1	10	10		.98

Indicating Porcelain Cover

2745	Solid	1	10	10		\$1.08
2746	Slotted	1	10	10		1.08



No. 2246  
Cover  
Removed

**H & H Two-circuit Electrolier Switches**

*Schedule S*

With Porcelain Covers and Handles

10 Amperes, 125 Volts—5 Amperes, 250 Volts

Screws spaced on circle, 1 3/4-in. diam. Base, 2 1/2 in.

Connections: 1, 2, Off

Plain Porcelain Cover

Cat. No.	Style Base	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Pkg.	Price Each
2739	Solid	1	10	10		\$ .98
2740	Slotted	1	10	10		.98

Indicating Porcelain Cover

2741	Solid	1	10	10		\$1.08
2742	Slotted	1	10	10		1.08

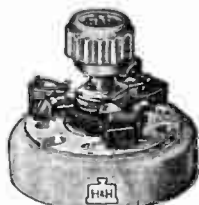
Connections: 1, 1 & 2, Off

Plain Porcelain Cover

2731	Solid	1	10	10		\$ .98
2732	Slotted	1	10	10		.98

Indicating Porcelain Cover

2733	Solid	1	10	10		\$1.08
2734	Slotted	1	10	10		1.08



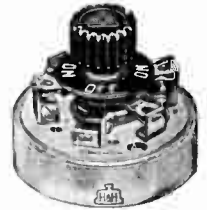
No. 2731  
Cover  
Removed

**H & H Double-Pole Double-Throw Switches**

*Schedule S*

10 Amperes, 250 Volts

These switches give the same control of circuits as double-pole double-throw knife switches. They are particularly well suited for motor circuits.



Connections: 1, Off, 2, Off

Operation: 1st snap, circuit No. 1. 2nd snap, off. 3rd snap, circuit No. 2. 4th snap, off.

Screw holes spaced 2 1/8 inches. Base, 2 1/8 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
2621	Solid	Plain	1	10	10		\$2.40
2622	Slotted	Plain	1	10	10		2.40
2623	Solid	Indic.	1	10	10		2.50
2624	Slotted	Indic.	1	10	10		2.50

Connections: 1, 2, Off

Operation: 1st snap, circuit No. 1. 2nd snap, circuit No. 2. 3rd snap, off.

Screw holes spaced 2 1/8 inches. Base, 2 1/8 inches.

3025	Solid	Plain	1	10	10		\$2.40
3026	Slotted	Plain	1	10	10		2.40
3027	Solid	Indic.	1	10	10		2.50
3028	Slotted	Indic.	1	10	10		2.50

**H & H Reciprocating Switches**

*Schedule S*

20 Amperes, 250 Volts

Reciprocating switches are arranged so that the handle can be turned backward or forward. For instance, when the switch has been turned to low speed or heat, it can be turned to high, or back to off without going through high. Dials furnished: Slow, fast, off, or start, run, off, or arc, iac., off.



No. 3051

Screw holes spaced 3 3/8 inches. Base, 4 1/4 inches. Height over all, 3 1/4 inches.

Double Pole, Double Throw

Connections: 1, 2, Off, 1, 2, Off—Or Reverse

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
3051	Solid	Indic.	1	10	..		\$8.00
3052	Slotted	Indic.	1	10	..		8.00

Double Pole

Connections: On, Off, Off, On, Off, Off

3005	Solid	Indic.	1	10	..		\$8.00
3006	Slotted	Indic.	1	10	..		8.00

Three Way

3007	Solid	Plain	1	10	..		\$8.00
3008	Slotted	Plain	1	10	..		8.00

**G-E Small Motor Control Surface Rotary Switches**

20 Amperes,  
125 Volts D.C.  
2 H.P., 250 Volts  
1 H.P., 550 Volts

Closed base,  
indicating.  
Standard  
finish, black  
japan.



No. GE150



No. 151394

Cat. No.	Description	Schedule	Car-ton	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
*GE150	Triple-Pole	S	1	10	10		\$5.00
†151394	Triple-Pole	S	1	10	41		8.00
†168241	Four-Pole	S	1	10	53		12.00

\*Drawn steel cover. †Cast iron cover.

## H & H Tri-Use Surface Switches

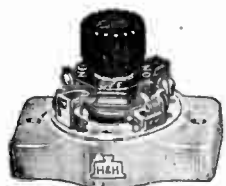
For Pipe Taplets, Wood and Metal Molding

Schedule S

Designed for use on 1/2, 3/4, and 1 1/4-inch standard oblong type of pipe taplets.

May also be mounted on V. V. Fittings, with rectangular openings, by the use of V. V. Cover No. 43SS.

For wood molding, the switch is wired and mounted on the molding. The molding capping is then cut off square and butted up against the ends of the switch.



For National Metal Molding, Paiste Adapter No. 4075 is required.

**Single Pole—5 Amperes, 125 Volts; 3 Amperes, 250 Volts**  
Screw holes spaced 2 5/8 inches. Height, 2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
2541	Plain	10	100	31	\$ .36
2542	Indicating	10	100	31	.40

**Single-pole—Quadruple Break, 5 Amperes, 250 Volts**  
Screw holes spaced 2 5/8 inches. Height, 2 1/8 inches.

2855	Plain	10	100	36	\$ .66
2856	Indicating	10	100	36	.76

**Double-pole—5 Amperes, 250 Volts**

Screw holes spaced 2 5/8 inches. Height, 2 1/8 inches.

2543	Plain	10	100	34	\$ .66
2544	Indicating	10	100	34	.76

**Three-way—5 Amperes, 125 Volts; 3 Amperes, 250 Volts**  
Screw holes spaced 2 5/8 inches. Height, 2 1/8 inches.

2545	Plain	10	100	34	\$ .66
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**Two-circuit Electrolier—Connections: 1, 1 & 2, 1, Off**  
5 Amperes, 125 Volts; 2 Amperes, 250 Volts

2547	Plain	10	10	9	\$ .90
2548	Indicating	10	10	9	.90

**Three-circuit—Connections: 1, 1 & 2, 1 & 2 & 3, Off**  
5 Amperes, 125 Volts; 3 Amperes, 250 Volts

2549	Plain	10	10	9	\$ .90
2550	Indicating	10	10	9	.90

## H & H Surface Switches

For Metal Molding

Schedule S

For switches to be mounted on metal molding by using the Paiste Adapter for National Metal Molding, see Tri-Use switches.

These switches may be converted into lock switches by removing the handle and using a lock attachment.

**Single-pole—5 Amperes, 125 Volts; 3 Amperes, 250 Volts**  
Screw holes spaced 1 3/4 inches. Height, 2 1/4 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
2291	Single End, Plain	10	100	43	\$ .36
2391	" " Indicating	10	100	43	.40
2292	Double " Plain	10	100	43	.36
2392	" " Indicating	10	100	43	.40

**Single-pole—10 Amperes, 125 Volts; 5 Amperes, 250 Volts**  
Screw holes are spaced 1 3/4 inches. Height, 2 1/2 inches.

2351	Single End, Plain	10	100	62	\$ .58
2352	" " Indicating	10	100	62	.64
2353	Double " Plain	10	100	62	.58
2354	" " Indicating	10	100	62	.64

**Double-pole—5 Amperes, 250 Volts**  
Screw holes are spaced 1 7/8 inches. Height, 2 1/4 inches.

2296	Single End, Plain	10	100	43	\$ .66
2396	" " Indicating	10	100	43	.76
2297	Double " Plain	10	100	43	.66
2397	" " Indicating	10	100	43	.76

**Double-pole—10 Amperes, 250 Volts**

Screw holes spaced 1 3/4 inches. Height, 2 1/2 inches.

2355	Single End, Plain	10	100	62	\$ .76
2356	" " Indicating	10	100	62	.86
2357	Double " Plain	10	100	62	.76
2358	" " Indicating	10	100	62	.86

**Three-way—5 Amperes, 125 Volts; 3 Amperes, 250 Volts**

Screw holes spaced 1 7/8 inches. Height, 2 1/4 inches.

2298	Single End, Plain	10	100	43	\$ .66
2299	Double " " "	10	100	43	.66



## H & H Small Size 600-volt Switches



The switches listed below are the 600-volt switches that were marketed before the barrier switches were developed. They are conservatively rated and are mechanically strong, though not as efficient as the barrier switches.

**Single-pole—3 Amperes, 600 Volts**

Screws spaced 1 3/4 inches. Base, 2 3/8 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
20 1/2	Solid	Plain	10	50	26	\$ .54
120 1/2	Slotted	"	10	50	26	.54
220 1/2	Solid	Indic.	10	50	26	.60
320 1/2	Slotted	"	10	50	26	.60

**Three-way—1 Ampere, 600 Volts**

Screws holes spaced 1 3/4 inches. Base, 2 3/8 inches.

23 1/2	Solid	Plain	10	50	27	\$ .70
123 1/2	Slotted	"	10	50	27	.70

**Two-circuit—3 Amperes, 600 Volts**

Connections: 1, Off, 2, Off

Screw holes spaced 1 3/4 inches. Base, 2 3/8 inches.

27	Solid	Plain	10	50	27	\$ .76
127	Slotted	"	10	50	27	.76
227	Solid	Indic.	10	50	27	.86
327	Slotted	"	10	50	27	.86

## H & H Single-pole 600-volt Barrier Switches

Schedule S

For Electric Railway Use

Made especially for use on electric railway cars, to control the air brake, headlight, heater and incandescent circuits.



**Single-pole—5 Amperes, 600 Volts**

Screw holes spaced 1 3/4 inches. Base, 2 3/8 inches.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
50 1/2	Solid	Plain	1	50	34	\$ .66
150 1/2	Slotted	"	1	50	34	.66
250 1/2	Solid	Indic.	1	50	34	.76
350 1/2	Slotted	"	1	50	34	.76

**10 Amperes, 600 Volts**

Screw holes spaced 2 1/8 inches. Base, 3 3/8 inches.

576	Solid	Plain	1	50	64	\$ 1.60
577	Slotted	"	1	50	64	1.60
578	Solid	Indic.	1	50	64	1.70
579	Slotted	"	1	50	64	1.70

**20 Amperes, 600 Volts**

Screw holes spaced 2 1/8 inches. Base, 3 1/2 inches.

241 1/2	Solid	Plain	1	50	73	\$ 1.90
341 1/2	Slotted	"	1	50	73	1.90
441 1/2	Solid	Indic.	1	50	73	2.00
541 1/2	Slotted	"	1	50	73	2.00

## H & H Double-pole 600-volt Barrier Switches

Schedule S

For Electric Railway Use

**5 Amperes, 600 Volts**

Screws spaced 1 3/4 in. Base, 2 1/2 in.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
3015	Solid	Plain	1	50	32	\$ .90
3016	Slotted	"	1	50	32	.90
3017	Solid	Indic.	1	50	32	1.00
3018	Slotted	"	1	50	32	1.00

**10 Amperes, 600 Volts**

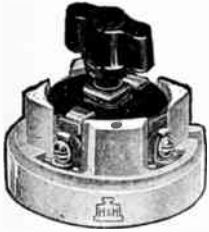
Screws spaced 2 1/8 in. Base, 3 3/8 in.

2168	Solid	Plain	1	50	64	\$ 1.80
2169	Slotted	"	1	50	64	1.80
2170	Solid	Indic.	1	50	64	1.90
2171	Slotted	"	1	50	64	1.90



**H & H 600-Volt Barrier Switches**

Schedule S



**For Electric Railway Use**

Designed for use in controlling air brake, headlight, heater and incandescent circuits.

Every part has been mechanically strengthened to withstand the severe wear of railway service.

**3-Way—5 Amperes, 600 Volts**

Screws spaced  $1\frac{25}{32}$  in. Base,  $2\frac{15}{32}$  in. Height,  $2\frac{5}{16}$  in.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
53 $\frac{1}{2}$	Solid	Plain	1	50	34	\$ .90
153 $\frac{1}{2}$	Slotted	Plain	1	50	34	.90

**3-Way—10 Amperes, 600 Volts**

Screws spaced  $2\frac{1}{16}$  in. Base,  $3\frac{3}{16}$  in. Height,  $2\frac{7}{8}$  in.

2172	Solid	Plain	1	50	64	\$1.70
2173	Slotted	Plain	1	50	64	1.70

**Triple Pole—10 Amperes, 600 Volts**

Screws spaced  $3\frac{3}{16}$  in. Base,  $4\frac{1}{4}$  in. Height,  $3\frac{3}{8}$  in.

3838	Solid	Plain	1	10	25	\$2.90
3839	Slotted	Plain	1	10	25	2.90
3316	Solid	Indic.	1	10	25	3.00
3837	Slotted	Indic.	1	10	25	3.00

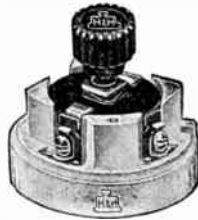
**H & H 2-Circuit 600-Volt Barrier Switches**

Schedule S

**For Electric Railway Use**

These two-circuit barrier switches are frequently used to control combination arc and incandescent headlights, giving the connections: "Arc," "Off," "Incandescent," "Off."

They are also used to alternately throw the headlights and tail lights into circuit, and for similar combinations of lights.



**5 Amperes, 600 Volts**

Screws spaced  $1\frac{25}{32}$  in. Base,  $1\frac{5}{16}$  in. Height,  $2\frac{5}{16}$  in.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
572	Solid	Plain	1	50	34	\$ .90
573	Slotted	Plain	1	50	34	.90
574	Solid	Indic.	1	50	34	1.00
575	Slotted	Indic.	1	50	34	1.00

**10 Amperes, 600 Volts**

2174	Solid	Plain	1	50	64	\$1.70
2175	Slotted	Plain	1	50	64	1.70
2176	Solid	Indic.	1	50	64	1.80
2177	Slotted	Indic.	1	50	64	1.80

**H & H Fused 600-Volt Barrier Switches**

Schedule S

Porcelain cover, base and handle. Fuses not included but will be furnished at prices below, unless otherwise specified. Screw holes spaced  $3\frac{3}{4}$  inches.

Screws spaced  $2\frac{1}{16}$  in. Base,  $3\frac{3}{16}$  in.



**5 Amps., 600 V.—Slotted Base**

**Single-Pole, Indicating**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2335	1	25	50	\$1.50

**Double-Pole, Indicating**

2340	1	25	50	\$1.50
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**3-Way, Plain**

2336	1	25	50	\$1.50
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**2-Circuit, Indicating**

2338	1	25	50	\$1.50
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**Fuses Only, 5 Amps., 600 V.**

2319	10	100	8	\$ .40
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**Fuses Only, 3 Amps., 600 V.**

3705	10	100	8	\$ .25
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**H & H 600-volt Switches**

Schedule S

**For Electric Railway Use**

Three degrees of heat can be secured from one point of control when two electric heaters are used on a circuit.

OPERATION.—1, 2, 1 & 2 (Parallel), Off.



**Three-heat, Barrier Type, 10 Amperes, 600 Volts**

Screws spaced,  $2\frac{1}{8}$  in. Base,  $3\frac{3}{8}$  in. Height, 3 in.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2193	Solid	Plain	1	50	64	\$1.70
2194	Slotted	"	1	50	64	1.70
2195	Solid	Indic.	1	50	64	1.80
2196	Slotted	"	1	50	64	1.80

**Three-heat, 15 Amperes, 600 Volts**

Not a Barrier Switch

Screws spaced,  $3\frac{1}{2}$  in. Base,  $4\frac{5}{8}$  in. Height,  $2\frac{5}{8}$  in.

799	Solid	Plain	1	10	25	\$3.00
800	"	Indic.	1	10	25	3.10

**Three-heat, Reciprocating, Barrier Type**

35 Amperes, 600 Volts

Can be snapped in either direction, backward or forward. Screws spaced  $4\frac{1}{2}$  in. Base,  $5\frac{5}{8}$  in. Height, 4 in.

162	Solid	Indic.	1	10	72	\$10.00
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**H & H 600-volt Barrier Switches**

Schedule S

**With Porcelain Covers and Handles**

These switches may be converted into lock switches by removing the handle and using a Block attachment.



No. 2424 with Cover

**Single-pole—5 Amperes, 600 Volts**

Screws spaced  $1\frac{3}{4}$  in. Base,  $2\frac{5}{8}$  in.

Cat. No.	Style Base	Style Cover	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2421	Solid	Plain	1	10	11	\$ .74
2422	Slotted	"	1	10	11	.74
2423	Solid	Indic.	1	10	11	.84
2424	Slotted	"	1	10	11	.84

**Single-pole—10 Amperes, 600 Volts**

Screws spaced  $2\frac{1}{8}$  in. Base,  $3\frac{5}{8}$  in.

2511	Solid	Plain	1	10	18	\$1.68
2512	Slotted	"	1	10	18	1.68
2513	Solid	Indic.	1	10	18	1.78
2514	Slotted	"	1	10	18	1.78

**Double-pole—10 Amperes, 600 Volts**

Screws spaced  $2\frac{1}{8}$  in. Base,  $3\frac{5}{8}$  in.

2517	Solid	Plain	1	10	18	\$1.96
2518	Slotted	"	1	10	18	1.96
2519	Solid	Indic.	1	10	18	2.06
2520	Slotted	"	1	10	18	2.06

**Three-way—5 Amperes, 600 Volts**

Screws spaced  $1\frac{3}{4}$  in. Base,  $2\frac{5}{8}$  in.

2425	Solid	Plain	1	10	11	\$ .98
2426	Slotted	"	1	10	11	.98

**Three-way—10 Amperes, 600 Volts**

Screws spaced  $2\frac{1}{8}$  in. Base,  $3\frac{5}{8}$  in.

2515	Solid	Plain	1	10	18	\$1.86
2516	Slotted	"	1	10	18	1.86

**Two-circuit—5 Amperes, 600 Volts**

Screws spaced  $1\frac{3}{4}$  in. Base,  $2\frac{5}{8}$  in.

2427	Solid	Plain	1	10	11	\$1.00
2428	Slotted	"	1	10	11	1.00
2429	Solid	Indic.	1	10	11	1.10
2430	Slotted	"	1	10	11	1.10

## H & H Surface Type Tumbler Switches



No. 3775

### Schedule S

Standard finish on covers of 3775 line is Old Brass. Standard finish on 8471 line is Polished Nickel. All other finishes are special.



No. 8473

**Single Pole, 5 Amp., 125 V.; 3 Amp., 250 V.**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
3775	Solid Base	10	100	27	\$ .28
3774	Slotted Base	10	100	26	.28

Diameter of base, 2 1/4 inches. Supporting screws spaced 1 1/2 inches on centers. Height over all, 1 3/4 inches.

**Three-Way, 5 Amp., 125 V.; 3 Amp., 250 V.**

3777	Solid Base	10	100	28	\$ .48
3776	Slotted Base	10	100	27	.48

Diameter of base, 2 1/4 inches. Supporting screws spaced 1 1/2 inches on centers. Height over all, 1 3/4 inches.

**Single Pole, 10 Amp., 125 V.; 5 Amp., 250 V.**

8471	Solid Base, Indic. Cover	10	100	47	\$ .48
8472	Slotted Base, Indic. Cover	10	100	47	.48

Diameter of base, 2 1/6 inches. Supporting screws spaced 1 3/4 inches on centers. Height over all, 2 1/2 inches.

**Double Pole, 10 Amperes, 250 Volts**

8473	Solid Base, Indic. Cover	10	100	51	\$ .66
8474	Slotted Base, Indic. Cover	10	100	51	.66

Diameter of base, 2 1/6 inches. Supporting screws spaced 1 3/4 inches on centers. Height over all, 2 1/2 inches.

**Three-Way, 10 Amp., 125 V.; 5 Amp., 250 V.**

8475	Solid Base	10	50	30	\$ .76
8476	Slotted Base	10	50	30	.76

Diameter of base, 2 1/6 inches. Supporting screws spaced 1 3/4 inches on centers. Height over all, 2 1/4 inches.

**Four-Way, 10 Amp., 125 V.; 5 Amp., 250 V.**

8477	Solid Base	1	10	7	\$ 1.90
8478	Slotted Base	1	10	6	1.90

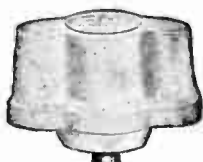
Diameter of base, 2 1/6 inches. Supporting screws spaced 1 3/4 inches on centers. Height over all, 2 1/2 inches.

## H & H Switch Handles

### Schedule S



Composition Wing Handle



Porcelain Wing Handle



Composition Round Handle

**For 3, 5 and 10-ampere, 125-250-volt Switches**  
**For 3 and 5-ampere, 600-volt Switches**

Cat. No.	Description	Std. Pkg.	Wt., Lbs.	Price Each
5004	Composition Wing Handle	100	2	\$ .06
2910	" Round	100	2 1/4	.06
2156	Porcelain Wing Handle	100	3	.06
5011	" Round	100	3	.06

**For 20-ampere, 125-250-volt Switches**

5005	Composition Wing Handle	100	3 1/2	\$ .06
2157	Porcelain	100	5	.06

**For 30-ampere, 125-250-volt Switches**

4242	Composition Wing Handle	100	4	\$ .06
2218	Porcelain	100	5	.06

## H & H Unremovable or Clutch Handles

A handle called a clutch handle can be supplied on 5 and 10-ampere, 125-250-volt switches, except on switches with porcelain covers. It can also be supplied on 3 and 5-ampere, 600-volt switches. The clutch handle is turned in the regular way to operate the switch, but can be turned backward without dropping off and cannot be removed until a small screw is taken out. Clutch handles can be attached to switches only at the factory at an extra charge of 5 cents and must be plainly specified on orders.

## H & H Rotary Flush Switches

30-Ampere, 250-Volt

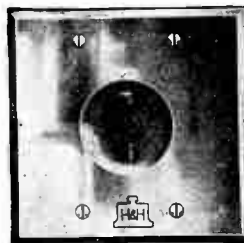
### Schedule S

Used where flush switch of attractive appearance are desired for heavy duty.

These switches require a 2-gang wall case, No. 902. Outside supporting screw holes spaced 3 1/2 inches on centers; inside holes spaced 2 3/16 inches. Depth, 1 1/8 inches.

These switches take the 20-ampere, No. 5010 lock attachment.

Adjusting frame, for aligning switches in gang furnished free upon application.



No. 3004 with No. 3054 Plate

### Single-Pole

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
3061	Non-Indicating	1	10	16	\$ 1.90
3108	Indicating	1	10	16	2.00

### Double-Pole

3004	Non-Indicating	1	10	16	\$ 1.90
3107	Indicating	1	10	16	2.00

### 3-Way

3228	3-Way	1	10	16	\$ 2.00
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**Single Plate, 4 1/2 x 4 9/16 Inches**

3054	For Non-Indicating Switch	1	10	8	\$ 1.00
3254	For Indicating Switch	1	10	8	1.00

## H & H Plates

For Rotary Flush Switches

### Schedule II

All rotary plates may be assorted.

Screw holes spaced 2 3/32 inches on centers.

Standard package, 100 gangs.



No. 4067

## Struck-Up, .040 Brass

Description	DIMEN. IN.		Car-ton	Wt., Lbs.	OLD BRASS		DUROPLATE	
	Ht.	Lth.			Cat. Price	Cat. Price		
For 1 Switch	4 1/2	2 3/4	25	23	4067	\$ .20	4067D	\$ .16

## Solid Brass (Non-Indicating)

For 1 Switch	4 1/2	2 3/4	25	40	4031	\$ .40	4031D	\$ .36
For 2 Switches	4 1/2	4 9/16	10	31	4032	.80	4032D	.72
For 3 Switches	4 1/2	6 3/8	5	31	4033	1.20	4033D	1.08
For 4 Switches	4 1/2	8 1/16	1	29	4034	1.60	4034D	1.44

## Solid Brass (Indicating)

For 1 Switch	4 1/2	2 3/4	25	36	2891	\$ .40	2891D	\$ .36
For 2 Switches	4 1/2	2 1/2	10	29	2892	.80	2892D	.72
For 3 Switches	4 1/2	6 3/8	5	29	2893	1.20	2893D	1.08
For 4 Switches	4 1/2	8 1/16	1	27	2894	1.60	2894D	1.44

## Solid Brass, Tandem Gangs (Non-Indicating)

For 2 Switches	8 1/8	2 3/4	1	36	4062	\$ .92	4062D	\$ .84
For 3 Switches	11 3/4	2 3/4	1	37	4063	1.38	4063D	1.26
For 4 Switches	15 3/8	2 3/4	1	34	4064	1.84	4064D	1.68
For 5 Switches	19	2 3/4	1	33	4065	2.30	4065D	2.10
For 6 Switches	22 5/8	2 3/4	1	32	4066	2.76	4066D	2.52

## No. 2532 H & H Pendant Switches

Single-pole

6 Amperes, 125 Volts  
3 Amperes, 250 Volts



Cat. No.	Description	Standard Package	Price Each
2532	With Pendant Cap	100	\$ .50

**H & H Square-Handle Tumbler Switches**

Shallow Base  
Schedule S



No. 8601



No. 1611

**Porcelain Base**

Cat. No.	Description	AMPERES AT		Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
		125-V.	250-V.				
8601	Single-Pole	10	5	10	100	30	\$ .35
8914	Single-Pole	20	10	10	50	17	.70
8602	Double-Pole	..	10	10	50	17	.70
8931	Double-Pole	..	20	10	20	10	.80
8603	3-Way	10	5	10	50	21	.53
8604	4-Way	5	2	10	10	8	1.00
8625	2-Circuit Electroliner	10	5	10	10	12	1.05
8624	3-Circuit Electroliner	10	5	10	10	12	1.05

**Composition Base**

1611	Single-Pole	10	5	10	50	17	\$ .55
3933	Single-Pole	20	10	10	20	10	.90
1612	Double-Pole	..	10	10	10	8	.90
3939	Double-Pole	..	20	10	10	8	1.00
1613	3-Way	10	5	10	20	10	.70
1614	4-Way	5	2	10	10	8	1.20

Switch No. 8625: Depth, 1 1/8 inches; operates 1, Off, 1 & 2, Off.

Switch No. 8624: Depth, 1 1/8 inches; operates 1, Off, 1 & 2, Off, 1 & 2 & 3, Off.

All above switches except Nos. 8624 and 8625, may be furnished with luminous jewel in operating lever at an additional price of 25 cents. Prefix letters RB to the catalogue number when luminous jewel is desired, for example, RB8601.

Wide plaster ears and brown handles are optional. For the plaster ears add G to the catalogue number, thus: 8601-G; and if brown handles are wanted, write: brown handles.

**Lock Type**



No. 8601L



No. 5003



No. 1611L

**Porcelain Base**

Cat. No.	Description	AMPERES AT		Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
		125-V.	250-V.				
8601L	Single-Pole	10	5	10	100	30	\$ .80
8602L	Double-Pole	..	10	10	50	17	1.15
8603L	3-Way	10	5	10	50	17	.95
8604L	4-Way	5	2	10	10	8	1.45
8931L	Double-Pole	..	20	10	10	8	1.25
5003	Key for Lock Switches	..	..	100	100	2	.10

**Composition Base**

1611L	Single-Pole	10	5	10	50	17	\$1.00
1612L	Double-Pole	..	10	10	10	8	1.35
1613L	3-Way	10	5	10	20	10	1.15
1614L	4-Way	5	2	10	10	8	1.65
3939L	Double-Pole	..	20	10	10	8	1.45

Standard package assortments in carton quantities may be made of regular, luminous, or lock tumbler switches of the same type.

One key No. 5003 is furnished with each lock switch.

Inside and outside screw-hole spacings are standard.

**H & H Push Switches**

Shallow Base  
Schedule S

Including the Nutmeg Switch



No. 4401



No. 8831

These switches may be furnished with luminous button in On button (both buttons on 3-way and 4-way switches) at an additional price of 25 cents per button. Prefix the letter RB to the catalogue number when luminous buttons are desired; for example, RB4401.

**Porcelain Base**

Cat. No.	Description	AMPERES AT		Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
		125-V.	250-V.				
4401	Single-Pole	10	5	10	100	31	\$ .35
8922	Single-Pole	20	10	10	50	17	.70
4402	Double-Pole	..	10	10	50	17	.70
8620	Double-Pole	..	20	10	20	10	.80
4403	3-Way	10	5	10	50	17	.50
4404	4-Way	5	2	10	10	8	1.00

**Composition Base**

8831	Single-Pole	10	5	10	50	17	\$ .55
8921	Single-Pole	20	10	10	10	8	.90
8832	Double-Pole	..	10	10	10	8	.90
8838	Double-Pole	..	20	10	10	8	1.00
8833	3-Way	10	5	10	20	10	.70
8834	4-Way	5	2	10	10	8	1.20

**H & H Gold Star Push Switches**

Schedule S

The switches have a composition base and a gold star button insert of 14-karat gold leaf.

The action is exceptionally smooth and easy.



Cat. No.	Description	CAP., AMPS.		Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
		125 Volts	250 Volts				
8421	Single-Pole	10	5	10	50	35	\$ .72
8422	Double-Pole	..	10	10	10	11	.88
8423	3-Way	10	5	10	20	22	.88
8424	4-Way	10	5	10	10	11	1.00
8425	Double-Pole	20	20	10	10	11	.98

**Lock Type**

8421L	Single-Pole	10	5	10	50	35	\$1.17
8422L	Double-Pole	..	10	10	10	11	1.33
8423L	3-Way	10	5	10	20	22	1.33
8424L	4-Way	10	5	10	10	11	1.45
8425L	Double-Pole	..	20	10	10	11	1.43

**H & H Silver Star Push Switches**

Schedule S

These switches have a radio-luminous star insert in the button.

Cat. No.	Description	CAP., AMPS.		Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
		125 Volts	250 Volts				
8426	Single-pole	10	5	10	50	35	\$ .97
8427	Double "	..	10	10	10	11	1.13
8428	Three-way	10	5	10	20	22	1.38
8429	Four "	10	5	10	10	11	1.50
8430	Double-pole	..	20	10	10	11	1.23



## H & H Push-Button Switches

### Schedule S Standard Type

Switch blades are the heavy knife type and never break. Contacts are of phosphor bronze. Working parts are case-hardened. Button with pearl center indicates current on.

Depth of switch without plate,  $1\frac{3}{64}$  inches. Outside supporting screw holes spaced  $3\frac{1}{2}$  inches on centers; inside supporting screw holes,  $2\frac{1}{16}$  inches on centers.

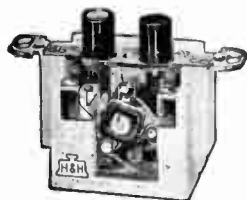


Cat. No.	Description	CAPACITY, AMPS.		Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
		125 V.	250 V.				
2081	Single Pole	10	5	10	100	49	\$ .45
2082	Double Pole	10	10	10	50	29	.70
3778	Double Pole	20	20	10	20	13	.80
2083	Three-Way	10	5	10	50	29	.70
2084	Four-Way	10	5	10	10	9	1.00

## H & H Momentary Contact Switches

### 6 Amperes, 250 Volts

#### Schedule S



No. 2061

Pressure on the button closes the circuits as long as button is held in. Releasing opens the circuit. Quick make and break.

The 2-circuit type has 2 separate, single-pole switches, each controlling a separate circuit. Both buttons cannot be operated at the same time. The 2-circuit type takes regular push plates, and single circuit Plate No. 3515.

#### Circuit Normally Open—Closed by Pushing Button

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
2061	2-Circuit	10	10	11	\$2.40
2061L	2-Circuit Lock	10	10	11	2.85
2179	Single-Circuit	10	10	11	1.90
2179L	Single-Circuit Lock	10	10	11	2.35
2110	2-Circuit, 1 Normally Open	10	10	11	2.40
2110L	2-Circuit, 1 Normally Open, Lock Type	10	10	11	2.85

#### Circuit Normally Closed—Opened by Pushing Button

3660	2-Circuit	10	10	11	\$2.40
3660L	2-Circuit Lock	10	10	11	2.85
3661	Single-Circuit	10	10	11	1.90
3661L	Single-Circuit Lock	10	10	11	2.35

Depth of base,  $2\frac{3}{16}$  inches.

#### Shallow Type—Circuit Normally Open—No Rating

For battery circuits or lighting circuits provided that the remote-control switch opens the solenoid-energizing circuit.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
2363	2-Circuit ( $1\frac{1}{2}$ Inches Deep)	10	10	8	\$1.50
2364	2-Circuit ( $1\frac{1}{2}$ Inches Deep) Lock	10	10	9	3.00

Depth of base,  $1\frac{1}{2}$  inches.

#### Nutmeg Type

### 10 Amperes, 125 Volts, or 5 Amperes, 250 Volts

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
1609	Single-Pole, Normally Open	10	10	7	\$ .85
1606	Single-Pole, Normally Closed	10	10	7	.85
1610	Double-Pole, Normally Open	10	10	7	1.20
1607	Double-Pole, Normally Closed	10	10	7	1.20

Depth of base, 1 inch. Switches have 1 button and take Plate No. 3515.

All the above switches have standard supporting screw-hole spacing.

#### Plate with 1-Button Opening

### For Momentary Contact Switch No. 2179

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
3515	For 1 Switch	1	10	40	\$ .50

## H & H Tumbler Switches

### 6 Amperes, 125 Volts—3 Amperes, 250 Volts Schedule S



The switch with the patented balanced movement, considered by many to be the smoothest, easiest action devised for a tumbler switch.

Carton, 2. Standard package, 10.

Cat. No.	Description	Wt. Lbs.	Price Std. Pkg. Each
21095	2-Circuit (2 Levers)	4	\$ .85
21096	3-Circuit (3 Levers)	4	1.10
21098	Single Pole and 3-Way (2 Levers)	4	.95

## Plates for Tumbler Switches

### Schedule II

Plates for 2 and 3-lever switches may be assorted in different finishes, thicknesses or gangs to make standard packages; cannot be assorted with each other. No assortments on Hegemite plates. With Duro finish at 4 cents less per gang; add "D" to catalogue number.

Plate dimensions, height and length: 1 gang,  $4\frac{1}{2} \times 2\frac{3}{4}$  inches; 2 gang,  $4\frac{1}{2} \times 4\frac{1}{16}$  inches; 3 gang,  $4\frac{1}{2} \times 6\frac{3}{8}$  inches.

Carton, 2 gangs. Standard package, 10 gangs.

#### Struck-Up, .040-Inch Brass

Cat. Nos.	Description	Wt. Lbs. Std. Pkg.	Price Each
21232	For 1 Switch	3	\$ .14
21312	For 2 Switches	2	.28
21313	For 3 Switches	2	.42

#### Struck-Up, .060-Inch Brass

21234	For 1 Switch	3	\$ .18
21316	For 2 Switches	3	.36
21317	For 3 Switches	3	.54

#### Solid Brass

21236	For 1 Switch	4	\$ .34
21320	For 2 Switches	3	.68
21321	For 3 Switches	3	1.02

#### Hegemite (Molded)

8969	8970	For 1 Switch	4	\$ .15
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## H & H Automatic Door Switches

### Schedule S

For automatically operating a light upon the opening and closing of a door. All H & H door switches have a roller-tip plunger, which rolls across the edge of the door as it closes, and prevents friction and strain on the switch mechanism.

Each door switch is enclosed in a rolled steel base, which eliminates the trouble resulting from broken and chipped bases.

With every switch is furnished a small round plate with screw, for placing on the edge of door, where plunger strikes it. The shell of the switch is of sheet steel .081 inch in thickness. Dimensions of plate,  $3\frac{3}{4} \times 1\frac{1}{4}$  inches. Opening required,  $2\frac{5}{8} \times 1\frac{1}{16}$  inches. Depth,  $1\frac{3}{4}$  inches.



### (Single Pole—6 Ampere 125 Volts; 3 Ampere, 250 Volts)

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Price Each
2022	Light On when Door is Open	1	25	20	\$2.25
2023	Light On when Door is Closed	1	10	10	2.25

#### Iron Boxes for Door Switches

Dimensions,  $1\frac{1}{4} \times 2\frac{7}{8} \times 2\frac{3}{4}$  inches;  $\frac{5}{8}$  and  $\frac{7}{8}$ -inch knock-outs on ends and bottom.

3047	For One Door Switch	1	25	21	\$ .40
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## No. 1161 H & H Luminous Screws

### Schedule II

The luminous material in H & H Plate Screws contains real radium and is self-illuminating lasting for years without the necessity of exposure to sunlight.



Cat. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
1161	10	100		\$ .25

**H & H Flush Switches**

*Schedule S*



No. 600 with No. 4067 Plate



No. 601

Outside supporting screw holes  $3\frac{2}{3}$  inches on centers. Inside supporting screw holes  $2\frac{3}{8}$  inches on centers.

Depth of switches without plates: No. 600,  $1\frac{1}{2}$  inches; No. 2263,  $1\frac{3}{8}$  inches. All others  $1\frac{1}{2}$  inches.

When specified, switches will be furnished with round handles without extra charge.

**Single-pole**

Cat. No.	Description	RATING, 125V.	AMP. 250V.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
600	Plain	5	3	10	100	59	\$ .62
601	"	10	5	10	50	30	.71
2881	Indicating	10	5	10	50	30	.81

**Double-pole**

602	Plain	10	10	10	50	30	\$1.05
2882	Indicating	10	10	10	50	30	1.15

**Three-way**

2263	Plain	5	3	10	50	30	\$ .82
603	"	10	5	10	50	30	1.05

**Four-way**

604	Plain	5	2	10	10	8	\$1.05
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**H & H Electrolier Rotary Flush Switches**

*Schedule S*



No. 2886



No. 2681

Depth of electrolier type switches, without plates,  $1\frac{1}{2}$  inches.

Supporting screw holes are spaced  $3\frac{2}{3}$  inches on centers, outside;  $2\frac{3}{8}$  inches on centers, inside.

May be converted into lock switches by the use of lock attachments. When specified, round handles will be furnished without extra charge.

**Connections: 1, 1 & 2, 1, Off**

Cat. No.	Description	RATING, 125V.	AMP. 250V.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
609	Plain	5	2	10	10	8	\$1.05
2886	Indicating	5	2	10	10	8	1.15

**Connections: 1, 1 & 2, 2, Off**

619	Plain	5	2	10	10	8	\$1.05
2887	Indicating	5	2	10	10	8	1.15

**Connections: 1, 2, 1 & 2, Off**

2681	Plain	5	2	10	10	8	\$1.05
2888	Indicating	5	2	10	10	8	1.15

**Connections: 1, 1 & 2, 1 & 2 & 3, Off**

605	Plain	5	2	10	10	8	\$1.05
2885	Indicating	5	2	10	10	8	1.15

**Connections: 1, 2, 3, Off**

3055	Plain	5	2	10	10	8	\$1.05
2980	Indicating	5	2	10	10	8	1.15

**H & H Plates**

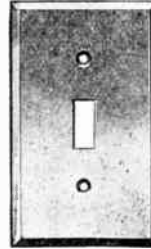
**For Square-Handle Tumbler Switches**

*Schedule II*

Plates of more than 6 gangs will be furnished at 40 cents per gang in old brass, and 36 cents per gang in Duroplate finish.

Standard package, 100 gangs.

All plates for square-handle tumbler switches may be assorted.



No. 8841



No. 8872

**Struck-Up, .030 Brass**

Description	DIMEN., IN. Ht. Lgth.	Car-t. ton	Wt., Lbs. Std. Pkg.	OLD BRASS Cat. No.	Price Each	DUROPLATE Cat. No.	Price Each
For 1 Switch..	$4\frac{1}{2}$ $2\frac{3}{4}$	25	22	8531	\$ .125	8531D	\$.085

**Struck-Up, .040 Brass**

For 1 Switch..	$4\frac{1}{2}$ $2\frac{3}{4}$	25	23	8841	\$ .14	8841D	\$ .10
For 2 Switches	$4\frac{1}{2}$ $4\frac{9}{16}$	10	20	8842	.28	8842D	.20
For 3 Switches	$4\frac{1}{2}$ $6\frac{3}{8}$	5	19	8843	.42	8843D	.30
For 4 Switches	$4\frac{1}{2}$ $8\frac{9}{16}$	1	15	8844	.88	8844D	.72
For 5 Switches	$4\frac{1}{2}$ 10	1	15	8845	1.10	8845D	.90
For 6 Switches	$4\frac{1}{2}$ $11\frac{13}{16}$	1	15	8846	1.32	8846D	1.08
For 7 Switches	$4\frac{1}{2}$ $13\frac{3}{8}$	1	15	8847	1.54	8847D	1.26
For 8 Switches	$4\frac{1}{2}$ $15\frac{7}{16}$	1	15	8848	1.76	8848D	1.44

**Solid Brass, Tandem Gangs**

For 2 Switches	$8\frac{1}{8}$ $2\frac{3}{4}$	1	36	8872	\$ .80	8872D	\$ .72
For 3 Switches	$11\frac{3}{4}$ $2\frac{3}{4}$	1	35	8873	1.20	8873D	1.08
For 4 Switches	$15\frac{3}{8}$ $2\frac{3}{4}$	1	34	8874	1.60	8874D	1.44
For 5 Switches	19 $2\frac{3}{4}$	1	33	8875	2.00	8875D	1.80
For 6 Switches	$22\frac{5}{8}$ $2\frac{3}{4}$	1	32	8876	2.40	8876D	2.16

**H & H Tumbler Switch Plates**

*Schedule II*

Standard package, 100 gangs. All plates for round-handle tumbler switches may be assorted.

Solid brass, horizontal gang plates of more than 6 gangs will be furnished at 40 cents in Old Brass per gang, and 36 cents per gang in Duroplate finish.

Solid brass tandem gang plates of more than 6 gangs will be furnished at 40 cents per gang in Old Brass, and at 36 cents per gang in Duroplate finish.



No. 8441 Plate  
No. 8881 Switch

**Struck-Up Plates, .040 Brass**

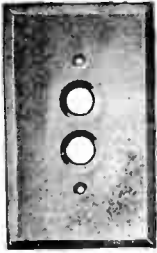
No. of Switches	Height In.	Length In.	Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE	
					Cat. No.	Price Each	Cat. No.	Price Each
1	$4\frac{1}{2}$	$2\frac{3}{4}$	25	23	8441	\$ .14	8441-D	\$ .10
2	$4\frac{1}{2}$	$4\frac{9}{16}$	10	20	8442	.28	8442-D	.20
3	$4\frac{1}{2}$	$6\frac{3}{8}$	5	19	8443	.42	8443-D	.30
4	$4\frac{1}{2}$	$8\frac{9}{16}$	1	15	8444	.88	8444-D	.72
5	$4\frac{1}{2}$	10	1	15	8445	1.10	8445-D	.90
6	$4\frac{1}{2}$	$11\frac{13}{16}$	1	15	8446	1.32	8446-D	1.08
7	$4\frac{1}{2}$	$13\frac{3}{8}$	1	15	8447	1.54	8447-D	1.26
8	$4\frac{1}{2}$	$15\frac{7}{16}$	1	15	8448	1.76	8448-D	1.44

**Solid Brass Plates**

No. of Switches	Height In.	Length In.	Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE		
					Cat. No.	Price Each	Cat. No.	Price Each	
1	$4\frac{1}{2}$	$2\frac{3}{4}$	25	38	8451	\$ .34	8451-D	\$ .30	
2	$4\frac{1}{2}$	$4\frac{9}{16}$	10	30	8452	.68	8452-D	.60	
3	$4\frac{1}{2}$	$6\frac{3}{8}$	5	31	8453	1.02	8453-D	.90	
4	$4\frac{1}{2}$	$8\frac{9}{16}$	1	28	8454	1.36	8454-D	1.20	
5	$4\frac{1}{2}$	10	1	28	8455	2.00	8455-D	1.80	
6	$4\frac{1}{2}$	$11\frac{13}{16}$	1	27	8456	2.40	8456-D	2.16	
7	$4\frac{1}{2}$	$13\frac{3}{8}$	1	32	8457	2.80	8457-D	2.52	
8	$4\frac{1}{2}$	$15\frac{7}{16}$	1	25	8458	3.20	8458-D	2.88	
<b>Tandem Style</b>									
2	$8\frac{1}{8}$	$2\frac{3}{4}$	1	36	8462	\$ .80	8462-D	\$ .72	
3	$11\frac{3}{4}$	$2\frac{3}{4}$	1	35	8463	1.20	8463-D	1.08	
4	$15\frac{3}{8}$	$2\frac{3}{4}$	1	34	8464	1.60	8464-D	1.44	
5	19	$2\frac{3}{4}$	1	33	8465	2.00	8465-D	1.80	
6	$22\frac{5}{8}$	$2\frac{3}{4}$	1	32	8466	2.40	8466-D	2.16	

## H & H Struck-Up Brass Push Switch Plates

Schedule II



Edges are swaged to a greater thickness than face, thereby strengthening plate. Screw holes are deeply countersunk so as to allow edge of screw hole to rest on crossbar of switch. Will not dip under pressure of the screws.

The standard finish on all plates except where noted, is old or brush brass which will be supplied unless otherwise specified. Finish is attractive.

Standard package, 100 gangs. All plates for push switches may be assorted.

### Struck-Up Plates—.030-Inch Brass

Cat. No.	Duro-plate Finish	No. Switches	Dimensions In.	Car-ton	Wt. Lbs. Std. Pkg.	Price, Each Old Brass Finish	Price, Each Duro-plate Finish
8561	8561-D	1	4 1/2 x 2 3/4	25	18	\$.125	\$.085

### Struck-Up Plates—.040-Inch Brass

Cat. No.	Duro-plate Finish	No. Switches	Dimensions In.	Car-ton	Wt. Lbs. Std. Pkg.	Price, Each Old Brass Finish	Price, Each Duro-plate Finish
4077	4077-D	1	4 1/2 x 2 3/4	25	23	\$.14	\$.10
4078	4078-D	2	4 1/2 x 4 9/16	10	20	.28	.20
4079	4079-D	3	4 1/2 x 6 3/8	5	19	.42	.30
1154	1154-D	4	4 1/2 x 8 3/16	1	18	.88	.72
1155	1155-D	5	4 1/2 x 10	1	16	1.10	.90
1156	1156-D	6	4 1/2 x 11 13/16	1	15	1.32	1.08
1157	1157-D	7	4 1/2 x 13 5/8	1	14	1.54	1.26
1158	1158-D	8	4 1/2 x 15 1/16	1	13	1.76	1.44

### Struck-Up Plates—.060-Inch Brass

Cat. No.	Duro-plate Finish	No. Switches	Dimensions In.	Car-ton	Wt. Lbs. Std. Pkg.	Price, Each Old Brass Finish	Price, Each Duro-plate Finish
2301	2301-D	1	4 1/2 x 2 3/4	25	30	\$.18	\$.14
2302	2302-D	2	4 1/2 x 4 9/16	10	26	.36	.28
8613	8613-D	3	4 1/2 x 6 3/8	5	36	.54	.42

## H & H Blank Plates

Schedule II

### Struck-Up, .040 Brass



No. 4068

Plates up to 8 gangs will be furnished at 26 cents per gang in old brass, and 22 cents per gang in Duroplate finish.

Screw holes spaced 2 3/8 inches on centers.

Standard package, 100 gangs.

All blank plates may be assorted.

Description	DIMEN., IN.		Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE	
	Ht.	Lgth.			Cat. No.	Price Each	Cat. No.	Price Each
Single-Gang...	4 1/2	2 3/4	25	24	4068	\$.18	4068D	\$.14
2 Gangs.....	4 1/2	4 9/16	10	21	4084	.36	4084D	.28
3 Gangs.....	4 1/2	6 3/8	5	28	4085	.54	4085D	.42

## H & H Plates

For Single Telephone Outlets

Schedule II

### Struck-Up, .040 Brass

Plates of more than 3 gangs will be furnished at 46 cents per gang in old brass, and 42 cents per gang in Duroplate finish.

Screw holes spaced 2 3/8 inches on centers.

Furnished complete with 3/8-inch hard rubber bushing.

Standard package, 100 gangs. All telephone plates may be assorted.

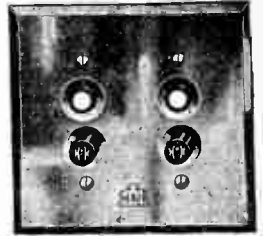


No. 3144

Description	DIMEN., IN.		Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE	
	Ht.	Lgth.			Cat. No.	Price Each	Cat. No.	Price Each
Single-Gang..	4 1/2	2 3/4	25	24	3144	\$.20	3144DD	\$.16
2 Gangs.....	4 1/2	4 9/16	10	21	8682	.40	8682D	.32
3 Gangs.....	4 1/2	6 3/8	5	28	8683	.60	8683D	.48

## H & H Solid Brass Push Switch Plates

Schedule II



Made of highest grade rolled brass. On horizontal gang plates switches are spaced 1 1/16 inches on centers; on tandem plates, 3 5/8 inches. Tandem plates fit standard wall cases. Standard package, 100 gangs. Plates for push switches may be assorted.

### Solid Brass Plates

Cat. No.	Duro-plate Finish	No. Switches	Dimensions In.	Car-ton	Wt. Lbs. Std. Pkg.	Price, Each Old Brass Finish	Price, Each Duro-plate Finish
4051	4051-D	1	4 1/2 x 2 3/4	25	38	\$.34	\$.30
4052	4052-D	2	4 1/2 x 4 9/16	10	30	.68	.60
4053	4053-D	3	4 1/2 x 6 3/8	5	31	1.02	.90
4054	4054-D	4	4 1/2 x 8 3/16	1	28	1.36	1.20
4055	4055-D	5	4 1/2 x 10	1	28	2.00	1.80
4056	4056-D	6	4 1/2 x 11 13/16	1	27	2.40	2.16
4057	4057-D	7	4 1/2 x 13 5/8	1	32	2.80	2.52
4058	4058-D	8	4 1/2 x 15 1/16	1	25	3.20	2.88

### Solid Brass Plates—Tandem Gangs

Cat. No.	Duro-plate Finish	No. Switches	Dimensions In.	Car-ton	Wt. Lbs. Std. Pkg.	Price, Each Old Brass Finish	Price, Each Duro-plate Finish
4072	4072-D	2	8 1/8 x 2 3/4	1	36	\$.80	\$.72
4073	4073-D	3	11 3/4 x 2 3/4	1	35	1.20	1.08
4074	4074-D	4	15 5/8 x 2 3/4	1	34	1.60	1.44
4075	4075-D	5	19 x 2 3/4	1	33	2.00	1.80
4076	4076-D	6	22 5/8 x 2 3/4	1	32	2.40	2.16

## H & H Plates

For Double Telephone Outlets

Schedule II



No. 3244

Plates up to 8 gangs will be furnished at 32 cents per gang in old brass, and 28 cents per gang in Duroplate finish.

Screw holes spaced 2 3/8 inches on centers.

Furnished complete with 3/8-inch hard rubber bushing.

Standard package, 100 gangs. All telephone plates may be assorted.

### Struck-Up, .030 Brass

Description	DIMEN., IN.		Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE	
	Ht.	Lgth.			Cat. No.	Price Each	Cat. No.	Price Each
Single-Gang...	4 1/2	2 3/4	25	20	8714	\$.22	8714D	\$.18
2 Gangs.....	4 1/2	4 9/16	10	17	8715	.44	8715D	.36
3 Gangs.....	4 1/2	6 3/8	5	23	8716	.66	8716D	.54

### Struck-Up, .040 Brass

Description	DIMEN., IN.		Car-ton	Wt., Lbs. Std. Pkg.	OLD BRASS		DUROPLATE	
	Ht.	Lgth.			Cat. No.	Price Each	Cat. No.	Price Each
Single-Gang...	4 1/2	2 3/4	25	23	3244	\$.24	3244D	\$.20
2 Gangs.....	4 1/2	4 9/16	10	20	8637	.48	8637D	.40
3 Gangs.....	4 1/2	6 3/8	5	27	8638	.72	8638D	.60

## H & H Heavy Duty Tumbler Type Motor Control Switches

30 Amperes, 250 Volts

Schedule S



Furnished with composition base and cover.

Base is 3 1/8 inches wide and 4 1/4 inches long. Supporting screws spaced 1 1/16 x 2 1/16 inches.

Height over all, 3 3/4 inches. Has slotted indicating base.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
8325	1	10	15	\$2.25

**H & H Plates**  
Schedule II

**Struck-Up and Solid Brass Combinations**

Standard combination plates of at least two different units are made up to order, from the units listed below. If spacings or dimensions differ from the standard units, special plate prices apply. The price of any combination plate is the sum of the prices of the units making up the combination.

The same symbol letters are used for .040, .060, and solid brass combination plates, and the thickness of the metal desired should be specified as well as the letters. Solid brass plates will be supplied when no thickness of metal is specified.

Old or brush brass finish is standard, but Duro finish will be supplied when specified at the prices given below. When no finish is specified, old or brush brass will be supplied.

The standard package is 10 separate plates of the same combination and thickness, and the carton quantity is 2.

Symbol Letter	Description	PRICE, EACH	
		Old Brass	Duro Finish
B	Round Bull's-Eye for Nos. 2999 and 3099	\$.44	\$.40
D	For Duplex Convenience Outlets	.19	.15
E	For Nos. 1708 and 1440 Receptacles (Lid)	.24	.20
F	For Single-Convenience Outlets	.19	.15
G	Telephone Plate, 1 Bushing	.25	.21
I	For Square-Handle Tumbler Switches	.19	.15
K	Rect. Bull's-Eye for Nos. 2999 and 3099	.44	.40
L	Blank	.23	.19
M	Tumbolier, for 3-Lever Switches	.19	.15
N	Tumbolier, for 2-Lever Switches	.19	.15
P	For Push Switches	.19	.15
R	For Non-Indicating Rotary Flush Switches	.25	.21
T	For Round-Handle Tumbler Switches	.19	.15

The above units may be arranged in any horizontal combination of not exceeding 8 gangs or units.

**Struck-Up, .060 Brass**

B	Round Bull's-Eye for Nos. 2999 and 3099	\$.48	\$.44
D	For Duplex Convenience Outlets	.23	.19
E	For Nos. 1708 and 1440 Receptacles (Lid)	.28	.24
F	For Single-Convenience Outlets	.23	.19
G	Telephone Plate, 1 Bushing	.29	.25
I	For Square-Handle Tumbler Switches	.23	.19
K	Rect. Bull's-Eye for Nos. 2999 and 3099	.48	.44
L	Blank	.27	.23
M	Tumbolier, for 3-Lever Switches	.23	.19
N	Tumbolier, for 2-Lever Switches	.23	.19
P	For Push Switches	.23	.19
R	For Non-Indicating Rotary Flush Switches	.29	.25
T	For Round-Handle Tumbler Switches	.23	.19

The above units may be arranged in any horizontal combination of not exceeding 8 gangs or units.

**Solid Brass**

A	Removable Bull's-Eye for Nos. 2999 and 3099	\$1.35	\$1.31
B	Round Bull's-Eye Nos. 2999 and 3099	.69	.65
C	For Chapman Receptacle	.80	.76
D	For Duplex Convenience Outlets	.44	.40
E	For Nos. 1708 and 1440 Receptacles (Lid)	.49	.45
F	For Single-Convenience Outlets	.44	.40
G	Telephone Plate, 1 Bushing	.50	.46
H	For No. 1109 Comb. Receptacle and Bull's Eye	.74	.70
I	For Square-Handle Tumbler Switches	.44	.40
J	Telephone Plate, 2 Bushings	.54	.50
K	Rect. Bull's-Eye for Nos. 2999 and 3099	.69	.65
L	Blank	.48	.44
M	Tumbolier, for 3-Lever Switches	.44	.40
N	Tumbolier, for 2-Lever Switches	.44	.40
P	For Push Switches	.44	.40
Q	For Single-Button Momentary Contact Switch	.44	.40
R	For Rotary Switches, Non-Indicating	.50	.46
S	For Rotary Switches, Indicating	.50	.46
T	For Round-Handle Tumbler Switches	.44	.40
U	Radio Outlet Plate	.44	.40
V	For Bell Push Button	.94	.90
W	For Square-Handle Tumbler Switch and Single-Convenience Outlet Combination	.44	.40
X	For Rotary Lock Switch	.50	.46

Above units may be arranged in any combination, horizontal or vertical. When combined in tandem, or vertical, add 20 per cent to the prices shown.

**H & H Plates**  
Schedule II

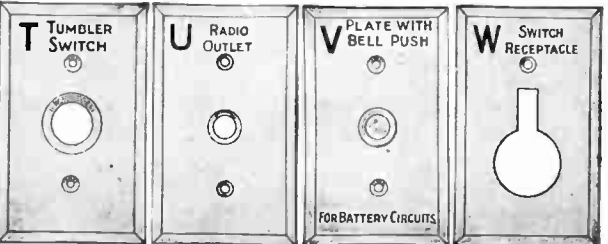
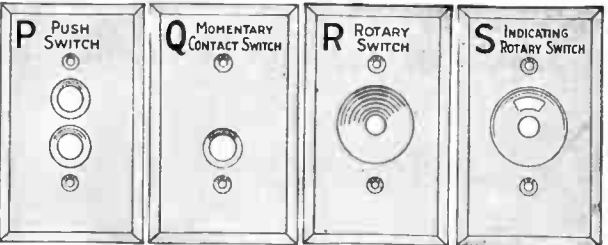
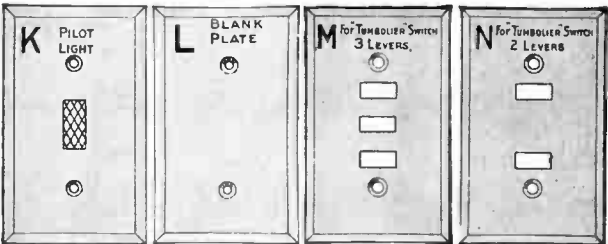
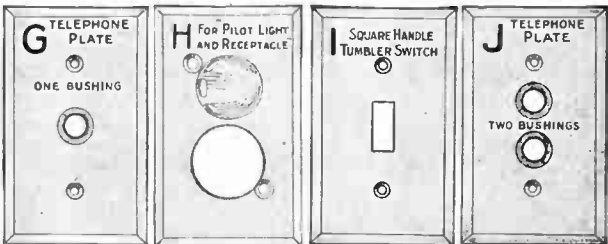
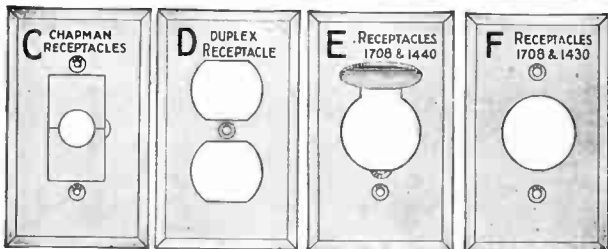
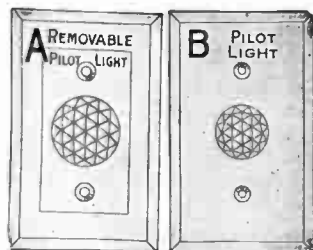
**Symbols for Plates in Combinations**

Standard combination plates of at least two different units are made up to order, from the units listed below. If spacings or dimensions differ from the standard units, special solid plate prices apply.

The price of a combination plate is the sum of the individual prices of the component plates. For a tandem combination, or a combination plate in which the gangs are placed in more than one row, add 20 per cent to the prices shown. For example, if plate PBD were a tandem plate, the price would be \$1.57 plus 20 per cent or \$1.88.

Standard package is 10 separate plates of the same combination.

Standard finish is old or brush brass.



## H & H Special Solid Plates

Schedule II

All plates, the dimensions or spacings of which differ from standard units, are figured at 7 cents per square inch plus the price of the regular unit or units composing the plate. The area charge of 7 cents per square inch is subject to the following discounts:

- 100 to 500 plates of one description, 10 per cent.
- 500 to 1000 plates of one description, 20 per cent.
- 1000 plates and over of one description, 30 per cent.

The standard package is 10 plates of one size and description, not gangs.

When special plates are not rectangular in shape, the charge will be for a plate of the size of the smallest rectangular piece from which the specified plate can be cut. In no case shall any special plate sell at a price less than the corresponding standard plate.

Genuine rolled bronze plates will be furnished at 10 cents per gang more than the price of the corresponding solid brass plate. Standard finish is brush bronze. Other finishes take regular advances. The standard package is the same as the corresponding brass plate, but assortments may not be made. Always send a clear sketch giving all dimensions and detailed specifications.

### Solid Plates with Round Corners

Solid plates with round corners and round edges, additional price for single gang, 15 cents.

Extra price for additional gang, 5 cents.

Solid plates with round corners and beveled edges, additional price per single gang, 15 cents.

### Solid Plates without Bevel Edges

If spacings and dimensions are standard, such solid plates will be furnished without extra charge, otherwise the special solid plate prices apply as given above.

### Plates with Return Edges

These plates are used when the wall case or switch box projects from the wall. For plates having a return edge of not more than 3/4 inch add \$1.00 extra for a single gang plate, and 50 cents extra for each additional gang. Price upon application for large quantity.

### Engraving

The practice of engraving flush plates for identification of individual switches in gangs is popular. The lettering is deeply etched in block design and can be made of any desired height. For engraving on plates, price per letter, 10 cents. Standard packages, 100 characters.

### Flush Plate Screws

All regular H & H Plate Screws are finished with pointed ends and are thereby more readily attached to the base plate of a switch or receptacle.

Cat. No.	Description	Carton	Std. Pkg.	Price per 100
1150	Standard 3/8-Inch Plate Screw... Longer Plate Screws, up to and Including 1-Inch.....	100	100	\$ .75
1161	Luminous Plate Screws.....	10	100	.25ea.
8980	Hegemite Plate Screws, Com- plete with Cap and Body.....	20	100	.05ea.
8980-1	Body for No. 8980.....	20	100	.025ea.
8980-2	Cap for No. 8980.....	20	100	.025ea.

The standard finish of brass plate screws is old brass or Duroplate. Special finishes supplied on order. Standard Hegemite plate screws are mahogany color, but black screws will be supplied when specified without extra charge.

### Plate Screw-Hole Spacings

The standard spacings for plates to be attached to switches and receptacles is 2 3/8 inches on centers, except rotary flush plates, and No. 2033 which is 2 1/2 inches.

Gang plates are spaced 1 13/16 inches on centers horizontally and 3 5/8 inches vertically.

### Finishes

Prices are given for old or brush brass finished plates and Duroplate. The standard finish is old or brush brass, which will be supplied when no finish is specified.

### Combination Plates

The units in such combinations must be standard in all particulars, as otherwise the plates are classed as special solid plates and are priced accordingly.

### Tandem Plates

Plates in tandem or vertical gangs can be furnished in solid brass and take a 20 per cent advance over horizontal gangs.

## The Bryant Spartan Line of Attachment Plugs and Receptacles



The Bryant Spartan Line is composed of a variety of attachment plug caps, bodies and receptacles which incorporate the two main features of Interchangeability and Standardization. They are the standard in general use.

The Spartan design has become accepted as standard throughout the United States and Canada, and is being used extensively in the making of plug devices for both surface and flush installations.

The original Spartan design for both parallel  $\ominus$  and tandem  $\omin�$  slots was the "Quad" slot arrangement, thus:  $\omin�$ . For purposes of standardization, this design is now being replaced by the "T" slot arrangement, thus:  $\omin�$ .

Spartan receptacles are designed to receive plugs with prongs or blades which are either parallel  $\ominus$  or tandem  $\omin�$ . Thus the trade-name Spartan is derived from the two words which are descriptive of the design of these interchangeable devices.

Spartan Plugs are made in two separable pieces. One is the cap with parallel blades. The other is the screw base body with parallel slots into which the blades of the cap are inserted. The combined cap and body form the complete plug.

All Spartan caps fit all Spartan bodies and receptacles. And all Spartan devices are interchangeable with all other makes of standard parallel-blade attachment plug devices.

### The Spartan Polarity Feature



WIDE SLOT  
Quad Slots



WIDE BLADE  
Polarity Cap



WIDE SLOT  
T Slots

When it is desired that an attachment plug cap fit into a receptacle in only one way, not reversible, thus providing a polarized connection, Spartan polarity caps should be ordered by substituting for the first letter K of any Spartan cap, the letter M to indicate polarity cap. Thus: A KA cap with polarity feature is known as an MKA cap and an MKK cap is a polarity cap, in all other respects exactly like a KK cap.

Polarity (M) caps differ from standard Spartan (K) caps only in the greater width of one prong. This wide prong will not fit the narrow slot of the two parallel slots of either the quad slot or T slot receptacles. It will fit the wide slot: This feature is shown in the illustration above. Because of this wide prong, a polarity cap can be inserted into a standard slot receptacle in only one way.

Polarity (M) caps cost the same, their schedule, discount, standard package and carton quantities and their weights are the same as similar standard Spartan (K) caps.





## Bryant Spartan Standard Composition Caps

10 Amperes, 250 Volts—With  $\frac{1}{16}$ -Inch Cord Hole



Cat. No.	Description	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
JK	*With Armored Cord Grip	R	10	50	8	\$ .20
JJ	Without Cord Grip	R	10	250	18	.10

Cord Hole with Shoulder  $\frac{3}{4}$ -Inch Diameter at Outer End,  $\frac{1}{2}$ -Inch Diameter at Inner End

JM	*With Armored Cord Grip	R	10	50	8	\$ .20
JL	Without Cord Grip	R	10	250	18	.10

\*Cadmium plated.

## Bryant Spartan Composition Caps

10 Amperes, 250 Volts

With Cord Grip and  $\frac{1}{16}$ -inch Hole

For  $\frac{1}{4}$ -inch to  $\frac{3}{8}$ -inch diameter cord.



Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*KK	R	Standard	10	100	34	\$ .50
*MKK	R	Polarity	10	100	34	.50

\*Without cord grip, 40 cents each.

## Bryant Spartan Composition Caps

10 Amperes, 250 Volts

With Cord Grip and  $\frac{1}{16}$ -inch Hole

For  $\frac{3}{8}$ -inch to  $\frac{9}{16}$ -inch diameter cord.



Cat. No.	Sched-ule	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*KU	R	Standard	10	100	34	\$ .50
*MKU	R	Polarity	10	100	34	.50

\*Without cord grip, 40 cents each.

## No. 100 Spartan Edison Composition

Screw Bodies

660 Watts, 250 Volts

Schedule R



These bodies do not have tandem slots.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
100	R	10	250	23	\$ 1.10

## No. 600 Bryant Spartanette Edison Composition Screw Bodies

660 Watts, 250 Volts

Does not have tandem slots. Intended for use chiefly with No. KT cap.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
600	R	25	250	41	\$ 0.7

## No. 118 Spartan Edison Composition Screw Adapter Bodies

660 Watts, 250 Volts

Schedule R

These bodies do not have tandem slots.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
118	R	10	100	7	\$ 1.10

## No. 103 Spartan Composition Cord Connector Bodies

10 Amperes, 250 Volts

Diameter,  $1\frac{3}{8}$  inches. Cord hole,  $\frac{7}{16}$  inch. Length,  $1\frac{1}{2}$  inches.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
103	R	10	50	9	\$ 3.30

## No. 130 Bryant Spartan Midget Composition Cord Connector Bodies

10 Amperes, 250 Volts

For use in connection with Nos. KR, MR, KT, KX and KY caps. Has no tandem slots. Diam.,  $1\frac{3}{16}$  inches. Length 1 inch. Cord hole,  $\frac{5}{16}$ -inch.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
130	R	10	50	6	\$ 3.30

## No. 138 Bryant Spartan Composition Connector Bodies

For Vacuum Cleaners

3 Amp., 250 Volts; 6 Amp., 125 Volts

Flange is  $1\frac{1}{32}$  in. in diam.,  $\frac{1}{4}$  in. thick. Body,  $\frac{7}{8}$  in. in diam.,  $\frac{5}{16}$  in. long. Does not have tandem slots.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
138	R	25	100	8	\$ 2.20

## No. 113 Bryant Spartan Composition Outlet Box Bodies

For  $\frac{1}{2}$ -inch Knockouts

10 Amperes, 250 Volts

Does not have tandem slots. Will not take polarity caps.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
113	R	10	50	9	\$ 2.5



## No. 127 Bryant Spartan Composition Outlet Box Bodies

For  $\frac{3}{4}$ -inch Knockouts

10 Amperes, 250 Volts

Does not have tandem slots.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
127	R	10	50	10	\$ 3.35



## Bryant Attachment Plugs

660 Watts, 250 Volts

Spartan separable composition attachment plugs.



Cat. No.	Sched-ule	Size Cord Hole, In.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
700	R	$\frac{1}{32}$	25	250	44	\$ 2.20
701	R	$\frac{3}{32}$	25	250	44	.20

## Bryant Spartanette Composition Separable Attachment Plugs

660 Watts, 250 Volts—Schedule R

Carton, 25. Standard package, 500. Weight, standard package, 68 pounds.

Cat. No.	Size of Cord Hole Inches	Price Each
699	Elongated, $\frac{9}{32} \times \frac{3}{16}$ In. (KT-600)	\$ .15
KX-600	Elongated, $\frac{1}{4} \times \frac{3}{16}$ In.	.15
KY-600	Round, $\frac{9}{32}$ In. Diam.	.15



## No. 777 Bryant Spartan Brown Templus Composition Separable Attachment Plugs

Round cord hole,  $1\frac{1}{32}$  inch.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
777	R	10	100	20	\$ 2.5



## Bryant Attachment Plugs With Brass Cap, Porcelain Body

660 Watts, 250 Volts

Standard finish, cap, brush brass.

Fuseless,  $1\frac{1}{32}$ -inch Cord Hole

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1948	H	10	250	48	\$ 2.22

Fusible,  $1\frac{1}{32}$ -inch Cord Hole

925	H	10	250	48	\$ 2.22
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## No. 345 Bryant Attachment Plugs Molded Weatherproof, Fuseless

660 Watts, 600 Volts

No. 345 plug is fitted with 6 inches of No. 14 B. & S. stranded rubber covered wire. Longer wires on special order. Extra charge, 9 cents list per foot ( $4\frac{1}{2}$  cents each conductor).



Mfrs. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
345	H	10	250	57	\$ 2.22



**No. 1009 Bryant Attachment Plugs**

660 Watts, 250 Volts

This plug is furnished with enameled wood handle and is fuseless. Cord hole,  $\frac{1}{2}$  inch.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1009	H	10	250	33	\$.12

**Bryant Composition Two-piece Fuseless Motor Connectors**



*Schedule R*  
10 Amperes, 250 Volts

**Midget,  $\frac{5}{16}$ -inch Cord Hole**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KR 130	10	50	10	\$.41

**Spartan,  $\frac{7}{16}$ -inch Cord Hole**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KG-103	10	50	14	\$.43



**No. KT-130 Bryant Spartanette Composition Two-piece Cord Connectors**

*Schedule R*  
10 Amperes, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KT-130	10	50	12	\$.38



**No. 131 Bryant Spartan Multiple Composition Current Tap Bodies**

660 Watts, 250 Volts

Weatherproof shade-holders Nos. 628 and 629 may be attached to this body.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
131	R	10	50	29	\$.50



**No. 101 Bryant Spartan Multiple Porcelain Current Tap Bodies**

660 Watts, 250 Volts

Weatherproof shade-holders Nos. 628 and 629 may be attached to this body.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
101	R	10	50	29	\$.50



**Spartan Composition Duplex Adapters**

10 Amperes, 250 Volts

*Schedule R*

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KH	Standard	10	10	5	\$.70
MKH	Polarity	10	10	5	.70



**No. 29081 Bryant Combination Switches and Convenience Outlets**

*Schedule R*  
6 Amperes, 125 Volts—3 Amperes, 250 Volts



For kitchen lighting units which are placed out of reach. The push button switch operates the light in kitchen unit. The outlet is always alive and will carry more than 660 watts at 250 volts. Takes any standard parallel or tandem blade attachment plug cap. Templus composition brown pendant switch and Spartan convenience outlet.

Carton, 10. Standard package, 50.  
Weight, standard package, 9 pounds; standard package, with 5-foot cord attached to switch, 35 pounds.  
Price, No. 29081, Only ..... each \$ .75  
Price, No. 29081, with 5-Foot, 3-Conductor, Brown Reinforced Cord Attached to Switch..... each 1.50

**No. 109 Bryant Spartan Porcelain Bodies**

For  $\frac{1}{2}$ -inch Obround Condulets

10 Amperes, 250 Volts



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
109	R	10	100	50	\$.40

**No. 104 Bryant Spartan Porcelain Cleat Base Bodies**

10 Amperes, 250 Volts



Main diam.,  $\frac{27}{32}$  inches. Diam. over lugs,  $\frac{29}{32}$  inches. Height,  $\frac{1}{16}$  inches. Screw spacings,  $\frac{1}{16}$ -inch and  $\frac{29}{32}$ -inch.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
104	R	10	50	21	\$.30

**No. 105 Bryant Spartan Porcelain Bodies**

Concealed Base

10 Amperes, 250 Volts

Diameter of base is  $\frac{27}{32}$  inches. Height,  $\frac{1}{2}$  inches. Screw spacings,  $\frac{1}{2}$  inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
105	R	10	50	21	\$.30



**No. 112 Bryant Spartan Porcelain Outlet Box Bodies**

10 Amperes, 250 Volts

Base diam. is  $\frac{13}{16}$  in. and top diam.,  $\frac{13}{8}$  in. Height,  $\frac{11}{16}$  in. Screw spacings,  $\frac{5}{8}$  in.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
112	R	10	50	20	\$.30



**No. 114 Bryant Spartan Porcelain Outlet Box Cover Bodies**

10 Amperes, 250 Volts

Requires hole  $\frac{1}{16}$  in. in diam. Diam. is  $\frac{11}{16}$  in.; projects  $\frac{3}{8}$  in. above and  $\frac{1}{16}$  in. below cover; distance from back of cover to bottom of wire grooves, 1 in.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
114	R	10	50	23	\$.30



**No. 123 Bryant Spartan Porcelain Outlet Box Bodies**

10 Amperes, 250 Volts  
Composition Base

Does not have tandem slots. Base diam.,  $\frac{13}{16}$  inches. Top diam.,  $\frac{13}{8}$  inches. Height,  $\frac{17}{16}$  inches. Screw spacings,  $\frac{13}{16}$ -inch.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
123	R	10	100	35	\$.32



**No. 129 Bryant Spartan Porcelain Terminal Block Receptacle Bodies and Bases**

*Schedule R*  
10 Amperes, 250 Volts  
For 4-Inch Outlet Boxes



Diameter of base,  $\frac{45}{8}$  inches. Height,  $\frac{13}{8}$  inches. Screw spacings,  $\frac{3}{16}$ -inch.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
129	5	50	70	\$.50

## No. 120 Bryant Spartan Porcelain Flush Receptacle Bodies



For Plate without Door  
10 Amperes, 250 Volts

Base, 2 $\frac{9}{16}$ x1 $\frac{5}{8}$  in. Depth, 1 $\frac{1}{8}$  in. Screw spacings: outside, 3 $\frac{3}{32}$  in.; inside, 2 $\frac{9}{16}$  in.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
120 R 10 100 41 \$ .30

## Bryant Spartan Composition Flush Receptacle Bodies

For Plate without Door  
10 Amperes, 250 Volts

Base 1 $\frac{7}{8}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Outside screw spacings, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{16}$  inches.  
BLACK BROWN  
Sched- Car- Std. Wt., Lbs. Cat. Price Cat. Price  
ulc ton Pkg. Std. Pkg. No. Each No. Each  
R 10 100 22 760 \$ .30 790 \$ .30

## No. 9020 Bryant Spartan Composition Flush Receptacle Bodies

For Plate without Door  
10 Amperes, 250 Volts

Base, 2 $\frac{9}{16}$ x1 $\frac{5}{8}$  inches. Depth, 1 $\frac{1}{8}$  inches. Supporting screw spacings: Outside, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{32}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
9020 R 10 100 41 \$ .30

## No. 124 Bryant Spartan Porcelain Flush Receptacle Bodies

For Plate with Door  
10 Amperes, 250 Volts

Base, 2 $\frac{9}{16}$ x1 $\frac{5}{8}$  in. Depth, 1 $\frac{1}{8}$  in. Screw spacings: outside, 3 $\frac{3}{32}$  in.; inside, 2 $\frac{9}{16}$  in.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
124 R 10 50 26 \$ .35



## No. 764 Bryant Spartan Composition Flush Receptacle Bodies

For Plate with Door—Each Outlet 10 Amperes, 250 Volts

With side wiring terminals. Base, 1 $\frac{7}{8}$ x1 $\frac{1}{16}$  inches. Depth,  $\frac{7}{8}$  inch. Screw spacings: Outside, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{16}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
764 R 10 50 12 \$ .35



## No. 140 Bryant Spartan Black Porcelain Flush Receptacle Bodies

For Plate without Door  
10 Amperes, 250 Volts

Base 1 $\frac{7}{8}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Screw spacings: Outside, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{16}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
140 R 10 100 22 \$ .30



## No. 144 Bryant Spartan Black Porcelain Flush Receptacle Bodies

For Plate with Door  
10 Amperes, 250 Volts

Base 1 $\frac{7}{8}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Screw spacings: Outside, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{16}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
144 R 10 50 22 \$ .35



## No. 9024 Bryant Spartan Composition Flush Receptacle Bodies

For Plate with Door—Each Outlet 10 Amperes, 250 Volts

With top wiring terminals. Base, 2 $\frac{9}{16}$ x1 $\frac{5}{8}$  inches. Depth, 1 $\frac{1}{8}$  inches. Screw spacings: Outside, 3 $\frac{3}{32}$  inches; inside, 2 $\frac{13}{16}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
9024 R 10 50 24 \$ .35



## Bryant Spartan Composition Duplex Receptacle Bodies

For Use with Symbol V2  
Plates with Doors

Each Outlet 10 Amperes, 250 Volts  
No. 9025  
With top wiring terminals.  
Base, 2 $\frac{9}{16}$ x1 $\frac{1}{16}$  inches. Depth, 1 $\frac{1}{8}$  inches.



Supporting screw spacings, 3 $\frac{3}{32}$  inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
9025	R	10	50	34	\$ .53

## No. 765

With side wiring terminals.  
Base, 2 $\frac{9}{16}$ x1 $\frac{1}{16}$  inches. Depth,  $\frac{7}{8}$  inch. Supporting screw spacings, 3 $\frac{3}{32}$  inches.

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
765	R	10	50	15	\$ .53

## No. 9022 Bryant Spartan Composition Duplex Flush Receptacle Bodies

For Plate without Doors  
Each Outlet 10 Amperes, 250 Volts

Base, 2 $\frac{5}{8}$ x1 $\frac{1}{16}$  inches. Depth, 1 $\frac{1}{8}$  inches. Supporting screw spacings, 3 $\frac{3}{32}$  inches.  
Cat. Sched- Car- Std. Wt., Lbs. Price  
No. ulc ton Pkg. Std. Pkg. Each  
9022 R 10 100 68 \$ .48



## No. 145 Bryant Spartan Black Porcelain Duplex Flush Receptacle Bodies

For Plate with Doors

Each Outlet 10 Amperes, 250 Volts

Base 2 $\frac{5}{8}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Screw spacing 3 $\frac{3}{32}$  inches. Side wiring terminals.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
145	R	10	50	15	\$ .53

## No. 142 Bryant Spartan Black Porcelain Duplex Flush Receptacle Bodies

For Plate without Doors  
Each Outlet 10 Amperes, 250 Volts

Base 2 $\frac{5}{8}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Screw spacing 3 $\frac{3}{32}$  inches. Side wiring terminals.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
142	R	10	100	30	\$ .48

## No. 125 Bryant Spartan Porcelain Duplex Flush Receptacle Bodies

For Plate with Doors

Each Outlet 10 Amperes, 250 Volts  
Base, 2 $\frac{5}{8}$ x1 $\frac{1}{16}$  inches. Depth, 1 $\frac{1}{8}$  inch. Screw spacings, 3 $\frac{3}{32}$  inches.

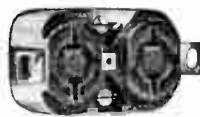
Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
125	R	10	50	34	\$ .53



## No. 122 Bryant Spartan Porcelain Duplex Flush Receptacle Bodies

For Plate without Doors

Each Outlet 10 Amperes, 250 Volts  
Base, 2 $\frac{5}{8}$ x1 $\frac{1}{16}$  in. Depth, 1 $\frac{1}{8}$  in. Screw spacings, 3 $\frac{3}{32}$  in.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
122	R	10	100	68	\$ .48

## Bryant Composition Duplex Flush Receptacle Bodies

For Plate without Doors  
Each Outlet 10 Amperes, 250 Volts

Base 2 $\frac{9}{16}$ x1 $\frac{1}{16}$  inches. Depth  $\frac{7}{8}$  inch. Screw spacing 3 $\frac{3}{32}$  inches.

Sched-ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each
R	10	100	30	762	\$ .48	792	\$ .48



**Bryant Spartan Black Composition Receptacles**

For 3/4-Inch Outlet Boxes

Schedule R



No. 3760

Receptacle is especially desirable for exposed work.

The face of the receptacle is cupped and a raised rib of composition is molded across the cup between the slots.

Receptacle is side wired with round box cover for direct mounting on 3/4-inch outlet boxes.

Cover is of steel with sprayed black lacquer finish.

Rating, 10 amperes, 250 volts.

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
3760 Single	10	100	40	\$.35
3761 Duplex	10	100	40	.55

**Bryant Spartan Black Composition Receptacles**

For 4-Inch Outlet Boxes

Schedule R

The face of this receptacle is cupped and a raised rib of composition is molded across the cup between the slots. It is especially desirable for exposed work.

Receptacle is side wired with round box cover for direct mounting on 4-inch outlet boxes.

Cover is of steel with sprayed black lacquer finish.

Rating, 10 amperes, 250 volts.



No. 4760

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4760 Single	5	50	25	\$.40
4762 Duplex	5	50	27	.60

**No. 115 Bryant Spartan Porcelain Receptacles with Round Brass Plates**

10 Amperes, 250 Volts



Diam. of plate, 2 3/4 in.; receptacle, 1 7/8 in. Depth, 1 3/8 in. Screw spacings, 1 1/8 in.

Cat. No.	Sched. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
115	R	1	50	24	\$.85

Price, No. 115 Less Plate.....each \$.50

**No. 116 Bryant Spartan Porcelain Receptacles with Round Brass Plates**

10 Amperes, 250 Volts

For 3/4-in. boxes. Diam. plate, 3 5/8 in.; receptacle, 1 7/8 in. Screw spacings, 2 3/4 in. Depth, 1 3/8 in.

Cat. No.	Sched. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
116	R	1	50	38	\$.95

Price, No. 116 Less Plate..each \$.50



**No. 733 Bryant Spartan Porcelain Receptacle Bodies**

10 Amperes, 250 Volts

With Ears



Diameter, 1 7/8 inches. Depth, 1 3/8 inches.

Cat. No.	Sched. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
733	R	10	50	13	\$.40

**No. 734 Bryant Spartan Round Brass Plates for No. 733 Receptacle Bodies**

Diameter, 2 3/4 inches. Supporting screw spacings, 1 7/8-inch.

Standard finish, brush brass.

Suitable machine screws for mounting this device on the box are furnished.

Cat. No.	Sched. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
734	H	10	50	9	\$.40



**Bryant Brass Flush Plates for Spartan Single Flush Receptacles**

Without Doors

Schedule II

For Receptacles Nos. 120, 427, 475, 556, 760, 1708 and 9020



No. OF61 (Old No. 429)



No. OF12 (Old No. 529)

Brass mounting screws packed in the carton with each plate. Standard finish, brush brass.

A standard package of flush plates for flush receptacles consists of a sufficient number, all of the same one style, to accommodate 100 receptacles. A carton is 1/2 of a standard package. Plates of the same style may be assorted in various finishes, thicknesses and gangs to make up a standard package or a carton. No other assortment permitted, except that carton quantity of single gang brass plates is 10.

Description	Pkg. Wt. Lbs.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
1-Gang, .060 In., Stamped...	29	OF61	429	\$.18	OF61-P	....	\$.14
1-Gang, .040 In., Stamped...	23	OF41	741	.14	OF41-P	2929	.10
1-Gang, Solid	37	OF11	545	.34	OF11-P	....	.30
2-Gang, Solid	32	OF12	529	.68	OF12-P	....	.60
3-Gang, Solid	29	OF13	530	1.02	OF13-P	....	.90
4-Gang, Solid	27	OF14	531	1.60	OF14-P	....	1.44

Plates, brush brass, standard spacings and dimensions, less than 4 gangs, list per gang: Solid, 34 cents; .060 inch, 18 cents; .040 inch, 14 cents. Four gangs or more, list per gang: Solid, 40 cents; .060 inch, 26 cents; .040 inch, 22 cents.

**Bryant Brass Flush Plates for Spartan Single Flush Receptacles**

With Door

For Receptacles Nos. 124, 1708 and 9024

Schedule II

Brass mounting screws are packed in the carton with each plate.

Standard finish is brush brass which will be furnished when no finish is specified.

A standard package consists of a sufficient number, all of the same one style to accommodate 100 receptacles. A carton is 1/2 of a standard package. Plates of the same style may be assorted in various finishes, thicknesses, and gangs to make up a standard package or a carton. No other assortment permitted, except that carton quantity of brass plates is 10.



OE61 (Old No. 1709)

Description	Wt. Lbs. Pkg.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
1-Gang, .060 In., Stamped.....	32	OE61	1709	\$.23	OE61-P	2928	\$.19
1-Gang, .040 In., Stamped.....	25	OE41	3678	.19	OE41-P	2948	.15
1-Gang, Solid	41	OE11	544	.39	OE11-P	....	.35
2-Gang, Solid	35	OE12	526	.78	OE12-P	....	.70
3-Gang, Solid	35	OE13	527	1.17	OE13-P	....	1.05
4-Gang, Solid	31	OE14	528	1.80	OE14-P	....	1.64

Symbol E plates, brush brass, standard spacings and dimensions, less than 4 gangs, list per gang: Solid, 39 cents; .060 inch, 23 cents; .040 inch, 19 cents. Four gangs or more, list per gang: Solid, 45 cents; .060 inch, 31 cents; .040 inch, 27 cents.

## No. 1708 Bryant Screw Plug Flush Receptacles

660 Watts, 250 Volts

### Single Receptacle, Porcelain Cup



Length of porcelain cup, 2 5/16 inches; width, 1 1/2 inches; depth, 1 1/4 inches.

Supporting screw spacings: Outside, 3 5/8 inches; inside, 2 3/4 inches.

Suitable machine screws for mounting on box furnished.

When ordering combination plates, specify E or F sections to accommodate No. 1708 door receptacles according to whether with or without door types are desired.

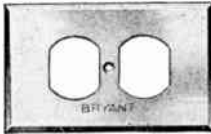
Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1708	H	10	100	35	\$.21

## Bryant Brass Flush Plates for Spartan Duplex Flush Receptacles

### Without Doors

Schedule H

For Receptacles Nos. 122, 762 and 9022



OV61 (Old No. 550)

Brass mounting screws are packed in the carton with each plate.

Standard finish, brush brass.

A standard package of flush plates for flush receptacles consists of a sufficient number, all of the same one style, to accommodate 50 receptacles. A carton is one-fifth of a standard package. Plates of the same style may be assorted in various finishes, thicknesses and gangs to make up a standard package or a carton. No other assortment permitted, except that carton quantity of single gang brass plates is 10.

Description	Wt. Lbs. Pkg.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
1-Gang, .060 In Stamped	29	OV61	550	\$.18	OV61-P	....	\$.14
1-Gang, .040 In Stamped	19	OV41	727	.14	OV41-P	2930	.10
1-Gang, Solid	33	OV11	551	.34	OV11-P	....	.30
2-Gang, Solid	30	OV12	552	.68	OV12-P	....	.60
3-Gang, Solid	27	OV13	553	1.02	OV13-P	....	.90
4-Gang, Solid	25	OV14	554	1.60	OV14-P	....	1.44

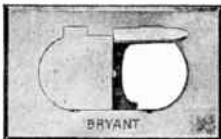
V plates, brush brass, standard spacings and dimensions, less than 4 gangs, list per gang: Solid 34 cents; .060 inch, 18 cents; .040 inch, 14 cents. Four gangs or more, list per gang: Solid, 40 cents; .060 inch, 26 cents; .040 inch, 22 cents.

## Bryant Brass Flush Plates for Spartan Duplex Flush Receptacles

### With Doors

Schedule H

For Receptacles Nos. 125, 765 and 9025



Brass mounting screws packed in carton with each plate. Standard finish, brush brass.

Standard package, 25.

Carton, 25.

Description	Wt. Lbs. Pkg.	STANDARD FINISH			PERMA FINISH		
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
One-gang, Solid....	8	OV211	579	\$.80	OV211-P	...	\$.76

## Bryant Brass Plates for No. 1708 Receptacles

Schedule H

### With Door, One-gang

Standard finish is brush brass which will be furnished unless otherwise specified. Perma finish, 4 cents per gang less than price given below.

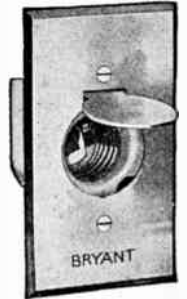
Length of plate, 4 1/2 inches; width, 2 3/4 inches.

Brass mounting screws furnished.

Standard package consists of sufficient number, all of the same one style to accommodate 100 receptacles. Plates of the same style may be assorted in any finish to make up standard package or carton.

Cat. No.	Old No.	Description	Car- ton	Wt., Lbs. Std. Pkg.	Price Each
OE61	1709	.060-in., Stamped	10	32	\$.23
OE41	3678	.040 " "	10	25	.19
*OE41-P	2948	.040 " "	10	25	.15
OE11	544	Solid	10	41	.39

\*Perma finish only.



Nos. 1708 and OE61

## Bryant Brass Plates for No. 1708 Receptacles Without Door, One-gang

Schedule H

These plates are necessary when receptacles are to be used as lamp sockets because door on E plates interferes.

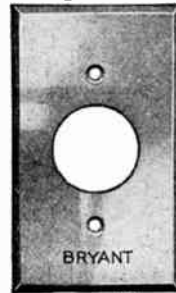
Length of plate is 4 1/2 inches; width, 2 3/4 inches.

Standard finish, brush brass. Perma finish, 4 cents per gang less than standard. Brass mounting screws furnished.

Standard package consists of a sufficient number, all of the same one style to accommodate 100 receptacles. Plates of the same style may be assorted in any finish to make up standard package or carton.

Cat. No.	Old No.	Description	Car- ton	Wt., Lbs. Std. Pkg.	Price Each
OF61	429	.060-in., Stamped	10	29	\$.18
OF41	741	.040 " "	10	23	.14
*OF41-P	2929	.040 " "	10	23	.10
OF11	545	Solid	10	37	.34

\*Perma finish only.



No. OF61

## No. 1363 Bryant Chapman Flush Receptacles

Schedule H

12 Amperes, 250 Volts

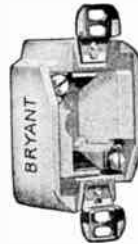
Not National Electrical Code Standard

Length of porcelain cup, 2 5/16 inches; width, 1 1/2 inches; depth, 1 1/4 inches.

Supporting screw spacings: Outside, 3 3/8 inches; inside, 2 3/4 inches.

Machine screws for mounting furnished.

When ordering combination plates, specify C sections to accommodate No. 1363 receptacles.



Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1363	10	100	50	\$.40

## Bryant Plugs for Chapman Receptacles

### No. 1363

Schedule H

12 Amperes, 250 Volts

Not National Electrical Code Standard

### Porcelain Reversible

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1110	25	100	10	\$.20

### Composition Reversible

397	25	25	3	\$.40
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No. 397

## Bryant Chapman to Edison Adapters

For Receptacle No. 1363

Schedule H

Each Outlet, 660 Watts, 250 Volts

Not National Electrical Code Standard

Adapts a Chapman receptacle to two Edison bases in multiple.

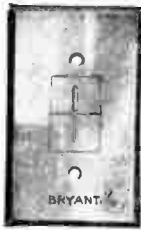
Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
472	Black Glazed Porcelain.....	5	10	7	\$.50





## Bryant Brass Flush Plates for D. D. Receptacles

Nos. 430 and 630  
Schedule II



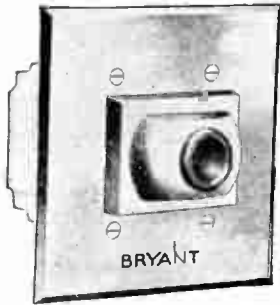
D plates .040-inch are not made. Standard finish, brush brass. Perma finish, 4 cents per gang less. A standard package consists of a sufficient number to accommodate 30 D. D. receptacles.

Cat. No.	Old No.	Description	No. OD61		Price Each
			Car-ton	Std. Pkg.	
OD61	431	One-gang, .060 Stamped	10	11	\$ .45
OD11	520	" Solid	10	13	.70
OD12	523	Two-gang, " " " " " "	5	10	1.40
OD13	524	Three-gang, " " " " " "	5	11	2.10
OD14	525	Four-gang, " " " " " "	5	12	2.80

D plates, brush brass, standard spacings and dimensions, any number of gangs, price per gang: solid, \$.70; .060-inch, \$.45.

## Bryant High Capacity D. D. Receptacles and Plugs

Schedule II  
25 Amperes, All Voltages Up To 250 Volts Maximum



This receptacle has been developed in response to the demand for a device having a carrying capacity suitable for atmospheric heaters, moving picture machines, and other portable current-consuming apparatus requiring a large amount of current. The hole in the plug is  $\frac{3}{4}$  inches in diameter, and is designed for No. 10 portable cable which should be used when the receptacle is to be loaded to its full capacity.

No. 2568 high capacity flush switch may be used for controlling the current to this receptacle, and these two devices may be mounted together on a Y-Z combination flush plate in which case a four-gang switch box is required for mounting.

Receptacle cup;  $2\frac{5}{16}$  inches long;  $3\frac{1}{2}$  inches wide;  $2\frac{1}{2}$  inches deep. Requires a two-gang box. Supporting screw spacings (four holes)  $3\frac{1}{2}$  inches vertically and  $1\frac{1}{8}$  inches horizontally.

Suitable machine screws for mounting on box are furnished. When ordering combination plates, specify Z section to accommodate No. 446 receptacle.

Standard finish for plugs is brush brass. Perma finish for plugs when ordered alone is same as for brush brass. Plugs ordered with special finish plates are given same finish free of extra charge.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
446	Receptacle, Porcelain Cup	1	10	14	\$1.50
448	Plug, Composition, Brass Covered Polarity	1	10	6	1.50

## No. OZ12 Bryant Brass Flush Plates For No. 446 Receptacle

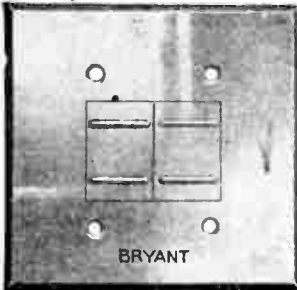
Schedule II

A single, two-gang, solid brass flush plate for No. 466 receptacle.

Standard finish, b r u s h brass. Perma finish, deduct 4 cents per gang.

Brass mounting screws furnished.

Z plates, brush brass, solid only, for mounting No. 466 receptacles in gangs will be furnished only on special order at a price of \$2.00 per receptacle (two-gang). When so mounted, receptacles will be spaced  $3\frac{5}{8}$  inches on centers.



Cat. No.	Old No.	DIMENSIONS, INCHES		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Length	Width				
OZ12	447	$4\frac{1}{2}$	$4\frac{3}{8}$	1	10	7	\$2.00

## No. 621 Bryant 20-ampere Polarized Receptacles

20 Amperes, 250 Volts

Porcelain Surface Receptacle for Open (Cleat) Wiring



Approved to carry 20 amperes at all voltages up to 250 volts. They are particularly suitable for use on farm lighting and other 32-volt circuits for supplying current to flat irons and other current consuming devices drawing 400 to 660 watts.

Diameter of main base is  $2\frac{1}{2}$  inches; diameter over lugs,  $2\frac{7}{8}$  inches; height,  $1\frac{1}{2}$  inches. Two pairs of holes for supporting screws are respectively  $1\frac{1}{2}$  and  $2\frac{3}{8}$  inches on centers.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
621	R	10	30	16	\$ .50

## No. 622 Bryant 20-ampere Polarized Receptacles

20 Amperes, 250 Volts

Porcelain Surface Receptacle for Concealed Wiring

Approved to carry 20 amperes at all voltages up to 250 volts. They are particularly suitable for use on farm lighting and other 32-volt circuits for supplying current to flat irons and other current consuming devices drawing 400 to 660 watts.

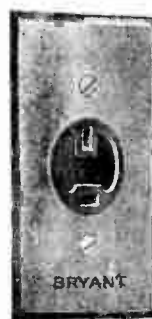
Diameter of base is  $2\frac{1}{2}$  inches. Height,  $1\frac{1}{2}$  inches. Holes for supporting screws spaced  $1\frac{1}{2}$  inches on centers.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
622	R	10	30	15	\$ .50

## No. 556 Bryant 20-ampere Polarized Receptacles

20 Amperes, 250 Volts



Suitable for use on farm lighting and other 32-volt circuits for supplying current devices drawing 400 to 660 watts. Receptacle is  $2\frac{5}{16}$  inches high,  $1\frac{1}{8}$  inches wide, 1 inch deep. Outside supporting screw holes,  $3\frac{3}{8}$  inches on centers; inside holes,  $2\frac{3}{8}$  inches. Receptacles regularly shipped with composition boss, which projects through plate, glazed black. White, when specified, will be sent without extra charge. When ordering combination plates, specify F selections for No. 556 Receptacles.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
556	R	10	30	14	\$ .75

## Bryant 20-Ampere Polarized Plugs

For Nos. 621, 622 and 556 Receptacles

When No. 653 plugs are ordered at the same time and with an equal quantity of flush receptacles and plates, there will be no extra charge for special finishes on the plugs.

The cord hole in the plugs is  $\frac{3}{16}$  inch in diameter, making them suitable for No. 12 approved portable cord which should be used when the plugs are to be loaded to full rated capacity.



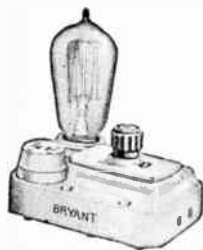
Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
652	Composition Plug	R	10	30	7	\$ .30
653	Plug, Brass Covered	R	10	30	8	.50
623	Comp. Plug with Grip for $\frac{1}{4}$ to $\frac{3}{8}$ -In. Cord	R	10	30	10	.50
723	Comp. Plug with Grip for $\frac{3}{8}$ to $\frac{1}{2}$ -In. Cord	R	10	30	10	.50

**Bryant Porcelain Surface Heater Control Combinations**

*Schedule H*

10 Amperes, 125-250 Volts

**Non-Fusible**



No. 466

Combination of a 10-ampere, 250-volt, d.p. indicating switch with a Spartan receptacle, and, in parallel with it, a receptacle for a pilot lamp. For cleat, concealed or molding work. Supporting screw spacings, 1 1/16 x 3 1/2 inches.

Nos. 466 and 766 have bases 4x5 inches and are equipped with No. 2781 porcelain handles. On special order can be furnished with expulsion type mechanism especially designed for inductive loads, at an advance in price of 30 cents each. Nos. 5466 and 5766 have bases 4 1/2 x 5 1/16 inches. Equipped with No. 6202 porcelain handles. No. 5734 switch mechanism is of the reversible rotation type and is designed for heater control service. Nos. 766 and 5766 are recommended for voltages not exceeding 125 volts.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
466	For Medium Base Pilot Lamp, with Snap Switch, with Enameled Cover.....	1	10	27	\$1.50
766	For Candelabra Base Pilot Lamp, 10 Amp., 125 Volts.....	1	10	27	1.60
2734	Switch Mechanism, without Handle, for Nos. 466 and 766.....	1	10	4	.61
5466	For Medium Base Pilot Lamp, with Reversible Rotation Switch, Porcelain Cover.....	1	10	30	1.50
5766	For Candelabra Base Pilot Lamp, 10 Amp., 125 Volts.....	1	10	30	1.60
5734	Switch Mechanism Only, without Handle, for Nos. 5466 and 5766...	1	10	5	.71

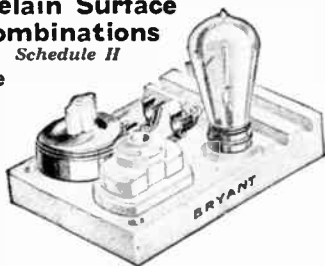
**No. 439 Bryant Porcelain Surface Heater Control Combinations**

25 Amperes, 250 Volts *Schedule H*

**Fusible**

A combination of one No. 1919 branch cut-out, 25-ampere D.P. indicating switch with brass cover, polished nickel finish, and with No. 2781 porcelain handle, No. 342 25-ampere plug receptacle, No. 343 25-ampere plug and a receptacle for pilot lamp. Machine screws for mounting are furnished. Base, 5 3/4 x 8 3/16 inches. Height over switch handle, 3 1/8 inches. Four holes for supporting screws spaced 4 1/4 and 2 1/8 by 6 1/8 inches. On special order an expulsion type switch mechanism substituted at 40 cents additional.

Packed 1 in a carton. Standard package, 10. Price, No. 439, Wt., Std. Pkg., 75 Lbs. .... each \$3.50

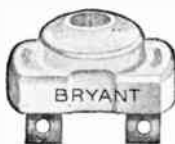


**Bryant Surface Receptacles and Plugs For Concealed Work**

Positive and negative symbols permit the restoring of plug in receptacle without reversing the polarity; polarity can be reversed if desired.



No. 342



No. 343

Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Description	Wt. Lbs.	Price Each
341	H	5	25	Receptacle with Plug.....	30	\$ .60
342	H	5	25	" Only.....	21	.35
343	H	5	25	Plug Only, 1/2-in. Hole.....	10	.25
344	H	5	20	Porcelain Sub-base for Cleat and Molding Work.....	7	.10

**Bryant Bull's Eye Plates**



A Section

The B section consists of an F plate into which has been fastened a No. 736 bull's eye jewel.

The A sections should be used only in large combinations so that any lamp can be replaced without removing the whole plate.

When A and B plates are desired with ventilated jewels No. 737, they should be ordered by catalogue No. followed by the words, with No. 737 jewel.

The cost of any plate with No. 737 jewels instead of the standard No. 736 jewels is 50 cents additional for each No. 737 jewel specified. Unless otherwise specified ruby jewels will be furnished. Green, clear, amber, opalescent or blue jewels can be furnished on special order without extra charge. Standard finish, brush brass.

**Bryant Brass Plates with No. 736 Ruby Jewel**

For One No. 427 or No. 627 Receptacle *Schedule H*

Standard package, 30. Carton, 10. Assortment of plates is permitted. When combination plates longer than three gangs are ordered it is advisable to specify A sections instead of B sections.

The price of B plates, solid brass only, in gangs, when dimensions and spacings are standard, is 59 cents per gang.

Brass mounting screws are furnished. Standard finish, brush brass.

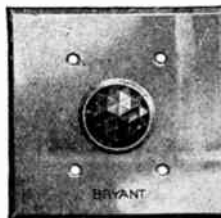


OB41 (Old No. 738)

Description	Wt. Std. Pkg.	STANDARD FINISH		PERMA FINISH	
		Cat. No.	Old Price Each	Cat. No.	Old Price Each
One-Gang Stamped .040 In. .13		OB41	738 \$ .39	OB41-P	2938 \$ .35
One-Gang Stamped .060 In. .15		OB61	... .43	OB61-P	.... .39
One-Gang, Solid... .17		OB11	428 .59	OB11-P	.... .55

**Bryant Brass Plates with No. 736 Ruby Jewel For Two No. 427 Receptacles**

*Schedule H*



Lamps with candelabra bases are commercially limited to a maximum voltage of 125 volts. When bull's eyes are desired for circuits above 125 volts it is necessary to connect two No. 427 receptacles in series in a two-gang box and cover them with a No. OX12 plate. Voltage of two No. 427 receptacles wired in series is 250 volts maximum.

Standard package, 10 plates all of the same one style. Carton, 2 plates of the same style. Plates of the same style may be assorted in various finishes and thicknesses to make up a standard package or carton. No other assortment.

Description	Wt. Lbs. Pkg.	STANDARD FINISH		PERMA FINISH	
		Cat. No.	Old Price Each	Cat. No.	Old Price Each
Two-gang 8		OX12	436 \$1.19	OX12-P	.... \$1.11

**No. 763 Bryant Spartan Porcelain Flush Receptacle and Bull's Eye Combinations**

10 Amperes, 125 Volts

This is a ready-wire 2-gang bull's eye combination consisting of a pilot light, a duplex Spartan receptacle and a solid BV plate.

The lamp is lighted when the plug is inserted in either receptacle.



Cat. No.	Sched-ule	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	PRICE, EACH	
					With Plate	Without Plate
763	H	1	10	18	\$2.35	\$1.37

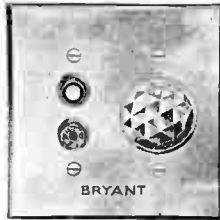
## No. 413 Bryant Bull's Eye Combinations

Switch and No. 736 Ruby Jewel  
with Solid Plate, Push-Button Switch, Ready-  
Wired, 2-Gang

Schedule II

10 Amperes, 125 Volts

Consists of 1-piece porcelain cup, 2<sup>9</sup>/<sub>16</sub> inches long, 3<sup>1</sup>/<sub>2</sub> inches wide, 1<sup>1</sup>/<sub>16</sub> inches deep, with 8 supporting screw holes, spaced 3<sup>3</sup>/<sub>32</sub> inches and 2<sup>13</sup>/<sub>16</sub> inches on centers vertically and 1<sup>3</sup>/<sub>16</sub> inches on centers horizontally, for installation in a standard 2-gang outlet box. This cup incorporates a No. 427 receptacle and a No. 2520 receptacle which is fitted with a No. 2523 double-pole switch mechanism.



No. 413

All electrical parts are properly connected together by brass shunts and the device is ready for connection to line wires and load wires.

The No. 427 receptacle is regularly fitted with a No. 618 lamp, but will take a Form H lamp, 2-candle power, clear pear shape bulb, carbon filament, candelabra base, 125 volts.

A solid brass plate No. OPB12 with No. 736 ruby jewel is furnished to cover the working parts. The standard finish is brush brass which will be furnished when no finish is specified. For Perma finish, deduct 4 cents per gang from the price. For other finishes consult special list.

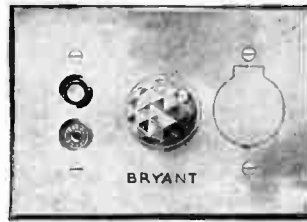
Brass mounting screws are packed in the carton with each plate and suitable machine screws are furnished for mounting switch device on the box.

Can be furnished with luminous insert in button at an addition to price of 25 cents each. Identical devices, regular and luminous, may be assorted.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
413	Ready-Wired	1	10	25	\$2.65

## No. 437 Bryant Bull's Eye Combinations

Schedule II  
660 Watts, 125 Volts



With No. OPBE solid plate, double-pole switch, No. 1708 receptacle, ready-wired.

One-piece porcelain cup, 2<sup>9</sup>/<sub>16</sub> x 5<sup>3</sup>/<sub>32</sub> x 1<sup>1</sup>/<sub>16</sub> inches, with eight supporting screw holes spaced 3<sup>3</sup>/<sub>32</sub> and 2<sup>9</sup>/<sub>16</sub> inches on centers vertically and 3<sup>3</sup>/<sub>8</sub> inches on centers horizontally for installation in a standard three-gang outlet box. This cup incorporates a No. 2520 cup with a No. 2523 double-pole push-button switch mechanism, a No. 427 receptacle and a No. 1708 receptacle, all internally connected and ready for connection to the line wires.

When the switch is on, the lamp is lighted and the receptacle is alive.

Solid brass plate No. OPBE13 with No. 736 ruby jewel is furnished to cover the working parts.

Standard finish is brush brass which will be furnished when no finish is specified. Perma finish, deduct 4 cents per gang.

Suitable machine screws for mounting this device are furnished and brass mounting screws are packed in the carton with each plate.

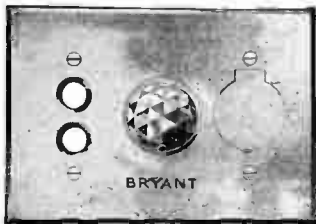
Can be furnished with luminous handle or button at an addition to price of 25 cents each. Identical devices, regular and luminous, may be assorted.

A No. 619 lamp, 32 volts, can be furnished on special order with the No. 427 receptacle instead of the No. 618, 125 volts, regularly furnished.

Cat. No.	Description	Car- ton	Std. Wt., Lbs. Pkg.	Price Each
437	Ready-wired, Complete	1	10 33	\$3.20
437	Without No. OPBE13 Plate			1.58

## Bryant Combination Bull's Eye Brass Plates

Stamped .040-inch  
Schedule II



No. OPBE43  
Old No. 3715

Brass mounting screws are packed in the carton with each plate.

Standard package, 10 plates, all of the same style. Carton, 2 plates of the same style. Plates of the same style may be assorted in various finishes and thicknesses to make up a standard package or a carton. No other assortment permitted.

### For One Switch and with One No. 736 Ruby Jewel

Description	Wt. Lbs. Pkg.	STANDARD FINISH		PERMA FINISH			
		Cat. No.	Old No.	Price Each	Cat. No.	Old No.	Price Each
Takes Push-button Switch	8	OPB42	3705	\$.63	OPB42-P	2905	\$.55
Takes Tumbler Switch	8	OSB42	3716	.63	OSB42-P	2916	.55

### For One Push-button Switch with One No. 736 Ruby Jewel and for One Receptacle

Description	Wt. Lbs. Pkg.	Three-gang		Price Each
		Cat. No.	Old No.	
*Takes Single Receptacle	10	OPBF43	3737	\$.82
**Takes Single Receptacle	12	OPBE43	3715	.87
*Takes Duplex Receptacle	11	OPBV43	3739	.82

### For One Tumbler Switch with One No. 736 Ruby Jewel and One Receptacle

Description	Wt. Lbs. Pkg.	Three-gang		Price Each
		Cat. No.	Old No.	
*Takes Single Receptacle	10	OSBF43	3729	\$.82
**Takes Single Receptacle	12	OSBE43	3725	.87
*Takes Duplex Receptacle	11	OSBV43	3735	.82

\*Without door. \*\*With door.

## Bryant Pilot Combinations

One Switch and One Lamp with Brass Guard  
Ready-Wired, One-Gang

Schedule II  
10 Amperes, 125 Volts



No. 2959

Each combination consists of a one-piece porcelain cup, 2<sup>9</sup>/<sub>16</sub> x 1<sup>1</sup>/<sub>16</sub> x 1<sup>1</sup>/<sub>16</sub> inches, with supporting screw holes spaced 3<sup>3</sup>/<sub>32</sub> and 2<sup>13</sup>/<sub>16</sub> inches on centers vertically for installation in a standard one-gang outlet box. This cup incorporates a switch and a candelabra base receptacle ready-wired in multiple, and has two terminals with binding screws on each end.

A No. 618 lamp is fitted in the receptacle and the whole is covered by an M. 060-inch plate. This lamp cannot be removed without removing the plate.

The lamp is in circuit when the switch is closed, so this device can be used for remote control of cellar lights, garage and attic lights, and in many other places where a tell-tale is desired.

One No. 2126 key is furnished with each No. 469 switch.

Standard finish is brush brass. For Perma finish, deduct 4 cents per gang. Special finish, see another page.

Suitable machine screws for mounting this device are furnished and brass mounting screws are packed in the carton with each plate.

Price of No. OM61 plate is \$1.30, schedule II, standard package, 10, carton 1.

The price of any combination without No. OM61 plate is \$1.30 less than the price given below.

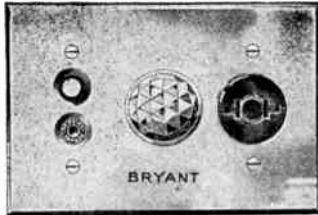
When ordering combination plates, specify M sections to accommodate the combinations listed.

Cat. No.	Description	Car- ton	Std. Wt., Lbs. Pkg.	Price Each
465	With Double-Pole Push Switch	1	10 15	\$2.15
2959	With Double-Pole Tumbler Switch	1	10 15	2.00
495	With 3-Point Push Switch	1	10 15	2.15
469	With Double-Pole Rotary Lock Switch	1	10 15	1.90

**No. 467 Bryant Bull's Eye Combinations**  
*Schedule H*

10 Amperes, 125 Volts

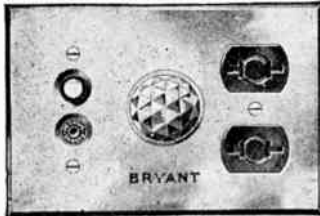
Consists of one-piece porcelain cup, 2 5/16 x 5 1/4 x 1 1/8 inches, with 8 supporting screw holes spaced 3 3/8 and 2 5/8 inches on centers vertically, 3 5/8 inches horizontally, for installation in 3-gang outlet box. Cup incorporates a No. 2520 cup with No. 2523 double-pole push-button switch mechanism, a No. 427 receptacle and a No. 120 Spartan single receptacle, with No. OPBF13 plate to cover working parts. When the switch is on the lamp is lighted. Luminous handle or button, 25 cents extra.



Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
467	Ready-wired, Complete	1	10	35		\$3.74
467	Without Plate No. OPBF13					2.17

**No. 558 Bryant Bull's Eye Combinations**  
*Schedule H*

10 Amperes, 125 Volts



Consists of one-piece porcelain cup, 2 5/16 x 5 1/2 x 1 1/8 in., with 8 supporting screw holes, spaced 3 3/8 and 2 5/8 inches on centers, vertically, 3 5/8 inches horizontally for installation in a standard three-gang outlet box. This cup incorporates

a No. 2520 cup with No. 2523 double-pole push-button switch mechanism, a No. 427 receptacle, and a No. 122 Spartan duplex receptacle, with a No. OPBV13 plate to cover working parts. When the switch is on the lamp is lighted. Luminous button or handle, 25 cents extra.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
558	Ready-wired, Complete	1	10	35		\$3.89
558	Without Plate No. OPBV13					2.32

**Bryant Bull's Eye Combinations**  
*Schedule H*

10 Amperes, 125 Volts

For 1 Tumbler Switch, with 1 No. 736 Ruby Jewel and for 1 Receptacle; 3-Gang

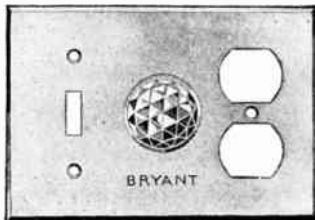
These combinations are not ready-wired. The parts must be ordered separately and wired.

The lamps used limit the voltage. No. 618 lamp, supplied unless otherwise specified, is for use on 125 volts. On special order and without extra charge, No. 619, 32 volts, will be furnished.

Machine screws are furnished for mounting switches and receptacles and brass mounting screws are packed with each plate.

The standard finish of plates is brush brass which will be furnished unless special finish is specified. Perma finish is 4 cents per gang less than price of standard finish.

Can be furnished with luminous handle or button at an additional cost of 25 cents. Identical devices, luminous and regular, may be assorted.



Description	Wt. Lbs. Std. Pkg.	STANDARD FINISH		PERMA FINISH	
		Cat. No.	Price Each	Cat. No.	Price Each
Takes Single Receptacle, No Door	10	OSBF43	\$.82	OSBF43-P	\$ .70
Takes Single Receptacle, with Door	12	OSBE43	.87	OSBE43-P	.75
Takes Duplex Receptacle, No Doors	11	OSBV43	.82	OSBV43-P	.70

\*All of the same one style and material. Plates of the same style and material may be assorted in various finishes and thicknesses to make up a standard package or a carton. No other assortment permitted.

**No. 2979 Bryant Spartan Porcelain Flush Receptacle and Double-Pole Indicating Switch Combinations**

A combination double-pole indicating tumbler switch and Spartan receptacle with porcelain cup, one gang.



It has a Templus plate which contains the boss of the receptacle. The T slots are in the plate. This receptacle has a new and effective construction for finding the slots in the dark or when the receptacle is installed in an inconvenient location. The receptacle boss is cupped in the plate and a raised rib of composition formed across the cup between the slots.

Cat. No.	Sched- ular	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
2979	R	1	10	7		\$1.35

**No. 2957 Bryant Spartan Porcelain Flush Receptacle and Double-Pole Indicating Tumbler Switch Combination Bodies**

With .060-Inch Brass Plate

10 Amperes, 125 Volts  
5 Amperes, 250 Volts

Plate, 4 1/2 x 2 3/4 inches. Base, 2 1/16 x 1 1/16 inches. Depth, 1 3/8 inches.

Supporting screw spacing, 3 3/8 inches. Machine screws for mounting furnished.

Cat. No.	Sched- ular	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	PRICE, EACH	
						With Plate	Without Plate
2957	R	1	10	15		\$1.35	\$1.17

Plate Only

Cat. No.	Sched- ular	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	PRICE, EACH	
						Standard finish, brush brass.	Price Each
OW261	H	1	10				\$ .18

**No. 117 Bryant Spartan Porcelain Flush Receptacle and Type O Double-Pole Indicating Switch Combination Bodies**

With .060-Inch Brass Plate

10 Amperes, 125 Volts  
5 Amperes, 250 Volts

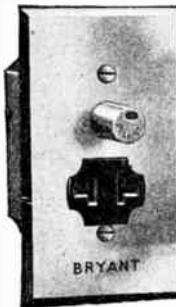
Plate, 4 1/2 x 2 3/4 inches. Base, 2 5/8 x 1 1/16 inches. Depth, 1 5/8 inches.

Supporting screw spacings: Outside, 3 3/8 inches; inside, 2 13/16 inches. Screws for mounting furnished.

Cat. No.	Sched- ular	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	PRICE, EACH	
						With Plate	Without Plate
117	R	1	10	15		\$1.60	\$1.42

Plate Only

Cat. No.	Sched- ular	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	PRICE, EACH	
						Standard finish, brush brass.	Price Each
OW61	H	1	10				\$ .18



**No. 518 Bryant Bull's Eye Combinations**  
*Schedule H*

10 Amperes, 125 Volts

Consists of a one-piece porcelain cup, 2 5/16 x 5 5/8 x 1 1/8 inches, with standard supporting screw spacings for mounting in standard three-gang outlet box. This cup incorporates a double-pole push-button switch, a bull's eye receptacle and a D. D. receptacle with plugs internally connected and ready for connection with line wires. When switch is on lamp is lighted and receptacle is alive.



Machine and brass mounting screws furnished. Standard finish, brush brass. Luminous handle or button, \$0.25 extra.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs.	Lbs. Pkg.	Price Each
518	Ready-wired, Complete	1	10	35		\$4.89
518	Without OPBD13 Plate					2.96

## Bryant Bull's Eye Flush Receptacles

75 Watts—Schedule H

Special receptacles designed for holding a small electric lamp back of a glass jewel fastened in a flush plate of standard dimensions. Lamp is wired in multiple. Porcelain cup:  $2\frac{1}{16} \times 1\frac{1}{16} \times 1\frac{1}{8}$  inches. Supporting screw spacings: Outside,  $3\frac{1}{2}$  inches, inside,  $2\frac{1}{16}$  inches. Suitable machine screws furnished for mounting device on box.



### Receptacle with No. 618 Lamp, 125 Volts

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*427	10	30	17	\$.70

### Receptacle with No. 619 Lamp, 32 Volts

627	10	30	17	\$.70
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\*Also take a Form H lamp, 2-candle power, clear pear shaped bulb, carbon filament, candelabra base, 125 volts.

## Type T-7 Lamps for Receptacles Nos. 427 and 627



Schedule H

No. 618 Type  
T-7 Lamp

Candelabra base, 2 candle power, clear, tubular bulb, carbon filament lamps.

Candelabra base lamps are commercially limited to a maximum voltage of 125 volts. For bull's eyes for higher voltages see listing of No. OX12.

### 125 Volts

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
618	10	30	3	\$.35

### 32 Volts

619	10	30	3	\$.35
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## Bryant Removable Bull's Eye Jewels

Schedule H

### With Brass Mounting Rings

These jewels can be fitted into any plate having a hole  $1\frac{3}{8}$  inches in diameter in material not over  $\frac{1}{8}$  inch thick. Any F receptacle plate, solid,  $\frac{1}{16}$ -inch or .040-inch will take these bull's eye jewels.

No. 736 is designed for isolated signals. When bull's eyes are mounted in gangs or where the signal lamps are operated continuously for several hours at a time, it is better to use the No. 737 ventilated type of bull's eye because it remains cooler.

Standard finish of brass ring is brush brass.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
736	Solid Ring	10	30	2	\$.25
737	Ventilated Ring	10	30	2	.75



No. 737

## No. 121 Bryant Spartan Porcelain Flush Receptacle and Pilot Lamp Combinations

With .040-inch Brass Plate  
10 Amperes, 125 Volts

Cannot be used above 125 volts because of lamp.

Lamp lights when plug is inserted.

Does not have tandem slots.

Plate,  $2\frac{3}{4} \times 4\frac{1}{2}$  inches. Base,  $2\frac{1}{16} \times 1\frac{1}{16}$  inches. Depth,  $1\frac{1}{16}$  inches.

Machine screws for mounting furnished.

Cat. No.	Sched- ule	Car- ton	Std. Pkg.	PRICE, EACH	
				With Plate	Without Plate
121	R	1	10	15	\$1.50 \$1.02

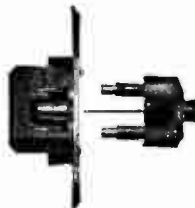
### Plate Only

Standard finish, brush brass.

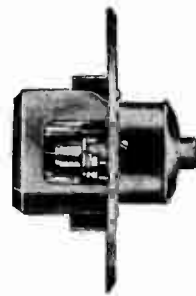
Cat. No.	Sched- ule	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
O161	H	1	10	..	\$.48



## Diamond H Flush Type Receptacles



Receptacle  
Complete



No. 6510 Plate  
with Receptacle and Plug

### Receptacles

Rating: 10 Amperes, 125 Volts; 5 Amperes, 250 Volts

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6520	Porcelain Receptacle	10	100	48	\$.40
1652	Old Style Deep Receptacle	10	100	50	.40

### Plugs

6530	Plug Only, Brass Cap	10	100	30	\$.35
6531	" " Black "	10	100	30	.30
†16530	" " Old Style Brass Cap	10	100	30	.40
†1653	" " Black "	10	100	30	.35
6532	Two Cord Plug, Top Outlet	10	100	30	.40
6533	" " Side "	10	100	30	.40

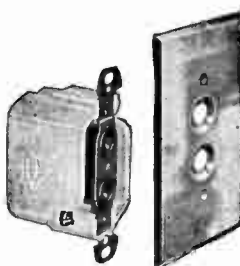
### Plates

6510	One-gang (060 Brass)	10	..	41	\$.70
6511	" " (Solid Brass)	10	..	59	.90
6512	Two " ( " " )	1	..	56	1.90
6513	Three-gang ( " " )	1	..	54	2.70
6514	Two-gang Tandem (Solid Brass)	1	..	59	2.00

†To complete installations of old style deep receptacles and plugs 2 inches deep are carried in stock at all times. Add one-half additional list as shown for special finish on receptacle plugs.

## H & H Receptacles with Closing Shutters

10 Amperes, 250 Volts



No. 2850  
Receptacle



No. 2301  
Plate



No. 2002  
Plug

These receptacles are used in baseboards and floors. The openings are equipped with automatic shutters, which open and close as the plug is inserted and withdrawn, thus keeping out dust and dirt and always insuring bright, clean contacts.

There is a demand for these receptacles for dining-room floors,

because the use of indirect lighting fixtures affords no convenient socket for attaching percolators, toasters, and other devices. When under a rug, two small holes can be made in the rug (without cutting) for inserting the prongs of the plug. The prongs are insulated to the points, so there is no danger of short circuits. The plug is unbreakable, and is pushed to admit heavy lamp cord. Where carpet or rug is thick, use plug No. 2133 with extra long prongs.

Schedule S

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
2850	Receptacle Only, without Plug or Plate	10	30	15	\$.80
2002	Plug Only	10	30	8	.25
2133	Plug with Extra Long Fingers for No. 2850 Receptacle	1	30	10	.50

Schedule H

2301	Single Heavy Brass Switch Plate	25	100	30	\$.18
2302	2-Gang Heavy Brass Switch Plate	10	50	26	.36

Depth of receptacle, with plate  $1\frac{5}{8}$  inches. Outside supporting screw holes spaced  $3\frac{1}{2}$  inches on centers. Inside supporting screw holes spaced  $2\frac{1}{16}$  inches on centers.



**No. 5617 Hubbell Porcelain Concealed Receptacles**



**Screws, 1 1/32-Inch Centers**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5617	H	10	50	18	\$.30

**No. 5618 Hubbell Porcelain Cleat Receptacles**

**Screws, 1 1/32-Inch Centers**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5618	H	10	50	18	\$.30



**No. 5619 Hubbell Porcelain Moulding Receptacles**

**Screws 1 1/8-Inch Centers**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5619	H	10	50	20	\$.30



**No. 5620 Hubbell Porcelain Fielding Receptacles**

**Screws 2 5/16-Inch Centers**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5620	H	10	50	20	\$.35



**No. 5624 Hubbell Porcelain Conduit Box Receptacles**

**Screws 5/8-Inch Centers**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5624	H	10	50	13	\$.30



**No. 7027 Hubbell Porcelain Outlet Box Receptacles**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7027	H	10	50	20	\$.30



**No. 7032 Hubbell Porcelain Outlet Box Receptacles**

**With Covered Terminals**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7032	H	10	50	20	\$.35



**No. 6293 Hubbell Composition Weather-Proof Receptacles**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6293	H	10	30	10	\$.70



**No. 5614 Hubbell Porcelain Round Flush Receptacles**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

A flush receptacle for special apparatus. Screw holes in supporting straps 1 1/4 inches on centers. Diameter of porcelain body, 1 1/8 in. Screw holes tapped for 8x32 screws.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5614	H	10	50	20	\$.40

**No. 7255 Hubbell Composition Round Flush Receptacles**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Screw holes are 1 1/8 inches on centers tapped for 8x32 screws. A round hole 1 1/8 inches only in diameter is necessary to accommodate receptacle.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7255	H	10	50	18	\$.40

**No. 7218 Hubbell Fixture Receptacle Bodies**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Interchangeable with brass shell socket caps and bases.

With double T slots.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7218	H	10	20	3	\$.30



**Hubbell Convenience Outlet Receptacles**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Brush brass finish. Double T slot.

Cat. No.	Sched-ule	Plate Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6282	H	2 3/4 Bevel Edge	1	50	18	\$.85
7261	H	2 3/4 Square Edge	1	50	18	.85



**Hubbell Convenience Outlet Receptacles**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Brush brass finish. Double T slot.

Cat. No.	Sched-ule	Plate Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6283	H	3 5/8 Bevel Edge	1	50	25	\$.95
7262	H	3 5/8 Square Edge	1	50	25	.95



**Hubbell 3-Wire Polarized Composition Round Flush Receptacles**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Screw holes in mounting straps, 1 1/4 inches on centers, tapped for 8x32 screw holes. A round hole 1 1/2 inches in diameter is necessary to accommodate the receptacles.

No. 7214 is equipped with two binding screws only, the third terminal being grounded direct to the back of the mounting strap by a metal shunt.

No. 7215 is equipped in the usual way with three binding screws for regular three-wire work, and is not grounded to the mounting strap.

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7214	H	Grounded.....	10	30	18	\$.65
7215	H	Not Grounded.....	10	30	18	.65



**Hubbell 3-Wire Polarized Wall Receptacles**

*Schedule H*

Screw holes, 1 1/4 inches on centers. Outside diameter of base, 2 1/2 inches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6047	Concealed Base... 10 Amp., 250 Volts; 15 Amp., 125 Volts	10	50	25	\$.50
6059	Concealed Base... 20 Amperes, 250 Volts	10	30	25	\$.65





## Hubbell Single Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
*Schedule II*

Supporting screw holes are spaced  $3\frac{3}{32}$  inches.  
For flush plates see another page.  
Carton, 10; standard package, 100.

### Top Wired



No. 5547

Cat. No.	Description	Pkg. Wt. Lbs.	Price Each
5547	Black Porcelain..	40	\$.30
5850	Black Composition....	45	.30

### Side Wired

7500	Black Porcelain..	23	\$.30
7550	Brown Composition...	21	.30

Brown composition is standard on No. 7550 but black composition may be had where so specified, at the same price.



No. 7500

## Hubbell Duplex Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
*Schedule II*

Supporting screw holes are spaced  $3\frac{3}{32}$  inches.  
For flush plates see another page.  
Carton, 10; standard package, 100.

### Top Wired



No. 6257

Cat. No.	Description	Pkg. Wt. Lbs.	Price Each
6257	Black Porcelain..	35	\$.48
5890	Black Composition...	35	.48

### Side Wired

7525	Black Porcelain..	32	\$.48
7575	Brown Composition...	30	.48

Brown composition is standard on No. 7575 but black composition may be had where so specified, at the same price.



No. 7525

## No. 7595 Hubbell Duplex Composition Flush Receptacles

With Wide Plaster Ears

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Brown composition is standard but black composition will be furnished if desired at no extra charge.



Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7595	H	10	100	16	\$.50

## Hubbell Composition Convenience Outlets

With  $3\frac{1}{4}$  and 4-Inch Round Steel Box Covers Attached

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Standard finish of covers is black japan. Cadmium finish may be had on special order at no advance in price.

### Single Convenience Outlets

With  $3\frac{1}{4}$ -Inch Cover

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7135	H	10	100	40	\$.35

With 4-Inch Cover

7136	H	5	50	25	\$.40
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### Duplex Convenience Outlets

With 4-Inch Cover

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7137	H	5	50	27	\$.60
7260	H	5	50	28	.55



## Hubbell Composition Convenience Outlets

For Screwless Bakelite Plates

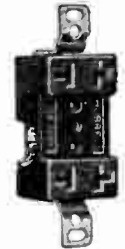
10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
*Schedule II*

These convenience outlets are designed for use with Hubbell screwless bakelite plates only, and are regularly furnished in brown throughout.

Black composition may be had when so specified at no advance in price.



No. 7125



No. 7126

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7125	Single, Brown.....	10	100	20	\$.33
7126	Duplex, Brown.....	10	100	30	\$.53

### Single Convenience Outlets

### Duplex Convenience Outlets

## Hubbell Polarized Porcelain Flush Receptacles

*Schedule II*

Will fit standard single convenience outlet plates.

Supporting screw holes spaced  $3\frac{3}{32}$  inches.

10 Amperes, 250 Volts  
15 Amperes, 125 Volts



Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5566	Black Porcelain	10	30	12	\$.40
5552	Black Porcelain	10	30	12	\$.75

20 Amperes, 250 Volts

## Hubbell Single Convenience Outlets

For Lift Cover Plates

10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
*Schedule II*

Supporting screws are spaced  $3\frac{3}{32}$  inches on centers.

Carton, 10. Standard package, 50. Standard package weight, 40 pounds.



No. 5579

Cat. No.	Description	Price Each
5579	Black Porcelain	\$.35
6980	Black Composition.....	.35



No. 6980

## Hubbell Porcelain Pilot Light Receptacles

With Lamp

This porcelain flush lamp receptacle designed for ruby jewel is a warning signal to indicate when the current is on or off and may be used either for remote control or with switch and receptacle.

The lamp is G-8 type, clear, with candelabra base, 2-c.p., 125 volts.



Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7192	F	Porcelain Receptacle	10	30	17	\$.70
7219	F	Lamp Only.....	10	30	3	.35

## Hubbell Polarized Porcelain Flush Receptacles

and 4-Inch Round Steel Box Covers Attached

Schedule H



No. 7270

\*These receptacles will readily fit 3/4-inch outlet boxes when only one or two box connectors are used. When three or four box connectors are needed the receptacles with 4-inch covers are required. This action is necessary since the insertion of these particular receptacles in a 3/4-inch box with three or four connectors is a mechanical impossibility.

Black japanned outlet box covers are standard. Cadmium finish covers can be furnished on special order at no advance in price.

Cat. No.	Description	10 Amperes, 250 Volts		15 Amperes, 125 Volts		Price Each
		Car-ton	Std. Pkg.	Std. Pkg.	Wt. Lbs.	
*7270	No. 5566 Porcelain Receptacle with 3/4-Inch Cover	10	30	20	20	\$ .45
7271	No. 5566 Porcelain Receptacle with 4-Inch Cover	5	30	22	22	.50
20 Amperes, 250 Volts						
*7272	No. 5552 Porcelain Receptacle with 3/4-Inch Cover	10	30	20	20	\$ .80
7273	No. 5552 Porcelain Receptacle with 4-Inch Cover	5	30	22	22	.85

## Hubbell Porcelain Radio Outlet Receptacles and Plates

Single and Duplex

Schedule F



No. 2139

These receptacles are installed flush in the wall or base board and used for radio ground or aerial connection, batteries or as an outlet for radio head pieces or loud speakers. Standard finish of plates is brush brass.

Depth of receptacle base, 1 inch. Screw hole spacings standard, same as tumbler switches.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
2139	Single	10	30	9	\$ .50
2145	Duplex	10	30	9	.70

### Plates for No. 2139 Single Radio Outlets

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
2137	Single Brush Brass Plate, .040"	10	30	10	\$ .14
2138	2-Gang Brush Brass Plate, .040"	5	15	9	.28
2140	3-Gang Brush Brass Plate, .040"	2	10	7	.42
2141	Single Brush Brass Plate, .060"	10	30	11	.18
2142	Single Sand Blast Finish Bakelite Plate	10	30	4	.15
2143	Single Ribbed Finish Bakelite Plate	10	30	4	.15
2144	Single Screwless Bakelite Plate with Under-Plate No. 7171	10	30	5	.35

### Plates for No. 2145 Duplex Radio Outlets

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
2146	Single Brush Brass Plate, .040"	10	30	10	\$ .14
2147	2-Gang Brush Brass Plate, .040"	5	15	9	.28
2148	3-Gang Brush Brass Plate, .040"	2	10	7	.42
2149	Single Brush Brass Plate, .060"	10	30	11	.18
2150	Single Screwless Bakelite Plate with Under-Plate	10	30	10	.35
2151	Under-Plate for No. 2150	10	30	5	.05

## Hubbell Polarized Wall Receptacles

Schedule H

### Concealed Base



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
5885	10	30	9	\$ .40
5621	10	30	14	\$ .50

### Cleat Base

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
5886	10	30	13	\$ .40
5622	10	30	18	\$ .50



### Molding Base



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
5887	10	30	13	\$ .45
5623	10	30	18	\$ .55

### Conduit Box Base

20 Amperes, 250 Volts

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
5757	10	30	18	\$ .50



## Hubbell 2-Wire Porcelain Twist-Lock Receptacles

Porcelain Flush Receptacles

20 Amperes, 250 Volts

Supporting screw holes are spaced 3 3/8 inches.

This side wired receptacle fits any standard single convenience outlet plates.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7210	H	10	50	13	\$ .40

### Porcelain Receptacles with 3/4-Inch Cover

20 Amperes, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7216	H	5	50	27	\$ .45

### Porcelain Receptacles with 4-Inch Cover

20 Amperes, 250 Volts

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7217	H	5	30	18	\$ .50



Standard finish of covers is black japan. Cadmium finish covers may be had on special order at no advance in price.

## Hubbell 2-Wire Twist-Lock Cord-Grip Plug Caps

20 Amperes, 250 Volts  
Composition cap, steel covered, cadmium plated.



Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7102	H	9/16	10	30	7	\$ .40
7238	H	5/8	10	30	7	.40

## Hubbell 3-Wire Polarized Flush Receptacles

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

### Schedule II



Supporting screw holes,  $3\frac{3}{32}$  inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
6051	Black Composition Receptacle	10	50	25	\$.85
9051	Black Porcelain Receptacle...	10	50	25	.85

## No. 7189 Hubbell 3-Wire Composition Flush Receptacles

With Grounding Shunt

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

### Schedule II

This receptacle is similar to catalogue No. 6051 and is intended for use where a 3-wire receptacle is desired wholly for grounding purposes. Grounding is accomplished by a brass shunt from one terminal to the metal back strap and then to the outlet box through the supporting lug.

Standard single convenience outlet plates are used on No. 7189.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7189	Composition Receptacle.....	10	50	25	\$.85



## Hubbell 3-Wire Polarized Flush Receptacles

With 4-Inch Round Steel Box Covers Attached

### Schedule II

Black japanned outlet box covers are standard. Cadmium finish covers furnished on special order at no advance in price.



Cat. No.	Description	10 Amperes, 250 Volts		15 Amperes, 125 Volts		Price Each
		Car-ton	Std. Pkg.	Car-ton	Std. Pkg.	
7275	No. 6051 Composition Receptacle with 4-Inch Cover.....	5	50	30		\$.95
7277	No. 6810 Porcelain Receptacle with 4-Inch Cover.....	5	30	20		\$1.05

## Hubbell 3-Wire Twist-Lock Porcelain Flush Receptacles and Caps

20 Amperes, 250 Volts

### Schedule II



Supporting screw holes spaced  $3\frac{3}{32}$  inches.

Standard single convenience outlet plates for No. 7310 will be found on another page



No. 7311

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7310	Receptacle.....	10	30	15	\$.95
7311	Cap for $2\frac{3}{32}$ -Inch Diameter Cords.	10	30	12	.65

No. 7310

## No. 7051 Hubbell 3-Wire Duplex Composition Flush Receptacles

Side Wired

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

### Schedule II



No. 7051

Brown composition is standard but black composition will be supplied on special order at the same price.

Supporting screw holes are spaced  $3\frac{3}{32}$  inches.

Standard 3-wire caps for the above receptacle will be found on another page.

Flush plates for No. 7051 are listed below.



No. 7051 and No. 8413 Assembled

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7051	Composition Receptacles, Duplex....	10	30	18	\$1.25

## Plates for No. 7051 Duplex Receptacles

### Schedule II

#### Struck-Up—.040 Inch Metal—Brush Brass

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
8410	Single Plate	10	30	11	\$.14
8411	2-Gang Plate	*	†	10	.28
8412	3-Gang Plate	*	†	9	.42

#### Struck-Up—.040 Inch Metal—Lacco Brass

8422	Single Plate	10	30	11	\$.10
8423	2-Gang Plate	*	†	10	.20
8424	3-Gang Plate	*	†	9	.30

.040-inch gang plates up to and including 8 gangs can be furnished at 22 cents list per gang for brush brass and 18 cents list per gang for Lacco.

#### Struck-Up—.060 Inch Metal—Brush Brass

8413	Single Plate	10	30	12	\$.18
8414	2-Gang Plate	*	†	11	.36
8415	3-Gang Plate	*	†	10	.54

.060-inch gang plates up to and including 8 gangs can be furnished at 26 cents list per gang for brush brass and 22 cents list per gang for Lacco.

#### Solid Brass—.100 Inch Metal—Brush Brass

8416	Single Plate	10	30	18	\$.34
8417	2-Gang Plate	*	†	17	.68
8418	3-Gang Plate	*	†	16	1.02

.100-inch solid brass gang plates beyond 3 gangs can be furnished at 40 cents per gang for brush brass and 36 cents per gang for Lacco.

\*Carton quantity is 10 gangs.  
†Standard package quantity is 30 gangs.  
Any of the above plates may be assorted for standard package or carton quantity.  
Special finishes listed on another page.  
Special features shown elsewhere.

## No. 6810 Hubbell 3-Wire Polarized Porcelain Flush Receptacles

20 Amperes, 250 Volts

### Schedule II

Will fit standard single convenience outlet plates.

Supporting screw holes are  $3\frac{3}{32}$  inches on centers.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
6810	Porcelain Receptacle...	10	30	15	\$.95



## Hubbell 4-Wire Composition Flush Receptacles

**Polarized**  
20 Amperes, 250 Volts

Standard single convenience outlet plates are used on the No. 7250 Receptacle.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7250	H	10	20	10	\$1.10



## Hubbell 4-Wire Polarized Composition Flush Receptacles

**With 4-Inch Round Steel Box Covers Attached**

*Schedule H*



Black japanned outlet box covers are standard. Cadmium finish covers can be furnished on special order at no advance in price.

No. 7279

20 Amperes, 250 Volts

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7279	No. 7250 Composition Receptacle with 4-Inch Cover Attached...	5	20	12	\$1.20

## Hubbell 2-Wire Polarized Porcelain Flush Receptacles

30 Amperes, 250 Volts

*Schedule H*



This receptacle is made throughout of a special black porcelain, the face of which is finished black glaze. Supporting lugs are of heavy metal, and have mounting holes suitably spaced to fit a standard 2-gang outlet box 2 inches deep or over. Entrance slots, to receive cap blades, are arranged to prevent the reversing of polarity. Contact blades are of heavy gauge copper.

It is recommended that this receptacle be controlled by a switch.

No. 7127 cap is made of black composition, steel covered and fitted with adjustable cord grip. Binding screws are extra large and are protected by an insulating disc which fits down over the blades, completely closing in the wiring terminals. Contact blades are of heavy gauge copper and are polarized. Exposed metal parts are galvanized finish to prevent corrosion.

Plate is made of .060-inch brass of standard 2-gang size, 4 1/2 x 4 1/8 inches. Standard finish is brush brass. For special finishes see another page. The advance for the special finish should be figured in accordance with paragraph E in foot notes listed elsewhere.

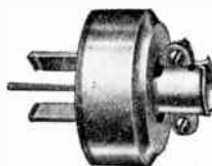
Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7070	Black Porcelain Receptacle.....	1	5	7	\$2.25
7071	Black Porcelain Cap, 3/8-Inch Cord Hole.....	1	5	3	1.10
*7127	Metal Covered Cord Grip Cap...	1	5	3	1.35
7072	Brass Plate.....	1	5	2	1.00

\*Cord hole size, 5/8 to 1 inch.

## Hubbell 3-Wire Polarized Porcelain Flush Receptacles

30 Amperes, 250 Volts  
*Schedule H*

A receptacle of rugged construction, made throughout of a special black porcelain, the face of which is finished with black glaze.



The supporting lugs are of heavy metal, with mounting holes suitably spaced to fit a standard 2-gang outlet box 2 inches deep or over.

Entrance slots, to receive cap blades, are arranged to prevent the reversing of polarity. Contact blades are of heavy gauge copper.

This receptacle should be controlled by a switch.

Cap No. 7113 is black composition, steel covered and fitted with adjustable cord grip. Binding screws are extra large and are protected by an insulating disc which fits down over the blades, completely closing in the wiring terminals. Contact blades are of heavy gauge copper and are polarized. Exposed metal parts are galvanized finish to prevent corrosion.

Plate is .060-inch brass, of standard 2-gang size, 4 1/2 x 4 1/8 inches. Standard finish is brush brass. For special finishes see another page. The advance for the special finish should be figured in accordance with paragraph E in footnotes shown elsewhere.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
7112	Black Porcelain Receptacle.....	1	5	8	\$3.60
7113	Metal-Covered Cord Grip Cap...	1	5	3	1.65
7114	Brass Plate.....	1	5	2	1.00

## Suitable Fittings for Hubbell 30-Ampere Polarized Flush Receptacles

The 2 and 3-wire 30-ampere receptacles will fit the following fittings:

APPLETON ELECTRIC Co.—19025, 19026, 19010, 19011 Boxes. GSC-2 Cover on GSB-2 Box. 8486 Cover on 4-SJ-1/2, 4-SJ-4/8, 4-SJD-1/2, 4-SJD-3/4, 4-SJD-1 Boxes. 8469 and 8469-A Covers on 4-S-1/2, 4-S-3/4 and "4-S Special" Boxes. 14097 Cover on type FS two-gang Unilet fits 7070 only. 14098 Cover required for 7112.

CHICAGO FUSE MFG. Co.—102G and 102GS Covers on 101, 102 and "102 Special" 4-inch Square Boxes. 110G Cover on 110 and 111-4 1/8 Boxes. 160 Sectional Box. 322 Cover on 302 Box.

CROUSE HINDS Co.—Two-gang FS series Condulets. Covers for use with 7070 on these condulets are S-612—surface type. SS-612—flush type.

Covers for use with 7112 on these condulets are S-622—surface type and SS-622—flush type.

NATIONAL METAL MLDG. Co.—24K, 24KK and 24KL Covers on 2400, 2401, 2402, 2403, 2404, 2405 and 2410 Boxes. 25K Cover on 2500, 2501, 2514, 2515 and 2590 Boxes. 30C2 Cover on 3002 and 3012 Boxes. 4230 and 4231 Boxes.

PRATT CHUCK Co.—52C18 and 52C21 Covers on 51151 and 52151 Boxes.

TAPLET MFG. Co.—Two-Gang FS series Taplets. Hubbell Plate Nos. 7072 and 7114 will fit above Taplets.

GENERAL ELEC. Co.—SP52C17 and SP52C18 Covers on SP51151 and SP52151 4-inch Square Boxes. SP6751 Cover on SP6733 Box.

STEEL CITY ELEC. Co.—2GC Cover on 2G Box. and Cat. Nos. 52C17, 52C18, 52C19 on 51151 and 52151 boxes, and 72C18 Cover on 72171 box.

THOMAS & BETTS.—32 (Box and Cover Complete).

## Hubbell Composition Separable Attachment Plugs

**Pony Size—Parallel Blade**  
**With Composition Cap**  
 660 Watts, 250 Volts  
*Schedule H*



No. 7000

Regularly furnished in solid black composition but may be had in solid brown composition at same price.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7000	Plug, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	25	500	63	\$ .15
7001	Body Only		25	500	40	.07
7002	Cap Only, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	25	500	35	.08
7014	Cap Only, Oval Cord Hole	$\frac{5}{16} \times \frac{13}{64}$	25	500	35	.08
7031	Cap Only, Round Cord Hole	$\frac{1}{4}$	25	500	35	.08
7066	Cap Only, Round Cord Hole	$\frac{5}{16}$	25	500	35	.08
7068	Cap Only, Round Cord Hole	$\frac{13}{32}$	25	500	35	.08
7079	Cap Only, Oval Cord Hole	$\frac{3}{16} \times \frac{9}{32}$	25	500	35	.08

## Hubbell Composition Polarized Attachment Plugs

**With Composition or Brass Covered Caps**  
 660 Watts, 250 Volts  
*Schedule H*



Polarization is effected by providing a cap with one wide and one narrow blade which fit in corresponding slots in plug base.

All Hubbell Plugs and Receptacles having double T slots will take polarized caps Nos. 6764 and 6773.

Nickel-plated screw shells are standard on all attachment plugs.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6989	Plug Complete		25	250	35	\$.20
6764	Cap	$\frac{13}{32}$	25	250	18	.10
6773	Brass Covered Cap	$\frac{13}{32}$	25	250	18	.25
5917	Plug Body		25	250	18	.10

## Hubbell Composition Separable Attachment Plugs

**Pony Size—Parallel Blades**  
**With Metal Covered (Armored) Cap**  
 660 Watts, 250 Volts  
*Schedule H*



No. 7243

Contact blades will fit double T slots. Nickel-plated screw shells are standard.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7243	Plug, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	25	250	40	\$.20
7001	Body Only		25	500	40	.07
7220	Cap, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	25	250	25	.13
7230	Cap, Oval Cord Hole	$\frac{5}{16} \times \frac{13}{64}$	25	250	25	.13
7231	Cap, Round Cord Hole	$\frac{1}{4}$	25	250	25	.13
7232	Cap, Round Cord Hole	$\frac{5}{16}$	25	250	25	.13
7233	Cap, Round Cord Hole	$\frac{13}{32}$	25	250	25	.13
7234	Cap, Oval Cord Hole	$\frac{3}{16} \times \frac{9}{32}$	25	250	25	.13

## Hubbell Bakelite Separable Attachment Plugs

**Standard Size, Parallel Blades**  
 660 Watts, 250 Volts  
*Schedule H*



No. 9000

Made of genuine bakelite and regularly furnished in solid brown or black colors. Brown bakelite will be furnished unless otherwise specified.

Nickel-plated screw shells are standard.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
9000	Plug, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	10	100	20	\$.25
9004	Plug, Round Cord Hole	$\frac{13}{32}$	10	100	20	.25
9001	Plug, Body Only		10	100	14	.12
9002	Cap Only, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	10	100	12	.13
9003	Cap Only, Round Cord Hole	$\frac{13}{32}$	10	100	12	.13

## Hubbell Composition Separable Attachment Plugs

**Standard Size, Parallel Blades**  
**With Composition or Brass Covered Caps**  
 660 Watts, 250 Volts  
*Schedule H*



No. 5915

Nickel-plated screw shells are standard.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
5915	Plug, Round Cord Hole	$\frac{13}{32}$	25	250	35	\$.20
6707	Plug, Round Cord Hole	$\frac{5}{16}$	25	250	35	.20
5917	Plug, Body Only		25	250	18	.10
5964	Composition Cap	$\frac{13}{32}$	25	250	22	.10
5965	Brass Covered Cap	$\frac{13}{32}$	25	250	23	.25
6708	Composition Cap	$\frac{5}{16}$	25	250	18	.10
6740	Brass Covered Cap	$\frac{5}{16}$	25	250	18	.25

## Hubbell Polarized Bakelite Separable Attachment Plugs

660 Watts, 250 Volts  
*Schedule H*



No. 9007

Polarization is effected by providing a cap with one wide and one narrow blade which fit in corresponding slots in the plug base.

All Hubbell plugs and receptacles having double T slots will take polarized caps Nos. 9007 and 9008.

Nickel-plated screw shells are standard on all plugs. Special net prices in quantities of 1000 or more.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
9007	Cap, Oval Cord Hole	$\frac{3}{8} \times \frac{9}{32}$	10	100	12	\$.13
9008	Cap, Round Cord Hole	$\frac{13}{32}$	10	100	12	.13
9001	Plug Body		10	100	14	.12



No. 9001

## Hubbell Composition Separable Attachment Plugs

**Standard Size, Parallel Blades**  
**With Steel Covered (Armored) Cap**  
 660 Watts, 250 Volts  
*Schedule H*



No. 6828

Nickel-plated screw shells are standard.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6828	Plug, Round Cord Hole	$\frac{13}{32}$	25	250	40	\$.26
7033	Plug, Round Cord Hole	$\frac{5}{16}$	25	250	40	.26
5917	Plug, Body Only		25	250	18	.10
6827	Cap Metal Covered (Armored)	$\frac{13}{32}$	25	250	25	.16
7034	Cap Metal Covered (Armored)	$\frac{5}{16}$	25	250	25	.16

## Hubbell Paraline Convertible Separable Attachment Plugs

660 Watts, 250 Volts  
*Schedule H*



No. 6670

This cap is fitted with convertible contact blades which may be adjusted by a twist of the fingers to fit parallel, tandem and right angle (polarized) form of slots.

Nickel-plated screw shells are standard on all attachment plugs.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6670	Plug, with Paraline Cap	$\frac{13}{32}$	25	100	25	\$.30
6671	Paraline Cap	$\frac{13}{32}$	25	100	12	.20
5917	Plug Body Only		25	100	18	.10

**Hubbell Composition Separable Attachment Plugs**

Large Size—Tandem Blades

660 Watts, 250 Volts  
Schedule II



No. 5467

With double T slots.  
Nickel-plated screw shells are standard on all attachment plugs.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5467	Plug, Complete	13/32	10	250	65	\$ .38
5420	Cap	13/32	25	100	15	.13
5612	Plug Body		10	250	48	.25

**No. 6712 Hubbell Composition Bayonet Base Attachment Plugs**

660 Watts, 250 Volts



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6712	H	25	100	13	\$.20

**Hubbell Adapters**

660 Watts, 250 Volts



Cat. No.	Sched-ule	Kind	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5897	II	Composition	10	50	8	\$.30
5424	H	Porcelain	10	50	8	.20

**No. 5598 Hubbell Porcelain Heavy Duty Polarized Attachment Plugs**

660 Watts, 250 Volts  
Schedule II



Standard finish for brass-covered caps is brush brass.

For special finishes, see another page.

Polarized cap No. 5567 will fit 10-ampere polarized receptacles listed on another page.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5598	Plug Complete	13/32	10	30	20	\$.75
6672	Body Only		10	30	15	.25
5567	Brass-Covered Cap	13/32	10	30	12	.50

**Hubbell Moisture-Proof Rubber Casings and Rings**



No. 5583



No. 5589

This casing is designed to protect the caps of Nos. 5406 and 5467 separable attachment plugs. It is made of soft rubber, and is easily and quickly sprung in place. The top of the casing grips the cord tightly, and by adjusting No. 5589 rubber ring, as illustrated, a weatherproof plug is the result.



Showing Casing attached

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5583	H	Rubber Casing	*	30	5	\$.30
5589	H	Rubber Ring	*	30	1	.05

\*Packed in bulk.

**Hubbell Polarized Knostrain Caps**

20 Amperes, 250 Volts

Schedule II



No. 5665 Showing Strain Relief Bushing

These caps have Knostrain bushing and 1/2-inch cord hole.

They are suitable for use with No. 10 Tirex, No. 12 Super-service and No. 14 Duracord 2-conductor cord.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5665	Porcelain	10	30	12	\$1.00
6589	Composition	10	30	12	1.05

**Hubbell Side Wire Outlet Current Taps**

Series—Composition  
660 Watts, 250 Volts

Has parallel blades. May be used with all styles of double T slot attachment plugs and plug receptacles.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7029	H	10	50	15	\$.40



**No. 5515 Hubbell Angle Lamp Receptacles**

660 Watts, 250 Volts

A porcelain receptacle for show case and window lighting.  
Has tandem blades and fits all double T slot devices.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5515	H	10	50	12	\$.50



**Hubbell Adapters for Polarized Plug Receptacles**

660 Watts, 250 Volts  
Schedule H



No. 6981

No. 6981 is designed for use with 10-ampere wall and flush receptacles listed on another page.

No. 5898 is designed for use with 20-ampere wall and flush receptacles listed on another page.



No. 5898

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6981	Composition	10	30	7	\$.35
5898	Porcelain	10	30	7	.35

**Hubbell Signalite Current Taps With Tandem Blade Contacts**

10 Amperes, 125 Volts  
Schedule H



Signalites are suitable for use with all electrically-heated devices of 10 amperes, 125 volts or less.

Each plug is supplied with an electro-welded lamp guard to protect the lamp from breakage.

All brass parts are nickel-plated.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6108	Without Lamp	10	10	4	\$.45
6109	Complete with Red Lamp	10	10	4	.80
6101	125-Volt Red Lamp	10	10	1	.35





## No. 5518 Hubbell Cord Connectors

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
5518	Plug Complete	13/32	25	50	13	\$.43
5574	Body Only	13/32	25	50	9	.30
5420	Cap Only	13/32	25	100	4	.13

## No. 6116 Hubbell Cord Connectors

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6116	Plug Complete	13/32	25	50	12	\$.40
6118	Body Only	13/32	25	50	8	.30
5964	Cap Only	13/32	25	250	21	.10



## No. 6180 Hubbell Cord Connectors

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule II

Measures but 1 1/8 inches over all

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6180	Plug Complete	13/32	10	50	9	\$.40
6630	Body Only	13/32	10	50	5	.30
6181	Cap Only	13/32	10	50	3	.10



## No. 6821 Hubbell Polarized Cord Connectors

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6821	Plug Complete	13/32	10	50	12	\$.45
6822	Body Only	13/32	10	50	8	.30
6918	Cap Only	13/32	25	50	4	.15



## No. 5699 Hubbell Cord Connectors

With Strain Relief Caps

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule II

For 2-conductor cords.

Nos. 16 and 18 standard, No. 18 super-service and No. 18PS Duracord.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
5699	Plug Complete	10	50	25	\$1.35
6095	Body Only	10	50	14	.80
5700	Cap Only	10	50	12	.55



## Hubbell Polarized Cord Connectors

20 Amperes, 250 Volts—Schedule II

Cord Connectors Complete

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6706	10	30	15	\$1.30

Composition Bodies Only

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6717	10	30	10	\$.75

Brass Covered Caps,  
1/2-Inch Cord Hole

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6156	10	30	15	\$.55



## Hubbell 2-Wire Cord-Grip Connectors

T Slots—Tandem Blades

Composition. Caps are steel covered, cadmium plated.

With 1/16-Inch Cord Hole

10 Amp. 250 Volts; 15 Amp., 125 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7083	H	Complete	10	50	18	\$.80
7084	H	Body	10	50	11	.50
7056	H	Cap	10	50	10	.30



With 5/8-Inch Cord Hole

10 Amp., 250 Volts; 15 Amp., 125 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7186	H	Complete	10	50	18	\$.80
7187	H	Body	10	50	11	.50
7183	H	Cap	10	50	10	.30

## Hubbell 2-Wire Polarized Cord-Grip Connectors

Composition. Caps are steel covered, cadmium plated.

With 1/16-Inch Cord Hole

10 Amp., 250 Volts; 15 Amp., 125 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7090	H	Complete	10	30	17	\$1.10
7091	H	Body	10	30	11	.65
7092	H	Cap	10	30	6	.45



With 5/8-Inch Cord Hole

10 Amp., 250 Volts; 15 Amp., 125 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7239	H	Complete	10	30	17	\$1.10
7240	H	Body	10	30	11	.65
7241	H	Cap	10	30	6	.45

20 Amp., 250 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7085	H	Complete	10	30	18	\$1.30
7086	H	Body	10	30	11	.75
7058	H	Cap	10	30	10	.55

## Hubbell 2-Wire Twist-Lock Cord-Grip Connectors

Composition. Caps are steel covered, cadmium plated.

The blades of Twist-Lock Caps are curved to engage correspondingly shaped slots in the body. A twist to the right locks the blades in the contact springs, which can only be withdrawn by reversing the turn.

With 1/16-Inch Cord Hole

20 Amperes, 250 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7100	H	Complete	10	30	18	\$1.00
7101	H	Body	10	30	12	.60
7102	H	Cap	10	30	7	.40



With 5/8-Inch Cord Hole

20 Amperes, 250 Volts

Cat. No.	Sched-ule	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
7236	H	Complete	10	30	18	\$1.00
7224	H	Body	10	30	12	.60
7238	H	Cap	10	30	7	.40

No. 7100

## No. 5652 Hubbell Reverse Attachment Plugs

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule II



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
5652	Attachment Plug	10	50	20	\$.75
6098	Base Only	10	50	15	.45
6099	Cap Only, with Knife Blade Contacts	10	50	10	.30

### Hubbell 2-Wire Twist-Lock Cord-Grip Motor Plugs

Composition. Caps are steel covered, cadmium plated. The blades of Twist-Lock Caps are curved to engage correspondingly shaped slots in the body. A twist to the right locks the blades in the contact springs, which can only be withdrawn by reversing the turn.



#### With 1/16-Inch Cord Hole 20 Amperes, 250 Volts

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7190	H	Complete	10	30	17	\$.90
7101	H	Body	10	30	12	.60
7191	H	Base	10	30	6	.30

#### With 5/8-Inch Cord Hole 20 Amperes, 250 Volts

Cat. No.	Schedule	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7223	H	Complete	10	30	17	\$.90
7224	H	Body	10	30	12	.60

### No. 5894 Hubbell Motor Attachment Plugs

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

#### Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
5894	Plug Complete.	1 3/32	10	50	14	\$.43
5574	Body Only	1 3/32	25	50	9	.30
5896	Base Only	1 3/32	25	50	5	.13



### Hubbell Cord-Grip Motor Attachment Plugs

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

#### Schedule II



Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7256	Plug Complete..	5/8	10	50	30	\$.61
7257	Cord-Grip Body for No. 7256...	5/8	10	50	20	.50
7258	Plug Complete..	1 1/4	10	50	30	.61
7259	Cord-Grip Body for No. 7258...	1 1/4	10	50	20	.50
6631	Base Only for Nos. 7256 and 7258		10	50	15	.11

Nos. 7257 and 7259 Bodies may also be used with Catalogue No. 6808 motor plug base as shown on this page.

### No. 6826 Hubbell Motor Attachment Plugs

With Parallel Blades and Slots  
10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule II



Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
6826	Plug Complete.	1 3/32	25	50	12	\$.43
6118	Body Only	1 3/32	25	50	8	.30
6823	Base		25	50	4	.13

### Hubbell Polarized Motor Attachment Plugs

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

#### Schedule II

Composition.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
7917	Plug Complete	10	50	15	\$.43
6822	Body Only	10	50	10	.30
7918	Base Only	10	50	8	.13



### Hubbell 2-Wire Twist-Lock Cord-Grip Flush Motor Couplings

20 Amperes, 250 Volts

#### Schedule H

The Cord-Grip accommodates 1/16-inch diameter cords.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
8809	Coupling Complete	10	30	20	\$1.10
7101	Body Only	10	30	12	.60
8808	Base Only	10	30	8	.50

### No. 6807 Hubbell Motor Attachment Plugs

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

#### Schedule II



No. 6807



No. 6808



No. 6630

Base is composition with metal casing. Composition body. Supporting screw holes are spaced 1 3/4 inches on centers. Diameter of brass shell, 1 3/8 inches.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
6807	Plug Complete	1 3/32	10	50	13	\$.60
6808	Base Only	1 3/32	10	50	8	.30
6630	Body Only	1 3/32	10	50	5	.30

### No. 9807 Hubbell Polarized Flush Motor Plugs

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

#### Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
9807	Plug Complete	1 3/32	10	50	13	\$.60
9808	Flush Base Only	1 3/32	10	50	8	.30
6630	Plug Body Only	1 3/32	10	50	5	.30

### No. 6179 Hubbell Motor Attachment Plugs

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

#### Schedule II



Measurement assembled is 1 5/8 inches in length and 1 1/8 inches in diameter at bottom of base.

The portion with contact blades is arranged with holding slots or grooves for fitting into the apparatus.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
6179	Plug Complete	1 3/32	10	50	9	\$.41
6630	Body Only	1 3/32	10	50	5	.30
6978	Plug Complete	5/16	10	50	9	.41
6979	Body Only	5/16	10	50	5	.30
6631	Base		10	50	3	.11

### No. 6277 Hubbell Polarized Motor Attachment Plugs

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

#### Schedule II

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt. Lbs.	Price Each
6277	Plug Complete	1 3/32	10	30	12	\$.85
6278	Body Only	1 3/32	10	30	9	.55
6279	Base Only	1 3/32	10	30	4	.30



## No. 6143 Hubbell Composition Motor Plugs

With Knostrain Bushing  
10 Amp., 250 Volts; 15 Amp., 125 Volts

Base slotted for wiring. Screw holes for attaching base to apparatus are spaced  $1\frac{29}{32}$  inches on centers. Diameter of base,  $2\frac{1}{4}$  inches. Height over all,  $2\frac{3}{16}$  inches.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6143	H	10	50	25	\$.70



## Hubbell Composition Connector Bodies

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

With double T slots.

Cat. No.	Sched-ule	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5574	H	$1\frac{13}{32}$	25	50	10	\$.30
7080	H	$5\frac{1}{16}$	25	50	10	.30

## No. 5826 Hubbell Cartridge Fuse Attachment Plugs

660 Watts, 250 Volts—Schedule H

Complete with 6-ampere Type C baby fuse. If wanted without fuse, deduct 25 cents from the price. Fuse length overall,  $1\frac{1}{2}$  inches. Diameter,  $1\frac{13}{32}$  inch.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5826	10	50	18	\$.75



## Hubbell Bakelite Fuse Plugs Tandem Blades—6 Amperes, 125 Volts

For use where small cartridge fuses up to 6-amp. are desired on both sides of the line. Furnished less fuses. Will receive 2 ferrule type enclosed cartridge fuses, overall length  $1\frac{1}{2}$  inches, diameter of ferrule  $1\frac{13}{32}$  inch.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7132	H	10	30	8	\$.70



## Hubbell Te-Caps

660 Watts, 250 Volts



No. 6771

Hubbell Te-Caps are furnished with either tandem or parallel blades. Attached to an appliance or lamp cord, they serve as ordinary plug caps, and in addition provide T slots, into which may be plugged the tandem or parallel blades of any other plug cap.

They are made of composition.



No. 6772

Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6771	Tandem Blades.....	H	20	20	8	\$.25
6772	Parallel Blades.....	H	20	20	8	.25

## Hubbell Composition Fusible Plug Caps

Tandem Blades  
10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
Schedule H



No. 5525

With an extra set of binding screws for fuse wire. Converts fuseless plugs to fusible type.

Finish on brass-covered caps is brush brass. Special finishes see another page.



No. 5527

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5525	Composition Cap, $1\frac{13}{32}$ -Inch Cord Hole..	10	30	6	\$.30
*5527	Brass-Covered Composition Cap... with Knostrain Bushing...	10	30	8	.55

\*For 2-conductor cords Nos. 16 and 18 Standard, Nos. 16P and 18P Duracord.

## Hubbell Twin Te-Taps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



A multiple plug made of strong, black composition, designed to convert a single convenience outlet into a duplex.

Also converts a No. 1708 screw plug flush receptacle into a duplex convenience outlet by first screwing a standard attachment plug base into wall outlet and then inserting No. 7035 Te-Tap with parallel blades.

Can be used with all convenience outlets excepting those having lift cover plates.

Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7010	Tandem Blades.....	H	10	10	5	\$.50
7035	Parallel Blades.....	H	10	10	5	.50

## No. 6290 Hubbell Multiple Triplex Te-Taps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



A multiple attachment plug made of black porcelain. It has three outlets and is designed for use with all Hubbell Receptacles, except flush receptacles having lift cover.

Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6290	Knife-Blade Base...	H	1	10	15	\$.85

## Hubbell Single Outlet Current Taps

Multiple—Composition

660 Watts, 250 Volts

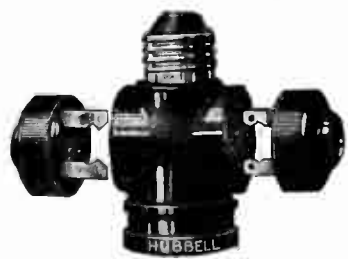


Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6338	With Composition Cap	H	10	50	25	\$.63
6339	Less Cap.....	H	10	50	20	.50

## Hubbell Double Outlet Current Taps

Multiple—Composition

660 Watts, 250 Volts



Cat. No.	Description	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6710	With 2 No. 5420 Comp. Caps..	H	10	20	12	\$.86
6711	Less Caps.....	H	10	20	10	.60

**No. 6900 Hubbell Triplex Table Taps**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



This device combines three Hubbell double T-slot outlets, arranged in multiple, with a connector plug, and may be fastened to the underside of a table or to a wall surface by means of two screws through

countersunk holes at either end, or may be used portably on table or desk.

The body is molded without break or seam of black composition, and is backed with green base.

Furnished complete with cord connector body, No. 5964 attachment plug cap, and 8 feet of black silk-covered cord.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6900	H	1	5	10	\$3.00

**No. 7020 Hubbell Switch-Plugs for Ceiling Fixtures**

3 Amperes, 250 Volts  
6 Amperes, 125 Volts

Schedule H



Provides a switch for independent control of the light and an ever ready standard T-slot outlet for electric iron, toaster or other electrically operated appliance.

Outlet can be used without switching on the light.

The Hubbell Switch-plug is highly desirable for kitchen units and may also be adapted for many other uses.

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7020	Composition Switch-Plug.	10	50	12	\$ .75
7023	Complete with 5 Feet 3-Conductor Black Cotton Cord.....	10	50	15	1.50

**Hubbell 3-Wire Polarized Cord-Grip Connectors**

Composition. Caps are steel covered, cadmium plated.

With 1/16-Inch Cord Hole

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7081	H	Complete	10	50	22	\$1.15
7082	H	Body	10	50	16	.70
7055	H	Cap	10	50	10	.45

With 5/8-Inch Cord Hole

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7307	H	Complete	10	50	22	\$1.15
7308	H	Body	10	50	16	.70
7309	H	Cap	10	50	10	.45

With 5/8-Inch Cord Hole

20 Amperes, 250 Volts



Cat. No.	Schedule	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7087	H	Complete	10	20	15	\$1.75
7088	H	Body	10	20	9	1.10
7089	H	Cap	10	20	6	.65

**Hubbell 3-Wire Twist-Lock Cord-Grip Connectors and Motor Plug**

20 Amperes, 250 Volts

Schedule H

Composition. Cord-Grips accommodate 2 3/4-inch diameter cords. Carton, 10. Standard package, 30.

Cord Connectors



Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price Each
7312	Connector Complete.	26	\$1.75
7313	Body Only	14	1.10
7311	Cap Only	12	.65

Motor Plugs

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price Each
7319	Plug Complete	26	\$1.50
7313	Body Only	14	1.10
7318	Base Only	12	.40



No. 7319

**No. 6408 Hubbell 3-Wire Polarized Cord Connectors**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule H



Cat. No.	Description	Size Cord Hole In.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6408	Connector Complete		10	50	20	\$ .75
6409	Body Only		10	50	15	.50
6149	Cap Only	3/16	10	50	6	.25
7252	Cap Only	1/4	10	50	6	.25

**Hubbell 3-Wire Polarized Surface Type Motor Plugs**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule H



Composition.

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7811	Plug Complete	10	50	23	\$ .75
6409	Body Only	10	50	15	.50
7810	Base Only	10	50	8	.25

Motor Plugs with Cord-Grips

Cord-Grip accommodates 5/8-inch diameter cords.



No. 7811

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7812	Plug Complete	10	50	25	\$ .95
7082	Body Only	10	50	16	.70
7810	Base Only	10	50	8	.25

**Hubbell 3-Wire Polarized Flush Motor Plugs**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Schedule H

Composition.

This motor plug has a 3/16-inch cord hole.

Diameter of base, 1 1/2 inches.

Mounting screw holes spaced 2 1/8 inches on centers.



Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7807	Plug Complete	10	50	25	\$1.05
7808	Base Only	10	50	10	.55
6409	Body Only	10	50	15	.50

**Hubbell 3-Wire Polarized Cord-Grip Flush Motor Plugs**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule H

Composition. For 5/8-inch diameter cord.

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7809	Plug Complete	10	50	26	\$1.25
7808	Base Only	10	50	10	.55
7082	Body Only—Cord-Grip	10	50	16	.70

**Hubbell 3-Wire Polarized Separable Attachment Plugs**

660 Watts, 250 Volts

Schedule H

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6042	Porcelain Base	10	100	25	\$ .30
6149	Composition Cap	10	50	6	.25
6150	Brass Covered Comp. Cap	10	50	7	.35



No. 6042

## No. 7052 Hubbell 2 to 3-Wire Composition Plug Adapters

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule H



This adapter has two tandem blades for insertion in any standard convenience outlet while the other end is equipped with three slots to take standard 10-ampere 3-wire caps as listed on another page.

Grounding of the third blade of the adapter is accomplished by the use of a binding post at the side of the body.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7052	Adapter, 2 to 3-Wire	10	30	12	\$ .40

## No. 7284 Hubbell 3-Wire Cord-Grip Motor Plugs

Polarized

30 Amperes, 250 Volts  
Schedule H

Composition.

The adjustable Cord-Grip accommodates cords from 5/8 to 1 inch in diameter.

The adjustable clamp grips the cord securely, thus relieving the strain from binding posts, and prevents the cord from unraveling.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7284	Motor Plug Complete.	1	5	11	\$4.15
7285	Motor Plug Base Only.	1	5	4	1.15
7283	Body Only	1	5	7	3.00

## No. 7282 Hubbell 3-Wire Cord-Grip Connectors

30 Amperes, 250 Volts

Schedule H

Polarized

Composition. The cap is steel covered, cadmium plated.

The adjustable Cord-Grip accommodates cords from 5/8 to 1 inch in diameter.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7282	Connector Complete.	1	5	11	\$4.65
7283	Body Only.....	1	5	7	3.00
7113	Cap Only.....	1	5	3	1.65



## Hubbell 4-Wire Polarized Cord-Grip Cord Connectors

20 Amperes, 250 Volts

Schedule H

Composition.

The Cord-Grip accommodates 3/4-inch diameter cords.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7350	Connector Complete.	10	20	20	\$2.20
7351	Body Only.....	10	20	12	1.35
7251	Cap Only.....	10	20	8	.85



## Hubbell Composition Plug Caps

Parallel Blades—Pony

10 Amperes, 250 Volts  
15 Amperes, 125 Volts



Cat. No.	Description	Sched-ule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7002	Oval Cord Hole	H	3/8 x 9/32	25	500	35	\$ .08
7014	Oval Cord Hole	H	5/16 x 13/32	25	500	35	.08
7031	Round Cord Hole	H	1/4	25	500	35	.08
7066	Round Cord Hole	H	5/16	25	500	35	.08
7068	Round Cord Hole	H	13/32	25	500	35	.08
7079	Oval Cord Hole	H	3/16 x 9/32	25	500	35	.08

## Hubbell Composition Plug Caps

Parallel Blades—Standard

10 Amperes, 250 Volts  
15 Amperes, 125 Volts



Cat. No.	Sched-ule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5964	H	13/32	25	250	22	\$ .10
6708	H	5/16	25	250	22	.10

## No. 6764 Hubbell Polarized Composition Plug Caps

Parallel Blades—Standard

10 Amperes, 250 Volts  
15 Amperes, 125 Volts



Cat. No.	Sched-ule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6764	H	13/32	25	250	20	\$ .10

## Hubbell Brass Covered Composition Plug Caps

Parallel Blades—Standard

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Standard finish is brush brass.

Cat. No.	Sched-ule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5965	H	13/32	25	250	23	\$ .25
6740	H	5/16	25	250	23	.25



## No. 6773 Hubbell Polarized Brass Covered Composition Plug Caps

Parallel Blades—Standard

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Standard finish is brush brass.

Cat. No.	Sched-ule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6773	H	13/32	25	250	23	\$ .25



## Hubbell Composition Knostrain Plug Caps

Parallel Blades

10 Amp., 250 Volts; 15 Amp., 125 Volts

For Nos. 16 and 18 standard and Nos. 16P and 18P Duracord 2-conductor cord.



Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6060	H	10	50	6	\$ .25

## Hubbell Brass Covered Composition Knostrain Plug Caps

Parallel Blades

10 Amp., 250 Volts; 15 Amp., 125 Volts

For Nos. 16 and 18 standard, 18PS Duracord and 18 Super-service 2-conductor cord.

Standard finish, brush brass.

Cat. No.	Sched-ule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6061	H	10	50	10	\$ .55



**Hubbell Steel Armored Pony Plug Caps**

With Rubber Bumper

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

An adaptation of No. 7220 armored cap, the metal cover of which is grooved and fitted with a rubber ring to function as a shock absorber.



Cat. No.	Schedule	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7290	H	3/8x3/32	10	50	8	\$2.00

**Hubbell Brass Covered Composition Knostrain Plug Caps**

Tandem Blades

10 Amp., 250 Volts; 15 Amp., 125 Volts

For Nos. 16 and 18 standard, 18 Super, service, 18PS Duracord 2-conductor cord. Standard finish, brush brass.



Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5700	H	10	50	10	\$5.50

**No. 5420 Hubbell Composition Plug Caps**

Tandem Blades—Heavy Duty

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5420	H	13/32	25	100	10	\$1.13



**Hubbell 2-Wire Cord-Grip Plug Caps**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts



No. 7057



No. 7056

Composition cap, steel covered, cadmium plated.

Polarization on Nos. 7059 and 7185 is effected by one wide and one narrow blade which fit in corresponding openings in standard double T slot plug receptacles.

**No. 5421 Hubbell Brass Covered Porcelain Plug Caps**

Tandem Blades—Heavy Duty

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Standard finish is brush brass.



Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5421	H	13/32	25	100	12	\$2.50

**No. 5523 Hubbell Brass Covered Composition Plug Caps**

Tandem Blades—Heavy Duty

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Standard finish is brush brass.

Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5523	H	13/32	25	100	11	\$3.00



**No. 6606 Hubbell Brass Covered Composition Plug Caps**

Tandem Blades—Heavy Duty  
With 3/8-Inch Threaded Nipple

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Standard finish is brush brass.



Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6606	H	13/32	10	100	15	\$4.00

**Hubbell Elongated Composition Plug Caps**

Tandem Blades—Heavy Duty

10 Amperes, 250 Volts  
15 Amperes, 125 Volts

Cat. No.	Schedule	Cord Hole Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6336	H	13/32	10	100	15	\$2.25
6337	H	1/2	10	100	15	.25



**Hubbell Brass Covered Composition Knostrain Plug Caps**

Tandem Blades

10 Amp., 250 Volts; 15 Amp., 125 Volts

For Nos. 16 and 18 standard, No. 16P and 18P Duracord. Standard finish, brush brass.

Cat. No.	Schedule	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5657	H	10	50	12	\$4.50



**Hubbell Double T Plug Caps**

15 Amperes, 125 Volts; 10 Amperes, 250 Volts

The double T blades are a combination of tandem and parallel blades firmly riveted and key-locked to form a girder-like unit of unusual strength. These caps will fit all double T slot receptacles or plugs.

Cord-Grip Composition Plug Caps

Steel covered, cadmium-plated.

Cat. No.	Schedule	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7162	H	9/16	10	30	13	\$.45
7207	H	5/8	10	30	13	.45
*7286	H	9/16	10	30	13	.45
*7287	H	5/8	10	30	13	.45



Bakelite Plug Caps

Regularly furnished in brown bakelite but may be had in black at no extra charge.

Cat. No.	Schedule	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7196	H	13/32	10	50	10	\$.35
*7288	H	13/32	10	50	10	.35



**Hubbell Polarized Caps**

Schedule H



No. 5567      No. 6730      No. 5553, 6156      No. 6720

Standard finish on brass-covered caps is brush brass.

Cat. No.	Description	Cord Hole, In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5567	Porcelain, Brass Covered..	13/32	10	30	5	\$5.00
6730	Composition	13/32	10	30	4	.25
<b>20 Amperes, 250 Volts</b>						
5553	Porcelain, Brass Covered..	1/2	10	30	5	\$5.00
6156	Comp. Brass Covered	1/2	10	30	5	.55
6720	Composition	1/2	10	30	4	.30



## Hubbell 2-Wire Polarized Cord-Grip Plug Caps



Composition cap, steel covered, cadmium plated.

The adjustable clamp grips the cord tightly, thus relieving the strain from the binding posts, and also prevents the outer cover of cord from unraveling.

10 Amp., 250 Volts; 15 Amp., 125 Volts

Cat. No.	Schedule	Cord Hole Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7092	H	1/16	10	30	10	\$.45
7241	H	5/8	10	30	10	.45
7199	H	19/64	10	30	10	.50

20 Amperes, 250 Volts

7058	H	5/8	10	30	10	\$.55
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## No. 6058 Hubbell 3-Wire Polarized Brass Covered Composition Caps

20 Amperes, 250 Volts

Brush brass is standard finish for caps; all other finishes listed on another page in price column No. 9.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6058	H	10	30	15	\$.60



## No. 7198 Hubbell 3-Wire Composition Caps

5/8-Inch Diameter Cord Hole

20 Amperes, 250 Volts

This cap fits Nos. 6810 and 6059 receptacles shown on another page.

Cat. No.	Schedule	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7198	H	10	30	7	\$.40



## Hubbell 3-Wire Polarized Cord-Grip Plug Caps

Composition cap, steel covered, cadmium plated.

10 Amp. 250 Volts  
15 Amp. 125 Volts

Cat. No.	Schedule	Hole Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7055	H	1/16	10	50	10	\$.45



20 Amp. 250 Volts

Cat. No.	Schedule	Cord Hole Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7089	H	5/8	10	20	10	\$.65



## Hubbell 4-Wire Cord-Grip Caps

20 Amperes, 250 Volts

Schedule II

No. 7251 is a straight 4-wire cap.

No. 9251 has a shunt from the ground blade to the metal cover for grounding to metal sheathed 3-wire cable.

The Cord-Grip will accommodate 23/32-inch diameter cord.

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7251	Cap	10	20	9	\$.85
9251	Grounded Cap	10	20	9	.85



## Hubbell Switch-Taps and Plates

Schedule II



No. 7163 with No. 7211 Plate

A combination switch and outlet, two in one. It is recommended for use in any place where a switch control is required for a ceiling light and electric service from a convenience outlet.

With No. 7163, a quarter turn of the tap which is a switch and the lights are on. A quarter turn to the left and the switch is off. The double T-tap is wired independently and is alive at all times. It is small enough to fit any standard single gang outlet box.

The No. 7164 is a combination of double T-slot receptacle, controlled by a double-pole switch. In this hook-up the switch is used exclusively for the purpose of controlling the double T-slot outlet.

The switch mechanism is regularly furnished "not grounded." If desired with ground shunt to frame, suffix the letter "G."

Face receptacle regularly furnished brown; black may be had at same price.

Switch, 5 Amperes, 250 Volts  
Receptacle, 10 Amperes, 250 Volts or  
15 Amperes, 125 Volts

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7163	Porcelain	1	10	15	\$1.17
10 Amperes, 250 Volts or 15 Amperes, 125 Volts					
7164	Porcelain	1	10	15	\$1.17

Plates for Switch-Taps

5548	Brush, .060-Inch Metal	20	100	20	\$.18
7093	Brush Brass Finish	20	100	10	.15
7211	Bakelite, Screw Type	20	100	10	.35
	Bakelite, Screwless, with Under-Plate	20	100	10	.35

## Hubbell Combination Switch-Tap and Pilot-Light

In One-Piece Porcelain Box

No. 7280 Rating: Receptacle 10 Amperes, 250 Volts;  
Switch 5 Amperes, 250 Volts; Pilot Light 75 Watts

No. 7281 Rating: Receptacle 10 Amperes, 250 Volts;  
Pilot Light 75 Watts

Schedule II



Nos. 7317 and 7280 Assembled

Cat. No.	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7280	1	5	5	\$2.00
7281	1	5	5	2.00

2-Gang Combination Plates for Use on Nos. 7280 and 7281

Schedule II

Cat. No.	Description	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7314	Brush Brass, .040-Inch Metal	1	10	...	\$.63
7315	Lacco Brass, .040-Inch Metal	1	10	...	.55
7316	Brush Brass, .060-Inch Metal	1	10	...	.71
7317	Bakelite Sand Blast Finish	1	10	...	.55
9317	Bakelite Ribbed Finish	1	10	...	.55

No. 7280 Switch-tap is arranged for independent control of a distant light. Tap is alive at all times. The pilot-light actuates in conjunction with the switch.

No. 7281 Tap of Switch-Tap is controlled by switch. The pilot-light actuates in conjunction with the switch.

The pilot light lamp furnished with these receptacles is 2-c.p., 125-volt, clear, with candelabra base, G-8 type.

**Hubbell Plates for Single Convenience Outlets**

*Schedule II*



Single Plate

Any of these plates may be assorted for standard package or carton quantity.

They can be supplied in Lacco finish at a reduction of 4 cents list per gang.

Plates in tandem or vertical gangs can be furnished in solid brass, and take 20 per cent advance over horizontal gangs.

Special finishes listed on another page.

Special features listed elsewhere.

**Struck-Up—.040-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6835	Single Plate	4 1/2 x 2 3/4	10	100	17	\$.14
6836	2-Gang Plate	4 1/2 x 4 1/16	*	†	16	.28
6837	3-Gang Plate	4 1/2 x 6 3/8	*	†	15	.42

Lacco Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6780	Single Plate	4 1/2 x 2 3/4	10	100	17	\$.10
6838	2-Gang Plate	4 1/2 x 4 1/16	*	†	16	.20
6839	3-Gang Plate	4 1/2 x 6 3/8	*	†	15	.30

Gang plates, .040-inch, up to and including 8 gangs, can be furnished at 22 cents list per gang for brush brass, and 18 cents list per gang for Lacco.

**Struck-Up—.060-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5548	Single Plate	4 1/2 x 2 3/4	10	100	26	\$.18
5549	2-Gang Plate	4 1/2 x 4 1/16	*	†	23	.36
6840	3-Gang Plate	4 1/2 x 6 3/8	*	†	20	.54

Gang Plates, .060-inch, up to and including 8 gangs, can be furnished at 26 cents list per gang for brush brass.

**Solid Brass—.100-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6585	Single Plate	4 1/2 x 2 3/4	10	10	28	\$.34
6586	2-Gang Plate	4 1/2 x 4 1/16	*	†	24	.68
5550	3-Gang Plate	4 1/2 x 6 3/8	*	†	20	1.02

Solid plates beyond 3 gangs can be furnished at 40 cents list per gang for brush brass.

\*A carton quantity is 10 gangs.

†A standard package consists of 100 single plates or the equivalent in gangs.

**Hubbell Plates with Lift Cover, Single Hinge**

For Nos. 5579 and 6980 Convenience Outlets

*Schedule II*

Any of the lift cover plates listed below may be assorted for standard package or carton quantity.

They can be supplied in Lacco finish at a reduction of 4 cents list per gang.

Plates in tandem or vertical gangs can be furnished in solid brass and take 20 per cent advance over horizontal gangs.

Special finishes on another page.

Special features listed on another page.



Single Plate

**Struck-Up—.040-Inch Metal**

Brush Brass							Lacco Brass						
Cat. No.	Price Each	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Cat. No.	Price Each	Cat. No.	Price Each	Cat. No.	Price Each	
6866	\$.19	Single	4 1/2 x 2 3/4	10	100	20	6805	\$.15					
6867	.38	2-Gang	4 1/2 x 4 1/16	*	†	18	6869	.30					
6868	.57	3-Gang	4 1/2 x 6 3/8	*	†	16	6870	.45					

**Struck-Up—.060-Inch Metal**

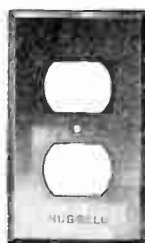
Cat. No.	Price Each	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.
6801	\$.23	Single	4 1/2 x 2 3/4	10	100	30
6871	.46	2-Gang	4 1/2 x 4 1/16	*	†	28
6872	.69	3-Gang	4 1/2 x 6 3/8	*	†	26

\*A carton quantity is 10 gangs.

†Standard package of single hinge plates consists of 100 single plates or equivalent in gangs.

**Hubbell Plates for Duplex Convenience Outlets**

*Schedule II*



Single Plate

Any of these plates may be assorted for standard package or carton quantity.

They can be supplied in Lacco finish at a reduction of 4 cents list per gang.

Plates in tandem or vertical gangs can be furnished in solid brass, and take 20 per cent advance over horizontal gangs.

Special finishes on another page.

Special features listed elsewhere.

**Struck-Up—.040-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6854	Single Plate	4 1/2 x 2 3/4	10	100	16	\$.14
6855	2-Gang Plate	4 1/2 x 4 1/16	*	†	15	.28
6856	3-Gang Plate	4 1/2 x 6 3/8	*	†	14	.42

Lacco Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6784	Single Plate	4 1/2 x 2 3/4	10	100	16	\$.10
6857	2-Gang Plate	4 1/2 x 4 1/16	*	†	15	.20
6858	3-Gang Plate	4 1/2 x 6 3/8	*	†	14	.30

Gang plates, .040-inch, up to and including 8 gangs, can be furnished at 22 cents list per gang for brush brass and 18 cents list per gang for Lacco brass.

**Struck-Up—.060-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6258	Single Plate	4 1/2 x 2 3/4	10	100	24	\$.18
6259	2-Gang Plate	4 1/2 x 4 1/16	*	†	22	.36
6859	3-Gang Plate	4 1/2 x 6 3/8	*	†	19	.54

Gang plates, .060-inch, up to and including 8 gangs, can be furnished at 26 cents list per gang for brush brass.

**Solid Brass—.100-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6587	Single Plate	4 1/2 x 2 3/4	10	100	27	\$.34
6588	2-Gang Plate	4 1/2 x 4 1/16	*	†	23	.68
6260	3-Gang Plate	4 1/2 x 6 3/8	*	†	20	1.02

Solid plates beyond 3 gangs can be furnished at 40 cents list per gang for brush brass.

\*A carton quantity is 10 gangs.

†A standard package consists of 100 single plates or equivalent in gangs.

**Hubbell Plates with Lift Cover, Double Hinge**

For Nos. 5579 and 6980 Convenience Outlets

*Schedule II*

Any of the double hinge lift cover plates listed below may be assorted for standard package or carton quantity.

They can be supplied in Lacco finish at a reduction of 4 cents list per gang.

Special finishes on another page.

Special features listed elsewhere.



Single Plate

**Solid Brass—.114-Inch Metal**

Brush Brass						
Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5580	Single Plate	4 1/2 x 2 3/4	10	50	20	\$.15
5581	2-Gang Plate	4 1/2 x 4 1/16	*	†	18	3.00
5582	3-Gang Plate	4 1/2 x 6 3/8	*	†	17	4.50
5600	4-Gang Plate	4 1/2 x 8 3/16	*	†	16	6.00

\*A carton quantity is 10 gangs.

†Standard package of double hinge plates consists of 50 single plates or equivalent in gangs.

## Hubbell Blank Plates

Schedule II



Single Plate

Plates in tandem or vertical gangs take 20 per cent advance over horizontal gangs.

Any of the plates listed below can be supplied in Lacco brass finish at a reduction of 4 cents list per gang.

Special finishes on another page.

Special features listed elsewhere.

### Struck-Up—.040-Inch Metal

Brush Brass

Cat. No.	Description	Dimensions Inches	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6959	Single Plate	4 1/2 x 2 3/4	10	100	20	\$ .18
6960	2-Gang Plate	4 1/2 x 4 1/16	*	†	18	.36
6961	3-Gang Plate	4 1/2 x 6 3/8	*	†	16	.54
<b>Lacco Brass</b>						
6785	Single Plate	4 1/2 x 2 3/4	10	100	20	\$ .14
6962	2-Gang Plate	4 1/2 x 4 1/16	*	†	18	.28
6963	3-Gang Plate	4 1/2 x 6 3/8	*	†	16	.42

### Struck-Up—.060-Inch Metal

Brush Brass

6964	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .22
6965	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.44
6966	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.66

### Solid Brass—.100-Inch Metal

6970	Single Plate	4 1/2 x 2 3/4	10	100	45	\$ .38
6971	2-Gang Plate	4 1/2 x 4 1/16	*	†	42	.76
6972	3-Gang Plate	4 1/2 x 6 3/8	*	†	37	1.14

Solid plates beyond 3 gangs can be furnished at 44 cents list per gang for brush brass.

\*A carton quantity is 10 gangs.

†A standard package consists of 100 single plates or equivalent in gangs.

## Hubbell Special 2-Gang Combination Plates

For Duplex Convenience Outlet and Standard 2-Button Push Switch

Schedule II

Size of plates 4 1/2 x 4 1/16".

Standard finish on flush plates is brush brass. For special finishes, see another page.

Lacco is a sprayed lacquer finish imitating brush brass.

Carton, 1; standard package, 10.

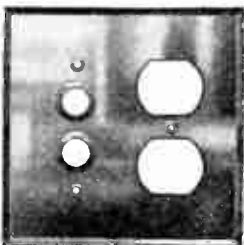
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7038	\$ .38	7046	\$ .30

### Struck-Up—.060" Metal

6615	\$ .46	.....	.....
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## Hubbell Special 2-Gang Combination Plates

For Single Convenience Outlet and Standard 2-Button Push Switch

Schedule II

Size of plates 4 1/2 x 4 1/16". Standard finish on flush plates is brush brass. Special finishes, listed elsewhere.

Carton, 1; std. pkg., 10.

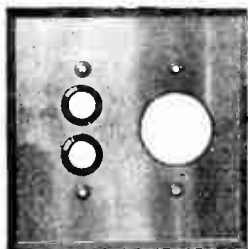
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7036	\$ .38	7044	\$ .30

### Struck-Up—.060" Metal

6614	\$ .46	.....	.....
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## Hubbell Special 2-Gang Combination Plates

For One Duplex and One Single Convenience Outlet

Schedule II

Size of plates 4 1/2 x 4 1/16".

Standard finish on flush plates is brush brass. For special finishes, see another page.

Lacco is a sprayed lacquer finish imitating brush brass.

Carton, 1; standard package, 10.

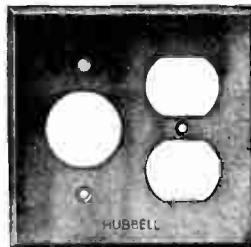
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7040	\$ .38	7048	\$ .30

### Struck-Up—.060" Metal

6749	\$ .46	.....	.....
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## Hubbell Special 2-Gang Combination Plates

For Single Convenience Outlet and Round Handle Toggle Switch

Schedule II

Size of plates 4 1/2 x 4 1/16".

Standard finish on flush plates is brush brass. For special finishes, see another page.

Carton, 1; std. pkg., 10.

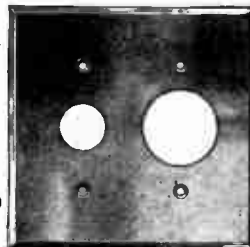
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7037	\$ .38	7045	\$ .30

### Struck-Up—.060" Metal

6723	\$ .46	.....	.....
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## Hubbell Special 2-Gang Combination Plates

For Duplex Convenience Outlet and Round Handle Toggle Switch

Schedule II

Size of plates 4 1/2 x 4 1/16".

Standard finish on flush plates is brush brass. For special finishes, see another page.

Lacco is a sprayed lacquer finish imitating brush brass.

Carton, 1; standard package, 10.

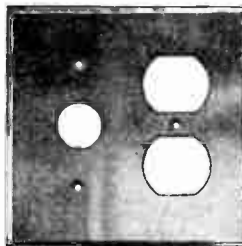
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7039	\$ .38	7047	\$ .30

### Struck-Up—.060" Metal

6724	\$ .46	.....	.....
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## Hubbell Special 2-Gang Combination Plates

For Duplex Convenience Outlet and Square Handle Toggle Switch

Schedule II

Size of plates 4 1/2 x 4 1/16".

Standard finish on flush plates is brush brass. For special finishes, see another page.

Lacco is a sprayed lacquer finish imitating brush brass.

Carton, 1; standard package, 10.

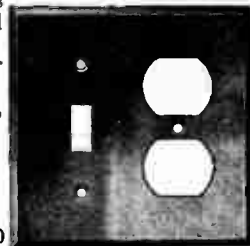
### Struck-Up—.040" Metal

Brush Brass

Cat. No.	Price Each	Cat. No.	Price Each
7105	\$ .38	7106	\$ .30

### Struck-Up—.060" Metal

7108	\$ .46	.....	.....
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**Hubbell Special 2-Gang Combination Plates**

For Single Convenience Outlet and Square Handle Toggle Switch

*Schedule II*



Size of plates 4 1/2 x 4 3/8". Standard finish on flush plates is brush brass. For special finishes, see another page. Carton, 1; std. pkg., 10.

**Struck-Up—.040" Metal**  
Brush Brass Lacco

Cat. No.	Price Each	Cat. No.	Price Each
7103	\$ .38	7104	\$ .30

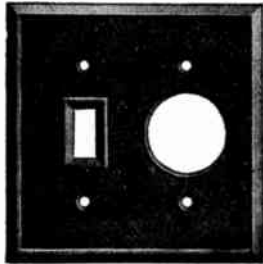
**Struck-Up—.060" Metal**

7109	\$ .46	....	...
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**Hubbell Bakelite 2-Gang Combination Plates Sand Blast and Ribbed Finish**

*Schedule II*

Plates are made of genuine bakelite, and regularly furnished in brown. Black plates can be supplied on special order without extra charge. Gang plates or other combinations can be supplied in brass, finished brown, to imitate bakelite, at regular brush brass price. Carton contains 4 gangs, std. pkg., 20 gangs.



No. 7123

**For Square Handle Toggle Switch, Single Convenience Outlet**

Cat. No.	Wt. Lbs.	PRICE, EACH	Surface	Std. Blast	Ribbed Surface
7123	9123	1 1/2	\$ .30	\$ .24	

**For Square Handle Toggle Switch, Duplex Convenience Outlet**

7140	9140	1 1/2	\$ .30	\$ .24
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**Hubbell Bakelite Convenience Outlet Plates**

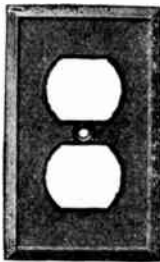
Sand Blast and Ribbed Finish

*Schedule II*



No. 7093

These plates are made of genuine bakelite, and are regularly furnished in brown. Black plates can be supplied on special order without extra charge.

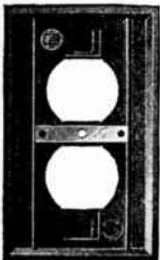


No. 7094

The top surface of the Sand Blast plate has a Sand Blast finish, set off by a narrow polished border. The top surface of the Ribbed plate gives a satin finish effect and is moulded into the plate.

The No. 7094 Duplex Plate is furnished with a steel support which materially strengthens the narrow bridge of bakelite between the two receptacle openings.

This feature prevents breakage when the plate is fastened to the receptacle too tightly or when the plate does not come flush with the wall surface.



Rear View of No. 7094

Cat. No.	Sand Blast Surface	Ribbed Surface	Description	Car-ton Gangs	Std. Pkg. Gangs	Wt. Lbs.	PRICE, EACH	Std. Blast Pkg.	Ribbed Surface
7093	9093		For Single Outlet	10	100	10	\$ .15	\$ .12	
7094	9094		For Duplex Outlet	10	100	12	.15	.12	

**Hubbell Single Outlet Telephone Plates**

*Schedule II*



Single Plate

These plates have one hole in the center of each gang, tapped and fitted with a 3/8-inch composition bushing.

All kinds of telephone plates may be assorted to make standard package or carton quantity.

Single outlet solid plates beyond 3 gangs can be furnished at 46 cents list per gang for brush brass.

Any of these plates can be supplied in Lacco brass finish at a reduction of 4 cents list per gang.

Special finishes listed on another page.

**Struck-Up—.040-Inch Metal**

Brush Brass

Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6904	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .20
6905	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.40
6906	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.60

Lacco Brass

6907	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .16
6908	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.32
6909	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.48

**Struck-Up—.060-Inch Metal**

Brush Brass

6910	Single Plate	4 1/2 x 2 3/4	10	100	32	\$ .24
6911	2-Gang Plate	4 1/2 x 4 1/16	*	†	30	.48
6912	3-Gang Plate	4 1/2 x 6 3/8	*	†	28	.72

**Solid Brass—.100-Inch Metal**

Brush Brass

6923	Single Plate	4 1/2 x 2 3/4	10	100	35	\$ .40
6924	2-Gang Plate	4 1/2 x 4 1/16	*	†	33	.80
6925	3-Gang Plate	4 1/2 x 6 3/8	*	†	31	1.20

\*Carton quantity is 10 gangs.

†A standard package consists of 100 single plates or equivalent in gangs.

**Hubbell Double Outlet Telephone Plates**

*Schedule II*

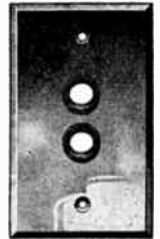
Double outlet plates have two tapped holes per gang, each supplied with a 3/8-inch composition bushing.

All kinds of telephone plates may be assorted to make standard package or carton quantity.

Double outlet solid plates beyond 3 gangs can be furnished at 50 cents list per gang for brush brass.

Any of these plates can be supplied in Lacco brass finish at a reduction of 4 cents list per gang.

Special finishes listed on another page.



Single Plate

**Struck-Up—.040-Inch Metal**

Brush Brass

Cat. No.	Description	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
6935	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .24
6936	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.48
6937	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.72

Lacco Brass

6938	Single Plate	4 1/2 x 2 3/4	10	100	30	\$ .20
6939	2-Gang Plate	4 1/2 x 4 1/16	*	†	28	.40
6940	3-Gang Plate	4 1/2 x 6 3/8	*	†	26	.60

**Struck-Up—.060-Inch Metal**

Brush Brass

6941	Single Plate	4 1/2 x 2 3/4	10	100	32	\$ .28
6942	2-Gang Plate	4 1/2 x 4 1/16	*	†	30	.56
6943	3-Gang Plate	4 1/2 x 6 3/8	*	†	28	.84

**Solid Brass—.100-Inch Metal**

Brush Brass

6947	Single Plate	4 1/2 x 2 3/4	10	100	35	\$ .44
6948	2-Gang Plate	4 1/2 x 4 1/16	*	†	33	.88
6949	3-Gang Plate	4 1/2 x 6 3/8	*	†	31	1.32

\*Carton quantity is 10 gangs.

†A standard package consists of 100 single plates or equivalent in gangs.

## Hubbell Combination Brass Plates

Schedule H

Hubbell Combination Plates are made in 100-inch solid brass, struck up .060 and .040 inch brass. The standard finish is brush brass. If desired in Lacco finish specify and deduct 4 cents per gang from list prices. The advance for special finishes should be added to brush brass list prices. If

plates are ordered by letter only and no finish is specified, brush brass will be supplied. A combination plate must be made up of 2 or more different letters. For example, AA is not a combination plate.



**A**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Push Switch



**B**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For all Hubbell Round  
Handle Toggle Switches



**C**  
With Round Bull's-Eye  
\$.69—Solid  
.48—.060 Inch  
.44—.040 Inch  
For Pilot Light  
Receptacle



**D**  
\$.48—Solid  
.27—.060 Inch  
.23—.040 Inch  
For Outlet Box



**G**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Single Convenience  
Outlets and all Other  
Standard 2, 3 and 4-Wire  
Flush Receptacles with  
Round Faces



**H**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Duplex Convenience  
Outlet



**I**  
Single Hinge Cover  
\$.49—Solid  
.28—.060 Inch  
.24—.040 Inch  
For Nos. 5579 and 6980  
Convenience Outlets



**J**  
Double Hinge Cover  
\$1.15—Solid  
\*\*For Nos. 5579 and 6980  
Convenience Outlets



**M**  
\$.50—Solid  
.29—.060 Inch  
.25—.040 Inch  
For Telephone Outlet  
One Bushing



**N**  
\$.54—Solid  
.33—.060 Inch  
.29—.040 Inch  
For Telephone Outlet  
Two Bushings



**P**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Square Handle  
Toggle Switch



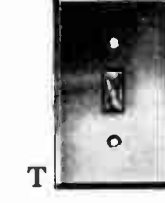
**Q**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Duplex Switch



**R**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Triplex Switch



**S**  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For No. 7051 Receptacle



**T**  
With Rectangular  
Bull's-Eye  
\$.44—Solid  
.23—.060 Inch  
.19—.040 Inch  
For Pilot Light Receptacle

\*\*Only supplied in solid brass.

Standard package of special combination plates consists of 10 plates of one combination. To determine the list price of any combination plate add together the separate list of the plates making up the combination. When arranged in more than one row, or tandem, add 20% to the list. Combination plates will be spaced horizontally  $1\frac{1}{8}$  and vertically  $3\frac{1}{8}$  inches on centers.

For plates requiring special dimensions or screw spacings which are not standard, see elsewhere. In ordering combination plates use the letters and thickness of metal with illustrations in the same relative position as marked, for example, B C G .060 inch would cover a plate to take one toggle switch, one bull's-eye, and one single convenience outlet—the bull's-eye to be in the middle, to be made of .060-inch brass.

For dimensions of gang plates, see another page.

**No. 903 Benjamin Swivel Attachment Plugs**  
660 Watts, 250 Volts



**With Fibre Ring**  
Swivel shell permits plug to be attached or removed without twisting cord. Has fibre insulating ring, porcelain base, and molded bushing with 1 3/32-inch opening for cord.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
903	With 1 3/32-Inch Cord Opening	100	6 1/4	\$ .15

**No. 903F Benjamin Swivel Attachment Plugs**  
660 Watts, 250 Volts

**For Reinforced Cord**



For the appliance service that requires a heavy reinforced cord, No. 903F should be an important part of the equipment. It has a heavy molded bushing with a 1/2-inch cord opening that will take any heavy reinforced cord or flexible armored cable whose outside diameter does not exceed 1/2-inch.

A flat metal set screw grips cord tightly, protecting both the cord and binding screw connection with plug.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
903F	With Bushing, 1/2-inch Opening	100	9 3/8	\$ .50

**No. 904 Benjamin Swivel Attachment Plugs**  
660 Watts, 250 Volts

**With Molded Ring**

Equipped with swivel shell which allows plug to be turned into or out of socket without twisting cord. Fitted with molded insulating ring and bushing with 1 1/8-inch opening for cord.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
904	100	9 3/8	\$ .18



**No. 916 Benjamin Heavy Duty Swivel Attachment Plugs**  
660 Watts, 250 Volts

For railroad and heavy work. Has chuck type bushing which takes a firm grip on any of the standard portable cords up to 2 5/16 to 3 5/16 inch outside diameter.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
916	10	3	\$ .80



**Benjamin Attachment Plugs**  
**With Parallel Blades**  
660 Watts, 250 Volts

No. 1001 is the standard type of separable plug in common use. It consists of a standard parallel blade cap No. 938 and polarized base No. 940. No. 938 is of strong high heat molded insulating material with gripping-bead to facilitate removal. It has large binder screws and standard parallel blades. No. 939 is same but has polarized blades. No. 940 base is same material and is polarized. It will fit any medium screw base socket.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1001	Std. Cap and Base	250	31 1/4	\$ .20
1010	Polarized Cap and Base	250	31 1/4	.20
938	Std. Cap Only	100	6 1/4	.10
939	Pol. " "	100	6 1/4	.10
940	" Base	250	15 5/8	.10

**No. 1006 Benjamin Parallel Blade Adapters**

Designed to change a standard slotted base receptacle into a medium Edison screw base outlet, or to connect an appliance with a 1-piece screw base attachment plug, to a slotted base receptacle. Parallel blades have standard spacings.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1006	Brass Shell, Fibre Lined	10	5/8	\$ .25

**No. 122 Benjamin Two-way Plugs**  
660 Watt, 250 Volts

Molded body, brass trim. Desirable where an inconspicuous device is more important than the position of the outlets.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
122	Multiple	10	2	\$ .60

**No. 77 Benjamin Swivel 2-Way Plugs**  
660 Watts, 250 Volts



One-piece molded bakelite. Friction swivel on plug end permits the side outlet to be turned to any direction for an extension cord. Lamp outlet hangs straight down.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
77	Multiple	10	2 1/2	\$ .75

**No. 1080 Benjamin 2-Way Plugs**  
660 Watts, 250 Volts

Side outlet of molded material, takes standard parallel blade cap. Screw plug is swivel type which permits adjustment of side outlet to any point of circle. Standard shade holder can be used.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1080	Multiple	10	2 1/2	\$ .60

**Benjamin 2, 3, and 4-way Plugs**  
660 Watts, 250 Volts

Fit any medium screw base socket or wall receptacle. Require no wiring.



Cat. No.	No. of Lights	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
92	2	Multiple	10	4	\$ .50
92 1/2	2	Series	10	4	.90
93	3	Multiple	10	6	.75
94	4	"	5	3	1.60

**No. 292 Benjamin Pull Plugs**  
660 Watts, 250 Volts

One outlet is equipped with a pull chain mechanism which permits turning the lamp on and off without interfering with the use of an appliance on the other outlet.



Cat. No.	No. of Lights	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
292	2	Multiple	10	6	\$ 1.00

**No. 942 Benjamin Plug Twin Sockets**  
660 Watts, 250 Volts



For corners and in flush receptacles with doors which prohibit the use of other plural plugs. Swivel shell. Lies close to the wall, and occupies little space.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
942	Multiple	10	2 3/4	\$ .75

**No. 960 Benjamin Swivel Separable Attachment Plugs**  
660 Watts, 250 Volts



The No. 960 Swivel Separable Attachment Plug is especially convenient for use in attaching portable household electrical appliances to either screw base sockets or parallel blade slotted receptacles.

Where it is desired to make attachment to parallel blade slotted receptacles, the plug cap readily separates from its base for the purpose. Base and cap are of molded composition, polished. Approved by N. B. of F. U.

Cat. No.	Cord Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
960	1 3/8	10	1 1/2	\$ .50
Price, No. 961, Base Only				each \$ .30
" " 962, Cap				" " .20



**No. 1083 Benjamin 3-way Plugs**

660 Watts, 250 Volts



A new 3-way plug which provides 2 side outlets to take standard parallel blade attaching caps and 1 Edison base outlet at the bottom. Threaded shell at bottom accommodates standard 2 1/4-inch shade holders and permits the lamp to hang straight down. Plug has black molded composition body and brass socket shell.

A handsomely colored dispenser-display stand is furnished free with every 10 devices.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1083	Multiple	10	2 1/4	\$ .75

**No. 1042 Benjamin 2-way Plugs**

660 Watts, 250 Volts

Made to give double service on convenience outlets. It lies close to the wall and is practically safe from accidental breakage. The blades fit any standard parallel slotted receptacle. Finish, brushed brass.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1042	Multiple	10	2	\$.50

**No. 808 Benjamin 2-way Plugs**

10 Amperes, 250 Volts



A neat, compact 2-way plug which provides 2 outlets to take any standard form parallel blade attachment caps. Depressed surface around slots makes easy entrance for slots.

Body is made of black, high heat, molded composition and is polished. The parallel blades fit any standard slotted receptacle. An attractively colored dispenser-display box is furnished with every 10 plugs.

Cat. No.	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
808	10	1 3/4	\$.50

**No. H206 Hemco Tee-Prong Plugs**

660 Watts, 250 Volts



Designed to fit all standard prong-type receptacles and for standard prong-type attachments. Has self locating feature for attaching attachment plugs. Molded of bakelite.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H206	5	100	15	\$.50

**No. H207 Hemco Trip-Prong Plugs**

660 Watts, 250 Volts

This plug fits close to the baseboard. It is molded in one piece of Bakelite. Shock-proof, heat-proof and mar-proof.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H207	5	100	20	\$.60

**Hemco Pul-Cord Attachment Plugs**

This attachment plug is molded of bakelite. It is not affected by heat or moisture.

In the center of the cap is located a bridge over which the cord ends are placed. This eliminates the strain at the point of contact of cord and terminal when the cap is removed from an appliance by pulling on the cord. A barrier on this bridge separates the 2 wires, thus eliminating possibilities of short circuits. Unit package (display), 10 plugs; standard package, 100 plugs.



No. 251

Price, Cat. No. 251, Plug	each	\$.25
Price, Cat. No. 251CO, Cap Only	each	.16
Price, Cat. No. 251BO, Base Only	each	.12

**No. H200 Hemco Twin-Lite Plugs**

660 Watts, 250 Volts

This plug is the correct angular shape for baseboard receptacle or under shades and reflectors.

Molded in one piece of Bakelite.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H200	5	100	22	\$.60

**No. H202 Hemco Tach-Lite Plugs**

660 Watts, 250 Volts

Threaded outlets permit the use of Uno or standard shade holders. Clamp type shade holders fasten directly above threaded end. Shade permits lamp to hang straight down.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H202	5	100	22	\$.60

**No. H203 Hemco Trip-Lite Plugs**

660 Watts, 250 Volts

This plug permits the servicing of 2 appliances and one light.

Molded in one piece of Bakelite.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H203	5	100	30	\$1.00

**No. H204 Hemco Thru-Lite Plugs**

660 Watts, 250 Volts

The No. 204 Hemco Thru-Lite Plug is equipped with prong-type side outlets.

Molded in one piece of Bakelite. This plug is shock-proof, heat-proof and mar-proof.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H204	5	100	22	\$.90

**No. H205 Hemco Tee-Lite Plugs**

660 Watts, 250 Volts

Designed to fit all standard prong-type receptacles. Fits close to the baseboard.

Molded in one piece of Bakelite.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H205	5	100	20	\$.60

**Hemco Moulded Wall Plates**

Hemco Wall Plates are moulded of bakelite. They are spot-proof, warp-proof and tarnish-proof. The rich satin finish is moulded into the surface and will last always, supplying the finishing touch of beauty for every wiring job. Bakelite headed attaching screws are standard and are included with all plates. Metal screws finished to match plates furnished on special orders.

**Hemco Moulded Push Button Switch Plates**



Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HP801	Single Gang.....	20	100	13	\$.12
HP802	2-Gang.....	10	50	12	.24
HP803	3-Gang.....	5	30	10	.36
HP804	4-Gang.....	4	20	9	.48

**Hemco Moulded Toggle Switch Plates**

Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HT801	Single Gang.....	20	100	13	\$.12
HT802	2-Gang.....	10	50	12	.24
HT803	3-Gang.....	5	30	10	.36
HT804	4-Gang.....	4	20	9	.48
HT822	Tandem Toggle.....	10	50	12	.50



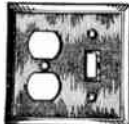
**Hemco Moulded Receptacle Wall Plates**



Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HR701	Single Receptacle.....	20	100	12	\$.12
HR702	Duplex Receptacle.....	20	100	12	.12
HT731	Telephone Receptacle.....	20	100	13	.12
HJ 741	Radio Jack Plate.....	20	100	13	.12

**Hemco Moulded Combination Plates**

Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HT901	Combination Toggle and Single Receptacle.....	10	50	12	\$.24
HT902	Combination Toggle and Duplex Receptacle.....	10	50	12	.24



**Hemco Moulded Blank Plates**



Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H781	Single Gang.....	20	100	13	\$.12
H782	2-Gang.....	10	50	12	.24

**Hemco Bakelite and Brass Screws**

Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H750	Bakelite Headed Screw.....	100	1000	4	\$.02 1/2
H751	Brass Screw, Finished to Match Plate.....	100	1000	3	.02 1/2

**G-E Detachable Bull's-Eyes**

*Schedule G (Class 1)*



No. GE2296, ROUND.—For use with flush plates for single convenience outlets. Easily assembled on any flush plate which will accommodate either No. GE2257 or No. GE658 convenience outlets. Has 8 projecting prongs which may be easily bent over back edge of plate opening.



No. GE2331, RECTANGULAR.—For use with flush plates for tumbler switches. Easily assembled on any flush plate which will accommodate the GE1688 flush tumbler switch. Has 2 projecting prongs.

Cat. No.	Description	Car-ton Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2296	Round.....	10	30	..	\$.50
GE2331	Rectangular.....	10	30	..	.50

Standard finish of frames is brush brass. Ruby is the standard color of the lens.

**No. GE2637 Twin-Lampholder Plugs**

660 Watts, 250 Volts  
*Schedule G (Class 6)*



Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2637	1	100	27	\$.48

**No. GE2638 Angle Twin-Lampholder Plugs**

660 Watts, 250 Volts  
*Schedule G (Class 6)*



Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2638	1	100	27	\$.48

**No. GE2640 Single Lampholder Plugs**

With Side Current Taps  
660 Watts, 250 Volts  
*Schedule G (Class 6)*



Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2640	1	100	30	\$.48

**No. GE2639 Twin-Lampholder Plugs**

With Side Current Taps  
660 Watts, 250 Volts  
*Schedule G (Class 6)*



Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2639	1	100	37	\$.90

**No. GE709 Multiple Current Tap Porcelain Lampholders**

660 Watts, 250 Volts  
*Schedule G, Class 6*



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE709	10	50	25	\$.100

**G-E-Flex All Rubber Cord Sets**

*Schedule G (Class 6)*



The G-E-Flex All-Rubber Cord Set consists of type SJ G-E-Flex all-rubber cord with a G-E-Flex all-rubber cap on one end and the other stripped 1 1/2 inches (3/4 inch bare copper) ready for wiring.

The cap is moulded directly on the end of the cord set so that all connections are permanently sealed and protected.

Cat. No.	Cord Size, No.	Length Feet	Car-ton	Std. Pkg.	Price Each
10X704	16	10	1	50	\$2.00
10X705	18	10	1	50	1.48
9X280	16	20	1	50	3.68
9X281	18	20	1	50	2.58
13X139	16	30	1	25	5.32
13X140	18	30	1	25	3.68

## G-E Pony Separable Attachment Plugs

660 Watts, 250 Volts

Schedule G, Class 6

1 3/32-Inch Round Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2526	GE2306	25	500	36	\$ .30



## G-E Pony Attachment Plugs

660 Watts, 250 Volts

Schedule G, Class 6

9/32x3/8-Inch Oval Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2525	GE2241	25	500	37	\$ .30



## G-E Pony Composition Separable Attachment Plugs

660 Watts, 250 Volts

Schedule G (Class 6)

9/32-Inch Round Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Price Each
Brown Compound	Black Compound			
GE2614	GE2612	25	500	\$ .30



## G-E Pony Composition Separable Attachment Plugs

660 Watts, 250 Volts

Schedule G (Class 6)

3/16x5/16-Inch Oval Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Price Each
Brown Compound	Black Compound			
GE2618	GE2616	25	500	\$ .30



## GE No. 48661 Weatherproof One-piece Attaching Plugs

Moulded Compound

660 Watts, 250 Volts

Schedule G Class 1

Has 6-inch wire leads.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
48661	10	250	49	\$ .44



## G-E Standard Pony Attachment Plug Bodies

660 Watts, 250 Volts

Schedule G, Class 6

For GE2525 and GE2241 pony attachment plugs.

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE-2529	GE2242	25	500	37	\$ .14



## No. GE1827 Standard Composition Separable Attachment Plug with Steel Covered Cap

660 Watts, 250 Volts

Schedule G, Class 6

Black moulded compound.

1 3/32-Inch Cord Hole

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1827	25	250	40	\$ .52



## G-E Standard Pony Attachment Plug Caps

10 Amperes, 250 Volts, 15 Amperes, 125 Volts

Schedule G, Class 6

For GE2306 and GE2526 attachment plugs.

1 3/32-Inch Round Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Compound	Black Compound				
GE2527	GE2307	25	500	36	\$ .16



## G-E Standard All-Textolite Separable Attachment Plugs

660 Watts, 250 Volts

Schedule G (Class 6)

Has 1 3/32-inch round cord hole.  
Standard finish is polished nickel.

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2620	GE2345	25	250	20	\$ .40



## G-E Standard All-Textolite Separable Attachment Plugs

660 Watts, 250 Volts

Schedule G (Class 6)

Has 9/32x3/8-inch oval cord hole.  
Standard finish is polished nickel.

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2662	GE2661	25	250	20	\$ .40



## G-E All-Textolite Attachment Plug Bodies

660 Watts, 250 Volts

Schedule G (Class 6)

Has deep locating slots.  
Standard finish is polished nickel.

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2621	GE2344	25	250	12	\$ .20



## G-E All-Textolite Attachment Plug Caps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule G (Class 6)

Has 1 3/32-inch round cord hole.

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2622	GE2343	25	250	12	\$ .20



## G-E All-Textolite Attachment Plug Caps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule G (Class 6)

Has 9/32x3/8-inch oval cord hole.

CAT. No.		Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown	Black				
GE2664	GE2663	25	250	12	\$ .20



## G-E Standard Pony Attachment Plug Caps

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule G, Class 6

For GE2241 and GE2525 attachment plugs.

9/32x3/8-Inch Oval Cord Hole

CAT. No.		Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Compound	Black Compound				
GE2528	GE2243	25	500	31	\$ .16



## No. GE1582 Standard Steel Covered Cap Black Moulded Compound

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

Schedule G Class 6

1 3/32-inch Cord Hole

Standard finish, gray enameled coating.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1582	10	250	22	\$ .32



## No. GE2478 Standard Caps

With Adjustable Metal Cord Grip  
Black Compound

10 Amperes, 250 Volts; 15 Amperes, 125 Volts

1 3/32-Inch Cord Hole

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2478	10	50	8	\$ .40



**Standard Composition Polarity Caps**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6



Cat. No.	9/32-Inch Cord Holes		Wt., Lbs. Std. Pkg.	Price Each
	Car-ton	Std. Pkg.		
GE1678	10	250	24	\$ .20
GE663	10	250	20	\$ .20

**G-E Pony Composition Standard Attachment Plug Caps**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
Schedule G (Class 6)



CAT. No.	9/32-Inch Round Cord Hole		Car-ton	Std. Pkg.	Price Each
	Brown Compound	Black Compound			
GE2615	GE2613	25	500	\$ .16	

**G-E Pony Composition Standard Attachment Plug Caps**

10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
Schedule G (Class 6)



CAT. No.	3/16x5/16-Inch Oval Cord Hole		Car-ton	Std. Pkg.	Price Each
	Brown Compound	Black Compound			
GE2619	GE2617	25	500	\$ .16	

**G-E Standard Pony Bodies for Cord Connectors**

10 Amperes, 250 Volts, 15 Amperes, 125 Volts  
Schedule G, Class 6



CAT. No.	9/32x3/8-Inch Cord Hole		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Brown Compound	Black Compound				
GE2530	GE2380	10	50	8	\$ .60	

**No. GE2496 Standard Pony Motor Connector Bodies**

10 Amperes, 250 Volts, 15 Amperes, 125 Volts  
Schedule G, Class 6

Black compound.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2496	25	100	9	\$ .40

**No. GE716 Standard Cord Connectors**

13/32-Inch Cord Hole  
Black Compound  
10 Amperes, 250 Volts  
Schedule G (Class 6)



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE716	10	50	12	\$ .80

**No. GE1351 Standard Bodies for Cord and Motor Connectors**

Moulded Compound, 13/32-inch Cord Hole  
10 Amp., 250 Volts  
Schedule G Class 6



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1351	10	50	7	\$ .60

**No. GE1655 Standard Bases**

For Motor Connectors—Slotted  
Black Moulded Compound  
13/32-inch Cord Hole  
10 Amp., 250 Volts  
Schedule G Class 6



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1655	10	50	6	\$ .26

**No. GE2251 Standard Polarity Slotted Base for Motor Connectors**

Black Compound, 13/32-Inch Cord Hole  
10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G (Class 6)



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2251	10	50	6	\$ .26

**No. GE2291 Standard Bases for Motor Connectors**

10 Amperes, 250 Volts, 15 Amperes, 125 Volts  
Schedule G, Class 6



Black compound.  
Has plate for flush mounting. Standard finish of metal parts is polished nickel.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2291	10	50	7	\$ .66

**No. GE1786 Standard T-Slot to Double Door Plug Adapters**

Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1786	10	50	12	\$ .60

\*Can be furnished but is not carried in stock.



**No. GE1683 Standard T-Slot to Looped Prong Adapters**

Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1683	10	50	6	\$ .50



**No. GE1684 Standard T-Slot to Tandem Blade Adapters**

Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1684	10	50	6	\$ .50



**No. GE682 Medium Screw Base to Standard Adapters**

Schedule G Class 1



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE682	10	50	11	\$ .40

**No. GE665 Standard Plug Receptacles**

Conduit Box Receptacle Center Screw Fastening

660 Watts, 250 Volts

Schedule G Class 6

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE665	10	50	13	\$ .60



**No. GE1251 Standard Plug Receptacle Bodies**

For Surface or Pendent Work

Double T Slots

10 Amp., 250 Volts

Schedule G Class 6



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1251	10	20	3	\$ .24

## No. GE1226 Standard Plug Receptacle Bases

Concealed

10 Amp., 250 Volts  
Schedule B

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1226	10	100	35	\$.30



## No. GE1230 Standard Plug Receptacle Bases

Cleat Base  
Schedule B



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1230	10	100	21	\$.28

## No. GE1227 Standard Plug Receptacle Bases

Moulding or Taplet Base  
Schedule B

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1227	10	100	22	\$.30



## No. GE1229 Standard Plug Receptacle Bases

3/4-inch Box Base  
Schedule B



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1229	10	50	50	\$.60

## No. GE1228 Standard Plug Receptacle Bases

4-inch Box Base  
Schedule B

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1228	5	50	53	\$.80



## No. GE2641 Junior Triple Taps

10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
Schedule G (Class 6)



Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2641	1	100	19	\$.24

## No. GE2643 Junior Twin Taps

10 Amperes, 250 Volts  
15 Amperes, 125 Volts  
Schedule G (Class 6)

Brown compound.

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2643	25	200	23	\$.24



## No. GE1370 Composition Polarity Caps

20 Amperes, 250 Volts  
Schedule G, Class 1

9/16-Inch Cord Holes



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1370	10	30	8	\$.60

## No. GE1369 Surface Polarity Plug Receptacles

Concealed Base  
20 Amp., 250 Volts  
Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1369	10	30	12	\$1.00



## No. GE1368 Surface Polarity Plug Receptacles

Cleat Base  
20 Amp., 250 Volts  
Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1368	10	30	16	\$1.00



## No. GE1367 Flush Polarity Plug Receptacles

Shallow—One-piece—Black Glazed Porcelain  
20 Amp., 250 Volts  
Schedule G Class 1

Fits No. 49491 plate.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1367	10	30	15	\$1.50



## No. 59197 G-E Polarity Caps

Porcelain, 13/32-Inch Cord Hole  
30 Amps., 250 Volts  
Schedule G, Class 1



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59197	5	25	11	\$.60

## No. 59200 G-E Composition Polarity Caps

30 Amperes, 250 Volts  
Schedule G, Class 1

2 1/32-Inch Cord Hole

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59200	5	25	9	\$.90



## No. 59198 G-E Surface Polarity Plug Receptacles

Concealed Base—Porcelain  
30 Amp., 250 Volts  
Schedule G Class 1



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59198	5	25	21	\$1.00

## No. 59201 G-E Surface Polarity Plug Receptacles

Concealed Base—Moulded Compound  
30 Amp., 250 Volts  
Schedule G Class 1

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59201	5	25	16	\$1.60



**G-E Polarity Plug Receptacles**

30 Amperes, 250 Volts

Schedule G—Class 1



**No. GE996 Flush Polarity Plug Receptacles**

Compound top, porcelain base.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE996	10	30	18	\$1.70

**No. GE997 Flush Plates**

For 30-ampere polarity plug receptacle. Standard finish, brush brass.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE997	10	30	6	\$2.28



**Triple-Pole Polarity Caps**  
2 1/32-Inch Cord Hole

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59192	Porcelain...	5	25	26	\$ .80
59195	Compound..	5	25	10	1.20

**Triple-Pole Surface Polarity Plug Receptacles**

Concealed base.



Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59193	Porcelain.	5	25	26	\$1.40
59196	Compound	5	25	20	2.20

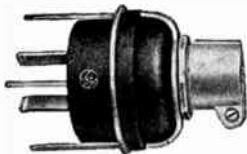


**No. 59325 Porcelain Sub-Bases**  
For cleat and moulding work.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
59325	5	20	9	\$ .20

**G-E Triple-Pole Heavy Duty Polarity Caps**

40 Amperes, 250 Volts—60 Amperes, 125 Volts  
Schedule G, Class 1

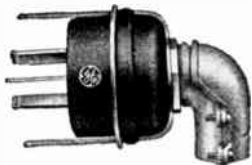


No. 6X547

Black compound.

Carton, 1. Standard package, 10. Weight, standard package of No. 6x547, 18 pounds; No. 6x540, 19 pounds.

Price, No. 6X547, With Straight BX Connector...each \$2.80  
Price, No. 6X540, With Angle BX Connector...each 3.00



No. 6X540

**No. 13X149 G-E Triple-Pole Polarity Plug Receptacles**

30 Amperes, 250 Volts  
Schedule G (Class 1)

Polarity cap with clamp, grip for .625 to .750 inch and grounding clips. Black compound.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
13X149	1	10	8	\$2.00

**No. 13X150 G-E Triple-Pole Polarity Plug Receptacles**

30 Amperes, 250 Volts  
Schedule G (Class 1)

Polarity cap with clamp, grip for .625 to .750 inch and grounding clips. Porcelain. 5/8 to 3/4-inch cord gap.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
13X150	1	10	9	\$1.60



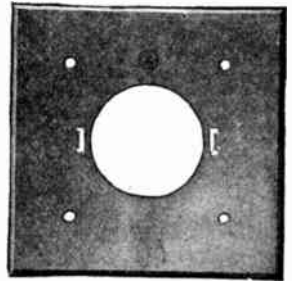
**No. 6X542 G-E Porcelain Triple-Pole Flush Polarity Plug Receptacles**

40 Amperes, 250 Volts  
60 Amperes, 125 Volts  
Schedule G

Fits SP72C101 cover for 4 1/16" outlet box. Carton, 1. Std. pkg., 10; wt., 12 lbs. Price, No. 6X542...each \$6.20

**Flush Plates with Grounding Clip Slots**  
Standard finish, brush brass. Carton, 1. Std. pkg., 10; weight, 10 pounds.

No. 6X541, Brass...each \$2.00  
No. 6X548, Steel...each 1.00



**No. GE2240 Triple-pole Polarity Caps**

Compound, 1 3/32-inch Cord Hole  
10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G (Class 1)



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2240	10	50	6	\$ .50

**No. GE2481 Triple-Pole Polarity Cord Connector Bodies**

10 Amperes, 250 Volts, 15 Amperes, 125 Volts  
Schedule G, Class 1  
1 3/32-Inch Cord Hole  
Black compound.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2481	10	50	8	\$1.00

**No. GE1806 Triple-pole Surface Polarity Plug Receptacles**

Concealed Base

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G (Class 1)



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1806	10	30	13	\$1.00

**No. GE1805 Composition Triple-Pole Flush Polarity Plug Receptacles**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G—Class 1

Shallow, one-piece.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1805	10	50	20	\$1.70



**No. GE853 Pilot Lamp Receptacles**

For 125 Volts  
Schedule G Class 1

This receptacle has porcelain base in which a two candlepower lamp is mounted in an adjustable socket.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE853	10	30	14	\$1.40



**No. GE2633 Heater Plugs**

With Universal Contacts  
660 Watts, 250 Volts  
Schedule G (Class 6)

Brown Compound.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2633	10	100	22	\$ .44





## No. GE2602 Heater Plugs

With Universal Contacts

660 Watts, 250 Volts  
Schedule G, Class 6

Black compound.

Furnished in decorative carton.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2602	10	100	23	\$.84



## No. 2X623 G-E Extension Cord Sets

10 Amperes, 250 Volts  
Schedule G, Class 6

A 6-foot brown silk cord with brown compound pony attachment plug cap and connector body. Furnished in decorative carton.

Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
10	50	21	\$1.20



## No. GE2594 Heater Cord Sets

660 Watts, 250 Volts  
Schedule G, Class 6



6-foot asbestos heater cord, black compound attachment plug and heater plug with universal contacts.

Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1	100	57	\$1.20

## No. GE2725 Heater Cord Sets

660 Watts, 250 Volts—Schedule G (Class 6)

6-foot No. 17 asbestos heater cord, brown compound attach. plug and heater plug with tumbler switch and universal contacts.



No.	Carton	Pkg.	Each
GE2725	1	100	\$1.36

## Bryant Appliance Switch Plugs

6 Amperes, 125 Volts—3 Amperes, 250 Volts  
Schedule H



No. 752

The No. 668 Templus permits control of appliance by means of indicating tumbler switch.

No. 752 is for heating devices with  $\frac{3}{16}$ -inch round contact pins spaced from  $\frac{1}{16}$  to  $\frac{25}{32}$  inches on centers.



No. 668

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
668	10	50	22	\$1.00
752	10	50	22	.90

Contacts, 50 pairs in package; weight, 1 pound.

No. 668C..... per pair \$.20

## No. H250 Hemco Heater Plugs

Moulded of an especially compounded material, known for its mechanical strength. This makes the plug practically unbreakable. Unaffected by the heat of any electrical appliance in regular service. Natural glossy finish.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H250	10	100	17	\$.45



## No. H253 Hemco Cord Set

This cord set combines the Hemco Pul-Cord Attachment Plug at one end with the Hemco Heater Plug at the other. Six feet of flexible cord is used. Unit package (display) consists of 5 sets, standard package 50 sets.

Price. No. H253..... each \$1.50



## G-E Standard Composition Single Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow, one-piece, for plates without doors. With small mounting ears, side wired.



CAT. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	Black Textolite	10	100	15	\$.60
GE2535	GE2257				

## G-E Standard Twin Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 1

Shallow, one-piece, for plates without doors. Small mounting ears, side wired.

CAT. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	Black Textolite	10	100	20	\$.96
GE2536	GE2258				



## G-E Standard Twin Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G (Class 6)



Shallow, one-piece for plates without doors. Wide mounting ears, side wired.

CAT. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	Black Textolite	10	100	22	\$1.00
GE2679	GE2678				

## G-E Standard Composition Single Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow, one-piece, for plates without doors. Wide mounting ears, top wired.



CAT. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Textolite	Black Textolite	10	100	35	\$.60
GE2533	GE658				

## G-E Standard Composition Twin Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow, one-piece, for plates without doors. Wide mounting ears, top wired.

CAT. No.		Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Brown Compound	Black Compound	10	50	13	\$.96
GE2534	GE694				



## No. GE2254 Single Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow one-piece, for plates with doors. Wide mounting ears, top wired.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2254	10	50	21	\$.70

## No. GE2255 Standard Twin Convenience Outlets

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow one-piece, for plates without doors. Wide mounting ears, top wired.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2255	10	50	20	\$1.06

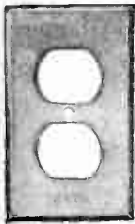


**Flush Plates for G-E Standard Twin Convenience Outlets**

Schedule G, Class 6

**Struck-up Brass Plates—Horizontal Gangs Without Doors**

.040-inch Metal



No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass		Lacquer	
				Cat. No.	Price Each	Cat. No.	Price Each
1 Twin	10	50	12	GE 695	\$.28	GE1592	\$.20
2 "	1	10	14	GE1650	.56	GE1910	.40
3 "	1	10	12	GE1909	.84	GE1919	.60

Gang plates up to and including 8 gangs having standard dimensions and screw spacings can be furnished in Brush Brass at 44 cents list and in Lacquer Finish at 36 cents list per gang.

.060-inch Metal

No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass	
				Cat. No.	Price Each
1 Twin	10	50	13	GE1788	\$ .36
2 "	1	10	21	GE1790	.72
3 "	1	10	15	GE1920	1.08

Gang plates up to and including 8 gangs having standard dimensions and screw spacings can be furnished in Brush Brass at 52 cents list per gang.

**Solid Brass Plates—Horizontal Gangs Without Doors**

.100-inch Metal

No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass	
				Cat. No.	Price Each
1 Twin	10	50	12	GE1987	\$ .68
2 "	1	10	16	GE1988	1.36
3 "	1	10	18	GE1989	2.04

Plates larger than 3 gangs having standard dimensions and screw spacings can be furnished in Brush Brass at 80 cents list per gang.

Plates in tandem or vertical gangs can be furnished in Solid Brass and take 20 per cent advance over the list applying to horizontal gangs.

**Solid Brass Plates with Doors .100-inch Metal**



Cat. No.	No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2256	1 Twin	10	50	28	\$1.60

**Solid Textolite Plates without Doors**

Their stippled finish (either black or brown) will harmonize with any decorative treatment, making them ideal for homes and other buildings where the desire for beauty is dominant. On the other hand, the fact that they are strong, stainless and non-corrosive suggests them as the logical choice for use in industrial and commercial buildings. The black plates blend perfectly with wrought iron or Bauer Barff office partitions. For mahogany trim, the brown plates are ideal.

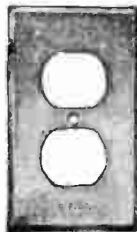


Plate screws with Textolite heads cannot be used with these plates

Black Finish	Brown Finish	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1831	GE2315	10	50	5	\$ .30

**Flush Plates for G-E Standard Single Convenience Outlets**

Schedule G, Class 6

**Struck Up Brass Plates without Doors Horizontal Gangs**

.040-Inch Metal



No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass		Lacquer	
				Cat. No.	Price Each	Cat. No.	Price Each
1 Single	20	100	18	49491	\$.28	GE1591	\$.20
2 Single	1	10	16	GE1649	.56	GE2205	.40
3 Single	1	10	26	GE2204	.84	GE2206	.60

Gang plates up to and including 8 gangs having standard dimensions and screw spacings can be furnished in Brush Brass at 44 cents list per gang and in Lacquer Finish at 36 cents list per gang.

.060-Inch Metal

No. of Outlets	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass	
				Cat. No.	Price Each
1 Single	20	100	24	GE1787	\$ .36
2 Single	1	10	18	GE1789	.72
3 Single	1	10	36	GE2207	1.08

Gang plates up to and including 8 gangs having standard dimensions and screw spacings can be furnished 52 cents list per gang.

**Solid Brass Plates without Doors—Horizontal Gangs**

.100-Inch Metal

1 Single	10	50	32	GE1651	\$ .68
2 Single	1	10	25	GE1652	1.36
3 Single	1	10	21	GE1653	2.04

Plates larger than 3 gangs having standard dimensions and screw spacings can be furnished at 80 cents per gang.

Plates in tandem or vertical gangs can be furnished in Solid Brass and take 20 per cent advance over the list applying to horizontal gangs.

**Sold Textolite Plates without Door**

Their stippled finish (either black or brown) will harmonize with any decorative treatment, making them ideal for homes and other buildings where the desire for beauty is dominant. On the other hand, the fact that they are strong, stainless and non-corrosive suggest them as the logical choice for use in industrial and commercial buildings. The black plates blend perfectly with wrought iron or Bauer Barff office partitions. For mahogany trim, the brown plates are ideal.



Cat. No.	Black	Brown	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE1833	GE2314	20	100	11	\$ .30	

One-piece Textolite head screws are regularly furnished. Standard package consists of 100 single plates or their equivalent in gangs; 20 gangs or 1/5 of a standard package constitutes a carton quantity.

**G-E Textolite Stippled Flush Single Outlet Telephone Plates**

Schedule G (Class 1)



Has stippled finish. Strong, stainless and non-corrosive. The black plate is especially suitable for use with wrought iron office partitions, while the brown plate harmonizes with mahogany trim.

Plates larger than 2-gang cannot be furnished. Brass flush plates larger than 2-gang can be furnished. The single center outlet in each gang is fitted with a 3/8-inch compound bushing.

Black	Brown	Description	Car-ton	Std. Pkg.	Price Each
GE2347	GE2349	Single Plate	10	50	\$ .30
GE2541	GE2542	2-Gang Plate	1	10	.60

## Flush Plates for G-E Standard Convenience Outlets

For Single Convenience Outlets or Medium Screw Base Receptacle  
Schedule G Class 6  
With Door Hung for Vertical Mounting

### Struck-Up Brass Plates Horizontal Gangs .040-Inch Metal



No. of Car- Outlets ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass		Lacquer	
			Cat. No.	Price Each	Cat. No.	Price Each
1	20	100	19	GE2215 \$ .38	19	GE1773 \$ .30

Gang plates up to and including 8 gangs having standard dimensions and screws furnished in brush brass at 54 cents list per gang and in lacquer finish at 46 cents list per gang. Standard package, 10 plates. Carton, 1 plate.

### .060-Inch Metal—Brush Brass

No. of Outlets	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Cat. No.	Price Each
1 Single	20	100	31	36818	\$ .46

Gang plates up to and including 8 gangs having standard dimensions and screw spacings furnished at 62 cents list per gang. Standard package, 10 plates. Carton 1 plate.

### Solid Brass Plates—Horizontal Gangs .100-Inch Metal—Brush Brass

1 Single	10	50	40	GE2224	\$ .78
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Gang plates up to and including 8 gangs having standard dimensions and screw spacings furnished at 90 cents list per gang. Standard package, 10 plates. Carton, 1 plate.

### With Door Hung for Horizontal Mounting



### Struck-Up Brass Plates .040-Inch Metal

No. of Outlets	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Brush Brass		Lacquer	
				Cat. No.	Price Each	Cat. No.	Price Each
1 Single	20	100	23	GE2230 \$ .38		GE2231 \$ .30	

### Solid Brass Plates .100-Inch Metal

1 Single	10	50	40	GE2234	\$ .78	.....	.....
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Plates in tandem or vertical gangs can be furnished in solid brass and take 20 per cent advance over the list applying to horizontal gangs. Standard package, 10 plates. Carton, 1 plate.

Standard finish is brush brass.

## G-E Single Outlet Telephone Plates

Schedule G—Class 1

### Struck-up Brass Plates—Horizontal Gangs

The single center outlet in each gang is fitted with a 3/8-inch compound bushing. Std. pkg. consists of 50 single plates of one type or their equivalent in gangs. Carton, 10.

#### 0.040-inch Metal

Description	BRUSH BRASS		LACQUER	
	Cat. No.	Price Each	Cat. No.	Price Each
Single Plate	GE2129	\$ .40	GE2137	\$ .32

Gang plates up to and including 8 gangs of standard dimensions and screw spacings can be furnished at 56 cents per gang; for 0.060-inch metal at 60 cents per gang.

#### 0.060-inch Metal

Description	BRUSH BRASS	
	Cat. No.	Price Each
Single Plate	GE2140	\$ .48



## G-E Double Outlet Telephone Plates

### Horizontal Gangs

Schedule G Class 1

### Struck-Up Brass Plates Brush Brass

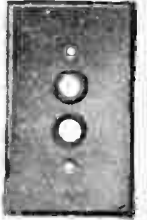
Cat. No.	Single Plate	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
GE2086	0.040-In. Metal	10	50	24	\$ .48
GE2089	0.040-In. Metal Lacquer	10	50	25	\$ .40

GE2098	0.060-In. Metal	10	50	31	\$ .56
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### Solid Brass Plates

GE2109	0.100-In. Metal	1	10	39	\$ .88
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Double outlets in each gang are fitted with 3/8-inch compound bushings. Gang plates up to and including 8 gangs with standard dimensions and screw spacings can be furnished as follows: Nos. GE2086 and GE2089, 64 cents per gang; No. GE2098, 72 cents per gang; and No. GE2109, 88 cents per gang.



## G-E Blank Plates

Schedule G—Class 1

### Struck-up Brass Plates—Horizontal Gangs

Standard package consists of 50 single plates of one type or their equivalent in gangs. Carton, 10.

#### 0.040-inch Metal

Description	BRUSH BRASS		LACQUER	
	Cat. No.	Price Each	Cat. No.	Price Each
Single Plate	GE2178	\$ .36	GE1593	\$ .28

Gang plates up to and including 8 gangs of standard dimensions and screw spacings can be furnished at 52 cents per gang; for 0.060-inch metal at 60 cents per gang.

#### 0.060-inch Metal

Description	BRUSH BRASS	
	Cat. No.	Price Each
Single Plate	GE2186	\$ .44



## G-E Disappearing-door Flush Plug Receptacles

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G—Class 1



No. GE2244

### Single Flush Plug Receptacle Compound and Metal Box

Cat. No.	Description	DIMENSIONS, IN.			Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
		Length	Width	Depth				
GE2244	Single Receptacle	2 1/2	1 1/2	1 3/8	10	30	14	\$ 1.00
GE2245	Twin	2 1/2	1 1/2	1 3/8	10	30	14	1.50



No. GE2245

### Twin Flush Plug Receptacles Compound and Metal Box

## No. GE2248 End Outlet Caps for Disappearing-door Flush Plug Receptacles



Textolite. Brass cover.  
1 1/2-inch cord hole.

Cat. No.	Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
GE2248	10	30	5	\$ 1.20

## Flush Plates for Disappearing-door Flush Plug Receptacles

Struck-up Brass—0.060-inch Metal



No. GE2246

### With Disappearing Door for Single Receptacle

Standard finish, brush brass.



No. GE2247

### With Twin Disappearing Doors for Twin Receptacles

Special finishes are shown on another page.

Cat. No.	Description	DIMENSIONS, IN.			Car- ton	Std. Pkg.	Wt. Lbs.	Price Each
		Height	Width	Depth				
GE2246	Single Receptacle	4 1/2	2 3/4	1 1/2	10	30	9	\$ 9.90
GE2247	Twin	4 1/2	2 3/4	1 1/2	10	30	9	1.40

**G-E Standard Convenience Outlets**

10 Amperes, 250 Volts; 15 Amperes, 125 Volts  
Schedule G, Class 6

Shallow, one-piece, black compound.  
Standard finish of covers is black enamel.

**Single Convenience Outlet**

With Cover for 3/4-Inch Outlet Box

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2585	10	100	40	\$ .70

**Single Convenience Outlet**

With Cover for 4-Inch Outlet Box

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2586	5	50	25	\$ .80

**Twin Convenience Outlet**

With Cover for 4-Inch Outlet Box

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2587	5	50	27	\$1.20



No. GE2587

**R & S Switch Board Type Receptacles and Plugs**

**Single-Pole**

10 to 100 Amperes



No. 73

The receptacle consists of a machined sleeve with heavy nuts for fastening to switch board and a heavy cast lug for soldering cable. Plug is of composition with machined contact pins. The larger sizes, 60 and 100-ampere, have removable contact tips, making it convenient to renew plug contact.

Specify thickness of switchboard when ordering.

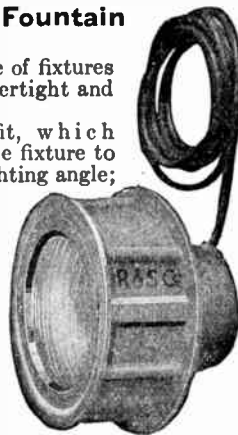
Ampere Rating	Complete with Plug			Plug Only		
	Cat. No.	Net Wt., Lbs.	Price Each	Cat. No.	Net Wt., Lbs.	Price Each
10	34	1/4	\$2.00	129	1/8	\$ .65
30	36	1	4.00	39	1/8	2.50
60	73	1	5.00	74	1/2	3.00
100	49	1 1/2	8.00	138	3/4	4.00

**R & S Swimming Pool and Fountain Fixtures**

Russell & Stoll manufacture a line of fixtures for underwater lighting that is watertight and thoroughly dependable.

Illustrated is a watertight outfit, which pivots in a recess box, allowing the fixture to be adjusted to the most efficient lighting angle; it is water cooled, being entirely surrounded by water when installed. By lifting the lighting unit out of the pivot bearings the fixture can be raised to the surface and relamped in a few minutes without draining the pool or disturbing the current carrying line. Designed to accommodate a type G-30, 250 or 400-watt lamp.

Prices and detailed information upon application.



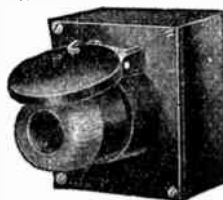
**R & S Weather-Proof Type Receptacles and Plugs**

**2-Wire Polarized**

100 Amperes, 250 Volts

Receptacle and plug are ruggedly designed, with slate interior and heavy bronze spring contacts. Plug is made of composition with a hard maple wood handle and heavy protecting sleeve.

Box and cover, japanned cast iron (galvanizing extra). Cover gasketed and provided with gasketed spring flap door. Box 8x7x3 inches deep. Outlets, 2-inch maximum conduit in any side. Specify outlets required.



Cat. No.	Description	Weight Pounds	Price Each
233	Complete with Plug	19	\$33.00
234	Plug Only	2	9.90

**R & S Switch Box Type Receptacles and Plugs**

**2-Wire**

10 Amperes, 250 Volts

The receptacle bodies and plugs are constructed of moulded bakelite with self-aligning contacts. They are made in two types, polarized and reversible.

Standard finish is brush brass but will be furnished polished brass or nickel without extra charge. All other finishes are extra.



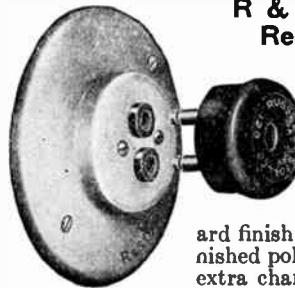
No. 121

Description	Weight Pounds	REVERSIBLE		POLARIZED	
		Cat. No.	Price Each	Cat. No.	Price Each
Complete with Plug	3/4	121	\$2.35	346	\$2.35
Plug Only	1/4	120	1.00	347	1.00
Plate Only	1/4	130	.55	130	.55
Receptacle Only	1/4	131	.85	348	.85

**R & S Junction Box Type Receptacles and Plugs**

10 Amps., 250 Volts—2-Wire

Fits all standard 4-inch round outlet boxes. Cover is heavy spun brass, 4 1/2 inches in diameter. Receptacle bodies and plugs are constructed of moulded bakelite with self-aligning contacts. Standard finish is brush brass, but will be furnished polished brass or nickel without extra charge. Other finishes extra.



Description	Weight Pounds	REVERSIBLE		POLARIZED	
		Cat. No.	Price Each	Cat. No.	Price Each
Complete with Plug	3/4	12	\$2.35	271	\$2.35
Plug Only	1/4	120	1.00	347	1.00
Plate Only	1/4	272	.50	272	.50
Receptacle Only	1/4	278	.85	273	.85

**R & S Heavy Duty Receptacles and Plugs**

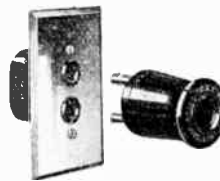
**2 and 3-Wire Polarized**

30 Amperes, 250 Volts

Particularly desirable for use for stereoticon machines, heavy duty toasters, floor surfacing machines, etc.

Fits standard switch box cover. Receptacles and plugs are constructed of cold moulded bakelite with self-aligning contacts. Plugs have cable grip in handle.

Standard finish is brush brass, but will be furnished polished brass or nickel without extra charge. All other finishes are extra.



No. 80

Description	Complete with Plug			Plug Only		
	Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
2-Wire	80	1 1/4	\$3.75	556	1/2	\$1.50
3-Wire	81	1 3/4	6.60	157	3/4	1.75

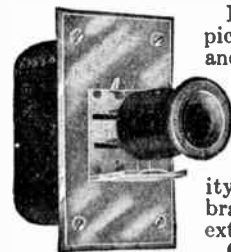
**R & S Flush Wall Type Receptacles and Plugs**

**2-Wire Polarized**

60 Amperes, 250 Volts

For electric range connection, motion picture machines, etc. Receptacle interior and plugs are heavy moulded bakelite with bronze switch jaw type spring contacts. Japanned cast iron box (galvanizing extra) 5 3/4 x 2 3/4 x 4 3/4 inches deep. Plate, 7x4-inch solid brass 1/2 inch thick, with flush gravity flap. Brush brass finish; polished brass or nickel at same list, other finishes extra. Solid bronze plates to order.

Outlets, 1 1/2-inch maximum conduit in any side.



No. 14

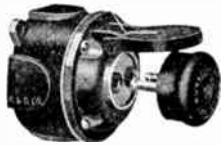
Cat. No.	Description	Weight Pounds	Price Each
14	Complete with Plug	7 1/2	\$14.00
141	Same as No. 14 but with Lock and Key	7 1/2	15.00
140	Plug Only	1 1/2	3.50

**R & S Weather-Proof Type Receptacles and Plugs**

2-Wire

10 Amperes, 250 Volts

A ruggedly designed fitting suitable for greenhouses, garages, factories, power houses and all places exposed to moisture or dust. This fitting is furnished in iron or brass box and cover as listed. Made in two types, polarized and reversible.



No. 123

Receptacle bodies and plugs are made of moulded composition with self-aligning contacts. Box and cover are brass or japanned cast iron (galvanizing extra). Cover is gasketed and provided with gasketed spring flap door.

Outlets, 3/4-inch maximum conduit any side. When ordering, specify outlets required.

**Complete with Plug, Box and Cover**

Description	Weight Pounds	Reversible		Polarized	
		Cat. No.	Price Each	Cat. No.	Price Each
With 3-Inch Round Iron Box...	2 1/4	123	\$4.15	319	\$4.30
With 3-Inch Round Brass Box...	2 1/2	128	5.00	320	5.15
With 4-Inch Square Iron Box...	2 1/2	124	4.40	321	4.55
With 4-Inch Square Brass Box...	2 1/2	978	5.50	979	5.65

**Plug Only**

1/4	120	\$1.00	347	\$1.00
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**R & S Floor Outlet Type Receptacles and Plugs**

15 Amp., 250 Volts—Two-wire, Non-selective

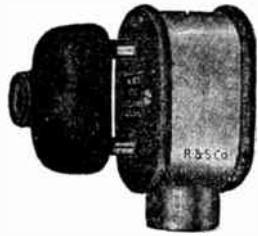
Used in banking houses, offices, etc., for connection of desk lamps or fans to floor outlets.

Compactness and rugged construction have made this fitting popular among architects and engineers.

Heavy composition receptacles and plug, mounted in cast brass box, tapped for 1/2-inch extensions which may be attached to any floor box or used in conjunction with the elbows, tees and adjustable tops.

Unless otherwise ordered, boxes will be furnished Brush Brass finish. Polished nickel or brass will be substituted without extra charge. Other finishes extra.

Cat. No.	Description	Approx. Wt. Lbs.	Price Each
2690	One Receptacle, One Outlet, without Plugs	1	\$3.00
2691	Two Receptacles, " " "	1	4.00
2692	One Receptacle, Two Outlets, " " "	1 1/4	3.60
2693	Two Receptacles, " " "	1 1/4	5.00
2694	Three " " One Outlet, " " "	1 3/4	8.25
2695	Four " " " " "	2	9.60
69	Plug Only for Above	1/4	.55



No. 2690

**R & S Heavy Duty Watertight Floor Receptacles and Plugs**

2-Wire Polarized

60 Amperes, 250 Volts

Japanned cast iron box, heavy brass floor flange and plate, nozzle and flush cap.

Receptacle is fitted with lugs for soldering in cable and heavy bakelite plug with cable grip.

Size of floor flange, 4x7 inches. Depth of box, 4 3/4 inches. Outlets, maximum size, 1 1/4 inches. When ordering, specify outlets required.



No. 142

Cat. No.	Description	Weight Pounds	Price Each
142	Complete with Plug	9 1/4	\$18.00
140	Plug Only	1/2	3.50

**R & S Heavy Duty Watertight Floor Receptacles and Plugs**

Japanned cast iron box, heavy brass floor plate, nozzle and flush cap. Diameter of floor plate, 6 3/4 inches. Depth of box, 4 1/2 inches. Maximum size outlets, 1 1/2 inches. When ordering, specify outlets required.

3-Wire Polarized

75 Amperes, 440 Volts

Composition receptacle and plug with hard maple handle.

Complete with Plug			Plug Only		
Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
155	12 1/2	\$23.00	151	2	\$5.50

2-Wire Polarized

100 Amperes, 250 Volts

Slate receptacle with soldering lugs and heavy composition plug with hard maple handle.

239	15	\$33.00	234	2	\$8.50
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No. 155

**R & S Combination Floor Extensions**

10 Amperes, 250 Volts and Low Tension

These extensions are suitable for floor boxes and all underfloor-duct systems. Used in banks, offices, libraries, etc. for connection of desk lamps, dietaphones, adding machines, desk pads, telephones, etc.

Heavy bakelite interiors mounted in forged brass casing tapped for 1/2 or 3/4-inch extension stem as desired. The stem is inserted in above mentioned systems.



No. 3000 Duplex Receptacle Outlet



No. 3008 Low Tension Outlet

Height, 6 inches over all. Furnished complete or in part. Standard finish is brush brass.

Cat. No.	Description	Wt. Lbs.	Price Each
3000	Complete 10-Ampere 250-Volt Duplex Combination Set	1 1/4	\$5.00
3008	Complete Low Tension Combination Set	1 1/4	4.00
2696	10-Amp. 250-V. Duplex Head Only for 1/2-inch Stem	3/4	3.00
2697	10-Amp. 250-V. Duplex Head Only for 3/4-inch Stem	3/4	3.00
2686	Low Tension Head Only for 1/2-inch Stem	3/4	2.00
2687	Low Tension Head Only for 3/4-inch Stem	3/4	2.00
1921	3 1/2-inch Extension Nipple, 1/2-inch Standard Pipe Size Threaded for Flange	1/4	.80
1956	3 1/2-inch Extension Nipple, 3/4-inch Standard Pipe Size Threaded for Flange	1/4	.90
2619	Lock Flange for 1921 Extension Nipple, 1/2-inch	3/8	1.20
2620	Lock Flange for 1956 Extension Nipple, 3/4-inch	1/2	1.50

Extension nipples can be furnished any length desired. Prices upon application.

**R & S Heavy Duty Watertight Floor Receptacles and Plugs**

2, 3 and 4-Wire Polarized

30 Amperes, 250 Volts

Japanned cast iron box, brass floor plate, cone nozzle and flush cap, with composition receptacle and plug.

Diameter of floor plate: 2 and 3-wire, 5 inches; 4-wire, 6 3/4 inches. Depth of box: 2 and 3-wire, 3 3/4 inches; 4-wire, 4 1/2 inches. Maximum size outlets: 2 and 3-wire, 1 inch; 4-wire, 1 1/2 inches. When ordering, specify outlets required.



No. 86

Description	Complete with Plug			Plug Only		
	Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
2-Wire	86	5 1/4	\$7.70	556	1 1/2	\$1.50
3-Wire	89	5 1/4	9.70	157	3/4	1.75
4-Wire	364	10	15.00	337	3/4	6.00

**R & S Fixture Hanger Devices**

**Fixture Hanger Boxes**



Designed for supporting and lowering fixtures or chandeliers in theatres, lobbies and auditoriums from the floor above, thus providing an easy means for relamping and cleaning. The circuits of the chandelier are disconnected by means of single-pole plugs, the safety devices are removed, the supporting nut is unscrewed, and the fixture then lowered by means of a special winch previously connected to the eye of the chandelier by steel cable.

These fixture hanger boxes are made in several different styles and capacities and complete information will be sent upon request. Full details, i.e., weight of fixture, thickness of floor, size conduit required and number of circuits should be given in the inquiry.

Prices upon application.

**Portable Winches**

This winch is especially arranged for use in connection with the fixture hanger boxes listed above.



The gear is so constructed that it cannot run down without manual operation of the crank.

The winch is portable, therefore only one is required for any number of fixtures.

Prices and complete information upon application.

**R & S Armored Type Cable Extension Connectors**

**2, 3 and 4-Wire Polarized**  
15, 30 and 60 Amperes, 250 Volts

These connectors are especially designed for use where conditions are severe. The interiors of connectors are protected by a cast aluminum housing, having great strength and resistance to acid fumes.

The housings contain a rugged, adjustable cable grip entirely concealed. Both interiors are of the best grade of moulded material, and are fitted with accurately machined contact members, which have provision for direct wire connection, eliminating all lugs.

Assembly of these parts insures full floating and self-alignment of the contact members.



Female End of Connector

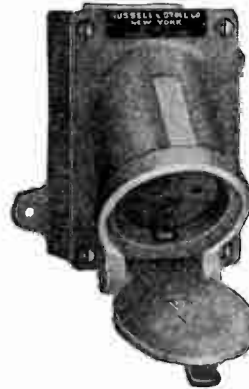


Male End of Connector

Cat. No.	Description	Maximum Cable Diameter Inches	Weight Pounds	Price Each
3202	15-Ampere, 2-Wire	3/4	2 1/4	\$7.00
3203	15-Ampere, 3-Wire	3/4	2 1/4	9.00
3204	15-Ampere, 4-Wire	3/4	2 1/4	10.25
3212	30-Ampere, 2-Wire	1	2 1/4	8.50
3213	30-Ampere, 3-Wire	1	2 1/4	11.70
3214	30-Ampere, 4-Wire	1	2 1/4	13.50
3222	60-Ampere, 2-Wire	1 1/4	2 1/2	15.50
3223	60-Ampere, 3-Wire	1 1/4	2 1/2	18.75
3224	60-Ampere, 4-Wire	1 1/4	2 1/2	20.50

**R & S Angle Type Receptacles and Plugs**

**2, 3 and 4-Wire Polarized**  
15, 30 and 60 Amperes, 250 Volts



Angle Type Receptacle

An important feature of this improved line of receptacles and plugs is the provision for an additional conductor for the grounding of portable electric tools, thereby conforming with the latest regulations governing portable equipment.

**Receptacle Housing**

The receptacle housing is an extra heavy galvanized iron casting provided with gaskets and hinged spring flat cover, and having the following features:

Positive polarization to insure correct assembly of contact members.

Provision for grounding to meet the latest requirements.

External rib to provide visual indication for plug insertion.

Concealed hinge spring packed with grease insures positive and easy action of flap cover.

Assembly of interior parts permits full floating and self-alignment of contact members.

Large conduit bosses and ample space for wiring facilitate installation.



Plug for Use with Angle Fitting

**Plug Housing**

A sturdy silicon aluminum alloy casting having great strength and resistance to acid fumes; light in weight and convenient to handle, with:

A rugged, adjustable cable grip entirely concealed.

An external rib which fits into a corresponding groove in the receptacle housing.

An assembly of the interior parts insuring full float and self-alignment of the contact members.

**Interiors**

The receptacle and plug interiors are of the best grade of moulded material and are fitted with accurately machined contact members, which have provision for direct wire connections, eliminating all lugs.

The ground contacts are plated for identification and make direct contact through heavy springs to the receptacle housing.

When ordering, specify outlets required.

Receptacles Only					Plugs Only			
Capacity	Cat. No.	Max. Size Conduit In.	Wt. Lbs.	Price Each	Cat. No.	Max. Cable Diam. In.	Wt. Lbs.	Price Each
2-Wire	3102	1	3 1/4	\$3.75	3106	3/4	3/4	\$3.25
3-Wire	3103	1	3 1/4	5.00	3107	3/4	3/4	4.50
4-Wire	3104	1	3 1/4	6.00	3108	3/4	3/4	5.00
<b>30 Amperes, 250 Volts</b>								
2-Wire	3112	1 1/4	3 3/4	\$5.25	3116	1	3/4	\$3.25
3-Wire	3113	1 1/4	3 3/4	7.20	3117	1	3/4	4.50
4-Wire	3114	1 1/4	3 3/4	8.50	3118	1	3/4	5.00
<b>60 Amperes, 250 Volts</b>								
2-Wire	3122	1 1/2	8 1/4	\$9.50	3126	1 1/4	1 1/4	\$6.75
3-Wire	3123	1 1/2	8 1/4	11.00	3127	1 1/4	1 1/4	7.70
4-Wire	3124	1 1/2	8 1/4	12.00	3128	1 1/4	1 1/4	8.50



## FA Type F Knife Switches



**Formed Clip**  
**Single-Pole—Unfusible**  
**Front Connection—Plain Finish**  
 250 Volts D.C.  
 or  
 500 Volts A.C.

### Single-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3310	30	1½	\$1.80
F 3510	30	2½	2.40
F 6310	60	2½	2.60
F10310	100	4	3.40
F20310	200	7	5.40

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3310T	30	3	\$2.20
F 3510T	30	4½	3.10
F 6310T	60	4½	3.40
F10310T	100	6¼	4.40
F20310T	200	12½	7.80

## FA Type F Knife Switches



**Formed Clip**  
**Single-Pole—Fusible at Bottom**  
**Front Connection Plain Finish**  
 250 Volts D.C.  
 or A.C.

### Single-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3311	30	2¾	\$2.20
F 6311	60	4½	3.40
F10311	100	7¾	4.20
F20311	200	11¾	7.00

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3311T	30	5¼	\$3.00
F 6311T	60	7¾	4.80
F10311T	100	12½	6.90
F20311T	200	20	12.40

## FA Type F Knife Switches

**Formed Clip**  
**Double-Pole—Unfusible**  
**Front Connection—Plain Finish**  
 250 Volts D.C.  
 or  
 500 Volts A.C.



### Single-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3320	30	2½	\$2.50
F 3520	30	4¼	3.80
F 6320	60	4¼	4.20
F10320	100	8½	5.20
F20320	200	15½	9.50

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3320T	30	4¾	\$3.50
F 3520T	30	7¾	5.40
F 6320T	60	7¾	6.00
F10320T	100	13	8.00
F20320T	200	25	14.20

## FA Type F Knife Switches

**Formed Clip**  
**Double-Pole—Fusible at Bottom**  
**Front Connection Plain Finish**  
 250 Volts D.C.  
 or A.C.



### Single-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3322	30	4½	\$3.40
F 6322	60	7½	5.40
F10322	100	13½	7.20
F20322	200	25	12.50

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3322T	30	8¾	\$5.50
F 6322T	60	12½	9.30
F10322T	100	26½	13.00
F20322T	200	37½	22.50

## FA Type F Knife Switches



**Formed Clip**  
**3-Pole—Unfusible**  
**Front Connection—Plain Finish**  
 250 Volts D.C.  
 or  
 500 Volts A.C.

### Single-Throw

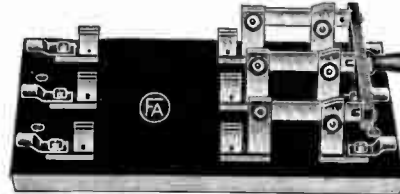
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3330	30	3¾	\$3.80
F 3530	30	6¼	5.40
F 6330	60	6¼	6.00
F10330	100	11½	7.70
F20330	200	22½	14.00

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3330T	30	7	\$5.00
F 3530T	30	11½	8.00
F 6330T	60	11½	8.90
F10330T	100	17½	12.20
F20330T	200	32	21.90

## FA Type F Knife Switches

**Formed Clip**  
**3-Pole—Fusible at Bottom**  
**Front Connection Plain Finish**  
 250 Volts D.C.  
 or A.C.



### Single-Throw

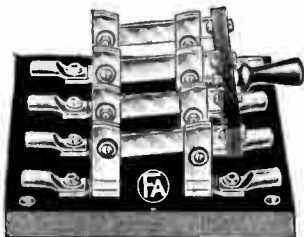
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3333	30	6½	\$4.60
F 6333	60	11	8.10
F10333	100	19½	10.60
F20333	200	35	19.20

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3333T	30	13	\$8.40
F 6333T	60	18½	14.30
F10333T	100	37½	19.50
F20333T	200	59½	33.40

## FA Type F Knife Switches

**Formed Clip**  
**4-Pole—Unfusible**  
**Front Connection—Plain Finish**  
 250 Volts D.C.  
 or  
 500 Volts A.C.



### Single-Throw

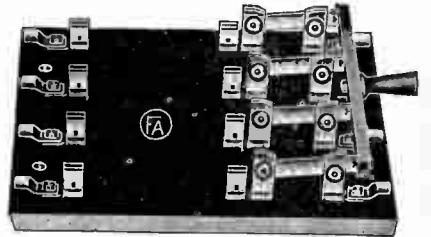
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*1' 3340	30	6½	\$4.60
F 3540	30	11¾	7.00
F 6340	60	12	7.80
F10340	100	19½	10.50
F20340	200	32½	18.30

### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*F 3340T	30	11½	\$6.60
F 3540T	30	19½	10.60
F 6340T	60	20	11.80
F10340T	100	29	16.20
F20340T	200	45½	29.00

## FA Type F Knife Switches

**Formed Clip**  
**4-Pole Fusible at Bottom**  
**Front Connection Plain Finish**  
 250 Volts D.C.  
 or A.C.



### Single-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3344	30	9	\$5.90
F 6344	60	17	10.50
F10344	100	32½	14.70
F20344	200	57	25.70

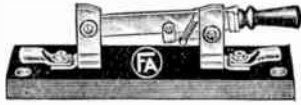
### Double-Throw

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3344T	30	18	\$11.00
F 6344T	60	30	19.20
F10344T	100	67½	25.40
F20344T	200	97	45.40

NOTE.—Double-throw switches will be furnished with fuse connections at both ends.

\*For 250 volts d.c. only.

**FA Type F Knife Switches**  
 Formed Clip  
 Without Fuse Connections  
 Front Connection—Plain Finish  
 On Dead Black Finish Slate Bases



**SINGLE-POLE**  
 600 Volts  
 D.C. or A.C.

Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3610Q	30	3 1/4	\$4.00	
F 6610Q	60	3 1/2	4.20	
F10610Q	100	7 3/4	5.00	
F20610Q	200	10	7.20	
Without Quick Break Blades				
F 3610	30	3 1/4	\$2.50	
F 6610	60	3 1/2	2.70	
F10610	100	7 3/4	3.40	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3610QT	30	6 1/2	\$4.90	
F 6610QT	60	7	5.00	
F10610QT	100	10 1/2	6.60	
F20610QT	200	16	9.90	
Without Quick Break Blades				
F 3610T	30	6 1/2	\$3.30	
F 6610T	60	7	3.40	
F10610T	100	16	4.60	

**DOUBLE-POLE**  
 600 Volts  
 D.C. or A.C.



Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3620Q	30	7 1/4	\$7.70	
F 6620Q	60	8	8.10	
F10620Q	100	13	10.10	
F20620Q	200	20	14.80	
Without Quick Break Blades				
F 3620	30	7 1/4	\$4.70	
F 6620	60	8	5.10	
F10620	100	13	7.00	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3620QT	30	11 1/2	\$10.00	
F 6620QT	60	12	10.50	
F10620QT	100	17 3/4	13.10	
F20620QT	200	26 1/2	20.00	
Without Quick Break Blades				
F 3620T	30	11 1/2	\$7.00	
F 6620T	60	12	7.40	
F10620T	100	17 3/4	9.80	

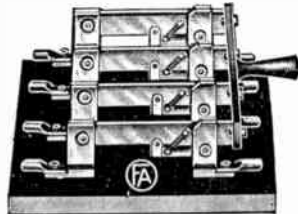


**3-POLE**  
 600 Volts  
 D.C. or A.C.

Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3630Q	30	10 1/2	\$11.40	
F 6630Q	60	12	12.20	
F10630Q	100	19 1/2	14.80	
F20630Q	200	25 1/2	23.00	
Without Quick Break Blades				
F 3630	30	10 1/2	\$7.00	
F 6630	60	12	7.70	
F10630	100	19 1/2	10.20	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3630QT	30	17 1/2	\$15.40	
F 6630QT	60	18	16.10	
F10630QT	100	26 1/2	19.60	
F20630QT	200	39 1/2	30.20	
Without Quick Break Blades				
F 3630T	30	17 1/2	\$10.90	
F 6630T	60	18	11.60	
F10630T	100	26 1/2	15.30	

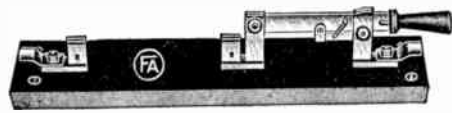
**4-POLE**  
 600 Volts  
 D.C. or A.C.



Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3640Q	30	14 1/2	\$17.50	
F 6640Q	60	16 1/2	18.40	
F10640Q	100	29 1/4	21.60	
F20640Q	200	49	33.10	
Without Quick Break Blades				
F 3640	30	14 1/2	\$11.60	
F 6640	60	16 1/2	12.60	
F10640	100	29 1/4	16.90	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3640QT	30	23 1/2	\$22.10	
F 6640QT	60	24	23.10	
F10640QT	100	35 1/2	28.40	
F20640QT	200	53	43.40	
Without Quick Break Blades				
F 3640T	30	23 1/2	\$16.30	
F 6640T	60	24	17.30	
F10640T	100	35 1/2	22.40	

**FA Type F Knife Switches**  
 Formed Clip  
 With Cartridge Fuse Connections at Hinge End  
 Front Connection—Plain Finish  
 On Dead Black Finish Slate Bases

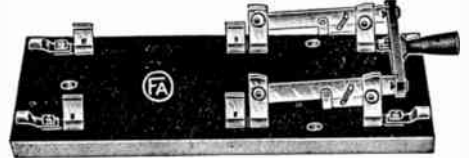


**SINGLE POLE**  
 600 Volts D.C. or A.C.

Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3611Q	30	5 1/2	\$5.00	
F 6611Q	60	7	5.20	
F10611Q	100	13 1/2	6.10	
F20611Q	200	26 1/2	9.10	
Without Quick Break Blades				
F 3611	30	5 1/2	\$3.50	
F 6611	60	7	3.80	
F10611	100	13 1/2	4.60	

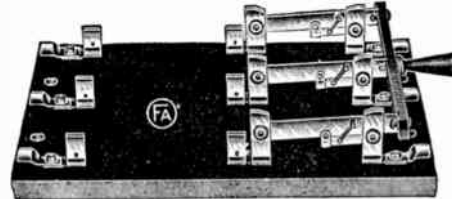
Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3611QT	30	14 3/4	\$6.80	
F 6611QT	60	17	7.50	
F10611QT	100	23	9.10	
F20611QT	200	35	14.80	
Without Quick Break Blades				
F 3611T	30	14 3/4	\$5.30	
F 6611T	60	17	6.00	
F10611T	100	23	7.40	

**DOUBLE POLE**  
 600 Volts  
 D.C. or A.C.



Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3622Q	30	13 1/2	\$9.10	
F 6622Q	60	14 1/2	9.80	
F10622Q	100	29	12.60	
F20622Q	200	49	19.70	
Without Quick Break Blades				
F 3622	30	13 1/2	\$6.20	
F 6622	60	14 1/2	7.00	
F10622	100	29	9.40	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3622QT	30	23	\$15.30	
F 6622QT	60	28	16.40	
F10622QT	100	46	19.00	
F20622QT	200	76 1/2	29.80	
Without Quick Break Blades				
F 3622T	30	23	\$12.20	
F 6622T	60	28	13.40	
F10622T	100	46	16.20	

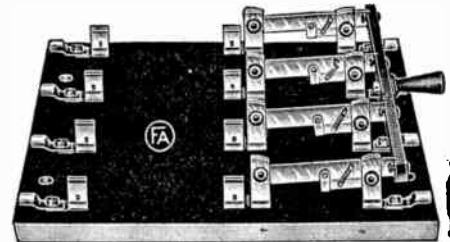


**3-POLE**  
 600 Volts  
 D.C. or A.C.

Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3633Q	30	22	\$15.30	
F 6633Q	60	23	16.70	
F10633Q	100	45	20.10	
F20633Q	200	69 1/2	30.10	
Without Quick Break Blades				
F 3633	30	22	\$10.40	
F 6633	60	23	13.90	
F10633	100	45	15.20	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3633QT	30	32	\$23.00	
F 6633QT	60	42	24.60	
F10633QT	100	75 1/2	30.70	
F20633QT	200	110	45.80	
Without Quick Break Blades				
F 3633T	30	32	\$18.20	
F 6633T	60	42	19.80	
F10633T	100	75 1/2	26.20	

**4-POLE**  
 600 Volts  
 D.C. or A.C.



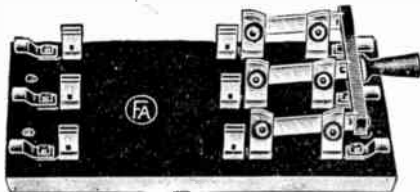
Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3644Q	30	32 1/2	\$22.20	
F 6644Q	60	31	26.10	
F10644Q	100	67	28.90	
F20644Q	200	104	47.60	
Without Quick Break Blades				
F 3644	30	32 1/2	\$16.70	
F 6644	60	34	20.60	
F10644	100	67	22.90	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
F 3644QT	30	57	\$34.30	
F 6644QT	60	62	36.6	
F10644QT	100	114	44.0	
F20644QT	200	189	67.7	
Without Quick Break Blades				
F 3644T	30	57	\$28.6	
F 6644T	60	62	30	
F10644T	100	114	37	

NOTE.—Double-throw switches will be furnished with fuse connections at both ends.

## FA Type F Knife Switches

Formed Clip  
With Cartridge Fuse Connections at Hinge End  
Front Connection—Plain Finish  
On Dead Black Finish Slate Bases



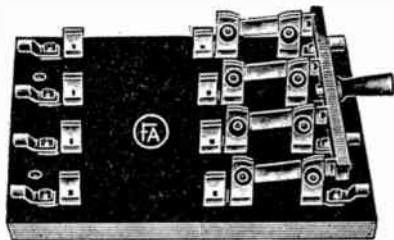
### 3-POLE

500 Volts A.C.  
with 600-Volt  
Fuse Connection

Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3533	30	11½	\$8.30	F 3533T	30	20	\$13.80
F 6533	60	15	9.90	F 6533T	60	20½	17.40
F10533	100	23	13.00	F10533T	100	38	20.80
F20533	200	35½	21.40	F20533T	200	61	36.10

### 4-POLE

500 Volts A.C.  
with 600-Volt  
Fuse Connection

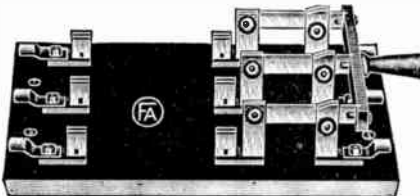


Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
F 3544	30	20	\$11.60	F 3544T	30	31½	\$20.90
F 6544	60	29½	13.70	F 6544T	60	52	24.60
F10544	100	44	17.00	F10544T	100	94½	27.60
F20544	200	70	28.70	F20544T	200	117	47.40

Single and double-pole made to order at special prices.  
Double-throw switches will be furnished with fuse connections at both ends.

## FA Type A Knife Switches

High Grade Milled-In Clip  
With Cartridge Fuse Connections at Hinge End  
Front Connection—Satin Finish  
On Dead Black Finish Slate Bases



500 Volts A.C.  
with 600-Volt  
Fuse Connection

Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3533	30	13¾	\$14.10	A 3533T	30	31	\$20.60
A 6533	60	15½	14.30	A 6533T	60	41	25.90
A 10533	100	25	22.20	A 10533T	100	43	37.80
A 20533	200	36	31.90	A 20533T	200	71	56.20
A 40533	400	72½	57.50	A 40533T	400	135	97.40
A 60533	600	94	89.00	A 60533T	600	181	159.20
A 80533	800	157	197.00	A 80533T	800	235	318.90
A100533	1000	174	247.40	A100533T	1000	255	409.60
A120533	1200	188	293.60	A120533T	1200	275	478.60

### 4-POLE

A 3544	30	17½	\$19.40	A 3544T	30	42	\$33.60
A 6544	60	27½	19.70	A 6544T	60	55	34.80
A 10544	100	39	29.50	A 10544T	100	87	49.60
A 20544	200	61	43.00	A 20544T	200	107	74.50
A 40544	400	105	79.00	A 40544T	400	184	125.10
A 60544	600	132	119.30	A 60544T	600	214	212.20
A 80544	800	203	262.60	A 80544T	800	304	431.70
A100544	1000	225	335.00	A100544T	1000	348	546.00
A120544	1200	247	394.40	A120544T	1200	332	637.90

Single and double-pole made to order at special prices.  
Double-throw switches will be furnished with fuse connections at both ends.

## FA Type A Knife Switches

High Grade Milled-In Clip  
Without Fuse Connections

Front Connection—Satin Finish  
On Dead Black Finish Slate Bases



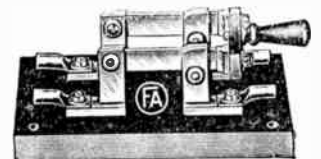
### SINGLE-POLE

250 Volts D.C. or  
500 Volts A.C.

Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*A 3310	30	2½	\$3.30	*A 3310T	30	3	\$4.50
A 3510	30	3	3.90	A 3510T	30	4	5.50
A 6310	60	3	4.30	A 6310T	60	5	6.10
A 10310	100	4½	5.50	A 10310T	100	7	7.60
A 20310	200	8	8.00	A 20310T	200	10	11.70
A 40310	400	15½	15.20	A 40310T	400	20	23.50
A 60310	600	23	22.50	A 60310T	600	30	37.20
A 80310	800	37	46.20	A 80310T	800	47½	67.40
A100310	1000	40½	53.90	A100310T	1000	52	81.80
A120310	1200	45	81.80	A120310T	1200	54½	97.10

### DOUBLE POLE

250 Volts D.C. or  
500 Volts A.C.



Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*A 3320	30	3¾	\$6.00	*A 3320T	30	5	\$8.30
A 3520	30	4	7.00	A 3520T	30	7	10.50
A 6320	60	5	7.80	A 6320T	60	8	11.60
A 10320	100	8¾	9.70	A 10320T	100	11½	14.60
A 20320	200	16	14.90	A 20320T	200	17	22.30
A 40320	400	29	28.20	A 40320T	400	33½	44.90
A 60320	600	37	43.10	A 60320T	600	50	71.50
A 80320	800	63	89.60	A 80320T	800	79	131.00
A100320	1000	69	105.80	A100320T	1000	87	157.20
A120320	1200	76½	129.00	A120320T	1200	91	193.80



### 3-POLE

250 Volts D.C. or  
500 Volts A.C.

Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*A 3330	30	4½	\$8.40	*A 3330T	30	7½	\$12.00
A 3530	30	7½	10.10	A 3530T	30	12	15.40
A 6330	60	7½	11.10	A 6330T	60	12	17.10
A 10330	100	12½	14.20	A 10330T	100	18	21.40
A 20330	200	22½	21.60	A 20330T	200	25	33.50
A 40330	400	43½	42.20	A 40330T	400	50	66.70
A 60330	600	51	63.50	A 60330T	600	75	106.00
A 80330	800	84	133.20	A 80330T	800	118	191.90
A100330	1000	94	157.10	A100330T	1000	130	235.00
A120330	1200	109	192.30	A120330T	1200	136	288.30

### 4-POLE

250 Volts D.C. or 500 Volts A.C.

Single-Throw				Double-Throw			
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
*A 3340	30	6	\$11.00	*A 3340T	30	10	\$15.80
A 3540	30	13	13.60	A 3540T	30	16	20.60
A 6340	60	13	15.10	A 6340T	60	16	22.80
A 10340	100	20¼	18.60	A 10340T	100	23	28.70
A 20340	200	33	29.70	A 20340T	200	34	44.60
A 40340	400	56	57.00	A 40340T	400	67	89.40
A 60340	600	78	85.50	A 60340T	600	100	143.50
A 80340	800	124	176.90	A 80340T	800	158	261.10
A100340	1000	137	208.20	A100340T	1000	174	312.50
A120340	1200	157	256.20	A120340T	1200	182	383.80

\*For 250 volts, d.c. only.

**FA Type A Knife Switches**

High Grade Milled-In Clip  
With Cartridge Fuse Connections at Hinge End

Front Connection—Satin Finish  
On Dead Black Finish Slate Bases



**SINGLE-POLE**

250 Volts D.C.  
or A.C.

**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3311	30	3	\$3.80
A 6311	60	6	5.20
A 10311	100	8 1/2	7.60
A 20311	200	18	11.00
A 40311	400	25	19.90
A 60311	600	34 1/2	30.60
A 80311	800	56	65.40
A100311	1000	62 1/2	83.80
A120311	1200	70	98.60

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3311T	30	5 1/4	\$5.60
A 6311T	60	8	8.30
A 10311T	100	13 1/2	12.80
A 20311T	200	22 1/2	19.40
A 40311T	400	43	33.00
A 60311T	600	59	54.20
A 80311T	800	66	107.40
A100311T	1000	70	136.90
A120311T	1200	73	159.40

**FA Type A Knife Switches**

High Grade Milled In Clip  
Without Fuse Connections

Front Connection—Satin Finish  
On Dead Black Finish Slate Bases



**SINGLE-POLE**

600 Volts D.C.  
or A.C.

**Single-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3610Q	30	3 3/4	\$5.90
A 6610Q	60	4	6.10
A10610Q	100	6	7.60
A20610Q	200	10	10.20
A40610Q	400	15 1/2	18.30
A60610Q	600	22	25.70

**Double-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3610QT	30	6 1/2	\$8.00
A 6610QT	60	7	8.30
A10610QT	100	10 1/2	10.40
A20610QT	200	16	14.60
A40610QT	400	27	27.40
A60610QT	600	34	41.40

Without Quick Break Blades

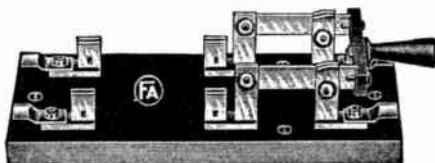
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3610	30	3 1/2	\$4.20
A 6610	60	4	4.60
A10610	100	8 1/2	5.90

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3610T	30	6 1/2	\$6.20
A 6610T	60	7	6.50
A10610T	100	10 1/4	8.30

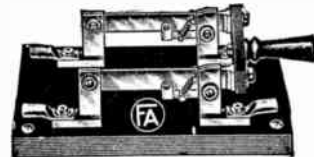
**DOUBLE-POLE**

250 Volts D.C.  
or A.C.



**DOUBLE-POLE**

600 Volts D.C.  
or A.C.



**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3322	30	5	\$7.00
A 6322	60	8 1/4	9.40
A 10322	100	14	14.10
A 20322	200	26	20.80
A 40322	400	44 1/2	38.90
A 60322	600	67	58.60
A 80322	800	99	128.90
A100322	1000	110	164.00
A120322	1200	122	193.70

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3322T	30	8 3/4	\$11.10
A 6322T	60	13 1/2	16.60
A 10322T	100	22 1/2	24.90
A 20322T	200	34	36.60
A 40322T	400	72	63.00
A 60322T	600	99	106.40
A 80322T	800	110	209.40
A100322T	1000	117	266.30
A120322T	1200	122	311.80

**Single-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3620Q	30	8	\$11.30
A 6620Q	60	8 3/4	11.70
A10620Q	100	13 3/4	16.60
A20620Q	200	22 1/2	20.20
A40620Q	400	40	35.10
A60620Q	600	49	50.30

**Double-Throw**

With Quick Break Blades

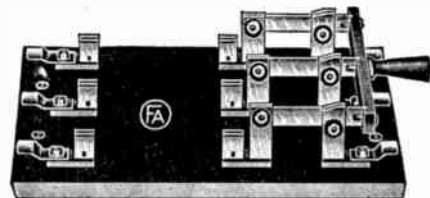
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3620QT	30	15	\$15.90
A 6620QT	60	17	16.70
A10620QT	100	23	20.30
A20620QT	200	34	28.40
A40620QT	400	58	53.00
A60620QT	600	76	81.80

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3620	30	8	\$8.20
A 6620	60	8 3/4	9.00
A10620	100	13 3/4	11.50

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3620T	30	15	\$12.70
A 6620T	60	17	13.50
A10620T	100	23	16.90



**3-POLE**

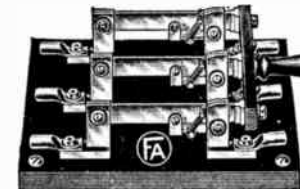
250 Volts D.C.  
or A.C.

**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3333	30	7 1/2	\$9.80
A 6333	60	12 3/4	13.90
A 10333	100	20	20.60
A 20333	200	35	30.40
A 40333	400	69 1/2	57.10
A 60333	600	87	86.20
A 80333	800	145	192.70
A100333	1000	160	243.00
A120333	1200	177	287.80

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3333T	30	13	\$16.60
A 6333T	60	20	25.10
A 10333T	100	33	36.90
A 20333T	200	51	53.80
A 40333T	400	108	94.40
A 60333T	600	148	156.80
A 80333T	800	165	311.60
A100333T	1000	175	395.40
A120333T	1200	183	471.00



**3-POLE**

600 Volts D.C.  
or A.C.

**Single-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3630Q	30	10	\$17.00
A 6630Q	60	11 1/2	17.70
A10630Q	100	21	21.70
A20630Q	200	36	30.80
A40630Q	400	65 1/4	52.50
A60630Q	600	78 1/2	75.90

**Double-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3630QT	30	22	\$24.20
A 6630QT	60	23 1/2	25.30
A10630QT	100	35	30.40
A20630QT	200	55	42.50
A40630QT	400	98 1/2	79.20
A60630QT	600	116	124.60

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3630	30	10	\$12.20
A 6630	60	11 1/2	13.40
A10630	100	21	16.90

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3630T	30	22	\$19.50
A 6630T	60	23 1/2	20.60
A10630T	100	35	25.40

**4-POLE**

250 Volts D.C. or A.C.

**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3344	30	10	\$13.00
A 6344	60	18	18.60
A 10344	100	34	28.00
A 20344	200	60	41.70
A 40344	400	109	77.90
A 60344	600	144	117.40
A 80344	800	212	256.00
A100344	1000	235	323.70
A120344	1200	265	383.00

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3344T	30	17 1/2	\$21.80
A 6344T	60	27	33.60
A 10344T	100	45	48.40
A 20344T	200	68	72.90
A 40344T	400	144	125.40
A 60344T	600	198	206.40
A 80344T	800	220	413.60
A100344T	1000	234	531.20
A120344T	1200	244	625.60

NOTE.—Double-throw switches will be furnished with fuse connections at both ends.

**4-POLE**

600 Volts D.C. or A.C.

**Single-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3640Q	30	16	\$24.80
A 6640Q	60	18	25.70
A10640Q	100	33	31.80
A20640Q	200	54	43.40
A40640Q	400	98	72.80
A60640Q	600	117	105.30

**Double-Throw**

With Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3640QT	30	32 1/2	\$33.80
A 6640QT	60	35	35.30
A10640QT	100	52	42.10
A20640QT	200	83	59.50
A40640QT	400	147	110.00
A60640QT	600	169	168.50

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3640	30	16	\$18.60
A 6640	60	18	20.00
A10640	100	33	25.60

Without Quick Break Blades

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
A 3640T	30	32 1/2	\$27.60
A 6640T	60	35	29.20
A10640T	100	52	36.00

Double-throw switches will be furnished with fuse connections at both ends.

## FA Type A Knife Switches

High Grade Milled In Clip  
With Cartridge Fuse Connections at Hinge End  
Front Connection—Satin Finish  
On Dead Black Finish Slate Bases



### SINGLE-POLE

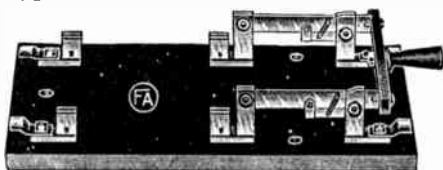
600 Volts D.C. or A.C.

Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3611Q	30	5½	\$7.00	
A 6611Q	60	7	7.30	
A10611Q	100	13¼	10.10	
A20611Q	200	26½	13.40	
A40611Q	400	43¾	23.40	
A60611Q	600	56	34.60	
Without Quick Break Blades				
A 3611	30	5½	\$5.40	
A 6611	60	7	5.70	
A10611	100	13¼	8.20	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3611QT	30	14¾	\$10.20	
A 6611QT	60	17	10.80	
A10611QT	100	23	15.50	
A20611QT	200	35	22.20	
A40611QT	400	65½	39.90	
A60611QT	600	82½	60.50	
Without Quick Break Blades				
A 3611T	30	14¾	\$8.50	
A 6611T	60	16½	9.10	
A10611T	100	23	13.80	

### DOUBLE-POLE

600 Volts D.C. or A.C.

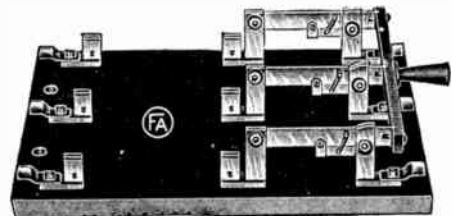


Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3622Q	30	13½	\$13.00	
A 6622Q	60	14½	13.80	
A10622Q	100	29	20.20	
A20622Q	200	49	27.60	
A40622Q	400	75	47.00	
A60622Q	600	95	68.20	
Without Quick Break Blades				
A 3622	30	13½	\$9.80	
A 6622	60	14½	10.60	
A10622	100	29	16.60	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3622QT	30	23	\$22.10	
A 6622QT	60	28	22.90	
A10622QT	100	46	31.40	
A20622QT	200	76½	44.10	
A40622QT	400	113	77.20	
A60622QT	600	138	121.70	
Without Quick Break Blades				
A 3622T	30	23	\$18.90	
A 6622T	60	27½	19.70	
A10622T	100	44½	24.50	

### 3-POLE

600 Volts D.C. or A.C.



Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3633Q	30	22	\$21.00	
A 6633Q	60	23	22.40	
A10633Q	100	45	31.10	
A20633Q	200	69½	41.80	
A40633Q	400	105	71.20	
A60633Q	600	130	103.40	
Without Quick Break Blades				
A 3633	30	22	\$15.80	
A 6633	60	23½	17.80	
A10633	100	43½	25.80	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3633QT	30	32	\$33.10	
A 6633QT	60	42	34.20	
A10633QT	100	75½	49.10	
A20633QT	200	110	68.90	
A40633QT	400	145	114.10	
A60633QT	600	189	180.80	
Without Quick Break Blades				
A 3633T	30	36	\$28.20	
A 6633T	60	41	29.40	
A10633T	100	72½	44.50	

### 4-POLE

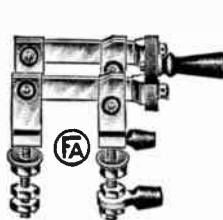
Single-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3644Q	30	32½	\$29.80	
A 6644Q	60	34	33.60	
A10644Q	100	67	43.50	
A20644Q	200	104	63.90	
A40644Q	400	156	98.20	
A60644Q	600	196	141.90	
Without Quick Break Blades				
A 3644	30	32½	\$23.90	
A 6644	60	34	27.80	
A10644	100	65	36.90	

Double-Throw				
With Quick Break Blades				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
A 3644QT	30	57	\$47.80	
A 6644QT	60	62	49.40	
A10644QT	100	114	68.50	
A20644QT	200	189	96.20	
A40644QT	400	225	157.50	
A60644QT	600	286	248.50	
Without Quick Break Blades				
A 3644T	30	55½	\$41.10	
A 6644T	60	60	42.70	
A10644T	100	110	58.40	

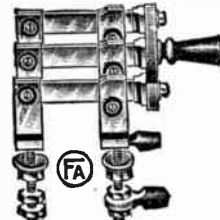
NOTE.—Double-throw switches will be furnished with fuse connections at both ends.

## FA Type B Knife Switches

High Grade Milled In Clip  
Without Fuse Connections  
Back Connection—Satin Finish—Unmounted  
250 Volts D.C. or 500 Volts A.C.



### SINGLE-POLE



Single-Throw					Double-Throw				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each		Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
*B 3310	30	1	\$3.00		*B 3310T	30	1¼	\$4.30	
B 3510	30	1¼	3.40		B 3510T	30	1½	4.70	
B 6310	60	1¼	3.80		B 6310T	60	1½	5.30	
B 10310	100	2½	5.00		B 10310T	100	3	6.80	
B 20310	200	4½	7.80		B 20310T	200	5½	11.00	
B 40310	400	9½	14.70		B 40310T	400	11½	20.40	
B 60310	600	15	22.40		B 60310T	600	19	31.20	
B 80310	800	18	47.10		B 80310T	800	23	69.70	
B100310	1000	20	58.70		B100310T	1000	26	88.40	
B120310	1200	26½	70.20		B120310T	1200	41	104.60	
†B150310	1500	31	88.40		†B150310T	1500	61	133.90	
†B200310	2000	47	111.50		†B200310T	2000	80½	170.20	

### DOUBLE-POLE

Single-Throw					Double-Throw				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each		Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
*B 3320	30	1½	\$6.20		*B 3320T	30	1¾	\$7.80	
B 3520	30	2	6.60		B 3520T	30	2½	9.30	
B 6320	60	2	7.40		B 6320T	60	2½	10.30	
B 10320	100	4	9.50		B 10320T	100	5	13.30	
B 20320	200	7½	15.40		B 20320T	200	9	21.40	
B 40320	400	16	28.70		B 40320T	400	19	40.10	
B 60320	600	25	43.70		B 60320T	600	32	61.30	
B 80320	800	30	92.70		B 80320T	800	38	137.90	
B100320	1000	33	116.70		B100320T	1000	43	174.60	
B120320	1200	44	139.10		B120320T	1200	68	209.00	
†B150320	1500	52	174.80		†B150320T	1500	102	265.80	
†B200320	2000	78	221.00		†B200320T	2000	134	338.60	

### 3-POLE

Single-Throw					Double-Throw				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each		Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
*B 3330	30	2¼	\$8.90		*B 3330T	30	2½	\$12.20	
B 3530	30	3	9.80		B 3530T	30	3¼	13.90	
B 6330	60	3	10.90		B 6330T	60	3¾	15.40	
B 10330	100	6	13.80		B 10330T	100	7½	19.50	
B 20330	200	11	22.60		B 20330T	200	13½	31.70	
B 40330	400	24	42.40		B 40330T	400	28½	59.40	
B 60330	600	37	64.00		B 60330T	600	48	90.50	
B 80330	800	45	138.20		B 80330T	800	57	206.00	
B100330	1000	50	173.50		B100330T	1000	65	260.20	
B120330	1200	66	206.60		B120330T	1200	102	311.00	
†B150330	1500	79	260.40		†B150330T	1500	153	397.00	
†B200330	2000	116	329.50		†B200330T	2000	200	505.90	

### 4-POLE

Single-Throw					Double-Throw				
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each		Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each	
*B 3340	30	3	\$11.80		*B 3340T	30	4½	\$16.40	
B 3540	30	4	13.20		B 3540T	30	5	18.60	
B 6340	60	4	14.60		B 6340T	60	5	20.70	
B 10340	100	8	18.50		B 10340T	100	10	26.00	
B 20340	200	15	30.20		B 20340T	200	18	42.50	
B 40340	400	32	57.10		B 40340T	400	38	79.80	
B 60340	600	50	86.20		B 60340T	600	64	121.30	
B 80340	800	60	184.00		B 80340T	800	76	255.90	
B100340	1000	66	230.60		B100340T	1000	86	346.60	
B120340	1200	88	275.00		B120340T	1200	136	415.00	
†B150340	1500	104	345.90		†B150340T	1500	204	528.20	
†B200340	2000	156	438.00		†B200340T	2000	268	673.30	

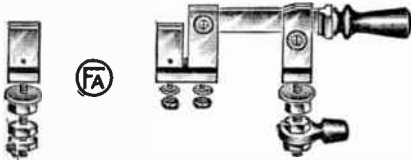
\*For 250 volts d. c. only.

†Give size wire used so proper size lugs can be sent.  
For switches mounted on slate or wood templates, add 50% up to 200 amperes, and 25% for everything over.

For polished finish, add 10%.  
Unless otherwise specified, all switches will be furnished for 1½-inch panel mounting.

**FA Type B Knife Switches**

High Grade Milled In Clip  
With Cartridge Fuse Connections at Hinge End  
Back Connection—Satin Finish—Unmounted



**SINGLE POLE**

250 Volts D.C.  
or A.C.

**Single-Throw**

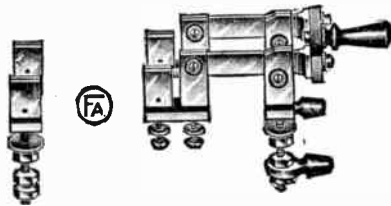
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3311	30	1	\$3.40
B 6311	60	1½	4.20
B 10311	100	3	6.70
B 20311	200	5½	10.10
B 40311	400	11½	18.90
B 60311	600	18	28.80
B 80311	800	27½	62.70
B100311	1000	30½	78.20
B120311	1200	44½	91.70

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3311T	30	1¼	\$4.90
B 6311T	60	1¾	6.20
B 10311T	100	3¾	10.30
B 20311T	200	8	15.70
B 40311T	400	15	28.70
B 60311T	600	23	44.90
B 80311T	800	33	106.30
B100311T	1000	36	133.40
B120311T	1200	65	159.90

**DOUBLE POLE**

250 Volts D.C.  
or A.C.

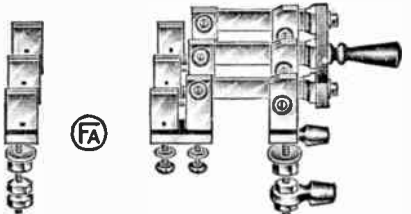


**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3322	30	1¾	\$6.70
B 6322	60	2½	8.50
B 10322	100	5¼	13.20
B 20322	200	9	19.80
B 40322	400	19	37.00
B 60322	600	30	56.50
B 80322	800	46	123.10
B100322	1000	51	153.80
B120322	1200	74	181.20

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3322T	30	2	\$9.70
B 6322T	60	3	12.80
B 10322T	100	6¼	20.30
B 20322T	200	13	31.00
B 40322T	400	25	56.70
B 60322T	600	39	88.60
B 80322T	800	55	209.50
B100322T	1000	61	263.90
B120322T	1200	109	317.50



**3-POLE**

250 Volts D.C.  
or A.C.

**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3333	30	2¾	\$9.80
B 6333	60	3½	12.40
B 10333	100	8	19.40
B 20333	200	13½	29.10
B 40333	400	28½	54.80
B 60333	600	45	83.30
B 80333	800	69	183.80
B100333	1000	76	229.00
B120333	1200	111	270.20

**Double-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3333T	30	3	\$14.20
B 6333T	60	4½	18.40
B 10333T	100	9½	30.00
B 20333T	200	19½	45.90
B 40333T	400	37	84.00
B 60333T	600	59	135.40
B 80333T	800	82	313.40
B100333T	1000	91	393.80
B120333T	1200	163	474.70

**4-POLE**

250 Volts D.C. or A.C.

**Single-Throw**

Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3344	30	2½	\$13.00
B 6344	60	5	16.80
B 10344	100	10½	25.80
B 20344	200	18	38.70
B 40344	400	38	73.70
B 60344	600	60	111.80
B 80344	800	92	243.90
B100344	1000	102	304.60
B120344	1200	148	359.30

**Double-Throw**

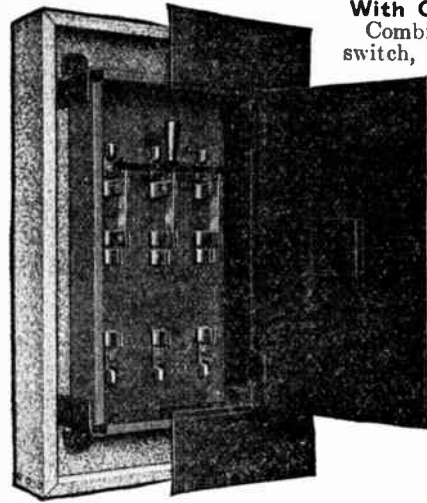
Cat. No.	Cap. Amp.	Wt., Lbs. Each	Price Each
B 3344T	30	4	\$19.00
B 6344T	60	6	24.80
B 10344T	100	12½	40.00
B 20344T	200	26	61.10
B 40344T	400	50	121.00
B 60344T	600	78	183.90
B 80344T	800	110	416.40
B100344T	1000	122	516.30
B120344T	1200	218	632.00

For switches on slate or wood template, add 25%. For polished finish, add 10%. Unless otherwise specified, all switches will be furnished for 1½-inch panel mounting.

Double-throw switches will be furnished with fuse connections at both ends.

**FA Service Knife Switches**

For 250 Volts



**With Gutter Cabinet**

Combination of knife switch, barriers, steel gutter box and steel front.

Box is code thickness galvanized steel.

Kniveswitch has extra size slate base.

Finish, satin and lacquered.

Barrier, transite board.

Front is code thickness steel, black lacquer finish, flush or surface.

**Double Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 32P	14 19 4½	\$32.00	B 402P	23 39 8	\$96.00
B 62P	14 21 4½	35.00	B 602P	28 49 9	150.00
B102P	14 24 4½	38.00	B 802P	36 51 8	264.00
B202P	17 31 6	53.00	B1002P	42 57 9	326.00

**3-Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 33P	16 19 4½	\$34.00	B 403P	27 39 8	\$133.00
B 63P	17 21 4½	39.00	B 603P	33 49 9	218.00
B103P	18 24 4½	45.00	B 803P	42 51 8	350.00
B203P	21 31 6	63.00	B1003P	49 57 9	434.00

**4-Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 34P	18 19 4½	\$37.00	B 404P	32 39 8	\$184.00
B 64P	20 21 4½	45.00	B 604P	38 49 9	262.00
B104P	21 24 4½	51.00	B 804P	49 51 8	444.00
B204P	25 31 6	74.00	B1004P	57 57 9	550.00

**With F. D. Flanged Door**

Steel Box

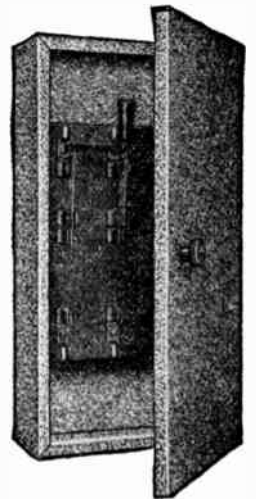
Combination of knife switch and code steel box with surface type hinged door.

Box is code thickness galvanized steel, with hinged door.

Knife switch has standard stock base.

Finish, dipped and lacquered.

Prices are for service switch with box and flanged door.



**Double-Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 32F	6½ 13½ 4½	\$20.00	B 402F	12 35½ 8	\$68.00
B 62F	7½ 17 4½	24.00	B 602F	13½ 44½ 9	102.00
B102F	8½ 21 4½	26.00	B 802F	16 45½ 8	174.00
B202F	9½ 27 6	36.00	B1002F	18½ 53½ 9	217.00

**3-Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 33F	9 13½ 4½	\$23.00	B 403F	16½ 35½ 8	\$89.00
B 63F	10½ 17 4½	27.00	B 603F	18½ 44½ 9	137.00
B103F	11½ 21 4½	31.00	B 803F	22½ 45½ 8	244.00
B203F	13½ 27 6	40.00	B1003F	26 53½ 9	295.00

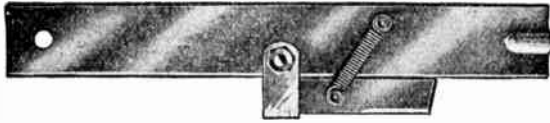
**4-Pole with Cartridge Fuse Connections at Hinge End**

Cat. No.	Box Outside, In. Wide High Deep	Price Each	Cat. No.	Box Outside, In. Wide High Deep	Price Each
B 34F	11½ 13½ 4½	\$25.00	B 404F	21 35½ 8	\$113.00
B 64F	14 17 4½	30.00	B 604F	23½ 44½ 9	171.00
B104F	15 21 4½	36.00	B 804F	29 45½ 8	315.00
B204F	17 27 6	53.00	B1004F	33½ 53½ 9	413.00



## FA Quick Break Attachments

For Any FA Type A and B 250 or 600-Volt Knife Switches



Auxiliary break or the equivalent are recommended for switches designed for over 300 volts and less than 100 amperes, and will be required on switches designed for use in breaking current greater than 100 amperes at a pressure of more than 300 volts.

Price per Pole in Addition to List Price of Switch

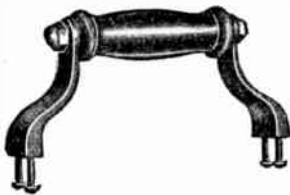
	Single-Throw				
	AMPERES				
	60	100	200	400	600
Plain Finish.....	\$ .86	\$ .90	\$ 1.04	\$ 1.80	\$ 2.08
Satin Finish.....	1.12	1.26	1.54	2.52	2.88

	Double-Throw				
	AMPERES				
	60	100	200	400	600
Plain Finish.....	\$ 1.72	\$ 1.84	\$ 2.12	\$ 3.60	\$ 4.14
Satin Finish.....	2.26	2.48	3.06	5.04	5.76

Prices on quick break attachments for larger switches quoted on application.

## FA Spade Handles

Polished Black Finish  
With Straight Brackets



Type CS



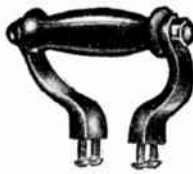
Type BS

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
30CS	30	\$ .78	30BS	30	\$ .78
60CS	60	1.08	60BS	60	1.08
120CS	100, 200	1.68	120BS	100, 200	1.68
400CS	400	2.70	400BS	400	2.70
600CS	600	4.50	600BS	600	4.50
800CS	800 and up	5.62	800BS	800 and up	5.62

With Angle Brackets



Type CA



Type BA

Cat. No.	Cap. Amp.	Price Each	Cat. No.	Cap. Amp.	Price Each
30CA	30	\$ .78	30BA	30	\$ .78
60CA	60	1.08	60BA	60	1.08
120CA	100, 200	1.68	120BA	100, 200	1.68
400CA	400	2.70	400BA	400	2.70
600CA	600	4.50	600BA	600	4.50
800CA	800 and up	5.62	800BA	800 and up	5.62

NOTE.—All above prices are in addition to regular prices of switches.

## Trumbull Telephone or Battery Switches

25 Amperes—Porcelain Base—Front Connections



No. 707

No. 709

No. 710

Fitted with return bend, self-adjusting clip. Projections on posts prevent turning on bases.

Cat. No.	Style	BASE, INCHES Length Width	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
707	S.P., S.T.	2 1/16 x 1 1/4	10	100	21	\$ .20
708	S.P., D.T.	3 7/8 x 1 3/16	5	100	30	.32
709	D.P., S.T.	2 1/16 x 2	10	100	34	.35
710	D.P., D.T.	3 7/8 x 2	5	50	24	.50
711	3P., S.T.	2 7/16 x 3 1/4	5	50	32	.56
712	3P., D.T.	3 5/8 x 3 1/4	5	25	24	.90

## Trumbull Telephone or Battery Switches

25 Amperes—Slate Base—Front Connections



No. 14

All the telephone or battery switches are fitted with the return bend, self-adjusting type of clip, which is unusualy suitable for this type of switch. Projections on posts prevent turning on bases.

Cat. No.	Style	SIZE OF BASE, INCHES Length Width	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
14	D.P., S.T.	2 1/2 x 2	50	30	\$ .45
15	D.P., D.T.	3 3/8 x 2	25	22	.75
16	3P., S.T.	2 1/2 x 3 1/4	50	40	.66
17	3P., D.T.	3 5/8 x 3 1/4	25	30	1.10
18	4P., S.T.	2 1/2 x 4 1/2	25	30	1.00
19	4P., D.T.	3 5/8 x 4 1/2	10	20	1.70

## Trumbull Telephone or Battery Switches

25 Amperes—Fiber Base—Front Connections



No. 7

No. 11

Fitted with return bend self-adjusting clip. Projections on posts prevent turning on bases.

With Composition Handle

Cat. No.	Style	BASE, INCHES Length Width	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
7	S.P., S.T.	2 1/2 x 1 1/8	20	100	14	\$ .22
8	S.P., D.T.	3 3/4 x 1 1/8	10	100	17	.34
9	D.P., S.T.	2 1/2 x 2	10	100	24	.42
10	D.P., D.T.	3 3/4 x 2	10	50	18	.80
40	3P., S.T.	2 1/2 x 3 1/4	10	50	25	.75
41	3P., D.T.	3 3/4 x 3 1/4	10	25	15	1.25
42	4P., S.T.	2 1/2 x 4 3/8	10	25	15	1.10
43	4P., D.T.	4 3/4 x 3 3/8	10	10	10	1.75

With Black Enameled Handle

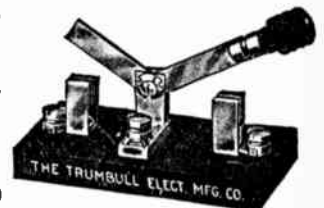
Cat. No.	Style	BASE, INCHES Length Width	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
11	S.P., S.T.	2 1/2 x 1 1/8	20	100	14	\$ .20
13	S.P., D.T.	3 3/4 x 1 1/8	10	100	17	.32

## Trumbull Gas Engine Switches

25 Amperes

For changing from one set of batteries to another.

Cat. No.	Style	Size of Base, In.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
980	S. P.	2x4	5	50	42	\$ .70
984	D. P.	4x4	5	25	35	1.40



No. 980

**80000 Series Square D Industrial Switches**  
**Quick Make and Quick Break—Single Throw**

**COVER CONTROL—INDIVIDUAL BASES**



All switch parts are mounted on individual insulating bases making it possible to remove and replace any switch part from the front of the switch in a few minutes' time.

Positive quick make and quick break action prevents the arc from holding and burning blades and jaws.

Square D cover control makes it impossible to open the cover when the switch is in the on position. It also prevents the operation of the switch with the box cover open.

**250 Volts—Fused**

2-Pole					2-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
*80251	30	424-C	17	\$12.00	86255	400	459	90	\$70.00
86252	60	424-C	16	15.00	86256	600	464	155	100.00
86253	100	426-A	25	23.00	†85257	800	...	160	200.00
86254	200	431-D	46	36.00	†85258	1200	...	238	270.00

3-Pole					3-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
*80351	30	430	20	\$14.00	86355	400	456	135	\$90.00
86352	60	430	20	19.00	86356	600	463	240	130.00
86353	100	433	38	30.00	†85357	800	...	240	260.00
86354	200	431-F	63	40.00	†85358	1200	...	350	350.00

4-Pole					4-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
*80451	30	425-E	24	\$18.00	86455	400	...	150	\$120.00
86452	60	425-E	24	24.00	86456	600	...	275	170.00
86453	100	431-H	55	40.00	†85457	800	...	347	340.00
86454	200	437-C	86	60.00	†85458	1200	...	590	450.00

**Equipped with Porcelain Protective Covers**  
**500 Volts and 600 Volts A.C.—Fused**

3-Pole					3-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
86341	30	425-E	25	\$20.00	86345	400	462	145	\$98.00
86342	60	445-B	25	21.00	86346	600	463	250	140.00
86343	100	433	41	32.00	†85347	800	...	240	270.00
86344	200	431-F	70	50.00	†85348	1200	...	350	370.00

4-Pole					4-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
86441	30	453-C	32	\$24.00	86444	200	437-C	80	\$64.00
86442	60	433-J	32	26.00	86445	400	...	160	140.00
86443	100	431-H	45	42.00	86446	600	...	220	190.00

**WITHOUT COVER CONTROL—NOT INDIVIDUAL BASES**

**250 Volts—Fused**

2-Pole					4-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
85251	30	442-G	5	\$3.50	86451	30	440-A	12	\$12.50
85351	30	423-J	10	\$5.70					

**250 Volts—Unfused**

3-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
83351	30	423-L	9	\$5.70

**Equipped with Porcelain Protective Covers**  
**250 Volts D.C., 500 Volts and 600 Volts A.C.**

**Not Fused**

2-Pole					2-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
**81251	30-60	447-C	15	\$10.50	81245	400	461	78	\$60.00
81242	30-60	447-C	16	13.00	81246	600	466	120	100.00
81243	100	430-A	23	22.00	†81247	800	...	135	170.00
81244	200	428-F	40	28.00	†81248	1200	...	208	230.00

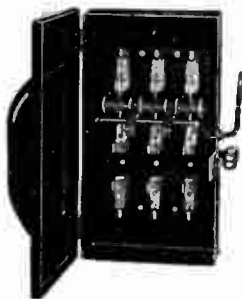
3-Pole					3-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
**81351	30-60	448-G	20	\$12.50	81345	400	460	102	\$70.00
81342	30-60	448-G	21	16.00	81346	600	465	134	120.00
81343	100	425-F	29	24.00	†81347	800	...	170	220.00
81344	200	455	55	34.00	†81348	1200	...	204	310.00

4-Pole					4-Pole				
Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
**81451	30-60	448-G	20	\$18.00	81445	400	469	100	\$115.00
81442	30-60	453-C	29	22.00	81446	600	...	185	160.00
81443	100	453-D	36	32.00	†81447	800	...	145	280.00
81444	200	...	90	45.50	†81448	1200	...	255	400.00

\*60-ampere switches with 30-ampere fuse spacings and clips.  
 \*\*250 volts only.  
 †Furnished with double lugs. Single lugs furnished on order. No cover control.  
 ‡Either slate or individual base.

**90000 Series Square D Industrial Switches**

**Quick Break—Single Throw**



Quick break action breaks the current quickly, preventing damage to the blades and jaws.

Each switch part is mounted on an individual insulating base, making it possible to remove and replace any switch part from the front of the switch in a few minutes' time.

**INDIVIDUAL BASES**

**250 Volts—Fused**

**2-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
\$99251	30	442-L	8	\$2.70	†96257	800	...	160	\$178.00
*90251	30	424-H	14	8.50	†96258	1200	...	238	242.00
96255	400	459-A	85	54.00	†96259	1800	...	...	420.00
96256	600	464-A	154	94.00	†96250	2400	...	...	520.00

**3-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
\$99351	30	423-B	9	\$3.55	†96357	800	...	280	\$236.00
*90351	30	430-E	18	11.00	†96358	1200	...	380	332.00
†96355	400	456-A	130	74.00	†96359	1800	...	...	570.00
97355	400	456-A	130	74.00	†96350	2400	...	...	710.00
96356	600	463-A	250	110.00	99355	400	456-A	...	74.00

**4-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
\$96451	30	440-A	12	\$7.00	96456	600	437-C	200	\$160.00
*90451	30	425-J	21	13.00	†96457	800	449-C	347	315.00
96452	60	425-J	22	14.00	†96458	1200	...	592	420.00
96453	100	455-B	44	29.00	†96459	1800	...	...	765.00
96454	200	437-C	90	48.00	†96450	2400	...	...	960.00
96455	400	449-C	170	105.00					

**40000 and 90000 Series**

**UNIT AND INDIVIDUAL BASES**

**Solid Neutral—For Grounded Neutral Systems**

**125/250 Volts—Fused**

**3-Pole—2 Blades, 2 Fuses**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
\$97351	30	442-L	7	\$3.50	97316	600	...	...	105.00
\$47312	60	447-D	14	10.00	†97317	800	...	...	200.00
47313	100	430-K	18	16.00	†97318	1200	...	...	270.00
47314	200	433-F	43	25.00	99315	400	459-A	...	70.00
97315	400	...	85	70.00					

**4-Pole—3 Blades, 3 Fuses**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
\$97451	30	440-A	12	\$7.00	97415	400	...	160	\$90.00
97412	60	425-J	23	12.50	97416	600	...	300	140.00
97413	100	455-B	41	22.50	†97417	800	...	400	340.00
97414	200	...	85	35.00	†97418	1200	...	600	420.00

**5-Pole—4 Blades, 4 Fuses**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
97551	30	...	...	\$14.00	97514	200	...	...	\$56.00
97512	60	...	...	22.00	97515	400	...	...	134.00
97513	100	...	...	39.50	97516	600	...	...	207.00

**90000 Series**

**INDIVIDUAL BASES**

**500 Volts A.C.—Fused**

**2-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
96241	30	424-H	13	\$11.50					

**3-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
96345	400	462-A	140	\$90.00	†96347	800	...	260	\$250.00
96346	600	463-A	230	124.00	†96348	1200	...	350	350.00

**4-Pole**

Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each	Cat. No.	Am-peres	Box No.	Wt. Lbs.	Price Each
96441	30	453-B	27	\$17.00	96444	200	437-C	90	\$52.00
96442	60	433-G	32	20.00	96445	400	462-A	125	136.00
96443	100	431-P	55	32.00					

## 90000 Series Square D Industrial Switches Quick Break—Single Throw

Continued

### SLATE BASE CONSTRUCTION 600 Volts—Fused

2-Pole					
96261	30	426-B	26	\$15.00	96264 200 461-B 70 \$40.00
96262	60	426-B	34	16.00	96265 400 459-A 135 102.00
96263	100	434-B	44	23.00	
3-Pole					
96361	30	429-C	34	\$17.00	96364 200 437-C 105 \$42.00
96362	60	429-C	35	18.00	96365 400 449 187 120.00
96363	100	431-G	68	27.00	

### INDIVIDUAL BASES

250 Volts D.C. and 500 Volts A.C.—Not Fused

2-Pole					
91245	400	461-D	66	\$40.00	91248 1200 ..... 200 \$220.00
91246	600	466	110	66.00	91249 1800 ..... 340.00
91247	800		135	160.00	91250 2400 ..... 440.00
3-Pole					
91345	400	460-C	87	\$52.00	91348 1200 ..... 204 \$290.00
91346	600	465-A	125	80.00	91349 1800 ..... 460.00
91347	800		170	200.00	91350 2400 ..... 610.00
4-Pole					
91442	30-60	452-C	21	\$15.00	91447 800 ..... 145 \$245.00
91443	100	453-G	31	23.00	91448 1200 ..... 255 360.00
91444	200	451	82	42.00	91449 1800 ..... 660.00
91445	400	460-C	84	70.00	91450 2400 ..... 800.00
91446	600		110	140.00	

### SLATE BASE CONSTRUCTION 600 Volts—Not Fused

2-Pole					
91262	30-60	447-E	16	\$14.00	91264 200 428-H 42 \$28.00
91263	100	426-D	25	20.00	91265 400 ..... 72 94.00
3-Pole					
91362	30-60	452-C	25	\$16.00	91364 200 451 65 \$32.00
91363	100	451	56	23.50	91365 400 465-A 139 114.00

### Not Quick Break—Single Throw PORCELAIN BASE

250 Volts Only—Not Fused

2-Pole		4-Pole	
91251	30 442-E 5 \$2.90	91451	30 440-A 12 \$6.50
91351	30 442-E 6 \$4.40		

### Not Quick Break—Double Throw SLATE BASE CONSTRUCTION

250 Volts D.C. and 500 Volts A.C.—Not Fused

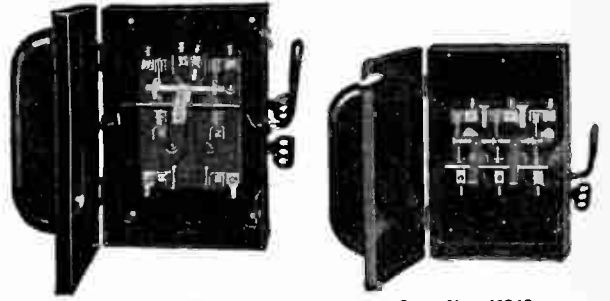
2-Pole					
92242	30-60	447-A	16	\$17.00	92245 400 ..... 81 \$120.00
92243	100	426-E	24	30.00	92246 600 ..... 90 170.00
92244	200	426-E	30	42.00	
3-Pole					
92342	30-60	448-E	22	\$20.00	92345 400 ..... 120 \$160.00
92343	100	425-C	30	37.00	92346 600 ..... 140 224.00
92344	200	451-A	65	61.00	
4-Pole					
92442	30-60	452-C	27	\$32.00	92445 400 ..... 110 \$216.00
92443	100	451-A	58	66.00	92446 600 ..... 175 280.00
92444	200	437-C	65	96.00	

250 Volts—Not Fused

2-Pole		4-Pole	
92251	30 423-C 10 \$13.00	92451	30 448-E 20 \$22.00
92351	30 440-B 14 \$15.00		

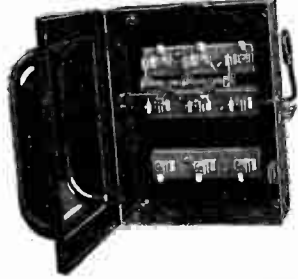
\*60-ampere switches with 30-ampere fuse spacing and clips.  
 †Furnished with double lugs unless single lug specified.  
 ‡Slate or individual base.  
 §Porcelain base.  
 ¶Switched neutral.

## 40000 Series Square D Industrial Switches Quick Break—Single Throw Closed Ends



Cat. No.	Amperes	250 Volts		Weight Pounds	Price Each
		2-Pole Box No.			
46252	60	447-D	14	\$9.00	
46253	100	430-K	20	14.00	
46254	200	428-G	38	22.00	
3-Pole					
46352	60	447-D	16	\$11.00	
46353	100	425-M	27	17.00	
46354	200	433-F	46	29.00	
Solid Neutral 3-Pole—2 Blades 2 Fuses					
47312	60	447-D	14	\$10.00	
47313	100	430-K	18	16.00	
47314	200	433-F	43	25.00	
Switched Neutral					
47352	60	447-D	16	\$11.00	
47353	100	425-M	25	17.00	
47354	200	433-F	46	29.00	
500 Volts A.C.					
3-Pole					
46341	30	430-E	18	\$9.50	
46342	60	430-E	17	12.00	
46343	100	445-B	27	19.00	
46344	200	431-L	65	36.00	
250 Volts D.C. and 500 Volts A.C.—Not Fused					
2-Pole					
41242	60	423-G	10	\$9.00	
41243	100	447-F	13	12.00	
41244	200	425-N	35	21.00	
3-Pole					
41342	60	447-E	14	\$9.50	
41343	100	448-H	21	13.50	
41344	200	429-H	37	25.00	

### Open Ends



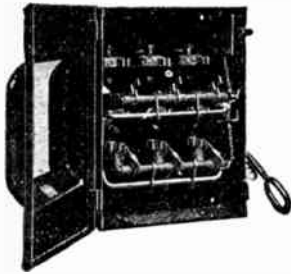
Quick break action.  
 Opening at top permits the use of meter trim.  
 Closing plate to hold meter trim in place is shipped with each switch.

### 250 Volts

Cat. No.	Amperes	250 Volts		Weight Pounds	Price Each
		2-Pole Box No.			
49252	60	447-G	14	\$9.00	
49253	100	430-K	17	14.00	
3-Pole					
49352	60	447-G	15	\$11.00	
49353	100	425-M	26	17.00	
49354	200	433-F	45	29.00	
99355	400	456-A	..	74.00	
Solid Neutral 3-Pole—2 Blades, 2 Fuses					
49312	60	447-G	14	\$10.00	
49313	100	430-K	18	16.00	
49314	200	433-F	38	25.00	
99315	400	459-A	..	70.00	

**Square D Motor Starters**

**Straight Connected—Quick Make and Break Single Throw**



The running fuses are shunted by the use of a set of auxiliary blades during the starting period. The circuit is not opened going from the starting to the running position.

Square D cover control makes it impossible to open the cover when the switch is on or to operate switch when the cover is open.

**Cover Control  
250 Volts**

Cat. No.	No. of Poles	Amperes	Box No.	Weight Pounds	Price Each
76251	2	30	444-A	15	\$17.00
76351	3	30	444-A	16	18.00
76451	4	30	448-F	20	25.00
76352	3	60	425-D	24	25.00
76452	4	60	453	33	35.00
<b>500 Volts and 600 Volts A.C.</b>					
76341	3	30	425-D	26	\$25.00
76441	4	30	453	33	35.00
76342	3	60	453-A	29	36.00

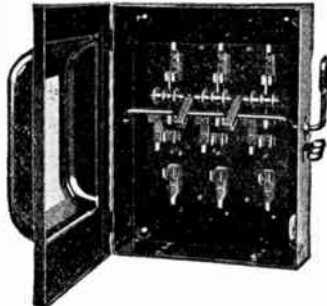
Cover control keys purchased separately.

**Without Cover Control**

<b>250 Volts</b>					
Cat. No.	No. of Poles	Amperes	Box No.	Weight Pounds	Price Each
69251	2	30	427	12	\$15.00
69351	3	30	427	14	16.00
69451	4	30	448-L	19	23.00
69352	3	60	425-P	24	23.00
69452	4	60	453-E	31	33.00
<b>500 Volts and 600 Volts A.C.</b>					
69341	3	30	425-P	24	\$23.00
69441	4	30	453-E	31	33.00
69342	3	60	453-F	28	34.00

**Square D Service Entrance Switches  
Compensator and Meter Test Type  
Individual Bases**

The compensator provides 2 taps, one for a direct line circuit for starting, the other for a local fused circuit for running. Switch may be arranged to have the fuses on the line side of the switch or, by removing links on compensator side, depending on design of compensator. The switch has a quick-break mechanism. By removing the links the 78000 line switch becomes a meter testing switch, which consists of a cutout and switch mounted on same base.



Removable ends make it possible to use Square D meter trims. Shipped with one end plate in bottom opening.

**250 Volts  
3-Pole**

Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
78351	30	425-G	23	\$19.20	78354	200	437-F	90	\$52.80
78352	60	425-G	24	19.20	†78355	400	449-B	165	84.00
78353	100	433-A	38	31.00					

**Switched Neutral**

<b>3-Pole—3 Blades, 2 Fuses</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*77351	30	425-G	22	\$19.20	*77354	200	437-F	87	\$52.80
*77352	60	425-G	23	19.20	*†77355	400	449-B	165	84.00
*77353	100	433-A	35	31.00					

**500 Volts A.C.  
3-Pole**

78341	30	425-G	23	\$20.20	*78344	200	437-F	77	\$56.00
78342	60	445-E	30	21.20	*†77344	400	437-F	77	56.00
78343	100	433-A	38	33.00					

\*Either slate or individual base. †Switched neutral. ‡Solid ends—either slate or individual base.

**Square D Service Entrance Switches  
Not Meter Test Type—Removable Ends**



**125 Volts**

<b>2-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*97211	30	410	4	\$1.80	99211	30	410	5	\$12.00

\*Solid neutral—1 blade and 1 fuse. Provided with terminals for thermostat connections. Switch may be used with or without thermostat.

<b>3-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*97311	30	410	5	\$2.70	99311	30	442-L	6	\$3.30
†SK-2011	30	442-L	6	3.30					

\*Solid neutral—2 blades and 2 fuses.  
†Switched neutral—3 blades and 2 fuses.

<b>4-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*96411	30	440-A	11	\$7.60					

\*Solid ends.

<b>250 Volts 2-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*97251	30	410	5	\$1.80	99251	30	442-L	6	\$2.70

\*Solid neutral—1 blade and 1 fuse.

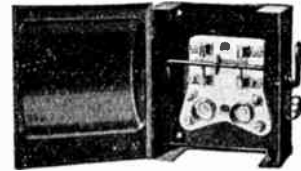
<b>3-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*97351	30	442-L	7	\$3.50	99351	30	423-B	9	\$3.55
†SK-2051	30	423-B	9	5.70					

\*Solid neutral—2 blades and 2 fuses.  
†Switched neutral—3 blades and 2 fuses.

<b>4-Pole</b>									
Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each	Cat. No.	Amperes	Box No.	Wt. Lbs.	Price Each
*96451	30	440-A	12	\$7.00	†97451	30	440-A	12	\$7.00

\*Solid ends.  
†Solid neutral—3 blades and 3 fuses.

**Square D Meter Test Switches  
Single Throw, Fused Bottom, 125 Volts**

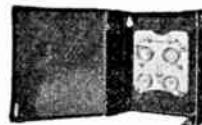


No. 78211

By means of this type switch, meters can be tested without interrupting the current supply.

Cat. No.	Amperes	No. of Poles	Weight Pounds	Price Each
78211	30	2	6	\$2.80
78311	30	3	6	4.50

**No. 35211 Square-D Enclosed Double Branch Cutouts**



**2-Pole  
125 Volts, 30 Amperes**  
Adapted to either 2 or 3-wire service. Box equipped with knock-outs and twist out ends.

Cat. No.	Box No.	Weight Pounds	Price Each
35211	442	5	\$2.60

**Square-D Cabinet Connectors**

This connector is used to connect branch cutout to entrance switch.

Cat. No.	Description	No. of Holes	Price Each
18318	Steel	..	\$.24
17322	Porcelain	2	.24
17332	Porcelain	3	.24



Cat. No. 18318

## No. 1211 Square-D Porcelain Entrance Switches



<b>2-Pole</b>		
<b>125 Volts, 30 Amperes</b>		
Cat. No.	Weight Pounds	Price Each
1211	6	\$2.00

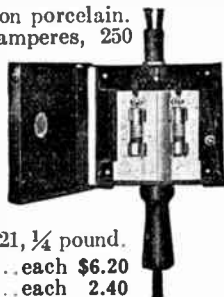
## Square D 2-Pole Plug Receptacles and Attachment Plugs

250 Volts, 30 Amperes

All live parts of the receptacle are contained in sheet steel box.

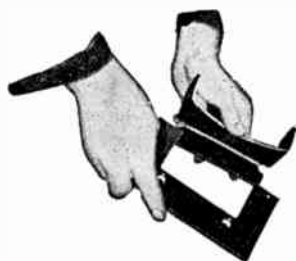
Fuses and terminals are mounted on porcelain. Receptacles may be fused up to 30 amperes, 250 volts.

Attachment plug is of the polarity type, shaped so that it cannot be reversed when inserting in receptacle. Cable or flexible cord passes through handle and is fastened to terminals at either side of plug by means of contact screws.



Weight: No. 5001, 4 1/4 pounds; No. 5021, 1/4 pound.  
Price, No. 5001, Plug Receptacle..... each \$6.20  
Price, No. 5021, Attachment Plug..... each 2.40

## Square D End Plates for Entrance Switches



Used with the 77000 and 78000 lines of entrance switches. Adapter end plates can be supplied which fit into the top opening of the switch box into which the meter trims fit.

Cat. No. 18483 is fitted with a Square D meter trim.

Cat. No.	Description	Wt. Lbs.	Price Each
18483	Adapter End Plate. Use with Meter Trims on 78341, 78342, 78343, 78351, 78352, 78353, 77351, 77352 and 77353	1 1/2	\$.60
18583	Adapter End Plate. For 78344, 78354, 78355 and 77354.....	2	.70
19484	Compensator End Plate. For 78341, 78342, 78343, 78351, 78352, 78353, 77351, 77552, 77353.....	4	.60
19586	Compensator End Plate. For 78344, 78354, 78355 and 77354.....	5	.70

## Square D Test Plugs and Sockets

Designed to facilitate keeping a record of the rate of power consumption of each motor without loss of production.

To make test, instrument is plugged in, at top and bottom of switch, and switch thrown off. Current is then caused to flow through meter.



Test Plugs			
Cat. No.	Amps.	Car-ton	Std. Pkg. Price Each
70123	30-100	10	100 \$3.80
70124	200	5	50 5.60
70126	400-600	1	5 9.40

Test Sockets			
Cat. No.	Amps.	Car-ton	Std. Pkg. Price Each
70632	30-60	50	500 \$.70
70633	100	50	500 .70
70644	200	25	250 1.10
70665	400	5	5 2.30
70666	600	5	5 2.30

## Square D Meter Trims

For Use with Meter Service Switches and Standardized Switches

Use Locking Plate, Nos. 22383 and 24483 with Standardized Switches

### For Fort Wayne Meters

For Top Cat. or Bottom No. of Box	Type	Service	No. of Wires	Volts	Amps.	Price Each
11503	Top K-5	S. Ph.	2&3	110-220	5-25	\$ .33

### For General Electric Meters

11504	Top 1-10	S. Ph.	2	110-220	5-25	\$ .33
11504	Top 1-10	S. Ph.	3	110-220	5-15	.33
11503	Top 1-14	S. Ph.	2&3	110-220	5-25	.33
11526	Top 1-14	S. Ph.	2&3	110-220	50-75	.65
11506	Rev. 1	S. Ph.	2	110-650	3-25	3.00
11506	Rev. 1	S. Ph.	3	200-650	3-25	3.00
11515	Rev. C-6	D. C.	2	110-220	5-50	4.05
11515	Rev. C-6	D. C.	3	200	5-50	4.05
11513	Rev. D-3	2&3 Ph.	3	100-600	3-75	4.60
11513	Rev. D-3	2&3 Ph.	4	100-600	3-75	4.60
11525	Rev. D-6	2&3 Ph.	3&4	220-440	5-25	4.05
11529	Top D-6	2&3 Ph.	3	110-550	50-75	4.60

### For Sangamo Meters

11505	Top H Model* Chamber	S. Ph.	2&3	110-550	5-15	\$ .33
	4 3/8 In. Wide					
11528	Top H Model† Chamber	S. Ph.	2&3	110-550	5-15	.51
	4 9/16 In. Wide					
11528	Top H Model* Chamber	S. Ph.	2&3	110-550	25-100	.51
	4 9/16 In. Wide					
11532	Top H Model† Chamber	S. Ph.	2&3	110-550	25-100	.61
	5 3/8 In. Wide					
11523	Top D-5	D. C.	2	110-220	10-100	.51
11534	Top D-5	D. C.	3	110-220	10-100	1.75
11527	Rev. H-2	Poly.	...	110-550	5-100	3.35

### For Westinghouse Meters

11501	Top O. A.	S. Ph.	2&3	.....	5-10	\$ .33
11523	Top O. A.	S. Ph.	2	100-400	5-10	.51
11523	Top O. A.	S. Ph.	3	100-200	5-10	.51
11511	Top O. A.	S. Ph.	2	.....	15-75	.51
11511	Top O. A.	S. Ph.	3	100-200	15-50	.51
11511	Top O. A.	S. Ph.	2&3	100-400	5-75	.51
	25 Cycle					
11522	Top O. A.	S. Ph.	2	100-400	15-80	.51
11522	Top O. A.	S. Ph.	3	100-200	15-60	.51
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
11502	Bot. C.	S. Ph.	2	100-200	5-20	.57
11520	Rev. C.	2&3 Ph.	3	100-500	5-40	2.88
11520	Rev. C.	2&3 Ph.	4	100-500	5-40	2.88

\*Serial Nos. 330000 to 2001000.

†Serial Nos. above 2001000.

Nos. 11501 and 11523 are similar except that No. 11501 is used with meter terminal cover and holding stud in place, while No. 11523 is used when terminal cover and holding stud are removed. Nos. 11511 and 11522 are similar; No. 11511 is used with cover and holding stud in place, while No. 11522 is used when terminal cover and holding stud are removed.

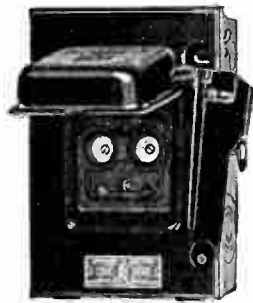
**Square D Meter Service Switches**

Accessible Main Fuses

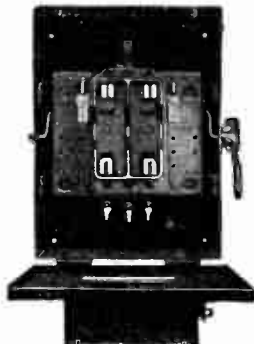
Fuses and Blades Dead When Switch Is Open

Single Phase—D.C.—Polyphase

30, 60, 100 Amperes—Meter Test—125-250 Volts  
2 or 3-Wire Service



No. 30331, Flap Open



No. 10373, Open

Designed for use in connection with meter service, with the main line fuses so located at the front of the switch, that the customer may have access to them for replacement, after first throwing the switch lever to the Off position then raising the auxiliary cover or flap. Opening the flap does not afford access to the switch mechanism proper, this mechanism being under the main cover and sealed.

**Meter Test**

Cat. No.	Switch Poles	Blades	Amperes	Volts	Fuses	Links	Box No.	Std. Pkg.	Wt. Lbs.	Price, Each	
										With Wall	Without Wall
30211	2	2	30	125	2P	1B	432-J	10	9	\$5.80	\$5.40
*30231	2	1	30	125	1P	1B	432-L	10	10	5.40	5.00
30251	2	2	30	250	2C	1B	432-J	10	8	7.00	6.60
*30271	2	1	30	250	1C	1B	432-J	10	8	6.15	5.75
*30331	3	2	30	125-250	2P	2B	432-J	10	10	6.50	6.10
†30361	3	3	30	125-250	2C	4L	505	10	10	7.75	7.35
*30371	3	2	30	125-250	2C	2B	432-J	10	10	7.00	6.60
†30381	3	3	30	125-250	2P	2B	432-J	10	9	7.00	6.60
30252	2	2	60	250	2C	2L	457-C	4	22	20.00	19.10
*30272	2	1	60	125	1C	2L	457-C	4	20	19.00	18.10
†30362	3	3	60	125-250	2C	4L	458-C	4	30	25.50	24.60
†30382	3	3	60	125-250	2C	4L	425-Y	4	...	29.50	28.60
*30372	3	2	60	125-250	2C	4L	457-C	4	25	21.00	20.10
†30312	3	2	60	125-250	2C	4L	425-U	4	40	25.50	24.60
30253	2	2	100	250	2C	2L	425-R	2	40	30.00	29.10
*30273	2	1	100	125	1C	2L	425-R	2	30	30.00	29.10
*30373	3	2	100	125-250	2C	4L	425-R	2	40	32.00	31.10
†30313	3	2	100	125-250	2C	4L	428-J	2	50	36.00	35.10
†30383	3	3	100	125-250	2C	4L	428-J	2	53	36.00	35.10
*30314	3	2	200	125-250	2C	4L	431-M	1	111	74.00	...
†30315	3	2	400	125-250	2C	4L	511-A	1	250	140.00	...

**Not Meter Test**

10211	2	2	30	125	2P	...	432-J	10	9	\$5.40	\$5.00
*10231	2	1	30	125	1P	...	432-L	10	9	5.00	4.60
10251	2	2	30	250	2C	...	432-J	10	9	6.60	6.20
*10271	2	1	30	125	1C	...	432-J	10	9	5.65	5.25
*10331	3	2	30	125-250	2P	...	432-J	10	10	5.80	5.40
†10361	3	3	30	125-250	2C	...	505	10	14	8.15	7.75
*10371	3	2	30	125-250	2C	...	432-J	10	10	6.60	6.20
†10381	3	3	30	125-250	2P	...	432-J	10	8	7.00	6.60
10252	2	2	60	250	2C	...	457-C	10	20	19.00	18.10
*10272	2	1	60	125	1C	...	457-C	4	20	18.00	17.10
†10362	3	3	60	125-250	2C	...	458-D	4	30	24.25	23.35
†10382	3	3	60	125-250	2C	...	425-U	4	28	28.25	27.35
*10372	3	2	60	125-250	2C	...	457-C	4	22	20.00	19.10
†10312	3	2	60	125-250	2C	...	425-U	4	38	24.25	23.35
10253	2	2	100	250	2C	...	425-R	2	40	29.00	28.10
*10273	2	1	100	125	1C	...	425-R	4	40	28.00	27.10
*10373	3	2	100	125-250	2C	...	425-R	2	40	30.00	29.10
†10313	3	2	100	125-250	2C	...	428-J	2	50	34.25	33.35
†10383	3	3	100	125-250	2C	...	428-J	2	50	34.25	33.35
*10314	3	2	200	125-250	2C	...	431-R	2	100	68.00	...
†10315	3	2	400	125-250	2C	...	511	1	190	125.00	...

\*Solid neutral. †Switched neutral.  
†Switches with visible blades. Test links are parallel and line connections to meter located at outer edges of base.

**Square-D Meter Service Switches**

With Accessible Main Fuses

Polyphase

The switches are designed for 2-phase and 3-phase, 3-wire systems, having each leg of the service fused and switched.

Both the fuses and switch blades are ahead of the meter and are dead when switch is in Off position. An interlocking device also makes it impossible to close the switch when auxiliary cover or flat covering fuses is open.

When testing with these devices either or both current coils of the meter may be disconnected without interrupting customer's service. This is accomplished by means of the meter testing links or blades.



Cat. No. 30392

**Meter Test Type**

Cat. No.	Switch Poles	Blades	Amperes	Volts	Fuses	Links	Box No.	Std. Pkg.	Wt. Lbs.	Price, Each	
										With Wall	Without Wall
30391	3	3	30	250	3C	4L	457-E	10	22	\$14.50	\$14.10
30392	3	3	60	250	3C	4L	425-U	4	40	24.00	23.10
30352	3	3	60	250	3C	4L	458-D	4	30	24.00	23.10
30393	3	3	100	250	3C	4L	428-J	2	50	35.00	34.10
30394	3	3	200	250	3C	4L	431-M	1	144	80.00	...
30395	3	3	400	250	3C	4L	509	1	265	170.00	...

**Not Meter Test**

Visible Blade Construction

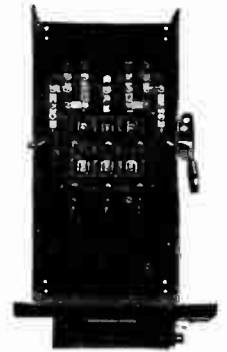
10391	3	3	30	250	3C	...	457-E	10	23	\$13.70	\$13.30
10392	3	3	60	250	3C	...	425-U	4	37	22.00	21.10
10393	3	3	100	250	3C	...	428-J	2	37	33.00	32.10
10394	3	3	200	250	3C	...	431-R	1	103	75.00	...
10395	3	3	400	250	3C	...	511	1	190	160.00	...

**Square D Meter Service Switches**

With Sealable Main Fuses



Cat. No. 38311



Cat. No. 36352, Open

Branch Fuses in Separate Compartments

Solid Neutral

Cat. No.	Switch Poles	Blades	Amperes	Volts	Fuses		Box No.	Std. Pkg.	Wt. Lbs.	Price, Each	
					Main	Branch				With Wall	Without Wall
38211	2	..	30	125	1	4	72-A	10	12	\$7.50	\$7.10
38311	3	..	30	125-250	2	4	72-A	10	12	9.20	8.80

Polyphase

Meter Test Type

36351	3	3	30	250	3C	..	4L 505-B	10	13	\$14.35	\$13.80
36352	3	3	60	250	3C	..	4L 458-E	4	30	20.00	19.10
36393	3	3	100	250	3C	..	4L .....	2	..	31.00	30.10

Not Meter Test

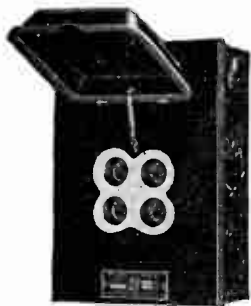
SK-671	3	3	30	250	3C	..	432-A	10	7	\$6.25	\$5.85
SK-672	3	3	60	250	3C	..	457-A	4	15	14.20	13.30
SK-673	3	3	100	250	3C	..	458-A	2	20	22.70	21.80



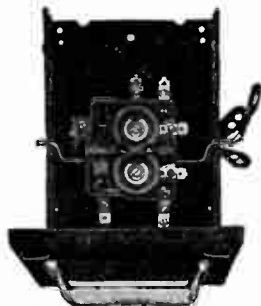
## Square D Universal Meter Service Switches Standardized—Single Phase—D.C.

30 Amperes—125 Volts—Plug Fuse—Single  
Phase and D.C.

2 and 3-Pole Mains, Fused and Solid Neutral Mains



Cat. No. 34311, Open



Cat. No. 33211, Main Cover Open

Descriptive wiring diagrams in each switch show the various types of installations for the respective catalogue numbers as described below.

### 1, 2, 3 and 4-Branch Circuits with Fused and Solid Neutrals

Cat. No.	SWITCH AND CUTOFF			BRANCH CIRCUITS			Box No.	Std. Pkg.	Wt. Lbs.	PRICE, EACH	
	No. of Poles	No. of Blades	No. of Fuses	No. of Cir-cuits	No. of Fuses	No. in Ea. Cir.				With End Wall	Without End Wall
*33211	2	1	1	2	2	1	432-M	10	8	\$5.10	\$4.70
†32211	2	1	1	2	2	1	432-D	10	8	5.10	4.70
32311	3	2	2	2	2	1	432-D	10	9	5.50	5.10
32311	3	2	2	1	2	2	432-D	10	9	5.50	5.10
32311	2	2	2	1	2	2	432-D	10	9	5.50	5.10
34211	2	1	1	4	4	1	432-E	10	9	6.25	5.85
34311	3	2	2	4	4	1	432-E	10	9	7.00	6.60
34311	2	2	2	2	4	2	432-E	10	9	7.00	6.60

\*Same as Cat. No. 32211 except branch fuses in vertical position allowing more wiring space.

†Same as Cat. No. 33211 except branch fuses in horizontal position.

### Universal—Ganging Type—For Banked Installations

#### 1, 2 and 4-Branch Circuits with Fused and Solid Neutral



Cat. No. 13211  
Main Cover Open

The cabinet of this switch is in the form of an inverted T and the switches may then be ganged or banked without the use of connecting troughs or nipples. The over all length of the wiring gutter at bottom of each switch is 10 1/4 inches.

For wiring troughs to obtain other meter centers than those permitted by the width of the switch itself and also for vertical wiring troughs to connect 2 or more banks of switches. Nos. 20735, 20736 and 20737.

At the end of each bank of switches use trough closing plate No. 20533.

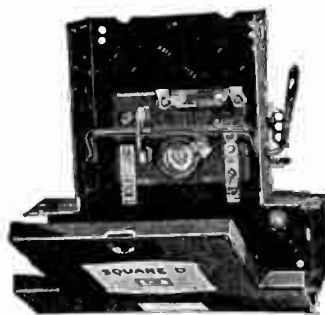
Cat. No.	No. of Poles			No. of Fuses			Box No.	Std. Pkg.	Wt. Lbs.	PRICE, EACH	
	No. of Blades	No. of Fuses	No. of Cir-cuits	No. of Fuses	No. in Ea. Cir.	With End Wall				Without End Wall	
*13211	2	1	1	2	2	1	473-E	10	9	\$5.65	\$5.25
†12211	2	1	1	2	2	1	473-A	10	10	5.65	5.25
12311	3	2	2	2	2	1	473-A	10	10	6.05	5.65
12311	3	2	2	1	2	2	473-A	10	10	6.05	5.65
12311	2	2	2	1	2	2	473-A	10	10	6.05	5.65
14311	3	2	2	4	4	1	473-C	10	10	7.55	7.15
14311	3	2	2	2	4	2	473-C	10	10	7.55	7.15
14311	2	2	2	2	4	2	473-C	10	10	7.55	7.15

\*Same as 12211 except branch fuses in vertical position allowing more wiring space.

†Same as 13211 except branch fuses in horizontal position.

## Square D Ganging Type Switch and Distribution Boxes

30 Amperes, 125 Volts



Cat. No.	No. of Poles	Fuses	Wt. Lbs.	Price without End Wall Each
*15211	2	1	8	\$3.55
*15311	3	2	9	5.25
†18211	2	2	7	4.25
†17311	3	2	7 3/4	5.25

\*Fuses dead when switch is off; meter test blades.

†Straight, 2-pole.

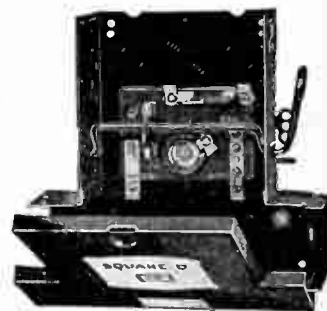
†Solid neutral.

## Square D Meter Service Switches Single Phase and D.C.

Fuses Dead When Switch Is Open  
Main Fuse and Switch Sealable



Cat. No. 55211



Cat. No. 15211, Open

### Meter Test Type

Cat. No.	Switch* Am-Poles	Blades	peret	Volts	Test Fuses	Blades	Box No.	Std. Pkg.	Wt. Lbs.	PRICE, EACH	
										With End Wall	Without End Wall
*55211	2	1	30	125	1P	1	432-F	10	7	\$3.40	\$3.00
*55311	3	2	30	125-250	2P	2	432-F	10	7	5.10	4.70
26251	2	2	30	250	2C	1	432-A	10	9	5.50	5.10

### Meter Test Type—For Ganging

*15211	2	1	30	125	1P	1	473	10	8	\$3.95	\$3.55
*15311	3	2	30	125-250	2P	2	473	10	9	5.65	5.25

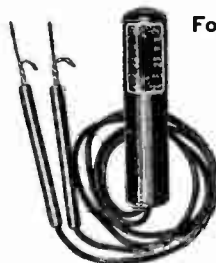
### Not Meter Test Type

*26311	3	2	30	125-250	2P	..	432-A	10	15	\$3.65	\$3.25
*26351	3	2	30	125-250	2C	..	432-A	10	8	5.50	5.10
†SK-615	3	30	125-250	2P	..	432-A	10	7	6.25	5.85	
†SK-659	3	30	125-250	2C	..	..	..	10	..	6.25	5.85
†SK-660	3	30	125-250	2C	..	457-B	4	13	14.20	13.30	
†SK-674	3	300	125-250	2C	..	458-B	2	22	22.70	21.80	

\*Solid neutral. †Switched neutral.

## No. 5000 Wigginton Voltage Testers

For Use on All Low Tension Circuits



Designed to replace the ordinary lamp for indicating voltages. Requires no lamp. Enclosed in a rugged fibre case. Place one wire in each side of the circuit and the indicator shows what the voltage is. Tester also indicates whether a.c. or d.c. Long rubber covered lead wires are provided. Steel strands in wires make the leads capable of resisting strains without breaking. Fibre handles insulate the lead wires. Sharp points make it possible to pierce the insulation of wires without destroying the insulation. Used to locate open circuits, blown fuses, or motors running single phase.

Cat. No.	Height Inches	Std. Pkg.	Weight Pounds	Price Each
5000	5 1/2	1	3/4	\$10.20

**Square D Meter Service Switches**

Single Phase and D.C.

Fuses Always Alive

Main Fuse and Switch Sealable



Cat. No. 58211



Cat. No. 57311

**Meter Test Type**

Cat. No.	Switch Poles	Am-peres	Volts	Fuses	Box No.	Std. Pkg.	Wt. Lbs.	PRICE, EACH	
								With End Wall	Without End Wall
58211	2	30	125	2P	432-F	10	7	\$4.10	\$3.70
*SK-916	2	30	125	1P	432-F	10	7	4.10	3.70
58251	2	30	250	2C	432-A	10	8	4.55	4.15
*57311	3	30	125-350	2P	432-F	10	7	5.10	4.70
*57351	3	30	125-250	2C	432-A	10	8	5.50	5.10
*27312	3	60	125-250	2C	457-B	4	14	11.00	10.10
28252	2	60	250	2C	457-B	4	16	10.50	9.60
*27313	3	100	125-250	2C	458-B	2	24	19.00	18.10
28253	2	100	250	2C	458-B	2	21	18.00	17.10

**Meter Test Type—For Ganging**

Cat. No.	Switch Poles	Am-peres	Volts	Fuses	Box No.	Std. Pkg.	Wt. Lbs.	Price Each With End Wall	Price Each Without End Wall
18211	2	30	125	2P	473	10	9	\$4.65	\$4.25
*17311	3	30	125-250	2P	473	10	8	5.65	5.25
*SK2145	2	30	125	1P	473	10	..	4.65	4.25

\*Solid neutral.

**Square D Locking Plates**

To Adapt Square D Meter Trims to Standardized Switches



No. 24352

The complete line of Square D meter trims, 11000 series, can be used with the standardized switches. This is accomplished by means of locking plates which fit into the standard opening in the combination type end wall, or in the case of locking plate, Cat. No. 22383, fit into the end opening of the switch.

The locking plates which make it possible to use the 11000 series meter trims on standardized switches, provide for the 30, 60 and 100-ampere switch installations when the combination end wall having the standard opening is used. On 30-ampere switch installations the end wall type locking plates fitting into the end opening of the switch are also provided.

**For 30-ampere Switch Installations**

Cat. No.	Description	Price Each
*24352	Shutter Type	\$.20
22383	End Wall Type	.40

\*Used in combination end wall, Cat. No. 22329.

**For 60 and 100-ampere Switch Installations**

Cat. No.	Description	Price Each
*24483	Shutter Type	\$.30

\*Used in combination end wall, Cat. No. 22429.

**Square D Standardized Meter End Walls**

Make of Meter.	Type	Term. Chamber Width in Inches		Amp.	USE WITH 30-AMP. SWITCHES		USE WITH 60-AMP. SWITCHES	
		Inches	Amp.		Cat. No.	Price Each	Cat. No.	Price Each
G. E.	I-14	...	5-25	...	...	...	...	09136 \$ .90
"	I-14	...	30-75	...	...	...	...	09516 .90
"	I-10	...	5	...	...	09113	\$.40	...
West.	OAA	4 3/8	5-10	...	...	...	...	09146 .90
"	OAB	4 3/8	5-20	...	...	...	...	09146 .90
"	OAC	4 3/8	5	...	...	...	...	09146 .90
"	OAA	4 7/8	15-25	...	...	...	...	09536 .90
"	OAB	4 7/8	30-75	...	...	...	...	09536 .90
"	OAC	4 7/8	10-15	...	...	...	...	09536 .90
"	OAC	4 7/8	30-75	...	...	...	...	09536 .90
"	OAE	4 7/8	5-10	...	...	...	...	09536 .90
"	B	...	5	...	...	09263	.40	...
"	C	...	5-20	...	...	09163	.40	09166 .90
"	C 2 Wire	...	40-80	...	...	...	...	09656 .90
"	C 3 "	...	30-40	...	...	...	...	09656 .90
San.	H-1	3 9/16	5-15	...	...	09273	.40	...
"	H-1	4 1/2	30-100	...	...	...	...	09286 .90
"	H-2	4 5/16	5-15	...	...	09153	.40	...
"	H-2	4 3/8	25-100	...	...	09543	.40	09546 .90
"	H-2	5 3/8	25-100	...	...	09343	.40	09346 .90
"	D-5 2 Wire	...	0-100	...	...	09353	.40	09356 .90
Ft. W.	K-4 SAA	...	5-25	...	...	09363	.40	09366 .90
"	W. K-5 SAA	...	5-25	...	...	...	...	09136 .90
"	W. K-5 SAA	...	30-75	...	...	...	...	09516 .90
Dun.	M-2	...	5-25	...	...	...	...	09376 .90
"	E	...	...	...	...	...	...	09376 .90
"	M-2	...	50-75	...	...	...	...	09636 .90

**Blank End Walls**

2 Bushings 1/2 Inch, One 3/4x1 Inch K. O.	09123	\$.40	...
Four 1/2 Inch K. O.	09383	.40	...
One 1x1 1/4 Inch K. O.	09393	.40	...
One 1 Inch and One 1 1/4 Inch K. O.	...	...	09126 .90
Four 3/4x1 Inch K. O.	...	...	09386 .90
Adapter Coupling End Wall	09173	.40	09176 .90

**Square D Steel Meter End Walls**

For 30-ampere Switches



When desired, meter end walls, which fit into the end opening of the standard switch, can be supplied. The terminal chamber of the meter sets down into the opening and the meter end wall is fitted over the terminal chamber. Meter end walls are furnished for each type of meter in common use. When this type meter wall is desired for Square D 60 or 100-ampere installations, the meter end designed for the 2-pole, 100-ampere switches of other manufacturers fits all Square D 60 and 100-ampere types.

Cat. No.	Meter	Service	No. Wires	Volts	Amps.	Price Each
*21301	West O. A.	S. Ph.	2-3	100-200-400	5-10	\$.40
21311	" O. A.	"	2-3	100-200-400	15-75	.40
*21323	" O. A.	"	2-3	100-200-400	5-10	.40
21303	G. E. I. -14	"	2-3	110-220	5-25	.40
21330	" C.-12	D.C.	2	100-250	5-25	.40
21330	" C.-12	"	3	200-500	5-25	.40
21303	Ft. W. K. 5	S. Ph.	2-3	110-220	5-25	.40
21305	San. H-2	"	2-3	110-550	5-15	.40
21331	Dun. M-2	"	2-3	100-600	5-25	.40
21331	" E.	D.C.	2-3	110-250	5-25	.40

\*Cat. Nos. 21301 and 21323 are similar except that No. 21301 is used with meter terminal cover and holding stud in place, while No. 21323 is used with terminal cover and holding stud removed.

## Square D Steel Meter Shutters



Designed to enclose the meter terminal chamber and the conductors between the switch and the meter. Meter terminal chamber projects into opening at top of switch. With the adoption of the standard opening, all that is necessary is to remove the blank steel shutter, install the meter and insert a metal meter shutter into opening.

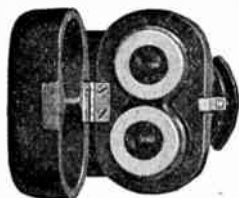
### For Use with 30-ampere Switches

Cat. No.	Meter	Service	No. of Wires	Volts	Amp.	Price Each
24301	West O. A.	S. Ph.	2	100-200-400	5-10	\$.20
24501	West O. A.	S. Ph.	3	100-200	5-10	.20
24311	West O. A.	S. Ph.	2	100-200-400	15-75	.20
24311	West O. H.	S. Ph.	3	100-200	15-50	.20
24303	G. E. I.-14	S. Ph.	2-3	110-220	5-25	.20
24303	F.T.W.K-5	S. Ph.	2-3	110-220	5-25	.20
24305	San. H-2	S. Ph.	2-3	110-550	5-15	.20
24331	Dun. M-2	S. Ph.	2-3	110-600	5-25	.20
24331	Dun. E.	D. C.	2-3	110-250	5-25	.20
24338	Semco-I.	S. Ph.	2	110-220-440	5-25	.20
24338	Semco-I.	S. Ph.	2-3	110-220	5-25	.20

### For Use with 60-100-ampere Switches

24411	West O. A.	S. Ph.	2	100-200-400	15-75	\$.30
24411	West O. A.	S. Ph.	3	100-200	15-50	.30
24403	G. E. I.-14	S. Ph.	2-3	110-220	5-25	.30
24426	G. E. I.-14	S. Ph.	2-3	110-220	50-75	.30
24403	Ft.W.K-5	S. Ph.	2-3	110-220	5-25	.30
24432	San. H-25	S. Ph.	2-3	110-550	25-100	.30
24405	San. H.	S. Ph.	2-3	110-550	5-15	.30
24439	Semco-I.	S. Ph.	2	110-220-440	15-75	.30
24439	Semco-I.	S. Ph.	2-3	110-220	15-75	.30

## Square D Cabinet Supported Fuse Blocks



The cabinet supported fuse block is a double-pole cutout for Edison plug fuses. It provides accessible branch fuses and fits into the U-shaped twistout openings in the side of the standardized cabinet. Each switch may be fitted with one or two fuse blocks. The cover of the block is kept closed by means of a spring.

Fuse blocks may be fitted not only to 30-ampere cabinets, but by using locking plate Cat. No. 20531 will fit both 60 and 100-ampere Square D cabinets.

Cat. No.	Amp.	Poles	Volts	Price Each
1021	30	2	125	\$1.55

## Square D Connecting Troughs

Connecting troughs are used to connect standardized switches in gang installations. The trough fits into the U-shaped opening in the side of the cabinet and affords an easy and convenient method of enclosing the bus wires.



The use of troughs eliminates the need for conduit, lock washers and bushings.

Cat. No.	Length In.	Price Each	Cat. No.	Length In.	Price Each
20733	3 1/2	\$.50	20738	8 1/2	\$.90

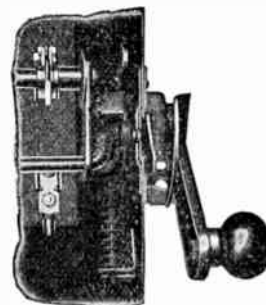
## Square D Locking Plates



Used with connecting troughs and fuse blocks with 60 and 100-ampere standardized switches. The locking plate fits over the trough closing the opening left in the switch box and is locked in place by the cover.

Price, Cat. No. 20531.....each \$ .20

## Bull Dog Safety Switches



Interlocking mechanism is designed to permit accessibility for inspection to qualified persons. An inherent weakness of many enclosed switches is their inaccessibility to inspection, without disconnecting the load and shutting down production.

Bull Dog Safety Type Switches are so designed that the interlocks may be temporarily neutralized to permit of a thorough inspection of the switch in any position. This is very important—lack of inspection to any mechanical or electrical apparatus may result in dangerous conditions.

Springs where used, are designed so as to allow a wide factor of resiliency and to be normal when not functioning. Springs, however, are only an auxiliary. Bull Dog Safety Type Switches can be opened and closed even if the springs should break or be intentionally removed. Springs serve only to accelerate the action.

"Bull Dog" Safety Type Switches are quick (positive) make and quick-break.

After the action is started the opening and closing of the switch is beyond the control of the operator, on all sizes that may be used as operating switches. The opening and closing mechanism is independent of the springs, which are merely used to increase the speed of action, a highly desirable and necessary feature where safety type switches are opened and closed under load.

A few switches of the larger sizes and higher voltages, as well as all double throw switches, are listed without quick-make and quick-break features, since such switches are generally used for disconnecting purposes only—not under full load. If desired, however, they may be equipped with auxiliary quick-break attachments at a slight additional cost.

The switch may be removed from the box as a unit, without removing the operating mechanism or removing the cabinet from the wall. The inter-locking operating mechanism may be removed as a unit, without necessarily removing the switch from the box. Parts are standardized and made by dies designed for the particular part so that replacement parts can readily be secured, if required.

We have avoided barriers, shields and all features which would hide the operating parts of the switch, as the switch parts should be seen and immediately adjusted or repaired if required, at any time fuses are replaced.

When the switch parts are covered it is impossible of course to see and repair in time any defects which might possibly have developed, and these parts should be readily visible to the electrical maintenance man whenever cabinet is opened.

Bull Dog Safety Type Switches are not designed as to make it impossible for the experienced electrician to get in touch with live metal parts but are so designed that it is impracticable to come in contact with live metal parts, without intent.

The box dimensions were determined by actually wiring up the switches, taking time studies of the period required to properly connect them without subjecting the cable insulation to any undue strains.

All switch parts (except 30-amp. porcelain base switches) are built-up, milled, soldered and pinned. The jaws are flared to ensure easier entry of the blade and to eliminate arcing points from contact surfaces.

**Bull Dog Safety Switches**

**Switch Blades and Crossbar Construction**



Illustration shows the blade and crossbar construction used in 30, 60 and 100-ampere Bull Dog Safety Switches, while in 200, 400, 600, 800 and 1200-ampere switches heavier type blades are used.

The crossbar consists of a steel rod, insulated by a one-piece horn fibre tube. Each blade has a fibre bushing through which the insulated crossbar is inserted, thereby giving a double insulation

and making it impossible for any of the blades to become loosened from the crossbar. This is the only construction which assures the operator that all blades of the switch are Open when the handle indicates the Off position. The main function of a switch is to fully open and close a circuit. With Bull Dog blade and crossbar construction the performance of the function at all times is assured.

The blades of Bull Dog Safety Switches are reversible. Should any blade become injured, turn it over and a new perfect contact surface is available.

**Specifications**

**STEEL BOX** is made of high grade, Code Gauge Steel, baked black enamel finish.

**OPERATING HANDLE** is provided with stops for the On and Off position so that the switch cannot be forced beyond the established limits.

The box proper is provided with conduit knockouts to meet almost any condition.

Special drillings will be furnished, when specified on order at 50 cents net per hole.

**SWITCH BASES** are of highest grade electrical slate, exceptionally thick, to stand the heavy service required of them.

Where parts are fastened together with screws or bolts, lock washers are invariably used.

**CASTINGS** have been avoided and forged parts used instead.

All bearings and bearing points are of drawn steel, ensuring a wide bearing surface and preventing raw edges which would otherwise cut into and weaken the movable elements.

**SWITCH COVERS** are of highest grade steel with a drawn panel. The main object of the drawn panel is to make the box proper shallow, thereby making the switch more accessible.

**Locking Features**

Illustration shows Bull Dog Safety Switch Cabinet with the door locked and the Switch in the On position.

By using three different locks, it is possible for the foreman, electrical maintenance man and millwright to each separately lock the Switch Off—a most desirable safety feature while repairs or changes are being made by the electrical or millwright departments. It also makes it possible for the foreman to lock the Switch Off whenever required.

**NOTE.**—The same lock is ordinarily used to accomplish the two-fold purpose of locking the switch box closed and the switch Off. Should occasion require it is also possible to lock the switch in the Off position and leave the cover latch in neutral.



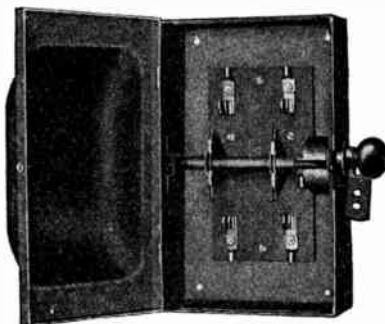
**Bull Dog Type A Safety Switches**

**Safety Interlocks**

**Double Throw**

**Not Fusible**

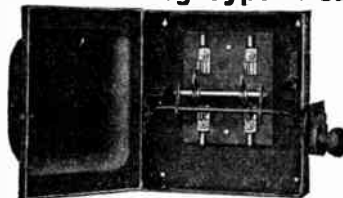
*Schedule F*



Amp.	CAT. Nos.		Weight Lbs.	Box Ref. No.	Price Each
	Luminized	Black			
<b>No. BDN253</b>					
<b>2-Pole—250 Volts D.C.—500 Volts A.C.</b>					
*30	LDN221	BDN221	14	101D	\$13.00
30-60	LDN251-2	BDN251-2	16½	109	16.00
100	LDN253	BDN253	26½	106	30.00
200	LDN254	BDN254	39½	113D	42.00
400	LDN255	BDN255	73	121	120.00
600	LDN256	BDN256	103	120D	170.00
<b>3-Pole—250 Volts D.C.—500-600 Volts A.C.</b>					
*30	LDN321	BDN321	17	101D	\$15.00
30-60	LDN351-2	BDN351-2	22	111	20.00
100	LDN353	BDN353	39½	105	37.00
200	LDN354	BDN354	63	115	61.00
400	LDN355	BDN355	105	117	160.00
600	LDN356	BDN356	122½	117D	224.00
<b>4-Pole—250 Volts D.C.—500-600 Volts A.C.</b>					
*30	LDN421	BDN421	19	...	\$22.00
30-60	LDN451-2	BDN451-2	25½	106TR	30.00
100	LDN453	BDN453	73	120	66.00
200	LDN454	BDN454	79	120	96.00
400	LDN455	BDN455	128	124	216.00
600	LDN456	BDN456	188	124	260.00

\*For 250 volts only. Non-interlocking.

**Bull Dog Type A Safety Switches**



**Safety Interlocks**

**Quick-Make,**

**Quick-Break**

**Single Throw**

**Not Fusible**

*Schedule F*

Amp.	CAT. Nos.		Weight Lbs.	Box Ref. No.	Price Each
	Luminized	Black			
<b>No. BSN253</b>					
<b>2-Pole—250 Volts D.C.—500 Volts A.C.</b>					
*30	LSN221	BSN221	11	100	\$10.50
30-60	LSN251-2	BSN251-2	15	109	13.00
100	LSN253	BSN253	18½	112	22.00
200	LSN254	BSN254	31½	102D	28.00
400	LSN255	BSN255	61½	122	60.00
600	LSN256	BSN256	70	122D	100.00
800	LSN257	BSN257	110	117D	170.00
1200	LSN258	BSN258	180	124D8	230.00
<b>3-Pole—250 Volts D.C.—500-600 Volts A.C.</b>					
*30	LSN321	BSN321	12	101	\$12.50
30-60	LSN351-2	BSN351-2	16½	112	15.50
100	LSN353	BSN353	24	106	24.00
200	LSN354	BSN354	37½	105D	34.00
400	LSN355	BSN355	74	120	70.00
600	LSN356	BSN356	101	117D	120.00
800	LSN357	BSN357	167½	124	220.00
1200	LSN358	BSN358	254	125D8	310.00
<b>4-Pole—250 Volts D.C.—500-600 Volts A.C.</b>					
*30	LSN421	BSN421	16	...	\$18.00
30-60	LSN451-2	BSN451-2	20½	111TR	22.00
100	LSN453	BSN453	35	105	32.00
200	LSN454	BSN454	68	120	45.50
400	LSN455	BSN455	112	117	115.00
600	LSN456	BSN456	130	117D	160.00
800	LSN457	BSN457	220	...	280.00
1200	LSN458	BSN458	300	...	400.00

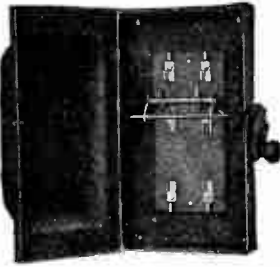
\*For 250 volts only. Non-interlocking.

## Bull Dog Type A Safety Switches

### Safety Interlocks

Quick-Make, Quick-Break—Single Throw—Fusible

Schedule F



No. BSF223

### 2-Pole—250 Volts D.C. and A.C.

Amp.	CAT. Nos.		Weight Lbs.	Box Ref. No.	Price Each
	Luminized	Black			
30	LSF221	BSF221	15½	109	\$12.00
60	LSF222	BSF222	16	109	15.00
100	LSF223	BSF223	27	102	23.00
200	LSF224	BSF224	48	114	36.00
400	LSF225	BSF225	74	121	70.00
600	LSF226	BSF226	114	123	100.00
800	LSF227	BSF227	178	124	200.00
1200	LSF228	BSF228	225½	127D8	270.00

### 3-Pole—250 Volts D.C. and A.C.

30	LSF321	BSF321	21½	111	\$14.00
60	LSF322	BSF322	22	111	19.00
100	LSF323	BSF323	31½	113	30.00
200	LSF324	BSF324	62	115	40.00
400	LSF325	BSF325	98	117	90.00
600	LSF326	BSF326	155½	124	130.00
800	LSF327	BSF327	274	125	260.00
1200	LSF328	BSF328	377	126D8	350.00

### 3-Pole—Solid Neutral—3 Blades—2 Fuse Holders

30	LSF321G	BSF321G	21½	111	\$14.00
60	LSF322G	BSF322G	22	111	19.00
100	LSF323G	BSF323G	31½	113	30.00
200	LSF324G	BSF324G	62	115	40.00
400	LSF325G	BSF325G	98	117	90.00
600	LSF326G	BSF326G	155½	124	130.00
800	LSF327G	BSF327G	274	125	260.00
1200	LSF328G	BSF328G	377	126D8	350.00

### 4-Pole—250 Volts D.C. and A.C.

30	LSF421	BSF421	24½	106TR	\$18.00
60	LSF422	BSF422	25	106TR	24.00
100	LSF423	BSF423	59	115	40.00
200	LSF424	BSF424	93½	117	60.00
400	LSF425	BSF425	116	117	120.00
600	LSF426	BSF426	195	125	170.00
* 800	LSF427	BSF427	370	...	340.00
*1200	LSF428	BSF428	525	...	450.00

### 3-Pole—500-600 Volts A.C.

30	LSF351	BSF351	28½	110	\$20.00
60	LSF352	BSF352	28½	110	21.00
100	LSF353	BSF353	35½	113	32.00
200	LSF354	BSF354	67	115	50.00
400	LSF355	BSF355	142	124	98.00
600	LSF356	BSF356	159	124	140.00
800	LSF357	BSF357	249	125	270.00
1200	LSF358	BSF358	402	126D8	370.00

### 4-Pole—500-600 Volts A.C.

30	LSF451	BSF451	34	105	\$24.00
60	LSF452	BSF452	24½	105	26.00
100	LSF453	BSF453	68	115	42.00
200	LSF454	BSF454	96	117	64.00
400	LSF455	BSF455	145	125	140.00
600	LSF456	BSF456	210	125	190.00

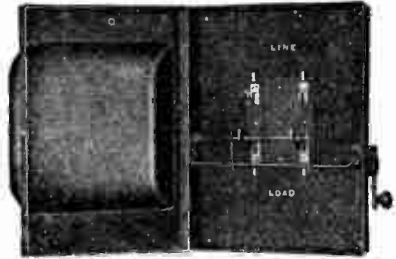
\*Not quick-make or quick-break.

## Type A Bull Dog Safety Switches

### Quick Make and Quick Break

2-Pole—600 Volts D.C. and A.C.

Schedule F



No. BSN263

For severe service conditions.

### Single Throw—Not Fusible

Luminized	CAT. No.		Amperes	Box Ref. No.	Weight Pounds	Price Each
	Black	Black				
LSN261-2	BSN261-2	30-60	105D	29	\$14.00	
LSN263	BSN263	100	122	48	22.50	
LSN264	BSN264	200	122D	58	30.50	
LSN265	BSN265	400	117D	80	73.00	
LSN266	BSN266	600	117D	116	122.00	

### Double Throw—Not Fusible

LDN261-2	BDN261-2	30-60	105D	31½	\$30.00
LDN263	BDN263	100	122	55	35.00
LDN264	BDN264	200	117D	80	49.50

### Single Throw—Fusible

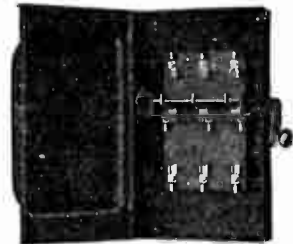
LSF261	BSF261	30	113D	32	\$24.80
LSF262	BSF262	60	113D	32	25.28
LSF263	BSF263	100	122	52	37.20
LSF264	BSF264	200	121D	77	64.00
LSF265	BSF265	400	124	128	140.00
LSF266	BSF266	600	124	148	240.00

## Bull Dog Type A Safety Switches

### Safety Interlocks—Quick-Make, Quick-Break

#### Compensator Type

Schedule F



### 3-Pole—250 Volts A.C.—Fusible

Amp.	CAT. Nos.		Weight Lbs.	Box Ref. No.	Price Each
	Luminized	Black			
30	LSF321C	BSF321C	21½	111	\$18.00
60	LSF322C	BSF322C	22	111	22.50
100	LSF323C	BSF323C	35	113	35.00
200	LSF324C	BSF324C	68	115	51.00
400	LSF325C	BSF325C	105½	117	105.00
600	LSF326C	BSF326C	159	124	139.50

### 4-Pole—250 Volts A.C.—Fusible

30	LSF421C	BSF421C	24½	106TR	\$24.00
60	LSF422C	BSF422C	25	106TR	29.00
100	LSF423C	BSF423C	61	115	52.00
200	LSF424C	BSF424C	97	117	72.00
400	LSF425C	BSF425C	124	117	144.00

### 3-Pole—500-600 Volts A.C.—Fusible

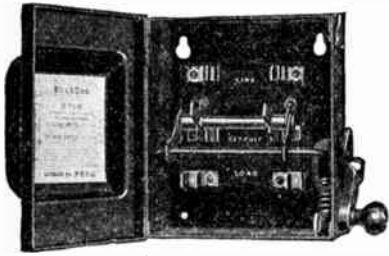
30	LSF351C	BSF351C	28½	110	\$23.00
60	LSF352C	BSF352C	29	110	23.50
100	LSF353C	BSF353C	36	113	37.50
200	LSF354C	BSF354C	68	115	56.00
400	LSF355C	BSF355C	146	124	117.60
600	LSF356C	BSF356C	169	124	210.40

### 4-Pole—500-600 Volts A.C.—Fusible

30	LSF451C	BSF451C	33½	105	\$36.00
60	LSF452C	BSF452C	34	105	40.00
100	LSF453C	BSF453C	62	115	68.00

**Bull Dog Type C Safety Switches**

**Quick-Make, Quick-Break**  
**Single Throw—Fusible**  
*Schedule G*



No. BJF221S

Bull Dog Type C (punched clip) externally operated switches are designed for use where severe service conditions do not exist to warrant investment in the more ruggedly constructed, machine made, Type A Switch.

Quick-make and quick-break is a feature of the Bull Dog Type C line. As a safety factor quick-make is more important than quick-break, as it prevents unintentional operation of the switch, because of the conscious effort required to compress the quick-make spring.

Only one spring is used to perform both the functions of quick-make and quick-break. The operation of the switch is not dependent on this spring, however. The switch could be operated if the spring broke or were removed.

The blade and crossbar construction is unique. There is no chance for a blade to remain in contact after the handle is pulled to the "off" position.

**2-Pole—250 Volts D.C. and A.C.**

Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
** 30	LJF211S	BJF211S	5	6	100	\$ 3.20
30	LJF221S	BJF221S	5	6	100	3.50
* 30	LJF221P	BJF221P	5	6	100	3.50
30	LJF221	BJF221	5	6	100	6.00
60	LJF222	BJF222	5	13½	109	9.00
100	LJF223	BJF223	3	24½	102	14.00
200	LJF224	BJF224	2	48	114	22.00
400	....	XSF225	1	74	121	54.00
600	....	XSF226	1	114	123	94.00

**3-Pole—250 Volts D.C. and A.C.**

Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
** 30	LJF311S	BJF311S	5	9	101	\$ 4.80
30	LJF321S	BJF321S	5	10	101	5.70
* 30	LJF321P	BJF321P	5	10	101	5.70
60	LJF322	BJF322	5	19½	111	11.00
100	LJF323	BJF323	3	31	113	17.00
200	LJF324	BJF324	2	65½	115	29.00
400	....	XSF325	1	97	117	74.00
600	....	XSF326	1	155	124	110.00

**3-Pole—Solid Neutral—3 Blades—2 Fuse Holders**

Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
30	LJF321SG	BJF321SG	5	10	101	\$ 5.70
60	LJF322G	BJF322G	5	19½	111	11.00
100	LJF323G	BJF323G	3	31	113	17.00
200	LJF324G	BJF324G	2	65½	115	29.00
400	....	XSF325G	1	97	117	74.00
600	....	XSF326G	1	155	124	110.00

**4-Pole—250 Volts D.C. and A.C.**

Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
30	LJF421S	BJF421S	5	13	103TR	\$ 9.00
60	LJF422	BJF422	3	25	106TR	14.00
100	LJF423	BJF423	2	58	105	29.00
200	LJF424	BJF424	1	90	120	48.00
400	....	XSF425	1	116	117	105.00

**3-Pole—500-600 Volts A.C.**

Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
30	LJF351	BJF351	5	26	110	\$ 9.50
60	LJF352	BJF352	3	26½	110	12.00
100	LJF353	BJF353	2	39	113	19.00
200	LJF354	BJF354	2	67½	115	36.00
400	....	XSF355	1	142	124	90.00
600	....	XSF356	1	159	124	124.00

**4-Pole—500-600 Volts A.C.**

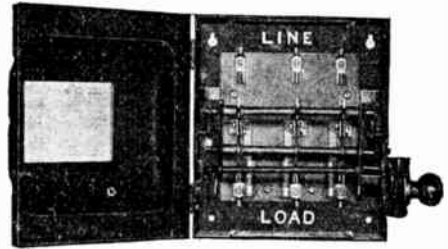
Amp.	Luminized	Black	Std. Pkg.	Weight Lbs.	Box Ref. No.	Price Each
30	LJF451	BJF451	5	32	105	\$15.00
60	LJF452	BJF452	3	32½	105	16.00
100	LJF453	BJF453	2	68	115	32.00
200	LJF454	BJF454	1	96	117	52.00
400	....	XSF455	1	145	125	140.00

\*\*125 volts.

\*Equipped with removable end plate.

**Bull Dog Type A Safety Motor Starting Switches**

**Quick-Break—Straight Connected**  
**Single Throw—Fusible**  
*Schedule F*



A set of auxiliary blades shunts the fuses during the starting period.

The switch is provided with interlocks, so that it will not be thrown "on" when the door is open; and so that the door cannot be opened when switch is in the running position.

Means are provided so that a qualified electrician may inspect the switch in any position. This avoids the necessity of shutting down the motor to inspect the switch or fuses.

**3-Pole—250 Volts A.C.**

Amp.	Luminized	Black	Weight Lbs.	Box Ref. No.	Price Each
30	LMF321	BMF321	20½	112	\$18.96
60	LMF322	BMF322	24	111	26.08

**4-Pole—250 Volts A.C.**

Amp.	Luminized	Black	Weight Lbs.	Box Ref. No.	Price Each
30	LMF421	BMF421	26½	105	\$24.80
60	LMF422	BMF422	36	105	32.72

**3-Pole—500 Volts A.C.**

Amp.	Luminized	Black	Weight Lbs.	Box Ref. No.	Price Each
30	LMF351	BMF351	34½	113	\$26.40
60	LMF352	BMF352	35	113	31.44

**4-Pole—500 Volts A.C.**

Amp.	Luminized	Black	Weight Lbs.	Box Ref. No.	Price Each
30	LMF451	BMF451	59	115	\$39.20

**Seco Standardized Meter Service Switches**  
**Sealed Service Side Fuse Type**

**For Single-Phase and D.C. Service**  
 30, 60 and 100 Amperes

This is a complete meter service unit of the switch-fuse-meter connected type and provides a main switch and cut-out, service side fuses, full meter protection, and testing facilities, all sealed within the cabinet so that none but an authorized person may have access to them.

For testing purposes separate switches are provided on the load side of the meter.

The Seco conforms to standard cabinet dimensions, using all standardized endwalls and accessories.

Specify type of endwall desired when ordering.



Cat. No.	Amp.	Volts	Poles	Fusing	Switch Blades	Test Neutral	Std. Pkg.	Price, Each With Endwall	Price, Each Without Endwall
*9523	30	125-250	3	2 Plug	2 Solid	2	10	\$5.10	\$4.70
*9533	30	125-250	3	2 Encl.	2 Solid	2	10	5.85	5.45
9543	30	125	2	1 Plug	1 Solid	1	10	4.80	4.40
*9553	30	125	2	2 Plug	2 All Fused	1	10	4.80	4.40
*9563	30	125 or 250	2	2 Encl.	2 All Fused	1	10	5.55	5.15
9573	30	125	2	1 Encl.	1 Solid	1	10	5.20	4.80
*9536	60	125-250	3	2 Encl.	2 Solid	2	4	19.00	18.10
*9566	60	250	2	2 Encl.	2 All Fused	1	4	18.00	17.10
9576	60	125	2	1 Encl.	1 Solid	1	4	17.00	16.10
*9531	100	125-250	3	2 Encl.	2 Solid	2	2	30.00	29.10
*9561	100	250	2	2 Encl.	2 All Fused	1	2	28.00	27.10
9571	100	125	2	1 Encl.	1 Solid	1	2	28.00	27.10

\*Has extra contacts for potential terminals of 6-wire meter.



## Seco Meter Service Switches

Sealed Service Side Fuse Type

For Single-phase and Direct Current Service

30-ampere Capacity



No. 9523

The Seco Switch is a complete meter service unit of the switch-fuse-meter connected type and provides a main switch and cutout, service side fuses, full meter protection, and testing facilities, all sealed within the cabinet so that none but an authorized person may have access to them.

Cat. No.	Volts	Poles	Fusing	Switch Blades	Neutral	Test Blades	Std. Pkg.	PRICE, EACH	
								With Endwall	Without Endwall
9523	125-250	3	2 Plug	2	"	2	10	\$5.10	\$4.70
9533	125-250	3	2 Encl.	2	"	2	10	5.85	5.45
9553	125	2	2 Plug	2	All Fused	1	10	4.80	4.40
9563	125 or 250	2	2 Encl.	2	"	1	10	5.55	5.15
9543	125	2	1 Plug	1	Solid	1	10	4.80	4.40

## Acco Standardized Meter Service Switches

Accessible Service Side Fuse Type  
For Single-Phase and D.C. Service

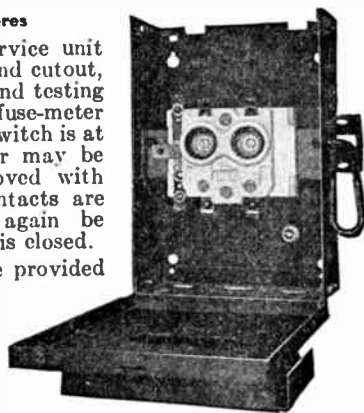
30, 60 and 100 Amperes

A complete meter service unit including main switch and cutout, with meter protective and testing facilities. Of the switch-fuse-meter connected type. When switch is at off position, slide cover may be opened and fuses removed with assurance that fuse contacts are dead; switch cannot again be moved to on until slide is closed.

Separate switches are provided on load side of meter for testing purposes.

Uses all standardized endwalls and accessories.

Specify type of end-wall desired when ordering.



Cat. No.	Amp.	Volts	Poles	Fusing	Switch Blades	Neutral	Test Blades	Std. Pkg.	PRICE, EACH	
									With Endwall	Without Endwall
*9323	30	125-250	3	2 Plug	2	Solid	2	10	\$6.50	\$6.10
*9333	30	125-250	3	2 Encl.	2	Solid	2	10	7.00	6.60
9343	30	125	2	1 Plug	1	Solid	1	10	5.40	5.00
*9353	30	125	2	2 Plug	2	All Fused	1	10	5.80	5.40
*9363	30	125 or 250	2	2 Encl.	2	All Fused	1	10	7.00	6.60
9373	30	125	2	1 Encl.	1	Solid	1	10	6.15	5.75
*9336	60	125-250	3	2 Encl.	2	Solid	2	4	21.00	20.10
*9366	60	250	2	2 Encl.	2	All Fused	1	4	20.00	19.10
9376	60	125	2	1 Encl.	1	Solid	1	4	19.00	18.10
*9331	100	125-250	3	2 Encl.	2	Solid	2	2	32.00	31.10
*9361	100	250	2	2 Encl.	2	All Fused	1	2	30.00	29.10
9371	100	125	2	1 Encl.	1	Solid	1	2	30.00	29.10

\*Has extra contacts for potential terminals of 6-wire meter.

## Noark Branch Circuit Attachments

For Single-Phase and D.C.

30 Amperes, 110-220 Volts

2 and 4 Circuits, Plug Fuses



Cat. No. 9423, 2-Circuit

Attachments for use with standardized meter service switches consist of a specially designed fuse block enclosed in a metal cabinet with hinged cover, permitting ready access to the fuses, while a dead front protecting plate conceals all wiring and prevents contact with live parts. Provided with a threaded coupling and lock nut to attach to a standard meter service switch through the center knockout of the cover hinging endwall.

Assembled with the necessary wires (identified neutral) for connection to the meter service switch cabinet. Wires are so arranged that they may be connected on either a 2 or 3-wire feed.

### 2-Fuse Type

Two 2-wire circuits, single fused, solid neutral.

One 2-wire circuit, double fused.

One 3-wire circuit, solid neutral.

### 4-Fuse Type

Four 2-wire circuits, single fused, solid neutral.

Two 2-wire circuits, double fused.

Two 3-wire circuits, solid neutral.

One 3-wire circuit and two 2-wire circuits, single fused, solid neutral.

Standard package, 10.

Price, No. 9423 2-Circuit.....each \$3.10  
Price, No. 9443 3-Circuit.....each 4.10

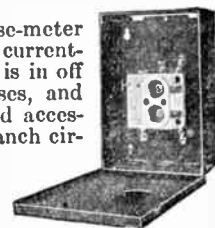
## Noark Standardized Universal Meter Service Switches

Accessible Branch Plug Fuses  
For Single-Phase and D.C. Service  
30 Amperes

This switch is of the switch-fuse-meter type in which blades, fuses, and all current-carrying parts are dead when switch is in off position. Service switch, service fuses, and all service connections are sealed and accessible only to authorized persons. Branch circuits or load side fuses are accessible at all times.

Any combination of single or double fusing of a service with either single or double fusing of the branch circuit may be secured.

Testing contacts are provided so meters may be tested without interruption of service. Switch uses all standard endwalls and accessories such as adapters, troughs, etc.



Cat. No.	SERVICE SWITCH			BRANCH CIRCUITS			Std. Pkg.	PRICE, EACH	
	No. Poles	No. Blades	No. Fuses	No. Circuits	No. Fuses Ea. Circuit	With Endwall		Without Endwall	
971123	2	1	1	2	2	1	10	\$5.10	\$4.70
*9723	2	1	1	4	4	1	10	6.75	6.35
972123	2	1	1	4	4	1	10	6.25	5.85
973333	2	1	1	1	2	2	10	5.50	5.10
	2	2	2	1	2	2	10		
	3	2	2	2	2	2	10		
*9753	2	1	1	2	4	2	10	7.50	7.10
	2	2	2	2	4	2	10		
	3	2	2	4	4	1	10		
975333	2	1	1	2	4	2	10	7.00	6.60
	2	2	2	2	4	2	10		
	3	2	2	4	4	1	10		
*9793	3	2	2	2	4	2	10	7.50	7.10
979333	3	2	2	2	4	2	10	7.00	6.60

\*Enclosed in long cabinets; equipped with testing links.

**Noark Doall Standardized Meter Service Switches**

For Single-Phase and D.C. Service

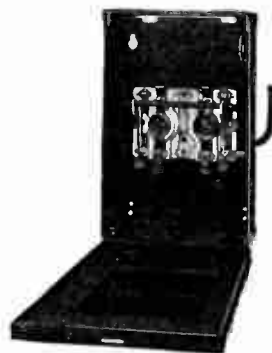
30, 60 and 100 Amperes

The Noark Service System is a complete line of standardized service installation devices which provides for all electrical service-entrance and meter service requirements for single-phase, poly-phase and d.c. All requirements are embodied in a single, compact, convenient unit including the cutout block with switch, and fuse receptacles, meter connections and testing contacts. All are mounted in and completely enclosed by the safety cabinet.

Interchangeable endwalls snap-lock into the cabinets. The meter terminal chamber projects through the opening in the endwall into the cabinet. A simple adapter is used in the case of a side connected meter. Standardized fittings provide unlimited flexibility in banked installation arrangements.

This complete provision for all essential requirements incorporates the following advantages:

1. Protection of life and property.
2. Safety service switch, externally operated.
3. Insurance against tampering.
4. Service cutout.
5. Meter connection block.
6. Meter testing device.
7. Lock-off, for service suspension.
8. Distribution branch cutout block.
9. Enclosure of all branch-circuit wire connections.



No. 911123

Cat. No.	Amp.	Volts	Poles	Kind of Fuse	STYLE		Std. Pkg.	PRICE, EACH	
					Switching	Fusing		Switch with Endwall	Switch without Endwall
913123	30	125	2	Plug	Both Legs	Ungrounded Leg Only	10	\$4.10	\$3.70
923123	30	125	2	Enclosed			4	10.50	4.15
923126	60	125	2	Enclosed	Both Legs	Both Legs	2	18.00	17.10
911123	30	125	2	Plug			10	4.10	3.70
921223	30	125	2	Enclosed	Both Legs	Both Legs	10	4.55	4.15
921226	60	125 or 250	2	Enclosed			4	10.50	9.60
921221	100	125 or 250	2	Enclosed	All Legs	Outside Legs Only	2	18.00	17.10
912333	30	125	3	Plug			10	5.10	4.70
922333	30	125	3	Enclosed	Outside Legs	Outside Legs Only	10	5.50	5.10
914333	30	125	3	Plug			10	5.10	4.70
924333	30	125	3	Enclosed	Outside Legs Only	Outside Legs Only	10	5.50	5.10
915333	30	125 to 250	3	Plug			10	5.10	4.70
925333	30	125 to 250	3	Enclosed	Neutral Link	Legs Only	10	5.50	5.10
925336	60	125 to 250	3	Enclosed			4	11.00	10.10
925331	100	125 to 250	3	Enclosed			2	19.00	18.10

Endwalls must be ordered separately. Specify the type desired. The 30-ampere devices have bussing clamps; 60 and 100-ampere use extra bussing lugs for banking.

**Noark Standardized Polyphase Meter Service Switches**

For 3-Wire Service

30, 60 and 100 Amperes

Cat. No.	Poles	Volts	Amp.	STYLE		Kind of Fuse	Std. Pkg.	PRICE, EACH	
				Switching	Fusing			With Endwall	Without Endwall
931233	3	125 or 250	30	Three Legs—Two Non-Switching Test Blades	Three Legs	Enclosed	10	\$14.35	\$13.80
931236	3	125 or 250	60			Enclosed	4	20.00	18.90
931231	3	125 or 250	100			Enclosed	2	31.00	29.70

These devices use wide cabinets. Handle is uncoupled from fused switching blades when device is arranged for testing. Fuse and switch ahead of meter. Non-switching testing blades after meter.

**Noark Meter Adapters and Back Plates for Polyphase Meter Service Switches**

Make	Fit Meters		Cat. No.	Single Meter Adapters			Meter Adapter Back Plates		
	Type	Amperes		Remarks	Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Price Each
G-E	D-6	3-75	906581		10	\$4.60	907581	10	\$1.45
G-E	D-6	5-25	906553	Sealing Straps	10	4.05	907553	10	.95
G-E	D-6	50-75	906601	Sealing Straps	2	4.60	907601	2	1.25
G-E	D-6	100-150	906631	Sealing Straps	2	5.75	907631	2	1.25
Westinghouse	O.A.	5-50	906566		4	4.05	907566	4	1.00
Westinghouse	C	5-40	906546		4	4.05	907546	4	1.00
Sangamo	H. (Horizontal Type)	5-100	906961		2	1.75	907961	2	.50
Sangamo	H. (Old Type)	5-100	906571		2	3.45	907571	2	.90
Duncan	M2	5-100	906971		2	3.45	907971	2	.95
Ft. Wayne	K-3, MAA, MAB, MAC, MAD, MAE, MAK, MAL	5-50	906526	Sealing Straps	4	5.20	907526	4	1.10

**Noark Endwalls for Polyphase, 3-Wire, Meter Service Switches**

Description	Amp.	Cat. No.	Std. Pkg.	Price, Each
ADAPTER-COUPLING ENDWALLS (Required to Couple Meter Adapters to Switch Cabinets.)	30	909233	10	\$5.55
	60	909236	4	1.10
	100	909231	2	1.30
BLANK ENDWALLS WITH: Two Bushings, 1/2-In. and One Double 3/4-In.-1-In. K. O.	30	909183	10	.55
Four 1/2-In. K. O.	30	909413	10	.55
K. O. for Bottom Connected Polyphase Meter	30	909603	10	.55
One 1-In. and One Double 1 1/4-In.-1 1/2-In. K. O.	60	909186	4	1.10
Four Double K. O. 3/4-In.-1-In.	60	909416	4	1.10
K. O. for Bottom Connected Polyphase Meter	60	909606	4	1.10
One (1-1 1/2-2), One (1/2-3/4-1 1/4), One (1/2-1-1 1/4)	100	909181	2	1.30
Four Double K. O. 3/4-In.-1-In.	100	909411	2	1.30
K. O. for Bottom Connected Polyphase Meter	100	909601	2	1.30

## Noark Endwalls and Shutters

For Standardized Single-Phase and D.C. Service Switches



Meter-Protecting Shutter



Blank Shutter with Knockout for Standard Terminal Chamber Meter



Shutter-Type Endwall with Blank Shutter



Adapter-Coupling Shutter

### Single Piece Endwalls Used with Cabinets

### Shutters for Shutter-Type Endwalls Used with Cabinets

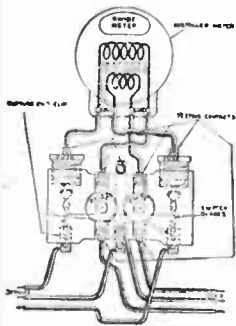
Make	Type	Term. Chamber Width Inches	Amperes	30 AMPERES		60-100 AMPERES		30 AMPERES		60-100 AMPERES	
				Cat. No. Std. Pkg. 10	Price Each	Cat. No. Std. Pkg. 4	Price Each	Cat. No. Std. Pkg. 10	Price Each	Cat. No. Std. Pkg. 4	Price Each
G. E.	I-14		5-25	909133	\$.40	909131	\$.90	908273	\$.20	908271	\$.30
G. E.	I-14		30-75			909511	.90			908011	.30
G. E.	I-10		5	909113	.40			908183	.20		
G. E.	C-12, D. C.		5-50	909433	.40						
G. E.	C-15		5-10	909843	.40						
Westinghouse	*O. A†	4 <sup>3</sup> / <sub>8</sub>	5-10	909143	.40	909141	.90	908243	.20	908241	.30
Westinghouse	*O. A	4 <sup>7</sup> / <sub>8</sub>	15-25	909533	.40	909531	.90	908023	.20	908021	.30
Westinghouse	O.B. (Old Style)	3 <sup>5</sup> / <sub>8</sub>	5-20	909403	.40	909401	.90	908403	.20	908401	.30
Westinghouse	B		5	909263	.40			908283	.20		
Westinghouse	C		5-20	909163	.40	909161	.90	908293	.20	908291	.30
Westinghouse	C, 2-Wire		40-80			909651	.90			908031	.30
Westinghouse	C, 3-Wire		30-40			909651	.90			908031	.30
Sangamo	H-1, Old Style	3 <sup>13</sup> / <sub>16</sub>	5-15	909273	.40			908163	.20		
Sangamo	H-1, Old Style	4 <sup>21</sup> / <sub>32</sub>	30-100			909281	.90			908051	.30
Sangamo	H-2, Small Ch.	4 <sup>15</sup> / <sub>32</sub>	5-15	909153	.40			908323	.20		
Sangamo	H-2, Large Ch.	4 <sup>5</sup> / <sub>8</sub>	5-15	909293	.40			908233	.20		
Sangamo	H-2, Small Ch.	4 <sup>5</sup> / <sub>8</sub>	25-100	909543	.40	909541	.90	908063	.20	908061	.30
Sangamo	H-2, Large Ch.	5 <sup>3</sup> / <sub>16</sub>	25-100	909343	.40	909341	.90	908083	.20	908081	.30
Sangamo	D5, D. C.-2-Wire		0-100	909353	.40	909351	.90	908043	.20	908041	.30
Ft. Wayne	K-4, SAA		5-25	909363	.40	909361	.90	908383	.20	908381	.30
Ft. Wayne	K-5, SAA		5-25	909133	.40	909131	.90	908273	.20	908271	.30
Ft. Wayne	K-5, SAA		30-75			909511	.90			908011	.30
Duncan	M-2		5-25	909373	.40	909371	.90	908253	.20	908251	.30
Duncan	E (D. C.)		5-15	909373	.40	909371	.90	908253	.20		
Duncan	M-2		50-75			909631	.90			908261	.30
Duncan	E K		2 <sup>1</sup> / <sub>2</sub> -25	909823	.40						
Duncan	E K		5-50	909793	.40	909791	.90				
Universal Endwall				909103	.40						
Universal Endwall	Blanking Slide with K. O. for Old Style O. B. Meter			908103	.20						
Universal Endwall	Blanking Slide with K. O. for Std. Ter. Cham.			908203	.20						
Blank Endwalls with:											
	Std. Ter. Cham. K. O.			909303	.40	909301	.90				
	Two Bushings, 1/4-In., and One Double 3/4-In.-1-In. K. O.			909123	.40						
	Four 1/2-In. O. O.			909383	.40						
	One 1-In.-1 1/4-In. K. O.			909393	.40						
	Four Double 3/4-in.-1-In. K. O.					909381	.90				
	One (1-1 1/2-2), One (1/2-3/4-1 1/4), One (1/2-1-1 1/4)			909173	.40	909121	.90				
	One (1-1 1/2-2), One (1/2-3/4-1 1/4), One (1/2-1-1 1/4)					909171	.90				
Adapter Coupling Endwall								909443	.40	909441	.90
††Shutter Type Endwall with Blank Shutter, Containing Standard Knockouts								908113	.20	908111	.30
Adapter Coupling Shutter								908093	.20	908091	.30

\*Westinghouse O. A. 5-10 ampere meters are in different size cases with different size terminal chamber widths. Endwalls for these meters are listed separately, as above. In ordering be sure to note terminal-chamber width.

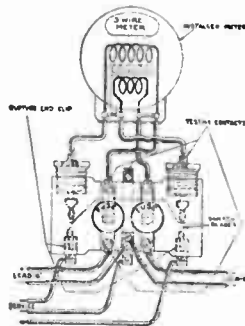
†When these meters are used without terminal-chamber cover, endwall is provided with terminal cover extension. Order catalog No. 909773, price and standard package same as listed above.

††Shutter type endwalls have an opening 5 1/4 x 2 1/4 inches in the 30-ampere size, and 7 x 2 3/4 inches in the 60 and 100-ampere size, closed with a blank shutter. All blank shutters are provided with the two standard knockouts for meters with standardized terminal chambers; the smaller knockout fits 5 to 15-ampere meters, and the larger knockout fits 25 to 75-ampere meters. Meter fitting shutters for old style meters are sold separately as listed above

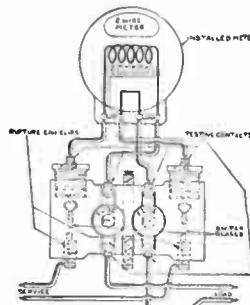
Noark Standardized Universal Service Switch Dimensions, Weights and Connections



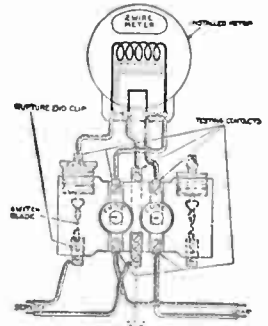
Catalogue No. 973333  
Wired for 3-wire Main, Switch and Fuse in Ungrounded Legs; One 3-wire Branch Fused in Ungrounded Legs



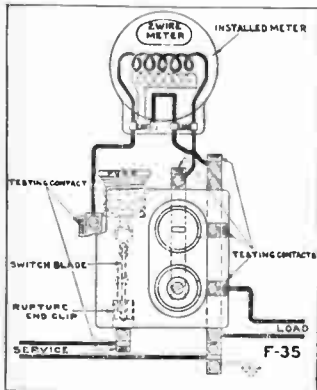
Catalogue No. 973333  
Wired for 3-wire Main, Switch and Fuse in Ungrounded Legs; Two 2-wire Branches Fused in Ungrounded Leg



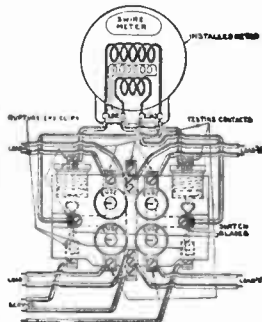
Catalogue No. 973333  
Wired for 2-wire Main, Switch and Fuse Both Legs; One 2-wire Branch Fused Both Legs



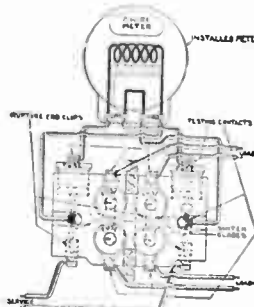
Catalogue No. 973333  
Wired for 2-wire Main, Switch and Fuse Ungrounded Leg; One 2-wire Branch Fused Both Legs



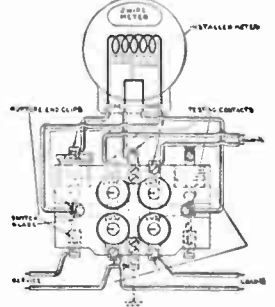
Catalogue No. 971123  
Wired for 2-wire Main, One 2-wire Branch, Neutral Solid



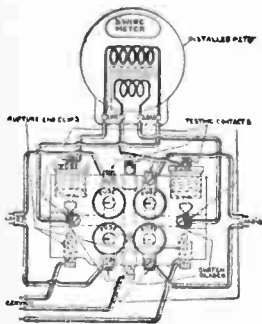
Catalogue No. 975333  
Wired for 3-wire Main, Switch and Fuse in Ungrounded Legs; Four 2-wire Branches Fused in Ungrounded Leg



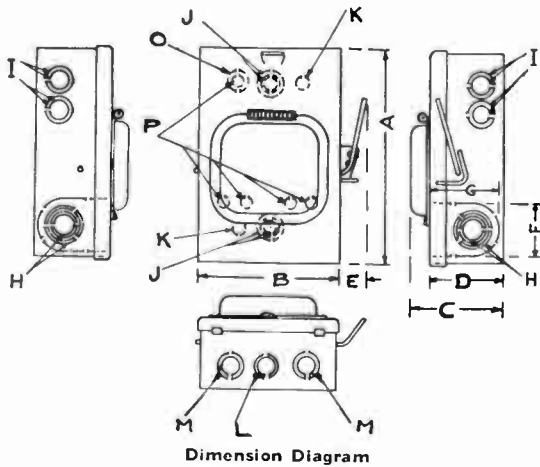
Catalogue No. 973333  
Wired for 2-wire Main, Switch and Fuse in Both Legs; Two 2-wire Branches Fused in Both Legs



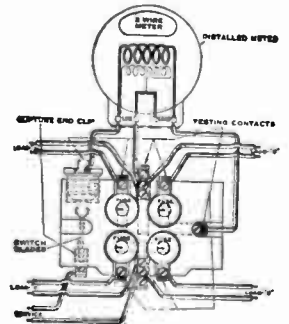
Catalogue No. 975333  
Wired for 2-wire Main, Switch and Fuse Ungrounded Leg; Two 2-wire Branches Fused Both Legs



Catalogue No. 979333  
Wired for 3-wire Main, Switch and Fuse Ungrounded Legs; Two 2-wire Branches Fused Both Legs



Dimension Diagram



Catalogue No. 972123  
Wired for 2-wire Main, Switch and Fuse Ungrounded Leg; Four 2-wire Branches Fused Ungrounded Leg

DIMENSIONS, INCHES														
A	B	C	D	E	F	G	H	I	J	K	L	M	O	P
10 1/8	6 1/16	4 3/8	3 3/8	1 3/8	2 1/2	3	1 1/2-3/4-1-1 1/4	1 1/2-3/4	1 1/2-3/4-1	1/2	3/4-1	1 1/2-1 5/8	1	1 1/2

Wt. Shipping	
Wt. Lbs. without Endwall	Wt. Lbs. End-wall
7.1	8 1/2

Sauter Time Switches



Type S-15-II

The function of a time switch is to close and to open an electrical circuit at pre-determined hours, i.e., to automatically operate a switch at the desired time, generally twice a day.

The 14-day clock movement is used only in the 15-ampere, double-pole switch. It has a 6-jewel lever type escapement and a simple and rugged clock train of gears. It is an excellent time keeper irrespective of temperatures. Six full turns of the winding key keep the clock running and the time switch operating for 2 weeks without attention.

The 40-day clock movement is used with switches only up to 15-ampere capacity. It has a lever type escapement with 11 jewels and an Invar metal balance wheel unaffected by temperature. One full winding will keep the time switch operating for 40 days without attention.

Self-Winding clock movement is used in all switches over 15-ampere in capacity and also obtainable in 2 and 10-ampere switches. This is a large and rugged clock. Has perfect time keeping accuracy under indoor or outdoor conditions.

Electric motor is not used in the 14-day and 40-day hand-wound clocks. In the self-winding clock of less than 10 amperes it is used only to re-wind the clock movement. In the switches of 10 amperes and over, it is used immediately before switching-time, both to re-wind the separate switch main-spring and to re-wind clock. This second spring thereby gets ample power for quick make-and-break action of the electric switch. The motor is series universal for use at 115 and 230-volt, d.c. or a.c. of any frequency.



Type ZM

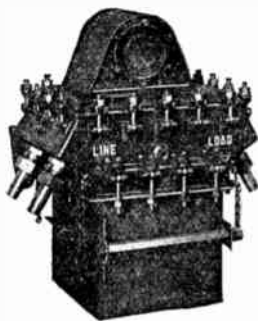
The astronomic dial can be supplied only on electrically wound clocks. Its function is to automatically re-set the daily switching operations in accordance with the gradual change of local sun-time, wherever the time switch operates a lighting circuit either on an all night or on a part night schedule.

Examples: Street lights come on automatically a quarter hour after sunset and stay on automatically till half an hour before sunrise, correcting their tripping time from day to day as the season progresses. Electric signs come on 5 minutes after sunset, till any desired fixed time of night.

Most types of Sauter Time Switches can be furnished equipped with a special 7-day dial for omitting all switching operations Sundays. For indoor use, (or outdoor use when protected from direct contact with elements) switches come in dust-proof pressed steel case. For outdoor use in a weather-proof cast iron case or galvanized pressed steel case. For underground use they come in a submersion-proof cast iron case.



Type ZEE



Type HZS

Sauter Time Switches

Continued

Selection of type:

The amperage and voltage of the circuit to be timed will govern the choice of type. (If the circuit is over 15-ampere or over 250 volts, there are only the motor operated switches.)

The schedule of operating hours governs the choice of dial:

If the times of switching are to repeat themselves at the same moment every day till re-set, a clock with plain dial is selected.

If the times of switching on or off or both on and off are to change every day with local sun-time, a clock with astronomic dial is selected.

If the switching is to be omitted on Sundays, a clock with the additional Sunday cut-out is specified.

Inquiries should give the following information:

1. Amperage of circuit to be controlled.
2. Voltage of circuit to be controlled.
3. Program of operation.
4. Is a plain dial or an astronomic dial desired.
5. Is a Sunday cut-out desired.
6. Is the switch for indoor, outdoor or underground installation.

Hand-Wound Clocks (Dustproof Case)

Nos. S-15-II is a 14-day clock; the Nos. ZME-2-I, 10-I and 15-II are 40-day clocks.

Symbol	Amperes	Volts	Type	Oil Re-quired Gals.	PLAIN DIAL Ship. Wt., Lbs.	Price Each	ASTRONOMIC DIAL Ship. Wt., Lbs.	Price Each
*S-15-II	15	250	d.p.	..	13	\$48.	...	....
†ZME- 2-I	2	250	s.p.	..	17	52.	...	....
†ZME-10-I	10	250	s.p.	..	17	56.	...	....
†ZME-15-II	15	250	d.p.	..	17	60.	...	....

\*For Sunday cut-out add \$17.00 to price.

Self-Winding Clocks (Dustproof Case)

Nos. ZEE-2-I, 10-I and 10-II are brush type; Nos. ZM-10-II, 25-II, 40-II, 60-II are rotary type.

†ZEE- 2-I	2	250	s.p.	..	20	\$75.	20	\$90.
†ZEE- 10-I	10	250	s.p.	..	20	80.	20	95.
†ZEE- 10-II	10	250	d.p.	..	20	85.	20	100.
†ZM- 10-II	10	250	d.p.	..	25	95.	25	110.
†ZM- 25-II	25	250	d.p.	..	26	105.	26	120.
†ZM- 40-II	40	250	d.p.	..	27	110.	27	125.
†ZM- 60-II	60	250	d.p.	..	35	132.	35	147.
†ZMO-100-II	100	250	d.p.	..	90	190.	90	205.
†ZMO-100-III	100	250	tr.p.	1	93	198.	93	213.
†ZMO-200-II	200	250	d.p.	3	125	250.	125	265.
†ZMO-200-III	200	250	tr.p.	3	130	270.	130	285.
†ZMO-300-II	300	250	d.p.	3	130	280.	130	295.
†ZMO-300-III	300	250	tr.p.	3	136	300.	136	315.

†For cast iron weatherproof case, add \$10.00 to price.

†For cast iron weatherproof case or for submersible case, add \$20.00 to price. Specify which is wanted.

Primary Voltage Switches (Weatherproof Case)

†HZ -46/25-II	25	4600	d.p.	4	140	\$235.	140	\$250.
†HZE-46/25-II	25	4600	d.p.	6	170	285.	170	300.
†HZZ -46/25-II	25	4600	d.p.	6	...	...	210	375.
†HZ -46/25-III	25	4600	tr.p.	4	150	255.	150	270.
†HZ -46/50-II	50	4600	d.p.	4	145	245.	245	260.
†HZ -46/50-III	50	4600	tr.p.	4	155	265.	155	280.
†HZ -80/25-II	25	8000	d.p.	7	176	295.	176	310.
†HZ 80/25-III	25	8000	tr.p.	7	190	335.	190	350.
†HZ -80/50-II	50	8000	d.p.	7	180	315.	180	330.
†HZ -80/50-III	50	8000	tr.p.	7	195	360.	195	375.

†For Sunday cut-out add \$25.00 to price.

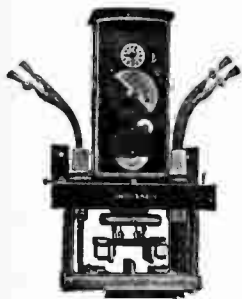
†These primary voltage switches have a 110/230-volt operating and control motor which is fed generally from an adjacent secondary distribution circuit. However, with certain of these switches, an in-built transformer is furnished to make the apparatus independent of any outside source for its control secondary voltage.

†This switch has a transformer for the motor. The ratio is 19:1. This transformer can be used on 4600-volt primary and on 2300-volt primary, 40-60 cycles.

= This switch is for underground installation (for example in manholes), wherever a watertight primary voltage time switch is needed. Switch is immersion-proof.

NOTE.—Switch oil is not included, neither in the price nor in the weight. A good grade circuit breaker oil must be used.

**Anderson Type L Automatic Time Switches**  
Double or Triple-pole, High Tension, Oil Break



This type of switch is constructed for handling alternating current up to and including 6600 volts, and is furnished either two or three-pole. This apparatus is used in connection with small current transforming apparatus where the lamps can safely be connected to the secondary coil of transformer in its position of maximum voltage. Prices listed below are for complete apparatus, including oil chamber and sufficient oil to fill same to working level.

**For Potentials Not Exceeding 3300 Volts**

Cat. No.	Cap. Amps.	No. of Poles	DIMENSIONS, INCHES			Ship. Wt., Lbs.	Price Each
			High with Terminals	Width	Depth		
11039	25	2	20½	11	7	83	\$120.00
11040	50	2	20½	11	7	83	130.00
11043	25	3	21	14	7	102	144.00
11044	50	3	21	14	7	102	160.00

**For Potentials Not Exceeding 6600 Volts**

Cat. No.	Cap. Amps.	No. of Poles	DIMENSIONS, INCHES			Ship. Wt., Lbs.	Price Each
			High with Terminals	Width	Depth		
11080	25	2	20½	11½	8	94	\$150.00
11081	50	2	20½	11½	8	94	160.00
11084	25	3	22	19	8	129	180.00
11085	50	3	22	19	8	129	196.00

For the Sunday or holiday cut-out attachment installed in any of the above, add \$14.00 to price.

For the double daily operation attachment installed in any of the above, add \$14.00 to price.

For the time extension device installed in any of the above, add \$14.00 to price.

Type L Time Switches may have either the time extension or the double daily operation attachment, but cannot have both.

A 110-volt heating coil in switch tank only, is standard equipment in all the above. 220-volt coil supplied if so stated on order.

**Anderson Type SL Automatic Time Switches**  
Double or Triple Pole, Oil Break  
Electrically Wound

The Type SL is for controlling circuits up to 6600 volts. The switch is so designed that the current has a quick make and break and is opened and closed in a tank of oil.

Prices listed below are for complete apparatus, including oil chamber and sufficient oil to fill same to working level.

**For Potentials not Exceeding 3300 Volts**

Cat. No.	Cap. Amp.	No. of Poles	DIMENSIONS, INCHES			Ship. Wt., Lbs.	Price Each
			High with Terminals	Wide	Deep		
11098	25	2	22	11	8	92	*\$200.00
11099	50	2	22	11	8	92	*210.00
11100	25	3	22½	14	8½	110	†224.00
11101	50	3	22½	14	8½	110	†240.00

**For Potentials not Exceeding 6600 Volts**

Cat. No.	Cap. Amp.	No. of Poles	DIMENSIONS, INCHES			Ship. Wt., Lbs.	Price Each
			High with Terminals	Wide	Deep		
11102	25	2	22	11½	9	102	†\$230.00
11103	50	2	22	11½	9	102	†240.00
11104	25	3	23½	19	9	137	†260.00
11105	50	3	23½	19	9	137	†276.00

\*One gallon of oil, included in list price, shipped with each switch.

†Two gallons of oil included in list price, shipped with each switch.

‡Three gallons of oil, included in list price, shipped with each switch.

The Sunday or holiday cut-out attachment, the double daily operation attachment and the time extension device cannot be put in any Type SL Electrically Wound Time switch.

A 110-volt heating coil in switch tank only, is standard equipment in all the above. 220-volt coil supplied if so stated on order.

For season changing device, add \$20.00 to price.

Wooden housings complete: For the 25 and 50-ampere, 2 and 3-pole 3300 volts, and the 2-pole 6600 volts add \$20.00 to list price; for the 3-pole 25 and 50-ampere 6600 volts add \$28.00 to list price.

**Tork Clock Switches**



**10-Day Clock Switches**

Tork 10-Day Clock Switches are widely used for turning electric lights, or anything else electrical on and off on regular daily schedules. They are simple to set, easy to wind once a week with a definite stop to prevent overwinding. Simply install in place of any other switch. The clock part or time motor is built as a dust-proof unit, easy to remove with a screwdriver.

An extra pair of operating pins can be ordered for additional daily on and off operation.

Cat. No.	Poles	Capacity	Case	Movement	Price Each
115	1	15 Amps. 125 Volts	Indoor	10-Day	\$20.00
130	2	30 Amps. 250 Volts	Indoor	10-Day	25.00
166	1	Single-Pole, Double Throw	Indoor	10-Day	25.00
111	2	Momentary Contact	Indoor	10-Day	25.00
215	1	15 Amps. 125 Volts	Outdoor	10-Day	25.00
230	2	30 Amps. 250 Volts	Outdoor	10-Day	30.00

**Windless Clock Switches**

Windless Clock Switches perform the same operation as 10-day Clock Switches with the additional advantage of requiring no hand winding. Furnished for a.c. or d.c. 110 to 220 volts current.

*730	2	30 Amps. †250 Volts	Indoor	Windless	\$60.00
*830	2	30 Amps. †250 Volts	Outdoor	Windless	65.00

**Combination Type Clock Switches**

Combination Type Clock Switches consist of a No. 115 Tork Clock and a magnetic contactor. They are not connected and are to be installed separately. Prices include the contactor and Tork Clock.

76062	2	*A.C., 60 Amps.	Indoor	10-Day	\$50.00
75062	2	*D.C., 60 Amps.	Indoor	10-Day	70.00
76102	2	*A.C., 100 Amps.	Indoor	10-Day	75.00
75102	2	*D.C., 100 Amps.	Indoor	10-Day	125.00

**Novitas Astronomical Dial Time Switches**

For turning lights on at sunset and off at sunrise in specified latitudes.

Cat. No.	Poles	Ampers	Capacity	Case	Movement	Price Each
ZEO-42	2	40	Universal 90-250 Volts	Outdoor	Wound by Motor Astronom- ical Dial	\$175.00 200.00 250.00 125.00 140.00 160.00 190.00
ZEO-62	2	60		Outdoor		
ZEO-102	2	†100	Outdoor			
ZS-101	1	10	110-220 Volts	Outdoor	Astronom- ical Dial	125.00 140.00 160.00 190.00
ZS-202	2	20	Volts	Outdoor		
ZS-402	2	40	60 Cycle A.C.	Outdoor		
ZS-602	2	60	A.C.	Outdoor		

\*When ordering, specify a.c. or d.c., voltage, and number of cycles if a.c.

†Refers to switch capacity only.

‡Oil break.

Prices and specifications on Tork Switches for use with high voltage and for special switching operations furnished on request.



## Tork Windless Clocks

A.C. or D.C.

Furnished for any specified voltage of d.c. or a.c., whether it be the common 110-125-volt current, the less common 220-volt service, a 32-volt farm lighting plant or a 6-volt battery.

### The Movement

The Tork Clock Windless movement is of fine and sturdy construction throughout. All wheels and pinions are cut. The balance staff runs in ruby bearings. Both balance wheel and hair spring are made of special materials so that time-keeping is unaffected by ordinary temperature changes.

### Reserve Power for Emergencies

When first connected to current supply, a reserve spring winds for about 20 seconds after which the clock operates with the reserve spring in a fully wound condition as long as it is connected. The main spring is electrically wound every 2½ minutes. The clock will run for 24 hours without current if the supply is interrupted. When the current supply is resumed the reserve spring is fully rewound at once.

### Guarantee

Guaranteed to be regulated within 30 seconds per week between 40 and 100 degrees Fahrenheit, while electrically connected. Fitted with micrometer regulator permitting definite regulations as small as 2 seconds in 24 hours. Every clock is closely regulated before shipment and the movement sealed.

### Cost of Operation

The cost of current for operating a Tork clock is less than one cent per year.

## Tork Surface Type Windless Wall Clocks



For any wall.

Furnished with 6 feet of cord and attachment plug.

When ordering, specify a.c. or d.c., voltage, if a.c. give number of cycles.

No.	DIAL INCHES	CASE INCHES	Price Each
1508	8	11¾	\$40.00
1512	12	17¼	50.00
1518	18	25¾	75.00

## Tork Flush Type Windless Wall Clocks

For use where suitable outlet boxes are provided. A 4¼-inch square outlet box, 2½ inches deep (Universal Key No. 72171) or any other approved box providing smaller space should be used.

Specify a.c. or d.c., voltage, number cycles.

No.	DIAL INCHES	CASE INCHES	Price Each
1608	8	10¾	\$40.00
1612	12	14¾	50.00
1618	18	22¾	75.00



## Tork Double-Faced Windless Hanging Clocks

When ordering, specify a.c. or d.c., voltage and if a.c. give number of cycles.

No. 2018-T, same as No. 2018 but with glass dials illuminated from within and with full chain switch, \$250.

No.	DIAL INCHES	CASE INCHES	LENG. OVER ALL FT.	Price Each
2012	12	15	3	\$125.00
2018	18	21½	5	200.00

Additional Length ..... per foot \$2.00



## No. 2512 Tork Program Signal Windless Wall Clocks



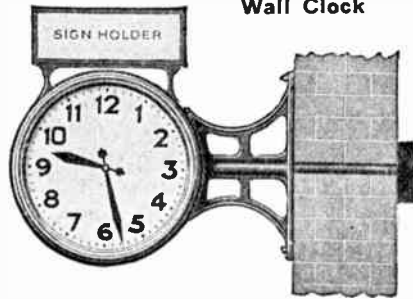
\* Operates bells, sirens or other signal devices on any desired daily schedule. Duration of each signal, 12 seconds; minimum intervals between signals, 5 minutes.

Furnished with 10 pins for 10 signals in 24-hour period Case, Flemish oak.

Diameter dial, 12 inches; case, 17½ inches. Price, No. 2512 ..... each \$100.00

## No. 2124 Tork Double-Faced Windless Street Clocks

Mechanically Controlled by No. 2106 Interior Wall Clock



No. 2124 Street Clock has 24-inch glass dials illuminated from within.

No. 2106 interior wall clock has 6-inch dials. Oak case is 9 inches high and 8 inches wide.

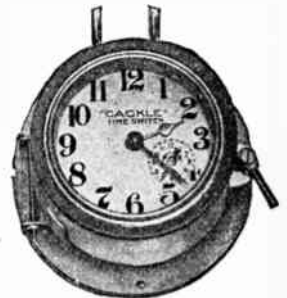
Price, No. 2106 Interior Wall Clock with Hands, and Mechanism Only for Outside Clock No. 2124. each \$115.00

## Hartford Cackle Time Switches

Designed for use in poultry houses to turn the lights on, automatically, at a predetermined time. The clock is a standard one-day movement. It is encased in a heavy, drawn-steel, dust-proof case. Requires daily winding.

The base on which the movement is mounted is of heavy steel, and this, with all supporting parts is japanned to prevent rusting. The switch proper has over-size electrical contacts, and is of the quick make and break type, capacity, 10 amperes, single pole. The entire time switch is compact, has a neat and pleasing appearance, plain figures, is an easily read, accurate time piece.

Price, Cackle Time Switches ..... each \$12.50



**Tork Windless Clocks  
For Residences and Offices**

The fine timekeeping qualities of Tork Windless Clocks are due partly to the unique uniformity of driving power which is their exclusive feature, and also to the fine quality of the movement which includes a jeweled and compensated balance.

These clocks are not dependent for performance upon any outside regulation or control. Just plug a Tork Windless Clock into the lighting circuit and it will immediately wind up fully and run in that condition while current is supplied. For emergency interruptions of current supply, a 24-hour reserve is provided. The finest timekeeping is obtained when there are no long current interruptions.

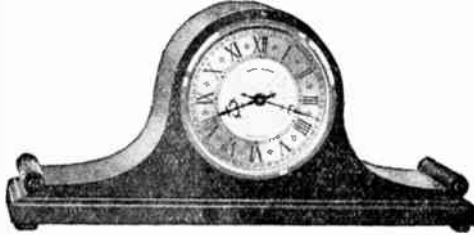
No. 6105



Brown toned solid mahogany case with 5-inch silver-plated dial etched in 2 colors. Cast gold-plated bezel with invisible hinge.

Price, No. 6105.....each \$55.00

No. 6206



Solid mahogany case with carved scrolls, brown toned and highlighted. Has 6-inch silver-plated dial etched in 2 colors with cast gold-plated bezel and invisible hinge.

Price, No. 6206.....each \$61.00

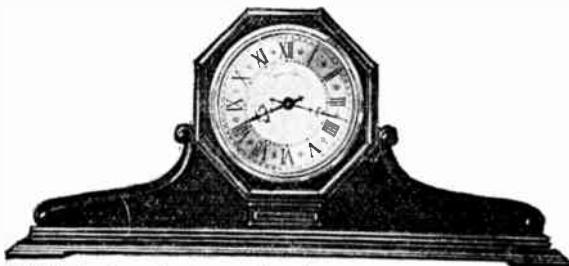
No. 6306



Solid mahogany case with fine carving, brown toned and highlighted. Has 6-inch silver-plated dial etched in 2 colors with cast gold-plated bezel and invisible hinge.

Price, No. 6306.....each \$85.00

No. 6406



Solid black walnut case handsomely carved. A fine piece of cabinet work. Has 6-inch silver-plated dial etched in 2 colors with cast gold-plated bezel and invisible hinge.

Price, No. 6406.....each \$90.00

**G-E Copper Cable Terminals**

With Rounded Corners—1 Stud Hole

Schedule G, Class 1



No. 2282

Made of pure, seamless copper tubing assuring high conductivity, freedom from fractures and long life.

Knowing the difficulties often experienced with lop-sided or undersized cable pockets, improperly drilled, stud-holes, etc., special care is always exercised to insure the maintenance of the specified dimensions.

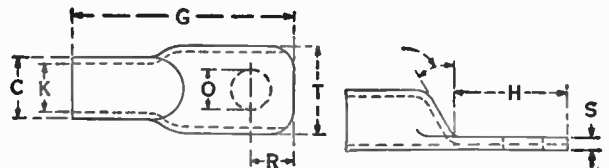
In both depth and inside diameter, the cable pockets of G-E Terminals are of generous size, freely accommodating the cable for which they are rated without filing.

Cat. No.	Amp. Rating	Maximum Size Stranded Cable B. & S. Gauge	Car-ton	Std. Pkg.	Price per 1000
GE2268	25	10	100	500	\$30.00
GE2269	35	8	100	500	32.00
GE2270	50	6	100	500	37.00
GE2271	70	4	100	500	52.00
GE2309	90	2	100	500	73.50
GE2272	125	0	100	500	86.50
GE2273	150	00	100	500	112.00
GE2274	175	000	50	500	149.50
GE2310	225	0000	50	500	187.50
GE2275	237	250,000 cm.	50	250	354.50
GE2276	325	400,000 "	25	50	552.00
GE2277	400	500,000 "	25	50	840.00
GE2278	450	600,000 "	25	50	872.00
GE2279	550	800,000 "	25	50	1052.00
GE2280	650	1,000,000 "	25	50	1303.00
GE2281	850	1,500,000 "	1	10	2600.00
GE2282	1050	2,000,000 "	1	10	3960.00

In selecting terminals to accord with N. E. C. S. ratings for enclosed fuse cutouts, knife switches, etc., use as follows:

For	Use	For	Use
30 Amperes	GE2269	200 Amperes	GE2274
60 "	GE2271	400 "	GE2277
100 "	GE2272	600 "	GE2280

Dimensions



Cat. No.	DIMENSIONS, INCHES							
	C	G	H	K	O	R	S	T
GE2268	3/8	11/16	3/8	.137	3/16	3/16	.051	.263
GE2269	.263	15/16	7/8	.200	3/8	3/8	.063	.356
GE2270	5/8	1 1/8	9/8	.250	3/4	1/4	.063	.464
GE2271	3/2	1 1/2	3/4	.3125	3/2	5/8	.063	.546
GE2309	7/8	1 5/8	1	.357	3/2	7/8	.081	.639
GE2272	1 1/2	2 1/8	1	.419	3 1/2	7/8	.081	.744
GE2273	9/8	2 1/8	1	.461	3 1/2	7/8	.102	.818
GE2274	1 1/8	2 5/8	1 1/4	.586	3 3/4	9/8	.102	1.026
GE2310	3/4	2 1/2	1 1/4	.625	3 3/4	9/8	.125	1.107
GE2275	5/8	3 3/8	1 1/2	.669	3 3/4	3/4	.144	1.199
GE2276	5/8	3 3/8	1 1/2	.776	3 3/4	3/4	.162	1.379
GE2277	1 1/8	4 3/8	2 3/4	.881	3 3/4	15/8	.181	1.573
GE2278	1 1/8	5 1/8	2 3/4	.944	3 3/4	15/8	.181	1.67
GE2279	1 3/8	5 1/8	2 1/2	1.084	3 3/4	1 1/8	.229	1.96
GE2280	1 3/8	5 3/8	2 1/2	1.209	3 3/4	1 1/8	.229	2.19
GE2281	1 3/4	6 3/8	3 3/8	1.461	1 3/4	1 3/8	.289	2.66
GE2282	2 1/8	7 5/8	3 1/2	1.699	1 3/4	1 9/8	.364	3.03

NOTE.—When cable with rope core is used, rope must be removed to allow cable to fit terminal.

## Sherman Soldering Lugs



U. S. Pat. Reissue 14401

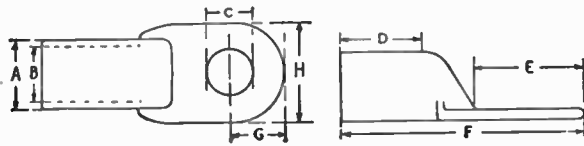
Lugs are seamless all around. The solder cannot leak out at the closed end. Also better conductivity is secured. Round end lugs in small sizes are recommended.

These soldering lugs or drawn copper terminals are now approved and listed by the Underwriters' Laboratories. The requirements are exacting, and the designs and dimensions have been carefully worked out.

### Round End

Size Inches	Amp. Cap. Rubber Insl. Conductors N. E. C. Std.	Maximum Stranded Wire B. & S. Gauge	Approx. Weight Pounds per 1000
3/16	25	10	4
1/4	35	8	5 1/4
5/16	50	6	9 1/4
3/8	70	4	13 3/4
7/8	90	2	22 1/2
1/2	125	0	29 1/4
9/16	150	00	43 1/2
5/8	175	000	51
11/16	225	0000	65
13/16	237	*250000	145

### Dimensions



### Approximate Dimensions, Inches

A	B	C	D	E	F	G	H
3/16	.1363	11/64	3/8	15/32	19/16	7/32	17/64
1/4	.186	3/16	3/8	1/2	1 1/32	1 1/32	3/8
5/16	.232	7/16	3/8	19/32	1 1/32	1 1/4	7/16
3/8	.285	9/32	1/2	11/16	1 11/32	1 1/2	17/32
7/8	.336	9/32	1/2	3/4	1 1/2	1 1/2	5/8
1/2	.398	11/32	5/8	19/16	1 3/4	1 9/32	13/16
9/16	.461	13/32	11/16	15/16	2	7/16	3/4
5/8	.511	13/32	25/32	1	2 1/8	1 1/2	29/32
11/16	.559	13/32	27/32	1 5/32	2 9/32	1 7/32	3 1/32
13/16	.651	13/32	31/32	1 1/4	2 5/8	5/8	1 3/16

Square ends furnished in above sizes, if required. Bottom not seamless. Over all dimensions the same.

### Square End

Size Inches	Amp. Cap. Rubber Insl. Conductors N. E. C. Std.	Maximum Stranded Wire B. & S. Gauge	Approx. Weight Pounds per 1000
15/16	325	*400000	190
1	362	*450000	275
1 1/16	400	*500000	315
1 1/8	450	*600000	375
1 1/4	550	*800000	640
1 1/2	650	*1000000	760
1 3/4	850	*1500000	1390
2 1/4	1050	*2000000	2450

### Approximate Dimensions, Inches

A	B	C	D	E	F	G	H
15/16	.776	13/32	1 3/16	1 5/8	3 3/8	3 3/4	1 13/32
1	.82	13/32	1 1/4	1 3/4	3 7/16	3 1/2	1 1/2
1 1/16	.88	13/32	1 1/2	2 1/8	4 1/16	1 15/16	1 9/16
1 1/8	.943	13/32	1 5/8	2 1/4	4 7/16	1	1 11/16
1 1/4	1.084	17/32	2	2 1/2	5	1 1/8	1 15/16
1 1/2	1.21	29/32	2	2 1/2	5 3/8	1 3/16	2 1/8
1 3/4	1.46	1 1/32	2 3/8	3 1/8	6 5/8	1 1/16	2 5/8
2 1/4	1.66	1 1/32	2 5/8	3 5/8	7 1/2	1 5/8	3 1/16

\*Circular mils. Sizes 1/4 to 15/16-inch furnished round end, unless otherwise specified. Sizes 15/16-inch and larger furnished square end unless otherwise specified.

STUD HOLE.—Size or position of stud hole may be changed or lugs furnished without stud holes at no additional charge. Any variation should be carefully specified.

TINNING.—Lugs tinned inside of tubular portion will be furnished at extra charge, depending on size.

MARKING.—For identification, as approved fittings, lugs will be marked with letter S and Underwriters' rating in amperes, placed crosswise of the flat portion at wire end.

To Select Terminals According to the N.E.C. Ratings Governing Knife Switches, Use the Following Equivalents

Capacity...amperes	30	60	100	200	400	600	800	1000
Size Lug...inches	1/4	3/8	1/2	1 1/16	1 1/16	1 1/16	1 3/4	2 1/16

## Sherman Soldering Lugs

### Two-Hole

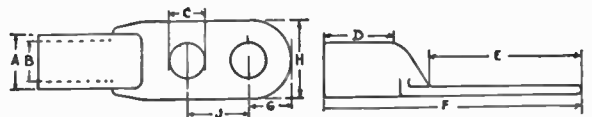


Two-hole lugs are made from seamless tubing and furnished square end, unless otherwise specified.

Flat portion (E) may be made to order either longer or shorter but tubular portion (D) cannot be changed.

Size Inches	Amp. Cap. Rubber Insl. Conductors N. E. C. Std.	Max. Stranded Wire B. & S. Gauge	Approx. Weight Pounds per 1000
3/16	25	10	5 1/4
1/4	35	8	7 1/4
5/16	50	6	13 1/4
3/8	70	4	19 1/2
7/16	90	2	32
1/2	125	0	44
9/16	150	00	67
5/8	175	000	90
11/16	225	0000	93
13/16	237	250000 c. m.	218
1 1/16	325	400000 c. m.	255
1 1/8	400	500000 c. m.	405
1 1/4	450	600000 c. m.	475
1 1/2	550	800000 c. m.	835
1 3/4	650	1000000 c. m.	1030
2	850	1500000 c. m.	1810
2 1/4	1050	2000000 c. m.	3040

### Dimensions



### Approximate Dimensions, Inches

A	B	C	D	E	F	G	H	J
3/16	.1368	5/32	3/8	3/4	17/32	5/32	17/64	3/8
1/4	.186	3/16	3/8	7/8	1 13/32	3/16	3/8	7/16
5/16	.232	7/32	3/8	1 1/16	1 3/4	1/4	7/16	1 1/2
3/8	.285	1/4	1/2	1 1/4	1 23/32	5/16	17/32	5/8
7/8	.336	9/32	1/2	1 3/8	2 1/8	5/16	5/8	1 1/16
1/2	.398	11/32	5/8	1 11/16	2 5/8	3/8	3/4	7/8
9/16	.461	13/32	1 1/16	2	3 1/16	7/16	13/16	1
5/8	.511	13/32	25/32	2	3 1/8	7/16	29/32	1
11/16	.559	13/32	27/32	2 1/8	3 1/4	1 1/2	3 1/32	1
13/16	.651	17/32	3 1/32	2 5/8	4	5/8	1 3/16	1 1/4
1 1/16	.776	17/32	1 3/8	2 3/4	4 1/2	1 1/16	1 13/32	1 1/4
1 1/8	.88	21/32	1 1/2	3 1/4	5 3/16	1 3/16	1 9/16	1 1/2
1 1/4	.943	2 1/32	1 5/8	3 3/8	5 9/16	7/8	1 11/16	1 1/2
1 1/2	1.084	2 29/32	2	3 15/16	6 7/16	1	1 15/16	1 3/4
1 3/4	1.21	2 29/32	2	4 3/8	7 1/4	1 1/8	2 1/8	2
2	1.46	1 1/32	2 3/8	5 3/8	8 3/8	1 3/8	2 5/8	2 1/4
2 1/4	1.66	1 1/32	2 5/8	5 3/8	9 1/4	1 1/2	3 1/16	2 1/4

TINNING.—Lugs tinned inside of tubular portion will be furnished at extra charge, depending on size.

MARKING.—For identification as approved fittings, lugs will be marked with letter S and Underwriters' rating in amperes, placed crosswise of the flat portion at wire end.

Sherman Heavy Duty Soldering Lugs

N.E.L.A. Standard



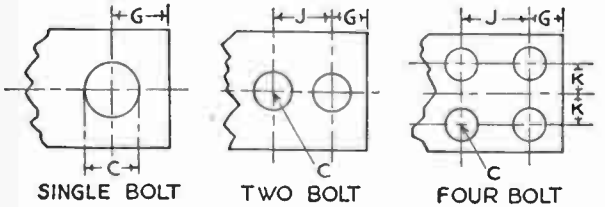
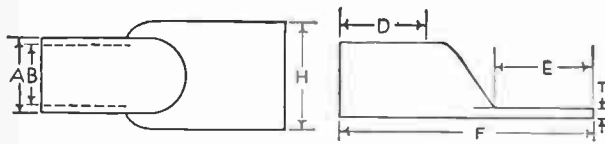
2-Bolt Tongue

These lugs are made of best quality seamless copper tubing.

Lugs Nos. 8, 8-A, 9-A, 10 and 11 have a sufficient socket diameter to take rope core

cables of sizes listed without removing core. Core can be drilled out and space filled with copper plug or solder.

Blank lugs furnished when specified; otherwise regular bolt holes as listed. Special drilling may be had if specified. Straight lugs regularly furnished. Angle lugs 45 and 90-degree when specified at extra price. Plain finish unless otherwise specified. Special finishes as follows at added prices: Rosin dipped, cadmium plated, tinned inside only and tinned all over. Special dimensions may be made to order with dimension E other than regular or special drilling of stud holes, at added cost.



Max. Size Conductor Inches	Amp. Rate N.E.C.	Single Bolt		2-Bolt		4-Bolt	
		Lug No.	Wt., Lbs. per 1000	Lug No.	Wt., Lbs. per 1000	Lug No.	Wt., Lbs. per 1000
19/22	35	1	8	1A	12		
6, B. & S.	50	2	18	2A	25		
2	90	3	80	3A	105		
00	150	4	155	4A	210		
0000	225	5	275	5A	330		
350000	300	6	540	6A	650		
500000	400		7		1350		
750000	525		8		2000	8A	2000
1000000	650		9		3200	9A	2800
1500000	850					10	5000
2000000	1050					11	8300

Lug No.	Single Bolt Tongue										
	A	B	H	D	T	E	F	G	J	K	C
1	.25	.187	.39	.375	.06	.50	1	3/16			7/32
2	.313	.232	.47	.50	.08	.75	1 1/2	3/8			7/32
3	.540	.375	.74	.75	.17	.87	2	3/8			7/32
4	.675	.494	.97	1.00	.19	1.25	2 3/4	1/2			13/32
5	.810	.625	1.22	1.25	.22	1.50	3 1/4	3/4			17/32
6	1.050	.822	1.50	1.69	.23	2.25	4 3/4	1			17/32
1-A	.25	.187	.39	.375	.06	1.00	1 1/2	3/16	1/2		7/32
2-A	.313	.232	.47	.50	.08	1.25	2	1/4	5/8		7/32
3-A	.540	.375	.74	.75	.17	1.50	2 5/8	3/8	5/8		7/32
4-A	.675	.494	.97	1.00	.19	2.25	3 3/4	1/2	1		13/32
5-A	.840	.625	1.22	1.25	.22	2.25	4	1/2	1		13/32
6-A	1.050	.822	1.50	1.69	.23	3.25	5 3/4	3/4	1 1/2		17/32
7	1.315	.951	1.87	2.00	.37	3.25	6 1/4	3/4	1 1/2		17/32
8	1.66	1.272	2.41	2.56	.39	3.25	6 7/8	3/4	1 1/2		17/32
9	1.90	1.49	2.74	3.00	.41	4.25	8 7/8	1	2		17/32
8-A	1.66	1.272	2.41	2.56	.39	3.25	6 7/8	3/4	1 1/4	5/8	13/32
9-A	1.90	1.49	2.74	3.00	.41	3.25	7 7/8	3/4	1 1/2	3/4	13/32
10	2.37	1.93	3.50	3.87	.44	4.25	10	1	2	1	17/32
11	2.87	2.315	4.25	4.37	.56	4.25	11	1	2	1	17/32

NOTE.—Dimensions E in larger sizes will be found slightly larger than specified to allow for bending in the field.

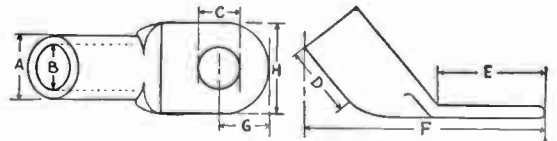
Sherman Soldering Lugs

45-degree



Size Inches	Amp. Cap. Rubber Insl. Conductors N. E. C. Std.	Max. Strand- ed Wire B. and S. Gauge	Approx Weight Pounds per 1000
3/16	25	10	4
1/4	35	8	5 1/4
5/16	50	6	9 1/4
3/8	70	4	13 3/4
7/16	90	2	22 1/2
1/2	125	0	29 1/4
9/16	150	00	43 1/2
5/8	175	000	51
11/16	225	0000	65
13/16	237	250000 c. m.	145
15/16	325	400000	190
1	362	450000	275
1 1/16	400	500000	315
1 1/8	450	600000	375
1 5/16	550	800000	640
1 7/16	650	1000000	760
1 3/4	850	1500000	1390
2 1/16	1050	2000000	2450

Dimensions



APPROXIMATE DIMENSIONS, INCHES							
A	B	C	D	E	F	G	H
3/16	.1368	11/64	3/8	1 1/2	3/16	7/32	1 1/2
1/4	.186	3/16	3/8	1 1/2	1 1/8	7/32	2 3/8
5/16	.232	3/16	3/8	1 1/2	1 3/8	1 1/4	3 1/8
3/8	.285	3/8	7/16	1 1/2	1 7/8	3/2	4 1/2
1/2	.336	3/2	1 1/2	1 1/2	1 9/8	1 1/2	5 1/8
9/16	.398	1 1/2	5/8	1 1/2	1 3/4	1 3/2	6 3/8
5/8	.461	1 3/2	11/16	1 1/2	1 5/8	1 5/8	7 1/8
11/16	.511	1 3/2	2 5/8	1	2 3/8	1 1/2	8 1/8
3/4	.559	1 3/2	3 1/2	1 3/2	2 7/8	1 7/8	9 1/8
7/8	.651	1 3/2	3 3/2	1 3/2	2 7/8	2 5/8	10 1/8
15/16	.776	1 3/2	1 3/16	1 5/8	3 5/8	3 1/4	11 3/8
1	.82	1 3/2	1 1/4	1 3/4	3 3/4	3 3/4	12 1/8
1 1/16	.88	1 3/2	1 1/4	1 3/4	3 3/4	3 3/4	12 1/8
1 1/8	.943	1 3/2	1 1/2	2 1/8	4 3/8	4 3/8	13 1/8
1 1/4	1.084	1 3/2	2	2 1/2	5 1/8	5 1/8	14 1/8
1 1/2	1.21	1 3/2	2	2 1/2	5 1/8	5 1/8	15 1/8
1 3/4	1.46	1 3/2	2 3/8	3 1/8	6 1/8	6 1/8	16 1/8
2 1/16	1.66	1 3/2	2 5/8	3 5/8	7 1/8	7 1/8	17 1/8

STUD HOLE.—Size or position of stud hole may be changed or lugs furnished without stud holes at no additional charge. Any variation should be carefully specified.

TINNNG.—Lugs tinned inside of tubular portion will be furnished at extra charge, depending on size.

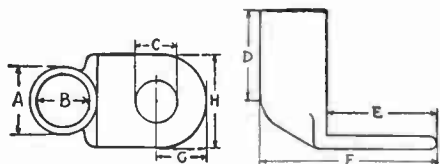
MARKING.—For identification as approved fittings, lugs will be marked with letter S and Underwriters' rating in amperes, placed crosswise of the flat portion at wire end.

## Sherman 90° Angle Soldering Lugs



Size Inches	Amp. Cap. Rubber Insl. Conductors N. E. C. Std.	Max. Stranded Wire B. and S. Gauge	Approx. Weight Pounds per 100
3/16	25	10	4
1/4	35	8	5 1/4
5/16	50	6	9 1/4
3/8	70	4	13 3/4
7/16	90	2	22 1/4
1/2	125	0	29 1/4
9/16	150	00	43 1/2
5/8	175	000	51
11/16	225	0000	65
13/16	237	250000 c. m.	145
15/16	325	400000 "	190
1	362	450000 "	275
1 1/16	400	500000 "	315
1 1/8	450	600000 "	375
1 1/16	550	800000 "	640
1 1/8	650	1000000 "	760
1 3/4	850	1500000 "	1390
2 1/16	1050	2000000 "	2450

### Dimensions



APPROXIMATE DIMENSIONS, INCHES							
A	B	C	D	E	F	G	H
3/16	.1368	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1/4	.186	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
5/16	.232	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
3/8	.285	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
7/16	.336	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1/2	.398	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
9/16	.461	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
5/8	.511	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
11/16	.559	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
13/16	.651	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
15/16	.776	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1	.82	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1 1/16	.88	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1 1/8	.943	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1 1/16	1.084	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1 1/8	1.21	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
1 3/4	1.46	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2
2 1/16	1.66	3/16	3/8	1 1/2	1 1/2	7/8	1 1/2

**STUD HOLE.**—Size or position of stud hole may be changed or lugs furnished without stud holes at no additional charge. Any variation should be carefully specified.

**MARKING.**—Dimensions in tables represent standards required and approved by Underwriters. All lugs which come up to these standards, whether special or regular, are stamped for identification with letter S and N.E.C. rating in amperes across flat portion at wire end.

**FLUXING.**—Inside of wire hole may be treated with non-acid flux, making lugs ready for soldering, at slight additional charge.

**TINNING.**—Lugs tinned inside of tubular portion at additional expense, depending on size.

**AUTOMOBILE WORK.**—Seamless lugs from 3/8 to 5/8 inch inclusive are particularly adapted for automobile work.

## Sherman Heavy Duty Angle Lugs



45-Degree



90-Degree

Straight lugs may be bent in the field, but this should be done only after annealing in large sizes. Dimensions the same as for straight lugs, except F, as given below.

Approx. Dimensions F, Inches										
No.	1	1-A	2	2-A	3	3-A	4	4-A	5	5-A
45°	1 1/16	1 3/16	1 1/2	1 13/16	2	2 5/8	2 13/16	3 3/4	3 3/8	4 1/8
90°	3/4	1 1/4	1	1 1/2	1 3/8	2	1 7/8	2 7/8	2 1/4	3
No.	6	6-A	7	8	8-A	9	9-A	10	11	...
45°	4 3/4	5 3/4	6 1/4	7 1/4	7 1/2	8 7/8	7 7/8	10 1/4	11 1/4	...
90°	3 1/4	4 1/4	4 7/16	4 3/8	4 3/4	6	5	6 7/16	6 7/8	...

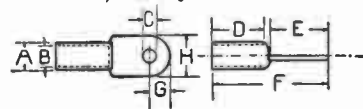
## Sherman Drab Copper Connectors



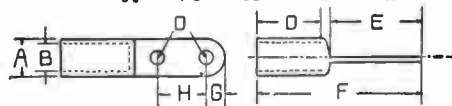
The connector consists of two seamless terminals, so constructed that when bolted together both halves are in perfect alignment, and no part projects beyond the circumference of the tubular portion, so that a piece of flexible conduit or fibre sleeve may be slipped over the entire connection for insulation.

While two pieces are required to make one complete connector, they are described and listed by single pieces. Connectors are not shipped assembled, as they cannot be applied in that way.

On account of its small size, only the 1/4-inch connector is made wider than tubular part.



Size (A) In.	Maximum Stranded Wire B & S Gauge	APPROXIMATE DIMENSIONS, INCHES							Approx. Wt., Lbs. per 1000
		B	C	D	E	F	G	H	
1/4	8	.186	1 1/4	3/8	1 3/2	1 3/2	3 3/2	3/8	9



These sizes have two stud holes. Two bolts and nuts are required for each complete connector, consisting of two pieces.

Size (A) In.	Maximum Stranded Wire B & S Gauge	APPROXIMATE DIMENSIONS, INCHES							Approx. Wt., Lbs. per 1000
		B	C	D	E	F	G	H	
3/8	4	.285	1 1/4	9/16	1 1/2	1 1/2	2 3/2	3/8	25
1/2	0	.398	1 3/4	3/4	1 3/4	1 3/4	2 3/2	5/8	52
5/8	000	.511	1 7/8	1 1/2	1 7/8	1 7/8	2 7/8	7/8	85
15/16	250000 CM	.651	1 1/2	1 1/2	1 1/2	1 1/2	3 5/8	1 1/8	228
1	400000 CM	.776	1 1/2	1 1/2	1 1/2	1 1/2	4 1/2	1 1/2	250
1 1/16	500000 CM	.88	1 3/4	1 3/4	1 3/4	1 3/4	4 1/2	1 1/4	310
1 1/8	800000 CM	1.084	2	2	2	2	5 1/2	1 3/8	325
1 1/4	1500000 CM	1.46	2 1/2	2 1/2	2 1/2	2 1/2	6 3/8	1 3/4	350
1 1/2	2000000 CM	1.66	3 1/2	2 5/8	3 3/8	3 3/8	6 3/4	1 3/4	625
2 1/16									1350

Bolts and nuts will not be furnished unless specified. Can be furnished plain or coppered.

### Nuts and Bolts

Size Connector Inches	Size Bolts Inches	No. in Standard Package	Approx. Wt., Lbs. per 1000
1/4, 3/8, 1/2	3/2 X 1/4	500	7
5/8, 13/16	1/4 X 3/8	200	17
15/16	5/16 X 5/8	100	...
1	3/8 X 3/4	100	...
1 1/16	1/2 X 3/4	50	...
1 1/8	1/2 X 15/16	100	...
1 1/4	1 1/2 X 1 1/8	100	...
2 1/16	6/8 X 1 1/16	50	...

**Sherman Set Screw Connectors**

Number Plainly Stamped on Each Connector. A great help in re-ordering and saves much time and possible mistakes in sorting small mixed stocks.

Screws Heavily Galvanized, Hence Rust-proof. This prevents rusting in dealer's stock, and enables consumer to use connectors over again when removed from temporary work.

Neatly Boxed and Plainly Labeled. Insuring neat shelf stock.

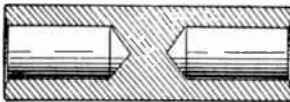
These connectors are made from solid brass rod; all dimensions and proportions are carefully held to accurate size.

Four-screw connectors are made also with hole clear through, and two-screw connectors can be furnished in divided wall style.

**For Stranded Cable  
With Divided Wall**



No. 74 Connector



Showing Interior Construction

Cat. No.	Size Stranded Cable	Screws	Diam. Hole In.	Outside Diam. In.	Length In.	Std. Wt., Lbs.	
						Pkg.	Std. Pkg.
60	12, 14	2	.110	1/4	1 1/4	200	4
61	10	2	.140	5/16	1 1/4	200	5 1/2
62	10	4	.140	5/16	1 1/2	200	7
63	8	2	.160	3/8	1 1/4	200	5 1/2
64	8	4	.160	3/8	1 1/2	200	6 1/2
65	6, 7	2	.209	3/8	1 1/4	150	5 1/2
66	6, 7	4	.209	3/8	1 1/2	150	7
67	4, 5	2	.265	7/16	1 1/2	100	6
68	4, 5	4	.265	7/16	1 7/8	100	7
69	2, 3	2	.312	1/2	1 1/2	100	6 1/2
70	2, 3	4	.312	1/2	1 7/8	100	9
71	0, 1	4	.390	5/8	2 1/4	50	5 1/2
72	00	4	.437	5/8	2 1/2	50	7 1/2
73	000	4	.500	3/4	2 7/8	25	6 1/2
74	0000	4	.562	3/4	2 7/8	25	9 1/4

**For Solid and Stranded Cable  
Wire Holes Extending Clear Through**



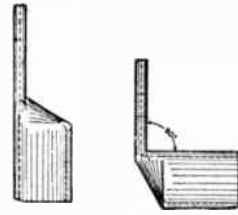
No. 5 Connector



Showing Construction

Cat. No.	Max. Solid	Wire Str.	Screws	Diam. Hole In.	Outside Diam. In.	Length In.	Std. Wt., Lbs.	
							Pkg.	Std. Pkg.
0	12	....	2	.106	5/16	1 1/2	100	3 3/4
1	8	....	2	.147	5/16	1 1/2	100	3 1/2
2	6	8	2	.185	3/8	1 3/4	100	5
3	4	5	2	.228	7/16	1 7/8	100	7
4	2	3	2	3/7	9/16	1 7/8	100	8 1/2
5	0	2	2	1 1/2	1 1/2	1 7/8	50	5
6	00	1	2	8/8	5/8	1 7/8	50	6
7	4	5	4	.228	7/16	1 7/8	100	7 1/2
8	2	3	4	9/8	1 1/2	1 7/8	100	9
9	0	2	4	1 1/2	9/16	1 7/8	50	5 1/2
10	00	1	4	3/2	5/8	1 7/8	50	6 3/4
11	000	00	4	7/8	11/16	2	50	7 1/2
12	0000	000	4	1 1/2	3/4	2	50	8 1/2
13	....	0000	4	9/16	1/8	2 3/8	25	6 3/4

**FA Type F Drawn Copper Lugs**

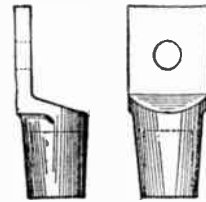


Straight

90°

Amp. of Switch	Size of Wire Hole Inches	Size of Bolt Hole Inches	Straight		90°	
			Cat. No.	Price Each	Cat. No.	Price Each
30	1/4	1 1/4	34	\$.06	3490	\$.26
60	5/16	7/32	64	.10	6490	.32
100	7/16	1/4	104	.18	10490	.48
200	5/8	5/16	204	.40	20490	.76

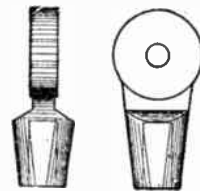
**FA Type A Cast Copper Lugs**



Amp. of Switch	Size of Wire Hole Inches	Size of Bolt Hole Inches	Straight		90°	
			Cat. No.	Price Each	Cat. No.	Price Each
30	3/8	3/8	305	\$1.30	30590	\$1.80
30	7/8	25/32	405	1.80	40590	2.10
100	1	9/16	505	2.48	50590	4.20
200	1 1/4	17/32	605	2.70	60590	5.40
300	1 1/2	21/32	805	5.70	80590	6.50
400	1 5/8	21/32	1005	7.36	100590	9.00
500	1 3/4	21/32	1205	9.16	120590	11.50

Furnished only in Type F Drawn Copper. See prices above.

**FA Type B Drawn and Cast Copper Lugs**



On Type B, 30 to 200-ampere, drawn copper lugs will be regularly furnished, unless otherwise specified. Over 200-ampere, cast copper lugs will be supplied.

Amp. of Switch	Size of Wire Hole Inches	Size of Stud Hole Inches	Straight		90°	
			Cat. No.	Price Each	Cat. No.	Price Each
30	1/4	9/32	331 1/2	\$.08	3390 1/2	\$.26
60	5/16	11/32	631 1/2	.10	6390 1/2	.32
100	7/16	13/32	1031 1/2	.18	10390 1/2	.48
200	5/8	17/32	2031 1/2	.40	20390 1/2	.76
400	7/8	13/16	4031 1/2	1.20	40390 1/2	1.64
600	1 1/4	15/16	6031 1/2	2.00	60390 1/2	2.56
800	1 1/2	1 1/16	8031 1/2	3.50	80390 1/2	....
1000	1 5/8	1 3/16	10031 1/2	5.82	100390 1/2	....
1200	1 3/4	1 5/16	12031 1/2	8.50	120390 1/2	....



## Universal Test Clips and Insulators



No. 24 Clip Only

No. 27 Clip with No. 29 Insulator

Test clips save time in electrical work requiring quick temporary connections. May be used over and over again. Insulators are packed separately, 5 red, 5 black to a box.

### Screw Connection

No.	Description	Spread of Jaws, In.	Wt., Lbs. per 100	Price Each
45	Pee Wee Clip Only, Cadmium.....	3/8	1 1/2	\$.05
47	Rubber Insulator for No. 45 Clip..	1 1/4		.07
27	10-Amp. Clip Only, Cadmium.....	9/16	3	.12 1/2
29	Rubber Insulator for No. 27 Clip...	2		.07 1/2
24	25-Amp. Clip Only, Copper.....	1	5 1/2	.18 1/2
26	Rubber Insulator for No. 24 Clip...	7		.13

### Lug Connection

21	50-Amp. Clip Only, Copper.....	1 1/2	19	\$.57
23	Rubber Insulator for No. 21 Clip...		11	.23 1/2
11	100-Amp. Clip Only, Copper.....	1 1/4	40	.77
13	Rubber Insulator for No. 11 Clip...		25	.64
33	200-Amp. Clip Only, Copper.....	2	57	1.25
35	Rubber Insulator for No. 33 Clip...		26	.90

## Universal Radio and Battery Clips



No. 45

Nos. 45 Pee Wee, 27 and 48-B Clips are adapted for connecting to dry cells, binding posts and to the terminals of any radio apparatus.

No. 24-A is for A batteries. No. 21-A is a ground clip, equally suitable for series or constant potential charging in battery work. No. 11-A for high discharge test.

Screw connection on all clips. No solder required.

No.	Description	Length of Jaws, Inches	Spread of Jaws, Inches	Approx. Weight per 100 Pounds	Price Each
45	Pee Wee, Cadmium-Plated...	1 1/2	3/8	1 1/2	\$.05
48-B	Clip, Cadmium-Plated.....	1 3/4	9/16	2	.06
27	10-Ampere, Cadmium-Plated...	2 1/4	9/16	3 1/4	.12 1/2
24-A	25-Ampere, Lead-Coated.....	2 1/2	1	5	.10
21-A	50-Ampere, Lead-Coated.....	3 7/8	1 1/2	15	.20
11-A	100-Ampere, Lead-Coated.....	5 7/8	1 1/4	40	.60

## No. 2527 Frankel Extension to Clips

Brass, nickel-plated.

Extension attached to clip, to reach obstructed and crowded corners that are out of reach of the clip.

Price, No. 2527, Extension only.....each \$ .40



## No. 2544 Frankel Battery Charging Clips

Heavy steel with rivet pin. Lead plated. Fits any terminal. Length, 4 inches.

Price, No. 2544 ..each \$ .50  
" Springs only .. " .05



## No. 2535 Frankel Electric Testing Clips



Made of brass, nickel plated. Flattened back with bolt and nuts to attach connector.

Price, No. 2535.....each \$ .60

## No. 2533 Frankel Electric Testing Clips

Made of brass, nickel-plated.

Tapped for set screw.

Drilled to slip 1/8 inch.



Price, No. 2533.....each \$ .48

## No. 2530 Frankel Electric Testing Clips

Brass, nickel-plated.

Especially adapted for fine wire or charging light batteries.



Price, No. 2530.....each \$ .20

## No. 2534 Frankel Electric Testing Clips

Brass, nickel-plated.

Drilled with 1/8-inch hole.

Has screw back.



Price, No. 2534.....each \$ .48

## No. 2539 Frankel Electric Testing Clips



Made of brass, nickel-plated.

This is a radio clip, especially designed for finest work.

Price, No. 2539.....each \$ .14

## No. 2542 Frankel Electric Testing Clips

Nickel silver.

The pin pierces the insulation and makes a positive connection. Use teeth for fine wires. Has nut, bolt and washer making an extra strong connection.



Price, No. 2542.....each \$ .65

## No. 2523 Frankel Electric Testing Clips

Brass, Nickel-plated

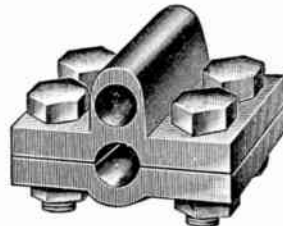
It has no pin to pierce the insulation. Used for charging light batteries, etc.



Price, No. 2523.....each \$ .40

## No. 2554 Frankel Bleeder Taps

To facilitate making taps from main feeder in small narrow spaces.



FOR STRANDED Main	Price Branch	Each	FOR STRANDED Main	Price Branch	Each	FOR STRANDED Main	Price Branch	Each
4	4	\$1.20	3/0	2	\$1.50	300000	300000	\$2.60
2	2	1.20	3/0	1/0	1.60	500000	2	2.25
1	3	1.20	3/0	2/0	1.60	600000	2	2.25
1/0	2	1.20	4/0	2	1.90	600000	4/0	2.40
1/0	1/0	1.20	4/0	1/0	1.90	600000	300000	2.40
2/0	2	1.50	4/0	2/0	1.90	600000	600000	3.00
2/0	1/0	1.50	4/0	4/0	2.25	700000	2	3.00
2/0	2/0	1.50	300000	2	2.25	.....	.....	.....

**Dossert Solderless Connectors****Type A 2-Way Connectors**

Type A connector is for use on cable, stranded or solid wire rod and tubing. The connector

should not be used on a cable that is subjected to heavy strains. Sleeve is tapered at both ends and slotted lengthwise.

**Type B 2-Way Connectors**

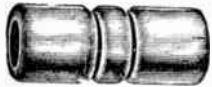
Is for use on stranded wire or cable only and is designed to make a joint which will withstand heavy tensile strains.



Type B connector is fitted with rings, one of which fits over bare cable, while the other is forced under first or second layer of strands, giving great tensile strength. Not made for conductors smaller than No. 0.

**Type C 2-Way Connectors**

Type C 2-way connector is furnished with round nuts and nipples which fit it for use on high-tension circuits. All connectors can be furnished Type C in either Type A or B. When ordering, state type desired, and give circular millage or gauge number of wire and state whether wire is solid or stranded. For example: 12 two-ways, Type C, Type A for 0000 stranded wire.

**Reducers**

Reducer is made in 2-ways and 3-ways. Illustration shows a 2-way reducer. Used for connecting solid or stranded conductors of different diameters end to end. For cable it can be furnished either Type A or B.



When ordering reducers, state type desired, and give circular millage of cable or diameter of rod, or gauge number of wire and state whether wire is solid or stranded.

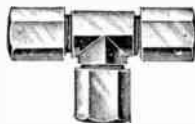
**Elbows**

The elbow is used to connect conductors that are at right angles to each other. It consists of a right angle nipple, 2 compression nuts, and 2 tapered compression sleeves when Type A, or 2 sets of rings when Type B. The elbow can be furnished for any 2 sizes of cable, wire, rod or combinations of same. When ordering, give same information as is required for Type A or B 2-way connectors.

**3-Way Connectors**

The 3-way connector is used to make a 3-way splice when the cables are at right angles to each other, that is, to splice 2 main wires or cables in a straight line and at the same time connect a branch wire to the main.

Type A can be furnished to connect any 3 sizes of wire, cable, rod or combinations and Type B to connect any 3 sizes of cable.

**Cable Taps**

The cable tap is used to connect a branch wire, rod or bleeder to a main wire, rod or bleeder. It does not splice the main, but simply clamps on to it. Equalizers are combinations of 2 cable taps. They can be furnished to equalize the load on any 2 sizes of cable.

**Front Lugs**

The front-connected lug is used for connect-



ing wires and cables to flat bus bars or front-connected switches, and for terminals on large machines used in the generation and conversion of current such as rotary converters, etc. The wire end of lug is equipped with a tapered nut and sleeve, by means of which the cable is held in the lug and electrical contact secured.

**Dossert Solderless Connectors****Type Y Connectors**

Type Y connector is used to make a three-way splice when the cables are not at right angles to each other. It consists of the Y-shaped three-way nipple, three compression nuts, and three tapered compression sleeves when Type A, or three sets of rings when Type B. Branches are double prongs and stem single prong. The special Y is used to make a three-way

splice when all cables are parallel to each other. It consists of a U-shaped three-way nipple, three compression nuts, and three tapered compression sleeves when Type A, or three sets of rings when Type B.

**Back Lugs**

Back-connected lug is used to connect wire or cable to bolt or stud. Wire end of lug is equipped with tapered nut and sleeve, by which cable is held in lug and electrical contact secured. The lug is connected to stud or bolt in the usual manner by means of contact nuts.

**Angle Lugs**

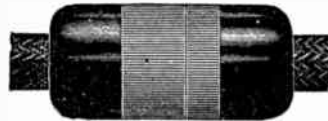
Angle lug is furnished with rectangular or round contact surface, the dimensions of which correspond respectively with those of front or back-connected lugs for the corresponding sizes of wire or cable. Can be furnished to connect cable at any angle, but standard angles are 45 and 90 degrees. Contact surface is furnished undrilled, but, if desired, bolt holes will be drilled without extra charge.

**Swivel Lugs**

Swivel lug is used to connect two wires or cables at any angle to the same stud or bolt. It consists of two lugs with round contact surfaces, and with the wire hole (nut) of each lug offset to one side, thus permitting a swiveling motion. They can be furnished to connect any two sizes of wire or cable to the same stud or bolt. When ordering, give circular millage of wire, and state whether wire is solid or stranded.

**Insulating Covers**

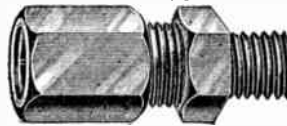
Insulating cover is furnished with Dossert Two-way Connectors in all sizes from 250000 C.M. to No. 14 inclusive. The sizes are No. 4 for all sizes of wires from No. 14 to 4, inclusive, solid and stranded, No. 1 for connector taking Nos. 1, 2 and 3 wires, No. 00 for No. 0 and 00 conductors, and the 250000 C.M. for 0000 and 250000 connectors.

**Type F Stud Connectors**

This stud connector consists of a nipple, which is equipped with a regular tapered nut and compression sleeve to take a certain size wire. The other end is tapped and threaded to receive the stud. In ordering give diameter and threads per inch of stud that connector is to be screwed onto, the gauge number of wire, and state whether wire is solid or stranded.

**Type M Stud Connectors**

This stud connector is used to connect wire or cable to flat strip or block. When ordering, give diameter and length of stud and number of threads per inch, circular millage of cable, and state whether wire is solid or stranded.

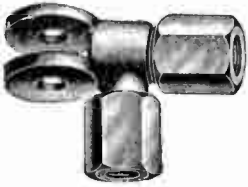
**Type S Cable Anchors**

Type S cable anchor is used to connect the end of cable to a strain insulator for the purpose of anchoring it, and can be used on stranded conductor only.



## Dossert Solderless Connectors

### Type R Cable Anchors



Type R cable anchor is used to anchor one cable and to take a branch wire off the anchored cable. It can be used on stranded conductor only. Consists of a Type B elbow and a clevis for the strain insulator, so arranged that the pull will be exerted on one cable only. It can be made

for any two sizes of stranded conductor. When ordering, give the circular millage of cable or gauge number of wire, and number of strands in conductor.

### Type E Cable Anchors

Type E cable anchor is used to splice and anchor two cables that are at right angles to each other, and can be used on stranded conductor only. Consists of a Type B elbow and one eye for attaching the strain insulator by means of a guy rope. The eye is so arranged that both cables will be under tension when a strain is put on the guy rope. When ordering, give circular millage of cable or gauge number of wire, and number of wires in conductor.



### Service Box Lugs

Used to connect wire to fuse. By the use of a sleeve with different size wire holes the same lug may be used for connecting all wires from a certain predetermined size down to the smallest size used. When ordering, give width of lug, diameter of binding screw, circular millage or gauge number of wire, and state whether wire is solid or stranded.



### Service Box Plugs

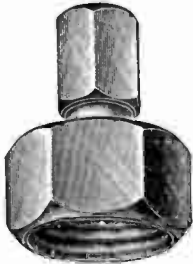
This Service box plug is furnished with a round shank for making connection to fuse. When ordering, give diameter and length of plug or shank, circular millage or gauge number of wire, and state whether wire is solid or stranded.



### Grounding Caps

The grounding cap is used for connecting ground wires to the end of a pipe. One end of the cap is threaded to take a standard gas pipe, while the other end is fitted with a compression nut and tapered sleeve, by means of which wire is connected to cap.

When ordering, give size of gas pipe and circular millage or gauge number of wire, and state whether solid or stranded. Special sizes will be made according to specifications at reasonable prices.



## How to Order Dossert Connectors

Use the proper name of connector desired.

In ordering Type A connectors for concentric laid cables, give circular millage of cable, or exact diameter of cable, or exact diameter of one wire, and number of wires. Type A for solid wires, rods and tubing; give gauge number of wire, or exact diameter of rod, wire or tube, or circular millage of rod. Type A, for rope laid and flexible cable; state if cable is rope laid or flexible and give circular millage or gauge number, or exact diameter, or send sample of cable. The diameter for given size of rope laid or flexible cable is considerably larger than that of the same size concentric laid cable.

For Type B it is necessary to know the number of wires in a cable in furnishing Type B connectors, for the reason that the diameter of the core over which the inner ring fits varies according to the number of wires in the cable.

Do not use the words T joints or tees. In ordering connectors of that character, state plainly three-way or cable taps.

In ordering the smaller sizes of connectors from No. 0000 down, please be sure and state whether for stranded or solid wire.

## Dossert Solderless Connectors

### Types A, B and C

Size of Conductor	Price, Each			
	2 Ways and Elbows	Cable Taps	3 Ways and Y's	Lugs, Back Front, or Angle
14	\$ .44	\$ .66	\$ .66	\$ .33
12	.44	.66	.66	.33
10	.44	.66	.66	.33
8	.44	.66	.66	.33
6	.40	.60	.60	.30
4	.40	.60	.60	.30
3	.50	.75	.75	.38
2	.50	.75	.75	.38
1	.50	.75	.75	.38
0	.60	.90	.90	.45
00	.74	1.11	1.11	.56
000	.90	1.35	1.35	.68
0000	1.10	1.65	1.65	.83
250000	1.30	1.95	1.95	.98
300000	1.52	2.28	2.28	1.14
350000	1.74	2.61	2.61	1.31
400000	2.00	3.00	3.00	1.50
450000	2.30	3.45	3.45	1.73
500000	2.60	3.90	3.90	1.95
550000	2.90	4.35	4.35	2.18
600000	3.18	4.77	4.77	2.39
650000	3.44	5.16	5.16	2.58
700000	3.68	5.52	5.52	2.76
750000	3.92	5.88	5.88	2.94
800000	4.16	6.22	6.22	3.11
850000	4.40	6.60	6.60	3.30
900000	4.64	6.96	6.96	3.48
1000000	5.00	7.50	7.50	3.75
1100000	5.50	8.25	8.25	4.13
1200000	6.00	9.00	9.00	4.50
1250000	6.25	9.38	9.38	4.69
1300000	6.50	9.75	9.75	4.88
1400000	7.00	10.50	10.50	5.25
1500000	7.50	11.25	11.25	5.63
2000000	10.00	15.00	15.00	7.50

Type A connector furnished, unless otherwise specified. When ordering Type B give number of strands in cable. When made with round nipple and round nuts the connector style is Type C. Prices of Types A, B and C are the same.

## 2-Way Insulating Covers

	For Use On	Price Each
4	All Sizes from Nos. 4 to 14 Incl.	\$ .20
1	Connector Nos. 1, 2 and 3	.26
00	Connector Nos. 0 and 00	.46
250000	Connector Nos. 000 and 0000	.60

## Cable Tap Insulating Covers

1	No. 1 Main and Branch	\$ .60
00	No. 00 Main and Branch	.80
0000	No. 0000 Main and Branch	1.00
250000	C. M. Main, No. 1 Branch	1.10
300000	C. M. Main, and Branch	1.30
500000	C. M. Main, No. 00 Branch	1.70
500000	C. M. Main, and Branch	2.00

## Extra Sleeves



Insulated Cable Tap Cover

Dossert Connectors of a given size may be used on cable of a smaller size by changing the sleeves. For example: a connector for No. 4 stranded cable may be sleeved to take any smaller size down to No. 14, either solid or stranded, a different sleeve being used for each size of wire or cable.

Size of Nut	Size of Cable	Price per 100	Size of Nut	Size of Cable	Price per 100
4	4-14	\$8.00	000	000-12	\$16.00
1	1-12	9.00	0000	0000-000	20.00
0	0-12	12.00	0000	00-0	20.00
00	00-12	14.00	0000	1-12	20.00

## Frankel Solderless Connectors

Frankel solderless connectors constitute a complete line of connectors for splicing either stranded or solid wire, without the use of solder.

As the compression nut is screwed on to the connector, the slotted jaw grips the cable firmly.

### No. 2560 Two-way Connectors



Two-way connectors are used to splice two conductors of the same size end to end.

### No. 2562 Elbow Connectors

Elbow connectors are used to connect conductors at right angles, these conductors being of the same or any two different sizes.



### No. 2586 Reducer Connectors



Reducers are used for connecting two conductors of different sizes of cable or solid wire. They are especially useful in connecting solid round buses on switch-

boards to feeder cables.

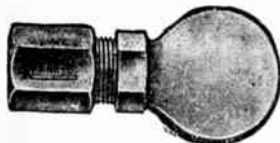
### No. 2568 Front Connector Lugs

Front connector lugs are used for connecting solid wire or cable to generator terminals on large machines or to flat bus bars or front-connected switches. These connectors are made with rectangular contact surface undrilled, but will be furnished drilled when so specified, without addition to list price.



### No. 2569 Back Connector Lugs

Back connector lugs are used for connecting solid wire or stranded cable to bolts or studs, and are made with round contact surface. Contact surfaces are undrilled, but where desired they will be furnished drilled when so specified, without addition to list price.



### No. 2570 Angle Connector Lugs

Angle connector lugs are made with round or rectangular contact surface at an angle of 45 degrees to the connector. Contact surfaces are undrilled but where desired they will be furnished drilled without addition to list price.



### No. 2572 Right Angle Connector Lugs



Right angle connector lugs are made with round or rectangular contact surface at an angle of 90 degrees to the connector. Contact surfaces are undrilled but where desired they will be furnished drilled when so specified, without addition to list price.

### No. 2561 Three-way Connectors

Three-way connectors are used to make a main line splice that is on a straight line, and a branch splice off of the main. If the main does not have to be cut except to make this connection, use a cable tap as listed on another page. They can be furnished to connect any three sizes of solid wire or stranded cable.



## Frankel Solderless Connectors

### No. 2575 Cable Tap Connectors

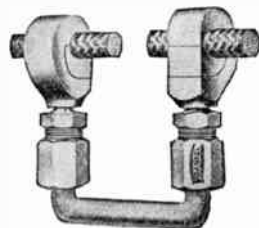


Cable taps are used to connect a branch of solid wire or stranded cable to main cable or wire. The tap consists of a hook for clamping on the main, and a connector attached to the shank of the hook for taking the branch. The hook is provided with an inner shoe, which can be adjusted by turning the shank or post of the tap.

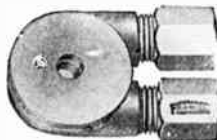
The cable is connected to the main by placing the hook over the wire or cable from which the insulation has been removed and then inserting the shoe and screwing up the post until contact is made. The branch is connected up by inserting the bared end of the wire or cable in the connector and tightening up the compression screw.

### No. 2576 Equalizer Connectors

Equalizers are used to equalize the load on two power cables that run parallel or at right angles to each other. They are made by combining two cable taps and are installed in the same manner that a cable tap is connected to a main. Furnished with connecting rod straight or bent, as desired.



### No. 2574 Swivel Lugs



Swivel lugs are used to connect two parallel cables to the same stud or terminal. Also to provide a means of connecting two or more cables at any desired angle.

### No. 2558 U Connectors

Frankel U Connectors are used where it is desired to connect the ends of two parallel leads together such as resistance or heating element units. U connectors can be supplied with outlets of two different sizes if desired.

When ordering, specify distance between centers of outlets.

Prices upon application.



### No. 2559 Y Connectors

Frankel Y Connector is used to make a 3-way splice when the cables are not at right angles to each other.

This connector can be furnished to connect any 3 sizes of wire, cable or rod. When ordering, state sizes required and type of wire or cable.

Prices of Y connector for different combinations upon application.



### No. 2563 Plug-Stud Connectors

Plug-stud Connectors are used for connecting stranded cable or solid wire to a threaded stud or rod.



### No. 2564 Stud Connectors

Stud Connectors are used to connect wire or cable to block terminals by screwing the stud end of the connector into a threaded hole, or to strap terminals by inserting the stud end through a hole in the strap and clamping by a nut on the end of the stud.



## Frankel Solderless Connectors

### No. 2565 Grounding Tap Connectors



Used to connect wire or cable to a gas pipe for grounding a circuit. The pipe end of the connector is threaded.

### No. 2566 Service Box Plugs

Used for making connections to fuses where a round stud is required on the connector for use in a screw clamp terminal.

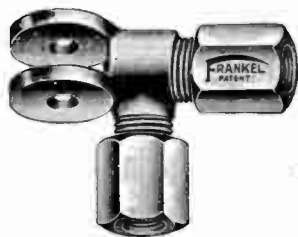
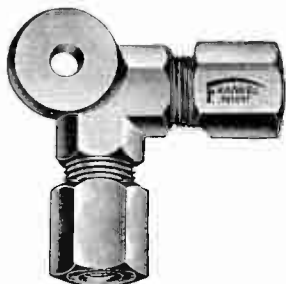


### No. 2587 Cable Anchors

Used to connect the end of a cable to a strain insulator for the purpose of anchoring it.

### No. 2589 Cable Anchors

Used to splice and anchor 2 cables that are at right angles to each other. Consists of an elbow connector and one eye for attaching the strain insulator by means of a guy rope.



### No. 2588 Cable Anchors

Used to anchor one cable and to take a branch wire off the anchored cable.

### No. 2597 Collets

Frankel Collet consists of a threaded and split collar from which radiate 1, 2, 3, 5, 7, or 9 Frankel Fittings; particularly valuable for use with reactance coils.



### Prices

For price of swivel lugs double price of lugs.

For price of special size cable tap, take two-thirds of price of larger end, plus one-third of price of small end.

Reducers are priced by taking one-half of each end, and adding.

3-ways are priced by taking one-third of each end, and adding.

Cable anchor style No. 2587 is same price as 2-way connector No. 2560.

Cable anchor style No. 2588 and No. 2589 are same price as 3-way connector No. 2561.

Collets are made in any combination of sizes. When ordering, specify size of center hole, size and kind of wire or cable, and number of outlets required. All collets are special.

## Frankel Solderless Connectors

Specify type of conductor—solid, stranded, I.P.S. sizes, flexible, or special.

Size Solid or Stranded Wire	PRICE, EACH				U Con-nectors	Y Con-nectors	Plug-studs and Studs
	2-way Elbow Front Reducers	Back Lugs Front Lugs Angle Lugs	3-way Cable Taps				
10-6	\$ .35	\$ .25	\$ .55				
5-3	.40	.30	.60				
2	.45	.35	.70				
1	.50	.40	.85				
0	.60	.45	.90				
00	.75	.55	1.10				
000	.90	.65	1.35				
0000	1.10	.80	1.65				
100000 cm.	.60	.45	.90				
150000 "	.90	.60	1.30				
200000 "	1.05	.80	1.60				
250000 "	1.30	.95	1.95				
300000 "	1.50	1.10	2.25				
350000 "	1.75	1.30	2.60				
400000 "	2.00	1.45	3.00				
450000 "	2.25	1.65	3.40				
500000 "	2.60	1.80	3.90				
550000 "	2.90	2.00	4.40				
600000 "	3.25	2.30	4.80				
650000 "	3.50	2.50	5.25				
700000 "	3.75	2.70	5.60				
750000 "	4.00	2.90	6.00				
800000 "	4.25	3.10	6.40				
850000 "	4.50	3.30	6.75				
900000 "	4.75	3.50	7.00				
950000 "	5.00	3.70	7.50				
1000000 "	5.25	3.90	7.80				
1100000 "	5.50	4.10	8.25				
1200000 "	5.75	4.30	9.00				
1300000 "	6.25	4.60	9.75				
1400000 "	7.00	4.90	10.50				
1500000 "	7.75	5.20	11.20				
1600000 "	8.50	5.60	12.00				
1700000 "	9.25	6.00	12.75				
1800000 "	10.00	6.50	13.50				
1900000 "	10.75	7.00	14.25				
2000000 "	11.50	7.50	15.00				
2500000 "	12.25	9.50	18.00				

Prices upon application.

### Ground Taps

Size Solid or Stranded Wire	Size Std. Pipe In.	Size Solid or Stranded Wire	Size Std. Pipe In.
14-1	3/8	0-0000	1/2
14-1	1/2	0-0000	3/4
14-1	3/4	0-0000	1
14-1	1		

Prices upon application.

### Service Box Plugs

Size Solid or Stranded Wire	SIZE PLUG INCHES		Size Solid or Stranded Wire	SIZE PLUG INCHES	
	Length	Diam.		Length	Diam.
14-4	5/8	3/8	00	3/4	3/8
3-1	3/4	3/8	000	1	1/2
0	3/4	3/8	0000	1	1/2

Prices upon application.

List prices cover connectors with plain finish for solid wire, stranded or flexible cable. Connectors for special size rod, tube, flexible or rope laid cable, are priced on application.

To order, specify style number, B & S gauge number or circular milage of conductor, and state whether for solid or stranded cable.

Strain connectors are made by cutting grooves on inside of slotted jaw. Add 15 per cent for this type.

Extra charges for patterns and design in development work, of special connectors.

Dimensions on request.



**Ideal Wire Connectors**  
Solderless—Tapeless



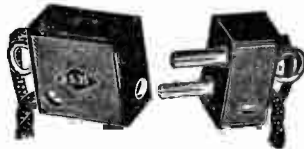
A copper-coated steel spring with a carrying capacity equal to that of the wires to be joined is mounted in the crown of a strong insulating material. The spring threads on the wires and makes a positive contact between them. Just skin the wires and screw on the connector, like a nut on a bolt. One size will join solid to solid wires, stranded to stranded wires, or solid to stranded wires.

Made in two sizes: Black universal connector for two No. 18 to four No. 14 wires. Brown large universal connector for four No. 14 to three No. 10 wires.  
Price ..... carton of 100 \$3.25  
Price ..... package of 1000 30.00

**Medium Rectangular Connectors**

1 7/8 x 1 1/4 x 3/4 Inches

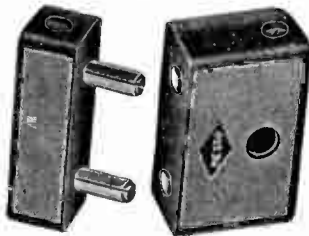
For connecting portables, fans, small motors, etc. It is provided with two eye screws, one at each end, which can be used for anchoring the cord should it be deemed advisable to do so. Can also be looped together by this means, so that when separated the two parts can be located and connected without delay. Will make and break a circuit for any apparatus or lights using 15 amperes or less. Standard package, 200.



Price, No. 6535, Rectangular Connector Complete each \$ .90  
" " 6537, Plug Only " .56  
" " 6538, Receptacle Only " .56

**Large Rectangular Connectors**

2 1/8 x 1 7/8 x 3/4 Inches



This connector can be used with safety for making and breaking 25 amperes on 125-volt circuits.

For experimental and demonstrative purposes.

For stage lighting, connecting motors and numerous other applications it will prove a reliable quick acting circuit controller.

A hole is provided in the larger part of the connector for tying the conducting cord, which eliminates all strain on the binding screws. The contact receptacles and plugs are separated by one inch of hard rubber composition, which makes a perfect insulation between the current carrying parts.

Price, No. 6540, Rectangular Connector Complete each \$1.20  
" " 6539, Plug Only " .75  
" " 6543, Receptacle Only " .75

**Small Rectangular Connectors**



1 7/8 x 1 1/16 x 7/16 Inches

Convenient for making and breaking a circuit rapidly and frequently. Can be used on any battery circuit.

Price, No. 6536, Rectangular Connector Complete each \$ .70

**Fahnestock Binding Posts**

No. 3



Will take No. 10 B. & S. Wire. Length over all, 1 1/16 inches. Width, 3/8 inch. Screw hole for No. 8 screw.

Price, No. 3, Brass ..... each \$ .05  
Price, No. 3, Bronze ..... each .06  
Price, No. 3, Nickeled Brass ..... each .05  
Price, No. 3, Nickeled Bronze ..... each .06

No. 5

Will take No. 10 B. & S. Wire. Has projecting lug to which can be soldered a wire. Length over all, not including soldering lug, 1 1/16 inches. Width, 3/8 inch. Screw hole for No. 8 screw.

Price, No. 5, Brass ..... each \$ .07  
Price, No. 5, Bronze ..... each .08  
Price, No. 5, Nickeled Brass ..... each .07  
Price, No. 5, Nickeled Bronze ..... each .08



No. 9

Will take No. 10 B. & S. Wire. Length over all, 2 1/16 inches. Width, 3/8 inch. Screw hole for No. 8 screw.

Price, No. 9, Brass ..... each \$ .08  
Price, No. 9, Bronze ..... each .10  
Price, No. 9, Nickeled Brass each .08  
Price, No. 9, Nickeled Bronze each .10



No. 24

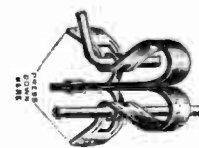
Will take No. 10 B. & S. Wire. Length over all, 1 1/16 inches. Width, 3/8 inch. Made with either 1/4 or 5/16-inch screw hole.

Price, No. 24, Brass ..... each \$ .08  
Price, No. 24, Bronze ..... each .10  
Price, No. 24, Nickeled Brass ..... each .08  
Price, No. 24, Nickeled Bronze ..... each .10



**Fahnestock Test Connectors**

No. 30



Made of special copper bronze spring metal. Two large clips riveted together. Both snap over the line. Made for different size wire. Used for test poles or for party line work. Length over all, 1 5/16 inches. Width, 5/8 inch.

In ordering, state kind and size of wires to be connected.

Price, No. 30, Bronze ..... each \$ .15

No. 31

One large and one small clip riveted together. Large clip snaps over the line wire. The small clip does not snap over, and will take up to and including No. 10 B. & S. Used for attaching drop or jumper wires to line on junction poles or party lines. Length over all, 1 5/16 inches. Width, 5/8 inch.

In ordering, state kind and size of wires to be connected.  
Price, No. 31, Bronze ..... each \$ .10



No. 33



Temporary connector for emergency work and test sets.

Will snap over a No. 8 B. W. G. Wire.  
Price, No. 33, Bronze ..... each \$ .15

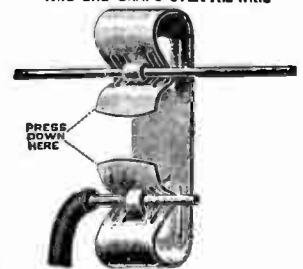
No. 34

One end snaps over the line. Made in only one size. Snaps over a No. 12 B. W. G. Wire.

Other end does not snap over wire but will take any size wire up to No. 9 B. W. G.

Length over all, 2 3/4 inches. Width, 5/8 inch.

Price, No. 34, Bronze ..... each \$ .10





## No. 62569 Bryant Plug Fuse Cut-Out Bases



**Single-Pole, Main**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.

Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62569	2 $\frac{3}{4}$ x 1 $\frac{29}{32}$	10	50	46	\$ .24

## No. 62965 Bryant Plug Fuse Cut-Out Bases

**Double-Pole, Main**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62965	2 $\frac{1}{16}$ x 2 $\frac{9}{16}$	10	50	35	\$ .32

## No. 61935 Bryant Plug Fuse Cut-Out Bases

**Double-Pole, Single Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61935	2 $\frac{1}{16}$ x 3 $\frac{13}{32}$	5	50	50	\$ .35

## No. 62587 Bryant Plug Fuse Cut-Out Bases

**Double-Pole, Double-Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.

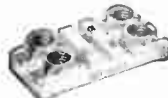


Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62587	2 $\frac{1}{16}$ x 5 $\frac{7}{32}$	5	25	40	\$ .62

## No. 62199 Bryant Plug Fuse Cut-Out Bases

**Triple to Double-Pole Double-Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62199	2 $\frac{1}{16}$ x 6 $\frac{5}{16}$	5	25	48	\$ .68

## No. 62165 Bryant Plug Fuse Cut-Out Bases

**Triple-Pole, Main**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62165	2 $\frac{9}{16}$ x 4 $\frac{7}{16}$	5	25	28	\$ .55

## No. 8042 Bryant Plug Fuse Cut-out Bases

**Triple-pole, Single-branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
8042	4 $\frac{7}{16}$ x 4 $\frac{5}{8}$	1	20	42	\$ .70

## No. 62135 Bryant Plug Fuse Cut-out Bases

**Triple-pole, Double-branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For plug fuse in each side of line.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62135	4 $\frac{7}{16}$ x 6 $\frac{5}{16}$	1	10	30	\$ .94

## No. 62065 Bryant Plug Fuse Cut-out Bases

**Double-pole, Main**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each double-pole main.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62065	2 $\frac{1}{16}$ x 2 $\frac{9}{16}$	10	35	50	\$ .32

## No. 61035 Bryant Plug Fuse Cut-out Bases

**Double-pole, Single-branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each double-pole main or single-branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
61035	2 $\frac{1}{16}$ x 3 $\frac{1}{2}$	5	50	50	\$ .35

## No. 80020 Bryant Plug Fuse Cut-out Bases

**Double-pole, Single or Double Cross-over Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each double-pole main or branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
80020	3 $\frac{1}{4}$ x 3 $\frac{1}{2}$	5	50	60	\$ .36

## No. 62087 Bryant Plug Fuse Cut-out Bases

**Double-pole, Double-branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each double-pole main or branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62087	2 $\frac{1}{16}$ x 5 $\frac{9}{32}$	5	25	40	\$ .62

## No. 62099 Bryant Plug Fuse Cut-out Bases

**Triple to Double-pole, Double Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each double or triple-pole main or branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62099	2 $\frac{1}{16}$ x 6 $\frac{5}{16}$	5	25	48	\$ .68

## No. 62066 Bryant Plug Fuse Cut-out Bases

**Triple-pole, Main**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each triple-pole main.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62066	2 $\frac{9}{16}$ x 4 $\frac{7}{16}$	5	25	28	\$ .55

## No. 80042 Bryant Plug Fuse Cut-out Bases

**Triple-pole, Single-branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each triple-pole main or branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
80042	4 $\frac{7}{16}$ x 4 $\frac{5}{8}$	1	20	42	\$ .70

## No. 62035 Bryant Plug Fuse Cut-out Bases

**Triple-pole, Double Branch**  
30 Amperes, 125 Volts  
*Schedule J2*

For one plug fuse omitted from each triple-pole main or double-branch.



Cat. No.	Dimensions Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
62035	4 $\frac{7}{16}$ x 6 $\frac{5}{16}$	1	10	30	\$ .94



**Nos. 35367 and 42869 G-E Entrance Switches**  
3-30 Amp., 125 Volts  
*Schedule G Class 2*

**Double Pole Fuses at Hinge End**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
35367	1	25	51	\$1.80

**Double Pole Fuses at Handle End**

42869	1	25	37	\$1.80
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**No. 35368 G-E Entrance Switches**

**Triple Pole Fuses at Hinge End**

3-30 Amp., 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
35368	1	20	55	\$2.80



**Nos. 42689 and 42688 G-E Branch Switches**

**Two to Two Wire, Single Branch**

3-30 Amp., 125 Volts

*Schedule G Class 2*

Mains Vertical

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
42689	1	25	58	\$3.00

Mains Horizontal

42688	1	25	59	\$3.00
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**No. 42423 G-E Branch Switches**

**Two to Two Wire, Double Branch Mains Vertical**

3-30 Amp., 125 Volts

*Schedule G Class 2*



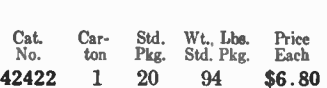
Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
42423	1	20	94	\$6.80

**No. 42422 G-E Branch Switches**

**Two to Two Wire, Double Branch Mains Horizontal**

3-30 Amp., 125 Volts

*Schedule G Class 2*



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
42422	1	20	94	\$6.80

**No. 42425 G-E Branch Switches**

**Three to Two Wire, Double Branch Mains Vertical**

3-30 Amp., 125 Volts

*Schedule G Class 2*



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
42425	1	20	100	\$7.20

**No. 42424 G-E Branch Switches**

**Three to Two Wire, Double Branch**

Mains Horizontal

3-30 Amp., 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
42424	1	20	98	\$7.20



**No. 62569 G-E Fuse Plug Cutouts**

**Single Pole, Main Line**

3-30 Amp., 125 Volts

*Schedule G Class 2*



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
62569	10	100	34	\$4.48

**No. 62965 G-E Fuse Plug Cutouts**

**Double Pole, Main Line**

3-30 Amp., 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
62965	10	50	28	\$.64

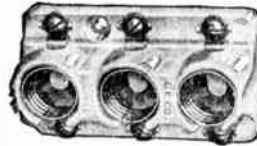


**No. 62165 G-E Fuse Plug Cutouts**

**3-pole, Main Line**

3-30 Amperes, 125 Volts

*Schedule G Class 2*



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
62165	5	25	24	\$1.10

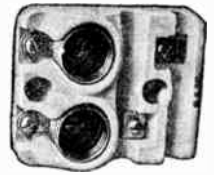
**No. 61935 G-E Fuse Plug Cutouts**

**Two Wire, Single Branch**

3-30 Amp., 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
61935	5	50	50	\$.70



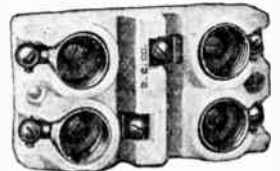
**No. 62587 G-E Fuse Plug Cutouts**

**Two Wire, Double Branch**

3-30 Amp., 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
62587	5	25	45	\$1.24

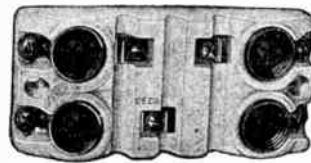


**No. 62199 G-E Porcelain Fuse Plug Cutouts**

3-30 Amperes, 125 Volts

*Schedule G Class 2*

3 to 2-wire, double branch.



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
62199	5	25	45	\$1.36

**No. 179796 G-E Fuse Plug Cutouts**

**3-pole, Main Line with Solid Neutral**

3-30 Amperes, 125 Volts

*Schedule G Class 2*

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
179796	5	50	54	\$1.10



**No. GE2436 Fuse Plug Cutouts**

**For Single-Fused Circuits**

1 to 30 Amperes, 250 Volts

*Schedule F, Class 2*

Three-wire, single branch, 2-circuit.



Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2436	5	50	103	\$1.40

**No. GE2441 Fuse Plug Cutouts**

**For Single-Fused Cutouts**

1 to 30 Amperes, 250 Volts

*Schedule F, Class 2*

Three-wire, double branch, 4-circuit.

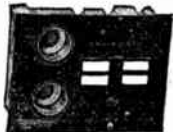
Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
GE2441	1	25	64	\$1.88



## No. GE2435 Fuse Plug Cutouts For Single-Fused Circuits

1 to 30 Amperes, 250 Volts  
Schedule F, Class 2

With dead front metal covers.  
Three-wire, single branch, 2-circuit.

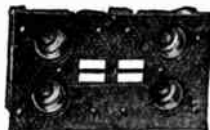


Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2435	5	50	114	\$2.70

## No. GE2440 Fuse Plug Cutouts For Single-Fused Circuits

1 to 30 Amperes, 250 Volts  
Schedule F, Class 2

With dead front metal covers.  
3-Wire, double branch, 4-circuit.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2440	1	25	75	\$4.00

## Clearsite Plug Fuses Non-Renewable

Clearsite Plug Fuses mount the fuse link within the fuse body, thereby giving clear vision of the link. The drop-out type of link is used which lessens the internal operating pressure. The fuse body is made of heat-resisting molded insulation, black in color.



Regular Packages				Retail Packages				
Cat. No.	Cap. Amps.	Car-ton	Price Each	Cat. No.	Cap. Amps.	Ret. Pkg.	*Car-ton	Price Each
4303	3	50	\$.07	5703	3	4	100	\$.07
4306	6	50	.07	5706	6	4	100	.07
4310	10	50	.07	5710	10	4	100	.07
4312	12	50	.07	5712	12	4	100	.07
4315	15	50	.07	5715	15	4	100	.07
4320	20	50	.07	5720	20	4	100	.07
4325	25	50	.07	5725	25	4	100	.07
4330	30	50	.07	5730	30	4	100	.07

\*Carton contains 25 retail packages of 4 fuses each.

## Bryant Pyrotite Mica Cap Plug Fuses Enclosed, with Hexagonal Window in Cap

125 Volts, for 15 Amperes and Less  
Schedule J3

Cat. No.	Cap. Amps.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66327	3	50	500	44	\$.07
66329	6	50	500	44	.07
66331	10	50	500	44	.07
66333	12	50	500	44	.07
66335	15	50	500	44	.07



No. 66335

## Economy Plug Fuses—Renewable

Cat. No.	Carrying Cap. Amps.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PF 368	3	100	14	\$.50
PF 468	4	100	14	.50
PF 568	5	100	14	.50
PF 668	6	100	14	.50
PF 868	8	100	14	.50
PF1068	10	100	14	.50
PF1268	12	100	14	.50
PF1568	15	100	14	.50
PF2068	20	100	14	.50
PF2568	25	100	14	.50
PF3068	30	100	14	.50



## Bryant Pyrotite Mica Cap Plug Fuses Enclosed, with Scalloped Edge Round Window in Cap

125 Volts, for More Than 15 Amperes—Schedule J3

Can be furnished with solid brass caps on special order at 1/2 cent each in addition to prices.



No. 66341

Cat. No.	Cap. Amps.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
66337	20	50	500	44	\$.07
66339	25	50	500	44	.07
66341	30	50	500	44	.07

## G-E Standard Fuse Plugs

National Electrical Code Standard  
Schedule G Class 3



The G-E Standard Fuse Plugs are of two-piece construction. The screw shell is fastened in place by means of a bottom porcelain button which prevents the screw shell working loose and breaking the circuit. It also makes it possible to remove the fuse plug intact even if firmly seated in the cutout.

Standard package, 500. Pkg. weight, 45 pounds.

Cat. No.	Cap. Amp	Car-ton	Price Each	Cat. No.	Cap. Amp.	Car-ton	Price Each
*66327	3	50	\$.14	*66335	15	50	\$.14
*66329	6	50	.14	**66337	20	50	.14
*66331	10	50	.14	**66339	25	50	.14
*66333	12	50	.14	**66341	30	50	.14

\*With hexagonal window.

\*\*With round window.

## D & W Plug Fuse Casings

1-60 Amperes, 125 Volts  
Schedule F—Class 3



For use with N. E. C. S. type fuses.

Cat. No.	Cap. Amps.	Car-ton	Std. Pkg.	Price Each
190	1-30	10	100	\$.36
191	31-60	10	100	.72

## Renewal Links for Plug Fuses

Cat. No.	Carrying Cap. Amps.	Std. Pkg.	Wt., Oz. Std. Pkg.	Price Each
PR6803	3	100	2	\$.02
PR6804	4	100	2	.02
PR6805	5	100	2	.02
PR6806	6	100	2	.02
PR6808	8	100	2	.02
PR6810	10	100	2	.02
PR6812	12	100	2	.02
PR6815	15	100	2	.02
PR6820	20	100	2	.02
PR6825	25	100	2	.02
PR6830	30	100	2	.02



## H & H Fuse Plugs

Schedule I

This Plug is renewable, it is only necessary to insert a new core. There is no metal to touch. As the old style flaring top has been done away with, there is plenty of room between the plugs to get a grip with the fingers. Std. pkg., 500. Carton 50.



Complete Plugs			Renewable Cores		
Cat. No.	Capacity Amperes	Price Each	Cat. No.	Capacity Amperes	Price Each
66-327	3	\$.07	FC327	3	\$.04
66-329	6	.07	FC329	6	.04
66-331	10	.07	FC331	10	.04
66-333	12	.07	FC333	12	.04
66-335	15	.07	FC335	15	.04
66-337	20	.07	FC337	20	.04
66-339	25	.07	FC339	25	.04
66-341	30	.07	FC341	30	.04

**G-E Locking Plugs**

*Schedule G Class 1*

These plugs are furnished in two types—one to lock circuit open, central station wishes to temporarily discontinue furnishing current, and one to lock circuit closed, making triple-pole cutouts meet the electrical code requirements that on three-wire grounded service the neutral be unfused.

**No. GE2538—Lock Circuit Open**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2538	50	100	9	\$ .30



**No. GE2537 Keys for No. GE2538 Locking Plugs**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2537	10	100	..	\$ .20



**No. GE893—Lock Circuit Closed**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE893	50	100	9	\$ .30



**No. GE2250 Keys for No. GE893 Locking Plugs**

<i>Schedule S</i>				
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2250	10	100	2	\$ .20



**GE2303 Grounded Circuit Plugs**  
*Schedule G (Class 1)*

This is a simple device designed to convert any double fuse plug cutout into a single fuse cutout with one unbroken side merely by screwing it into the grounded side of the cut-out.



No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE2303	50	100	2	\$ .05

**Bryant Neutral Wire Fuseless Plugs**

**30 Amperes, 125 Volts**  
*Schedule H*

Can be inserted in neutral fuse receptacle of triple-pole cut-out base and soldered in place.

Designed to make possible compliance with the specifications of the National Electrical Code Rule which requires the omission of fuses from the grounded side of the line except at the cut-out base just preceding the lamp socket or other translating device.



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
559	75	300	15	\$ .05

**Trico Fuse Pullers and Replacers**



Trico Fuse Pullers and Replacers are sturdy and convenient tools. The hands do not come in contact with live electrical parts.

The laminations are manufactured by a new method of punch-shaving, which produces smooth and strong edges. They are made from the highest grade of genuine super-strength gray horn fibre. Double width near the pivot. They are securely riveted together and will give a lifetime of safety first service.

Price, Midget Size, 5 Inches Long	each	\$ .35
Price, Pocket Size, 7 1/2 Inches Long	each	1.00
Price, Giant Size, 12 Inches Long	each	3.00
Price, Jumbo Size, 20 Inches Long	each	12.00

**Benjamin Convertible Cut-out Bases**

**With Flush Safety (Dead Front) Covers**  
**30 Amperes, 125 Volts**



No. 59904



No. 59804

Base is one-piece porcelain with 3-point support which insures safe mounting.

Two styles of covers—flush and overhanging. Overhanging covers are for use with standard surface mounting or flush type cut-out boxes. They fit snugly to inside of cut-out boxes and form gutters.

Covers are made of sheet insulation. Removal of covers is easy; gives access to all connections.

The fuse receptacles are designed so that it is impossible to "substitute with a penny" when a fuse blows. The compact grouping of these receptacles produces bases of comparatively small area. Large binding screws insure permanent connection and easy installation.

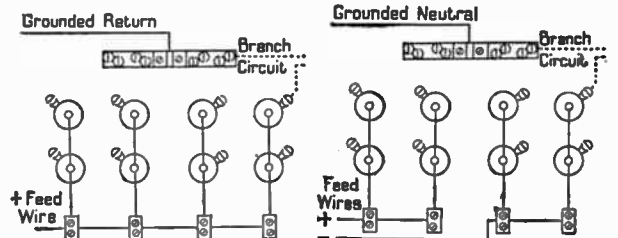
**With Flush Safety Cover**

Cat. No.	No. of Circuits Sgl. Pole Fusing	Dbl. Pole Fusing	Size of Base Inches	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
59904	4	2	3 7/8 x 4 3/4 x 2	4	1 5/8	\$ 1.65

**With Overhanging Safety Cover**

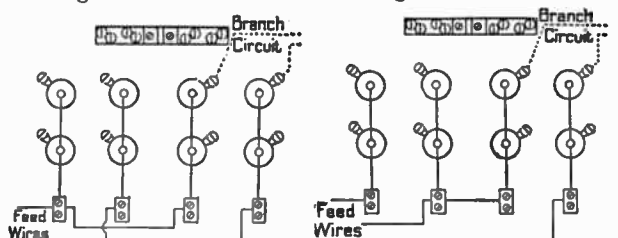
Cat. No.	No. of Circuits Sgl. Pole Fusing	Dbl. Pole Fusing	Size of Cut-Out Box, Inches	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
59804	4	2	6x 8x3 or 4	4	1 3/4	\$ 1.80
59806	6	3	8x10x3 or 4	3	2 7/8	2.75
59808	8	4	10x10x3 or 4	3	6 1/8	3.80
59812	12	6	10x12x4	2	5 3/4	5.60
59816	16	8	10x12x4	1	6 3/8	7.50

These cut-out bases can be easily converted into 4 ordinary circuits as illustrated below.



**Single Fused Branches 2 to 2 Wire**  
2 Wire, 125-volt Mains  
2 Wire, 125-volt Branches  
8 Single Fused Branches

**Single Fused Branches 3 to 2 Wire**  
3 Wire, 125, 250-volt Mains  
2 Wire, 125-volt Branches  
8 Single Fused Branches



**Double Fused Branches 2 to 2 Wire**  
2 Wire, 125-volt Mains  
2 Wire, 125-volt Branches  
4 Double Fused Branches

**\*Double Fused Branches 3 to 2 Wire**  
3 Wire, 125, 250-volt Mains  
2 Wire, 125-volt Branches  
4 Double Fused Branches

\*This diagram does not apply to Cat. Nos. 59904 and 59804. In addition, these cut-outs can be used for 3-wire branch circuits and individual metering of branch circuits.

## Buss Fuse Wire



Buss fuse wire and strip will carry indefinitely current 10 per cent in excess of the values shown under heading capacity and will open the circuit in one minute when subjected to 50 per cent overloads of such ratings.

This is based on a distance between contacts or terminals of 2 inches.

Standard package, 25 pounds.

Size Amperes	Diameter Inches	Carrying Capacity Amperes	Feet per Pound	Quantity on Spool	Price per Pound
1/4	.0045	.45	12920	250 Feet	\$100.00
1/2	.010	1.25	2616	1/2 Lb.	10.00
1	.016	2.2	1020	1/2 "	4.00
2	.025	4.3	420	1/2 "	3.50
3	.031	6	273	1/2 "	3.00
5	.039	8	172	1 "	2.25
6	.042	9	148	1 "	2.25
10	.055	14	87	1 "	2.00
15	.068	20	57	1 "	2.00
20	.082	27	39	1 "	1.50
25	.094	33	30	1 "	1.50
30	.103	38	25	1 "	1.50
40	.122	49	17.6	1 "	1.50
50	.137	59	14	1 "	1.50
60	.158	75	10.5	1 "	1.50
70	.170	85	9	1 "	1.50
75	.182	95	8	1 "	1.50
80	.189	101	7.3	1 "	1.50
90	.212	125	5.8	1 "	1.50
100	.226	141	5.1	1 "	1.50

## Buss Fuse Strip

Packed in 5-pound cans. All in one piece. Each strip is marked at the inner end of the coil with the ampere rating.

Standard package, 25 pounds.

Size Amperes	Width Inches	Thickness Inches	Carrying Capacity Amperes	Feet per Pound	Price per Pound
100	1	.028	125	7.3	\$1.50
125	1	.035	155	5.8	1.50
150	1	.043	180	4.7	1.50
175	1	.051	200	4	1.50
200	1	.059	225	3.5	1.50
250	1	.075	285	2.7	1.50
300	1	.092	340	2.2	1.50
350	1	.110	405	1.9	1.50
400	1	.128	410	1.6	1.50
500	1	.166	545	1.2	1.50
600	1	.204	625	1	1.50

## G-E Porcelain Enclosed Fuse Cutouts

1.8 Amperes, 600 Volts  
Schedule F Class 2



For instrument protection.

Cat. No.	Kind	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
111381	Single-Pole	10	50	17	\$1.00
104846	Double-Pole	10	50	41	1.50
104847	Triple-Pole	10	50	97	2.00

## No. 111382 G-E Enclosed Non-Indicating Fuses

1.8 Amperes, 600 Volts  
Schedule F Class 1

For instrument protection.

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs.	Price Each
111382	10	100	4	\$.40



## Buss Open Link Fuses

The listing below covers all popular and necessary sizes and types and is simplified to aid in buying this material.

Buss open link fuses can be obtained with many other styles of terminals and in larger capacities. When in need of any open link fuses not listed below send sample or complete description.

Fuses listed are not standard stock material. Great care should therefore be exercised in ordering this material as it is not returnable.



110 to 1000 Amperes  
Terminal Nos. 7, 16, 10 or 28

Amp.	No.	STANDARD Slot In.	TERMINAL Width In.	Other Terminals	Car-ton	Std. Pkg.	Price Each
1 to 30	1	3/16	3/8	0, 2, 3	20	100	\$1.10
35 "	60	3/16	9/16	2, 5	20	100	.14
65 "	100	1/4	1 1/16	7	10	50	.20
110 "	200	3/8	3/4	12, 16	10	50	.30
225 "	400	7/16	1 1/2	10, 12, 18	10	50	.60
450 "	600	1 1/2	1 3/8	18, 25	5	25	1.20
650 "	1000	2 3/8	2 1/16	25, 30	5	25	2.00

In ordering, be sure to specify exact amperage and centers desired. Unless otherwise specified, standard terminals as listed above will be furnished. The terminals listed under heading Other Terminals can also be obtained without additional cost.

## Standard Railway Link Fuses



Amp.	Center to Center, In.	Terminal Slot, In.	Car-ton	Std. Pkg.	Price Each
50 to 100	2 1/4	5/8	10	50	\$2.20
110 " 150	2 1/4	5/8	10	50	.30

## Type D Link Fuses



Amp.	Center to Center, In.	Terminal Slot, In.	Car-ton	Std. Pkg.	Price Each
50 to 300	2 7/16 to 2 5/8	1/4	10	50	\$1.15

## Large Open Link Fuses



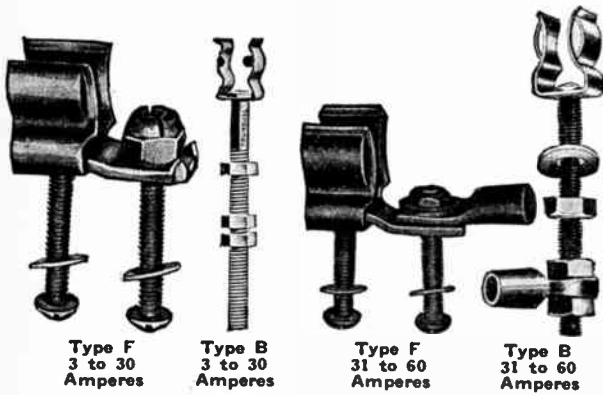
Terminals of cold rolled copper, entirely flat, one edge being slotted to receive the fuse strip.

Amp.	No.	TERMINAL Size In.	Thickness In.	Car-ton	Std. Pkg.	Price Each
1 to 1500	51	2 1/2 x 2 1/2	1/4	2	10	\$12.00
1 " 2000	52	3 x 3	1/4	2	10	14.00
1 " 2000	53	3 x 3	3/8	2	10	16.00
1 " 2500	54	3 1/2 x 3 1/2	3/8	2	10	20.00
1 " 3000	55	4 x 4	3/8	2	10	24.00

When ordering, specify exact amperage, center to center dimensions and size of hole required. If more than one hole is desired a sketch of the fuse must be submitted and 50 cents added to price for each additional hole.

**FA Fuse Terminals**

250 and 600 Volts

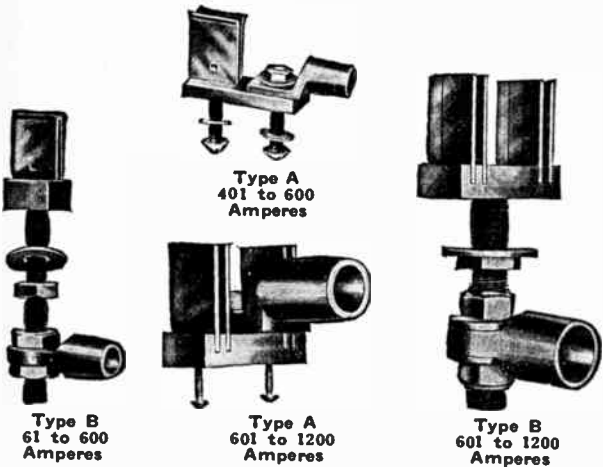


**Front Connection**

Cat. No.	Ampere Capacity	Volts	PRICE, EACH	
			Plain Finish	Satin Finish
F 33	30	250	\$.24	\$.32
F 63	60	250	.38	.48
F 36	30	600	.50	.62
F 66	60	600	.62	.76
F103	100	250 and 600	.68	.84
F203	200	250 and 600	1.12	1.30

**Back Connection**

B 33	30	250	\$.62	\$.70
B 63	60	250	.95	1.04
B 36	30	600	1.00	1.10
B 66	60	600	1.16	1.26
B103	100	250 and 600	2.08	2.24
B203	200	250 and 600	3.18	3.36



**Front Connection**

Cat. No.	Ampere Capacity	Volts	PRICE, EACH	
			Plain Finish	Satin Finish
A 403	400	250 and 600	\$4.30	\$4.66
A 603	600	250 and 600	6.80	7.30
A 803	800	250 and 600	11.75	12.50
A1003	1200	250 and 600	17.55	18.42

**Back Connection**

B 403	400	250 and 600	\$6.54	\$6.80
B 603	600	250 and 600	9.74	10.10
B 803	800	250 and 600	21.72	22.40
B1003	1200	250 and 600	29.64	30.50

Front connection fuse terminals are furnished with short screws, requiring head to be countersunk.

Back connection fuse terminals are furnished with studs long enough for 2-inch slate or marble mounting.

NOTE.—Plain finish will be sent unless otherwise specified.

**FA Standard Fuse Blocks**

For N. E. C. Cartridge Type Fuses

Front Connection—Plain Finish  
On Dead Black Finish Slate Bases

**SINGLE-POLE**



**DOUBLE-POLE**



**250 Volts, D.C. or A.C.**

Cat. No.	Capacity Amperes	Price Each
F 331	30	\$1.20
F 631	60	1.80
F 1031	100	2.50
F 2031	200	3.60
A 4031	400	10.10
A 6031	600	15.30
A 8031	800	24.60
A10031	1000	35.80

**250 Volts, D.C. or A.C.**

Cat. No.	Capacity Amperes	Price Each
F 332	30	\$1.70
F 632	60	2.80
F 1032	100	3.60
F 2032	200	5.80
A 4032	400	18.60
A 6032	600	28.90
A 8032	800	48.20
A10032	1000	70.70

**600 Volts, D.C. or A.C.**

F 361	30	\$1.60
F 661	60	2.20
F 1061	100	2.50
F 2061	200	3.80
A 4061	400	10.30
A 6061	600	16.50

**600 Volts, D.C. or A.C.**

F 362	30	\$2.50
F 662	60	3.60
F 1062	100	4.00
F 2062	200	6.60
A 4062	400	19.40
A 6062	600	31.40

**3-POLE**



**4-POLE**



**250 Volts, D.C. or A.C.**

Cat. No.	Capacity Amperes	Price Each
F 333	30	\$2.20
F 633	60	3.80
F 1033	100	5.20
F 2033	200	8.70
A 4033	400	28.20
A 6033	600	43.90
A 8033	800	71.50
A10033	1000	105.10

**250 Volts, D.C. or A.C.**

Cat. No.	Capacity Amperes	Price Each
F 334	30	\$3.70
F 634	60	4.90
F 1034	100	6.90
F 2034	200	12.00
A 4034	400	37.70
A 6034	600	58.20
A 8034	800	94.00
A10034	1000	141.00

**600 Volts, D.C. or A.C.**

F 363	30	\$3.90
F 663	60	5.50
F 1063	100	6.20
F 2063	200	10.10
A 4063	400	29.40
A 6063	600	46.50

**600 Volts, D.C. or A.C.**

F 364	30	\$4.80
F 664	60	8.70
F 1064	100	9.50
F 2064	200	14.40
A 4064	400	39.60
A 6064	600	63.70

The 30 and 60-ampere fuse blocks have ferrule type clips.

The 100 and 200-ampere fuse blocks have formed clips.

The 400 and 600-ampere fuse blocks have milled in clips.

Fuse blocks over 600 amperes are made with multiple milled parts for each pole.

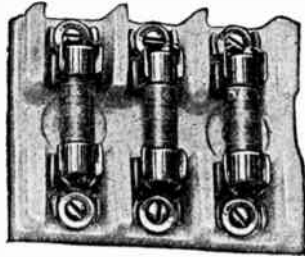


## D & W Enclosed Fuse Cutouts

0-600 Amperes—250 Volts  
Schedule FC—Class 1



No. 91101



No. 91103

### Ferrule Contact, Porcelain Base

Cat. No.	Cap. Amps.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
91101	0-30	Single-pole, Main Line.	5	50	13	\$ .80
91098	0-30	“ “ “ “ with Barriers . . . . .	2	50	37	.80
91102	0-30	Double-pole Main Line	5	50	37	1.10
91103	0-30	Triple “ “ “ “	5	50	51	1.60
91104	0-30	Double “ Single Branch . . . . .	5	50	60	1.40
91105	0-30	Triple-pole Single Branch . . . . .	1	50	90	2.70
91106	0-30	Double-pole Double Branch . . . . .	1	25	50	2.60
91100	0-30	Triple-pole Double Branch . . . . .	1	25	91	4.50
91121	0-30	Three to Two-wire Double Branch . . . . .	1	25	65	3.00
91107	31-60	Single-pole, Main Line	5	50	30	1.30
91108	31-60	Double “ “ “ “	1	50	81	2.80
91109	31-60	Triple “ “ “ “	1	50	117	4.00
91110	31-60	Double “ Single Branch . . . . .	1	50	121	3.50
91111	31-60	Triple-pole, Single Branch . . . . .	1	50	250	6.00
91113	31-60	Double-pole, Double Branch . . . . .	1	25	134	7.00
91123	31-60	Triple-pole, Double Branch . . . . .	1	10	95	12.00
91124	31-60	Three to Two-wire Double Branch . . . . .	1	25	158	8.40

### Knife Blade Contact, Porcelain Base

91114	61-100	Single-pole, Main Line.	1	50	79	\$2.80
91119	61-100	Double “ “ “ “	1	50	156	5.60
91120	61-100	Triple “ “ “ “	1	25	117	8.00

### Knife Blade Contact, Porcelain Base

91115	101-200	Single-pole, Main Line	1	25	84	\$4.20
91117	201-400	“ “ “ “	1	10	138	10.50
91118	401-600	“ “ “ “	1	5	93	14.40

## D & W Enclosed Fuse Cutouts

0-600 Amperes, 600 Volts  
Schedule FC—Class 1

### Ferrule Contact, Porcelain Base



Cat. No.	Cap. Amp.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
28074	0-30	Single-pole, with Barriers	5	50	70	\$1.20
28075	31-60	“ “ “ “	1	50	140	1.80
28076	0-30	“ “ “ “	5	50	48	1.20
28077	31-60	“ “ “ “	5	50	54	1.80

### Knife Blade Contact, Porcelain Base

28078	61-100	Single-pole . . . . .	1	50	102	\$3.50
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### Knife Blade Contact, Slate Base

28079	101-200	Single-pole . . . . .	1	25	106	\$4.60
28080	201-400	“ “ “ “ . . . . .	1	25	181	12.00
28081	401-600	“ “ “ “ . . . . .	1	10	108	15.60

## No. 36802 G-E Enclosed Fuse Cutouts

Single Pole, Main Line

1-30 Amp., 250 Volts

Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36802	5	50	17	\$ .80

## No. 189666 G-E Enclosed Fuse Cutouts

Single Pole, Main Line with Barriers

1-30 Amp., 250 Volts

Schedule F Class 2



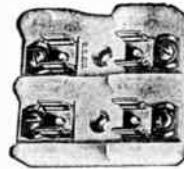
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
189666	5	50	45	\$ .80

## No. 34367 G-E Enclosed Fuse Cutouts

Double Pole, Main Line

1-30 Amp., 250 Volts

Schedule F Class 2



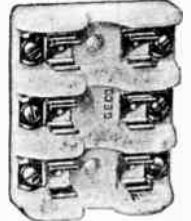
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34367	5	50	55	\$1.10

## No. 34372 G-E Enclosed Fuse Cutouts

Triple Pole, Main Line

1-30 Amp., 250 Volts

Schedule F Class 2



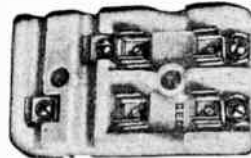
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34372	5	50	70	\$1.60

## No. 34368 G-E Enclosed Fuse Cutouts

Two Wire, Single Branch

1-30 Amp., 250 Volts

Schedule F Class 2



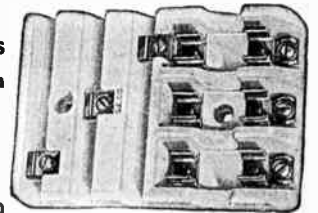
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34368	5	50	82	\$1.40

## No. 34373 G-E Enclosed Fuse Cutouts

Three Wire, Single Branch

1-30 Amp., 250 Volts

Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34373	1	50	153	\$2.70

## No. 34369 G-E Enclosed Fuse Cutouts

Two Wire, Double Branch

1-30 Amp., 250 Volts

Schedule F Class 2

Standard package, 25; carton, 1.



Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
34369	62	\$2.60

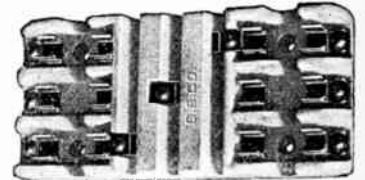
## No. 34374 G-E Enclosed Fuse Cutouts

Three Wire Double Branch

1-30 Amp., 250 Volts

Schedule F Class 2

Standard package, 25; carton, 1.



Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
34374	132	\$4.50

**No. 34370 G-E Enclosed Fuse Cutouts**

Three to Two Wire, Double Branch

1-30 Amp., 250 Volts

Schedule F Class 2



Std. pkg., 25. Carton, 1.

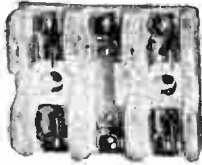
Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
34370	77	\$3.00

**No. 296570 G-E Porcelain Enclosed Fuse Cutouts**

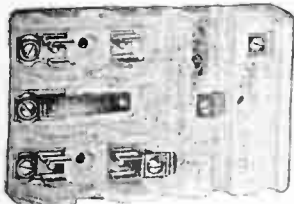
1-30 Amperes, 250 Volts

Schedule F Class 2

Triple pole, main line, solid neutral.



Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
296570	5	50	70	\$1.60



**No. 296571 G-E Porcelain Enclosed Fuse Cutouts**

1-30 Amperes, 250 Volts

Schedule F Class 2

2-wire, single branch, solid neutral.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
296571	1	50	153	\$2.70

**No. 296572 G-E Porcelain Enclosed Fuse Cutouts**

1-30 Amp., 250 V.

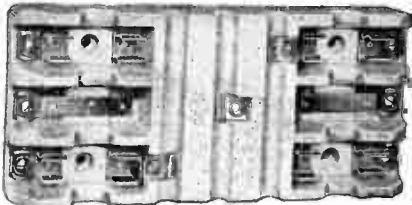
Schedule F Class 2

3-wire, double branch, solid neutral.

Standard pack- age, 25; carton, 1.

No. Wt., Lbs. Each

296572 132 \$4.50



**No. 36803 G-E Enclosed Fuse Cutouts**

Single Pole, Main Line

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36803	5	50	30	\$1.30



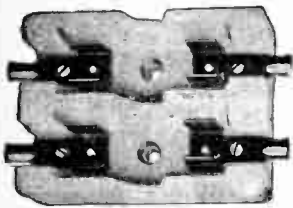
**No. 34376 G-E Enclosed Fuse Cutouts**

Double Pole, Main Line

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34376	1	50	131	\$2.80



**No. 34378 G-E Enclosed Fuse Cutouts**

Two Wire, Single Branch

31-60 Amp., 250 Volts

Schedule F Class 2

Carton, 1; Std. pkg., 50.

Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
34378	186	\$3.50



**No. 36806 G-E Enclosed Fuse Cutouts**

Two Wire, Double Branch

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36806	1	25	209	\$7.00



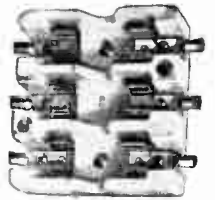
**No. 34377 G-E Enclosed Fuse Cutouts**

Triple Pole, Main Line

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34377	1	50	196	\$4.00



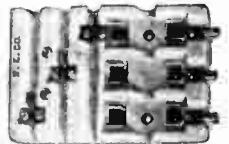
**No. 34379 G-E Enclosed Fuse Cutouts**

Three Wire, Single Branch

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34379	1	25	186	\$6.00



**No. 36804 G-E Enclosed Fuse Cutouts**

Three Wire, Double Branch

31-60 Amp., 250 Volts

Schedule F Class 2

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36804	1	10	118	\$12.00



**No. 42412 G-E Electrolier Cutouts**

For Glass Tube Enclosed Fuses

2 Amp., 250 Volts—Single Pole

Schedule G Class 1

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
42412	50	100	12	\$.60



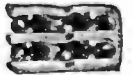
**No. GE-705 Electrolier Cutouts**

For Glass Tube Enclosed Fuses

2 Amp., 250 Volts—Double Pole

Schedule G Class 1

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GE705	25	100	22	\$.80



**No. 132765 G-E Glass Tube Fuses**

For Electrolier Cutouts

1 Amp., 250 Volts

Schedule F Class 1

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
132765	50	100	2	\$.05



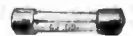
**No. 132766 G-E Glass Tube Fuses**

For Electrolier Cutouts

2 Amp., 250 Volts

Schedule F Class 1

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
132766	50	100	2	\$.05



**No. 132767 G-E Glass Tube Fuses**

For Electrolier Cutouts

3 Amp., 250 Volts

Schedule F Class 1

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
132767	50	100	2	\$.05



## No. 36805 G-E Enclosed Fuse Porcelain Cutouts

Three to Two Wire, Double Branch  
31-60 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36805	1	25	220	\$8.40

## No. 36801 G-E Enclosed Fuse Porcelain Cutouts

Double Pole  
61-100 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36801	1	50	263	\$5.60

## No. 34964 G-E Enclosed Fuse Porcelain Cutouts

Single Pole  
61-100 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34964	1	50	96	\$2.80

## No. 36800 G-E Enclosed Fuse Porcelain Cutouts

Triple Pole  
61-100 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36800	1	25	195	\$8.00

## No. 34971 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
101-200 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34971	1	25	98	\$4.20

## No. 34982 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
201-400 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34982	1	10	54	\$10.50

## No. 36471 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
401-600 Amp., 250 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36471	1	5	64	\$14.40

## No. 34991 G-E Enclosed Fuse Cutouts

Single Pole

1-30 Amp., 600 Volts

Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
34991	5	50	65	\$1.20

## No. 189667 G-E Enclosed Fuse Cutouts

Single Pole with Barriers

1-30 Amp., 600 Volts

Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
189667	5	50	120	\$1.20

## No. 35101 G-E Enclosed Fuse Cutouts

Single Pole  
31-60 Amp., 600 Volts  
Schedule F Class 2



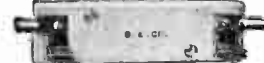
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35101	5	50	79	\$1.80

## No. 21474 G-E Enclosed Fuse Cutouts

Single Pole

61-100 Amp., 600 Volts

Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
21474	1	50	137	\$3.50

## No. 35114 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
101-200 Amp., 600 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35114	1	25	126	\$4.60

## No. 35125 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
201-400 Amp., 600 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
35125	1	10	85	\$12.00

## No. 36479 G-E Enclosed Fuse Cutouts

Slate Base—Single Pole  
401-600 Amp., 600 Volts  
Schedule F Class 2



Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
36479	1	5	59	\$15.60

G-E Enclosed Fuse Cutouts

Dimensions



Fig. No. 1

Fig. No. 1 represents the position of cutouts, in relation to fuses.

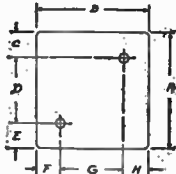


Fig. No. 2

Cat. No.	DIMENSIONS, INCHES								Max. Ht.	Size Hole
	A	B	C	D	E	F	G	H		
21474	8 1/2	2 3/8	2 3/8	4 1/8	2 3/8	1/2	1 3/8	1/2	2 1 1/2	1/4
34964	6 1/8	2 1/8	1 11/16	2 3/4	1 11/16	1/2	1 1/8	1/2	2 1 1/2	1/4
34991	7	1 3/4	2 3/8	2 5/8	2 3/8	7/8	7/8	7/8	1 7/8	1/4
35101	7 5/8	1 3/4	2 5/8	3	2 5/8	7/8	7/8	7/8	2 1/8	1/4
36802	3 3/8	1 3/8	1 11/16	...	1 11/16	...	3 1/2	1 1/2	1 1 1/2	1 1/2
36803	4 1/2	1 5/8	2 1/4	...	...	2 1/4	7/8	3/8	1 1 1/2	1 1/2
42412	2 3/8	3/4	1 3/8	...	1 3/8	3/8	...	3/8	1 1/2	3/8
189666	3 3/4	1 7/8	1 5/8	1/2	1 5/8	3/8	3/4	3/8	1 3/8	1 1/2
189667	7	2 1/4	2 3/8	2 5/8	2 3/8	1 1/8	1 1/8	..	2 1/8	1/4

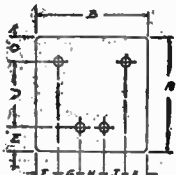


Fig. No. 3

Cat. No.	DIMENSIONS, INCHES										Ht.
	A	B	C	D	E	F	G	H	J	K	
34379	8 1/8	5 5/8	2 1/2	4 1/8	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2

Holding down screw holes 7/32 inch diameter.

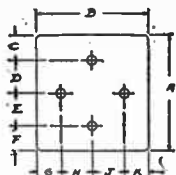


Fig. No. 4

Cat. No.	DIMENSIONS, INCHES										Ht.
	A	B	C	D	E	F	G	H	J	K	
36800	7 3/8	5 5/8	2 5/8	3/4	3/4	2 5/8	1 1/8	1 3/4	1 3/4	1 1/8	2 5/8

Holding down screw holes 3/32 inch diameter.

G-E Enclosed Fuse Cutouts

Continued  
Dimensions

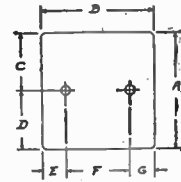


Fig. No. 5

Cat. No.	DIMENSIONS, INCHES							Max. Ht.	Size Hole
	A	B	C	D	E	F	G		
34367	3 5/8	2 5/8	1 1 1/2	1 1 1/2	2 1/2	1 1/4	2 1/2	1 7/8	7/32
34372	3 5/8	4 1/8	1 1 1/2	1 1 1/2	2 1/2	2 1/2	2 1/2	1 7/8	7/32
34376	5	3 5/8	2 1/2	2 1/2	3 1/2	1 1/8	3 1/2	1 5/8	1/4
34377	5	5 5/8	2 1/2	2 1/2	3 1/2	3 3/8	3 1/2	1 5/8	1/4
GE705	2 3/8	1 1 1/2	1 3/8	1 3/8	3/8	1 1/2	3/8	5/8	3/8

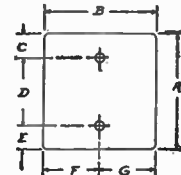


Fig. No. 6

Cat. No.	DIMENSIONS, INCHES							Max. Ht.	Size Hole
	A	B	C	D	E	F	G		
34368	4 5/8	2 1 1/2	1 1 1/2	2 7/32	1 1/8	1 1 1/2	1 1 1/2	1 7/8	7/32
34369	7 3/4	2 5/8	1 1 1/2	4 7/8	1 1 1/2	1 5/8	1 1 1/2	1 7/8	7/32
34370	8 7/8	2 5/8	1 1 1/2	5 5/8	1 1 1/2	1 1 1/2	1 1 1/2	1 5/8	7/32
34373	6 1/8	4 1/8	1 1 1/2	3 1 1/2	1 1/8	2 3/2	2 3/2	1 5/8	7/32
34378	6 5/8	3 5/8	3/8	4 5/8	1 1/2	1 5/8	1 5/8	1 5/8	1/4

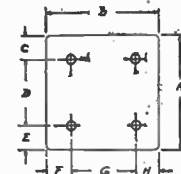


Fig. No. 7

Cat. No.	DIMENSIONS, INCHES							Max. Ht.	Size Hole
	A	B	C	D	E	F	G		
34374	8 7/8	4 1/8	1 1 1/2	5 9/8	1 1 1/2	2 1/2	2 1/2	1 5/8	7/32
34971	7 3/8	2 3/4	2 1/8	3 3/4	2 1/8	1 1/2	1 3/4	3 1/4	7/32
34982	8 3/4	2 3/4	3 1/8	2 1/2	3 1/8	3/4	1 1/4	3 5/8	7/32
35114	9 7/8	2 3/4	2 5/8	5 1/4	2 5/8	1/2	1 3/4	3 1/4	7/32
35125	12 1/4	3	2 7/8	6 1/2	2 7/8	5/8	1 3/4	3 5/8	7/32
36471	11 1/4	3 1/2	3 5/8	4	3 5/8	3/4	2	5	7/32
36479	14 1/4	3 1/2	3 5/8	7	3 5/8	3/4	2	5	7/32
36801	7 3/8	3 7/8	2 1/2	2 3/8	2 1/2	1 1/8	1 3/4	2 5/8	7/32
36804	11 7/8	5 5/8	2 1/2	6 7/8	2 1/2	1 1/2	3 3/8	2 3/8	7/32
36805	11 7/8	3 5/8	2 1/2	6 7/8	2 1/2	1 1/2	1 1/2	2 3/8	7/32
36806	10 5/8	3 5/8	2 1/2	5 5/8	2 1/2	1 1/2	1 1/2	2 3/8	7/32

## D & W Enclosed Fuses

250 Volts

Schedule F—Class 1

Ferrule Contact, 1-60 Amperes



Carton quantity, 10; standard package, 100.

Cap. Amps.	Wt., Lbs. Std. Pkg.	Non-Indicating		Indicating	
		Cat. No.	Price Each	Cat. No.	Price Each
1	..	91001	\$.20	..	..
2	..	91002	.20	..	..
3	4	1454	.20	91125	\$.20
4	4	1455	.20	91126	.20
5	4	1456	.15	91127	.20
6	4	1457	.15	91128	.20
8	4	1459	.15	..	..
10	4	1461	.15	91133	.20
12	4	1462	.15	91134	.20
15	4	1463	.15	91135	.20
20	4	1464	.15	91136	.20
25	4	1465	.15	91137	.20
30	4	1466	.15	91138	.20
35	10	1467	.30	91139	.30
40	10	1468	.30	91140	.30
45	10	1469	.30	91141	.30
50	10	1470	.30	91143	.30
60	10	1472	.30	91147	.30

Knife Blade Contact, 65-600 Amperes



Carton quantity, 5; standard package, 50.

Cap. Amps.	Wt., Lbs. Std. Pkg.	Non-Indicating		Indicating	
		Cat. No.	Price Each	Cat. No.	Price Each
65	14	1473	\$.90	91149	\$.90
70	14	1474	.90	91150	.90
75	14	1475	.90	91151	.90
80	14	1476	.90	91152	.90
90	14	1477	.90	91154	.90
100	14	1478	.90	91156	.90

Knife Blade Contact, 110-600 Amperes



Carton quantity, 1; standard package—110 to 200-ampere, 25; 225 to 400-ampere, 10; 450 to 600-ampere, 5.

Cap. Amps.	Wt., Lbs. Std. Pkg.	Non-Indicating			Indicating		
		Cat. No.	Price Each	Reload Each	Cat. No.	Price Each	Reload Each
110	18	1479	\$2.00	\$.90	91157	\$2.00	\$.90
125	18	2628	2.00	.90	91161	2.00	.90
150	18	1483	2.00	.90	91162	2.00	.90
175	18	2629	2.00	.90	91163	2.00	.90
200	18	1488	2.00	.90	91164	2.00	.90
225	40	1489	3.60	1.50	91165	3.60	1.50
250	40	1490	3.60	1.50	91166	3.60	1.50
275	40	1491	3.60	1.50	91167	3.60	1.50
300	40	..	..	..	91168	3.60	1.50
325	40	1493	3.60	1.50	91169	3.60	1.50
350	40	1494	3.60	1.50	91170	3.60	1.50
375	40	..	..	..	91171	3.60	1.50
400	40	1496	3.60	1.50	91172	3.60	1.50
450	28	1498	5.50	2.00	91173	5.50	2.00
500	28	1500	5.50	2.00	91174	5.50	2.00
550	28	1502	5.50	2.00	91175	5.50	2.00
600	28	1504	5.50	2.00	91176	5.50	2.00

## D & W Enclosed Fuses

600 Volts

Schedule F—Class 1

Ferrule Contact, 1-60 Amperes



Carton quantity, 10; standard package, 100.

Cap. Amps.	Wt., Lbs. Std. Pkg.	Non-Indicating		Indicating	
		Cat. No.	Price Each	Cat. No.	Price Each
1	..	28082	\$.40	..	..
2	..	28083	.40	..	..
3	14	1505	.40	28084	\$.40
5	14	1507	.40	28086	.40
6	14	1508	.40	28087	.40
8	14	1510	.40	28089	.40
10	14	1512	.40	28091	.40
12	14	1513	.40	28092	.40
15	14	1514	.40	28093	.40
20	14	1515	.40	28094	.40
25	14	1516	.40	28095	.40
30	14	1517	.40	28096	.40
35	22	1518	.60	28097	.60
40	22	1519	.60	28098	.60
45	22	1520	.60	28099	.60
50	22	1521	.60	28100	.60
55	22	1522	.60	..	..
60	22	1523	.60	28102	.60

Knife Blade Contact, 65-600 Amperes



Carton quantity, 65 to 100 amperes, 5; 110 to 600 amperes, 1.

Standard package, 65 to 100 amperes, 50; 110 to 400 amperes, 25; 450 to 600 amperes, 10.

Cap. Amps.	Wt., Lbs. Std. Pkg.	Non-Indicating			Indicating		
		Cat. No.	Price Each	Reload Each	Cat. No.	Price Each	Reload Each
65	23	1524	\$1.50	\$.80	28103	\$1.50	\$.80
70	23	1525	1.50	.80	28104	1.50	.80
75	23	1526	1.50	.80	28105	1.50	.80
80	23	1527	1.50	.80	28106	1.50	.80
90	23	1528	1.50	.80	28108	1.50	.80
100	23	1529	1.50	.80	28110	1.50	.80
110	34	1530	2.50	1.20	28111	2.50	1.20
125	34	2631	2.50	1.20	28113	2.50	1.20
150	34	1534	2.50	1.20	28114	2.50	1.20
175	34	2632	2.50	1.20	28115	2.50	1.20
200	34	1539	2.50	1.20	28116	2.50	1.20
225	77	1540	5.50	2.00	28117	5.50	2.00
250	77	1541	5.50	2.00	28118	5.50	2.00
275	77	1542	5.50	2.00	28119	5.50	2.00
300	77	1543	5.50	2.00	28120	5.50	2.00
325	77	1544	5.50	2.00	28121	5.50	2.00
350	77	1545	5.50	2.00	28122	5.50	2.00
400	77	1547	5.50	2.00	28124	5.50	2.00
450	49	1549	8.00	3.00	28125	8.00	3.00
500	49	1551	8.00	3.00	28126	8.00	3.00
550	49	1553	8.00	3.00	28127	8.00	3.00
600	49	1555	8.00	3.00	28128	8.00	3.00

**Economy Renewable Cartridge Fuses**

Economy Fuses always operate at rated capacities. The drop out renewal link is quickly and easily replaced and the restoration of a blown Economy Fuse to its original efficiency is the work of a few moments only.

In operation only the drop out portion of the renewal link is destroyed. This link being the least expensive part of the fuse, a substantial saving annually in fuse maintenance costs is possible as compared with the use of the one-time fuse.

These fuses operate successfully under all conditions of service without filling material of any description. Fuses bear the "Und. Inspected" label in all capacities from 0 to 600 amperes in both 250 and 600 volts.

**Economy Renewable Cartridge Fuses**

**Ferrule Type**

1-60 Amperes, 250 Volts



Cat. No.	Amperes	Length Inches	Diameter Inches	Carton	Wt., Lbs. per Carton	Price Each
F- 125	1	2	9/16	10	5/8	\$.50
F- 225	2	2	9/16	10	5/8	.50
F- 325	3	2	9/16	10	5/8	.50
F- 425	4	2	9/16	10	5/8	.50
F- 525	5	2	9/16	10	5/8	.50
F- 625	6	2	9/16	10	5/8	.50
F- 825	8	2	9/16	10	5/8	.50
F-1025	10	2	9/16	10	5/8	.50
F-1225	12	2	9/16	10	5/8	.50
F-1525	15	2	9/16	10	5/8	.50
F-2025	20	2	9/16	10	5/8	.50
F-2525	25	2	9/16	10	5/8	.50
F-3025	30	2	9/16	10	5/8	.50
F-3525	35	3	13/16	10	1 3/8	1.00
F-4025	40	3	13/16	10	1 3/8	1.00
F-4525	45	3	13/16	10	1 3/8	1.00
F-5025	50	3	13/16	10	1 3/8	1.00
F-5525	55	3	13/16	10	1 3/8	1.00
F-6025	60	3	13/16	10	1 3/8	1.00

**Drop Out Renewal Links**

**Ferrule Type**

1-60 Amperes, 250 Volts



Cat. No.	Amperes	Carton	Wt., Oz. per Carton	Price Each
R-201	1	100	3	\$.03
R-202	2	100	3	.03
R-203	3	100	3	.03
R-204	4	100	3	.03
R-205	5	100	3	.03
R-206	6	100	3	.03
R-208	8	100	3	.03
R-210	10	100	3	.03
R-212	12	100	3	.03
R-215	15	100	3	.03
R-220	20	100	3	.03
R-225	25	100	3	.03
R-230	30	100	3	.03
R-235	35	100	10	.05
R-240	40	100	10	.05
R-245	45	100	10	.05
R-250	50	100	10	.05
R-255	55	100	10	.05
R-260	60	100	10	.05

**Economy Renewable Cartridge Fuses**

**Knife Blade Type**

61-600 Amperes, 250 Volts

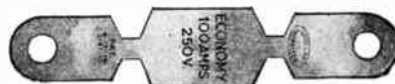


Cat. No.	Amperes	Length Inches	Blade Width Inches	Carton	WEIGHT PER CARTON		Price Each
					Lbs.	Oz.	
F-6525	65	5 7/8	3/4	5	2	..	\$2.00
F-7025	70	5 7/8	3/4	5	2	..	2.00
F-7525	75	5 7/8	3/4	5	2	..	2.00
F-8025	80	5 7/8	3/4	5	2	..	2.00
F-8525	85	5 7/8	3/4	5	2	..	2.00
F-9025	90	5 7/8	3/4	5	2	..	2.00
F-9525	95	5 7/8	3/4	5	2	..	2.00
F-10025	100	5 7/8	3/4	5	2	..	2.00
F-11025	110	7 1/8	1 1/8	1	1	1	4.00
F-12025	120	7 1/8	1 1/8	1	1	1	4.00
F-12525	125	7 1/8	1 1/8	1	1	1	4.00
F-15025	150	7 1/8	1 1/8	1	1	1	4.00
F-17525	175	7 1/8	1 1/8	1	1	1	4.00
F-20025	200	7 1/8	1 1/8	1	1	1	4.00
F-22525	225	8 5/8	1 5/8	1	2	2	7.50
F-25025	250	8 5/8	1 5/8	1	2	2	7.50
F-27525	275	8 5/8	1 5/8	1	2	2	7.50
F-30025	300	8 5/8	1 5/8	1	2	2	7.50
F-32525	325	8 5/8	1 5/8	1	2	2	7.50
F-35025	350	8 5/8	1 5/8	1	2	2	7.50
F-37525	375	8 5/8	1 5/8	1	2	2	7.50
F-40025	400	8 5/8	1 5/8	1	2	2	7.50
F-45025	450	10 3/8	2	1	3	8	11.00
F-50025	500	10 3/8	2	1	3	8	11.00
F-55025	550	10 3/8	2	1	3	8	11.00
F-60025	600	10 3/8	2	1	3	8	11.00

**Drop Out Renewal Links**

**Knife Blade Type**

61-600 Amperes, 250 Volts



Cat. No.	Amperes	Carton	Wt., Oz. per Carton	Price Each
R-265	65	50	6	\$.10
R-270	70	50	6	.10
R-275	75	50	6	.10
R-280	80	50	6	.10
R-285	85	50	6	.10
R-290	90	50	6	.10
R-295	95	50	6	.10
R-2100	100	50	6	.10
R-2110	110	25	7	.15
R-2120	120	25	7	.15
R-2125	125	25	7	.15
R-2150	150	25	7	.15
R-2175	175	25	7	.15
R-2200	200	25	7	.15
R-2225	225	25	15	.30
R-2250	250	25	15	.30
R-2275	275	25	15	.30
R-2300	300	25	15	.30
R-2325	325	25	15	.30
R-2350	350	25	15	.30
R-2375	375	25	15	.30
R-2400	400	25	15	.30
R-2450	450	10	11	.60
R-2500	500	10	11	.60
R-2550	550	10	11	.60
R-2600	600	10	11	.60



## Economy Renewable Cartridge Fuses

### Ferrule Type

1-60 Amperes, 600 Volts



Cat. No.	Amperes	Length Inches	Diameter Inches	Carton	Wt., Lbs. per Carton	Price Each
F- 105	1	5	13/16	10	1 5/8	\$1.10
F- 205	2	5	13/16	10	1 5/8	1.10
F- 305	3	5	13/16	10	1 5/8	1.10
F- 405	4	5	13/16	10	1 5/8	1.10
F- 505	5	5	13/16	10	1 5/8	1.10
F- 605	6	5	13/16	10	1 5/8	1.10
F- 705	7	5	13/16	10	1 5/8	1.10
F- 805	8	5	13/16	10	1 5/8	1.10
F-1005	10	5	13/16	10	1 5/8	1.10
F-1205	12	5	13/16	10	1 5/8	1.10
F-1505	15	5	13/16	10	1 5/8	1.10
F-2005	20	5	13/16	10	1 5/8	1.10
F-2505	25	5	13/16	10	1 5/8	1.10
F-3005	30	5	13/16	10	1 5/8	1.10
F-3505	35	5 1/2	1 1/16	10	3 3/8	1.25
F-4005	40	5 1/2	1 1/16	10	3 3/8	1.25
F-4505	45	5 1/2	1 1/16	10	3 3/8	1.25
F-5005	50	5 1/2	1 1/16	10	3 3/8	1.25
F-5505	55	5 1/2	1 1/16	10	3 3/8	1.25
F-6005	60	5 1/2	1 1/16	10	3 3/8	1.25

## Drop Out Renewal Links

### Ferrule Type

1-60 Amperes, 600 Volts



Cat. No.	Amperes	Carton	Wt., Oz. per Carton	Price Each
R-601	1	100	9	\$.05
R-602	2	100	9	.05
R-603	3	100	9	.05
R-604	4	100	9	.05
R-605	5	100	9	.05
R-606	6	100	9	.05
R-607	7	100	9	.05
R-608	8	100	9	.05
R-610	10	100	9	.05
R-612	12	100	9	.05
R-615	15	100	9	.05
R-620	20	100	9	.05
R-625	25	100	9	.05
R-630	30	100	9	.05
R-635	35	100	25	.06
R-640	40	100	25	.06
R-645	45	100	25	.06
R-650	50	100	25	.06
R-655	55	100	25	.06
R-660	60	100	25	.06

## Economy End Washers

For Knife Blade Type Fuses

When fuses are blown, the end washers may become damaged or bent to such an extent that replacement will be necessary before renewal can be made. A set of end washers consists of one metal and one of resilient material.

Price, No. 9201 for 65 to 100 Amps. 250 Volts. per set	\$.02
Price, No. 9202 for 101 to 200 Amps. 250 Volts. per set	.03
Price, No. 9203 for 201 to 400 Amps. 250 Volts. per set	.04
Price, No. 9204 for 401 to 600 Amps. 250 Volts. per set	.05
Price, No. 9601 for 65 to 100 Amps. 600 Volts. per set	.02
Price, No. 9602 for 101 to 200 Amps. 600 Volts. per set	.03
Price, No. 9603 for 201 to 400 Amps. 600 Volts. per set	.04
Price, No. 9604 for 401 to 600 Amps. 600 Volts. per set	.05

Standard package of above end washers is 50.

## Economy Renewable Cartridge Fuses

### Knife Blade Type

61-600 Amperes, 600 Volts



Cat. No.	Amperes	Length Inches	Blade Width Inches	Carton	Wt., Lbs. per Carton	Price Each
F- 6505	65	7 7/8	3/4	5	3 3/8	\$3.00
F- 7005	70	7 7/8	3/4	5	3 3/8	3.00
F- 7505	75	7 7/8	3/4	5	3 3/8	3.00
F- 8005	80	7 7/8	3/4	5	3 3/8	3.00
F- 8505	85	7 7/8	3/4	5	3 3/8	3.00
F- 9005	90	7 7/8	3/4	5	3 3/8	3.00
F- 9505	95	7 7/8	3/4	5	3 3/8	3.00
F-10005	100	7 7/8	3/4	5	3 3/8	3.00
F-11005	110	9 5/8	1 1/8	1	1 3/4	5.00
F-12005	120	9 5/8	1 1/8	1	1 3/4	5.00
F-12505	125	9 5/8	1 1/8	1	1 3/4	5.00
F-15005	150	9 5/8	1 1/8	1	1 3/4	5.00
F-17505	175	9 5/8	1 1/8	1	1 3/4	5.00
F-20005	200	9 5/8	1 1/8	1	1 3/4	5.00
F-22505	225	11 5/8	1 5/8	1	3 3/8	11.00
F-25005	250	11 5/8	1 5/8	1	3 3/8	11.00
F-27505	275	11 5/8	1 5/8	1	3 3/8	11.00
F-30005	300	11 5/8	1 5/8	1	3 3/8	11.00
F-32505	325	11 5/8	1 5/8	1	3 3/8	11.00
F-35005	350	11 5/8	1 5/8	1	3 3/8	11.00
F-37505	375	11 5/8	1 5/8	1	3 3/8	11.00
F-40005	400	11 5/8	1 5/8	1	3 3/8	11.00
F-45005	450	13 3/8	2	1	5 1/2	16.00
F-50005	500	13 3/8	2	1	5 1/2	16.00
F-55005	550	13 3/8	2	1	5 1/2	16.00
F-60005	600	13 3/8	2	1	5 1/2	16.00

## Drop Out Renewal Links

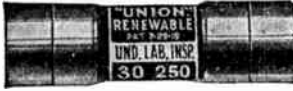
### Knife Blade Type

61-600 Amperes, 600 Volts



Cat. No.	Amperes	Carton	WEIGHT PER CARTON		Price Each
			Lbs.	Oz.	
R- 665	65	50	1	..	\$.10
R- 670	70	50	1	..	.10
R- 675	75	50	1	..	.10
R- 680	80	50	1	..	.10
R- 685	85	50	1	..	.10
R- 690	90	50	1	..	.10
R- 695	95	50	1	..	.10
R-6100	100	50	1	..	.10
R-6110	110	25	1	7	.15
R-6120	120	25	1	7	.15
R-6125	125	25	1	7	.15
R-6150	150	25	1	7	.15
R-6175	175	25	1	7	.15
R-6200	200	25	1	7	.15
R-6225	225	25	2	15	.30
R-6250	250	25	2	15	.30
R-6275	275	25	2	15	.30
R-6300	300	25	2	15	.30
R-6325	325	25	2	15	.30
R-6350	350	25	2	15	.30
R-6375	375	25	2	15	.30
R-6400	400	25	2	15	.30
R-6450	450	10	1	14	.60
R-6500	500	10	1	14	.60
R-6550	550	10	1	14	.60
R-6600	600	10	1	14	.60

**Union Renewable Enclosed Fuses**  
Ferrule Type



**3-30 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Dist. C. to C. Inches	Size Tube Inches	Carton Quantity	Price Each
2201	1	2	1 1/2	1/2	10	\$ .50
2202	2	2	1 1/2	1/2	10	.50
2203	3	2	1 1/2	1/2	10	.50
2204	4	2	1 1/2	1/2	10	.50
2205	5	2	1 1/2	1/2	10	.50
2206	6	2	1 1/2	1/2	10	.50
2207	7	2	1 1/2	1/2	10	.50
2208	8	2	1 1/2	1/2	10	.50
2209	9	2	1 1/2	1/2	10	.50
2210	10	2	1 1/2	1/2	10	.50
2211	12	2	1 1/2	1/2	10	.50
2212	15	2	1 1/2	1/2	10	.50
2213	20	2	1 1/2	1/2	10	.50
2214	25	2	1 1/2	1/2	10	.50
2215	30	2	1 1/2	1/2	10	.50

**31-60 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Dist. C. to C. Inches	Size Tube Inches	Carton Quantity	Price Each
2216	35	3	2 3/8	3/4	10	\$1.00
2217	40	3	2 3/8	3/4	10	1.00
2218	45	3	2 3/8	3/4	10	1.00
2219	50	3	2 3/8	3/4	10	1.00
2220	55	3	2 3/8	3/4	10	1.00
2221	60	3	2 3/8	3/4	10	1.00

**Union Renewable Enclosed Fuses**  
Knife-Blade Type



**61-100 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Length Over Barrel Inches	Size Tube Inches	Carton Quantity	Price Each
2222	65	5 1/8	3 3/8	1	5	\$2.00
2223	70	5 1/8	3 3/8	1	5	2.00
2224	75	5 1/8	3 3/8	1	5	2.00
2225	80	5 1/8	3 3/8	1	5	2.00
2226	85	5 1/8	3 3/8	1	5	2.00
2227	90	5 1/8	3 3/8	1	5	2.00
2228	95	5 1/8	3 3/8	1	5	2.00
2229	100	5 1/8	3 3/8	1	5	2.00

**101-200 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Length Over Barrel Inches	Size Tube Inches	Carton Quantity	Price Each
2230	110	7 1/8	4 3/8	1 1/2	1	\$4.00
2231	120	7 1/8	4 3/8	1 1/2	1	4.00
2232	125	7 1/8	4 3/8	1 1/2	1	4.00
2233	150	7 1/8	4 3/8	1 1/2	1	4.00
2234	175	7 1/8	4 3/8	1 1/2	1	4.00
2235	200	7 1/8	4 3/8	1 1/2	1	4.00

**201-400 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Length Over Barrel Inches	Size Tube Inches	Carton Quantity	Price Each
2236	225	8 5/8	4 7/8	2	1	\$7.50
2237	250	8 5/8	4 7/8	2	1	7.50
2238	275	8 5/8	4 7/8	2	1	7.50
2239	300	8 5/8	4 7/8	2	1	7.50
2240	325	8 5/8	4 7/8	2	1	7.50
2241	350	8 5/8	4 7/8	2	1	7.50
2242	375	8 5/8	4 7/8	2	1	7.50
2243	400	8 5/8	4 7/8	2	1	7.50

**401-600 Amperes, 250 Volts**

Cat. No.	Amperes	Length Over All Inches	Length Over Barrel Inches	Size Tube Inches	Carton Quantity	Price Each
2244	450	10 3/8	5 7/8	2 1/2	1	\$11.00
2245	500	10 3/8	5 7/8	2 1/2	1	11.00
2246	550	10 3/8	5 7/8	2 1/2	1	11.00
2247	600	10 3/8	5 7/8	2 1/2	1	11.00

**Union Renewal Fuse Links**  
Ferrule Contact, 250 Volts



**1-30 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2301	1	100	100	5/8	\$3.00
2302	2	100	100	5/8	3.00
2303	3	100	100	5/8	3.00
2304	4	100	100	5/8	3.00
2305	5	100	100	5/8	3.00
2306	6	100	100	5/8	3.00
2307	7	100	100	5/8	3.00
2308	8	100	100	5/8	3.00
2309	9	100	100	5/8	3.00
2310	10	100	100	5/8	3.00
2311	12	100	100	5/8	3.00
2312	15	100	100	5/8	3.00
2313	20	100	100	5/8	3.00
2314	25	100	100	5/8	3.00
2315	30	100	100	5/8	3.00

**31-60 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2316	35	100	100	1 1/16	\$5.00
2317	40	100	100	1 1/16	5.00
2318	45	100	100	1 1/16	5.00
2319	50	100	100	1 1/16	5.00
2320	55	100	100	1 1/16	5.00
2321	60	100	100	1 1/16	5.00

**Union Renewable Enclosed Fuse Renewals**  
Knife-Blade Contact, 250 Volts



**61-100 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2322	65	50	50	2 3/4	\$10.00
2323	70	50	50	2 3/4	10.00
2324	75	50	50	2 3/4	10.00
2325	80	50	50	2 3/4	10.00
2326	85	50	50	2 3/4	10.00
2327	90	50	50	2 3/4	10.00
2328	95	50	50	2 3/4	10.00
2329	100	50	50	2 3/4	10.00

**101-200 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2330	110	25	25	3 5/8	\$15.00
2331	120	25	25	3 5/8	15.00
2332	125	25	25	3 5/8	15.00
2333	150	25	25	3 5/8	15.00
2334	175	25	25	3 5/8	15.00
2335	200	25	25	3 5/8	15.00

**201-400 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2336	225	10	10	1 1/2	\$30.00
2337	250	10	10	1 1/2	30.00
2338	275	10	10	1 1/2	30.00
2339	300	10	10	1 1/2	30.00
2340	325	10	10	1 1/2	30.00
2341	350	10	10	1 1/2	30.00
2342	375	10	10	1 1/2	30.00
2343	400	10	10	1 1/2	30.00

**401-600 Amperes, 250 Volts**

Cat. No.	Amperes	Carton Quant.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
2344	450	5	5	2	\$60.00
2345	500	5	5	2	60.00
2346	550	5	5	2	60.00
2347	600	5	5	2	60.00

In renewing Union Renewable Fuses of 201 to 400-ampere capacity, two renewal links are required for each fuse as listed. For capacities of 401 to 600 amperes, four renewal links are necessary.

## Union Renewable Enclosed Fuses

### Ferrule Contact



#### 600 Volts, 3-30 Amperes

Cat. No.	Amp.	Size Over All Inches	Dist. C. to C. Inches	Size Tube Inches	Carton Quan.	Std. Pkg.	Price Each
4201	1	5	4 1/2	3/4	10	100	\$1.10
4202	2	5	4 1/2	3/4	10	100	1.10
4203	3	5	4 1/2	3/4	10	100	1.10
4204	4	5	4 1/2	3/4	10	100	1.10
4205	5	5	4 1/2	3/4	10	100	1.10
4206	6	5	4 1/2	3/4	10	100	1.10
4207	7	5	4 1/2	3/4	10	100	1.10
4208	8	5	4 1/2	3/4	10	100	1.10
4209	9	5	4 1/2	3/4	10	100	1.10
4210	10	5	4 1/2	3/4	10	100	1.10
4211	12	5	4 1/2	3/4	10	100	1.10
4212	15	5	4 1/2	3/4	10	100	1.10
4213	20	5	4 1/2	3/4	10	100	1.10
4214	25	5	4 1/2	3/4	10	100	1.10
4215	30	5	4 1/2	3/4	10	100	1.10

#### 600 Volts, 31-60 Amperes

Cat. No.	Amp.	Size Over All Inches	Dist. C. to C. Inches	Size Tube Inches	Carton Quan.	Std. Pkg.	Price Each
4216	35	5 1/2	4 7/8	1	10	100	\$1.25
4217	40	5 1/2	4 7/8	1	10	100	1.25
4218	45	5 1/2	4 7/8	1	10	100	1.25
4219	50	5 1/2	4 7/8	1	10	100	1.25
4220	55	5 1/2	4 7/8	1	10	100	1.25
4221	60	5 1/2	4 7/8	1	10	100	1.25

## Union Renewable Enclosed Fuses

### Knife-Blade Contact



#### 600 Volts, 61-100 Amperes

Cat. No.	Amp.	Lgth. Over All, In.	Lth. Over Barrel, In.	Size Tube, In.	Carton Quan.	Std. Pkg.	Price Each
4222	56	7 7/8	5 7/8	1 1/4	5	50	\$3.00
4223	70	7 7/8	5 7/8	1 1/4	5	50	3.00
4224	75	7 7/8	5 7/8	1 1/4	5	50	3.00
4225	80	7 7/8	5 7/8	1 1/4	5	50	3.00
4226	85	7 7/8	5 7/8	1 1/4	5	50	3.00
4227	90	7 7/8	5 7/8	1 1/4	5	50	3.00
4228	95	7 7/8	5 7/8	1 1/4	5	50	3.00
4229	100	7 7/8	5 7/8	1 1/4	5	50	3.00

#### 600 Volts, 101-200 Amperes

Cat. No.	Amp.	Lgth. Over All, In.	Lth. Over Barrel, In.	Size Tube, In.	Carton Quan.	Std. Pkg.	Price Each
4230	110	9 5/8	6 7/8	1 3/4	1	25	\$5.00
4231	120	9 5/8	6 7/8	1 3/4	1	25	5.00
4232	125	9 5/8	6 7/8	1 3/4	1	25	5.00
4233	150	9 5/8	6 7/8	1 3/4	1	25	5.00
4234	175	9 5/8	6 7/8	1 3/4	1	25	5.00
4235	200	9 5/8	6 7/8	1 3/4	1	25	5.00

#### 600 Volts, 201-400 Amperes

Cat. No.	Amp.	Lgth. Over All, In.	Lth. Over Barrel, In.	Size Tube, In.	Carton Quan.	Std. Pkg.	Price Each
4236	225	11 5/8	7 7/8	2 1/2	1	10	\$11.00
4237	250	11 5/8	7 7/8	2 1/2	1	10	11.00
4238	275	11 5/8	7 7/8	2 1/2	1	10	11.00
4239	300	11 5/8	7 7/8	2 1/2	1	10	11.00
4240	325	11 5/8	7 7/8	2 1/2	1	10	11.00
4241	350	11 5/8	7 7/8	2 1/2	1	10	11.00
4242	375	11 5/8	7 7/8	2 1/2	1	10	11.00
4243	400	11 5/8	7 7/8	2 1/2	1	10	11.00

#### 600 Volts, 401-600 Amperes

Cat. No.	Amp.	Lgth. Over All, In.	Lth. Over Barrel, In.	Size Tube, In.	Carton Quan.	Std. Pkg.	Price Each
4244	450	13 3/8	8 7/8	3	1	5	\$16.00
4245	500	13 3/8	8 7/8	3	1	5	16.00
4246	550	13 3/8	8 7/8	3	1	5	16.00
4247	600	13 3/8	8 7/8	3	1	5	16.00

## Union Renewal Fuse Links

### Type B Ferrule Contact, 600 Volts



#### 1-30 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4301	1	100	100	3 3/4	\$5.00
4302	2	100	100	3 3/4	5.00
4303	3	100	100	3 3/4	5.00
4304	4	100	100	3 3/4	5.00
4305	5	100	100	3 3/4	5.00
4306	6	100	100	3 3/4	5.00
4307	7	100	100	3 3/4	5.00
4308	8	100	100	3 3/4	5.00
4309	9	100	100	3 3/4	5.00
4310	10	100	100	3 3/4	5.00
4311	12	100	100	3 3/4	5.00
4312	15	100	100	3 3/4	5.00
4313	20	100	100	3 3/4	5.00
4314	25	100	100	3 3/4	5.00
4315	30	100	100	3 3/4	5.00

#### 31-60 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4316	35	100	100	10 1/4	\$6.00
4317	40	100	100	10 1/4	6.00
4318	45	100	100	10 1/4	6.00
4319	50	100	100	10 1/4	6.00
4320	55	100	100	10 1/4	6.00
4321	60	100	100	10 1/4	6.00

## Union Renewable Enclosed Fuse Renewals

### Type E Knife-Blade Contact, 600 Volts



#### 61-100 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4322	65	50	50	7	\$10.00
4323	70	50	50	7	10.00
4324	75	50	50	7	10.00
4325	80	50	50	7	10.00
4326	85	50	50	7	10.00
4327	90	50	50	7	10.00
4328	95	50	50	7	10.00
4329	100	50	50	7	10.00

#### 101-200 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4330	101	25	25	10 1/2	\$15.00
4331	120	25	25	10 1/2	15.00
4332	125	25	25	10 1/2	15.00
4333	150	25	25	10 1/2	15.00
4334	175	25	25	10 1/2	15.00
4335	200	25	25	10 1/2	15.00

#### 201-400 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4336	225	10	10	5	\$30.00
4337	250	10	10	5	30.00
4338	275	10	10	5	30.00
4339	300	10	10	5	30.00
4340	325	10	10	5	30.00
4341	350	10	10	5	30.00
4342	375	10	10	5	30.00
4343	400	10	10	5	30.00

#### 401-600 Amperes, 600 Volts

Cat. No.	Amperes	Carton Quan.	Std. Pkg.	Weight Pounds 10 Full Cartons	Price per 100
4344	450	5	5	5 5/8	\$60.00
4345	500	5	5	5 5/8	60.00
4346	550	5	5	5 5/8	60.00
4347	600	5	5	5 5/8	60.00

In renewing Union Renewable Fuses of 201 to 400 ampere capacity, two renewal links are required for each fuse as listed. For capacities of 401 to 600 amperes, four renewal links are necessary.

**Type A Union Non-Renewable Enclosed Fuses**

Screw Clamp Contact—Flush Terminal



No. 8042-8049

**250 Volts, 3-125 Amperes**  
For D & W Old Code Cutouts

Cat. No.	Amperes	Center to Center, In.	Leth. Tube Only In.	Diam. In.	Car. ton	Std. Pkg.	Wt., Lbs.	Refill- ing Pkg.	Price Each
5003	-5006	3-6	2 <sup>1</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>16</sub>	1/2	50 100	4 <sup>1</sup> / <sub>2</sub>	....	\$.25
5007	-5010	8-15	3 <sup>1</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>16</sub>	1/2	50 100	5	....	.25
5011	-5014	18-30	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	5/8	50 100	5 <sup>3</sup> / <sub>4</sub>	....	.25
5015	-5019	35-60	4 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	3/4	20 100	12 <sup>1</sup> / <sub>2</sub>	....	.35
5020	-5025	65-100	5 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	1	10 50	13 <sup>1</sup> / <sub>4</sub>	....	.90
5026	-5028	110-125	5 <sup>1</sup> / <sub>16</sub>	4 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>4</sub>	10 25	11 <sup>1</sup> / <sub>2</sub>	....	2.00

**250 Volts, 1-200 Amperes**  
For Noark Old Code Cutouts

Cat. No.	Amperes	Center to Center, In.	Leth. Tube Only In.	Diam. In.	Car. ton	Std. Pkg.	Wt., Lbs.	Refill- ing Pkg.	Price Each
6045	-6051	1-8	2 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	5/8	50 100	4 <sup>3</sup> / <sub>4</sub>	....	\$.25
6052	-6054	10-15	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	5/8	50 100	5 <sup>1</sup> / <sub>2</sub>	....	.25
6055	-6057	20-30	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	1/2	50 100	6 <sup>1</sup> / <sub>4</sub>	....	.25
6058	-6061	35-50	4 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	3/4	20 100	13	....	.35
6062	-6067	60-100	5 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	1	15 50	11 <sup>1</sup> / <sub>2</sub>	....	\$.60
6068	-6070	110-150	5 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	10 25	10 <sup>1</sup> / <sub>2</sub>	....	.90
6071	-6072	175-200	6 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2 25	15 <sup>3</sup> / <sub>4</sub>	....	2.00

**500 Volts, 1-600 Amperes**  
For Noark and D & W Old Code Cutouts

Cat. No.	Amperes	Center to Center, In.	Leth. Tube Only In.	Diam. In.	Car. ton	Std. Pkg.	Wt., Lbs.	Refill- ing Pkg.	Price Each
8042	-8049	1-10	5 <sup>3</sup> / <sub>8</sub>	4 <sup>5</sup> / <sub>8</sub>	5/8	20 100	9 <sup>3</sup> / <sub>4</sub>	....	\$.40
8050	-8054	12-25	6	5 <sup>1</sup> / <sub>4</sub>	3/4	20 100	13 <sup>1</sup> / <sub>2</sub>	....	.40
8055	-8059	30-50	6 <sup>3</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	1	20 100	25	....	.60
8060	-8065	60-100	7 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub>	10 50	25	....	\$.80
8066	-8068	110-150	7 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	10 25	17	....	1.20
8068 <sup>1</sup> / <sub>2</sub>	-8070	150-200	8 <sup>1</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2 25	19	....	1.20
8071	-8078	225-400	8 <sup>1</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	2	1 25	52	....	2.00
8079	-8082	450-600	11 <sup>1</sup> / <sub>16</sub>	9 <sup>5</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	1 10	63	....	3.00

Screw Clamp Contact—Post Terminal

**250 Volts, 150-300 Amperes**  
For D & W Old Code Cutouts



5030-5032	150-200	6 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2	25 15 <sup>1</sup> / <sub>4</sub>	\$.90	2.00
5033-5036	225-300	6 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	2	25 15 <sup>1</sup> / <sub>2</sub>	1.50	3.60

Screw Clamp Contact—Flush Terminal

**250 Volts, 3-100 Amperes**

Panel Fuses



6089-6099	3-30	2 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	1/2	50 100	4 <sup>1</sup> / <sub>2</sub>	....	\$.25
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For Use on 110 Volts or Below

6100-6104	35-60	2 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	5/8	20 100	5 <sup>3</sup> / <sub>4</sub>	....	\$.35
6106-6109	75-100	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	1	10 100	16 <sup>1</sup> / <sub>2</sub>	....	\$.90

Screw Clamp Contact—Flush Cast Terminal

**250 Volts, 201-600 Amperes**  
For Noark Old Code Cutouts



6073-6080	225-400	6 <sup>3</sup> / <sub>4</sub>	5	1 <sup>3</sup> / <sub>4</sub>	2	25 44 <sup>1</sup> / <sub>2</sub>	\$.150	\$.360
6081-6088	425-600	8 <sup>3</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	1	10 60	2.00	5.50

When ordering fuses of special dimensions, give the distance center to center, diameter of tube, size of stud, size of slot, type of terminal and diameter of binding post.

Fuses of intermediate ampere capacity have same dimensions as those given above for minimum and maximum capacities.

**Type A Union Non-Renewable Enclosed Fuses**

Screw Clamp Contact—Post Terminal

**250 Volts, 201-600 Amperes**  
For D & W Old Code Cutouts



Cat. No.	Amperes	Center to Center, In.	Leth. Over Tube All In.	Diam. In.	Car. ton	Std. Pkg.	Wt., Lbs.	Refill- ing Pkg.	Price Each
5037-5040	325-400	6 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	2	1	25 41 <sup>1</sup> / <sub>4</sub>	\$.150	\$.360	
5041-5044	425-500	6 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	2	1	10 17	2.00	5.50	

For Noark Old Code Cutouts

6029-6036	225-400	6 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	2	2	25 41 <sup>1</sup> / <sub>4</sub>	\$.150	\$.360
6037-6044	425-600	8 <sup>3</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	1	10 27	2.00	5.50

**500 Volts, 150-600 Amperes**

Middle Contact

7029	150	8 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2	25 18 <sup>1</sup> / <sub>4</sub>	\$.120	\$.250
8028-8029	175-200	8 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2	25 18 <sup>1</sup> / <sub>4</sub>	1.20	2.50
8030-8037	225-400	8 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	2	1	25 42	2.00	5.50
8038-8041	450-600	11 <sup>1</sup> / <sub>16</sub>	9 <sup>5</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>2</sub>	1	10 31	3.00	8.00

Screw Clamp Contact—Post Terminal

**250 Volts, 1-200 Amperes**  
For Noark Old Code Cutouts



6001-6007	1-8	2 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	1/2	25 100	4 <sup>3</sup> / <sub>4</sub>	....	\$.25
6008-6010	10-15	3 <sup>1</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	1/2	25 100	5 <sup>1</sup> / <sub>2</sub>	....	.25
6011-6013	20-30	3 <sup>1</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	1/2	25 100	6 <sup>1</sup> / <sub>4</sub>	....	.25
6014-6017	35-50	4 <sup>3</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	3/4	20 100	13	....	.35
6018-6023	60-100	5 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	1	15 50	11 <sup>1</sup> / <sub>2</sub>	....	\$.60
6024-6026	110-150	5 <sup>3</sup> / <sub>8</sub>	4	1 <sup>1</sup> / <sub>4</sub>	5	25 10 <sup>1</sup> / <sub>2</sub>	....	.90
6027-6028	175-200	6 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	2	25 15 <sup>3</sup> / <sub>4</sub>	....	.90

**500 Volts, 1-150 Amperes**

For Noark and D & W Old Code Cutouts

8001-8008	1-10	5 <sup>3</sup> / <sub>8</sub>	4 <sup>5</sup> / <sub>8</sub>	5/8	20 100	9 <sup>3</sup> / <sub>4</sub>	....	\$.40
8009-8013	12-25	6	5 <sup>1</sup> / <sub>4</sub>	3/4	20 100	13 <sup>1</sup> / <sub>2</sub>	....	.40
8014-8018	30-50	6 <sup>3</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>4</sub>	1	20 100	25	....	.60
8019-8024	60-100	7 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub>	10 50	25	....	\$.80
8025-8027	110-150	7 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	10 25	17	....	1.20

**1500 Volts, 1-100 Amperes**

9001-9010	1-15	6 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>4</sub>	5/8	20 100	10	....	\$.50
9011-9014	18-30	6 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>4</sub>	7/8	20 100	17	....	.85
9015-9019	35-60	7 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	10 100	46	....	\$.70
9021-9025	70-100	8 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	10 50	36	....	1.10

**5000 Volts, 1-30-Amperes**

12001-12009	1-12	16	15 <sup>3</sup> / <sub>8</sub>	1	5	25 13	....	\$.140
12010-12014	15-30	16 <sup>1</sup> / <sub>2</sub>	15 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	5	25 23	....	2.40

**Type B Union Non-Renewable Enclosed Fuses**

Ferrule Clip Contact

**250 Volts, 2-15 Amperes**  
Midget Type



Cat. No.	Amperes	Center to Center, In.	Leth. Over Tube All In.	Diam. In.	Car. ton	Std. Pkg.	Wt., Lbs.	Refill- ing Pkg.	Price Each
6168-6176	2-15	1 <sup>1</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	3/8	100 100	1 <sup>1</sup> / <sub>2</sub>	....	\$.18	
5049-5056	3-15	1 <sup>3</sup> / <sub>16</sub>	1 <sup>3</sup> / <sub>4</sub>	1/16	50 100	2	....	.18	

**250 Volts, 1-60 Amperes**  
For Noark Old Code Cutouts



6125-6131	1-8	1 <sup>1</sup> / <sub>16</sub>	2 <sup>3</sup> / <sub>16</sub>	3/8	50 100	2	....	\$.25
6132-6134	10-15	2 <sup>3</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	3/8	50 100	2 <sup>1</sup> / <sub>2</sub>	....	.25
6135-6137	20-30	2 <sup>3</sup> / <sub>16</sub>	3 <sup>1</sup> / <sub>16</sub>	1/2	25 100	5	....	.25
6138-6141	35-50	2 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	3/4	25 100	11 <sup>3</sup> / <sub>4</sub>	....	.35

When ordering fuses of special dimensions, give the distance center to center, the diameter of tube, the size of slot, also type of terminal and diameter of binding post.

Fuses of intermediate ampere capacity have same dimensions as those given above for minimum and maximum capacities.

## Type B Union Non-Renewable Enclosed Fuses

Ferrule Clip Contact  
250 Volts, 1-60 Amperes  
For Noark Old Code Cutouts  
Panel Fuses

Cat. No.	Amperes	Center to Center, In.	Lgth. Over All, In.	Diam. Tube, In.	Car. Std. Pkg.	Wt., Lbs.	Refilling Each	Price Each
6142-6154	1-30	2 1/16	3 3/16	1/2	25 100	5	....	\$.25
For G.E. and D & W Old Code Cutouts								
5078-5089	3-30	2 1/2	5/8	25 100	5 1/2	....	....	\$.25
5090-5095	35-60	3	3 3/8	7/8	25 100	14	....	.35

## Type C Union Non-Renewable Enclosed Fuses

Spring Clip Contact—Square Clip  
250 Volts, 1-125 Amperes  
For Noark Old Code Cutouts



6177-6193	1-50	2 7/8	3 1/2	3/4	25 100	16	....	\$.42
6194-6199	60-100	3 3/8	4 1/8	7/8	20 50	11	....	\$.60
For D & W Old Code Cutouts								
5097-5102	65-100	3 3/8	4 1/2	1 1/4	8 50	15	....	\$.60
5103-5105	110-125	3 3/8	4 1/2	1 1/4	8 25	8	....	.90
500 Volts, 1-125 Amperes								
For Noark Fuse Switches								
8145-8152	1-10	4 1/4	4 3/8	3/8	10 100	3 1/2	....	\$.40
For Noark Old Code Cutouts								
8101-8125	1-100	5 1/2	6 1/4	1	12 50	17 1/2	....	\$.80
For D & W Old Code Cutouts								
7082-7087	65-100	4 1/8	6	1 3/16	2 50	20	....	\$.80
7088-7090	110-125	4 7/8	6	1 3/16	2 25	12	....	1.20
1500 Volts, 1-100 Amperes								
11001-11014	1-30	5 1/2	6 3/8	7/8	10 100	32	....	\$.80
11015-11018	35-50	6 1/2	7 1/4	1 1/4	10 100	59	....	.90
11019-11024	60-100	6 3/4	7 7/8	1 1/2	5 50	60	....	1.20
To Fit D & W Cutouts, Type C								
11025-11029	35-60	5	6 1/8	1 3/16	10 100	44	....	\$.80
5000 Volts, 1-30 Amperes								
12051-12059	1-12	14 5/16	15 1/16	1	5 25	22	....	\$.15
12060-12064	15-30	14 5/16	15 1/16	1 1/4	2 25	30	....	2.75

Spring Clip Contact—Square Cast Cap  
250 Volts, 110-600 Amperes  
For Noark Old Code Cutouts



6200-6204	110-200	3 7/8	4 3/4	1 1/2	6 25	22	....	\$.90
6205	225	3 7/8	4 3/4	1 1/2	6 25	23	....	1.50
6206-6212	250-400	3 3/16	4 13/16	1 3/4	4 25	40	....	1.50
6213-6216	450-600	4 3/16	6 3/16	2	1 10	31	....	2.00
For D & W Old Code Cutouts								
5106-5108	150-200	4 1/16	6	1 3/4	2 25	48	....	\$.90
5109-5112	225-300	4 1/16	6	1 3/4	2 25	50	....	1.50
5113-5114	350-400	4 1/8	6	2	1 10	30	....	2.00
5115-5118	450-600	4 1/2	6	2	1 10	32	....	2.00
500 Volts, 110-600 Amperes								
For Noark Old Code Cutouts								
8126-8130	110-200	5 1/16	6 7/16	1 1/2	5 25	26	....	\$1.20
8131	225	5 1/16	6 7/16	1 1/2	5 25	27	....	2.00
8132-8138	250-400	5 1/16	6 7/16	1 3/4	2 10	12	....	2.00
8139-8144	450-600	8 1/4	10	2	2 10	40	....	3.00
For D & W Old Code Cutouts								
7091-7097	150-300	5 1/8	6 3/4	1 3/4	1 25	28	....	\$1.20
7098-7099	350-400	5 1/4	6 3/4	2	1 25	75	....	2.00
7100-7103	450-600	5 1/4	6 3/4	2	1 10	32	....	3.00

When ordering fuses of special dimensions, give the distance across cap and clip, length over all, diameter of tube, width of terminal.

## Type D Union Non-Renewable Enclosed Fuses

Double Knife-Blade Contact  
250 Volts, 110-600 Amperes  
For Noark Old Code Cutouts



Cat. No.	Amperes	Center to Center, In.	Lgth. Over All, In.	Diam. Tube, In.	Car. Std. Pkg.	Wt., Lbs.	Refilling Each	Price Each
6217-6219	110-150	3	4 1/16	1	5 25	8	....	\$.90
6220-6222	175-225	3 5/8	4 11/16	1 1/2	5 25	16	....	.90
6223-6229	250-400	3 3/8	4 13/16	1 1/2	2 20	24	....	1.50
6230-6233	450-600	4 3/8	6 1/4	2	2 10	24	....	2.00
500 Volts, 110-150 Amperes								
For Old Code Cutouts								
8153	110							
8154	125	5	6 1/4	1 1/4	5 25	16 1/2	....	\$1.20
8155	150							\$.25

## Type B Union Non-Renewable Enclosed Fuses

Ferrule Clip Contact  
500 Volts, 1-60 Amperes  
For Noark Old Code Cutouts



8083-8090	1-10	4 3/16	4 3/8	3/8	20 100	3 1/4	....	\$.40
8091-8095	12-25	4 1/2	5 1/4	1/2	20 100	8	....	.40
8096-8100	30-50	4 7/8	5 3/4	3/4	20 100	15	....	.60
For D & W Old Code Cutouts								
7063-7070	3-15	4 3/16	4 3/8	5/8	20 100	9	....	\$.40
7071-7075	16-30	4 3/8	5	7/8	20 100	15	....	.40
7076-7081	35-60	5 1/4	6	1	10 100	25	....	.60
Ferrule Clip Contact—Car Fuses								
600 Volts, 3-30 Amperes								
For Train Control Equipment								
8225-8226	3-4	4 1/8	4 11/16	5/8	20 100	8	....	\$.40
8227-8232	5-30	4 3/16	4 13/16	3/4	20 100	12	....	.40
For Use in Bryant & G.E. Combination Car								
Switch and Cutout Bases								
8250	3	2 1/16	3 3/16	1/2	25 100	5	....	\$.30
8251	5	2 1/16	3 3/16	1/2	25 100	5	....	.40
8252	10	2 1/16	3 3/16	1/2	25 100	5	....	.40

Ferrule Clip Contact								
1500 Volts, 1-60 Amperes								
10001-10010	1-15	4 7/8	5 1/2	3/4	20 100	14	....	\$.46
10011-10015	16-30	5 3/8	6	1	20 100	25	....	.60
10017-10021	35-60	6 7/8	7 1/2	1	10 100	30	....	.75
10051-10059	1-12	5 1/4	5 3/4	1/2	20 100	8	....	.46
10060-10065	15-30	5	5 3/4	5/8	20 100	10	....	.60
10066-10069	35-50	5 3/8	6 3/16	7/8	10 100	16	....	.75
5000 Volts, 1-15 Amperes								
12031-12040	1-12	14 1/4	15 1/16	3/4	5 25	9	....	\$1.30

## Union Instrument Protecting Fuses

Fibre Tube



This fuse is particularly suited for protecting switchboard instruments, pilot lights, etc. It has no definite rating but will open on approximately 1/2 ampere.

*8255	1/2	1 1/8	1 1/2	3/8	20 100	1 1/2	....	\$.25
8260	1/2	2	2 1/2	5/8	20 100	5	....	.25
8265	1/2	4 3/16	4 11/16	5/8	20 100	8	....	.40
8270	1/2	1 1/2	2	1/2	10 100	3 1/2	....	.25
8275	1/2	4 1/2	5	3/4	10 100	11 1/2	....	.40

\*No. 8255 is for 250-volt service only.

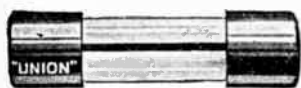
When ordering fuses of special dimensions, give the length over caps, distance across cap and clip, thickness of blade, length over all and diameter of tube.

Fuses of intermediate ampere capacity have same dimensions as those given above for minimum and maximum capacities.

**Union Instrument Protecting Fuses**

Approved by the National Board of Fire Underwriters

Glass Tubes—Brass Caps



This is a small glass tube for rosettes and attachment plugs, and for the protection of instruments and pilot lights on switchboards.

For service on circuits not over 250 volts.

Cat. No.	Amperes	Center to Center, In.	Lgh. Over Tube, In.	Diam. Tube, In.	Carton Pkg.	Std. Pkg.	Wt., Lbs. Pkg.	Refil. ing Each	Price Each
*5271	1	1 1/2	3/8	100	1 1/4	100	1 1/4	....	\$ .20
*5272	2	1 1/2	3/8	100	1 1/4	100	1 1/4	....	.20
*5273	3	1 1/2	3/8	100	1 1/4	100	1 1/4	....	.20

**Type E Union Non-Renewable Enclosed Fuses**

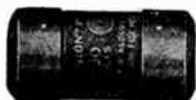
Knife-Blade Contact

2500 Volts, 1-100 Amperes



13001-13008	1-15	10	8	1 1/4	4	50	31 1/4	\$1.10	\$1.50
13009-13011	20-30	10	8	1 1/4	4	50	32	1.10	1.50
13012-13017	35-60	10 1/2	8 1/2	1 3/4	3	25	33	1.30	2.00
13018-13023	65-100	11	9	2	1	25	3 1/2	1.60	3.00

**Union Plug Cartridge Fuses**



For D & W Casings



For Noark Casings

250 Volts, 2-30 Amperes

For D & W Old Code Plug Casings

5057-5068	3-30	1 1/8	1 1/16	3/4	50	100	4	....	\$ .18
5170-5181	3-30	1 1/8	1 3/16	3/4	50	100	4 1/2	....	.18

For Noark Old Code Plug Casings

6155-6167	2-30	1 1/4	1 3/4	1/2	50	100	3 1/2	....	\$ .18
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**Union Renewable Enclosed Fuses**

250 Volts, 2-15 Amperes

Midget Fuses



While not of N. E. Code standard dimensions, this fuse is frequently used for circuits of limited capacity.

2102-2115	2-15	1 1/2	3/8	20	100	2 1/2	....	\$ .40
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Renewal Links



2152-2165	2-15	....	....	....	100	100	2	....	\$3.00
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**Union Plug Cartridge Fuses**

250 Volts, 1-30 Amperes

For D & W Old Code Plug Casings



This fuse is particularly adapted for protecting the wiring in electrically operated tools such as drills, grinders, etc., where a fuse of limited dimensions is required.

3201-3230	1-30	....	1 1/16	3/4	20	100	9 3/4	....	\$ .75
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Renewal Links



3251-3280	1-30	....	....	....	100	100	1	....	\$3.00
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\*Formerly Union Nos. 5501, 5502 and 5503, respectively.

When ordering Type E fuses of other dimensions, give the length over all, and the diameter of tube.

**Type A Buss Old Code Non-renewable**

Fuses

Screw Clamp Contact Type

1 to 125 Amperes, 250 Volts



Cat. No.		Amp.	Center to Center, In.	Price Each	For Noark Blocks		Cat. No.	Amp.	Center to Center, In.	Price Each
2001	1	2 1/4	3/8	\$ .25	2015	40	4 3/4	....	\$ .35	
2003	3	2 1/4	3/8	.25	2016	45	4 3/4	....	.35	
2005	5	2 1/4	3/8	.25	2017	50	4 3/4	....	.35	
2006	6	2 1/4	3/8	.25	2018	60	5 3/8	....	.90	
2007	8	2 1/4	3/8	.25	2019	70	5 3/8	....	.90	
2008	10	3 7/8	3/8	.25	2020	75	5 3/8	....	.90	
2009	12	3 7/8	3/8	.25	2021	80	5 3/8	....	.90	
2010	15	3 7/8	3/8	.25	2022	90	5 3/8	....	.90	
2011	20	3 7/8	3/8	.25	2023	100	5 3/8	....	.90	
2012	25	3 7/8	3/8	.25	2024	110	5 3/8	....	2.00	
2013	30	3 7/8	3/8	.25	2025	125	5 3/8	....	2.00	
2014	35	4 3/4	3/8	.35	2026	150	5 3/8	....	2.00	

For D. & W. Blocks

201	1	2 1/8	3/8	\$ .25	245	45	4 9/16	....	\$ .35
203	3	2 1/8	3/8	.25	250	50	4 9/16	....	.35
205	5	2 1/8	3/8	.25	260	60	4 9/16	....	.35
206	6	2 1/8	3/8	.25	265	65	5 1/8	....	.90
208	8	3 1/8	3/8	.25	270	70	5 1/8	....	.90
210	10	3 1/8	3/8	.25	275	75	5 1/8	....	.90
212	12	3 1/8	3/8	.25	280	80	5 1/8	....	.90
215	15	3 1/8	3/8	.25	290	90	5 1/8	....	.90
220	20	3 1/8	3/8	.25	300	100	5 1/8	....	.90
225	25	3 1/8	3/8	.25	310	110	5 1/8	....	2.00
230	30	3 1/8	3/8	.25	325	125	5 1/8	....	2.00
235	35	4 1/8	3/8	.35	330	150	6 3/4	....	2.00
240	40	4 1/8	3/8	.35	....	....	....	....	....

For Panel Boards, Etc.

2200	1	2 1/2	3/8	\$ .25	2213	35	2 1/2	....	\$ .35
2202	3	2 1/2	3/8	.25	2214	40	2 1/2	....	.35
2204	5	2 1/2	3/8	.25	2215	45	2 1/2	....	.35
2205	6	2 1/2	3/8	.25	2216	50	2 1/2	....	.35
2206	8	2 1/2	3/8	.25	2217	60	3 1/2	....	.90
2207	10	2 1/2	3/8	.25	....	65	....	....	.90
2208	12	2 1/2	3/8	.25	2218	70	3 1/2	....	.90
2209	15	2 1/2	3/8	.25	2219	75	3 1/2	....	.90
2210	20	2 1/2	3/8	.25	2220	80	3 1/2	....	.90
2211	25	2 1/2	3/8	.25	2221	90	3 1/2	....	.90
2212	30	2 1/2	3/8	.25	2222	100	3 1/2	....	.90

Midget for Panel Boards

2251	1	2 1/4	3/8	\$ .25	2257	8	2 1/4	....	\$ .25
2253	3	2 1/4	3/8	.25	2258	10	2 1/4	....	.25
2255	5	2 1/4	3/8	.25	2259	12	2 1/4	....	.25
2256	6	2 1/4	3/8	.25	2260	15	2 1/4	....	.25

175 to 600 Amperes, 250 Volts



Cat. No.		Amp.	Center to Center, In.	Price Each	For Noark Blocks		Cat. No.	Amp.	Center to Center, In.	Price Each
2027	175	6 3/4	3/4	\$2.00	2034	350	6 3/4	....	\$3.60	
2028	200	6 3/4	3/4	2.00	2036	400	6 3/4	....	3.60	
2029	225	6 3/4	3/4	3.60	2037	450	8 3/8	....	5.50	
2030	250	6 3/4	3/4	3.60	2038	500	8 3/8	....	5.50	
2031	275	6 3/4	3/4	3.60	2040	600	8 3/8	....	5.50	
2032	300	6 3/4	3/4	3.60	....	....	....	....	....	

For D. & W. Blocks

335	175	6 3/4	3/4	\$2.00	360	300	6 3/4	....	\$3.60
340	200	6 3/4	3/4	2.00	365	350	6 3/4	....	3.60
345	225	6 3/4	3/4	3.60	370	400	6 3/4	....	3.60
350	250	6 3/4	3/4	3.60	375	450	6 3/4	....	5.50
355	275	6 3/4	3/4	3.60	380	500	6 3/4	....	5.50

Fuses listed are not standard stock material. Great care should therefore be exercised in ordering this material as it is not returnable.



## Type B Old Code Non-renewable Fuses

Ferrule Contact Type  
1 to 60 Amperes, 250 Volts



For D.&W. and G-E Blocks				For Noark Blocks				For Noark Branch Blocks				For D.&W. Plugs				For Noark Plugs				Midjet Type									
Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each
2381	3	2 1/2	11/16	.25	2390	25	2 1/2	11/16	.25	2334	12	3 3/8	9/16	.25	112	12	1 9/16	25/32	.18	2355	8	1 1/2	13/32	.18	4210	15	5 3/4	9/16	.40
2383	5	2 1/2	11/16	.25	2391	30	2 1/2	11/16	.25	2335	15	1 9/16	25/32	.25	115	15	1 9/16	25/32	.18	2356	10	1 1/2	13/32	.18	4212	20	5 1/4	9/16	.40
2384	6	2 1/2	11/16	.25	2392	35	3 5/8	15/16	.35	2336	20	3 3/8	9/16	.25	120	20	1 9/16	25/32	.18	2357	12	1 1/2	13/32	.18	4213	25	5 1/2	9/16	.40
2385	8	2 1/2	11/16	.25	2393	40	3 5/8	15/16	.35	2337	25	3 3/8	9/16	.25	125	25	1 9/16	25/32	.18	2358	15	1 1/2	13/32	.18	4214	30	5 3/4	13/16	.60
2386	10	2 1/2	11/16	.25	2394	45	3 5/8	15/16	.35	2338	30	3 3/8	9/16	.25	130	30	1 9/16	25/32	.18	2359	8	1 1/2	13/32	.18	4215	35	5 3/4	13/16	.60
2387	12	2 1/2	11/16	.25	2395	50	3 5/8	15/16	.35	2339	30	3 3/8	9/16	.25	130	30	1 9/16	25/32	.18	2360	10	1 1/2	13/32	.18	4216	40	5 3/4	13/16	.60
2388	15	2 1/2	11/16	.25	2397	60	3 5/8	15/16	.35	2340	30	3 3/8	9/16	.25	130	30	1 9/16	25/32	.18	2361	12	1 1/2	13/32	.18	4217	45	5 3/4	13/16	.60
2389	20	2 1/2	11/16	.25	.....	.....	.....	.....	.....	2341	30	3 3/8	9/16	.25	130	30	1 9/16	25/32	.18	2362	15	1 1/2	13/32	.18	4218	50	5 3/4	13/16	.60
2300	1	2 3/8	13/32	.25	2310	20	3 3/8	9/16	.25	2342	12	1 9/16	25/32	.18	112	12	1 9/16	25/32	.18	2363	3	1 3/4	9/16	.18	4219	15	5 1/4	9/16	.40
2302	3	2 3/8	13/32	.25	2311	25	3 3/8	9/16	.25	2343	15	1 9/16	25/32	.18	115	15	1 9/16	25/32	.18	2364	5	1 3/4	9/16	.18	4220	20	5 1/4	9/16	.40
2304	5	2 3/8	13/32	.25	2312	30	3 3/8	9/16	.25	2344	20	1 9/16	25/32	.18	120	20	1 9/16	25/32	.18	2365	6	1 3/4	9/16	.18	4221	25	5 1/2	9/16	.40
2305	6	2 3/8	13/32	.25	2313	35	3 3/8	9/16	.35	2345	25	1 9/16	25/32	.18	125	25	1 9/16	25/32	.18	2366	8	1 3/4	9/16	.18	4222	30	5 3/4	13/16	.60
2306	8	2 3/8	13/32	.25	2314	40	3 3/8	9/16	.35	2346	30	1 9/16	25/32	.18	130	30	1 9/16	25/32	.18	2367	10	1 3/4	9/16	.18	4223	35	5 3/4	13/16	.60
2307	10	2 1/2	11/16	.25	2315	45	3 3/8	9/16	.35	2347	30	1 9/16	25/32	.18	130	30	1 9/16	25/32	.18	2368	12	1 3/4	9/16	.18	4224	40	5 3/4	13/16	.60
2308	12	2 1/2	11/16	.25	2316	50	3 3/8	9/16	.35	2348	30	1 9/16	25/32	.18	130	30	1 9/16	25/32	.18	2369	15	1 3/4	9/16	.18	4225	45	5 3/4	13/16	.60
2309	15	2 1/2	11/16	.25	.....	.....	.....	.....	.....	2349	30	1 9/16	25/32	.18	130	30	1 9/16	25/32	.18	2370	10	1 3/4	9/16	.18	4226	50	5 3/4	13/16	.60
2326	1	3 3/8	9/16	.25	2334	12	3 3/8	9/16	.25	2350	8	1 1/2	13/32	.18	2355	8	1 1/2	13/32	.18	2371	12	1 3/4	9/16	.18	4227	15	5 1/4	9/16	.40
2328	3	3 3/8	9/16	.25	2335	15	3 3/8	9/16	.25	2356	10	1 1/2	13/32	.18	2356	10	1 1/2	13/32	.18	2372	15	1 3/4	9/16	.18	4228	20	5 1/4	9/16	.40
2330	5	3 3/8	9/16	.25	2336	20	3 3/8	9/16	.25	2357	12	1 1/2	13/32	.18	2357	12	1 1/2	13/32	.18	2373	20	1 3/4	9/16	.18	4229	25	5 1/2	9/16	.40
2331	6	3 3/8	9/16	.25	2337	25	3 3/8	9/16	.25	2358	15	1 1/2	13/32	.18	2358	15	1 1/2	13/32	.18	2374	20	1 3/4	9/16	.18	4230	30	5 3/4	13/16	.60
2332	8	3 3/8	9/16	.25	2338	30	3 3/8	9/16	.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2375	25	1 3/4	9/16	.18	4231	35	5 3/4	13/16	.60
2333	10	3 3/8	9/16	.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2376	30	1 3/4	9/16	.18	4232	40	5 3/4	13/16	.60
103	3	1 9/16	25/32	.18	112	12	1 9/16	25/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2377	12	1 3/4	9/16	.18	4233	50	5 3/4	13/16	.60
105	5	1 9/16	25/32	.18	115	15	1 9/16	25/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2378	15	1 3/4	9/16	.18	4234	15	5 1/4	9/16	.40
106	6	1 9/16	25/32	.18	120	20	1 9/16	25/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2379	20	1 3/4	9/16	.18	4235	20	4 3/8	13/16	.60
108	8	1 9/16	25/32	.18	125	25	1 9/16	25/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2380	25	1 3/4	9/16	.18	4236	25	4 3/8	13/16	.60
110	10	1 9/16	25/32	.18	130	30	1 9/16	25/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2381	30	1 3/4	9/16	.18	4237	30	4 3/8	13/16	.60
2362	1	1 3/4	9/16	.18	2371	12	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2382	30	1 3/4	9/16	.18	4238	30	4 3/8	13/16	.60
2365	3	1 3/4	9/16	.18	2372	15	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2383	35	1 3/4	9/16	.18	4239	35	4 3/8	13/16	.60
2367	5	1 3/4	9/16	.18	2373	20	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2384	40	1 3/4	9/16	.18	4240	40	4 3/8	13/16	.60
2368	6	1 3/4	9/16	.18	2374	20	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2385	45	1 3/4	9/16	.18	4241	45	4 3/8	13/16	.60
2369	8	1 3/4	9/16	.18	2375	25	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2386	50	1 3/4	9/16	.18	4242	50	4 3/8	13/16	.60
2370	10	1 3/4	9/16	.18	2376	30	1 3/4	9/16	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2387	60	1 3/4	9/16	.18	4243	60	4 3/8	13/16	.60
2349	1	1 1/2	13/32	.18	2355	8	1 1/2	13/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2388	60	1 3/4	9/16	.18	4244	60	4 3/8	13/16	.60
2351	3	1 1/2	13/32	.18	2356	10	1 1/2	13/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2389	60	1 3/4	9/16	.18	4245	60	4 3/8	13/16	.60
2353	5	1 1/2	13/32	.18	2357	12	1 1/2	13/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2390	60	1 3/4	9/16	.18	4246	60	4 3/8	13/16	.60
2354	6	1 1/2	13/32	.18	2358	15	1 1/2	13/32	.18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2391	60	1 3/4	9/16	.18	4247	60	4 3/8	13/16	.60

1 to 60 Amperes, 600 Volts

For Noark Blocks

For D.&W. Blocks

For Train Control Equipment

For Combination Car Switch

## Type C Buss Old Code Non-renewable Fuses

Straight Side Contact Type  
1 to 125 Amperes, 250 Volts



For Noark Blocks				For D. & W. Blocks					
Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each
2401	1	3 1/2	29/32	.42	2414	35	3 1/2	29/32	.42
2403	3	3 1/2	29/32	.42	2415	40	3 1/2	29/32	.42
2405	5	3 1/2	29/32	.42	2416	45	3 1/2	29/32	.42
2406	6	3 1/2	29/32	.42	2417	50	3 1/2	29/32	.42
2407	8	3 1/2	29/32	.42	2418	60	4 1/8	1 1/32	.90
2408	10	3 1/2	29/32	.42	2419	70	4 1/8	1 1/32	.90
2409	12	3 1/2	29/32	.42	2420	75	4 1/8	1 1/32	.90
2410	15	3 1/2	29/32	.42	2421	80	4 1/8	1 1/32	.90
2411	20	3 1/2	29/32	.42	2422	90	4 1/8	1 1/32	.90
2412	25	3 1/2	29/32	.42	2423	100	4 1/8	1 1/32	.90
2413	30	3 1/2	29/32	.42	.....	.....	.....	.....	.....
66354	65	4 1/2	1 3/8	.90	66359	90	4 1/2	1 3/8	.90
66355	70	4 1/2	1 3/8	.90	66361	100	4 1/2	1 3/8	.90
66356	75	4 1/2	1 3/8	.90	66363	110	4 1/2	1 3/8	2.00
66357	80	4 1/2	1 3/8	.90	66367	125	4 1/2	1 3/8	2.00

1 to 125 Amperes, 600 Volts

For Noark Blocks				For D. & W. Blocks					
Cat. No.	Amp.	Length In.	Diam. In.	Price Each	Cat. No.	Amp.	Length In.	Diam. In.	Price Each
4300	1	6 1/4	1 3/8	1.50	4314	35	6 1/4	1 3/8	1.50
4302	3	6 1/4	1 3/8	1.50	4315	40	6 1/4	1 3/8	1.50
4304	5	6 1/4	1 3/8	1.50	4316	45	6 1/4	1 3/8	1.50
4305	6	6 1/4	1 3/8	1.50	4317	50	6 1/4	1 3/8	1.50
4306	8	6 1/4	1 3/8	1.50	4318	60	6 1/4	1 3/8	1.50
4307	10	6 1/4	1 3/8	1.50					

**Type A Buss Old Code Non-renewable Fuses**

Screw Clamp Contact Type

1 to 100 Amperes, 2500 Volts



For Noark Blocks

Cat. No.	Amp.	Center to Center, In.	Price Each	Cat. No.	Amp.	Center to Center, In.	Price Each
6000	1	6 1/2	\$.50	6015	35	7 1/4	\$1.20
6002	3	6 1/2	.50	6016	40	7 1/4	1.20
6004	5	6 1/2	.50	6017	45	7 1/4	1.20
6005	6	6 1/2	.50	6018	50	7 1/4	1.20
6006	8	6 1/2	.50	6019	60	8 1/4	2.40
6007	10	6 1/2	.50	6020	70	8 1/4	2.40
6008	12	6 1/2	.50	6021	75	8 1/4	2.40
6009	15	6 1/2	.85	6022	80	8 1/4	2.40
6012	20	6 1/2	.85	6023	90	8 1/4	2.40
6013	25	6 1/2	.85	6024	100	8 1/4	2.40
6014	30	6 1/2	.85	.....	...	...	.....

For D. & W. Blocks

Cat. No.	Amp.	Center to Center, In.	Price Each	Cat. No.	Amp.	Center to Center, In.	Price Each
12001	1	6 1/2	\$.50	12035	35	7 1/4	\$1.20
12003	3	6 1/2	.50	12040	40	7 1/4	1.20
12005	5	6 1/2	.50	12045	45	7 1/4	1.20
12006	6	6 1/2	.50	12050	50	7 1/4	1.20
12008	8	6 1/2	.50	12060	60	7 1/2	1.20
12010	10	6 1/2	.50	12070	70	7 1/2	2.40
12012	12	6 1/2	.50	12075	75	7 1/2	2.40
12015	15	6 1/2	.50	12080	80	7 1/2	2.40
12020	20	6 1/2	.85	12090	90	7 1/2	2.40
12025	25	6 1/2	.85	12100	100	7 1/2	2.40
12030	30	6 1/2	.85	.....	...	...	.....

Fuses listed are not standard stock material. Great care should therefore be exercised in ordering this material as it is not returnable.

**Type B Buss Old Code Non-renewable Fuses**

Ferrule Contact Type

1 to 60 Amperes, 2500 Volts



For Noark Blocks

Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each	Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each
6100	1	5 3/4	1/2	\$.46	6109	15	5 3/4	5/8	\$.60
6101	2	5 3/4	1/2	.46	6112	20	5 3/4	5/8	.60
6102	3	5 3/4	1/2	.46	6113	25	5 3/4	5/8	.60
6103	4	5 3/4	1/2	.46	6114	30	5 3/4	5/8	.60
6104	5	5 3/4	1/2	.46	6115	35	6 3/16	7/8	.75
6105	6	5 3/4	1/2	.46	6116	40	6 3/16	7/8	.75
6106	8	5 3/4	1/2	.46	6117	45	6 3/16	7/8	.75
6107	10	5 3/4	1/2	.46	6118	50	6 3/16	7/8	.75
6108	12	5 3/4	1/2	.46	.....	...	...	...	.....

For D. & W. Blocks

Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each	Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each
4101	1	5	5/8	\$.46	4110	10	5	5/8	\$.46
4102	2	5	5/8	.46	4112	12	5	5/8	.46
4103	3	5	5/8	.46	4115	15	5	5/8	.46
4104	4	5	5/8	.46	4120	20	5 9/16	7/8	.60
4105	5	5	5/8	.46	4125	25	5 9/16	7/8	.60
4106	6	5	5/8	.46	4130	30	5 9/16	7/8	.60
4108	8	5	5/8	.46	.....	...	...	...	.....

For Union Blocks

Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each	Cat. No.	Amp.	Length In.	Diam. Tube, In.	Price Each
10001	1	5 1/2	3/4	\$.46	10010	15	5 1/2	3/4	\$.46
10002	2	5 1/2	3/4	.46	10013	20	6	1	.60
10003	3	5 1/2	3/4	.46	10014	25	6	1	.60
10004	4	5 1/2	3/4	.46	10015	30	6	1	.60
10005	5	5 1/2	3/4	.46	10017	35	7 1/2	1	.75
10006	6	5 1/2	3/4	.46	10018	40	7 1/2	1	.75
10007	8	5 1/2	3/4	.46	10019	45	7 1/2	1	.75
10008	10	5 1/2	3/4	.46	10020	50	7 1/2	1	.75
10009	12	5 1/2	3/4	.46	10021	60	7 1/2	1	.75

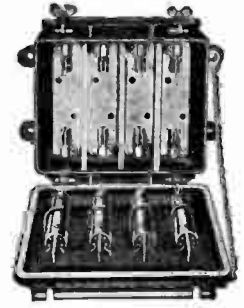
Fuses are not standard stock material. Great care should therefore be exercised in ordering this material as it is not returnable.

**Noark Water-Tight Service Boxes**

For Potentials Not Exceeding 250 Volts



No. 3678



No. 3182

2 Poles—All Fused

Cat. No.	Cap. Amps.	Type	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. Each	Price Each
			Lgth.	Width	Ht.			
3828	0-30	B	7	5	3 3/4	10	5 1/2	\$7.00
3829	31-60	B	8 3/8	6	4 3/4	5	10 1/2	9.50
3678	61-100	E	10 5/8	7 1/4	4 7/8	5	15	15.00
3679	101-200	E	13 3/8	10 1/4	6 1/4	5	34	23.50
3680	201-400	E	16 1/8	12 1/2	7	5	62	38.00
3681	401-600	E	19 1/4	15	8 1/2	3	76	60.00

3 Poles—All Fused

Cat. No.	Cap. Amps.	Type	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. Each	Price Each
			Lgth.	Width	Ht.			
3830	0-30	B	7	6 3/8	3 3/4	10	8 1/2	\$8.75
3831	31-60	B	8 3/8	7 1/4	4 3/4	5	11 1/2	12.00
3682	61-100	E	10 5/8	9	4 7/8	5	19 1/2	16.00
3683	101-200	E	13 3/8	13 1/8	6 1/4	3	45	29.00
3684	201-400	E	16 1/8	16 1/8	7	1	93	50.00
3685	401-600	E	19 1/4	19 1/4	8 1/2	1	126	85.00

3 Poles—2 Fused—Neutral Unfused

Cat. No.	Cap. Amps.	Type	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. Each	Price Each
			Lgth.	Width	Ht.			
3870	0-30	B	7	6 3/8	3 3/4	10	8 1/2	\$8.75
3871	31-60	B	8 3/8	7 1/4	4 3/4	5	11 1/2	12.00
3661	61-100	E	10 5/8	9	4 7/8	5	19 1/2	16.00
3662	101-200	E	13 3/8	13 1/8	6 1/4	3	45	29.00
3663	201-400	E	16 1/8	16 1/8	7	1	93	50.00
3664	401-600	E	19 1/4	19 1/4	8 1/2	1	126	85.00

4 Poles—All Fused

Cat. No.	Cap. Amps.	Type	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. Each	Price Each
			Lgth.	Width	Ht.			
3182	61-100	E	10 5/8	11 1/4	4 7/8	5	24	\$25.00
3183	101-200	E	13 3/8	16	6 1/4	3	52	48.00
3184	201-400	E	16 1/8	20	7	1	94	75.00
3185	401-600	E	19 1/4	23 3/8	8 1/2	1	148	115.00

4 Poles—3 Fused—Neutral Unfused

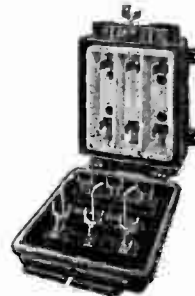
Cat. No.	Cap. Amps.	Type	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. Each	Price Each
			Lgth.	Width	Ht.			
3186	61-100	E	10 5/8	11 1/4	4 7/8	5	24	\$25.00
3187	101-200	E	13 3/8	16	6 1/4	3	52	48.00
3188	201-400	E	16 1/8	20	7	1	94	75.00
3189	401-600	E	19 1/4	23 3/8	8 1/2	1	148	115.00

**Noark Water-Tight Service Boxes**

For Potentials Not Exceeding 600 Volts

Nos. 5868, 5869, 5870 and 5871 type B, all others type E.

2 Poles—All Fused



No. 5871

Cat. No.	Amperes	DIMENSIONS INCHES			Wt. Lbs.	Std. Pkg.	Price Each
		Lgth.	Width	Ht.	Each		
5868	0-30	11	7 1/4	4 3/4	16	5	\$12.50
5869	31-60	12 3/8	8 1/2	5 1/4	22	5	15.75
5770	61-100	14 3/8	10 1/2	6 1/4	30 1/2	4	21.50
5771	101-200	17 3/8	12 1/2	7 1/4	51	4	32.00
5772	201-400	20 3/8	15 1/2	8 1/4	76 1/2	1	60.00
5773	401-600	26	16 3/4	9	150	1	100.00
5870	0-30	11	9 1/4	4 3/4	21	5	16.25
5871	31-60	12 3/8	10 1/2	5 1/4	30	5	20.00
5774	61-100	14 3/8	13 1/2	6 1/4	41	4	24.50
5775	101-200	17 3/8	15 1/2	7 1/4	66	4	38.00
5776	201-400	20 3/8	19 1/2	8 1/4	114	1	75.00
5777	401-600	26	21 1/4	9	225	1	125.00



No. 3702

### Noark Straightaway Conduit Fittings For Water-Tight Service and Fuse Boxes For Potentials Not Exceeding 250 Volts

Fittings Cat. No.	Size Pipe Thread In.	Std. Pkg.	Wt. Lbs. Each	Price Each	THESE FITTINGS FOR—			
					Cat. No. Service Box	Cat. No. Fuse Box	Amps.	Type Poles
3832	1	20	3/4	\$ .95	3828	3872	0-30	B 2
3833	1 1/4	10	1 1/4	1.10	3829	3873	31-60	B 2
3702	1 1/2	10	1 1/2	1.60	3678	3670	61-100	E 2
3703	2	10	3	2.30	3679	3671	101-200	E 2
3704	2 1/2	10	4	3.25	3680	3672	201-400	E 2
3705	3	6	8	5.00	3681	3673	401-600	E 2
3834	1	20	1 1/4	1.10	3830	3874	0-30	B 3
3835	1 1/4	10	1 3/4	1.50	3870	3876		
3706	1 1/2	10	2	1.75	3331	3875	31-60	B 3
3707	2	6	4	3.00	3871	3877		
3708	2 1/2	2	5 1/2	4.50	3632	3674	61-100	E 3
3709	3	2	10	6.50	3661	3865		
3935	1 1/2	10	4	2.50	3633	3675	101-200	E 3
3936	2	10	4	2.50	3662	3866		
3937	2 1/2	10	4	2.50	3634	3676	201-400	E 3
3938	2	6	8	4.00	3663	3867		
3939	2 1/2	6	8	4.00	3635	3677	401-600	E 3
3940	3	6	8	4.00	3664	3868		
3941	3	2	14	6.00	3182	3190	61-100	E 4
3942	3 1/2	2	14	6.00	3186	3194		
3943	4	2	14	6.00	3183	3191	101-200	E 4
3944	4	2	22	12.00	3187	3195		
3945	4 1/2	2	22	12.00	3184	3192	201-400	E 4
3946	5	2	22	12.00	3188	3196		
					3185	3193	401-600	E 4
					3189	3197		

### Noark Right or Left-Hand Conduit Fittings For Water-Tight Service and Fuse Boxes

For Potentials Not Exceeding 250 Volts



No. 3710

Fittings Cat. No.	Size Pipe Thread In.	Std. Pkg.	Wt. Lbs. Each	Price Each	THESE FITTINGS FOR—			
					Cat. No. Service Box	Cat. No. Fuse Box	Amps.	Type Poles
3836	1	20	3/4	\$ .95	3828	3872	0-30	B 2
3837	1 1/4	10	1	1.10	3829	3873	31-60	B 2
3710	1 1/2	10	1 1/4	1.60	3678	3670	61-100	E 2
3711	2	10	2 1/4	2.30	3679	3671	101-200	E 2
3712	2 1/2	10	3 1/2	3.25	3680	3672	201-400	E 2
3713	3	6	6	5.00	3681	3673	401-600	E 2
3838	1	20	3/4	1.10	3830	3874	0-30	B 3
3839	1 1/4	10	1	1.50	3870	3876		
3714	1 1/2	10	1 3/4	1.75	3831	3875	31-60	B 3
3715	2	6	4	3.00	3871	3877		
3716	2 1/2	2	6	4.50	3682	3674	61-100	E 3
3717	3	2	12	6.50	3661	3865		
					3683	3675	101-200	E 3
					3662	3866		
					3684	3676	201-400	E 3
					3663	3867		
					3685	3677	401-600	E 3
					3664	3868		

### Noark Conduit Fittings for Water-Tight Service and Fuse Boxes For Potentials Not Exceeding 250 Volts



No. 3718

Fittings Cat. No.	Size Pipe Thread In.	Std. Pkg.	Wt. Lbs. Each	Price Each	THESE FITTINGS FOR—			
					Cat. No. Service Box	Cat. No. Fuse Box	Amps.	Type Poles
3780	1	20	3/4	\$0.95	3828	3872	0-30	B 2
3781	1 1/4	10	1	1.10	3829	3873	31-60	B 2
3718	1 1/2	10	1 1/2	1.60	3678	3670	61-100	E 2
3719	2	10	2	2.30	3679	3671	101-200	E 2
3720	2 1/2	10	3 1/2	3.25	3680	3672	201-400	E 2
3721	3	6	5	5.00	3681	3673	401-600	E 2
3782	1	20	1	1.10	3830	3874	0-30	B 3
3783	1 1/4	10	1	1.50	3870	3876		
3722	1 1/2	10	1 1/2	1.75	3831	3875	31-60	B 3
3723	2	6	3 1/4	3.00	3871	3877		
3724	2 1/2	2	5 1/4	4.50	3682	3674	61-100	E 3
3730	3	2	8	6.50	3661	3865		
					3683	3675	101-200	E 3
					3662	3866		
					3684	3676	201-400	E 3
					3663	3867		
					3685	3677	401-600	E 3
					3664	3868		

### Back Entrance Conduit Fitting

### Entrance Hoods



No. 3740

3784	1 1/2	20	1 1/2	\$1.80	3828	3872	0-30	B 2
3785	1 3/4	10	2	2.40	3829	3873	31-60	B 2
3740	2	10	2	3.00	3678	3670	61-100	E 2
3741	4	10	4	4.00	3679	3671	101-200	E 2
3742	7 1/4	10	7	6.00	3680	3672	201-400	E 2
3743	9	6	10	10.00	3681	3673	401-600	E 2
3786	1 3/4	20	2	2.50	3830	3874	0-30	B 3
3787	2 1/4	10	2	2.75	3870	3876		
3744	3 1/4	10	3	3.75	3831	3875	31-60	B 3
3745	7 3/4	6	4	4.75	3871	3877		
3746	9 3/4	2	7	7.00	3682	3674	61-100	E 3
3747	15	2	12	12.50	3661	3865		
3947	6	10	5	5.00	3683	3675	101-200	E 3
3948	11	6	7	7.50	3662	3866		
					3684	3676	201-400	E 3
					3663	3867		
					3685	3677	401-600	E 3
					3664	3868		
					3182	3190	61-100A	E 4
					3186	3194		
					3183	3191	101-200A	E 4
					3187	3195		



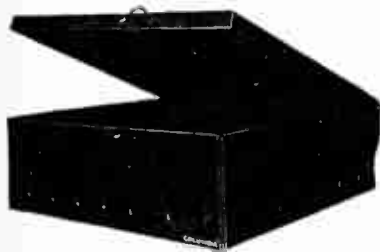
No. 3983

### Bushing Plates

3975	20	3/4	\$ .90	3828	3872	0-30	B 2
3976	10	1 1/2	1.00	3829	3873	31-60	B 2
3977	10	3/4	1.25	3678	3670	61-100	E 2
3978	10	1	1.75	3679	3671	101-200	E 2
3979	10	1 1/4	2.00	3680	3672	201-400	E 2
3980	6	2 1/2	2.50	3681	3673	401-600	E 2
3981	20	1 1/2	1.25	3830	3874	0-30	B 3
3982	10	1/2	1.35	3870	3876		
3983	10	3/4	1.50	3831	3875	31-60	B 3
3984	6	1 1/2	2.25	3871	3877		
3985	2	2 1/2	2.75	3682	3674	61-100	E 3
3986	2	3 1/4	3.50	3661	3865		
3987	10	1 3/8	2.00	3633	3675	101-200	E 3
3988	6	2	2.75	3662	3866		
3989	2	3 1/4	3.25	3684	3676	201-400	E 3
3990	2	4 1/4	5.00	3663	3867		
				3685	3677	401-600	E 3
				3664	3868		
				3182	3190	61-100	E 4
				3186	3194		
				3183	3191	101-200	E 4
				3187	3195		
				3184	3192	201-400	E 4
				3188	3196		
				3185	3193	401-600	E 4
				3189	3197		

**Columbia Type A Surface Cabinets**

For Cut-Outs, Service Switches and Panel Boards



**CONDUIT DRILLING.**—Cabinets are regularly furnished with knockouts for 1/2-inch conduit spaced evenly on all sides. Specify if boxes are wanted without knockouts. For special conduit drilling, a small extra charge is made.

Knockouts other than 1/2-inch can be supplied if required.

**SIZES AND THICKNESS OF STEEL.**—Cabinets are listed in standard sizes and gauges (thickness). Cabinets of any size and thickness of steel up to 3/16-inch thick can be made to order.

**GALVANIZED CABINETS.**—Type A Cabinets in any size can be furnished in galvanized steel.

**WEATHERPROOF CABINETS.**—These cabinets can be made with slant tops, rubber gaskets and solid brass catches, for exposure to the weather. Black japan or galvanized.

**HOLES FOR CUT-OUT, SWITCHES, ETC.**—Furnished at cost of one cent per hole per box. For tapped holes, add two cents per box.

**BOXES WITHOUT COVERS.**—If boxes are required without covers, deduct 20 per cent from prices. A flange will be supplied on front edges for mounting a wood trim or other cover if specified on order.

**SCREW COVERS.**—All cabinets will be furnished with screw covers at the same price, if so specified.

The boxes listed below are made of sheet steel of the required thickness to conform with Board of Underwriters' requirements, and bear the Underwriters' labels.

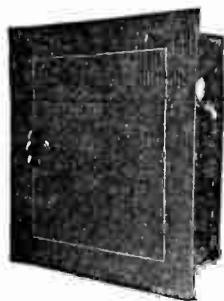
Width Inches	Height Inches	PRICE, EACH			
		DEPTH, INCHES			
		3	4	5	8
4 1/2	5	\$ .86	\$ 1.17		
4 1/2	9	1.00	1.32	\$ 1.38	
6	6	.94	1.08	1.45	\$ 1.88
6	9	1.15	1.48	1.74	2.26
6	10	1.32	1.58	1.83	2.41
6	11	1.41	1.70	2.00	2.26
6	12	1.50	1.68	2.10	2.66
6	16	1.80	2.04	2.35	3.00
6	8	1.05	1.32	1.65	2.36
8	8	1.28	1.53	1.89	2.30
8	10	1.47	1.72	2.10	2.55
8	12	1.72	2.01	2.31	2.90
8	15	2.01	2.31	2.67	3.30
8	18	2.31	2.67	3.03	3.60
9	9	1.48	1.89	2.07	2.55
9	12	1.83	2.13	2.45	3.00
9	15	2.10	2.45	2.91	3.50
9	16	2.28	2.52	3.00	3.67
9	18	2.43	2.91	3.26	3.95
9	20	2.70	3.17	3.52	4.25
9	24	3.06	3.55	4.02	4.80
9	28	5.45	6.15	6.78	7.55
9	32	6.25	6.80	7.58	8.40
9	36	6.78	7.60	8.36	9.20
10	10	1.78	2.01	2.32	2.95
10	12	1.98	2.25	2.58	3.25
10	15	2.34	2.61	2.74	3.70
10	18	2.67	2.80	3.25	4.20
10	20	3.16	3.58	4.10	4.65
10	24	3.70	4.15	4.75	5.30
10	28	5.98	6.57	6.87	8.07
10	32	6.60	7.35	8.07	8.97
10	36	7.35	8.12	8.82	9.96
12	12	2.45	2.78	3.28	3.72
12	16	3.05	3.06	3.95	4.45
12	18	3.32	3.30	4.30	4.80
12	20	3.56	3.85	4.45	5.15
12	24	4.24	4.50	4.50	5.88
12	28	6.75	7.44	8.19	8.97
12	32	7.53	8.34	9.05	9.93
12	36	8.40	9.24	10.05	10.95
12	40	9.24	10.07	10.98	11.94
16	12	3.05	3.06	3.95	4.45
16	15	3.55	3.60	4.55	5.10
16	18	4.15	4.15	5.20	5.75

**Columbia Type A Surface Cabinets**

For Cut-Outs, Service Switches and Panel Boards

Width Inches	Height Inches	PRICE, EACH			
		DEPTH, INCHES			
		3	4	5	8
16	20	\$ 4.53	\$ 4.50	\$ 5.60	\$ 6.10
15	24	5.00	5.00	6.15	6.80
16	28	8.40	9.18	9.93	10.80
16	32	9.45	10.20	11.07	12.00
16	36	10.50	11.37	12.50	13.17
16	40	10.58	12.48	13.38	14.40
18	18	4.60	5.10	5.65	6.25
18	20	5.00	5.50	6.10	6.70
18	24	8.08	8.88	9.54	10.40
18	28	9.24	10.08	10.80	11.70
18	32	10.38	11.25	12.05	13.00
18	36	11.58	12.45	13.32	14.31
18	40	12.75	13.65	14.58	15.60
21	21	8.19	9.00	9.66	10.50
21	24	9.15	9.96	10.71	11.64
21	28	10.50	11.40	12.18	13.08
21	32	11.85	12.75	13.62	14.73
21	36	13.14	13.10	15.00	16.05
21	40	14.49	15.45	16.35	17.52
24	24	10.32	11.16	11.91	12.84
24	28	11.76	12.69	13.50	14.46
24	32	13.26	14.22	15.15	16.11
24	36	14.76	15.72	16.68	17.76
24	40	16.20	17.22	18.30	19.05
24	42	28.30	29.89	31.54	33.10
24	48	31.60	34.15	36.13	37.81
30	24	16.54	17.44	18.31	19.30
30	28	18.28	19.30	20.32	21.28
30	32	19.72	21.10	22.15	23.26
30	36	34.20	36.10	38.80	39.80
30	40	37.90	40.10	42.00	43.20
30	44	41.70	44.10	46.30	47.40
30	48	45.50	48.10	50.40	51.50
30	54	59.90	63.15	66.40	69.70
30	60	66.60	70.20	73.80	77.50
30	66	71.10	74.80	78.75	82.60
30	72	79.90	84.20	88.60	92.80
36	36	41.70	44.00	46.20	47.30
36	42	56.20	59.30	62.30	65.40
36	48	64.00	67.50	70.90	74.40
36	54	71.80	75.60	79.60	83.40
36	60	79.90	84.30	88.60	92.90
36	66	87.85	92.70	97.35	102.10
36	72	95.80	101.10	106.10	111.30
36	78	103.80	109.50	115.10	120.80
36	84	111.70	117.80	123.80	129.90
42	42	65.50	69.00	72.60	76.20
42	48	74.70	78.80	82.90	86.90
42	54	84.00	88.55	93.00	97.55
42	60	93.30	98.30	103.20	108.20
42	66	102.40	108.00	113.50	119.00
42	72	111.70	117.80	123.80	129.90
42	78	121.30	127.90	134.50	141.00
42	84	130.50	137.50	144.80	151.80
42	90	139.80	147.30	154.90	162.50
42	96	149.20	157.40	165.50	173.50
48	48	85.50	90.10	94.60	98.40
48	54	95.80	101.80	106.10	111.30
48	60	106.50	112.30	118.10	123.80
48	66	117.20	123.50	129.90	136.20
48	72	128.00	135.00	141.80	148.80
48	78	138.30	145.90	153.20	160.80
48	84	149.30	157.40	165.40	173.60
48	90	159.50	168.10	176.70	186.30
48	96	170.20	179.40	188.50	197.80
54	54	107.90	113.80	119.70	125.40
54	60	119.80	126.40	132.80	139.20
54	66	131.70	138.80	145.90	153.00
54	72	143.50	151.20	159.00	166.80
54	78	155.40	163.80	172.40	180.70
54	84	166.80	175.70	184.50	193.50
54	90	188.80	198.90	209.00	219.50
60	60	131.40	138.50	145.60	152.80
60	66	144.30	152.10	159.80	167.80
60	72	159.20	167.80	176.30	185.00
60	78	170.80	180.00	189.20	198.50
60	84	185.00	195.00	205.00	215.00
60	90	198.00	208.50	219.50	230.00

## Columbia Type P Flush Cabinets For Cut-outs, Service Switches and Panel Boards



These cabinets are provided with removable steel trim and door. Plain type without ornamental beads; body is formed from one piece of steel with corners folded in and securely welded.

Finished in black baked japan. Regularly equipped with knob and turn catch.

Cabinets having surface area of over 360 square inches are furnished with vault handle.

Cabinets can be supplied with any style hinges, catch or lock.

Holes for cut-outs, switches, etc.,

add one cent per hole per box net. For tapped holes, two cents per hole net. Minimum 50 cents net per order.

**CONDUIT DRILLING.**—Cabinets are regularly furnished with knockouts for 1/2-inch conduit. For special conduit drilling an extra charge will be made. Knockouts other than 1/2-inch are furnished at a net charge of 50 cents for each variation from 1/2-inch. This covers any number of knockouts in any number of boxes.

### Panel Board Cabinets

This style cabinet is especially adapted for panelboards. Give size of panel, or specify maker's name and manufacturer's number. Sizes not listed at proportionate prices. This style of cabinet can also be furnished for surface work if so ordered.

The boxes listed below are made of sheet steel of the required thickness to conform with Board of Underwriters' requirements and bear the Underwriters' labels.

All boxes are hinged on height unless otherwise specified.

When ordering, specify hinged side first.

Width Inches	Height Inches	PRICE, EACH—DEPTH, INCHES					
		3	4	5	6	8	
4 1/2	5	\$3.56	\$3.90	\$4.50	.....	.....	
4 1/2	9	3.69	4.00	4.50	\$5.25	.....	
6	6	3.66	3.95	4.25	4.60	.....	
6	9	3.88	4.21	4.60	5.00	.....	
6	10	3.97	4.30	4.75	5.20	\$5.30	
6	11	4.09	4.45	4.86	5.30	5.50	
6	12	4.21	4.54	5.00	5.15	6.45	
6	16	4.69	5.08	5.47	6.00	7.00	
6	8	3.81	4.11	4.47	4.85	5.00	
8	8	4.11	4.41	4.90	5.25	5.60	
8	10	4.38	4.74	5.15	5.55	6.10	
8	12	4.55	4.94	5.35	5.75	6.55	
8	15	4.97	5.27	5.70	6.15	7.35	
8	18	5.39	5.54	6.20	7.00	8.25	
9	9	4.33	4.69	5.10	5.50	6.15	
9	12	4.75	5.11	5.50	5.90	6.95	
9	15	5.20	5.62	6.10	6.55	7.90	
9	16	5.38	5.80	6.20	7.00	8.20	
9	18	5.68	6.20	7.15	7.75	8.80	
9	20	6.10	6.70	7.35	8.35	9.40	
9	24	7.25	8.00	8.80	9.10	9.80	
9	28	10.30	11.16	12.28	13.45	14.31	
9	32	11.38	12.51	13.72	14.98	15.84	
9	36	11.46	13.86	15.16	16.51	17.37	
10	10	4.61	4.97	5.40	5.80	6.73	
10	12	4.94	5.63	6.10	6.55	7.37	
10	15	5.42	5.84	6.50	7.10	8.29	
10	18	6.00	6.55	7.20	8.30	9.17	
10	20	6.75	7.50	8.05	8.60	9.25	
10	24	7.55	8.25	8.60	9.40	10.62	
10	28	10.92	12.02	13.12	14.35	15.20	
10	32	13.32	13.50	14.68	16.42	17.10	
10	36	13.72	15.00	16.20	18.48	19.00	
12	12	5.00	5.75	6.50	7.25	7.90	
12	16	6.35	7.05	7.85	8.50	8.85	
12	18	7.40	7.85	8.30	9.25	9.54	
12	20	7.65	8.45	8.75	9.25	10.32	
12	24	8.60	8.90	9.63	10.58	11.48	
12	28	12.50	13.58	14.75	15.98	16.88	
12	32	14.00	15.15	16.42	17.72	19.00	
12	36	15.48	16.72	18.18	19.50	21.10	
12	40	16.95	18.36	19.75	21.24	23.20	
16	12	6.50	7.30	7.60	8.25	8.80	
16	15	7.50	8.15	8.50	9.05	10.08	
16	18	8.30	8.65	9.78	10.16	11.42	
16	20	8.60	9.36	10.08	10.92	12.42	

## Columbia Type P Flush Cabinets For Cut-outs, Service Switches and Panel Boards

Width Inches	Height Inches	PRICE, EACH—DEPTH, INCHES					
		3	4	5	6	8	
15	24	\$9.50	\$10.25	\$11.10	\$12.06	\$13.62	
16	28	15.52	16.65	17.90	19.27	20.54	
16	32	17.50	18.70	20.06	21.52	22.95	
16	36	19.48	20.75	22.22	23.75	25.38	
16	40	21.46	22.84	24.38	26.00	27.38	
18	18	8.66	9.40	10.12	11.06	12.42	
18	20	9.36	10.22	10.92	11.93	13.42	
18	24	14.85	16.10	17.32	18.68	19.77	
18	28	17.10	18.36	19.57	20.92	22.38	
18	32	19.35	20.60	21.84	23.16	24.88	
18	36	21.60	22.88	24.10	25.42	27.44	
18	40	23.85	25.16	26.32	27.65	30.00	
21	21	12.08	13.05	13.86	14.85	16.70	
21	24	17.05	18.22	19.42	20.88	22.42	
21	28	19.48	20.78	22.15	23.50	25.02	
21	32	21.92	23.38	24.84	26.10	27.60	
21	36	24.36	25.95	27.55	28.70	30.24	
21	40	26.76	28.44	30.25	31.75	32.85	
24	24	19.00	20.25	21.95	23.05	24.40	
24	28	21.70	23.05	24.38	25.95	27.60	
24	32	24.40	25.80	26.80	28.80	30.78	
24	36	27.05	28.62	29.25	31.68	34.95	
24	40	29.80	31.40	31.68	34.55	37.20	
24	42	36.45	38.70	41.18	43.65	52.65	
24	48	43.70	45.00	47.92	50.62	61.20	
30	24	28.12	24.05	25.92	27.44	29.25	
30	28	26.35	27.80	29.35	30.95	32.95	
30	32	29.65	31.15	32.75	34.45	36.65	
30	36	39.80	42.40	45.40	47.05	50.40	
30	40	43.60	46.20	49.30	51.35	53.90	
30	44	47.80	50.90	53.40	55.60	57.40	
30	48	51.75	54.20	57.70	59.80	62.80	
30	54	68.10	72.90	76.10	81.00	93.90	
30	60	75.60	81.00	84.65	90.00	104.40	
30	66	82.60	86.50	90.40	96.10	112.80	
30	72	92.80	97.20	102.80	108.00	125.60	
36	36	46.60	48.50	52.10	54.70	58.50	
36	42	65.40	68.40	71.40	76.10	88.20	
36	48	74.30	77.80	81.30	86.50	100.40	
36	54	83.40	87.40	91.30	97.00	112.50	
36	60	92.80	97.20	101.50	108.00	125.40	
36	66	106.10	111.10	116.00	123.40	130.80	
36	72	111.40	116.40	121.80	129.60	150.20	
36	78	120.80	126.40	132.00	140.40	162.90	
36	84	129.80	135.80	141.80	151.00	175.20	
42	42	73.60	79.00	82.65	88.00	102.40	
42	48	86.90	90.90	94.80	100.50	116.00	
42	54	97.60	102.00	106.40	113.50	131.80	
42	60	108.40	113.50	118.50	126.00	146.10	
42	66	119.00	124.50	130.10	138.40	160.80	
42	72	129.80	135.80	141.90	151.00	175.10	
42	78	141.00	147.50	154.20	164.00	190.20	
42	84	150.50	157.50	164.50	175.00	203.00	
42	90	160.80	168.50	175.80	187.00	206.80	
42	96	171.20	179.10	187.20	199.00	231.00	
48	48	99.50	104.00	108.50	115.60	134.10	
48	54	110.40	115.40	120.80	128.60	149.20	
48	60	123.80	129.80	134.10	142.40	164.80	
48	66	136.20	141.80	148.90	159.00	182.00	
48	72	146.50	152.50	159.20	169.00	195.20	
48	78	159.20	166.50	173.80	185.00	204.80	
48	84	171.20	179.10	187.20	199.00	231.00	
48	90	184.80	193.30	201.80	214.80	249.00	
48	96	197.10	206.10	215.00	229.00	265.80	
54	54	125.80	131.80	136.10	144.40	166.80	
54	60	137.50	142.80	149.90	160.00	183.00	
54	66	151.50	158.50	165.50	176.00	204.00	
54	72	165.50	173.50	180.80	192.00	211.80	
54	78	180.00	188.10	196.20	208.00	240.00	
54	84	193.50	202.10	211.00	225.00	261.80	
54	96	221.00	230.50	241.80	257.00	298.00	
60	60	152.50	158.50	165.20	175.00	201.20	
60	66	167.50	175.10	183.20	195.00	227.00	
60	72	184.80	193.30	201.80	214.80	249.00	
60	78	198.50	207.10	217.00	231.00	267.80	
60	84	215.50	224.50	235.80	251.00	292.00	
60	90	230.00	240.80	250.80	267.00	310.00	

All boxes are hinged on height unless otherwise specified. When ordering, specify hinged side first.

## Columbia Steel Cabinets

### National Electrical Code Extract Regarding Cutout Boxes and Cabinets

#### Thickness of Metal

	No. 16 U. S. Gauge— $\frac{1}{16}$
	No. 14 U. S. Gauge— $\frac{3}{64}$
	No. 12 U. S. Gauge— $\frac{1}{64}$
	No. 10 U. S. Gauge— $\frac{3}{64}$

#### Cutout Boxes and Cabinets with Hinged Doors and Screw Covers Types A, AX, AG and Screw Cover Pull Boxes

No. 16 gauge is used where no surface area exceeds 360 square inches and if no single dimension is over 24 inches.

No. 14 gauge is used where no surface area exceeds 1000 square inches and if no single dimension is over 40 inches.

No. 12 gauge is used where no surface area exceeds 1500 square inches and if no single dimension is over 60 inches.

No. 10 gauge is used for any cabinet larger than noted above.

#### Cutout Boxes and Cabinets with Removable Doors and Trims

No. 16 gauge box, No. 14 gauge trim, is required where no surface area exceeds 360 square inches and no single dimension is over 24 inches.

No. 14 gauge box, No. 12 gauge trim, is required where no surface area exceeds 1000 square inches and no single dimension is over 40 inches.

No. 12 gauge box, No. 12 gauge trim, is required where no surface area exceeds 1500 square inches and no single dimension is over 60 inches.

No. 10 gauge box, No. 10 gauge trim, is required for cabinets larger than noted above.

#### Hardware

The code requires that all cutout boxes and cabinets be provided with a catch. On the smaller Type A cabinets, a friction catch is permitted; on the smaller flush cabinets a turn catch is satisfactory, on the larger flush cabinets, a cupboard catch is best.

A lock may be used if desired but if furnished, must be in addition to the regular catch; a combined lock and catch may also be used in place of separate locks and catches.

Where single doors are over 48 inches high, they must have a three-point catch operated by a single knob or handle holding the doors closed at the center, top and bottom; where the door exceeds 24 inches in width, double doors must be provided, regardless of its height operated by a three-point catch.

#### Weatherproof Cabinets

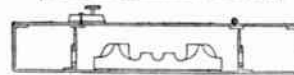
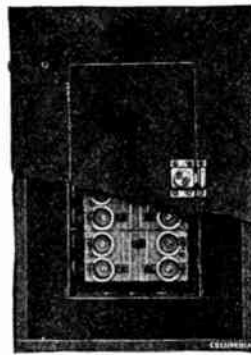
For wet location and outdoor service, cabinets and cutout boxes must be so designed and constructed that a beating rain or moisture running down conduits or wall will not allow water to enter. They must be provided with external fastenings for mounting. Hinges must be of cast metal or of sheet bronze. Threaded holes for conduits must be reinforced to provide metal at least  $\frac{1}{4}$  inch in thickness. Bushed holes for open wiring must not be located either in the top or back except when special hood fittings are provided, and when located in the sides must be formed to provide a downward direction for wires leaving the cabinet. Devices made of sheet metal lighter than No. 10 U. S. gauge must be galvanized by the hot dip process after forming and assembly. Cabinets and cutout boxes made of sheets No. 10 U. S. gauge in thickness or heavier need not be galvanized after forming and assembly, provided galvanized sheets are used and all cut edges are painted. Other materials must be treated to give protection from corrosion.

#### Gutters—All Types

Cutout boxes or cabinets containing cutouts or panelboards require separate wiring gutters where more than four circuits are connected in the cabinet, unless the wires enter the cabinet directly opposite the terminals.

## Columbia Guttered Type Cabinets

### For Flush and Surface Work



Type PSG  
For Surface—Exposed—Work

A recent ruling of the Underwriters' Code requires that all cabinets enclosing cutouts or panelboards over four circuits must have a gutter frame and side wiring spaces or back wiring space, unless the wires leave the cabinet directly opposite the terminals. To take care of this ruling, a line of cabinets has been designed which is the most complete of its kind and can be adapted to almost every kind of cut-out in common use.

In addition to those listed, cabinets can be furnished in special sizes to accommodate any style or make of cut-out.

The resourcefulness of cut-out manufacturers has brought upon the market several styles of cut-outs which, when mounted in a guttered cabinet, make the installation superior to that of a regular plate panelboard, with a considerable saving in cost.

### General Description of All Types

**CODE STANDARD.**—All cabinets listed are National Electrical Code Standard.

**GUTTERS.**—Cabinets for all cut-outs listed (except Perkins Dead Front Panel Switches) are equipped with steel gutter frames. These frames conceal the side wiring spaces and are provided with bushed holes opposite the terminals of the cut-outs and in the mains.

Both gutter frames and doors are made to allow for a three-inch wiring space around the cut-outs. Cabinets for Perkins Dead Front Panel Switches are especially made so that the cut-outs are mounted on bridges across the back of the cabinet, allowing a back wiring space underneath and around the cut-outs.

**HARDWARE.**—All cabinets are equipped with steel hinges and cupboard catches. Any style of hardware can be used if desired.

**CONDUIT DRILLING.**—All cabinets are provided with  $\frac{1}{2}$ -inch conduit knockouts on all sides, unless other conduit drilling is specified.

**FINISH.**—The standard finish is baked-on japan. If specified, olive green or white enamel can be furnished at an extra charge.

**DIRECTORY FRAMES.**—Directory frames will be supplied if mentioned on order, at an additional charge of \$2.00.

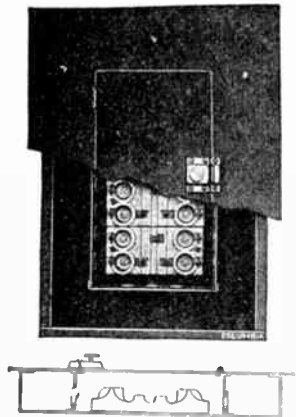
Cabinets up to 24 circuits are listed. Any size cabinet can be furnished to accommodate any number of circuits.

#### Type PSG

This type is a superior cabinet for surface work and is suitable for any kind of installation. The door and trim is removable and is without ornamentation.

#### Type PFG

This type is similar to Type PSG, except that it is designed for flush work.



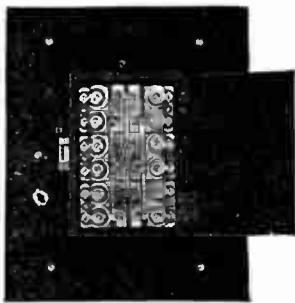
Type PFG  
For Flush—Concealed—Work



## Columbia Guttered Type Cabinets

For Flush and Surface Work

For 2 or 3-Wire Main Plug Cut-Outs  
Double-Pole, Double-Branch, with Side Gutter Frames



Cat. No.	Size Cabinet Inches	No. of Circuits	PRICE, EACH	
			Type PSG	Type PFG
901	10 1/2 x 13 1/2 x 3	2	\$10.80	\$10.80
902	13 1/2 x 13 1/2 x 3	4	11.60	11.60
903	16 1/2 x 13 1/2 x 3	6	12.40	12.40
904	19 1/2 x 13 1/2 x 3	8	13.20	13.20
905	22 1/2 x 13 1/2 x 3	10	14.00	14.00
906	25 1/2 x 13 1/2 x 3	12	16.40	16.40
907	28 1/2 x 13 1/2 x 3	14	17.60	17.60
908	31 1/2 x 13 1/2 x 3	16	18.80	18.80
909	35 1/2 x 13 1/2 x 3	18	20.00	20.00
910	38 1/2 x 13 1/2 x 3	20	21.20	21.20
924	41 1/2 x 13 1/2 x 3	22	22.40	22.40
925	44 1/2 x 13 1/2 x 3	24	23.60	23.60

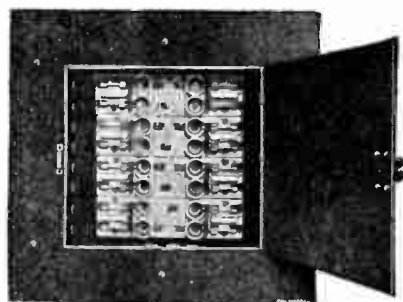
Prices do not include cut-outs. Other sizes can be made at proportionate prices. Give arrangement of cut-out and switches, size of gutter frame and cabinet. These cabinets are also made for any type of cut-out required.

When ordering, give number and specify type of cabinet wanted.

## Columbia Guttered Type Cabinets

For Flush and Surface Work

For 2 or 3-Wire Main Panel Switch Cut-Outs  
Double-Pole, Double-Branch, with Side Gutter Frames



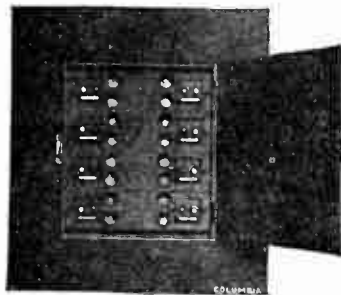
Cat. No.	Size Cabinet Inches	No. of Circuits	PRICE, EACH	
			Type PSG	Type PFG
911	10 1/2 x 21 x 4	2	\$13.60	\$13.60
912	13 1/2 x 21 x 4	4	15.20	15.20
913	16 1/2 x 21 x 4	6	16.80	16.80
914	19 1/2 x 21 x 4	8	20.00	20.00
915	22 1/2 x 21 x 4	10	22.00	22.00
916	25 1/2 x 21 x 4	12	24.00	24.00
917	28 1/2 x 21 x 4	14	26.00	26.00
918	31 1/2 x 21 x 4	16	28.00	28.00
919	35 1/2 x 21 x 4	18	30.00	30.00
920	38 1/2 x 21 x 4	20	32.00	32.00
921	41 1/2 x 21 x 4	22	34.00	34.00
922	44 1/2 x 21 x 4	24	36.00	36.00

Prices do not include cut-outs. Other sizes can be made at proportionate prices. Give arrangement of cut-out and switches, size of gutter frame and cabinet. These cabinets are also made for any type of cut-out required.

When ordering, give number and specify type of cabinet wanted.

## Columbia Guttered Type Cabinets

For Flush and Surface Work



For Perkins Panel  
Cut-Outs, Plug Fuses  
10 and 20 Amperes  
125 Volts

With dead fronts and push button switches, Bryant Nos. 2699, 2700, 2721, and 2725; with back wiring space.

FOR 2-WIRE  
MAIN CUT-OUTS  
Nos. 2699 AND 2724

FOR 3-WIRE  
MAIN CUT-OUTS  
Nos. 2700 AND 2725

Cat. No.	Size Cabinet Inches	No. of Cir.	PRICE, EACH	
			Type PSG	Type PFG
741	10 1/2 x 17 x 4	2	\$12.00	\$12.00
742	13 1/2 x 17 x 4	4	12.80	12.80
743	16 1/2 x 17 x 4	6	13.60	13.60
744	19 1/2 x 17 x 4	8	14.40	14.40
745	22 1/2 x 17 x 4	10	18.00	18.00
746	25 1/2 x 17 x 4	12	19.60	19.60
747	28 1/2 x 17 x 4	14	22.00	22.00
748	31 1/2 x 17 x 4	16	22.80	22.80
749	35 1/2 x 17 x 4	18	24.40	24.40
750	38 1/2 x 17 x 4	20	26.00	26.00
751	41 1/2 x 17 x 4	22	27.60	27.60
752	44 1/2 x 17 x 4	24	29.20	29.20

Prices do not include cut-outs. Other sizes can be made at proportionate prices. Give arrangement of cut-outs and switches, size of gutter frame and cabinet. These cabinets are also made in the above styles for any type of cut-out required.

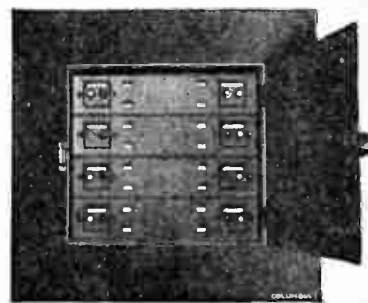
When ordering, specify type and give Cat. No. of cabinet wanted.

## Columbia Guttered Type Cabinets

For Flush and Surface Work

For Perkins Panel  
Cut-Outs, N.E.C. Fused  
10 and 20 Amperes  
250 Volts

With dead fronts and push button switches, Bryant Nos. 2685, 2686, 2727, and 2728; with back wiring space.



FOR 2-WIRE MAIN  
CUT-OUTS  
Nos. 2685 AND 2727

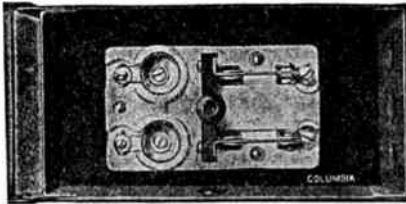
FOR 3-WIRE MAIN  
CUT-OUTS  
Nos. 2686 AND 2728

Cat. No.	Size Cabinet Inches	No. of Cir.	PRICE, EACH	
			Type PSG	Type PFG
841	10 1/2 x 20 x 4	2	\$13.60	\$13.60
842	13 1/2 x 20 x 4	4	15.20	15.20
843	16 1/2 x 20 x 4	6	16.80	16.80
844	19 1/2 x 20 x 4	8	20.00	20.00
845	22 1/2 x 20 x 4	10	22.00	22.00
846	25 1/2 x 20 x 4	12	24.00	24.00
847	28 1/2 x 20 x 4	14	26.00	26.00
848	31 1/2 x 20 x 4	16	28.00	28.00
849	35 1/2 x 20 x 4	18	30.00	30.00
850	38 1/2 x 20 x 4	20	32.00	32.00
851	41 1/2 x 20 x 4	22	34.00	34.00
852	44 1/2 x 20 x 4	24	36.00	36.00

Prices do not include cut-outs. Other sizes can be made at proportionate prices. Give arrangement of cut-outs and switches, size of gutter frame and cabinet. These cabinets are also made in the above styles for any type of cut-out required.

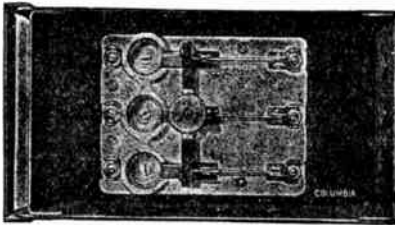
When ordering, specify type of cabinet and Cat. No.

**Columbia Metal Cabinet Sizes  
For 2-pole Plug Fused Entrance Switches**



The size of cabinet which is adapted for a two-pole, 125-volt plug fused entrance switch is 4½ inches wide, 9 inches long and 3½ inches deep.

**For 3-pole Plug Fused Entrance Switches**

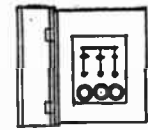


The size of cabinet which is adapted for a three-pole, 125-250-volt plug fused entrance switch is 6 inches wide, 11 inches long, and 3½ inches deep.

**Box Sizes Required for Wiring  
Steel Cabinets**



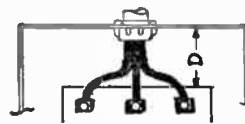
2-Pole



3-Pole

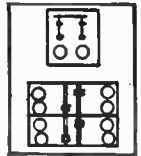
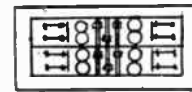
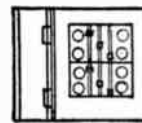
Two-pole fused entrance switch takes box 4½x9x3½.  
Three-pole fused entrance switch takes box 6x10x4.

**Underwriters' Required Clearance**



Amps.	Conduit Size	Size Wire	D Space Inches
100	1½	1	4½
200	2	3-0	5½
400	3	500,000 cm.	7
600	4	1,000,000 cm.	9

**Box Sizes Required for Cutouts**



**Columbia Metal Cabinet Sizes**

**For 2-pole Main Line Plug Cut-outs**

The size cabinet adapted for a two-pole main line plug cut-out is 4½ inches long, 5 inches wide and 3 inches deep.

**Columbia Metal Cabinet Sizes**

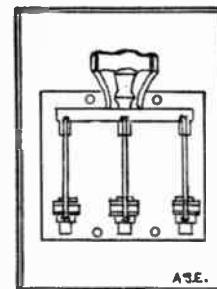
**For 3-pole Main Line Plug Cut-outs**

The size cabinet adapted for a three-pole main line plug cut-out is 6 inches long, 6 inches wide, and 3 inches deep.



Circuits	Box Size			
	Plug Cutouts 3 to 2-Wire Double Branch	Panel Cutouts 3 to 2-Wire Double Branch	Plug Cutouts 2 to 2-Wire Double Branch with Main Switch	Panel Cutouts 3 to 2-Wire Double Branch with Main Switch
2	4½x 8x3	6x15x4	8x12x4	12x15x4
4	8 x 8x3	8x15x4	8x15x4	15x15x4
6	8 x12x3	12x15x4	8x27x4	15x18x4
8	8 x15x3	15x15x4	8x30x4	15x21x4
10	8 x18x3	15x18x4	8x33x4	15x24x4
12	8 x21x3	15x21x4	8x40x5	15x37x4
14	8 x24x3	15x24x4	8x43x5	15x40x4
16	8 x27x3	15x27x4	8x46x5	15x43x4
18	8 x30x3	15x30x4	8x49x5	15x46x4

**Box Sizes Required for  
Types A and C 250-Volt D.C. or 500-Volt A.C.  
Knife Switches**



**Front Connections—Single Throw—Not Fused**

Capacity Amperes	DOUBLE-POL			3-POL			4-POL		
	W.	H.	D.	W.	H.	D.	W.	H.	D.
30	6	15	4	10	15	4	12	15	4
60	6	15	4	10	15	4	12	15	4
100	8	21	5	12	21	5	15	21	5
200	10	24	5	12	24	5	18	24	5
300	10	27	6	15	27	6	18	27	6
400	12	30	6	15	30	6	21	30	6
600	12	30	8	15	30	8	21	30	8

**Columbia Metal Cabinet Sizes  
For Double-pole Single Branch  
Plug Cut-outs**

No. of Circuits	SIZE BOX REQUIRED, INCHES		
	Length	Width	Depth
1	6	6	3
2	9	6	3
3	12	6	3
4	16	6	3
*5	18	6	3
*6	21	6	3
*7	24	6	3
*8	27	6	3
*9	30	6	3
*10	33	6	3

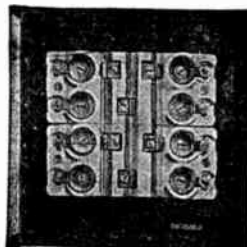
\*Approved only if the wires leave the

box directly opposite the terminals.

**For Double-pole Double  
Branch Plug Cut-outs  
2 or 3-wire Mains**

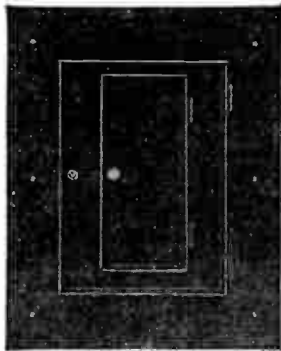
No. of Circuits	Size Box Required	No. of Circuits	Size Box Required
2	6x9x3	*12	21x9x3
4	9x9x3	*14	24x9x3
*6	12x9x3	*16	28x9x3
*8	15x9x3	*18	32x9x3
*10	18x9x3	...	.....

\*Approved only if the wires leave the box directly opposite the terminals.



## Crouse Hinds Panelboards

## General Specifications



Both Doors Closed

**BASES AND COPPER PARTS.**—The bases are made from selected natural black Monson slate. This slate is without flaws or metallic veins, and has very high insulating qualities. All copper parts are made of high grade, hard drawn copper of 98 per cent conductivity.



Small Door Open, Giving Access to Switches

**FINISH.**—The slate is furnished with a rubbed oil finish which gives a pleasing dead black appearance, and which, if marred or scratched, can easily be renewed by rubbing with an oily cloth. All exposed copper parts are polished and carefully lacquered except on contact surfaces.

**CONSTRUCTION.**—These panelboards are constructed not only to comply with but to exceed the requirements of the Underwriters' Laboratories, Inc., and bear their label.

**CIRCUIT CONNECTIONS.**—Two to two-wire panelboards are connected in the regular manner, adjacent poles of adjoining circuits being of the same polarity, but fed by separate circuit strips. Three to two-wire panelboards are connected for the Edison 3-wire system: that is, each branch circuit has one pole connected to the neutral busbar and the other pole connected to one of the two outside busbars. Three to two-wire panelboards can be arranged for 3-phase system distribution with the connections so made that the load is balanced on each phase as nearly as the number of circuits will permit.

**CIRCUIT STRIPS.**—Branch circuit strips are made of  $\frac{1}{2}$  by  $\frac{1}{16}$ -inch copper, formed in such a manner as to make direct connections to the main busbars, reducing the number of parts and contact joints to a minimum.

**CURRENT DENSITY.**—Current carrying parts are based upon a maximum current density of 1000 amperes per square inch cross section.

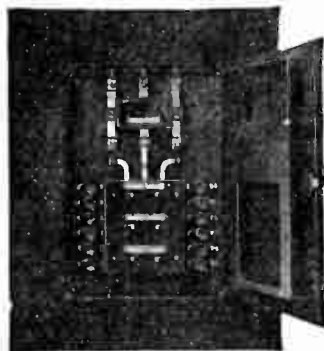
**CIRCUIT FUSE EQUIPMENT.**—All type A panelboards have the circuits equipped with clips for 1 to 30-ampere, cartridge fuses. These clips are formed from spring phosphor bronze. On some panelboards they are mounted on special composition bases.

All type D panelboards have the circuits equipped with receptacles for plug fuses. One of the receptacles is molded from special black composition. The others are porcelain with exposed surfaces black glazed. Each is fitted with a gilding metal screw shell. Complete receptacle includes housing, screw shell, brass pieces, and fastening screws.

## Crouse Hinds Panelboards

## General Specifications

Continued



Large Door Open, Giving Access to Fuses

**CIRCUIT SWITCHES.**—Knife switches are 30-ampere capacity equipped with substantial composition handles into which the blades are molded. Contact clips and hinge standards are each formed from one piece of  $\frac{1}{2}$ -inch by No. 16 gauge copper. The contact clips are flared at the top to insure proper entrance of the blades. Blades are made of  $\frac{1}{2}$ -inch by No. 12 gauge copper. Hinge joints are held under compression by spring washers and as the blades and contacts are ground in, a perfect contact is assured. Tumbler switches are 30-ampere, 250-volt. They consist of a special composition base on which is mounted the strong, positive, easy operating mechanism with indicating metal handle, and the heavy contact terminals comprising a sturdy, compact, durable unit with ample capacity to carry any reasonable overloads.

**CIRCUIT WIRE CONNECTORS.**—Phosphor bronze spring binding connectors especially designed to hold the circuit wires, can be furnished in place of binding nuts without extra charge, if specified. These connectors make positive contact and circuit wires can be connected quickly and easily without tools.

**CIRCUIT NUMBERS.**—The number of each circuit, except on safety panelboards, is shown by a white numeral inlaid on top of a black composition button which is firmly fastened to the base between terminals. On safety panelboards a double card holder is fastened to the steel switch cover just above the handles of each pair of switches. Ruled cards are supplied which are handy for lettering.

**MAIN SWITCHES.**—Main switches on all but types AT and DT safety panelboards are standard knife switches of substantial design and construction. They are equipped with special composition spade handles. Main switches on types AT and DT safety panelboards have laminated brush contacts and are quick break, double break, and non-retardable. They are simple and rugged in construction and will handle much more than their rated capacity. They are operated by a handle which projects through a shield that covers all other parts of the switch.

**SLATE FRAMES.**—Frames are made of oiled Monson slate  $\frac{1}{2}$ -inch thick and telescope or surround the panelboard. They are slotted for main feed and branch circuit wires and are held in position by adjustable corner brackets.

**CORNER BRACKETS.**—Adjustable corner brackets are made with a base section or panel clamp and an upright section or frame clamp. The panelboard rests on a part of the base sections which hold it  $\frac{3}{8}$  of an inch from the back of the box and it is held in position by set screws. The base sections have 2 elongated fastening holes to allow for adjustment and are held to the back of the box by 2 screws and large washers. The frame clamp sections are fastened to the base sections by a screw and the slate frame is held securely by tightening the wing nuts at each corner. The frame may be installed after the wiring is completed and it can be removed complete by taking out the screws, or it can be removed in sections after the trim is in place by taking off the wing nuts and inside clamp pieces.

**SHIPPING CLAMPS.**—When a panel board, slate frame and cabinet are shipped together, shipping clamps are provided to keep the panelboard and frame from jarring loose and causing breakage.

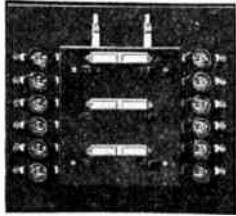
**Crouse-Hinds Safety Panels**

2-Wire, 125-Volt Mains

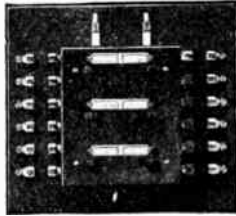
2-Wire, 125-Volt Branches with 30-Ampere Tumbler Switches and Plug Fuse Receptacles or Cartridge Fuse Terminals

**Types DT and AT**

With Main Lugs



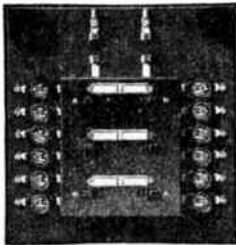
Type DT



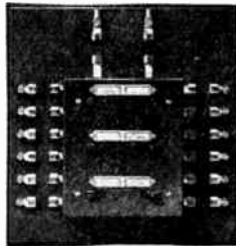
Type AT

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DT		Type AT			
PANEL WITH CABINET SURFACE	PANEL WITH CABINET FLUSH	PANEL WITH CABINET SURFACE	PANEL WITH CABINET FLUSH		
1242BMS	1242BFS	1002BMS	1002BFS	4	\$43.90
1243BMS	1243BFS	1003BMS	1003BFS	6	51.70
1244BMS	1244BFS	1004BMS	1004BFS	8	59.40
1245BMS	1245BFS	1005BMS	1005BFS	10	65.70
1246BMS	1246BFS	1006BMS	1006BFS	12	74.30
1247BMS	1247BFS	1007BMS	1007BFS	14	81.20
1248BMS	1248BFS	1008BMS	1008BFS	16	88.60
1249BMS	1249BFS	1009BMS	1009BFS	18	97.20
1250BMS	1250BFS	1010BMS	1010BFS	20	104.80
1251BMS	1251BFS	1011BMS	1011BFS	22	111.60
1252BMS	1252BFS	1012BMS	1012BFS	24	121.90
1253BMS	1253BFS	1013BMS	1013BFS	26	129.00
1254BMS	1254BFS	1014BMS	1014BFS	28	137.10

With Main Fuse Terminals



Type DT



Type AT

1262BMS	1262BFS	1022BMS	1022BFS	4	\$47.00
1263BMS	1263BFS	1023BMS	1023BFS	6	56.40
1264BMS	1264BFS	1024BMS	1024BFS	8	63.90
1265BMS	1265BFS	1025BMS	1025BFS	10	70.10
1266BMS	1266BFS	1026BMS	1026BFS	12	79.70
1267BMS	1267BFS	1027BMS	1027BFS	14	89.70
1268BMS	1268BFS	1028BMS	1028BFS	16	96.20
1269BMS	1269BFS	1029BMS	1029BFS	18	107.90
1270BMS	1270BFS	1030BMS	1030BFS	20	114.80
1271BMS	1271BFS	1031BMS	1031BFS	22	123.10
1272BMS	1272BFS	1032BMS	1032BFS	24	129.90
1273BMS	1273BFS	1033BMS	1033BFS	26	140.20
1274BMS	1274BFS	1034BMS	1034BFS	28	147.10

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Panels will be furnished with main connections at bottom, if so ordered, without change in price or size.

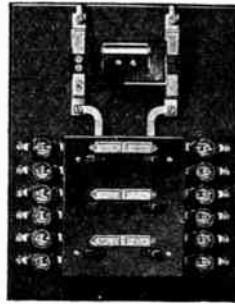
**Crouse-Hinds Safety Panels**

2-Wire, 125-Volt Mains

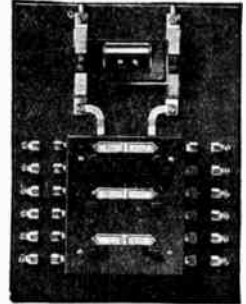
2-Wire, 125-Volt Branches with 30-Ampere Tumbler Switches and Plug Fuse Receptacles or Cartridge Fuse Terminals

**Types DT and AT**

With Main Fuseless Switch



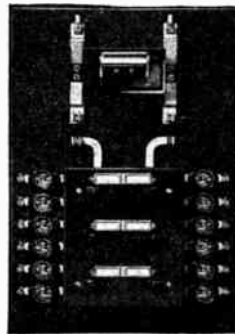
Type DT



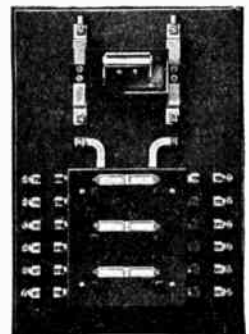
Type AT

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DT		Type AT			
PANEL WITH CABINET SURFACE	PANEL WITH CABINET FLUSH	PANEL WITH CABINET SURFACE	PANEL WITH CABINET FLUSH		
1282BMS	1282BFS	1042BMS	1042BFS	4	\$60.40
1283BMS	1283BFS	1043BMS	1043BFS	6	71.50
1284BMS	1284BFS	1044BMS	1044BFS	8	79.00
1285BMS	1285BFS	1045BMS	1045BFS	10	85.20
1286BMS	1286BFS	1046BMS	1046BFS	12	104.80
1287BMS	1287BFS	1047BMS	1047BFS	14	111.90
1288BMS	1288BFS	1048BMS	1048BFS	16	119.80
1289BMS	1289BFS	1049BMS	1049BFS	18	128.90
1290BMS	1290BFS	1050BMS	1050BFS	20	137.30
1291BMS	1291BFS	1051BMS	1051BFS	22	143.30
1292BMS	1292BFS	1052BMS	1052BFS	24	154.50
1293BMS	1293BFS	1053BMS	1053BFS	26	161.50
1294BMS	1294BFS	1054BMS	1054BFS	28	170.00

With Main Fusible Switch



Type DT



Type AT

1302BMS	1302BFS	1062BMS	1062BFS	4	\$62.70
1303BMS	1303BFS	1063BMS	1063BFS	6	75.50
1304BMS	1304BFS	1064BMS	1064BFS	8	83.10
1305BMS	1305BFS	1065BMS	1065BFS	10	91.50
1306BMS	1306BFS	1066BMS	1066BFS	12	110.40
1307BMS	1307BFS	1067BMS	1067BFS	14	121.10
1308BMS	1308BFS	1068BMS	1068BFS	16	128.90
1309BMS	1309BFS	1069BMS	1069BFS	18	138.60
1310BMS	1310BFS	1070BMS	1070BFS	20	147.60
1311BMS	1311BFS	1071BMS	1071BFS	22	156.00
1312BMS	1312BFS	1072BMS	1072BFS	24	163.00
1313BMS	1313BFS	1073BMS	1073BFS	26	171.70
1314BMS	1314BFS	1074BMS	1074BFS	28	178.90

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Panels will be furnished with main connections at bottom, if so ordered, without change in price or size.

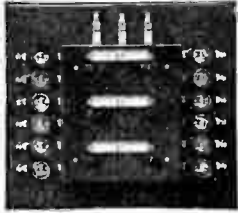
## Crouse-Hinds Safety Panels

3-Wire, 125-Volt Mains

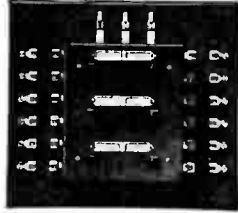
2-Wire, 125-Volt Branches with 30-Ampere Tumbler Switches and Plug Fuse Receptacles or Cartridge Fuse Terminals

### Types DT and AT

With Main Lugs



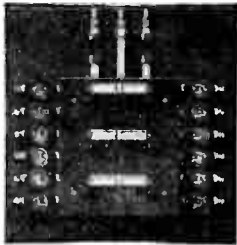
Type DT



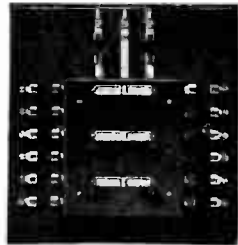
Type AT

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DT		Type AT			
PANEL WITH SURFACE	CABINET FLUSH	PANEL WITH SURFACE	CABINET FLUSH		
1322BMS	1322BFS	1082BMS	1082BFS	4	\$43.40
1323BMS	1323BFS	1083BMS	1083BFS	6	51.80
1324BMS	1324BFS	1084BMS	1084BFS	8	58.80
1325BMS	1325BFS	1085BMS	1085BFS	10	66.50
1326BMS	1326BFS	1086BMS	1086BFS	12	73.20
1327BMS	1327BFS	1087BMS	1087BFS	14	82.00
1328BMS	1328BFS	1088BMS	1088BFS	16	89.80
1329BMS	1329BFS	1089BMS	1089BFS	18	98.50
1330BMS	1330BFS	1090BMS	1090BFS	20	106.30
1331BMS	1331BFS	1091BMS	1091BFS	22	113.10
1332BMS	1332BFS	1092BMS	1092BFS	24	123.70
1333BMS	1333BFS	1093BMS	1093BFS	26	130.80
1334BMS	1334BFS	1094BMS	1094BFS	28	138.90

With Main Fuse Terminals



Type DT



Type AT

1342BMS	1342BFS	1102BMS	1102BFS	4	\$46.50
1343BMS	1343BFS	1103BMS	1103BFS	6	55.10
1344BMS	1344BFS	1104BMS	1104BFS	8	63.00
1345BMS	1345BFS	1105BMS	1105BFS	10	70.60
1346BMS	1346BFS	1106BMS	1106BFS	12	77.60
1347BMS	1347BFS	1107BMS	1107BFS	14	89.60
1348BMS	1348BFS	1108BMS	1108BFS	16	97.40
1349BMS	1349BFS	1109BMS	1109BFS	18	104.10
1350BMS	1350BFS	1110BMS	1110BFS	20	114.70
1351BMS	1351BFS	1111BMS	1111BFS	22	123.20
1352BMS	1352BFS	1112BMS	1112BFS	24	131.50
1353BMS	1353BFS	1113BMS	1113BFS	26	140.50
1354BMS	1354BFS	1114BMS	1114BFS	28	148.70

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Panels will be furnished with main connections at bottom, if so ordered, without change in price or size.

## Crouse-Hinds Safety Panels

3-Wire, 125-Volt Mains

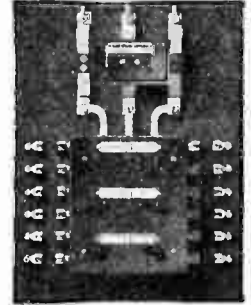
2-Wire, 125-Volt Branches with 30-Ampere Tumbler Switches and Plug Fuse Receptacles or Cartridge Fuse Terminals

### Types DT and AT

With Main Fuseless Switch



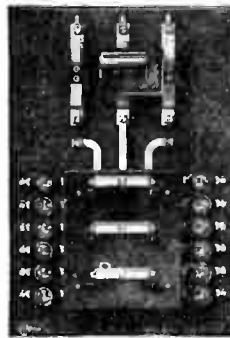
Type DT



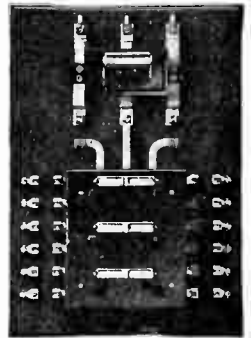
Type AT

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DT		Type AT			
PANEL WITH SURFACE	CABINET FLUSH	PANEL WITH SURFACE	CABINET FLUSH		
1362BMS	1362BFS	1122BMS	1122BFS	4	\$63.50
1363BMS	1363BFS	1123BMS	1123BFS	6	72.10
1364BMS	1364BFS	1124BMS	1124BFS	8	79.90
1365BMS	1365BFS	1125BMS	1125BFS	10	86.50
1366BMS	1366BFS	1126BMS	1126BFS	12	94.60
1367BMS	1367BFS	1127BMS	1127BFS	14	110.20
1368BMS	1368BFS	1128BMS	1128BFS	16	118.00
1369BMS	1369BFS	1129BMS	1129BFS	18	124.70
1370BMS	1370BFS	1130BMS	1130BFS	20	135.30
1371BMS	1371BFS	1131BMS	1131BFS	22	141.10
1372BMS	1372BFS	1132BMS	1132BFS	24	149.40
1373BMS	1373BFS	1133BMS	1133BFS	26	158.40
1374BMS	1374BFS	1134BMS	1134BFS	28	166.60

With Main Fusible Switch



Type DT



Type AT

1382BMS	1382BFS	1142BMS	1142BFS	4	\$65.60
1383BMS	1383BFS	1143BMS	1143BFS	6	75.10
1384BMS	1384BFS	1144BMS	1144BFS	8	82.80
1385BMS	1385BFS	1145BMS	1145BFS	10	89.50
1386BMS	1386BFS	1146BMS	1146BFS	12	99.70
1387BMS	1387BFS	1147BMS	1147BFS	14	115.20
1388BMS	1388BFS	1148BMS	1148BFS	16	125.80
1389BMS	1389BFS	1149BMS	1149BFS	18	133.80
1390BMS	1390BFS	1150BMS	1150BFS	20	141.10
1391BMS	1391BFS	1151BMS	1151BFS	22	147.00
1392BMS	1392BFS	1152BMS	1152BFS	24	159.90
1393BMS	1393BFS	1153BMS	1153BFS	26	167.00
1394BMS	1394BFS	1154BMS	1154BFS	28	175.30

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Panels will be furnished with main connections at bottom, if so ordered, without change in price or size.



**Crouse-Hinds Safety Panels**

2-Wire, 250-Volt Mains

2-Wire, 250-Volt Branches with 30-Ampere Tumbler Switches and Cartridge Fuse Terminals

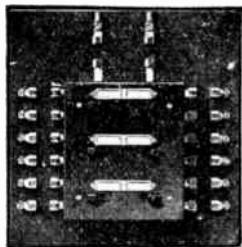
**Type AT**

With Main Lugs



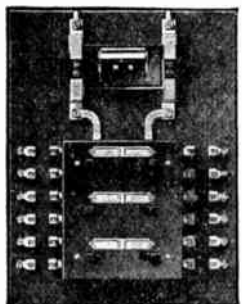
CATALOGUE NUMBERS PANEL WITH CABINET Surface	Flush	No. of Branch Circuits	*Price Each
1162BMS	1162BFS	4	\$43.90
1163BMS	1163BFS	6	51.50
1164BMS	1164BFS	8	58.30
1165BMS	1165BFS	10	65.80
1166BMS	1166BFS	12	72.60
1167BMS	1167BFS	14	81.00
1168BMS	1168BFS	16	88.50
1169BMS	1169BFS	18	97.40
1170BMS	1170BFS	20	105.30
1171BMS	1171BFS	22	112.20
1172BMS	1172BFS	24	122.90
1173BMS	1173BFS	26	129.80
1174BMS	1174BFS	28	138.10

With Main Fuse Terminals



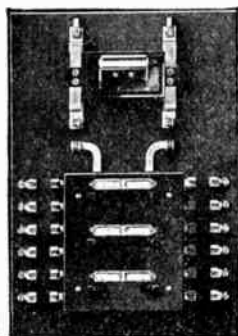
1182BMS	1182BFS	4	\$47.00
1183BMS	1183BFS	6	55.00
1184BMS	1184BFS	8	61.70
1185BMS	1185BFS	10	69.10
1186BMS	1186BFS	12	76.10
1187BMS	1187BFS	14	87.70
1188BMS	1188BFS	16	95.20
1189BMS	1189BFS	18	102.10
1190BMS	1190BFS	20	112.80
1191BMS	1191BFS	22	120.90
1192BMS	1192BFS	24	129.20
1193BMS	1193BFS	26	138.10
1194BMS	1194BFS	28	146.50

With Main Fuseless Switch



1202BMS	1202BFS	4	\$59.80
1203BMS	1203BFS	6	67.30
1204BMS	1204BFS	8	74.90
1205BMS	1205BFS	10	81.30
1206BMS	1206BFS	12	89.40
1207BMS	1207BFS	14	103.70
1208BMS	1208BFS	16	110.30
1209BMS	1209BFS	18	117.20
1210BMS	1210BFS	20	127.90
1211BMS	1211BFS	22	135.40
1212BMS	1212BFS	24	142.50
1213BMS	1213BFS	26	152.70
1214BMS	1214BFS	28	159.80

With Main Fusible Switch



1222BMS	1222BFS	4	\$62.10
1223BMS	1223BFS	6	70.80
1224BMS	1224BFS	8	77.10
1225BMS	1225BFS	10	84.60
1226BMS	1226BFS	12	93.80
1227BMS	1227BFS	14	110.60
1228BMS	1228BFS	16	117.40
1229BMS	1229BFS	18	125.80
1230BMS	1230BFS	20	133.00
1231BMS	1231BFS	22	144.30
1232BMS	1232BFS	24	151.40
1233BMS	1233BFS	26	159.70
1234BMS	1234BFS	28	166.90

\*Prices include panel, slate frame, box and trim complete.  
 Prices for panels with through feeds or meter loops will be furnished upon request.  
 Prices do not include fuses.  
 Panels will be furnished with main connections at bottom, if so ordered, without change in price or size.

**Crouse-Hinds Safety Panels**

2-Wire 125-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Plug Fuse Terminals or Cartridge Fuse Terminals

**Types D and A**

With Main Lugs



Type D



Type A

Type D		Type A		No. of Branch Circuits	*Price Each
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
1642BM	1642BF	1402BM	1402BF	4	\$22.80
1643BM	1643BF	1403BM	1403BF	6	27.70
1644BM	1644BF	1404BM	1404BF	8	30.60
1645BM	1645BF	1405BM	1405BF	10	34.10
1646BM	1646BF	1406BM	1406BF	12	38.20
1647BM	1647BF	1407BM	1407BF	14	41.50
1648BM	1648BF	1408BM	1408BF	16	45.10
1649BM	1649BF	1409BM	1409BF	18	47.90
1650BM	1650BF	1410BM	1410BF	20	51.80
1651BM	1651BF	1411BM	1411BF	22	55.20
1652BM	1652BF	1412BM	1412BF	24	61.60
1653BM	1653BF	1413BM	1413BF	26	64.90
1654BM	1654BF	1414BM	1414BF	28	68.80

With Main Fuse Terminals



Type D



Type A

1662BM	1662BF	1422BM	1422BF	4	\$25.70
1663BM	1663BF	1423BM	1423BF	6	31.80
1664BM	1664BF	1424BM	1424BF	8	34.60
1665BM	1665BF	1425BM	1425BF	10	38.10
1666BM	1666BF	1426BM	1426BF	12	43.20
1667BM	1667BF	1427BM	1427BF	14	47.30
1668BM	1668BF	1428BM	1428BF	16	50.20
1669BM	1669BF	1429BM	1429BF	18	58.60
1670BM	1670BF	1430BM	1430BF	20	61.40
1671BM	1671BF	1431BM	1431BF	22	65.60
1672BM	1672BF	1432BM	1432BF	24	68.50
1673BM	1673BF	1433BM	1433BF	26	72.70
1674BM	1674BF	1434BM	1434BF	28	75.70

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.



## Crouse-Hinds Safety Panels

2-Wire, 125-Volt Mains

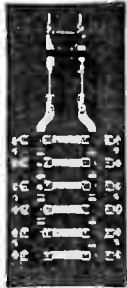
2-Wire, 125-Volt Branches with 30-Ampere Plug Fuse Terminals or Cartridge Fuse Terminals

### Types D and A

With Main Fuseless Switch



Type D



Type A

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type D		Type A			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
1682BM	1682BF	1442BM	1442BF	4	\$30.60
1683BM	1683BF	1443BM	1443BF	6	40.70
1684BM	1684BF	1444BM	1444BF	8	44.40
1685BM	1685BF	1445BM	1445BF	10	47.10
1686BM	1686BF	1446BM	1446BF	12	56.60
1687BM	1687BF	1447BM	1447BF	14	61.00
1988BM	1688BF	1448BM	1448BF	16	67.00
1689BM	1689BF	1449BM	1449BF	18	71.30
1690BM	1690BF	1450BM	1450BF	20	74.60
1691BM	1691BF	1451BM	1451BF	22	79.20
1692BM	1692BF	1452BM	1452BF	24	82.30
1693BM	1693BF	1453BM	1453BF	26	86.80
1694BM	1694BF	1454BM	1454BF	28	90.00

## Crouse-Hinds Safety Panels

3-Wire, 125-Volt Mains

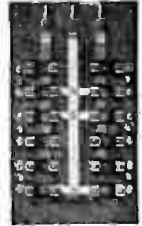
2-Wire, 125-Volt Branches with 30-Ampere Plug Fuse Terminals or Cartridge Fuse Terminals

### Types D and A

With Main Lugs



Type D



Type A

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type D		Type A			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
1722BM	1722BF	1482BM	1482BF	4	\$23.30
1723BM	1723BF	1483BM	1483BF	6	27.10
1724BM	1724BF	1484BM	1484BF	8	30.20
1725BM	1725BF	1485BM	1485BF	10	31.10
1726BM	1726BF	1486BM	1486BF	12	37.30
1727BM	1727BF	1487BM	1487BF	14	42.50
1728BM	1728BF	1488BM	1488BF	16	45.80
1729BM	1729BF	1489BM	1489BF	18	49.50
1730BM	1730BF	1490BM	1490BF	20	52.80
1731BM	1731BF	1491BM	1491BF	22	60.40
1732BM	1732BF	1492BM	1492BF	24	63.40
1733BM	1733BF	1493BM	1493BF	26	67.60
1734BM	1734BF	1494BM	1494BF	28	70.60

With Main Fusible Switch



Type D



Type A

1702BM	1702BF	1462BM	1462BF	4	\$32.70
1703BM	1703BF	1463BM	1463BF	6	44.40
1704BM	1704BF	1464BM	1464BF	8	48.20
1705BM	1705BF	1465BM	1465BF	10	51.10
1706BM	1706BF	1466BM	1466BF	12	66.50
1707BM	1707BF	1467BM	1467BF	14	70.10
1708BM	1708BF	1468BM	1468BF	16	74.40
1709BM	1709BF	1469BM	1469BF	18	79.10
1710BM	1710BF	1470BM	1470BF	20	83.20
1711BM	1711BF	1471BM	1471BF	22	86.80
1712BM	1712BF	1472BM	1472BF	24	91.10
1713BM	1713BF	1473BM	1473BF	26	94.50
1714BM	1714BF	1474BM	1474BF	28	99.00

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

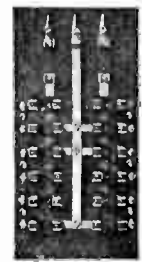
Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

With Main Fuse Terminals



Type D



Type A

1742BM	1742BF	1502BM	1502BF	4	\$26.20
1743BM	1743BF	1503BM	1503BF	6	30.90
1744BM	1744BF	1504BM	1504BF	8	34.00
1745BM	1745BF	1505BM	1505BF	10	37.90
1746BM	1746BF	1506BM	1506BF	12	41.50
1747BM	1747BF	1507BM	1507BF	14	48.10
1748BM	1748BF	1508BM	1508BF	16	51.40
1749BM	1749BF	1509BM	1509BF	18	58.30
1750BM	1750BF	1510BM	1510BF	20	61.30
1751BM	1751BF	1511BM	1511BF	22	66.90
1752BM	1752BF	1512BM	1512BF	24	70.10
1753BM	1753BF	1513BM	1513BF	26	74.30
1754BM	1754BF	1514BM	1514BF	28	77.30

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

**Crouse-Hinds Safety Panels**

3-Wire, 125-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Plug Fuse Terminals or Cartridge Fuse Terminals

**Types D and A**

With Main Fuseless Switch



Type D



Type A

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type D		Type A			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
1762BM	1762BF	1522BM	1522BF	4	\$32.70
1763BM	1763BF	1523BM	1523BF	6	37.50
1764BM	1764BF	1524BM	1524BF	8	40.60
1765BM	1765BF	1525BM	1525BF	10	44.50
1766BM	1766BF	1526BM	1526BF	12	49.50
1767BM	1767BF	1527BM	1527BF	14	60.80
1768BM	1768BF	1528BM	1528BF	16	65.10
1769BM	1769BF	1529BM	1529BF	18	71.00
1770BM	1770BF	1530BM	1530BF	20	75.10
1771BM	1771BF	1531BM	1531BF	22	77.10
1772BM	1772BF	1532BM	1532BF	24	81.30
1773BM	1773BF	1533BM	1533BF	26	84.60
1774BM	1774BF	1534BM	1534BF	28	88.60

With Main Fusible Switch



Type D



Type A

1782BM	1782BF	1542BM	1542BF	4	\$34.80
1783BM	1783BF	1543BM	1543BF	6	39.60
1784BM	1784BF	1544BM	1544BF	8	43.50
1785BM	1785BF	1545BM	1545BF	10	46.60
1786BM	1786BF	1546BM	1546BF	12	52.30
1787BM	1787BF	1547BM	1547BF	14	68.50
1788BM	1788BF	1548BM	1548BF	16	72.60
1789BM	1789BF	1549BM	1549BF	18	75.70
1790BM	1790BF	1550BM	1550BF	20	79.90
1791BM	1791BF	1551BM	1551BF	22	84.60
1792BM	1792BF	1552BM	1552BF	24	88.80
1793BM	1793BF	1553BM	1553BF	26	92.20
1794BM	1794BF	1554BM	1554BF	28	96.30

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

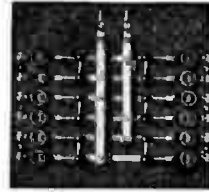
**Crouse-Hinds Safety Panels**

2-Wire, 125-Volt Mains

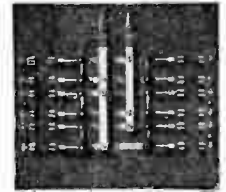
2-Wire, 125-Volt Branches with 30-Ampere Knife Switches and Plug Fuse or Cartridge Fuse Terminals

**Types DK and AK**

With Main Lugs



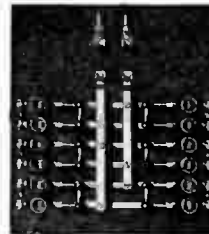
Type DK



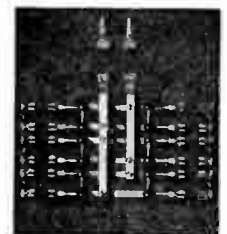
Type AK

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DK		Type AK			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
2042BM	2042BF	1802BM	1802BF	4	\$30.00
2043BM	2043BF	1803BM	1803BF	6	35.30
2044BM	2044BF	1804BM	1804BF	8	40.50
2045BM	2045BF	1805BM	1805BF	10	44.20
2046BM	2046BF	1806BM	1806BF	12	50.10
2047BM	2047BF	1807BM	1807BF	14	54.60
2048BM	2048BF	1808BM	1808BF	16	59.50
2049BM	2049BF	1809BM	1809BF	18	63.50
2050BM	2050BF	1810BM	1810BF	20	68.50
2051BM	2051BF	1811BM	1811BF	22	72.90
2052BM	2052BF	1812BM	1812BF	24	80.60
2053BM	2053BF	1813BM	1813BF	26	85.10
2054BM	2054BF	1814BM	1814BF	28	90.50

With Main Fuse Terminals



Type DK



Type AK

2062BM	2062BF	1822BM	1822BF	4	\$33.10
2063BM	2063BF	1823BM	1823BF	6	39.90
2064BM	2064BF	1824BM	1824BF	8	44.70
2065BM	2065BF	1825BM	1825BF	10	48.50
2066BM	2066BF	1826BM	1826BF	12	55.60
2067BM	2067BF	1827BM	1827BF	14	61.00
2068BM	2068BF	1828BM	1828BF	16	64.90
2069BM	2069BF	1829BM	1829BF	18	74.20
2070BM	2070BF	1830BM	1830BF	20	78.50
2071BM	2071BF	1831BM	1831BF	22	84.10
2072BM	2072BF	1832BM	1832BF	24	88.30
2073BM	2073BF	1833BM	1833BF	26	94.00
2074BM	2074BF	1834BM	1834BF	28	98.30

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

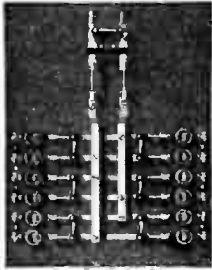
## Crouse-Hinds Safety Panels

2-Wire, 125-Volt Mains

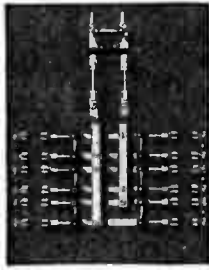
2-Wire, 125-Volt Branches with 30-Ampere Knife Switches and Plug Fuse or Cartridge Fuse Terminals

### Types DK and AK

With Main Fuseless Switch



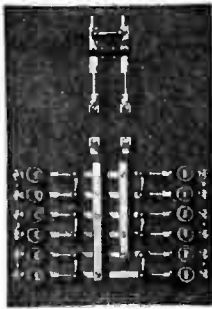
Type DK



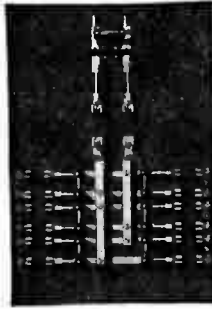
Type AK

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DK		Type AK			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
2082BM	2082BF	1842BM	1842BF	4	\$38.50
2083BM	2083BF	1843BM	1843BF	6	47.80
2084BM	2084BF	1844BM	1844BF	8	52.70
2085BM	2085BF	1845BM	1845BF	10	56.50
2086BM	2086BF	1846BM	1846BF	12	67.30
2087BM	2087BF	1847BM	1847BF	14	73.60
2088BM	2088BF	1848BM	1848BF	16	79.70
2089BM	2089BF	1849BM	1849BF	18	85.50
2090BM	2090BF	1850BM	1850BF	20	89.90
2091BM	2091BF	1851BM	1851BF	22	95.80
2092BM	2092BF	1852BM	1852BF	24	100.00
2093BM	2093BF	1853BM	1853BF	26	105.90
2094BM	2094BF	1854BM	1854BF	28	110.40

With Main Fusible Switch



Type DK



Type AK

2102BM	2102BF	1862BM	1862BF	4	\$40.70
2103BM	2103BF	1863BM	1863BF	6	51.80
2104BM	2104BF	1864BM	1864BF	8	56.90
2105BM	2105BF	1865BM	1865BF	10	60.70
2106BM	2106BF	1866BM	1866BF	12	77.50
2107BM	2107BF	1867BM	1867BF	14	82.30
2108BM	2108BF	1868BM	1868BF	16	87.80
2109BM	2109BF	1869BM	1869BF	18	93.80
2110BM	2110BF	1870BM	1870BF	20	99.40
2111BM	2111BF	1871BM	1871BF	22	104.00
2112BM	2112BF	1872BM	1872BF	24	109.80
2113BM	2113BF	1873BM	1873BF	26	114.40
2114BM	2114BF	1874BM	1874BF	28	120.60

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

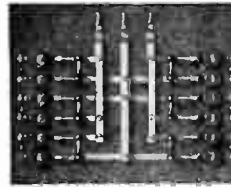
## Crouse-Hinds Safety Panels

3-Wire, 125-Volt Mains

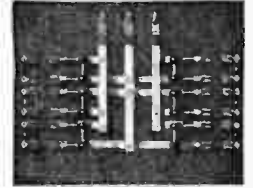
2-Wire, 125-Volt Branches with 30-Ampere Knife Switches and Plug Fuse or Cartridge Fuse Terminals

### Types DK and AK

With Main Lugs



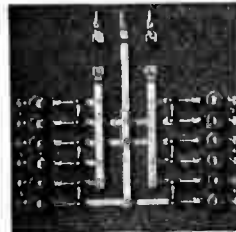
Type DK



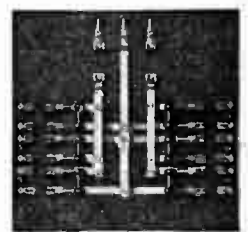
Type AK

CATALOGUE NUMBERS						No. of Branch Circuits	*Price Each
Type DK		Type AK					
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush				
2122BM	2122BF	1882BM	1882BF	4	\$30.60		
2123BM	2123BF	1883BM	1883BF	6	35.80		
2124BM	2124BF	1884BM	1884BF	8	41.20		
2125BM	2125BF	1885BM	1885BF	10	46.30		
2126BM	2126BF	1886BM	1886BF	12	50.40		
2127BM	2127BF	1887BM	1887BF	14	57.00		
2128BM	2128BF	1888BM	1888BF	16	62.30		
2129BM	2129BF	1889BM	1889BF	18	66.50		
2130BM	2130BF	1890BM	1890BF	20	71.90		
2131BM	2131BF	1891BM	1891BF	22	76.40		
2132BM	2132BF	1892BM	1892BF	24	84.60		
2133BM	2133BF	1893BM	1893BF	26	89.10		
2134BM	2134BF	1894BM	1894BF	28	94.90		

With Main Fuse Terminals



Type DK



Type AK

2142BM	2142BF	1902BM	1902BF	4	\$34.20
2143BM	2143BF	1903BM	1903BF	6	38.90
2144BM	2144BF	1904BM	1904BF	8	45.30
2145BM	2145BF	1905BM	1905BF	10	50.50
2146BM	2146BF	1906BM	1906BF	12	55.10
2147BM	2147BF	1907BM	1907BF	14	62.60
2148BM	2148BF	1908BM	1908BF	16	68.00
2149BM	2149BF	1909BM	1909BF	18	72.40
2150BM	2150BF	1910BM	1910BF	20	80.60
2151BM	2151BF	1911BM	1911BF	22	86.50
2152BM	2152BF	1912BM	1912BF	24	92.50
2153BM	2153BF	1913BM	1913BF	26	97.00
2154BM	2154BF	1914BM	1914BF	28	102.50

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

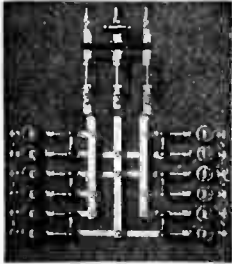
**Crouse-Hinds Safety Panels**

3-Wire, 125-Volt Mains

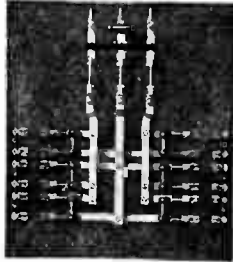
2-Wire, 125-Volt Branches with 30-Ampere Knife Switches and Plug Fuse or Cartridge Fuse Terminals

**Types DK and AK**

With Main Fuseless Switch



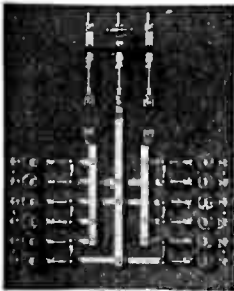
Type DK



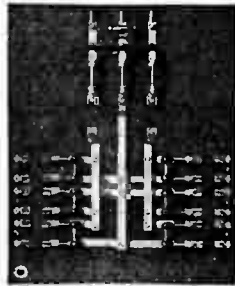
Type AK

CATALOGUE NUMBERS				No. of Branch Circuits	*Price Each
Type DK		Type AK			
PANEL WITH CABINET Surface	Flush	PANEL WITH CABINET Surface	Flush		
2162BM	2162BF	1922BM	1922BF	4	\$39.90
2163BM	2163BF	1923BM	1923BF	6	46.90
2164BM	2164BF	1924BM	1924BF	8	52.30
2165BM	2165BF	1925BM	1925BF	10	56.50
2166BM	2166BF	1926BM	1926BF	12	62.10
2167BM	2167BF	1927BM	1927BF	14	74.10
2168BM	2168BF	1928BM	1928BF	16	79.80
2169BM	2169BF	1929BM	1929BF	18	86.50
2170BM	2170BF	1930BM	1930BF	20	92.40
2171BM	2171BF	1931BM	1931BF	22	95.70
2172BM	2172BF	1932BM	1932BF	24	101.00
2173BM	2173BF	1933BM	1933BF	26	105.90
2174BM	2174BF	1934BM	1934BF	28	111.60

With Main Fusible Switch



Type DK



Type AK

2182BM	2182BF	1942BM	1942BF	4	\$42.90
2183BM	2183BF	1943BM	1943BF	6	49.80
2184BM	2184BF	1944BM	1944BF	8	55.30
2185BM	2185BF	1945BM	1945BF	10	59.60
2186BM	2186BF	1946BM	1946BF	12	65.20
2187BM	2187BF	1947BM	1947BF	14	82.10
2188BM	2188BF	1948BM	1948BF	16	87.90
2189BM	2189BF	1949BM	1949BF	18	92.40
2190BM	2190BF	1950BM	1950BF	20	98.30
2191BM	2191BF	1951BM	1951BF	22	104.00
2192BM	2192BF	1952BM	1952BF	24	109.90
2193BM	2193BF	1953BM	1953BF	26	114.50
2194BM	2194BF	1954BM	1954BF	28	120.50

\*Prices include panel, slate frame, box and trim complete.

Prices for panels with through feeds or meter loops will be furnished upon request.

Prices do not include fuses.

Main lugs or fuse terminals can be furnished at bottom of panel, if so ordered, without change in price or size.

**Crouse-Hinds Safety Panels**

3-Wire, 125-Volt Mains

2-Wire, 125-Volt Branches

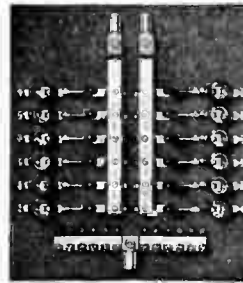
**Type G**

With 30-Ampere Plug Fuse Terminals



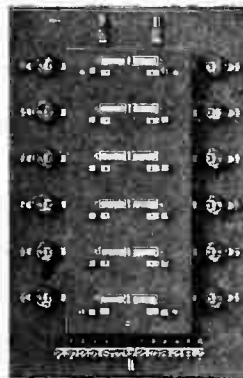
CAT. NO. PANEL WITH CABINET		No. of Branch Circuits	*Price Each
Surface	Flush		
2262BM	2262BF	4	\$20.90
2263BM	2263BF	6	23.30
2264BM	2264BF	8	26.30
2265BM	2265BF	10	28.60
2266BM	2266BF	12	31.00
2267BM	2267BF	14	35.20
2268BM	2268BF	16	37.50
2269BM	2269BF	18	39.70
2270BM	2270BF	20	42.00
2271BM	2271BF	22	45.60
2272BM	2272BF	24	48.00
2273BM	2273BF	26	50.50
2274BM	2274BF	28	53.90

With 30-Ampere Knife Switches and Plug Fuse Terminals



2282BM	2282BF	4	\$26.80
2283BM	2283BF	6	31.10
2284BM	2284BF	8	34.50
2285BM	2285BF	10	37.70
2286BM	2286BF	12	40.10
2287BM	2287BF	14	46.50
2288BM	2288BF	16	49.90
2289BM	2289BF	18	53.10
2290BM	2290BF	20	56.50
2291BM	2291BF	22	59.90
2292BM	2292BF	24	63.40
2293BM	2293BF	26	67.80
2294BM	2294BF	28	71.10

With 30-Ampere Tumbler Switches and Plug Fuse Terminals



2302BM	2302BF	4	\$41.20
2303BM	2303BF	6	47.70
2304BM	2304BF	8	53.40
2305BM	2305BF	10	59.10
2306BM	2306BF	12	64.80
2307BM	2307BF	14	72.60
2308BM	2308BF	16	78.30
2309BM	2309BF	18	83.70
2310BM	2310BF	20	89.40
2311BM	2311BF	22	98.10
2312BM	2312BF	24	103.80
2313BM	2313BF	26	110.50
2314BM	2314BF	28	119.60

\*Prices include panel, slate frame, steel box and trim complete.

Prices do not include fuses.

Type G Single Fuse Panels are listed here with plug fuse receptacles in circuits, but can be furnished with cartridge fuse terminals, if so ordered, without change in price or size. Also listed with main lugs only but can be furnished with main fuse terminals or switch, if so specified.

## Crouse-Hinds Safety Panels

2-Wire, 125-Volt Mains  
2-Wire, 125-Volt Branches

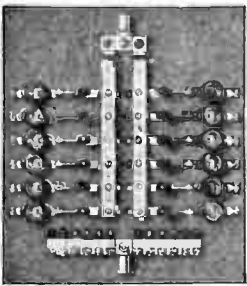
### Type G

With 30-Ampere Plug Fuse Terminals



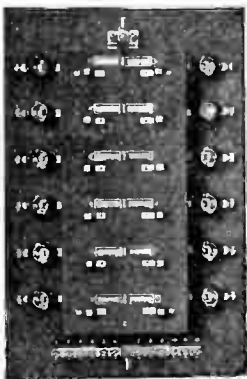
CAT. NO. PANEL WITH CABINET		No. of Branch Circuits	*Price Each
Surface	Flush		
2202BM	2202BF	4	\$20.40
2203BM	2203BF	6	23.80
2204BM	2204BF	8	25.90
2205BM	2205BF	10	27.90
2206BM	2206BF	12	32.50
2207BM	2207BF	14	35.10
2208BM	2208BF	16	37.10
2209BM	2209BF	18	40.20
2210BM	2210BF	20	42.50
2211BM	2211BF	22	45.20
2212BM	2212BF	24	47.40
2213BM	2213BF	26	50.00
2214BM	2214BF	28	53.50

With 30-Ampere Knife Switches and Plug Fuse Terminals



2222BM	2222BF	4	\$27.30
2223BM	2223BF	6	31.80
2224BM	2224BF	8	34.90
2225BM	2225BF	10	36.90
2226BM	2226BF	12	41.90
2227BM	2227BF	14	45.70
2228BM	2228BF	16	48.70
2229BM	2229BF	18	51.80
2230BM	2230BF	20	55.00
2231BM	2231BF	22	58.40
2232BM	2232BF	24	61.60
2233BM	2233BF	26	66.00
2234BM	2234BF	28	69.30

With 30-Ampere Tumbler Switches and Plug Fuse Terminals



2242BM	2242BF	4	\$41.70
2243BM	2243BF	6	48.40
2244BM	2244BF	8	54.00
2245BM	2245BF	10	59.30
2246BM	2246BF	12	65.90
2247BM	2247BF	14	71.80
2248BM	2248BF	16	77.10
2249BM	2249BF	18	82.40
2250BM	2250BF	20	87.90
2251BM	2251BF	22	96.60
2252BM	2252BF	24	102.00
2253BM	2253BF	25	108.70
2254BM	2254BF	28	116.80

\*Prices include panel, slate frame, steel box and trim complete.

Prices do not include fuses.

Type G Single Fuse Panels are listed here with plug fuse receptacles in circuits, but can be furnished with cartridge fuse terminals, if so ordered, without change in price or size. Also listed with main lugs only but can be furnished with main fuse terminals or switch, if so specified.

## Benjamin-Starrett Panel Boards and Cabinets

### Standard Galvanized Steel Boxes

**CONSTRUCTION.**—One piece of code gauge galvanized steel, over-lapped and riveted at corners with  $\frac{3}{4}$ -inch flange turned inwardly all around outside edges. This flange adds materially to the rigidity of the construction.

**GUTTER SPACE.**—All boxes for standard panel boards have 4-inch gutter space.

**DEPTH.**—Standard steel boxes are made deep enough to allow  $\frac{1}{8}$ -inch clear space back of panel boards and not less than  $\frac{1}{2}$ -inch clear space between door and current carrying parts on panel boards.

**DRILLING AND KNOCKOUTS.**—Boxes will be drilled for conduits without extra charge provided complete drilling information accompanies order. This information must be available before work can be commenced. On application, data sheets for laying out box drilling dimensions will be furnished.

A sufficient number of  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch knockouts are provided in top of cabinet to accommodate the total number of branch circuits supplied by the panel. One-half this number are provided in bottom of cabinet.

**FLUSH OR SURFACE ADAPTATION.**—All standard steel boxes are made with flanges turned inwardly and can, therefore, be used for either flush or surface installation.

Cat. No.	Gauge No.	BOX DIMENSIONS, INCHES			Approx. Shipping Weight Pounds	Price Each
		OUTSIDE		INSIDE		
		Width	Height	Depth		
R-18	14	24 $\frac{1}{2}$	18	4 $\frac{1}{2}$	23	\$7.60
R-21	14	24 $\frac{1}{2}$	21	4 $\frac{1}{2}$	25	7.90
R-24	14	24 $\frac{1}{2}$	24	4 $\frac{1}{2}$	27	8.20
R-27	14	24 $\frac{1}{2}$	27	4 $\frac{1}{2}$	30	8.60
R-30	14	24 $\frac{1}{2}$	30	4 $\frac{1}{2}$	32	8.90
R-33	14	24 $\frac{1}{2}$	33	4 $\frac{1}{2}$	34	9.30
R-36	14	24 $\frac{1}{2}$	36	4 $\frac{1}{2}$	37	9.70
R-39	14	24 $\frac{1}{2}$	39	4 $\frac{1}{2}$	39	10.00
R-42	12	24 $\frac{1}{2}$	42	4 $\frac{1}{2}$	57	16.80
R-45	12	24 $\frac{1}{2}$	45	4 $\frac{1}{2}$	60	17.20
R-48	12	24 $\frac{1}{2}$	48	4 $\frac{1}{2}$	64	17.70
R-51	12	24 $\frac{1}{2}$	51	4 $\frac{1}{2}$	67	18.10
R-54	12	24 $\frac{1}{2}$	54	4 $\frac{1}{2}$	70	18.60
R-57	12	24 $\frac{1}{2}$	57	4 $\frac{1}{2}$	73	19.00
R-60	12	24 $\frac{1}{2}$	60	4 $\frac{1}{2}$	76	19.70
R-63	10	24 $\frac{1}{2}$	63	4 $\frac{1}{2}$	102	28.50
R-66	10	24 $\frac{1}{2}$	66	4 $\frac{1}{2}$	106	29.10
R-69	10	24 $\frac{1}{2}$	69	4 $\frac{1}{2}$	110	29.60
R-72	10	24 $\frac{1}{2}$	72	4 $\frac{1}{2}$	114	30.10
R-75	10	24 $\frac{1}{2}$	75	4 $\frac{1}{2}$	118	30.70
R-78	10	24 $\frac{1}{2}$	78	4 $\frac{1}{2}$	122	31.30
R-81	10	24 $\frac{1}{2}$	81	4 $\frac{1}{2}$	127	31.80
V-42	12	24 $\frac{1}{2}$	42	5 $\frac{1}{4}$	61	17.40
V-45	12	24 $\frac{1}{2}$	45	5 $\frac{1}{4}$	65	17.80
V-48	12	24 $\frac{1}{2}$	48	5 $\frac{1}{4}$	68	18.30
V-51	12	24 $\frac{1}{2}$	51	5 $\frac{1}{4}$	71	18.80
V-54	12	24 $\frac{1}{2}$	54	5 $\frac{1}{4}$	75	19.20
V-57	12	24 $\frac{1}{2}$	57	5 $\frac{1}{4}$	78	19.70
V-60	12	24 $\frac{1}{2}$	60	5 $\frac{1}{4}$	81	20.40
V-63	10	24 $\frac{1}{2}$	63	5 $\frac{1}{4}$	108	29.40
V-66	10	24 $\frac{1}{2}$	66	5 $\frac{1}{4}$	113	30.00
V-69	10	24 $\frac{1}{2}$	69	5 $\frac{1}{4}$	117	30.60
V-72	10	24 $\frac{1}{2}$	72	5 $\frac{1}{4}$	121	31.10
V-75	10	24 $\frac{1}{2}$	75	5 $\frac{1}{4}$	126	31.70
V-78	10	24 $\frac{1}{2}$	78	5 $\frac{1}{4}$	130	32.30
V-81	10	24 $\frac{1}{2}$	81	5 $\frac{1}{4}$	134	32.90

## Benjamin-Starrett Panelboards and Cabinets

Benjamin-Starrett Panelboards are easily and economically installed and incorporate features that insure low maintenance and efficiency in operation. A particularly advantageous feature of these panelboards is that all parts are removable from the front. They are compact and well proportioned and thus add to the appearance of any wiring installation.

### Features of Benjamin-Starrett Panelboards

**BASES.**—Molded composition, strong, fireproof, of high dielectric strength and unaffected by heat, moisture, oil or acids.

**PANEL.**—Indestructible in that molded base units are mounted on steel back. Barriers and switch plates are of steel.

**SWITCHES.**—Both single and double pole tumbler type are 30-ampere 250-volt heavy duty with quick break and make mechanism. All knife switches are 30-ampere heavy duty type.

**SAFETY TYPE.**—The cabinet for this panel is of the door-in-door construction, the large door giving access to mains and branch fuses, and small door to branch switches only. Large door is equipped with Yale lock and key and small door with latch only.

This type of panel is recommended for installations where branch circuit switches are manipulated by inexperienced persons and where it is desired to keep fuses under lock and key.

**PROTECTIVE TYPE.**—This type panel has a dead front protective shield covering the face of the panel which prevents accidental contact with any live part while changing fuses or operating switches. The cabinets have a single door with a

**SWITCH PLATES.**—Individual for each 4-branch circuit on 1-fuse panels; 2-fuse panels have individual switch plates for each pair of branch circuits.

**CAPACITY.**—All current carrying parts are based on maximum current density of 1000 amperes per square inch cross section.

**MAIN CONNECTIONS.**—Furnished in 30, 60, 100 and 200 amperes capacity in 5 standard types: Main Lugs Only, Fusible Main Knife Switches and Fusible Main Brush Switches.

### Types of Panelboards

combined spring latch and knob and a Yale lock.

Cabinets for panels having Fusible Main Knife switch have 2 doors: 1 door for the knife switch and the other for the branch fuses.

Panels with Fusible Mains have a small door in the protective shield, giving access to the main fuses.

**OPEN TYPE.**—This type panel is identical to the Safety Type except that it has a single door which gives access to all the fuses and switches on the face of the panel. This panel is recommended for installations where the manipulation of switches and the renewal of fuses are attended to by authorized persons. Equipped with combined Yale lock, latch and knob.



Type NLPT

### 1-Fuse Panels

These Panels are polarity type with a solid neutral bar to which the grounded conductors of the branch circuits are attached.

Panels and cabinets can be furnished in the types listed below:

#### Safety Type

**TYPE NSPT.**—Branches, 30-ampere, 250-volt single pole tumbler switches, for plug fuses; mains, 125-250-volt.

#### Protective Type

**TYPE NLPT.**—Branches, 30-ampere, 250-volt single pole tumbler switches, for plug fuses; mains, 125-250-volt.

### 2-Fuse Panels

#### Safety Type

These panels are arranged for 2 fuses for each 2-wire branch circuit.

Panels and cabinets can be furnished in the types listed below.

**TYPE SPT, 2-2-WIRE.**—Branches, 30-ampere, 250-volt double pole tumbler switches, for plug fuses; mains 125-volt.

**TYPE SPT, 3-2-WIRE.**—Branches 30-ampere, 250-volt double pole tumbler switches, for plug fuses; mains, 125-250-volt.

#### Protective Type

**TYPE LPT, 2-2-WIRE.**—Branches, 30-ampere, 250-volt double pole tumbler switches, for plug fuses; mains, 125-volt.

**TYPE LPT, 3-2-WIRE.**—Branches, 30-ampere, 250-volt double pole switches, for plug fuses; mains, 125-250-volt.

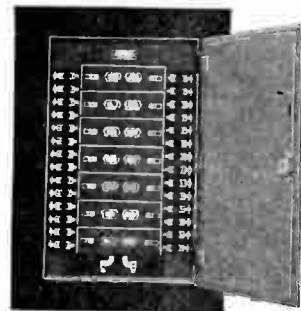
#### Open Type

**TYPE OCT, 2-2-WIRE.**—Branches, 30-ampere, 250-volt double pole tumbler switches for cartridge fuses; mains, 125-volt.

**TYPE OCT, 3-2-WIRE.**—Branches, 30-ampere, 250-volt double pole tumbler switches, for cartridge fuses; mains, 125-250-volt.

**TYPE OPK, 2-2-WIRE.**—Branches, 30-ampere, knife switch, for plug fuses; mains, 125-volt.

**TYPE OPK, 3-2-WIRE.**—Branches, 30-ampere, knife switch, for plug fuses; mains, 125-250-volt.



Type OCT

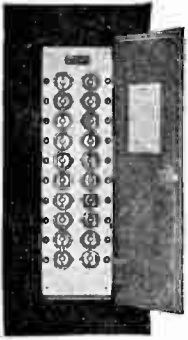


## Benjamin-Starrett Panel Boards and Cabinets

### Type G Panels with Cabinets Type NPG Panels with Cabinets 3-Wire Service—1-Fuse Branches

Mains: 125-250-Volt

Branches: 125-Volt Arranged for Plug Fuses Only



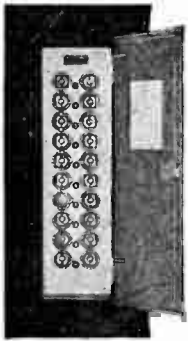
No. of Cir.	PANEL WITH CABINET		Gutter Space Inches	BOX DIMENSIONS, INCHES			Shipping Weight Pounds	Price Each
	Surface Mfrs. No.	Flush Mfrs. No.		Wide Outside	High Outside	Deep Inside		
4	60104	60154	3	11 1/2	13 1/2	3 3/4	22	\$21.00
6	60106	60156	3	11 1/2	15	3 3/4	27	23.00
8	60108	60158	3	11 1/2	16 1/2	3 3/4	32	25.00
10	60110	60160	3	11 1/2	18	3 3/4	37	27.50
12	60112	60162	3	11 1/2	19 1/2	3 3/4	42	30.00
14	60114	60164	3	11 1/2	21	3 3/4	47	32.50
16	60116	60166	3	11 1/2	22 1/2	3 3/4	52	35.00
18	60118	60168	3	11 1/2	24	3 3/4	57	37.50
20	60120	60170	3	11 1/2	25 1/2	3 3/4	62	40.00

### Type PG Panels with Cabinets

2 and 3-Wire Service—2-Fuse Branches

Mains: 125-250-Volt 3-Wire, 125-Volt 2-Wire

Branches: 125-Volt Arranged for Plug Fuses Only



No. of Cir.	PANEL WITH CABINET		Gutter Space Inches	BOX DIMENSIONS, INCHES			Shipping Weight Pounds	Price Each
	Surface Mfrs. No.	Flush Mfrs. No.		Wide Outside	High Outside	Deep Inside		
4	60204	60254	3	11 1/2	16 1/2	3 3/4	17	\$20.00
6	60206	60256	3	11 1/2	19 1/2	3 3/4	20	25.00
8	60208	60258	3	11 1/2	22 1/2	3 3/4	22	30.00
10	60210	60260	3	11 1/2	25 1/2	3 3/4	24	35.00
12	60212	60262	3	11 1/2	28 1/2	3 3/4	27	40.00
14	60214	60264	3	11 1/2	31 1/2	3 3/4	30	45.00
16	60216	60266	3	11 1/2	34 1/2	3 3/4	32	50.00
18	60218	60268	3	11 1/2	37 1/2	3 3/4	34	55.00
20	60220	60270	3	11 1/2	40 1/2	3 3/4	37	60.00

### Type NCG Panels with Cabinets

3-Wire Service—1-Fuse Branches

Mains: 125-250-Volt

Branches: 125-Volt Arranged for Cartridge Fuses Only



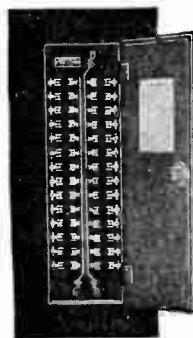
No. of Cir.	PANEL WITH CABINET		Gutter Space Inches	BOX DIMENSIONS, INCHES			Shipping Weight Pounds	Price Each
	Surface Mfrs. No.	Flush Mfrs. No.		Wide Outside	High Outside	Deep Inside		
4	60304	60354	3	13 3/4	15 1/2	3 3/4	24	\$23.00
6	60306	60356	3	13 3/4	17	3 3/4	30	25.50
8	60308	60358	3	13 3/4	18 1/2	3 3/4	35	27.50
10	60310	60360	3	13 3/4	20	3 3/4	41	30.50
12	60312	60362	3	13 3/4	21 1/2	3 3/4	46	33.00
14	60314	60364	3	13 3/4	23	3 3/4	52	36.00
16	60316	60366	3	13 3/4	24 1/2	3 3/4	57	38.50
18	60318	60368	3	13 3/4	26	3 3/4	63	41.00
20	60320	60370	3	13 3/4	27 1/2	3 3/4	68	44.00

### Type CG Panels with Cabinets

2 and 3-Wire Service—2-Fuse Branches

Mains: 125-250-Volt 3-Wire, 125-Volt 2-Wire

Branches: 125-250-Volt Arranged for Cartridge Fuses Only



No. of Cir.	PANEL WITH CABINET		Gutter Space Inches	BOX DIMENSIONS, INCHES			Shipping Weight Pounds	Price Each
	Surface Mfrs. No.	Flush Mfrs. No.		Wide Outside	High Outside	Deep Inside		
4	60404	60454	3	13 3/4	18 1/2	3 3/4	19	\$22.00
6	60406	60456	3	13 3/4	21 1/2	3 3/4	22	27.50
8	60408	60458	3	13 3/4	24 1/2	3 3/4	24	33.00
10	60410	60460	3	13 3/4	27 1/2	3 3/4	26	38.50
12	60412	60462	3	13 3/4	30 1/2	3 3/4	30	44.00
14	60414	60464	3	13 3/4	33 1/2	3 3/4	33	49.50
16	60416	60466	3	13 3/4	36 1/2	3 3/4	35	55.00
18	60418	60468	3	13 3/4	39 1/2	3 3/4	37	60.50
20	60420	60470	3	13 3/4	42 1/2	3 3/4	41	66.00

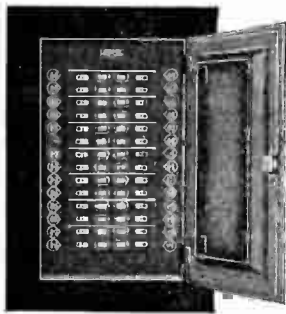
**Type NSPT Benjamin-Starrett Safety Panels with Cabinets**

**3-Wire Mains, 1-Fuse Branches—Door-In-Door Cabinet**

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses

Mains: 125-250-Volt

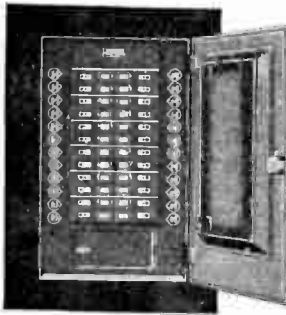
**Panels with Main Lugs Only**



With Main Lugs Only

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, Inches			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	52004	52104	30	4	R18	24 1/2	18	4 1/2	90	\$50.00
8	52008	52108	60	4	R21	24 1/2	21	4 1/2	105	60.00
12	52012	52112	60	4	R24	24 1/2	24	4 1/2	120	70.00
16	52016	52116	100	4	R27	24 1/2	27	4 1/2	135	86.00
20	52020	52120	100	4	R30	24 1/2	30	4 1/2	150	96.00
24	52024	52124	100	4	R33	24 1/2	33	4 1/2	165	106.00
28	52028	52128	100	4	R36	24 1/2	36	4 1/2	180	116.00
32	52032	52132	100	4	R39	24 1/2	39	4 1/2	195	126.00
36	52036	52136	200	4	R42	24 1/2	42	4 1/2	210	146.00
40	52040	52140	200	4	R45	24 1/2	45	4 1/2	225	156.00
44	52044	52144	200	4	R48	24 1/2	48	4 1/2	240	172.00
48	52048	52148	200	4	R51	24 1/2	51	4 1/2	255	182.00
52	52052	52152	200	4	R54	24 1/2	54	4 1/2	270	192.00
56	52056	52156	200	4	R57	24 1/2	57	4 1/2	285	206.00
60	52060	52160	200	4	R60	24 1/2	60	4 1/2	305	222.00

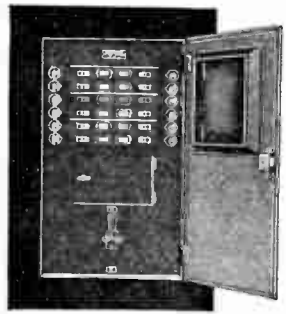
**Panels with Fusible Mains**



With Fusible Mains

4	52204	52304	30	4	R21	24 1/2	21	4 1/2	105	\$62.00
8	52208	52308	60	4	R24	24 1/2	24	4 1/2	120	74.00
12	52212	52312	60	4	R27	24 1/2	27	4 1/2	135	86.00
16	52216	52316	100	4	R33	24 1/2	36	4 1/2	180	102.00
20	52220	52320	100	4	R39	24 1/2	39	4 1/2	195	114.00
24	52224	52324	100	4	R42	24 1/2	42	4 1/2	210	126.00
28	52228	52328	100	4	R45	24 1/2	45	4 1/2	225	138.00
32	52232	52332	100	4	R48	24 1/2	48	4 1/2	240	150.00
36	52236	52336	200	4	R54	24 1/2	54	4 1/2	270	172.00
40	52240	52340	200	4	R57	24 1/2	57	4 1/2	285	184.00
44	52244	52344	200	4	R60	24 1/2	60	4 1/2	305	204.00
48	52248	52348	200	4	R63	24 1/2	63	4 1/2	325	216.00
52	52252	52352	200	4	R66	24 1/2	66	4 1/2	345	228.00
56	52256	52356	200	4	R69	24 1/2	69	4 1/2	365	240.00
60	52260	52360	200	4	R72	24 1/2	72	4 1/2	385	252.00

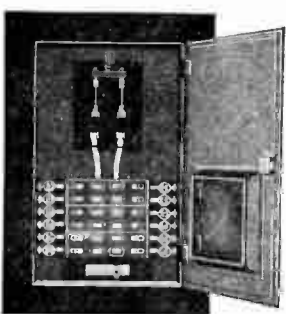
**Panels with Fusible Main Brush Type Switch**



With Fusible Main Brush Type Switch

4	52404	52504	30	4	R30	24 1/2	30	4 1/2	135	\$80.00
8	52408	52508	60	4	R33	24 1/2	33	4 1/2	150	96.00
12	52412	52512	60	4	R36	24 1/2	36	4 1/2	165	108.00
16	52416	52516	100	4	R42	24 1/2	42	4 1/2	195	132.00
20	52420	52520	100	4	R45	24 1/2	45	4 1/2	210	144.00
24	52424	52524	100	4	R48	24 1/2	48	4 1/2	225	156.00
28	52428	52528	100	4	R51	24 1/2	51	4 1/2	240	168.00
32	52432	52532	100	4	R54	24 1/2	54	4 1/2	255	188.00
36	52436	52536	200	4	V60	24 1/2	60	5 1/4	290	222.00
40	52440	52540	200	4	V63	24 1/2	63	5 1/4	310	236.00
44	52444	52544	200	4	V66	24 1/2	66	5 1/4	330	248.00
48	52448	52548	200	4	V69	24 1/2	69	5 1/4	350	260.00
52	52452	52552	200	4	V72	24 1/2	72	5 1/4	370	272.00
56	52456	52556	200	4	V75	24 1/2	75	5 1/4	390	286.00
60	52460	52560	200	4	V78	24 1/2	78	5 1/4	410	302.00

**Panels with Fusible Main Knife Switch**



With Fusible Main Knife Switch

4	52604	52704	30	4	R27	24 1/2	27	4 1/2	135	\$76.00
8	52608	52708	60	4	R33	24 1/2	33	4 1/2	150	93.00
12	52612	52712	60	4	R36	24 1/2	36	4 1/2	165	105.00
16	52616	52716	100	4	R42	24 1/2	42	4 1/2	195	130.00
20	52620	52720	100	4	R45	24 1/2	45	4 1/2	210	142.00
24	52624	52724	100	4	R48	24 1/2	48	4 1/2	225	154.00
28	52628	52728	100	4	R51	24 1/2	51	4 1/2	240	166.00
32	52632	52732	100	4	R54	24 1/2	54	4 1/2	255	186.00
36	52636	52736	200	4	V60	24 1/2	60	5 1/4	290	219.00
40	52640	52740	200	4	V63	24 1/2	63	5 1/4	310	233.00
44	52644	52744	200	4	V66	24 1/2	66	5 1/4	330	245.00
48	52648	52748	200	4	V69	24 1/2	69	5 1/4	350	257.00
52	52652	52752	200	4	V72	24 1/2	72	5 1/4	370	269.00
56	52656	52756	200	4	V75	24 1/2	75	5 1/4	390	283.00
60	52660	52760	200	4	V78	24 1/2	78	5 1/4	410	299.00

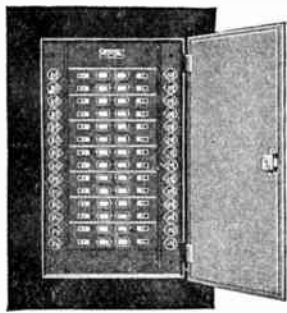
Panels with unfused main switches can be furnished at same prices as panels with fusible main switches. Panels arranged for cartridge fuses, but otherwise the same as panels listed on this page, will be furnished at the above prices.

## Type NLPT Benjamin-Starrett Protective Panels with Cabinets

### 3-Wire Mains, 1-Fuse Branches—Single Door Cabinet

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses  
Mains: 125-250-Volt

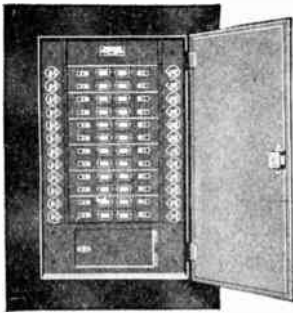
#### Panels with Main Lugs Only



With Main Lugs Only

No. of Circuit	PANEL WITH Su face Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	Box DIMENSIONS, INCHES OUTSIDE	Height	Inside Depth	Approx. Weight Pounds	Price Each
4	54404	54504	30	4	R18	24 1/2	18	4 1/2	90	\$34.00
8	54408	54508	60	4	R21	24 1/2	21	4 1/2	105	40.00
12	54412	54512	60	4	R24	24 1/2	24	4 1/2	120	50.00
16	54416	54516	100	4	R27	24 1/2	27	4 1/2	135	74.00
20	54420	54520	100	4	R30	24 1/2	30	4 1/2	150	84.00
24	54424	54524	100	4	R33	24 1/2	33	4 1/2	165	94.00
28	54428	54528	100	4	R36	24 1/2	35	4 1/2	180	104.00
32	54432	54532	100	4	R39	24 1/2	39	4 1/2	195	114.00
36	54436	54536	200	4	R42	24 1/2	42	4 1/2	210	134.00
40	54440	54540	200	4	R45	24 1/2	45	4 1/2	225	144.00
44	54444	54544	200	4	R48	24 1/2	48	4 1/2	240	160.00
48	54448	54548	200	4	R51	24 1/2	51	4 1/2	255	170.00
52	54452	54552	200	4	R54	24 1/2	54	4 1/2	270	180.00
56	54456	54556	200	4	R57	24 1/2	57	4 1/2	285	194.00
60	54460	54560	200	4	R60	24 1/2	60	4 1/2	305	210.00

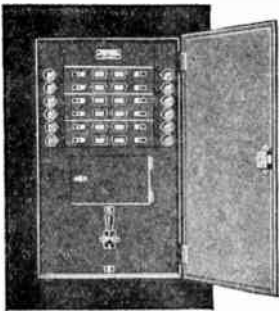
#### Panels with Fusible Mains



With Fusible Mains

4	54604	54704	30	4	R21	24 1/2	21	4 1/2	105	\$46.00
8	54608	54708	60	4	R24	24 1/2	24	4 1/2	120	58.00
12	54612	54712	60	4	R27	24 1/2	27	4 1/2	135	70.00
16	54616	54716	100	4	R36	24 1/2	36	4 1/2	180	90.00
20	54620	54720	100	4	R39	24 1/2	39	4 1/2	195	102.00
24	54624	54724	100	4	R42	24 1/2	42	4 1/2	210	114.00
28	54628	54728	100	4	R45	24 1/2	45	4 1/2	225	126.00
32	54632	54732	100	4	R48	24 1/2	48	4 1/2	240	138.00
36	54636	54736	200	4	R54	24 1/2	51	4 1/2	270	160.00
40	54640	54740	200	4	R57	24 1/2	57	4 1/2	285	172.00
44	54644	54744	200	4	R60	24 1/2	60	4 1/2	305	192.00
48	54648	54748	200	4	R63	24 1/2	63	4 1/2	325	204.00
52	54652	54752	200	4	R66	24 1/2	66	4 1/2	345	216.00
56	54656	54756	200	4	R69	24 1/2	69	4 1/2	355	228.00
60	54660	54760	200	4	R72	24 1/2	72	4 1/2	385	240.00

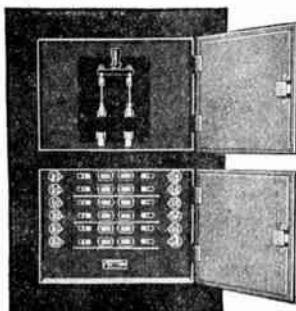
#### Panels with Fusible Main Brush Type Switch



With Fusible Main Brush Type Switch

4	54804	54904	30	4	R30	24 1/2	30	4 1/2	135	\$68.00
8	54808	54908	60	4	R33	24 1/2	33	4 1/2	150	84.00
12	54812	54912	60	4	R36	24 1/2	36	4 1/2	165	96.00
16	54816	54916	100	4	R42	24 1/2	42	4 1/2	195	120.00
20	54820	54920	100	4	R45	24 1/2	45	4 1/2	210	132.00
24	54824	54924	100	4	R48	24 1/2	48	4 1/2	225	144.00
28	54828	54928	100	4	R51	24 1/2	51	4 1/2	240	156.00
32	54832	54932	100	4	R54	24 1/2	54	4 1/2	255	176.00
36	54836	54936	200	4	V60	24 1/2	60	5 1/4	290	210.00
40	54840	54940	200	4	V63	24 1/2	63	5 1/4	310	224.00
44	54844	54944	200	4	V66	24 1/2	66	5 1/4	330	236.00
48	54848	54948	200	4	V69	24 1/2	69	5 1/4	350	248.00
52	54852	54952	200	4	V72	24 1/2	72	5 1/4	370	260.00
56	54856	54956	200	4	V75	24 1/2	75	5 1/4	390	274.00
60	54860	54960	200	4	V78	24 1/2	78	5 1/4	410	290.00

#### Panels with Fusible Main Knife Switch



With Fusible Main Knife Switch

4	55004	55104	30	4	R27	24 1/2	27	4 1/2	135	\$64.00
8	55008	55108	60	4	R33	24 1/2	33	4 1/2	150	81.00
12	55012	55112	60	4	R36	24 1/2	33	4 1/2	165	93.00
16	55016	55116	100	4	R42	24 1/2	42	4 1/2	195	118.00
20	55020	55120	100	4	R45	24 1/2	45	4 1/2	210	130.00
24	55024	55124	100	4	R48	24 1/2	48	4 1/2	225	142.00
28	55028	55128	100	4	R51	24 1/2	51	4 1/2	240	154.00
32	55032	55132	100	4	R54	24 1/2	54	4 1/2	255	174.00
36	55036	55136	200	4	V60	24 1/2	60	5 1/4	290	207.00
40	55040	55140	200	4	V63	24 1/2	63	5 1/4	310	221.00
44	55044	55144	200	4	V66	24 1/2	66	5 1/4	330	233.00
48	55048	55148	200	4	V69	24 1/2	69	5 1/4	350	245.00
52	55052	55152	200	4	V72	24 1/2	72	5 1/4	370	257.00
56	55056	55156	200	4	V75	24 1/2	75	5 1/4	390	271.00
60	55060	55160	200	4	V78	24 1/2	78	5 1/4	410	287.00

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

Panels arranged for cartridge fuses, but otherwise the same as listed on this page, will be furnished at the above prices.

**Type SPT Benjamin Safety Panels with Cabinets**

**2-Wire Mains, 2-Fuse Branches—Door-in-Door Cabinet**

**Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses**

**Mains: 125-Volt**



With Main Lugs

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	90004	90054	60	4	R21	24 1/2	21	4 1/2	105	\$62.00
6	90006	90056	100	4	R24	24 1/2	24	4 1/2	120	68.00
8	90008	90058	100	4	R27	24 1/2	27	4 1/2	135	78.00
10	90010	90060	100	4	R30	24 1/2	30	4 1/2	150	88.00
12	90012	90062	200	4	R33	24 1/2	33	4 1/2	165	98.00
14	90014	90064	200	4	R36	24 1/2	36	4 1/2	180	110.00
16	90016	90066	200	4	R39	24 1/2	39	4 1/2	195	120.00
18	90018	90068	200	4	R42	24 1/2	42	4 1/2	210	130.00
20	90020	90070	200	4	R45	24 1/2	45	4 1/2	225	140.00
22	90022	90072	200	4	R48	24 1/2	48	4 1/2	240	150.00
24	90024	90074	200	4	R51	24 1/2	51	4 1/2	255	160.00
26	90026	90076	200	4	R54	24 1/2	54	4 1/2	270	176.00
28	90028	90078	200	4	R57	24 1/2	57	4 1/2	285	186.00
30	90030	90080	200	4	R60	24 1/2	60	4 1/2	305	200.00
32	90032	90082	200	4	R63	24 1/2	63	4 1/2	325	216.00

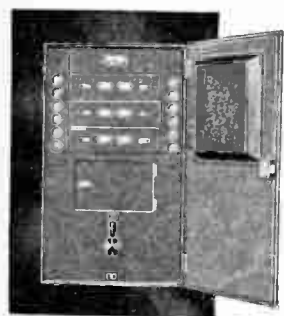
**Panels with Fusible Mains**



With Fusible Mains

4	90104	90154	60	4	R24	24 1/2	24	4 1/2	120	\$74.00
6	90106	90156	100	4	R33	24 1/2	33	4 1/2	165	86.00
8	90108	90158	100	4	R36	24 1/2	36	4 1/2	180	96.00
10	90110	90160	100	4	R39	24 1/2	39	4 1/2	195	106.00
12	90112	90162	200	4	R45	24 1/2	45	4 1/2	225	126.00
14	90114	90164	200	4	R48	24 1/2	48	4 1/2	240	136.00
16	90116	90166	200	4	R51	24 1/2	51	4 1/2	255	146.00
18	90118	90168	200	4	R54	24 1/2	54	4 1/2	270	156.00
20	90120	90170	200	4	R57	24 1/2	57	4 1/2	285	166.00
22	90122	90172	200	4	R60	24 1/2	60	4 1/2	305	186.00
24	90124	90174	200	4	R63	24 1/2	63	4 1/2	325	196.00
26	90126	90176	200	4	R66	24 1/2	66	4 1/2	345	206.00
28	90128	90178	200	4	R69	24 1/2	69	4 1/2	365	216.00
30	90130	90180	200	4	R72	24 1/2	72	4 1/2	385	226.00
32	90132	90182	200	4	R75	24 1/2	75	4 1/2	405	236.00

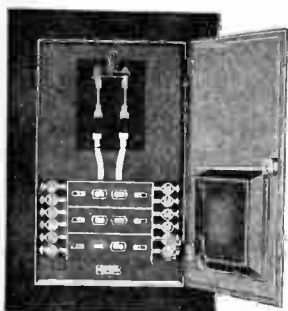
**Panels with Fusible Main Brush Type Switch**



With Fusible Main Brush Type Switch

4	90204	90254	60	4	R33	24 1/2	33	4 1/2	150	\$88.00
6	90206	90256	100	4	R39	24 1/2	39	4 1/2	180	108.00
8	90208	90258	100	4	R42	24 1/2	42	4 1/2	195	118.00
10	90210	90260	100	4	R45	24 1/2	45	4 1/2	210	128.00
12	90212	90262	200	4	V51	24 1/2	51	5 1/4	245	160.00
14	90214	90264	200	4	V54	24 1/2	54	5 1/4	260	170.00
16	90216	90266	200	4	V57	24 1/2	57	5 1/4	275	190.00
18	90218	90268	200	4	V60	24 1/2	60	5 1/4	295	200.00
20	90220	90270	200	4	V63	24 1/2	63	5 1/4	315	210.00
22	90222	90272	200	4	V66	24 1/2	66	5 1/4	335	220.00
24	90224	90274	200	4	V69	24 1/2	69	5 1/4	355	230.00
26	90226	90276	200	4	V72	24 1/2	72	5 1/4	375	246.00
28	90228	90278	200	4	V75	24 1/2	75	5 1/4	395	260.00
30	90230	90280	200	4	V78	24 1/2	78	5 1/4	415	276.00
32	90232	90282	200	4	V81	24 1/2	81	5 1/4	455	290.00

**Panels with Fusible Main Knife Switch**



With Fusible Main Knife Switch

4	90304	90354	60	4	R33	24 1/2	33	4 1/2	150	\$85.00
6	90306	90356	100	4	R39	24 1/2	39	4 1/2	180	106.00
8	90308	90358	100	4	R42	24 1/2	42	4 1/2	195	116.00
10	90310	90360	100	4	R45	24 1/2	45	4 1/2	210	126.00
12	90312	90362	200	4	V51	24 1/2	51	5 1/4	245	157.00
14	90314	90364	200	4	V54	24 1/2	54	5 1/4	260	167.00
16	90316	90366	200	4	V57	24 1/2	57	5 1/4	275	187.00
18	90318	90368	200	4	V60	24 1/2	60	5 1/4	295	197.00
20	90320	90370	200	4	V63	24 1/2	63	5 1/4	315	207.00
22	90322	90372	200	4	V66	24 1/2	66	5 1/4	335	217.00
24	90324	90374	200	4	V69	24 1/2	69	5 1/4	355	227.00
26	90326	90376	200	4	V72	24 1/2	72	5 1/4	375	243.00
28	90328	90378	200	4	V75	24 1/2	75	5 1/4	395	257.00
30	90330	90380	200	4	V78	24 1/2	78	5 1/4	415	273.00
32	90332	90382	200	4	V81	24 1/2	81	5 1/4	435	287.00

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

NOTE.—Panels arranged for cartridge fuses, but otherwise the same as panels listed on this page, will be furnished at the above prices.

## Type SPT Benjamin-Starrett Safety Panels with Cabinets

### 3-Wire Mains, 2-Fuse Branches—Door-in-Door Cabinet

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses

Mains: 125-250-Volt

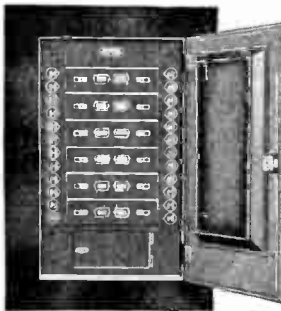
#### Panels with Main Lugs Only



With Main Lugs Only

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	90404	90454	30	4	R21	24 1/2	21	4 1/2	105	\$58.00
6	90406	90456	60	4	R21	24 1/2	24	4 1/2	120	68.00
8	90408	90458	60	4	R27	24 1/2	27	4 1/2	135	78.00
10	90410	90460	60	4	R30	24 1/2	30	4 1/2	150	88.00
12	90412	90462	60	4	R33	24 1/2	33	4 1/2	165	98.00
14	90414	90464	100	4	R36	24 1/2	36	4 1/2	180	106.00
16	90416	90466	100	4	R39	24 1/2	39	4 1/2	195	116.00
18	90418	90468	100	4	R42	24 1/2	42	4 1/2	210	126.00
20	90420	90470	100	4	R45	24 1/2	45	4 1/2	225	140.00
22	90422	90472	100	4	R48	24 1/2	48	4 1/2	240	150.00
24	90424	90474	100	4	R51	24 1/2	51	4 1/2	255	160.00
26	90426	90476	100	4	R54	24 1/2	54	4 1/2	270	170.00
28	90428	90478	100	4	R57	24 1/2	57	4 1/2	285	180.00
30	90430	90480	100	4	R60	24 1/2	60	4 1/2	305	190.00
32	90432	90482	100	4	R63	24 1/2	63	4 1/2	325	206.00

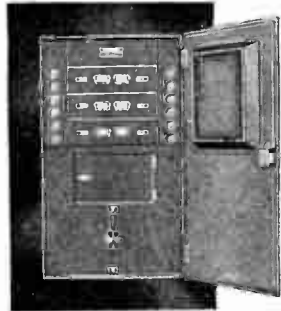
#### Panels with Fusible Mains



With Fusible Mains

4	90804	90854	30	4	R24	24 1/2	24	4 1/2	120	\$68.00
6	90806	90856	60	4	R27	24 1/2	27	4 1/2	135	78.00
8	90808	90858	60	4	R30	24 1/2	30	4 1/2	150	88.00
10	90810	90860	60	4	R33	24 1/2	33	4 1/2	165	98.00
12	90812	90862	60	4	R36	24 1/2	36	4 1/2	180	108.00
14	90814	90864	100	4	R45	24 1/2	45	4 1/2	225	128.00
16	90816	90866	100	4	R48	24 1/2	48	4 1/2	240	138.00
18	90818	90868	100	4	R51	24 1/2	51	4 1/2	255	148.00
20	90820	90870	100	4	R54	24 1/2	54	4 1/2	270	158.00
22	90822	90872	100	4	R57	24 1/2	57	4 1/2	285	168.00
24	90824	90874	100	4	R60	24 1/2	60	4 1/2	305	178.00
26	90826	90876	100	4	R63	24 1/2	63	4 1/2	325	192.00
28	90828	90878	100	4	R66	24 1/2	66	4 1/2	345	202.00
30	90830	90880	100	4	R69	24 1/2	69	4 1/2	365	212.00
32	90832	90882	100	4	R72	24 1/2	72	4 1/2	385	222.00

#### Panels with Fusible Main Brush Type Switch



With Fusible Main Brush Type Switch

4	90904	90954	30	4	R33	24 1/2	33	4 1/2	150	\$86.00
6	90906	90956	60	4	R36	24 1/2	36	4 1/2	165	96.00
8	90908	90958	60	4	R39	24 1/2	39	4 1/2	180	106.00
10	90910	90960	60	4	R42	24 1/2	42	4 1/2	195	116.00
12	90912	90962	60	4	R45	24 1/2	45	4 1/2	210	126.00
14	90914	90964	100	4	R51	24 1/2	51	4 1/2	240	150.00
16	90916	90966	100	4	R54	24 1/2	54	4 1/2	255	160.00
18	90918	90968	100	4	R57	24 1/2	57	4 1/2	270	180.00
20	90920	90970	100	4	R60	24 1/2	60	4 1/2	290	190.00
22	90922	90972	100	4	R63	24 1/2	63	4 1/2	310	200.00
24	90924	90974	100	4	R66	24 1/2	66	4 1/2	330	210.00
26	90926	90976	100	4	R69	24 1/2	69	4 1/2	350	220.00
28	90928	90978	100	4	R72	24 1/2	72	4 1/2	370	230.00
30	90930	90980	100	4	R75	24 1/2	75	4 1/2	390	240.00
32	90932	90982	100	4	R78	24 1/2	78	4 1/2	410	250.00

#### Panels with Fusible Main Knife Switch



With Fusible Main Knife Switch

4	91004	91054	30	4	R30	24 1/2	30	4 1/2	150	\$82.00
6	91006	91056	60	4	R36	24 1/2	36	4 1/2	165	93.00
8	91008	91058	60	4	R39	24 1/2	39	4 1/2	180	103.00
10	91010	91060	60	4	R42	24 1/2	42	4 1/2	195	113.00
12	91012	91062	60	4	R45	24 1/2	45	4 1/2	210	123.00
14	91014	91064	100	4	R51	24 1/2	51	4 1/2	240	148.00
16	91016	91066	100	4	R54	24 1/2	54	4 1/2	255	158.00
18	91018	91068	100	4	R57	24 1/2	57	4 1/2	270	178.00
20	91020	91070	100	4	R60	24 1/2	60	4 1/2	290	188.00
22	91022	91072	100	4	R63	24 1/2	63	4 1/2	310	198.00
24	91024	91074	100	4	R66	24 1/2	66	4 1/2	330	208.00
26	91026	91076	100	4	R69	24 1/2	69	4 1/2	350	218.00
28	91028	91078	100	4	R72	24 1/2	72	4 1/2	370	228.00
30	91030	91080	100	4	R75	24 1/2	75	4 1/2	390	238.00
32	91032	91082	100	4	R78	24 1/2	78	4 1/2	410	248.00

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

Note—Panels arranged for cartridge fuses, but otherwise the same as panels listed on this page, will be furnished at the above prices.

**Type LPT Benjamin-Starrett Protective Panels with Cabinets**

**2-Wire Mains, 2-Fuse Branches—Single Door Cabinet**

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses

Mains: 125-Volt



With Main Lugs Only

**Panels with Main Lugs Only**

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	93404	93454	60	4	R21	24 1/2	21	4 1/2	105	\$42.00
6	93406	93456	100	4	R24	24 1/2	24	4 1/2	120	52.00
8	93408	93458	100	4	R27	24 1/2	27	4 1/2	135	62.00
10	93410	93460	100	4	R30	24 1/2	30	4 1/2	150	72.00
12	93412	93462	200	4	R33	24 1/2	33	4 1/2	165	82.00
14	93414	93464	200	4	R36	24 1/2	36	4 1/2	180	94.00
16	93416	93466	200	4	R39	24 1/2	39	4 1/2	195	104.00
18	93418	93468	200	4	R42	24 1/2	42	4 1/2	210	114.00
20	93420	93470	200	4	R45	24 1/2	45	4 1/2	225	124.00
22	93422	93472	200	4	R48	24 1/2	48	4 1/2	240	134.00
24	93424	93474	200	4	R51	24 1/2	51	4 1/2	255	144.00
26	93426	93476	200	4	R54	24 1/2	54	4 1/2	270	160.00
28	93428	93478	200	4	R57	24 1/2	57	4 1/2	285	170.00
30	93430	93480	200	4	R50	24 1/2	60	4 1/2	305	184.00
32	93432	93482	200	4	R63	24 1/2	63	4 1/2	325	200.00



With Fusible Mains

**Panels with Fusible Mains**

4	93804	93854	60	4	R24	24 1/2	24	4 1/2	120	\$58.00
6	93806	93856	100	4	R33	24 1/2	33	4 1/2	165	70.00
8	93808	93858	100	4	R36	24 1/2	36	4 1/2	180	80.00
10	93810	93860	100	4	R39	24 1/2	39	4 1/2	195	90.00
12	93812	93862	200	4	R45	24 1/2	45	4 1/2	225	110.00
14	93814	93864	200	4	R48	24 1/2	48	4 1/2	240	120.00
16	93816	93866	200	4	R51	24 1/2	51	4 1/2	255	130.00
18	93818	93868	200	4	R54	24 1/2	54	4 1/2	270	140.00
20	93820	93870	200	4	R57	24 1/2	57	4 1/2	285	150.00
22	93822	93872	200	4	R60	24 1/2	60	4 1/2	305	170.00
24	93824	93874	200	4	R63	24 1/2	63	4 1/2	325	180.00
26	93826	93876	200	4	R66	24 1/2	66	4 1/2	345	190.00
28	93828	93878	200	4	R69	24 1/2	69	4 1/2	365	200.00
30	93830	93880	200	4	R72	24 1/2	72	4 1/2	395	210.00
32	93832	93882	200	4	R75	24 1/2	75	4 1/2	405	220.00



With Fusible Main Brush Type Switch

**Panels with Fusible Main Brush Type Switch**

4	93904	93954	60	4	R33	24 1/2	33	4 1/2	150	\$72.00
6	93906	93956	100	4	R39	24 1/2	39	4 1/2	180	92.00
8	93908	93958	100	4	R42	24 1/2	42	4 1/2	195	102.00
10	93910	93960	100	4	R45	24 1/2	45	4 1/2	210	112.00
12	93912	93962	200	4	V51	24 1/2	51	5 1/4	245	144.00
14	93914	93964	200	4	V54	24 1/2	54	5 1/4	260	154.00
16	93916	93966	200	4	V57	24 1/2	57	5 1/4	275	174.00
18	93918	93968	200	4	V60	24 1/2	60	5 1/4	295	184.00
20	93920	93970	200	4	V63	24 1/2	63	5 1/4	315	194.00
22	93922	93972	200	4	V66	24 1/2	66	5 1/4	335	204.00
24	93924	93974	200	4	V69	24 1/2	69	5 1/4	355	214.00
26	93926	93976	200	4	V72	24 1/2	72	5 1/4	375	230.00
28	93928	93978	200	4	V75	24 1/2	75	5 1/4	395	244.00
30	93930	93980	200	4	V78	24 1/2	78	5 1/4	415	260.00
32	93932	93982	200	4	V81	24 1/2	81	5 1/4	435	274.00



With Fusible Main Knife Switch

**Panels with Fusible Main Knife Switch**

4	94004	94054	60	4	R33	24 1/2	33	4 1/2	150	\$69.00
6	94006	94056	100	4	R39	24 1/2	39	4 1/2	180	90.00
8	94008	94058	100	4	R42	24 1/2	42	4 1/2	195	100.00
10	94010	94060	100	4	R45	24 1/2	45	4 1/2	210	110.00
12	94012	94062	200	4	V51	24 1/2	51	5 1/4	245	141.00
14	94014	94064	200	4	V54	24 1/2	54	5 1/4	260	151.00
16	94016	94066	200	4	V57	24 1/2	57	5 1/4	275	171.00
18	94018	94068	200	4	V60	24 1/2	60	5 1/4	295	181.00
20	94020	94070	200	4	V63	24 1/2	63	5 1/4	315	191.00
22	94022	94072	200	4	V66	24 1/2	66	5 1/4	335	201.00
24	94024	94074	200	4	V69	24 1/2	69	5 1/4	355	211.00
26	94026	94076	200	4	V72	24 1/2	72	5 1/4	375	227.00
28	94028	94078	200	4	V75	24 1/2	75	5 1/4	395	241.00
30	94030	94080	200	4	V78	24 1/2	78	5 1/4	415	257.00
32	94032	94082	200	4	V81	24 1/2	81	5 1/4	435	271.00

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.



## Type LPT Benjamin-Starrett Protective Panels with Cabinets

### 3-Wire Mains, 2-Fuse Branches—Single Door Cabinet

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Plug Fuses

Mains: 125-250-Volt

#### Panels with Main Lugs Only



With Main Lugs Only

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	94104	94154	30	4	R21	24½	21	4½	105	\$38.00
6	94106	94156	60	4	R24	24½	24	4½	120	48.00
8	94108	94158	60	4	R27	24½	27	4½	135	58.00
10	94110	94160	60	4	R30	24½	30	4½	150	68.00
12	94112	94162	60	4	R33	24½	33	4½	165	78.00
14	94114	94164	100	4	R36	24½	36	4½	180	90.00
16	94116	94166	100	4	R39	24½	39	4½	195	100.00
18	94118	94168	100	4	R42	24½	42	4½	210	110.00
20	94120	94170	100	4	R45	24½	45	4½	225	124.00
22	94122	94172	100	4	R48	24½	48	4½	240	134.00
24	94124	94174	100	4	R51	24½	51	4½	255	144.00
26	94126	94176	100	4	R54	24½	54	4½	270	154.00
28	94128	94178	100	4	R57	24½	57	4½	285	164.00
30	94130	94180	100	4	R60	24½	60	4½	305	174.00
32	94132	94182	100	4	R63	24½	63	4½	325	190.00

#### Panels with Fusible Mains



With Fusible Mains

4	94204	94254	30	4	R24	24½	24	4½	120	\$52.00
6	94206	94256	60	4	R27	24½	27	4½	135	62.00
8	94208	94258	60	4	R30	24½	30	4½	150	72.00
10	94210	94260	60	4	R33	24½	33	4½	165	82.00
12	94212	94262	60	4	R36	24½	36	4½	180	92.00
14	94214	94264	100	4	R45	24½	45	4½	225	112.00
16	94216	94266	100	4	R48	24½	48	4½	240	122.00
18	94218	94268	100	4	R51	24½	51	4½	255	132.00
20	94220	94270	100	4	R54	24½	54	4½	270	142.00
22	94222	94272	100	4	R57	24½	57	4½	285	152.00
24	94224	94274	100	4	R60	24½	60	4½	305	162.00
26	94226	94276	100	4	R63	24½	63	4½	325	176.00
28	94228	94278	100	4	R66	24½	66	4½	345	186.00
30	94230	94280	100	4	R69	24½	69	4½	365	196.00
32	94232	94282	100	4	R72	24½	72	4½	385	206.00

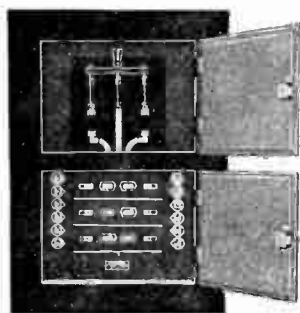
#### Panels with Fusible Main Brush Type Switch



With Fusible Main Brush Type Switch

4	94304	94354	30	4	R33	24½	33	4½	150	\$70.00
6	94306	94356	60	4	R36	24½	36	4½	165	80.00
8	94308	94358	60	4	R39	24½	39	4½	180	90.00
10	94310	94360	60	4	R42	24½	42	4½	195	100.00
12	94312	94362	60	4	R45	24½	45	4½	210	110.00
14	94314	94364	100	4	R51	24½	51	4½	240	134.00
16	94316	94366	100	4	R54	24½	54	4½	255	144.00
18	94318	94368	100	4	R57	24½	57	4½	270	164.00
20	94320	94370	100	4	R60	24½	60	4½	290	174.00
22	94322	94372	100	4	R63	24½	63	4½	310	184.00
24	94324	94374	100	4	R66	24½	66	4½	330	194.00
26	94326	94376	100	4	R69	24½	69	4½	350	204.00
28	94328	94378	100	4	R72	24½	72	4½	370	214.00
30	94330	94380	100	4	R75	24½	75	4½	390	224.00
32	94332	94382	100	4	R78	24½	78	4½	410	234.00

#### Panels with Fusible Main Knife Switch



With Fusible Main Knife Switch

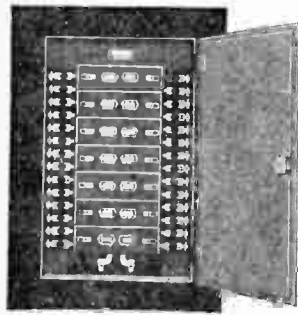
4	94404	94454	30	4	R30	24½	30	4½	150	\$66.00
6	94406	94456	60	4	R36	24½	36	4½	165	77.00
8	94408	94458	60	4	R39	24½	39	4½	180	87.00
10	94410	94460	60	4	R42	24½	42	4½	195	97.00
12	94412	94462	60	4	R45	24½	45	4½	210	107.00
14	94414	94464	100	4	R51	24½	51	4½	240	132.00
16	94416	94466	100	4	R54	24½	54	4½	255	142.00
18	94418	94468	100	4	R57	24½	57	4½	270	162.00
20	94420	94470	100	4	R60	24½	60	4½	290	172.00
22	94422	94472	100	4	R63	24½	63	4½	310	182.00
24	94424	94474	100	4	R66	24½	66	4½	330	192.00
26	94426	94476	100	4	R69	24½	69	4½	350	202.00
28	94428	94478	100	4	R72	24½	72	4½	370	212.00
30	94430	94480	100	4	R75	24½	75	4½	390	222.00
32	94432	94482	100	4	R78	24½	78	4½	410	232.00

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

Type OCT Benjamin-Starrett Open Front Panels with Cabinets

2-Wire Mains, 2-Fuse Branches—Single Door Cabinet

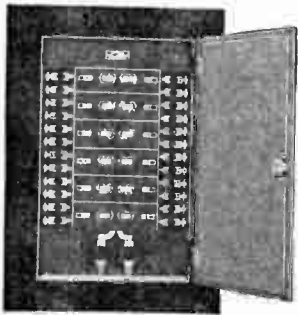
Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Cartridge Fuses  
Mains: 125-Volt



With Main Lugs Only

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	96104	96154	60	4	R21	24 1/2	21	4 1/2	105	\$42.00
6	96106	96156	100	4	R24	24 1/2	24	4 1/2	120	52.00
8	96108	96158	100	4	R27	24 1/2	27	4 1/2	135	62.00
10	96110	96160	100	4	R30	24 1/2	30	4 1/2	150	72.00
12	96112	96162	200	4	R33	24 1/2	33	4 1/2	165	82.00
14	96114	96164	200	4	R36	24 1/2	36	4 1/2	180	94.00
16	96116	96166	200	4	R39	24 1/2	39	4 1/2	195	104.00
18	96118	96168	200	4	R42	24 1/2	42	4 1/2	210	114.00
20	96120	96170	200	4	R45	24 1/2	45	4 1/2	225	124.00
22	96122	96172	200	4	R48	24 1/2	48	4 1/2	240	134.00
24	96124	96174	200	4	R51	24 1/2	51	4 1/2	255	144.00
26	96126	96176	200	4	R54	24 1/2	54	4 1/2	270	160.00
28	96128	96178	200	4	R57	24 1/2	57	4 1/2	285	170.00
30	96130	96180	200	4	R60	24 1/2	60	4 1/2	305	184.00
32	96132	96182	200	4	R63	24 1/2	63	4 1/2	325	200.00

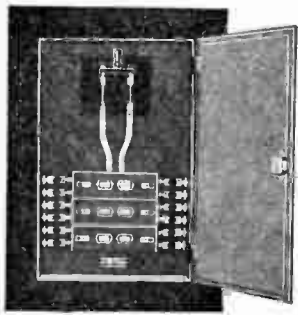
Panels with Main Lugs Only



With Fusible Mains

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	96204	96254	60	4	R24	24 1/2	24	4 1/2	120	\$58.00
6	96206	96256	100	4	R33	24 1/2	33	4 1/2	165	70.00
8	96208	96258	100	4	R36	24 1/2	36	4 1/2	180	80.00
10	96210	96260	100	4	R39	24 1/2	39	4 1/2	195	90.00
12	96212	96262	200	4	R45	24 1/2	45	4 1/2	225	110.00
14	96214	96264	200	4	R48	24 1/2	48	4 1/2	240	120.00
16	96216	96266	200	4	R51	24 1/2	51	4 1/2	255	130.00
18	96218	96268	200	4	R54	24 1/2	54	4 1/2	270	140.00
20	96220	96270	200	4	R57	24 1/2	57	4 1/2	285	150.00
22	96222	96272	200	4	R60	24 1/2	60	4 1/2	305	170.00
24	96224	96274	200	4	R63	24 1/2	63	4 1/2	325	180.00
26	96226	96276	200	4	R66	24 1/2	66	4 1/2	345	190.00
28	96228	96278	200	4	R69	24 1/2	69	4 1/2	365	200.00
30	96230	96280	200	4	R72	24 1/2	72	4 1/2	385	210.00
32	96232	96282	200	4	R75	24 1/2	75	4 1/2	405	220.00

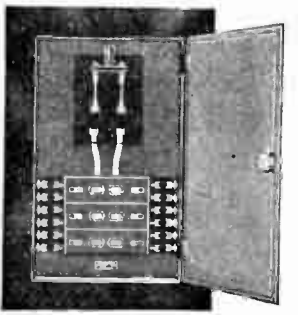
Panels with Fusible Mains



With Fuseless Main Knife Switch

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	96304	96354	60	4	R33	24 1/2	33	4 1/2	150	\$69.00
6	96306	96356	100	4	R39	24 1/2	39	4 1/2	180	90.00
8	96308	96358	100	4	R42	24 1/2	42	4 1/2	195	100.00
10	96310	96360	100	4	R45	24 1/2	45	4 1/2	210	110.00
12	96312	96362	200	4	R51	24 1/2	51	4 1/2	245	141.00
14	96314	96364	200	4	R54	24 1/2	54	4 1/2	260	151.00
16	96316	96366	200	4	R57	24 1/2	57	4 1/2	275	171.00
18	96318	96368	200	4	R60	24 1/2	60	4 1/2	295	181.00
20	96320	96370	200	4	R63	24 1/2	63	4 1/2	315	191.00
22	96322	96372	200	4	R66	24 1/2	66	4 1/2	335	201.00
24	96324	96374	200	4	R69	24 1/2	69	4 1/2	355	211.00
26	96326	96376	200	4	R72	24 1/2	72	4 1/2	375	227.00
28	96328	96378	200	4	R75	24 1/2	75	4 1/2	395	241.00
30	96330	96380	200	4	R78	24 1/2	78	4 1/2	415	257.00
32	96332	96382	200	4	R81	24 1/2	81	4 1/2	435	271.00

Panels with Fuseless Main Knife Switch



With Fusible Main Knife Switch

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				Width	Height	Inside Depth		
4	96404	96454	60	4	R33	24 1/2	33	4 1/2	150	\$69.00
6	96406	96456	100	4	R39	24 1/2	39	4 1/2	180	90.00
8	96408	96458	100	4	R42	24 1/2	42	4 1/2	195	100.00
10	96410	96460	100	4	R45	24 1/2	45	4 1/2	210	110.00
12	96412	96462	200	4	V51	24 1/2	51	5 1/4	245	141.00
14	96414	96464	200	4	V54	24 1/2	54	5 1/4	260	151.00
16	96416	96466	200	4	V57	24 1/2	57	5 1/4	275	171.00
18	96418	96468	200	4	V60	24 1/2	60	5 1/4	295	181.00
20	96420	96470	200	4	V63	24 1/2	63	5 1/4	315	191.00
22	96422	96472	200	4	V66	24 1/2	66	5 1/4	335	201.00
24	96424	96474	200	4	V69	24 1/2	69	5 1/4	355	211.00
26	96426	96476	200	4	V72	24 1/2	72	5 1/4	375	227.00
28	96428	96478	200	4	V75	24 1/2	75	5 1/4	395	241.00
30	96430	96480	200	4	V78	24 1/2	78	5 1/4	415	257.00
32	96432	96482	200	4	V81	24 1/2	81	5 1/4	435	271.00

Panels with Fusible Main Knife Switch

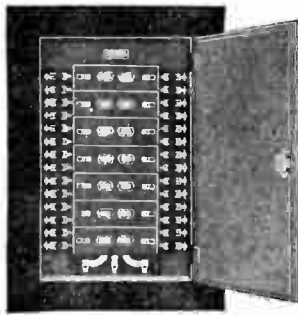
## Type OCT Benjamin-Starrett Open Front Panels with Cabinets

### 3-Wire Mains, 2-Fuse Branches—Single Door Cabinet

Branches: 2-Wire; 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Cartridge Fuses

Mains: 125-250-Volt

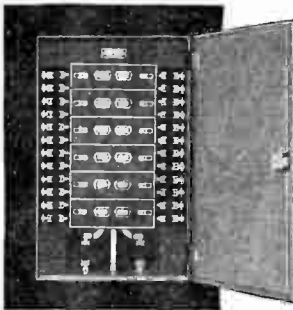
#### Panels with Main Lugs Only



With Main Lugs Only

No. of Circuits	PANEL WITH Surface Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, OUTSIDE		INCHES Inside Depth	Approx. Weight Pounds	Price Each
						Width	Height			
4	96504	96554	30	4	R21	24 1/2	21	4 1/2	105	\$38.00
6	96506	96556	60	4	R24	24 1/2	24	4 1/2	120	48.00
8	96508	96558	60	4	R27	24 1/2	27	4 1/2	135	58.00
10	96510	96560	60	4	R30	24 1/2	30	4 1/2	150	68.00
12	96512	96562	60	4	R33	24 1/2	33	4 1/2	165	78.00
14	96514	96564	100	4	R36	24 1/2	36	4 1/2	180	90.00
16	96516	96566	100	4	R39	24 1/2	39	4 1/2	195	100.00
18	96518	96568	100	4	R42	24 1/2	42	4 1/2	210	110.00
20	96520	96570	100	4	R45	24 1/2	45	4 1/2	225	124.00
22	96522	96572	100	4	R48	24 1/2	48	4 1/2	240	134.00
24	96524	96574	100	4	R51	24 1/2	51	4 1/2	255	144.00
26	96526	96576	100	4	R54	24 1/2	54	4 1/2	270	154.00
28	96528	96578	100	4	R57	24 1/2	57	4 1/2	285	164.00
30	96530	96580	100	4	R60	24 1/2	60	4 1/2	305	174.00
32	96532	96582	100	4	R63	24 1/2	63	4 1/2	325	190.00

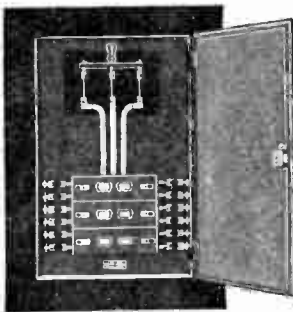
#### Panels with Fusible Mains



With Fusible Mains

4	96604	96654	30	4	R24	24 1/2	24	4 1/2	120	\$52.00
6	96606	96656	60	4	R27	24 1/2	27	4 1/2	135	62.00
8	96608	96658	60	4	R30	24 1/2	30	4 1/2	150	72.00
10	96610	96660	60	4	R33	24 1/2	33	4 1/2	165	82.00
12	96612	96662	60	4	R36	24 1/2	36	4 1/2	180	92.00
14	96614	96664	100	4	R45	24 1/2	45	4 1/2	225	112.00
16	96616	96666	100	4	R48	24 1/2	48	4 1/2	240	122.00
18	96618	96668	100	4	R51	24 1/2	51	4 1/2	255	132.00
20	96620	96670	100	4	R54	24 1/2	54	4 1/2	270	142.00
22	96622	96672	100	4	R57	24 1/2	57	4 1/2	285	152.00
24	96624	96674	100	4	R60	24 1/2	60	4 1/2	305	162.00
26	96626	96676	100	4	R63	24 1/2	63	4 1/2	325	176.00
28	96628	96678	100	4	R66	24 1/2	66	4 1/2	345	186.00
30	96630	96680	100	4	R69	24 1/2	69	4 1/2	365	196.00
32	96632	96682	100	4	R72	24 1/2	72	4 1/2	385	206.00

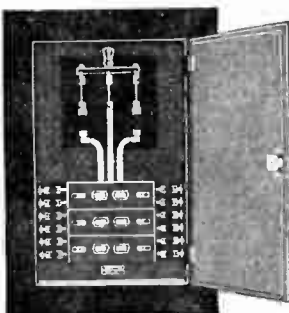
#### Panels with Fuseless Main Knife Switch



With Fuseless Main Knife Switch

4	96804	96854	30	4	R30	24 1/2	30	4 1/2	150	\$66.00
6	96806	96856	60	4	R36	24 1/2	36	4 1/2	165	77.00
8	96808	96858	60	4	R39	24 1/2	39	4 1/2	180	87.00
10	96810	96860	60	4	R42	24 1/2	42	4 1/2	195	97.00
12	96812	96862	60	4	R45	24 1/2	45	4 1/2	210	107.00
14	96814	96864	100	4	R51	24 1/2	51	4 1/2	240	132.00
16	96816	96866	100	4	R54	24 1/2	54	4 1/2	255	142.00
18	96818	96868	100	4	R57	24 1/2	57	4 1/2	270	162.00
20	96820	96870	100	4	R60	24 1/2	60	4 1/2	290	172.00
22	96822	96872	100	4	R63	24 1/2	63	4 1/2	310	182.00
24	96824	96874	100	4	R66	24 1/2	66	4 1/2	330	192.00
26	96826	96876	100	4	R69	24 1/2	69	4 1/2	350	202.00
28	96828	96878	100	4	R72	24 1/2	72	4 1/2	370	212.00
30	96830	96880	100	4	R75	24 1/2	75	4 1/2	390	222.00
32	96832	96882	100	4	R78	24 1/2	78	4 1/2	410	232.00

#### Panels with Fusible Main Knife Switch



With Fusible Main Knife Switch

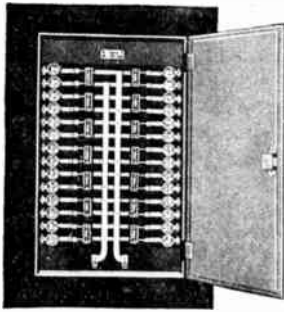
4	96904	96954	30	4	R30	24 1/2	30	4 1/2	150	\$66.00
6	96906	96956	60	4	R36	24 1/2	36	4 1/2	165	77.00
8	96908	96958	60	4	R39	24 1/2	39	4 1/2	180	87.00
10	96910	96960	60	4	R42	24 1/2	42	4 1/2	195	97.00
12	96912	96962	60	4	R45	24 1/2	45	4 1/2	210	107.00
14	96914	96964	100	4	R51	24 1/2	51	4 1/2	240	132.00
16	96916	96966	100	4	R54	24 1/2	54	4 1/2	255	142.00
18	96918	96968	100	4	R57	24 1/2	57	4 1/2	270	162.00
20	96920	96970	100	4	R60	24 1/2	60	4 1/2	290	172.00
22	96922	96972	100	4	R63	24 1/2	63	4 1/2	310	182.00
24	96924	96974	100	4	R66	24 1/2	66	4 1/2	330	192.00
26	96926	96976	100	4	R69	24 1/2	69	4 1/2	350	202.00
28	96928	96978	100	4	R72	24 1/2	72	4 1/2	370	212.00
30	96930	96980	100	4	R75	24 1/2	75	4 1/2	390	222.00
32	96932	96982	100	4	R78	24 1/2	78	4 1/2	410	232.00

**Type OPK Benjamin-Starrett Open Front Panels with Cabinets**

**2-Wire Mains, 2-Fuse Branches—Single Door Cabinet**

**Branches: 2-Wire; 30-Ampere, 125-Volt Knife Switches; Plug Fuses**

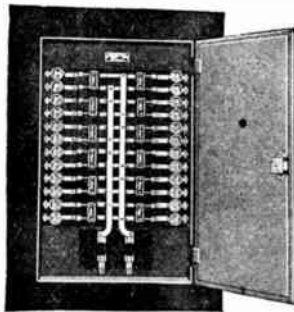
**Mains: 125-Volt**



**With Main Lugs Only**

No. of Circuits	PANEL WITH Surface Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
						Width	Height	Inside Depth		
4	97004	97054	60	4	R21	24 1/2	21	4 1/2	100	\$44.00
6	97006	97056	100	4	R24	24 1/2	24	4 1/2	115	52.00
8	97008	97058	100	4	R27	24 1/2	27	4 1/2	130	62.00
10	97010	97060	100	4	R30	24 1/2	30	4 1/2	145	72.00
12	97012	97062	200	4	R33	24 1/2	33	4 1/2	160	82.00
14	97014	97064	200	4	R36	24 1/2	36	4 1/2	175	94.00
16	97016	97066	200	4	R39	24 1/2	39	4 1/2	185	104.00
18	97018	97068	200	4	R42	24 1/2	42	4 1/2	200	114.00
20	97020	97070	200	4	R45	24 1/2	45	4 1/2	215	124.00
22	97022	97072	200	4	R48	24 1/2	48	4 1/2	225	134.00
24	97024	97074	200	4	R51	24 1/2	51	4 1/2	240	144.00
26	97026	97076	200	4	R54	24 1/2	54	4 1/2	255	154.00
28	97028	97078	200	4	R57	24 1/2	57	4 1/2	270	164.00
30	97030	97080	200	4	R60	24 1/2	60	4 1/2	285	184.00
32	97032	97082	200	4	R63	24 1/2	63	4 1/2	305	200.00

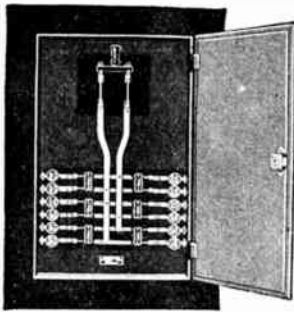
**Panels with Main Lugs Only**



**With Fusible Mains**

No. of Circuits	PANEL WITH Surface Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
						Width	Height	Inside Depth		
4	97104	97154	60	4	R24	24 1/2	24	4 1/2	115	\$58.00
6	97106	97156	100	4	R33	24 1/2	33	4 1/2	160	70.00
8	97108	97158	100	4	R36	24 1/2	36	4 1/2	175	80.00
10	97110	97160	100	4	R39	24 1/2	39	4 1/2	185	90.00
12	97112	97162	200	4	R45	24 1/2	45	4 1/2	215	110.00
14	97114	97164	200	4	R48	24 1/2	48	4 1/2	225	120.00
16	97116	97166	200	4	R51	24 1/2	51	4 1/2	240	130.00
18	97118	97168	200	4	R54	24 1/2	54	4 1/2	255	140.00
20	97120	97170	200	4	R57	24 1/2	57	4 1/2	270	150.00
22	97122	97172	200	4	R60	24 1/2	60	4 1/2	285	170.00
24	97124	97174	200	4	R63	24 1/2	63	4 1/2	305	180.00
26	97126	97176	200	4	R66	24 1/2	66	4 1/2	325	190.00
28	97128	97178	200	4	R69	24 1/2	69	4 1/2	345	200.00
30	97130	97180	200	4	R72	24 1/2	72	4 1/2	360	210.00
32	97132	97182	200	4	R75	24 1/2	75	4 1/2	380	220.00

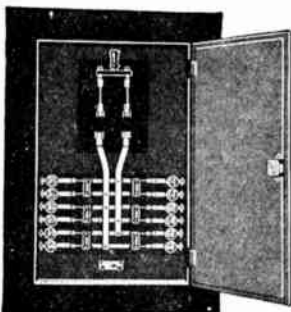
**Panels with Fusible Mains**



**With Fuseless Main Knife Switch**

No. of Circuits	PANEL WITH Surface Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
						Width	Height	Inside Depth		
4	97204	97254	60	4	R33	24 1/2	33	4 1/2	145	\$65.00
6	97206	97256	100	4	R39	24 1/2	39	4 1/2	175	78.00
8	97208	97258	100	4	R42	24 1/2	42	4 1/2	190	88.00
10	97210	97260	100	4	R45	24 1/2	45	4 1/2	205	98.00
12	97212	97262	200	4	R51	24 1/2	51	4 1/2	240	130.00
14	97214	97264	200	4	R54	24 1/2	54	4 1/2	255	140.00
16	97216	97266	200	4	R57	24 1/2	57	4 1/2	265	156.00
18	97218	97268	200	4	R60	24 1/2	60	4 1/2	285	166.00
20	97220	97270	200	4	R63	24 1/2	63	4 1/2	305	176.00
22	97222	97272	200	4	R66	24 1/2	66	4 1/2	320	184.00
24	97224	97274	200	4	R69	24 1/2	69	4 1/2	340	194.00
26	97226	97276	200	4	R72	24 1/2	72	4 1/2	360	208.00
28	97228	97278	200	4	R75	24 1/2	75	4 1/2	380	218.00
30	97230	97280	200	4	R78	24 1/2	78	4 1/2	400	228.00
32	97232	97282	200	4	R81	24 1/2	81	4 1/2	415	238.00

**Panels with Fuseless Main Knife Switch**



**With Fusible Main Knife Switch**

No. of Circuits	PANEL WITH Surface Cat. No.	CABINET Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
						Width	Height	Inside Depth		
4	97304	97354	60	4	R33	24 1/2	33	4 1/2	145	\$65.00
6	97306	97356	100	4	R39	24 1/2	39	4 1/2	175	78.00
8	97308	97358	100	4	R42	24 1/2	42	4 1/2	190	88.00
10	97310	97360	100	4	R45	24 1/2	45	4 1/2	205	98.00
12	97312	97362	200	4	V51	24 1/2	51	5 1/4	240	130.00
14	97314	97364	200	4	V54	24 1/2	54	5 1/4	255	140.00
16	97316	97366	200	4	V57	24 1/2	57	5 1/4	265	156.00
18	97318	97368	200	4	V60	24 1/2	60	5 1/4	285	166.00
20	97320	97370	200	4	V63	24 1/2	63	5 1/4	305	176.00
22	97322	97372	200	4	V66	24 1/2	66	5 1/4	320	184.00
24	97324	97374	200	4	V69	24 1/2	69	5 1/4	340	194.00
26	97326	97376	200	4	V72	24 1/2	72	5 1/4	360	208.00
28	97328	97378	200	4	V75	24 1/2	75	5 1/4	380	218.00
30	97330	97380	200	4	V78	24 1/2	78	5 1/4	400	228.00
32	97332	97382	200	4	V81	24 1/2	81	5 1/4	415	238.00

**Panels with Fusible Main Knife Switch**

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

NOTE.—Panels arranged for cartridge fuses, but otherwise the same as panels listed on this page, will be furnished at the above prices.

## Type OPK Benjamin-Starrett Open Front Panels with Cabinets

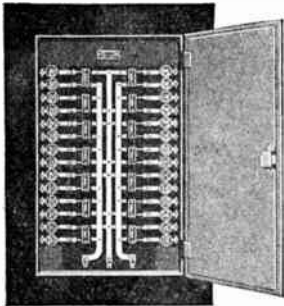
3-Wire Mains, 2-Fuse Branches—Single Door Cabinets

Branches: 2-Wire; 30-Ampere, 125-Volt Knife Switches; Plug Fuses

Mains: 125-250 Volt

### Panels with Main Lugs Only

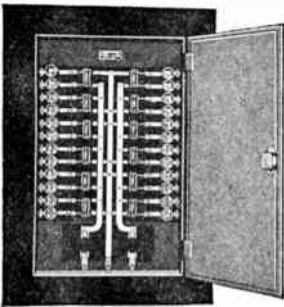
No. of Circuits	PANEL WITH CABINET Surface Cat. No.	Flush Cat. No.	Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
						Width	Height	Inside Depth		
4	97404	97454	30	4	R21	24 1/2	21	4 1/2	100	\$42.00
6	97406	97456	60	4	R24	24 1/2	24	4 1/2	151	48.00
8	97408	97458	60	4	R27	24 1/2	27	4 1/2	130	58.00
10	97410	97460	60	4	R30	24 1/2	30	4 1/2	145	68.00
12	97412	97462	60	4	R33	24 1/2	33	4 1/2	160	78.00
14	97414	97464	100	4	R36	24 1/2	36	4 1/2	175	90.00
16	97416	97466	100	4	R39	24 1/2	39	4 1/2	185	100.00
18	97418	97468	100	4	R42	24 1/2	42	4 1/2	200	110.00
20	97420	97470	100	4	R45	24 1/2	45	4 1/2	215	124.00
22	97422	97472	100	4	R48	24 1/2	48	4 1/2	225	134.00
24	97424	97474	100	4	R51	24 1/2	51	4 1/2	240	144.00
26	97426	97476	100	4	R54	24 1/2	54	4 1/2	255	154.00
28	97428	97478	100	4	R57	24 1/2	57	4 1/2	270	164.00
30	97430	97480	100	4	R60	24 1/2	60	4 1/2	285	174.00
32	97432	97482	100	4	R63	24 1/2	63	4 1/2	305	190.00



With Main Lugs Only

### Panels with Fusible Mains

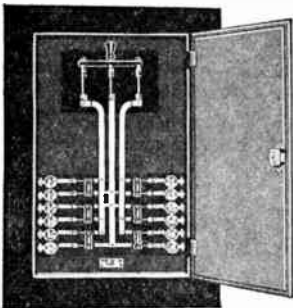
4	97504	97554	30	4	R24	24 1/2	24	4 1/2	115	\$52.00
6	97506	97556	60	4	R27	24 1/2	27	4 1/2	130	62.00
8	97508	97558	60	4	R30	24 1/2	30	4 1/2	145	72.00
10	97510	97560	60	4	R33	24 1/2	33	4 1/2	160	82.00
12	97512	97562	60	4	R36	24 1/2	36	4 1/2	175	92.00
14	97514	97564	100	4	R45	24 1/2	45	4 1/2	215	112.00
16	97516	97566	100	4	R48	24 1/2	48	4 1/2	225	122.00
18	97518	97568	100	4	R51	24 1/2	51	4 1/2	240	132.00
20	97520	97570	100	4	R54	24 1/2	54	4 1/2	255	142.00
22	97522	97572	100	4	R57	24 1/2	57	4 1/2	270	152.00
24	97524	97574	100	4	R60	24 1/2	60	4 1/2	285	162.00
26	97526	97576	100	4	R63	24 1/2	63	4 1/2	305	176.00
28	97528	97578	100	4	R66	24 1/2	66	4 1/2	325	186.00
30	97530	97580	100	4	R69	24 1/2	69	4 1/2	345	196.00
32	97532	97582	100	4	R72	24 1/2	72	4 1/2	360	206.00



With Fusible Mains

### Panels with Fuseless Main Knife Switch

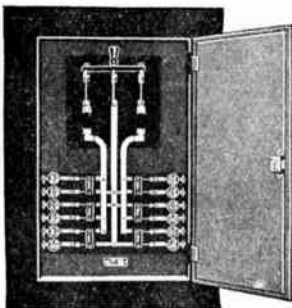
4	97604	97654	30	4	R30	24 1/2	30	4 1/2	130	\$62.00
6	97606	97656	60	4	R36	24 1/2	36	4 1/2	160	72.00
8	97608	97658	60	4	R39	24 1/2	39	4 1/2	175	80.00
10	97610	97660	60	4	R42	24 1/2	42	4 1/2	190	90.00
12	97612	97662	60	4	R45	24 1/2	45	4 1/2	205	100.00
14	97614	97664	100	4	R51	24 1/2	51	4 1/2	240	120.00
16	97616	97666	100	4	R54	24 1/2	54	4 1/2	255	130.00
18	97618	97668	100	4	R57	24 1/2	57	4 1/2	265	148.00
20	97620	97670	100	4	R60	24 1/2	60	4 1/2	285	158.00
22	97622	97672	100	4	R63	24 1/2	63	4 1/2	305	166.00
24	97624	97674	100	4	R66	24 1/2	66	4 1/2	320	176.00
26	97626	97676	100	4	R69	24 1/2	69	4 1/2	340	184.00
28	97628	97678	100	4	R72	24 1/2	72	4 1/2	360	200.00
30	97630	97680	100	4	R75	24 1/2	75	4 1/2	390	210.00
32	97632	97682	100	4	R78	24 1/2	78	4 1/2	400	220.00



With Fuseless Main Knife Switch

### Panels with Fusible Main Knife Switch

4	97704	97754	30	4	R30	24 1/2	30	4 1/2	130	\$62.00
6	97706	97756	60	4	R36	24 1/2	36	4 1/2	160	72.00
8	97708	97758	60	4	R39	24 1/2	39	4 1/2	175	80.00
10	97710	97760	60	4	R42	24 1/2	42	4 1/2	190	90.00
12	97712	97762	60	4	R45	24 1/2	45	4 1/2	205	100.00
14	97714	97764	100	4	R51	24 1/2	51	4 1/2	240	120.00
16	97716	97766	100	4	R54	24 1/2	54	4 1/2	255	130.00
18	97718	97768	100	4	R57	24 1/2	57	4 1/2	265	148.00
20	97720	97770	100	4	R60	24 1/2	60	4 1/2	285	158.00
22	97722	97772	100	4	R63	24 1/2	63	4 1/2	305	166.00
24	97724	97774	100	4	R66	24 1/2	66	4 1/2	320	176.00
26	97726	97776	100	4	R69	24 1/2	69	4 1/2	340	184.00
28	97728	97778	100	4	R72	24 1/2	72	4 1/2	360	200.00
30	97730	97780	100	4	R75	24 1/2	75	4 1/2	390	210.00
32	97732	97782	100	4	R78	24 1/2	78	4 1/2	400	220.00



With Fusible Main Knife Switch

Panels with unfused main switches can be furnished at same prices as panels with fusible main switches.

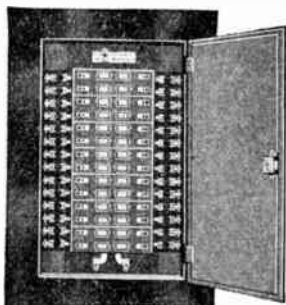
NOTE.—Panels arranged for cartridge fuses, but otherwise the same as panels listed on this page, will be furnished at the above prices.

Type NOCT Benjamin-Starrett Open Front Panels with Cabinets

3-Wire Mains, 1-Fuse Branches—Single Door Cabinets

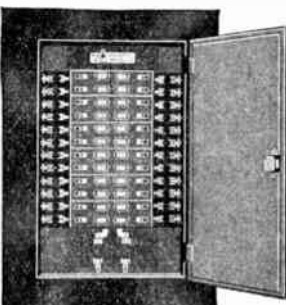
Branches: 2-Wire, 30-Ampere, 250-Volt Heavy Duty Tumbler Switches; Cartridge Fuses

Mains: 125-250 Volt



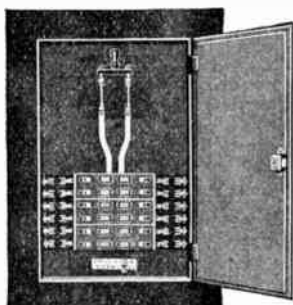
With Main Lugs Only

No. of Circuits	PANEL WITH CABINET		Capacity of Mains Amperes	Gutter Space Inches	Box No.	BOX DIMENSIONS, INCHES		Approx. Weight Pounds	Price Each
	Surface Cat. No.	Flush Cat. No.				OUTSIDE	INSIDE		
4	56004	56104	30	4	R18	24 1/2	18	90	\$34.00
8	56008	56108	60	4	R21	24 1/2	21	105	40.00
12	56012	56112	60	4	R24	24 1/2	24	120	50.00
16	56016	56116	100	4	R27	24 1/2	27	135	74.00
20	56020	56120	100	4	R30	24 1/2	30	150	84.00
24	56024	56124	100	4	R33	24 1/2	33	165	94.00
28	56028	56128	100	4	R36	24 1/2	36	180	104.00
32	56032	56132	100	4	R39	24 1/2	39	195	114.00
36	56036	56136	200	4	R42	24 1/2	42	210	134.00
40	56040	56140	200	4	R45	24 1/2	45	225	144.00
44	56044	56144	200	4	R48	24 1/2	48	240	160.00
48	56048	56148	200	4	R51	24 1/2	51	255	170.00
52	56052	56152	200	4	R54	24 1/2	54	270	180.00
56	56056	56156	200	4	R57	24 1/2	57	285	194.00
60	56060	56160	200	4	R60	24 1/2	60	305	210.00



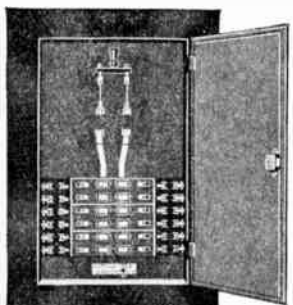
With Fusible Mains

Panels with Fusible Mains									
4	56204	56304	30	4	R21	24 1/2	21	105	\$46.00
8	56208	56308	60	4	R24	24 1/2	24	120	58.00
12	56212	56312	60	4	R27	24 1/2	27	135	70.00
16	56216	56316	100	4	R36	24 1/2	36	180	90.00
20	56220	56320	100	4	R39	24 1/2	39	195	102.00
24	56224	56324	100	4	R42	24 1/2	42	210	114.00
28	56228	56328	100	4	R45	24 1/2	45	225	126.00
32	56232	56332	100	4	R48	24 1/2	48	240	138.00
36	56236	56336	200	4	R54	24 1/2	54	270	160.00
40	56240	56340	200	4	R57	24 1/2	57	285	172.00
44	56244	56344	200	4	R60	24 1/2	60	305	192.00
48	56248	56348	200	4	R63	24 1/2	63	325	204.00
52	56252	56352	200	4	R66	24 1/2	66	345	216.00
56	56256	56356	200	4	R69	24 1/2	69	365	228.00
60	56260	56360	200	4	R72	24 1/2	72	385	240.00



With Fuseless Main Knife Switch

Panels with Fuseless Main Knife Switch									
4	56404	56504	30	4	R27	24 1/2	27	135	\$64.00
8	56408	56508	60	4	R33	24 1/2	33	150	81.00
12	56412	56512	60	4	R36	24 1/2	36	165	93.00
16	56416	56516	100	4	R42	24 1/2	42	195	118.00
20	56420	56520	100	4	R45	24 1/2	45	210	130.00
24	56424	56524	100	4	R48	24 1/2	48	225	142.00
28	56428	56528	100	4	R51	24 1/2	51	240	154.00
32	56432	56532	100	4	R54	24 1/2	54	255	174.00
36	56436	56536	200	4	R60	24 1/2	60	290	207.00
40	56440	56540	200	4	R63	24 1/2	63	310	221.00
44	56444	56544	200	4	R66	24 1/2	66	330	233.00
48	56448	56548	200	4	R69	24 1/2	69	350	245.00
52	56452	56552	200	4	R72	24 1/2	72	370	257.00
56	56456	56556	200	4	R75	24 1/2	75	390	271.00
60	56460	56560	200	4	R78	24 1/2	78	410	287.00



With Fusible Main Knife Switch

Panels With Fusible Main Knife Switch									
4	56604	56704	30	4	R27	24 1/2	27	135	\$64.00
8	56608	56708	60	4	R33	24 1/2	33	150	81.00
12	56612	56712	60	4	R36	24 1/2	36	165	93.00
16	56616	56716	100	4	R42	24 1/2	42	195	118.00
20	56620	56720	100	4	R45	24 1/2	45	210	130.00
24	56624	56724	100	4	R48	24 1/2	48	225	142.00
28	56628	56728	100	4	R51	24 1/2	51	240	154.00
32	56632	56732	100	4	R54	24 1/2	54	255	174.00
36	56636	56736	200	4	V60	24 1/2	60	290	207.00
40	56640	56740	200	4	V63	24 1/2	63	310	221.00
44	56644	56744	200	4	V66	24 1/2	66	330	233.00
48	56648	56748	200	4	V69	24 1/2	69	350	245.00
52	56652	56752	200	4	V72	24 1/2	72	370	257.00
56	56656	56756	200	4	V75	24 1/2	75	390	271.00
60	56660	56760	200	4	V78	24 1/2	78	410	287.00



## Benjamin-Starrett Little Sentry Panel Boards with Cabinets

For Residences, Apartment Buildings, Small Stores, Schools, Small Factories and Similar Places Having from 4 to 12 Branch Circuits

Little Sentry Panels are ready for installations. Require no preliminary labor or adjustment. No rear connections to make. Trim, panel, fuse strips, and fuse receptacles can all be removed from the front. Wiring terminal of fuse receptacle is one piece and is held in place by two small bolts. Contact is made with the entire base of the fuse shell.

Safety is assured the user because a protective shield covers all live metal parts.

The following features make easy installation of Little Sentry Panels:

Panel is easily removed for pulling in wires by a quarter turn of 4 screws.

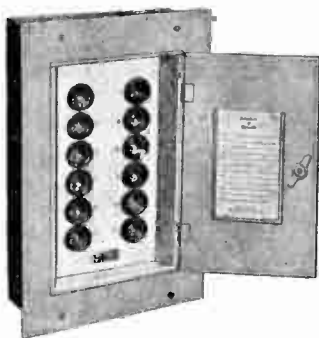
Fuse strip is removed by taking out 2 screws at top and bottom.

Each neutral branch connection is opposite fuse for that circuit simplifying the tracing of circuits.

Easy access to neutral bar by removal of fuse strip eliminating the bunching of wires at end of panel.

Fuse receptacles easily removed from panel without disturbing wiring.

Blown fuse can easily be located. The slot in the receptacle base makes it simple and safe to use a test lamp.



### Type NP Little Sentry Panels with Cabinets

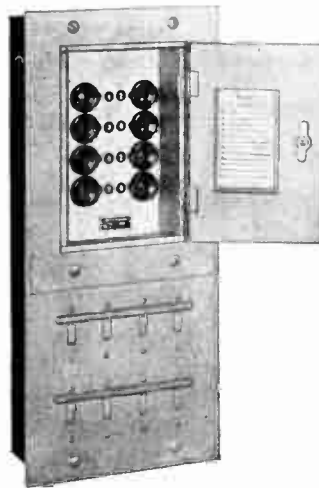
For 3-Wire Service

Mains: 125-250-Volt

1-Fuse Branches

Branches: Arranged for Plug Fuses Only

Cat. No.	No. of Circuits	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
		Width	Height	Inside Depth		
66104	4	9½	9½	3½	15	\$6.30
66106	6	9½	11	3½	17	9.00
66108	8	9½	12½	3½	19	10.80
66110	10	9½	14	3½	21	12.60
66112	12	9½	15½	3½	23	14.40



### Type NEP Little Sentry Panels with Cabinets

Arranged with Switch Plates

For 3-Wire Service

Mains: 125-250-Volt, 1-Fuse Branches

Branches: 125-Volt, Arranged for Plug Fuses

Cat. No.	No. of Circuits	No. of Switch Mountings	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
			Width	Height	Inside Depth		
66304	4	4	9½	15½	3½	16	\$8.60
66306	6	8	9½	20	3½	18	12.50
66308	8	8	9½	21½	3½	20	15.50
66310	10	12	9½	27½	3½	23	20.00
66312	12	12	9½	29	3½	24	23.20

### Type P Little Sentry Panels with Cabinets

For 3 and 2-Wire Service

Mains: 125-250-Volt 3-Wire; 125-Volt 2-Wire

2-Fuse Branches

Branches: Arranged for Plug Fuses Only

Cat. No.	No. of Circuits	BOX DIMENSIONS, INCHES			Approx. Weight Pounds	Price Each
		Width	Height	Inside Depth		
66204	4	9½	12½	3½	19	\$9.00
66206	6	9½	15½	3½	23	13.50
66208	8	9½	18½	3½	26	16.20
66210	10	9½	21½	3½	29	18.90
66212	12	9½	24½	3½	34	22.50

### Type EP Little Sentry Panels with Cabinets

Arranged with Switch Plates

For 3 and 2-Wire Service

Mains: 125-250-Volt 3 Wire; 125-Volt 2 Wire; 2-Fuse Branches

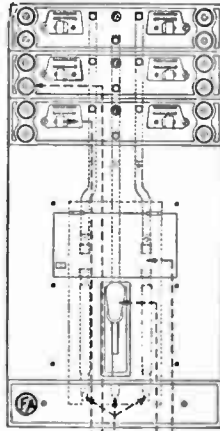
Branches: 125-Volt, Arranged for Plug Fuses

Cat. No.	No. of Circuits	No. of Switch Mountings	BOX DIMENSIONS, INCHES			Weight Pounds	Price Each
			Width	Height	Inside Depth		
66404	4	4	9½	18½	3½	20	\$12.50
66406	6	8	9½	24½	3½	24	18.50
66408	8	8	9½	27½	3½	27	23.20
66410	10	12	9½	35	3½	31	26.40
66412	12	12	9½	38	3½	36	30.50

FA Panelboard and Cabinet Units

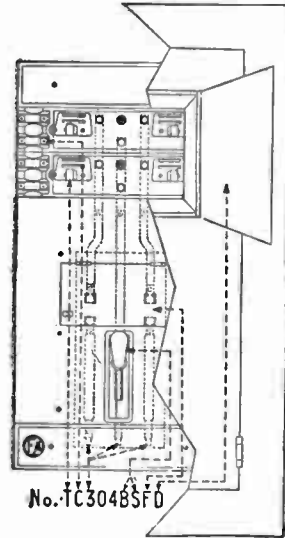
Explanation of Descriptive Catalogue Numbers

With the Frank Adam Electric Company method of descriptive listing your order is fully understood in all details through the various letters comprising each catalogue number. Should a clerical error be made when sending us the order the mistake will at once be noticed and inquiry made. This saves expensive shipments and a great deal of valuable time that occasionally are needlessly wasted when numerals and not descriptive listings are used. These catalogue listings were devised for your convenience and to enable us to give you better and faster service. Please note them carefully and use them in ordering.



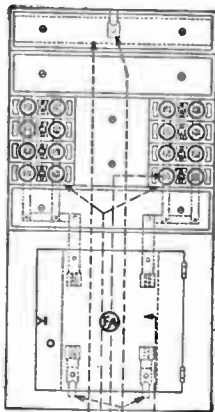
No. TP306BSF

- T—Tumbler Switch In Branches
- P—Plug Fuse Connection in Branches
- 3—3-wire Mains
- 06—Number of Branch Circuits
- BS—Brush Type Main Switch
- F—Fuse Connections in Mains



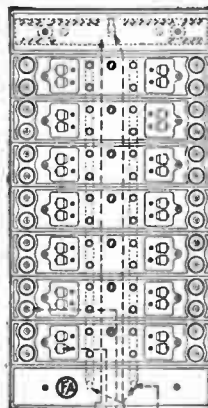
No. TC304BSFD

- T—Tumbler Switch In Branches
- C—Cartridge Fuse Connections in Branches
- 3—3-wire Mains
- 04—Number of Branch Circuits
- BS—Brush Type Main Switch
- D—Door-In-Door Steel Front



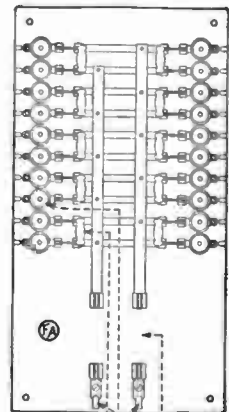
No. N2P316F

- N—Neutral Solid In Branches
- 2—Two Row Construction
- P—Plug Fuses in Branches
- 3—3-wire Mains
- 16—Number of Branch Circuits
- F—Fuse Connections in Mains



No. NTP328L

- N—Neutral Solid In Branches
- T—Tumbler Switch In Branches
- P—Plug Fuse Connections Branches
- 3—3-wire Mains
- 28—Number of Branch Circuits
- L—Lugs Only In Mains



No. KP210F

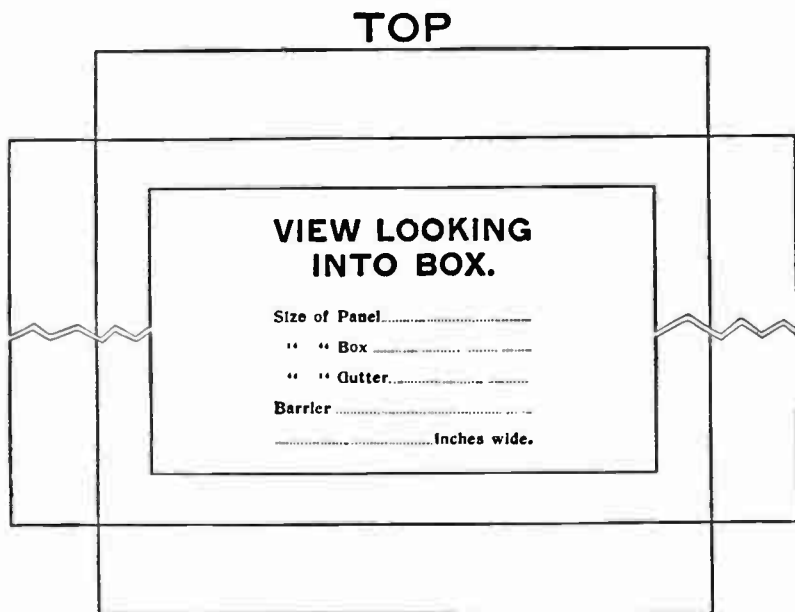
- K—Knife Switch In Branches
- P—Plug Fuse Connections in Branches
- 2—2-wire Mains
- 10—Number of Branch Circuits
- F—Fuse Connections in Mains

## FA Drilling (Hole) Template for Steel Box Cabinets

If standard knockouts as shown in catalogue will not be satisfactory, send template, showing layout of holes with order, as we cannot start work on boxes until template is received.

NOTE.—Unless Template is sent with order, boxes will be shipped with standard knockouts.

### Dimensions of Conduit, Bushings and Spacing of Same



#### Rigid Enameled Steel Conduit

Internal Diameter Inches	Hole in Box Inches	Center to Center Inches
1/2	7/8	1 3/8
3/4	1 1/8	1 5/8
1	1 3/8	2
1 1/4	1 3/4	2 3/8
1 1/2	2	2 5/8
2	2 1/2	3 1/8
2 1/2	3	3 3/4
3	3 1/8	4 3/8
3 1/2	4 1/8	5 1/8
4	4 3/4	5 5/8

#### Flexible Conduit

1/4	5/8	1
3/8	11/16	1 1/8
1/2	7/8	1 3/8
5/8	1	1 1/2
3/4	1 1/8	1 5/8
1	1 3/8	2
1 1/4	1 3/4	2 3/8

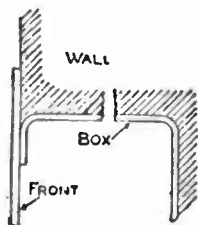
#### Federal Clamp Bushings

Cat. No.	Internal Diameter Inches	Hole in Box Inches	Center to Center Inches
1-A	9/32	11/16	1
2-A	16/32	7/8	1 1/4
3-A	9/16	1 1/8	1 3/8
4-A	3/4	1 3/8	1 3/4
5-A	1 1/8	1 3/4	2 1/8
6-A	1 5/8	2 1/2	2 7/8

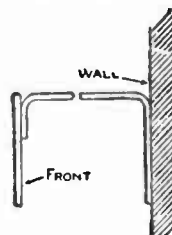
### Are Fronts for Flush or Surface Mounting?

Indicate on Order—Flush or Surface Mounting

Flush Mounting



Surface Mounting



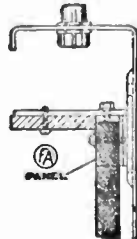
### How Shall Conduit Enter Box?

Indicate on Order—Back—Center or Front—Conduit Entrance

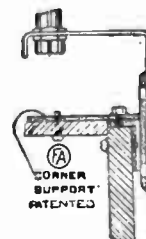
Back



Center



Front

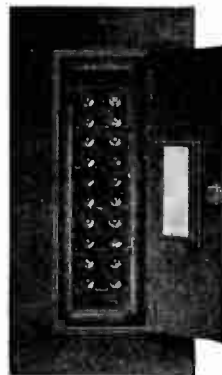


NOTE.—We will furnish copies of this Template on request.

## FA Safety Type Standardized 2-Fuse Panel Boards and Cabinets



Type R



Type R3G

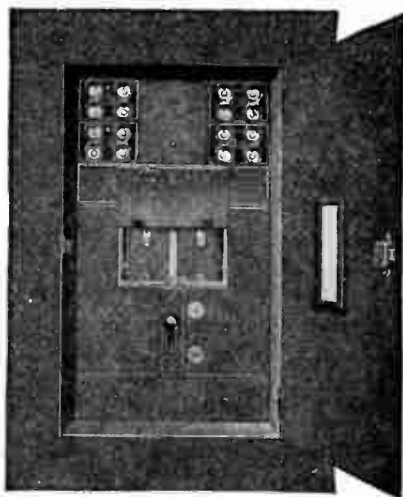
Type R Panel Boards are polarity type and built up of sections made of asbestos composition impervious to moisture. Each section contains two branch circuits. These sections are mounted on back of box, completely assembled, ready for connections to mains and branch circuits.

On account of the small wiring gutter, this type of panel board and cabinet can be used only when feeds for panel terminate in this cabinet. Whenever necessary to run risers through the cabinet, use Type R3G.

These panel boards can be used for either 2 or 3-wire service. Cabinets have 1½-inch gutter; fronts are finished in white lacquer with doors fitted with FA Latch only.

Type R3G Boards are also built up of single sections but the sections instead of being mounted on back of box are mounted on removable steel mounting backs.

This type of panel board is made with main lugs only as they are not wide enough to accommodate main switches or sub-feeders. Cabinets have standard 3-inch gutters, with adjustable panel board supports, with fronts finished in black lacquer having doors fitted with FA Latch only.



Type 2P3BSF

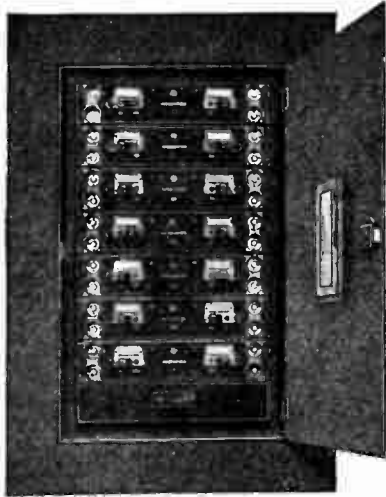
Type 2P3 Panel Boards are built up of 2 rows of single circuit sections and have the sections mounted on removable steel mounting backs. Main and sub-feeder switches are all safety brush type.

Main fuses are placed under separate locked doors and when used with safety switches cannot be opened unless switches are disconnected.

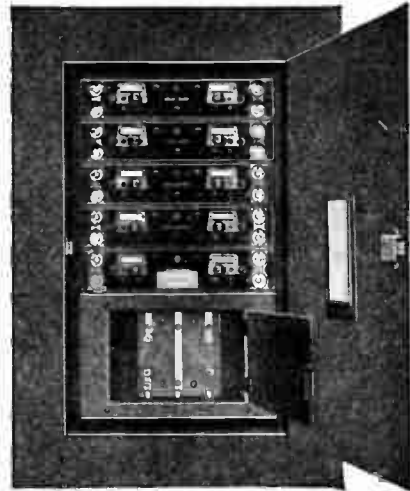
This type of panel board can be furnished with or without safety main switches. Sub-feeders and increased mains shown on other pages can be used on this type of panel.

Cabinets have standard width gutter with adjustable panel board supports having fronts finished in black lacquer with doors fitted with FA Catch Locks.

## FA Safety Type Standardized 2-Fuse Panel Boards and Cabinets



Type TP3L



Type TP3F

Type TP Panel Boards are built up with double branch sections made of asbestos composition. Each section has two 30-ampere 250-volt double pole tumbler switches with N. E. C. Edison plug fuse connections.

All sections are mounted on steel panel backs connected complete ready for main and branch circuit connections.

Main fuses are placed under separate locked doors and when used with safety main or sub-feeder switches, the doors cannot be opened unless the switches are disconnected.

Main switches are all safety brush type.

Cabinets have standard width gutters with adjustable panel board supports.

Fronts are finished in black lacquer and regularly furnished with one door equipped with FA Catch Lock as this type of panel board has no live metal parts exposed and when fuses are installed are absolutely safe.

When specified, door in front door as called for below in connection with TC panel boards and cabinets, will be supplied.



Type TC3BSFD

Type TC Panel Boards are also built up with double branch sections, each section having two 30-ampere, 250-volt double pole tumbler switches with N. E. C. cartridge fuse connections.

Mains are equipped same as for TP panel boards above.

The fronts are regularly furnished in "door in door" construction; the inner door, permitting access to branch switch handles only, is fitted with FA Latch; the main door permitting access to the entire panel board is fitted with FA Catch Lock.

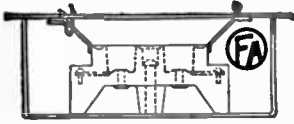
On special order, fronts with one door only, which leaves the panel boards semi-safe, will be furnished, and will not be classed as a safety type panel board.

## FA Safety Type Panel Boards and Cabinets

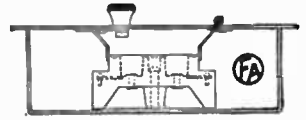
### Type R Safety Type—2-Fuse

For 2 and 3-Wire Service

Mains, 125-250 Volts, 125-Volt Branches, with N. E. C. Plug Fuse Connections



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, 1½-inch gutter. Front is of code thickness steel, white lacquer finish.



#### Main Lugs Only

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Approx. Wt. Lbs.	Price Each
			Width	Height	Depth		
R2	2	30	9½	6½	3¾	16	\$6.30
R4	4	30	9½	9½	3¾	20	9.00
R6	6	40	9½	15½	3¾	25	13.50
R8	8	60	9½	18½	3¾	30	16.20
R10	10	60	9½	21½	3¾	35	18.90
R12	12	60	9½	24½	3¾	40	22.50

#### With Main Switch with Fuse Connections, Solid Neutral

R2S	2	..	9½	12½	3¾	25	\$12.60
R4S	4	..	9½	15½	3¾	30	14.40
R6S	6	Special	9½	21½	3¾	35	18.00
R8S	8	Mains	9½	24½	3¾	40	21.60

### Type R3G Safety Type—2-Fuse

For 2 and 3-Wire Service

Mains, 125-250 Volts, 125-Volt, 30-Ampere

Double Pole Branches with N. E. C. Plug Fuse Connections

Panels are made of sections of molded material. Mains, 1929 N. E. C. capacity per branch. Boxes are made of code thickness galvanized steel, 3-inch gutter. Front is of code thickness steel, black lacquer finish; flush or surface.

#### Main Lugs Only

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each	
			Width	Height	Depth				
R3G04	4	30	12½	14	4	5½	7	35	\$20.00
R3G06	6	40	12½	20	4	5½	13	40	25.00
R3G08	8	60	12½	23	4	5½	16	45	30.00
R3G10	10	60	12½	26	4	5½	19	50	35.00
R3G12	12	60	12½	29	4	5½	22	55	40.00
R3G14	14	100	12½	35	4	5½	23	60	45.00
R3G16	16	100	12½	39	4	5½	31	65	50.00
R3G18	18	100	12½	41	4	5½	34	70	55.00
R3G20	20	100	12½	44	4	5½	37	75	60.00

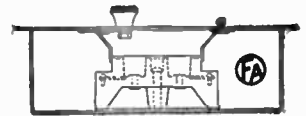
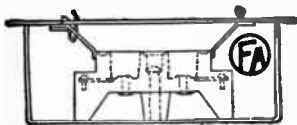
### Type NR Safety Type—1-Fuse

For 2 and 3-Wire Service

Mains, 125-250 Volts, 125-Volt, 30-Ampere

Single Pole Branches with N. E. C. Plug Type Connections

Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, 1½-inch gutter. Front is of code thickness steel, white lacquer finish.



Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Approx. Wt. Lbs.	Price Each
			Width	Height	Depth		
NR4	4	30	9½	6½	3¾	12	\$6.30
NR6	6	40	9½	9½	3¾	16	9.00
NR8	8	60	9½	12½	3¾	20	10.80
NR12	12	60	9½	15½	3¾	25	14.40

### Type NR3G Safety Type—1-Fuse

For 2 and 3-Wire Service

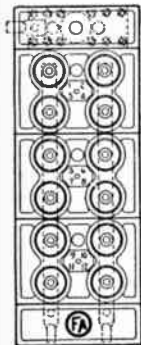
Mains, 125-250 Volts, 125-Volt, 30-Ampere

Single Pole Branches with N. E. C. Plug Type Connections

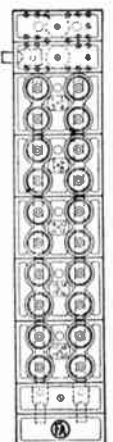
Panels are made of sections of molded material. Mains, 1929 N. E. C. capacity per branch. Boxes are made of code thickness galvanized steel, 3-inch gutter. Front is of code thickness steel, black lacquer finish; flush or surface.

#### Main Lugs Only

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each	
			Width	Height	Depth				
NR3G08	8	60	12½	17	4¼	5½	10	40	\$20.00
NR3G12	12	60	12½	20	4¼	5½	13	45	24.00
NR3G16	16	100	12½	26	4¼	5½	19	50	30.00
NR3G20	20	100	12½	29	4¼	5½	22	55	34.00



Type NR



Type NR3G



## FA Type 2P2 Safety Type 2-Fuse Panel Boards and Cabinets

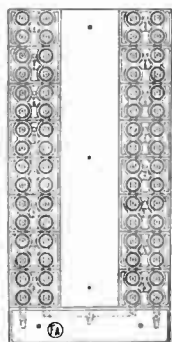
2-Wire, 125-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Double Pole N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

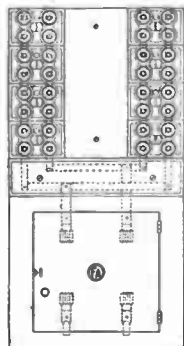
### Main Cable Lugs Only



Type 2P2L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
	4		See Type R3G Panel Board Prices						
2P208L	8	100	22	17	4½	15	10	85	\$45.00
2P212L	12	200	14	22	4½	15	13	100	52.00
2P216L	16	200	24	25	4½	15	16	120	60.00
2P220L	20	200	24	28	4½	15	19	135	70.00
2P224L	24	200	24	31	4½	15	22	155	80.00
2P228L	28	200	24	34	4½	15	25	175	90.00
2P232L	32	200	24	37	4½	15	28	190	100.00

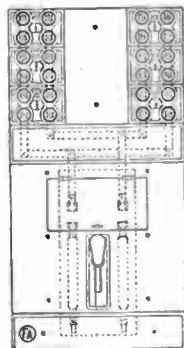
### Main Fuse Connections



Type 2P2F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
2P204F	4	60	22	23	4½	15	16	95	\$54.00
2P208F	8	100	22	29	4½	15	22	115	68.00
2P212F	12	200	24	37	4½	15	28	145	85.00
2P216F	16	200	24	40	4½	15	31	160	95.00
2P220F	20	200	24	43	4½	15	34	175	105.00
2P224F	24	200	24	46	4½	15	37	195	115.00
2P228F	28	200	24	49	4½	15	40	210	125.00
2P232F	32	200	24	52	4½	15	43	225	135.00

### Main Brush Type Switch with Fuse Connections



Type 2P2BSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
2P204BSF	4	60	22	29	4½	15	22	120	\$70.00
2P208BSF	8	100	22	35	4½	15	28	150	80.00
2P212BSF	12	200	24	43	4½	15	34	190	120.00
2P216BSF	16	200	24	46	4½	15	37	200	130.00
2P220BSF	20	200	24	49	4½	15	40	215	140.00
2P224BSF	24	200	24	52	4½	15	43	230	150.00
2P228BSF	28	200	24	55	4½	15	46	245	160.00
2P232BSF	32	200	24	58	4½	15	49	260	180.00

NOTE.—Panels will not be made for less than 4 circuit branches.

FA Type N2P3 Safety Type 1-Fuse Panel Boards and Cabinets

Single Fuse in Branch Circuits



Type N2P3L with Mains and Grounded Branch Circuit Connections Exposed

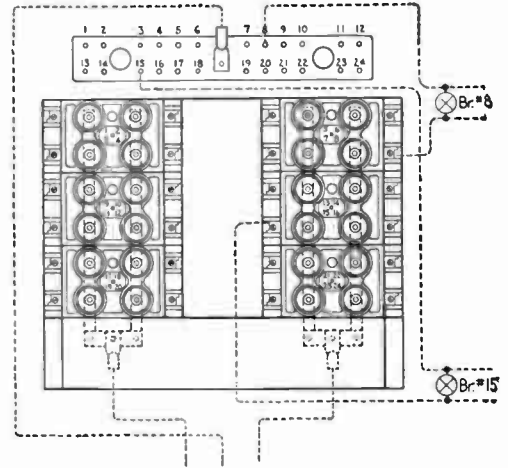
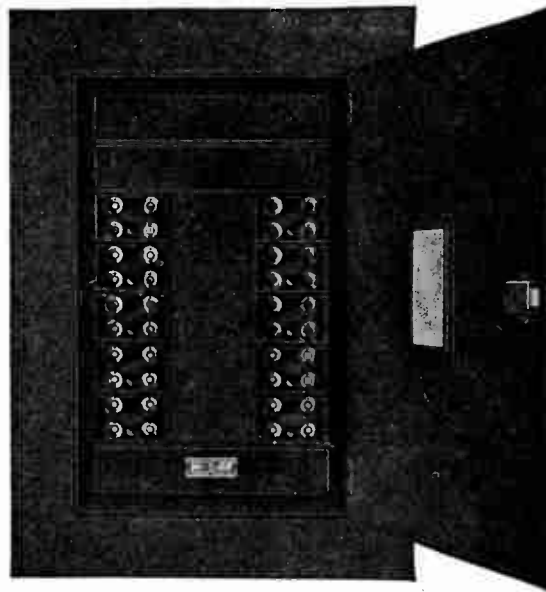


Diagram of Connections N2P3L Panels



Type N2P3L with Mains and Branch Circuit Connections Concealed

This type of panel board is built up complete with moulded sections mounted on steel backs ready for main and branch circuit connections.

Each section has 4 N.E.C. Edison plug fuse connections for 4 branch circuits connected to ungrounded bus bars, the grounded side of branch circuit and main connections are placed at top of board and when connected are concealed

by a blank section. Each connection is properly marked to correspond with markings of ungrounded branch circuits.

Cabinet boxes have standard width gutters between and around sections with adjustable corner supports.

Front is finished in black lacquer and has single door, equipped with FA Catch Locks.

## FA Type N2P3 Safety Type 1-Fuse Panel Boards and Cabinets

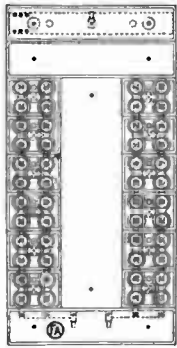
### 3-Wire, 125-250-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Single Pole N. E. C. Plug Fuse Connections, Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

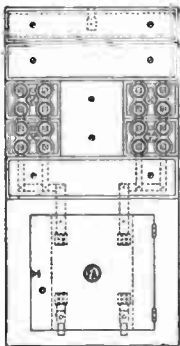
### Main Cable Lugs Only



Type N2P3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
.....	4		See Type NR3G Panel Board Prices.						
.....	8		See Type NR3G Panel Board Prices.						
.....	12		See Type NR3G Panel Board Prices.						
N2P316L	16	100	22	20	4½	15	13	100	\$56.00
N2P324L	24	100	22	23	4½	15	16	120	66.00
N2P332L	32	100	22	26	4½	15	19	135	76.00
N2P340L	40	200	22	32	4½	15	25	175	100.00
N2P348L	48	200	22	35	4½	15	28	190	115.00
N2P356L	56	200	24	40	4½	15	31	210	130.00
N2P364L	64	200	24	43	4½	15	34	225	150.00

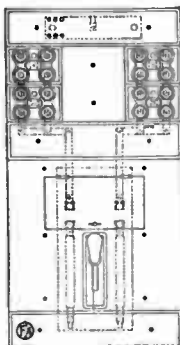
### Main Fuse Connections—Solid Neutral



Type N2P3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
N2P308F	8	60	22	26	4½	15	19	105	\$60.00
N2P316F	16	100	22	35	4½	15	28	145	80.00
N2P324F	24	100	22	38	4½	15	31	160	90.00
N2P332F	32	100	24	43	4½	15	34	175	105.00
N2P340F	40	200	24	49	4½	15	40	210	130.00
N2P348F	48	200	24	52	4½	15	43	225	145.00
N2P356F	56	200	24	55	4½	15	46	240	160.00
N2P364F	64	200	24	58	4½	15	49	255	175.00

### Main Brush Type Switch with Fuse Connections—Solid Neutral



Type N2P3BSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
N2P308BSF	8	60	22	32	4½	15	25	135	\$74.00
N2P316BSF	16	100	24	43	4½	15	34	180	95.00
N2P324BSF	24	100	24	46	4½	15	37	200	108.00
N2P332BSF	32	100	24	49	4½	15	40	215	120.00
N2P340BSF	40	200	24	55	4½	15	46	245	160.00
N2P348BSF	48	200	24	58	4½	15	49	260	180.00
N2P356BSF	56	200	24	61	4½	15	52	275	200.00
N2P364BSF	64	200	24	64	4½	15	55	290	220.00

FA Type 2P3 Safety Type 2-Fuse Panel Boards and Cabinets

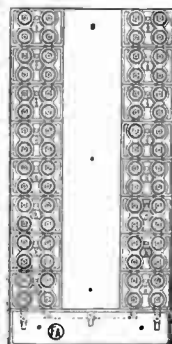
3-Wire, 125-250-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Double Pole N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

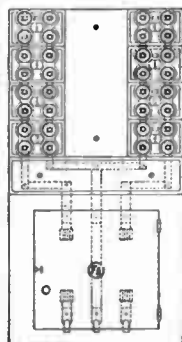
Main Cable Lugs Only



Type 2P3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
See Type R3G Panel Board Prices.									
2P308L	8	60	22	17	4 1/2	15	10	85	\$45.00
2P312L	12	60	22	20	4 1/2	15	13	100	52.00
2P316L	16	100	22	23	4 1/2	15	16	120	60.00
2P320L	20	100	22	26	4 1/2	15	19	135	70.00
2P324L	24	100	22	29	4 1/2	15	22	155	80.00
2P328L	28	100	22	32	4 1/2	15	25	175	90.00
2P332L	32	100	22	35	4 1/2	15	23	190	100.00
2P336L	36	200	24	40	4 1/2	15	31+	210	115.00
2P340L	40	200	24	43	4 1/2	15	34	225	125.00
2P344L	44	200	24	46	4 1/2	15	37	240	135.00
2P348L	48	200	24	49	4 1/2	15	40	255	145.00
2P352L	52	200	24	52	4 1/2	15	43	260	160.00
2P356L	56	200	24	55	4 1/2	15	46	275	170.00
2P360L	60	200	24	58	4 1/2	15	49	290	180.00

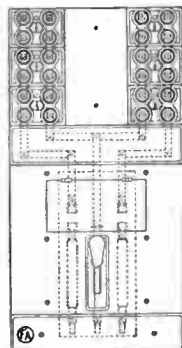
Main Fuse Connections—Solid Neutral



Type 2P3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
2P304F	4	30	22	23	4 1/2	15	16	95	\$54.00
2P308F	8	60	22	26	4 1/2	15	19	105	62.00
2P312F	12	60	22	29	4 1/2	15	22	115	70.00
2P316F	16	100	22	35	4 1/2	15	23	145	85.00
2P320F	20	100	22	38	4 1/2	15	31	160	95.00
2P324F	24	100	24	43	4 1/2	15	34	175	105.00
2P328F	28	100	24	46	4 1/2	15	37	195	115.00
2P332F	32	100	24	49	4 1/2	15	40	210	125.00
2P336F	36	200	24	55	4 1/2	15	46	240	145.00
2P340F	40	200	24	58	4 1/2	15	49	255	160.00
2P344F	44	200	24	61	4 1/2	15	52	270	170.00
2P348F	48	200	24	64	4 1/2	15	55	285	180.00
2P352F	52	200	24	67	4 1/2	15	53	300	190.00
2P356F	56	200	24	70	4 1/2	15	61	315	200.00
2P360F	60	200	24	73	4 1/2	15	64	330	210.00

Main Brush Type Switch with Fuse Connections—Solid Neutral



Type 2P3BSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
2P304BSF	4	30	22	29	4 1/2	15	22	120	\$70.00
2P308BSF	8	60	22	32	4 1/2	15	25	135	78.00
2P312BSF	12	60	22	35	4 1/2	15	28	150	86.00
2P316BSF	16	100	24	43	4 1/2	15	34	180	100.00
2P320BSF	20	100	24	46	4 1/2	15	37	200	110.00
2P324BSF	24	100	24	49	4 1/2	15	40	215	120.00
2P328BSF	28	100	24	52	4 1/2	15	43	230	136.00
2P332BSF	32	100	24	55	4 1/2	15	46	245	146.00
2P336BSF	36	200	24	61	4 1/2	15	52	275	184.00
2P340BSF	40	200	24	64	4 1/2	15	55	290	194.00
2P344BSF	44	200	24	67	4 1/2	15	58	305	204.00
2P348BSF	48	200	24	70	4 1/2	15	61	320	214.00
2P352BSF	52	200	24	73	4 1/2	15	64	335	224.00
2P356BSF	56	200	24	76	4 1/2	15	67	350	234.00
2P360BSF	60	200	24	79	4 1/2	15	70	365	244.00

## FA Type TP2 Safety Type 2-fuse Panel Boards and Cabinets

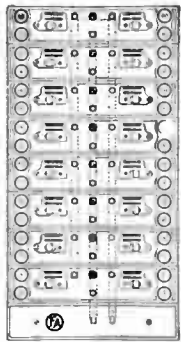
2-wire, 125-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface. One door construction.

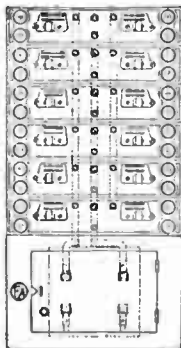
### Main Cable Lugs Only



Type TP2L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP204L	4	60	22	14	4 1/2	15 7	75	\$42.00
TP206L	6	100	22	20	4 1/2	15 13	105	52.00
TP208L	8	100	22	23	4 1/2	15 16	115	62.00
TP210L	10	100	22	26	4 1/2	15 19	125	72.00
TP212L	12	200	24	31	4 1/2	15 22	135	82.00
TP214L	14	200	24	34	4 1/2	15 25	150	94.00
TP216L	16	200	24	37	4 1/2	15 28	170	104.00
TP218L	18	200	24	40	4 1/2	15 31	190	114.00
TP220L	20	200	24	43	4 1/2	15 34	210	124.00
TP222L	22	200	24	46	4 1/2	15 37	230	134.00
TP224L	24	200	24	49	4 1/2	15 40	250	144.00
TP226L	26	200	24	52	4 1/2	15 43	270	159.00
TP228L	28	200	24	55	4 1/2	15 46	290	169.00
TP230L	30	200	24	58	4 1/2	15 49	310	184.00
TP232L	32	200	24	61	4 1/2	15 52	330	200.00

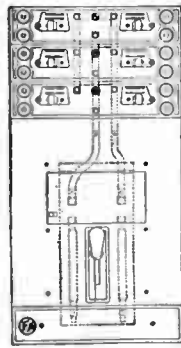
### Main Fuse Connections



Type TP2F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP204F	4	60	22	23	4 1/2	15 16	95	\$58.00
TP206F	6	100	22	29	4 1/2	15 22	115	70.00
TP208F	8	100	22	32	4 1/2	15 25	125	80.00
TP210F	10	100	22	35	4 1/2	15 28	135	90.00
TP212F	12	200	24	43	4 1/2	15 34	155	110.00
TP214F	14	200	24	46	4 1/2	15 37	175	120.00
TP216F	16	200	24	49	4 1/2	15 40	195	130.00
TP218F	18	200	24	52	4 1/2	15 43	215	140.00
TP220F	20	200	24	55	4 1/2	15 46	235	150.00
TP222F	22	200	24	58	4 1/2	15 49	255	170.00
TP224F	24	200	24	61	4 1/2	15 52	275	180.00
TP226F	26	200	24	64	4 1/2	15 55	295	190.00
TP228F	28	200	24	67	4 1/2	15 58	315	200.00
TP230F	30	200	24	70	4 1/2	15 61	335	210.00
TP232F	32	200	24	73	4 1/2	15 64	355	220.00

### Main Brush Type Switch with Fuse Connections



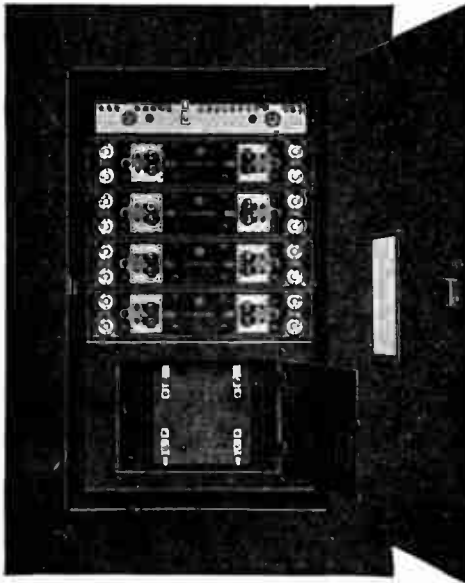
Type TP2BSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP204BSF	4	60	22	29	4 1/2	15 22	125	\$72.00
TP206BSF	6	100	22	35	4 1/2	15 28	160	92.00
TP208BSF	8	100	22	38	4 1/2	15 31	180	102.00
TP210BSF	10	100	24	43	4 1/2	15 34	200	112.00
TP212BSF	12	200	24	52	4 1/2	15 43	220	144.00
TP214BSF	14	200	24	55	4 1/2	15 46	240	154.00
TP216BSF	16	200	24	58	4 1/2	15 49	260	174.00
TP218BSF	18	200	24	61	4 1/2	15 52	280	184.00
TP220BSF	20	200	24	64	4 1/2	15 55	300	194.00
TP222BSF	22	200	24	67	4 1/2	15 58	320	204.00
TP224BSF	24	200	24	70	4 1/2	15 61	340	214.00
TP226BSF	26	200	24	73	4 1/2	15 64	360	230.00
TP228BSF	28	200	24	76	4 1/2	15 67	380	244.00
TP230BSF	30	200	24	79	4 1/2	15 70	400	260.00
TP232BSF	32	200	24	82	4 1/2	15 73	420	274.00

NOTE.—Panels will not be made for less than 4 circuit branches.

## FA Type NTP3 Safety Type 1-fuse Panel Boards and Cabinets

## Single Fuse in Branch Circuit



With Mains and Grounded Branch  
Circuit Connections Exposed

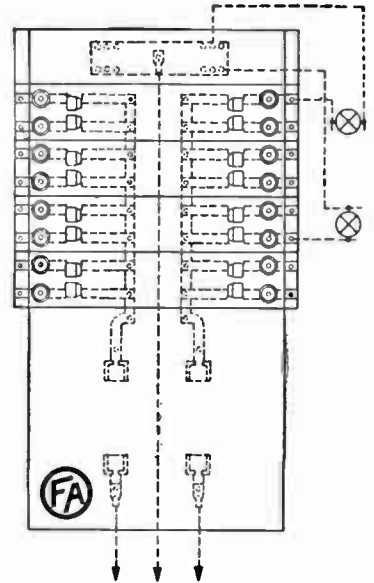
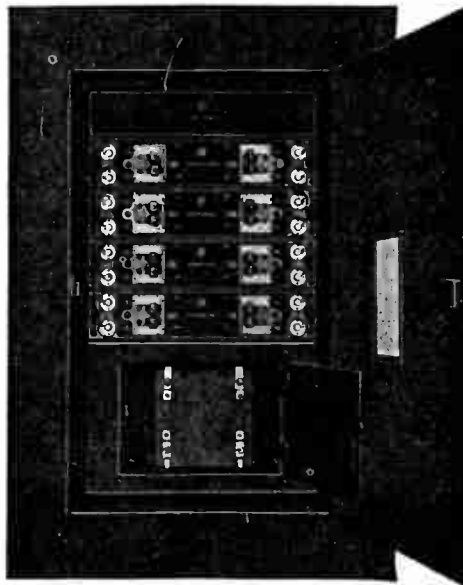


Diagram of Connections



With Mains and Branch Circuit  
Connections Concealed

This type of panel board is built up complete with moulded sections, mounted on steel backs ready for main and branch circuit connections.

Each section has four 30-ampere, 125-volt, single pole tumbler switches with N.E.C. Edison plug fuse connections for controlling ungrounded sides of branch circuits, the grounded side of each branch circuit is fed direct from the bus bar and is not fused.

All unfused branch circuit connections on grounded bus are located at top of board and when connected up are concealed by blank sections. Each branch circuit connection is properly marked to correspond with markings of ungrounded branch circuits.

Cabinet has standard width gutters with adjustable panel board supports.

Front is finished in black lacquer and has single door equipped with FA Catch Lock.



## FA Type NTP3 Safety Type 1-Fuse Panel Boards and Cabinets

3-Wire, 125-250-Volt Mains

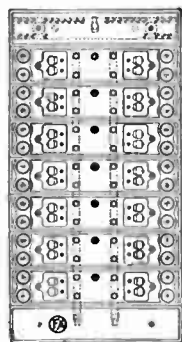
2-Wire, 125-Volt Branches with 30-Ampere Single Pole Tumbler Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

One door construction.

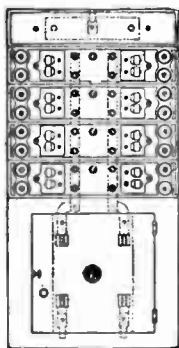
### Main Cable Lugs Only



Type NTP3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NTP304L	4	30	22	14	4 1/2	15	7	70	\$34.00
NTP308L	8	60	22	14	4 1/2	15	7	70	40.00
NTP312L	12	60	22	17	4 1/2	15	10	80	50.00
NTP316L	16	100	22	26	4 1/2	15	19	120	74.00
NTP320L	20	100	22	29	4 1/2	15	22	140	84.00
NTP324L	24	100	22	32	4 1/2	15	25	160	94.00
NTP328L	28	100	22	35	4 1/2	15	28	180	104.00
NTP332L	32	100	22	38	4 1/2	15	31	195	114.00
NTP336L	36	200	24	43	4 1/2	15	34	210	134.00
NTP340L	40	200	24	46	4 1/2	15	37	230	144.00
NTP344L	44	200	24	49	4 1/2	15	40	250	160.00
NTP348L	48	200	24	52	4 1/2	15	43	270	170.00
NTP352L	52	200	24	55	4 1/2	15	46	290	180.00
NTP356L	56	200	24	58	4 1/2	15	49	310	194.00
NTP360L	60	200	24	61	4 1/2	15	52	330	210.00

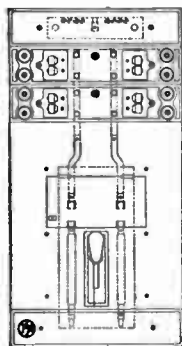
### Main Fuse Connections—Solid Neutral



Type NTP3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NTP304F	4	30	22	23	4 1/2	15	16	90	\$46.00
NTP308F	8	60	22	26	4 1/2	15	19	100	58.00
NTP312F	12	60	22	29	4 1/2	15	22	110	70.00
NTP316F	16	100	22	35	4 1/2	15	28	135	90.00
NTP320F	20	100	22	38	4 1/2	15	31	155	102.00
NTP324F	24	100	24	43	4 1/2	15	34	175	114.00
NTP328F	28	100	24	46	4 1/2	15	37	195	126.00
NTP332F	32	100	24	49	4 1/2	15	40	215	138.00
NTP336F	36	200	24	55	4 1/2	15	46	255	160.00
NTP340F	40	200	24	58	4 1/2	15	49	275	172.00
NTP344F	44	200	24	61	4 1/2	15	52	295	192.00
NTP348F	48	200	24	64	4 1/2	15	55	315	204.00
NTP352F	52	200	24	67	4 1/2	15	58	335	216.00
NTP356F	56	200	24	70	4 1/2	15	61	355	228.00
NTP360F	60	200	24	73	4 1/2	15	64	375	240.00

### Main Brush Type Switch with Fuse Connections—Solid Neutral



Type NTP3BSF

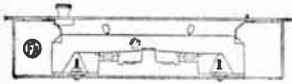
Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NTP304BSF	4	30	22	26	4 1/2	15	19	125	\$64.00
NTP308BSF	8	60	22	29	4 1/2	15	22	140	74.00
NTP312BSF	12	60	22	32	4 1/2	15	25	160	86.00
NTP316BSF	16	100	24	43	4 1/2	15	34	200	110.00
NTP320BSF	20	100	24	46	4 1/2	15	37	220	122.00
NTP324BSF	24	100	24	49	4 1/2	15	40	260	134.00
NTP328BSF	28	100	24	52	4 1/2	15	43	270	146.00
NTP332BSF	32	100	24	55	4 1/2	15	46	280	158.00
NTP336BSF	36	200	24	64	4 1/2	15	55	320	200.00
NTP340BSF	40	200	24	67	4 1/2	15	58	340	212.00
NTP344BSF	44	200	24	70	4 1/2	15	61	360	224.00
NTP348BSF	48	200	24	73	4 1/2	15	64	380	236.00
NTP352BSF	52	200	24	76	4 1/2	15	67	400	248.00
NTP356BSF	56	200	24	79	4 1/2	15	70	420	260.00
NTP360BSF	60	200	24	82	4 1/2	15	73	440	272.00

NOTE.—Panels will not be made for less than 4 circuit branches.

**FA Type TP3 Safety Type 2-Fuse Panel Boards and Cabinets**

**3-Wire, 125-250-Volt Mains**

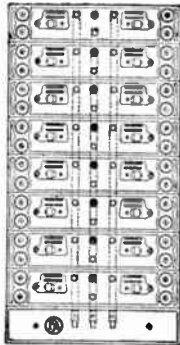
2-Wire, 125-Volt Branches with 30-Ampere Double Pole Tumbler Switches with N. E. C. Plug Fuse Connections, Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

One door construction.

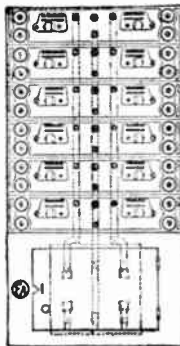
**Main Cable Lugs Only**



Type TP3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304L	4	30	22	14	4 1/2	15 7	75	\$38.00
TP306L	6	60	22	17	4 1/2	15 10	95	48.00
TP308L	8	60	22	20	4 1/2	15 13	105	58.00
TP310L	10	60	22	23	4 1/2	15 16	115	68.00
TP312L	12	60	22	26	4 1/2	15 19	125	78.00
TP314L	14	100	22	32	4 1/2	15 25	150	90.00
TP316L	16	100	22	35	4 1/2	15 28	170	100.00
TP318L	18	100	22	38	4 1/2	15 31	190	110.00
TP320L	20	100	24	43	4 1/2	15 34	210	124.00
TP322L	22	100	24	46	4 1/2	15 37	230	134.00
TP324L	24	100	24	49	4 1/2	15 40	250	144.00
TP326L	26	100	24	52	4 1/2	15 43	270	154.00
TP328L	28	100	24	55	4 1/2	15 46	290	164.00
TP330L	30	100	24	58	4 1/2	15 49	310	174.00
TP332L	32	100	24	61	4 1/2	15 52	330	190.00
TP334L	34	200	24	64	4 1/2	15 55	350	204.00

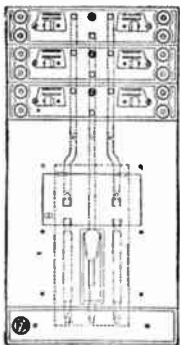
**Main Fuse Connections—Solid Neutral**



Type TP3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304F	4	30	22	23	4 1/2	15 16	95	\$52.00
TP306F	6	60	22	26	4 1/2	15 19	105	62.00
TP308F	8	60	22	29	4 1/2	15 22	115	72.00
TP310F	10	60	22	32	4 1/2	15 25	125	82.00
TP312F	12	60	22	35	4 1/2	15 28	135	92.00
TP314F	14	100	24	43	4 1/2	15 34	155	112.00
TP316F	16	100	24	46	4 1/2	15 37	175	122.00
TP318F	18	100	24	49	4 1/2	15 40	195	132.00
TP320F	20	100	24	52	4 1/2	15 43	215	142.00
TP322F	22	100	24	55	4 1/2	15 46	235	152.00
TP324F	24	100	24	58	4 1/2	15 49	255	162.00
TP326F	26	100	24	61	4 1/2	15 52	275	176.00
TP328F	28	100	24	64	4 1/2	15 55	295	186.00
TP330F	30	100	24	67	4 1/2	15 58	315	196.00
TP332F	32	100	24	70	4 1/2	15 61	335	206.00
TP334F	34	200	24	76	4 1/2	15 67	375	230.00

**Main Brush Type Switch with Fuse Connections—Solid Neutral**



Type TP3BSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304BSF	4	30	22	29	4 1/2	15 22	125	\$70.00
TP306BSF	6	60	22	32	4 1/2	15 25	140	80.00
TP308BSF	8	60	22	35	4 1/2	15 28	160	90.00
TP310BSF	10	60	22	38	4 1/2	15 31	180	100.00
TP312BSF	12	60	24	43	4 1/2	15 34	200	110.00
TP314BSF	14	100	24	49	4 1/2	15 40	220	130.00
TP316BSF	16	100	24	52	4 1/2	15 43	240	140.00
TP318BSF	18	100	24	55	4 1/2	15 46	260	150.00
TP320BSF	20	100	24	58	4 1/2	15 49	280	166.00
TP322BSF	22	100	24	61	4 1/2	15 52	300	176.00
TP324BSF	24	100	24	64	4 1/2	15 55	320	186.00
TP326BSF	26	100	24	67	4 1/2	15 58	340	196.00
TP328BSF	28	100	24	70	4 1/2	15 61	360	206.00
TP330BSF	30	100	24	73	4 1/2	15 64	380	216.00
TP332BSF	32	100	24	76	4 1/2	15 67	400	226.00
TP334BSF	34	200	24	85	4 1/2	15 76	420	266.00

NOTE.—Panels will not be made for less than 4 circuit branches.

## FA Type TP2D Safety Type 2-fuse Panel Boards and Cabinets

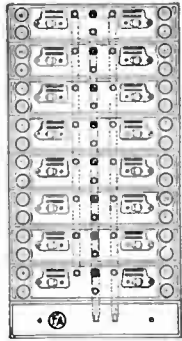
2-wire, 125-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, dead lacquer finish; flush or surface. Door in door construction.

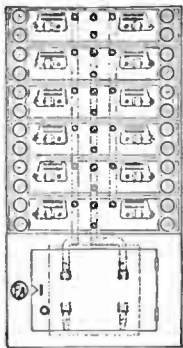
### Main Cable Lugs Only



Type TP2LD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TP204LD	4	60	22	20	4 1/2	15	13	105	\$62.00
TP206LD	6	100	22	23	4 1/2	15	16	115	68.00
TP208LD	8	100	22	26	4 1/2	15	19	140	78.00
TP210LD	10	100	22	29	4 1/2	15	22	155	88.00
TP212LD	12	200	22	32	4 1/2	15	25	170	98.00
TP214LD	14	200	22	35	4 1/2	15	29	185	110.00
TP216LD	16	200	22	38	4 1/2	15	31	200	120.00
TP218LD	18	200	24	43	4 1/2	15	34	215	130.00
TP220LD	20	200	24	46	4 1/2	15	37	230	140.00
TP222LD	22	200	24	49	4 1/2	15	40	250	150.00
TP224LD	24	200	24	52	4 1/2	15	43	270	160.00
TP226LD	26	200	24	55	4 1/2	15	46	290	176.00
TP228LD	28	200	24	58	4 1/2	15	49	310	186.00
TP230LD	30	200	24	61	4 1/2	15	52	330	200.00
TP232LD	32	200	24	64	4 1/2	15	55	350	216.00

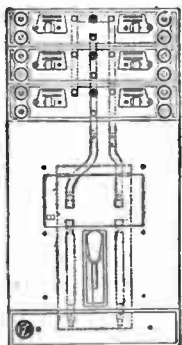
### Main Fuse Connections



Type TP2FD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TP204FD	4	60	22	26	4 1/2	15	19	105	\$74.00
TP206FD	6	100	22	32	4 1/2	15	25	125	86.00
TP208FD	8	100	22	35	4 1/2	15	28	135	96.00
TP210FD	10	100	22	38	4 1/2	15	31	145	106.00
TP212FD	12	200	24	46	4 1/2	15	37	175	126.00
TP214FD	14	200	24	49	4 1/2	15	40	195	136.00
TP216FD	16	200	24	52	4 1/2	15	43	215	146.00
TP218FD	18	200	24	55	4 1/2	15	46	235	156.00
TP220FD	20	200	24	58	4 1/2	15	49	255	166.00
TP222FD	22	200	24	61	4 1/2	15	52	275	186.00
TP224FD	24	200	24	64	4 1/2	15	55	295	196.00
TP226FD	26	200	24	67	4 1/2	15	58	315	206.00
TP228FD	28	200	24	70	4 1/2	15	61	335	216.00
TP230FD	30	200	24	73	4 1/2	15	64	355	226.00
TP232FD	32	200	24	76	4 1/2	15	67	375	236.00

### Main Brush Type Switch with Fuse Connections



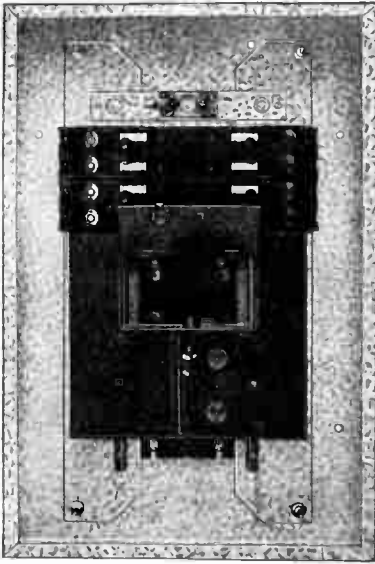
Type TP2BSFD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TP204BSFD	4	60	22	35	4 1/2	15	28	140	\$88.00
TP206BSFD	6	100	24	43	4 1/2	15	34	180	108.00
TP208BSFD	8	100	24	46	4 1/2	15	37	200	118.00
TP210BSFD	10	100	24	49	4 1/2	15	40	220	128.00
TP212BSFD	12	200	24	55	4 1/2	15	46	240	160.00
TP214BSFD	14	200	24	58	4 1/2	15	49	260	170.00
TP216BSFD	16	200	24	61	4 1/2	15	52	280	190.00
TP218BSFD	18	200	24	64	4 1/2	15	55	300	200.00
TP220BSFD	20	200	24	67	4 1/2	15	58	320	210.00
TP222BSFD	22	200	24	70	4 1/2	15	61	340	220.00
TP224BSFD	24	200	24	73	4 1/2	15	64	360	230.00
TP226BSFD	26	200	24	76	4 1/2	15	67	280	246.00
TP228BSFD	28	200	24	79	4 1/2	15	70	400	260.00
TP230BSFD	30	200	24	82	4 1/2	15	73	420	276.00
TP232BSFD	32	200	24	85	4 1/2	15	76	440	290.00

NOTE.—Panels will not be made for less than 4 circuit branches.

## FA Type NTP3D Safety Type 1-Fuse Panel Boards and Cabinets

## Single Fuse in Branch Circuit



With Mains and Grounded Branch  
Circuit Connections Exposed

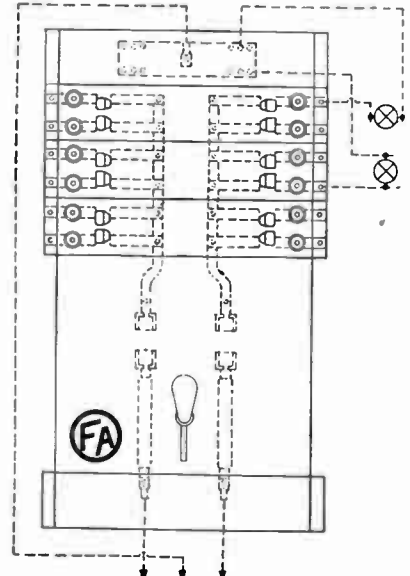
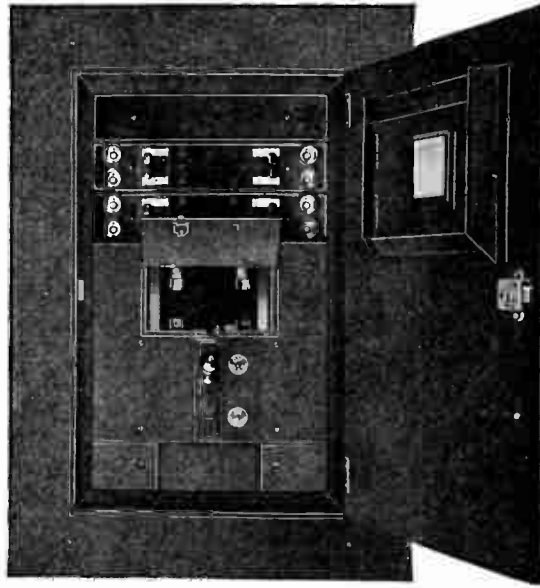


Diagram of Connections



With Main and Grounded Branch  
Circuit Connections Concealed

Mounted on steel backs ready for main and branch circuit connections. Panel board is built up complete with moulded sections each section having four 30-ampere, 125-volt single pole tumbler switches with N.E.C. Edison plug fuse connections for controlling ungrounded sides of branch circuits, the grounded side of each branch is fed direct from the bus bar and is not fused.

All unfused branch circuit connections on grounded bus are located at top of board and when connected up are concealed by blank sections.

Each branch circuit connection is properly marked to correspond with markings of ungrounded branch circuits.

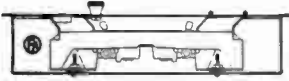
Cabinet has standard width gutters with adjustable panel board supports.

Front is finished in black lacquer and is of door in door construction, the inner door permitting access to switch handles only is fitted with FA Latch, the main door permitting access to entire panel board is fitted with FA Catch Lock.

## FA Type NTP3D Safety Type 1-Fuse Panel Boards and Cabinets

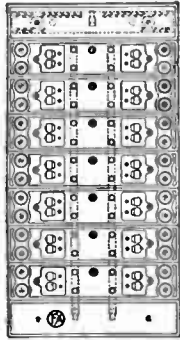
3-Wire, 125-250-Volt Mains

2-Wire, 125-Volt Branches with 30-Ampere Single Pole Tumbler Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface. Door in door construction.

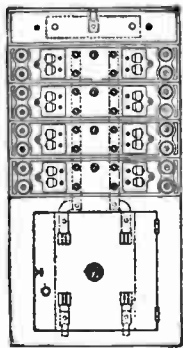
### Main Cable Lugs Only



Type NTP3LD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
NTP304LD	4	30	22	17	4 1/2	15 10	95	\$50.00
NTP308LD	8	60	22	20	4 1/2	15 13	105	60.00
NTP312LD	12	60	22	23	4 1/2	15 16	115	70.00
NTP316LD	16	100	22	26	4 1/2	15 19	125	86.00
NTP320LD	20	100	22	29	4 1/2	15 22	135	96.00
NTP324LD	24	100	22	32	4 1/2	15 25	150	106.00
NTP328LD	28	100	22	35	4 1/2	15 28	170	116.00
NTP332LD	32	100	22	38	4 1/2	15 31	190	126.00
NTP336LD	36	200	24	43	4 1/2	15 34	210	146.00
NTP340LD	40	200	24	46	4 1/2	15 37	230	156.00
NTP344LD	44	200	24	49	4 1/2	15 40	250	172.00
NTP348LD	48	200	24	52	4 1/2	15 43	270	182.00
NTP352LD	52	200	24	55	4 1/2	15 46	290	192.00
NTP356LD	56	200	24	58	4 1/2	15 49	310	206.00
NTP360LD	60	200	24	61	4 1/2	15 52	330	222.00

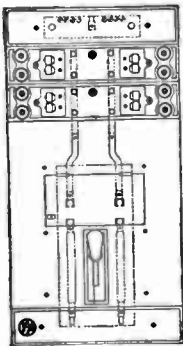
### Main Fuse Connections—Solid Neutral



Type NTP3FD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
NTP304FD	4	30	22	23	4 1/2	15 16	90	\$62.00
NTP308FD	8	60	22	26	4 1/2	15 19	100	74.00
NTP312FD	12	60	22	29	4 1/2	15 22	110	86.00
NTP316FD	16	100	22	35	4 1/2	15 28	135	102.00
NTP320FD	20	100	22	38	4 1/2	15 31	155	114.00
NTP324FD	24	100	24	43	4 1/2	15 34	175	126.00
NTP328FD	28	100	24	46	4 1/2	15 37	195	138.00
NTP332FD	32	100	24	49	4 1/2	15 40	215	150.00
NTP336FD	36	200	24	55	4 1/2	15 46	255	172.00
NTP340FD	40	200	24	58	4 1/2	15 49	275	184.00
NTP344FD	44	200	24	61	4 1/2	15 52	295	204.00
NTP348FD	48	200	24	64	4 1/2	15 55	315	216.00
NTP352FD	52	200	24	67	4 1/2	15 58	335	228.00
NTP356FD	56	200	24	70	4 1/2	15 61	355	240.00
NTP360FD	60	200	24	73	4 1/2	15 64	375	252.00

### Main Brush Type Switch with Fuse Connections—Solid Neutral



Type NTP3BSFD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
NTP304BSFD	4	30	22	29	4 1/2	15 22	125	\$80.00
NTP308BSFD	8	60	22	32	4 1/2	15 25	150	90.00
NTP312BSFD	12	60	22	35	4 1/2	15 28	160	102.00
NTP316BSFD	16	100	24	43	4 1/2	15 34	200	122.00
NTP320BSFD	20	100	24	46	4 1/2	15 37	220	134.00
NTP324BSFD	24	100	24	49	4 1/2	15 40	260	146.00
NTP328BSFD	28	100	24	52	4 1/2	15 43	270	158.00
NTP332BSFD	32	100	24	55	4 1/2	15 46	280	170.00
NTP336BSFD	36	200	24	64	4 1/2	15 55	320	212.00
NTP340BSFD	40	200	24	67	4 1/2	15 58	340	224.00
NTP344BSFD	44	200	24	70	4 1/2	15 61	360	236.00
NTP348BSFD	48	200	24	73	4 1/2	15 64	380	248.00
NTP352BSFD	52	200	24	76	4 1/2	15 67	400	260.00
NTP356BSFD	56	200	24	79	4 1/2	15 70	420	272.00
NTP360BSFD	60	200	24	82	4 1/2	15 73	440	284.00

NOTE.—Panels will not be made for less than 4 circuit branches.

FA Type TP3D Safety Type 2-fuse Panel Boards and Cabinets

3-wire, 125-250-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch

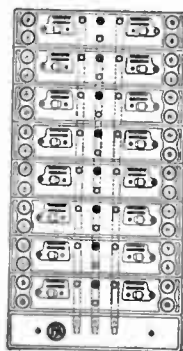


Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel gutter type. Front is of code thickness steel, black lacquer finish; flush or surface.

Door in door construction.

NOTE.—Panels will not be made for less than four circuit branches.

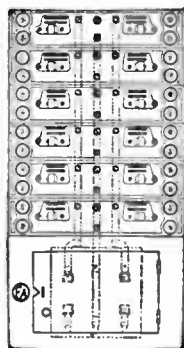
Main Cable Lugs Only



Type TP3LD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304LD	4	30	22	20	4 1/2	15 13	105	\$58.00
TP306LD	6	60	22	23	4 1/2	15 16	115	68.00
TP308LD	8	60	22	26	4 1/2	15 19	140	78.00
TP310LD	10	60	22	29	4 1/2	15 22	155	88.00
TP312LD	12	60	22	32	4 1/2	15 25	170	98.00
TP314LD	14	100	22	35	4 1/2	15 28	185	106.00
TP316LD	16	100	22	38	4 1/2	15 31	200	116.00
TP318LD	18	100	24	43	4 1/2	15 34	215	126.00
TP320LD	20	100	24	46	4 1/2	15 37	230	140.00
TP322LD	22	100	24	49	4 1/2	15 40	250	150.00
TP324LD	24	100	24	52	4 1/2	15 43	270	160.00
TP326LD	26	100	24	55	4 1/2	15 46	290	170.00
TP328LD	28	100	24	58	4 1/2	15 49	310	180.00
TP330LD	30	100	24	61	4 1/2	15 52	330	190.00
TP332LD	32	100	24	64	4 1/2	15 55	350	206.00
TP334LD	34	200	24	67	4 1/2	15 58	370	220.00

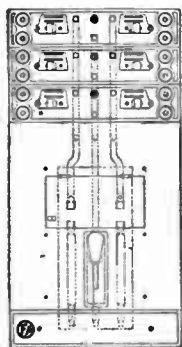
Main Fuse Connections—Solid Neutral



Type TP3FD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304FD	4	30	22	26	4 1/2	15 19	105	\$68.00
TP306FD	6	60	22	29	4 1/2	15 22	115	78.00
TP308FD	8	60	22	32	4 1/2	15 25	125	88.00
TP310FD	10	60	22	35	4 1/2	15 28	135	98.00
TP312FD	12	60	22	38	4 1/2	15 31	145	108.00
TP314FD	14	100	24	46	4 1/2	15 37	175	128.00
TP316FD	16	100	24	49	4 1/2	15 40	195	138.00
TP318FD	18	100	24	52	4 1/2	15 43	215	148.00
TP320FD	20	100	24	55	4 1/2	15 46	235	158.00
TP322FD	22	100	24	58	4 1/2	15 49	255	168.00
TP324FD	24	100	24	61	4 1/2	15 52	275	178.00
TP326FD	26	100	24	64	4 1/2	15 55	295	192.00
TP328FD	28	100	24	67	4 1/2	15 58	315	202.00
TP330FD	30	100	24	70	4 1/2	15 61	335	212.00
TP332FD	32	100	24	73	4 1/2	15 64	355	222.00
TP334FD	34	100	24	79	4 1/2	15 70	395	246.00

Main Brush Type Switch with Fuse Connections—Solid Neutral



Type TP3BSFD

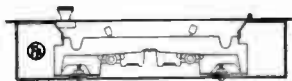
Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TP304BSFD	4	30	22	32	4 1/2	15 25	140	\$86.00
TP306BSFD	6	60	22	35	4 1/2	15 28	160	96.00
TP308BSFD	8	60	22	38	4 1/2	15 31	180	106.00
TP310BSFD	10	60	24	43	4 1/2	15 34	200	116.00
TP312BSFD	12	60	24	46	4 1/2	15 37	220	126.00
TP314BSFD	14	100	24	52	4 1/2	15 43	240	146.00
TP316BSFD	16	100	24	55	4 1/2	15 46	260	156.00
TP318BSFD	18	100	24	58	4 1/2	15 49	280	166.00
TP320BSFD	20	100	24	61	4 1/2	15 52	300	182.00
TP322BSFD	22	100	24	64	4 1/2	15 55	320	192.00
TP324BSFD	24	100	24	67	4 1/2	15 58	340	202.00
TP326BSFD	26	100	24	70	4 1/2	15 61	360	212.00
TP328BSFD	28	100	24	73	4 1/2	15 64	380	222.00
TP330BSFD	30	100	24	76	4 1/2	15 64	400	232.00
TP332BSFD	32	100	24	79	4 1/2	15 70	420	242.00
TP334BSFD	34	200	24	88	4 1/2	15 79	440	282.00



## FA Type TC2 2-fuse Panel Boards and Cabinets

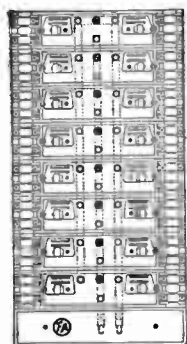
2-wire, 125-volt Mains

2-wire, 125-volt Branches with 30-ampere, Double Pole Tumbler Switches with Cartridge Type Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish; flush or surface. One door construction, not safety type.

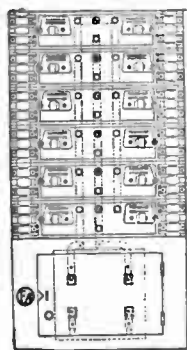
### Main Cable Lugs Only



Type TC2L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC204L	4	60	22	14	4 1/2	15 7	75	\$42.00
TC206L	6	100	22	20	4 1/2	15 13	105	52.00
TC208L	8	100	22	23	4 1/2	15 16	115	62.00
TC210L	10	100	22	26	4 1/2	15 19	125	72.00
TC212L	12	200	22	29	4 1/2	15 22	135	82.00
TC214L	14	200	22	32	4 1/2	15 25	150	94.00
TC216L	16	200	22	35	4 1/2	15 28	170	104.00
TC218L	18	200	22	38	4 1/2	15 31	190	114.00
TC220L	20	200	24	43	4 1/2	15 34	210	124.00
TC222L	22	200	24	46	4 1/2	15 37	230	134.00
TC224L	24	200	24	49	4 1/2	15 40	250	144.00
TC226L	26	200	24	52	4 1/2	15 43	270	159.00
TC228L	28	200	24	55	4 1/2	15 46	290	169.00
TC230L	30	200	24	58	4 1/2	15 49	310	184.00
TC232L	32	200	24	61	4 1/2	15 52	330	200.00

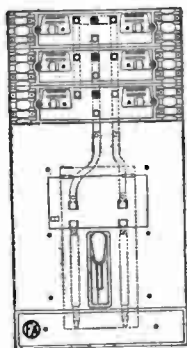
### Main Fuse Connections



Type TC2F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC204F	4	60	22	23	4 1/2	15 16	95	\$58.00
TC206F	6	100	22	29	4 1/2	15 22	115	70.00
TC208F	8	100	22	32	4 1/2	15 25	125	80.00
TC210F	10	100	22	35	4 1/2	15 28	145	90.00
TC212F	12	200	24	43	4 1/2	15 34	155	110.00
TC214F	14	200	24	46	4 1/2	15 37	175	120.00
TC216F	16	200	24	49	4 1/2	15 40	195	130.00
TC218F	18	200	24	52	4 1/2	15 43	215	140.00
TC220F	20	200	24	55	4 1/2	15 46	235	150.00
TC222F	22	200	24	58	4 1/2	15 49	255	170.00
TC224F	24	200	24	61	4 1/2	15 52	275	180.00
TC226F	26	200	24	64	4 1/2	15 55	295	190.00
TC228F	28	200	24	67	4 1/2	15 58	315	200.00
TC230F	30	200	24	70	4 1/2	15 61	335	210.00
TC232F	32	200	24	73	4 1/2	15 64	355	220.00

### Main Brush Type Switch with Fuse Connections



Type TC2BSF

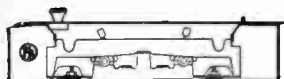
Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC204BSF	4	60	22	23	4 1/2	15 22	125	\$72.00
TC206BSF	6	100	22	35	4 1/2	15 28	160	92.00
TC208BSF	8	100	22	38	4 1/2	15 31	180	102.00
TC210BSF	10	100	24	43	4 1/2	15 34	200	112.00
TC212BSF	12	200	24	52	4 1/2	15 43	230	144.00
TC214BSF	14	200	24	55	4 1/2	15 46	240	154.00
TC216BSF	16	200	24	58	4 1/2	15 49	260	174.00
TC218BSF	18	200	24	61	4 1/2	15 52	280	184.00
TC220BSF	20	200	24	64	4 1/2	15 55	300	194.00
TC222BSF	22	200	24	67	4 1/2	15 58	320	204.00
TC224BSF	24	200	24	70	4 1/2	15 61	340	214.00
TC226BSF	26	200	24	73	4 1/2	15 64	360	230.00
TC228BSF	28	200	24	76	4 1/2	15 67	380	244.00
TC230BSF	30	200	24	79	4 1/2	15 70	400	260.00
TC232BSF	32	200	24	82	4 1/2	15 73	420	274.00

NOTE.—Panels will not be made for less than 4 circuit branches.

**FA Type TC3 2-fuse Panel Boards and Cabinets**

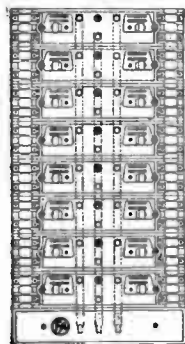
**3-wire, 125-250-volt Mains**

**2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with Cartridge Type Fuse Connections, Capacity 1928 Code per Branch**



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, dead lacquer finish; flush or surface. One door construction, not safety type.

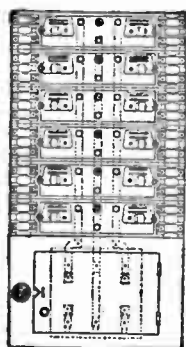
**Main Cable Lugs Only**



**Type TC3L**

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC304L	4	30	22	14½	4½	15 7	75	\$38.00
TC306L	6	60	22	17	4½	15 10	95	48.00
TC308L	8	60	22	20	4½	15 13	105	58.00
TC310L	10	60	22	23	4½	15 16	115	68.00
TC312L	12	60	22	26	4½	15 19	125	78.00
TC314L	14	100	22	32	4½	15 25	150	90.00
TC316L	16	100	22	35	4½	15 28	170	100.00
TC318L	18	100	22	38	4½	15 31	190	110.00
TC320L	20	100	24	43	4½	15 34	210	124.00
TC322L	22	100	24	46	4½	15 37	230	134.00
TC324L	24	100	24	49	4½	15 40	250	144.00
TC326L	26	100	24	52	4½	15 43	270	154.00
TC328L	28	100	24	55	4½	15 46	290	164.00
TC330L	30	100	24	58	4½	15 49	310	174.00
TC332L	32	100	24	61	4½	15 52	330	190.00
TC334L	34	200	24	64	4½	15 55	350	204.00

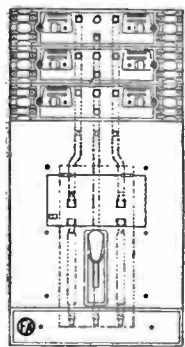
**Main Fuse Connections—Solid Neutral**



**Type TC3F**

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC304F	4	60	22	23	4½	15 16	95	\$52.00
TC306F	6	60	22	26	4½	15 19	105	62.00
TC308F	8	60	22	29	4½	15 22	115	72.00
TC310F	10	60	22	32	4½	15 25	125	82.00
TC312F	12	60	22	35	4½	15 28	135	92.00
TC314F	14	100	24	43	4½	15 34	155	112.00
TC316F	16	100	24	46	4½	15 37	175	122.00
TC318F	18	100	24	49	4½	15 40	195	132.00
TC320F	20	100	24	52	4½	15 43	215	142.00
TC322F	22	100	24	55	4½	15 46	235	152.00
TC324F	24	100	24	58	4½	15 49	255	162.00
TC326F	26	100	24	61	4½	15 52	275	176.00
TC328F	28	100	24	64	4½	15 55	295	186.00
TC330F	30	100	24	67	4½	15 58	315	196.00
TC332F	32	100	24	70	4½	15 61	335	206.00
TC334F	34	200	24	76	4½	15 67	375	230.00

**Main Brush Type Switch with Fuse Connections—Solid Neutral**



**Type TC3BSF**

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box	Approx. Wt. Lbs.	Price Each
			Width	Height	Depth			
TC304BSF	4	30	22	32	4½	15 25	125	\$70.00
TC306BSF	6	60	22	35	4½	15 28	140	80.00
TC308BSF	8	60	22	38	4½	15 31	160	90.00
TC310BSF	10	60	24	43	4½	15 34	180	100.00
TC312BSF	12	60	24	46	4½	15 37	200	110.00
TC314BSF	14	100	24	52	4½	15 43	220	130.00
TC316BSF	16	100	24	55	4½	15 46	240	140.00
TC318BSF	18	100	24	58	4½	15 49	260	150.00
TC320BSF	20	100	24	61	4½	15 52	280	166.00
TC322BSF	22	100	24	64	4½	15 55	300	176.00
TC324BSF	24	100	24	67	4½	15 58	320	186.00
TC326BSF	26	100	24	70	4½	15 61	340	196.00
TC328BSF	28	100	24	73	4½	15 64	360	206.00
TC330BSF	30	100	24	76	4½	15 67	380	216.00
TC332BSF	32	100	24	79	4½	15 70	400	226.00
TC334BSF	34	200	24	85	4½	15 76	420	266.00

NOTE.—Panels will not be made for less than 4 circuit branches.

## FA Type TC2D Safety Type 2-fuse Panel Boards and Cabinets

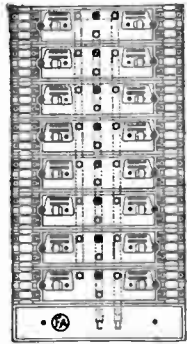
2-wire, 125-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with Cartridge Type Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type. Front is of code thickness steel, dead lacquer finish; flush or surface. Door in door construction, safety type.

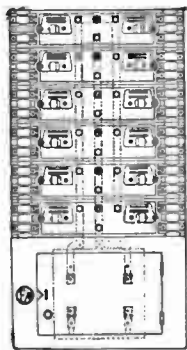
### Main Cable Lugs Only



Type TC2LD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TC204LD	4	60	22	20	4 1/2	15	13	105	\$62.00
TC206LD	6	100	22	23	4 1/2	15	16	115	68.00
TC208LD	8	100	22	26	4 1/2	15	19	144	78.00
TC210LD	10	100	22	29	4 1/2	15	22	155	88.00
TC212LD	12	200	22	32	4 1/2	15	25	170	98.00
TC214LD	14	200	22	35	4 1/2	15	28	185	110.00
TC216LD	16	200	22	38	4 1/2	15	31	200	120.00
TC218LD	18	200	24	43	4 1/2	15	34	215	130.00
TC220LD	20	200	24	46	4 1/2	15	37	230	140.00
TC222LD	22	200	24	49	4 1/2	15	40	250	150.00
TC224LD	24	200	24	52	4 1/2	15	43	270	160.00
TC226LD	26	200	24	55	4 1/2	15	46	290	176.00
TC228LD	28	200	24	58	4 1/2	15	49	310	186.00
TC230LD	30	200	24	61	4 1/2	15	52	330	200.00
TC232LD	32	200	24	63	4 1/2	15	55	350	216.00

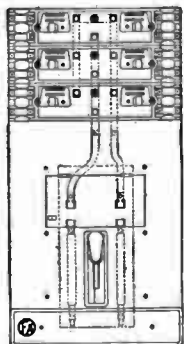
### Main Fuse Connections



Type TC2FD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TC204FD	4	60	22	26	4 1/2	15	19	105	74.00
TC206FD	6	100	22	32	4 1/2	15	25	125	86.00
TC208FD	8	100	22	35	4 1/2	15	28	135	96.00
TC210FD	10	100	22	38	4 1/2	15	31	145	106.00
TC212FD	12	200	24	46	4 1/2	15	37	175	126.00
TC214FD	14	200	24	49	4 1/2	15	40	195	136.00
TC216FD	16	200	24	52	4 1/2	15	43	215	146.00
TC218FD	18	200	24	55	4 1/2	15	46	235	156.00
TC220FD	20	200	24	58	4 1/2	15	49	255	166.00
TC222FD	22	200	24	61	4 1/2	15	52	275	186.00
TC224FD	24	200	24	64	4 1/2	15	55	295	196.00
TC226FD	26	200	24	67	4 1/2	15	58	315	206.00
TC228FD	28	200	24	70	4 1/2	15	61	335	216.00
TC230FD	30	200	24	73	4 1/2	15	64	355	226.00
TC232FD	32	200	24	76	4 1/2	15	67	375	236.00

### Main Brush Type Switch with Fuse Connections



Type TC2BSFD

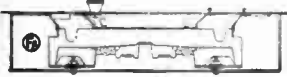
Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TC204BSFD	4	60	22	35	4 1/2	15	28	140	88.00
TC206BSFD	6	100	24	43	4 1/2	15	34	180	108.00
TC208BSFD	8	100	24	46	4 1/2	15	37	200	118.00
TC210BSFD	10	100	24	49	4 1/2	15	40	220	128.00
TC212BSFD	12	200	24	55	4 1/2	15	46	240	160.00
TC214BSFD	14	200	24	58	4 1/2	15	49	260	110.00
TC216BSFD	16	200	24	61	4 1/2	15	52	280	190.00
TC218BSFD	18	200	24	64	4 1/2	15	55	300	200.00
TC220BSFD	20	200	24	67	4 1/2	15	58	320	210.00
TC222BSFD	22	200	24	70	4 1/2	15	61	340	220.00
TC224BSFD	24	200	24	73	4 1/2	15	64	360	230.00
TC226BSFD	26	200	24	76	4 1/2	15	67	380	246.00
TC228BSFD	28	200	24	79	4 1/2	15	70	400	260.00
TC230BSFD	30	200	24	82	4 1/2	15	73	420	276.00
TC232BSFD	32	200	24	85	4 1/2	15	76	440	290.00

NOTE.—Panel will not be made for less than 4 circuit branches.

FA Type TC3D Safety Type 2-fuse Panel Boards and Cabinets

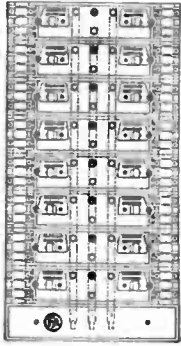
3-wire, 125-250-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Tumbler Switches with Cartridge Type Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of sections of molded material. Boxes are made of code thickness galvanized steel, gutter type; Front is of code thickness steel, black lacquer finish, flush or surface. Door in door construction, safety type.

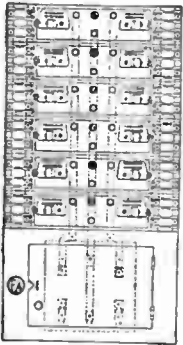
Main Cable Lugs Only



Type TC3LD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Wt. Lbs.	Price Each
			Width	Height	Depth				
TC304LD	4	30	22	20	4 1/2	15	13	105	\$58.00
TC306LD	6	60	22	23	4 1/2	15	16	115	68.00
TC308LD	8	60	22	26	4 1/2	15	19	140	78.00
TC310LD	10	60	22	29	4 1/2	15	22	155	88.00
TC312LD	12	60	22	32	4 1/2	15	25	170	98.00
TC314LD	14	100	22	35	4 1/2	15	28	185	106.00
TC316LD	16	100	22	38	4 1/2	15	31	200	116.00
TC318LD	18	100	24	43	4 1/2	15	34	215	126.00
TC320LD	20	100	24	46	4 1/2	15	37	230	140.00
TC322LD	22	100	24	49	4 1/2	15	40	250	150.00
TC324LD	24	100	24	52	4 1/2	15	43	270	160.00
TC326LD	26	100	24	55	4 1/2	15	46	290	170.00
TC328LD	28	100	24	58	4 1/2	15	49	310	180.00
TC330LD	30	100	24	61	4 1/2	15	52	330	190.00
TC332LD	32	100	24	64	4 1/2	15	55	360	206.00
TC334LD	34	200	24	67	4 1/2	15	58	370	220.00

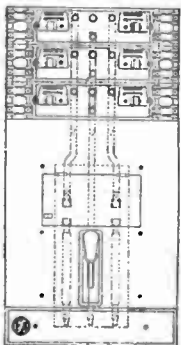
Main Fuse Connections—Solid Neutral



Type TC3FD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TC304FD	4	30	22	26	4 1/2	15	19	105	68.00
TC306FD	6	60	22	29	4 1/2	15	22	115	78.00
TC308FD	8	60	22	32	4 1/2	15	25	125	88.00
TC310FD	10	60	22	35	4 1/2	15	28	135	98.00
TC312FD	12	60	22	38	4 1/2	15	31	145	108.00
TC314FD	14	100	24	46	4 1/2	15	37	175	128.00
TC316FD	16	100	24	49	4 1/2	15	40	195	138.00
TC318FD	18	100	24	52	4 1/2	15	43	215	148.00
TC320FD	20	100	24	55	4 1/2	15	46	235	158.00
TC322FD	22	100	24	58	4 1/2	15	49	255	168.00
TC324FD	24	100	24	61	4 1/2	15	52	275	178.00
TC326FD	26	100	24	64	4 1/2	15	55	295	192.00
TC328FD	28	100	24	67	4 1/2	15	58	315	202.00
TC330FD	30	100	24	70	4 1/2	15	61	335	212.00
TC332FD	32	100	24	73	4 1/2	15	64	355	222.00
TC334FD	34	200	24	79	4 1/2	15	70	395	246.00

Main Brush Type Switch with Fuse Connections—Solid Neutral



Type TC3BSFD

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
TC304BSFD	4	30	22	32	4 1/2	15	25	140	\$86.00
TC306BSFD	6	60	22	35	4 1/2	15	28	160	96.00
TC308BSFD	8	60	22	38	4 1/2	15	31	180	106.00
TC310BSFD	10	60	24	43	4 1/2	15	34	200	116.00
TC312BSFD	12	60	24	46	4 1/2	15	37	220	126.00
TC314BSFD	14	100	24	52	4 1/2	15	43	240	146.00
TC316BSFD	16	100	24	55	4 1/2	15	46	260	156.00
TC318BSFD	18	100	24	58	4 1/2	15	49	280	166.00
TC320BSFD	20	100	24	61	4 1/2	15	52	300	182.00
TC322BSFD	22	100	24	64	4 1/2	15	55	320	192.00
TC324BSFD	24	100	24	67	4 1/2	15	58	340	202.00
TC326BSFD	26	100	24	70	4 1/2	15	61	360	212.00
TC328BSFD	28	100	24	73	4 1/2	15	64	380	222.00
TC330BSFD	30	100	24	76	4 1/2	15	64	400	232.00
TC332BSFD	32	100	24	79	4 1/2	15	70	420	242.00
TC334BSFD	34	200	24	88	4 1/2	15	79	440	282.00

NOTE.—Panels will not be made for less than 4 circuit branches.

## FA Type KP2 2-fuse Panel Boards and Cabinets

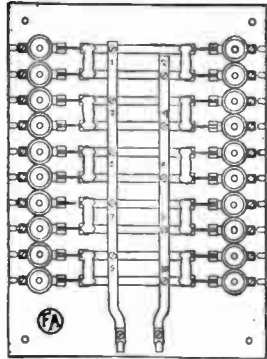
2-wire, 125-volt Mains

2-wire, 125-volt Branches with 30-amper Double Pole Knife Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are of 3/8-inch Ebonized A bestes Lumber, dead black finish. Barriers, 1/2-inch transite board with FA Patented Adjustable Corner Supports. Box is of code thickness galvanized steel, gutter type. Front is of code thickness steel black lacquer finish; flush or surface.

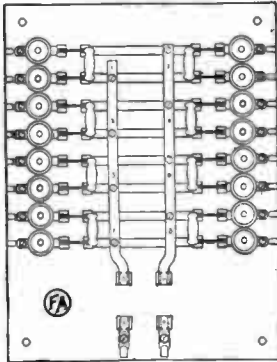
### Main Lugs Only



Type KP2L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP204L	4	60	22	20	4 1/2	15	13	95	\$54.00
KP206L	6	100	22	23	4 1/2	15	16	117	62.00
KP208L	8	100	22	26	4 1/2	15	19	139	72.00
KP210L	10	100	22	29	4 1/2	15	22	160	82.00
KP212L	12	200	24	34	4 1/2	15	25	182	92.00
KP214L	14	200	24	37	4 1/2	15	28	205	102.00
KP216L	16	200	24	40	4 1/2	15	31	226	112.00
KP218L	18	200	24	43	4 1/2	15	34	270	130.00
KP220L	20	200	24	46	4 1/2	15	37	292	140.00
KP222L	22	200	24	49	4 1/2	15	40	358	150.00
KP224L	24	200	24	52	4 1/2	15	43	383	160.00
KP226L	26	200	24	55	4 1/2	15	46	408	170.00
KP228L	28	200	24	58	4 1/2	15	49	434	190.00
KP230L	30	200	24	61	4 1/2	15	52	458	200.00
KP232L	32	200	24	64	4 1/2	15	55	483	210.00

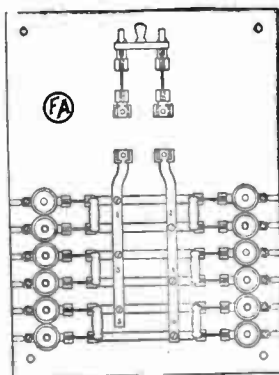
### Main Fuse Connections



Type KP2F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP204F	4	60	22	23	4 1/2	15	16	138	\$58.00
KP206F	6	100	22	29	4 1/2	15	22	160	70.00
KP208F	8	100	22	32	4 1/2	15	25	182	80.00
KP210F	10	100	22	35	4 1/2	15	28	204	90.00
KP212F	12	200	24	43	4 1/2	15	34	248	115.00
KP214F	14	200	24	46	4 1/2	15	37	270	125.00
KP216F	16	200	24	49	4 1/2	15	40	333	135.00
KP218F	18	200	24	52	4 1/2	15	43	358	145.00
KP220F	20	200	24	55	4 1/2	15	46	383	155.00
KP222F	22	200	24	58	4 1/2	15	49	408	175.00
KP224F	24	200	24	61	4 1/2	15	52	434	185.00
KP226F	26	200	24	64	4 1/2	15	55	458	195.00
KP228F	28	200	24	67	4 1/2	15	58	483	205.00
KP230F	30	200	24	70	4 1/2	15	61	508	215.00
KP232F	32	200	24	73	4 1/2	15	64	534	225.00

### Main Knife Switch with Fuse Connections



Type KP2KSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP204KSF	4	60	22	26	4 1/2	15	19	136	\$65.00
KP206KSF	6	100	22	32	4 1/2	15	25	182	78.00
KP208KSF	8	100	22	35	4 1/2	15	28	205	88.00
KP210KSF	10	100	22	38	4 1/2	15	31	228	93.00
KP312KSF	12	200	24	49	6	15	40	321	144.00
KP214KSF	14	200	24	52	6	15	43	347	154.00
KP216KSF	16	200	24	55	6	15	46	373	164.00
KP218KSF	18	200	24	58	6	15	49	408	180.00
KP220KSF	20	200	24	61	6	15	52	434	190.00
KP222KSF	22	200	24	64	6	15	55	458	200.00
KP224KSF	24	200	24	67	6	15	58	483	210.00
KP226KSF	26	200	24	70	6	15	61	508	220.00
KP228KSF	28	200	24	73	6	15	64	534	230.00
KP230KSF	30	200	24	76	6	15	67	558	240.00
KP232KSF	32	200	24	79	6	15	70	583	250.00

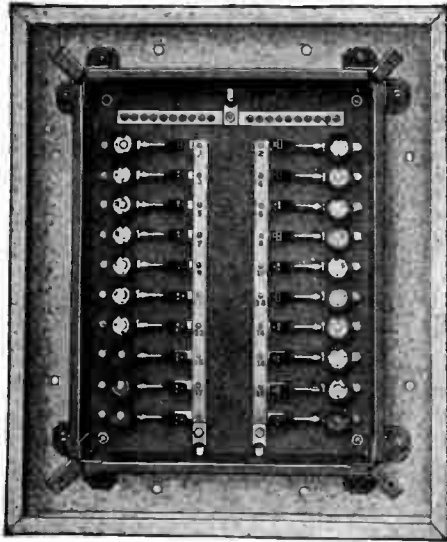
NOTE.—Panels will not be made for less than 4 circuit branches.

The 125-volt panel boards with cartridge fuse connections in branches will be furnished without extra cost.

For 250-volt panel boards with cartridge fuse connection in branches, add 20 per cent. This construction increases all dimensions.

## FA Type NKP3 1-Fuse Type Panel Boards and Cabinets

## Single Fuse in Branch Circuits



With Front Removed Showing Open Gutters and Asbestos Barriers

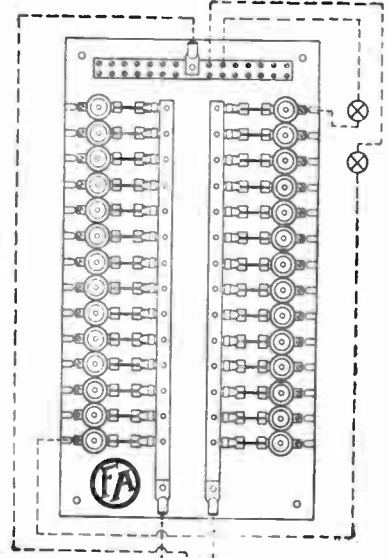
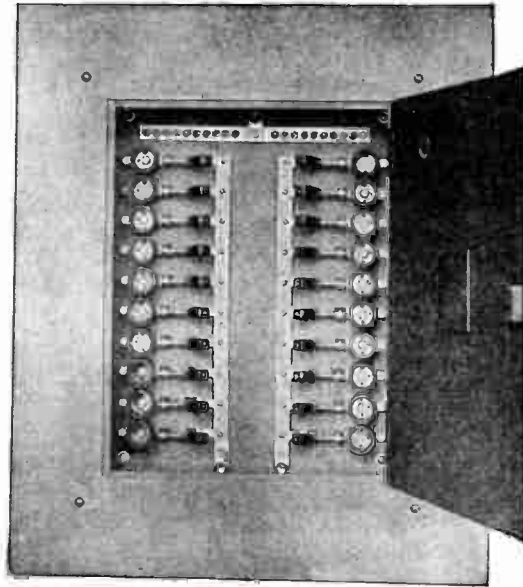


Diagram of Connections



Complete with Front

This type of panel board, on account of the open knife switches, has a  $\frac{1}{8}$ -inch dead black finish ebonized asbestos lumber base. The ungrounded side of each branch circuit is controlled by a 30-ampere single-pole knife switch with N.E.C. Edison plug fuse connections, the grounded side of each branch circuit is connected direct to the bus bar.

Each branch circuit connection on grounded bus is marked to correspond with branch circuit connections on ungrounded bus bars.

Mains are equipped with lugs only, fuses only, or main knife switch with N.E.C. cartridge fuse connections.

This type of panel board has  $\frac{1}{2}$ -inch asbestos barriers, all around same, forming a barrier between panel board and wiring gutter.

Cabinets have standard width gutters with adjustable corner supports with fronts finished in black laquer having door fitted with FA Catch Lock.

This type of panel board and cabinet is not recommended, for the NTP Safety Type Panel Boards and cabinets are not much higher in price and are therefore more desirable.



## FA Type NKP3 1-fuse Panel Boards and Cabinets

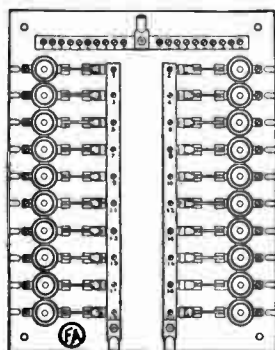
3-wire, 125-250-volt Mains

2-wire, 125-volt Branches with 30-ampere Single Pole Knife Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code Rating



Panels are made of 7/8-inch Ebonized Asbestos Lumber; dead black finish. Barriers are 1/2-inch transite board with FA Patented Adjustable Corner Supports. Box is of code thickness galvanized steel, gutter type. Front is of code thickness steel, black lacquer finish with FA Catch Lock; flush or surface.

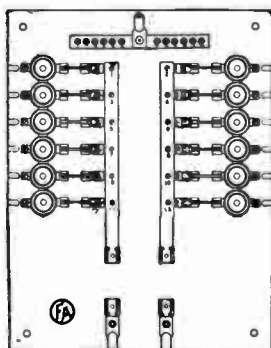
### Main Lugs Only



Type NKP3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NKP308L	8	60	22	17	4 1/2	15	10	73	\$50.00
NKP312L	12	60	22	20	4 1/2	15	13	95	60.00
NKP316L	16	100	22	23	4 1/2	15	16	117	72.00
NKP320L	20	100	22	26	4 1/2	15	19	139	84.00
NKP324L	24	100	22	32	4 1/2	15	25	182	96.00
NKP328L	28	100	22	35	4 1/2	15	28	205	108.00
NKP332L	32	100	22	38	4 1/2	15	31	226	120.00
NKP336L	36	200	24	46	4 1/2	15	37	269	146.00
NKP340L	40	200	24	49	4 1/2	15	40	312	160.00
NKP344L	44	200	24	52	4 1/2	15	43	370	174.00
NKP348L	48	200	24	55	4 1/2	15	46	395	188.00
NKP352L	52	200	24	58	4 1/2	15	49	420	202.00
NKP356L	56	200	24	61	4 1/2	15	52	446	216.00
NKP360L	60	200	24	64	4 1/2	15	55	470	230.00

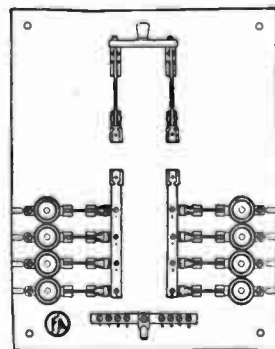
### Main Fuse Connections—Solid Neutral



Type NKP3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NKP308F	8	60	22	23	4 1/2	15	16	117	\$58.00
NKP312F	12	60	22	26	4 1/2	15	19	139	68.00
NKP316F	16	100	22	32	4 1/2	15	25	182	82.00
NKP320F	20	100	22	35	4 1/2	15	28	205	94.00
NKP324F	24	100	24	43	4 1/2	15	34	240	118.00
NKP328F	28	100	24	46	4 1/2	15	37	269	130.00
NKP332F	32	100	24	49	4 1/2	15	40	312	142.00
NKP336F	36	200	24	55	4 1/2	15	46	395	162.00
NKP340F	40	200	24	58	4 1/2	15	49	420	176.00
NKP344F	44	200	24	61	4 1/2	15	52	446	190.00
NKP348F	48	200	24	64	4 1/2	15	55	470	204.00
NKP352F	52	200	24	67	4 1/2	15	58	495	218.00
NKP356F	56	200	24	70	4 1/2	15	61	520	232.00
NKP360F	60	200	24	73	4 1/2	15	64	546	246.00

### Main Knife Switch with Fuse Connections—Solid Neutral



Type NKP3KSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
NKP308KSF	8	60	22	26	4 1/2	15	19	139	\$65.00
NKP312KSF	12	60	22	29	4 1/2	15	22	179	75.00
NKP316KSF	16	100	22	35	4 1/2	15	28	205	90.00
NKP320KSF	20	100	22	38	4 1/2	15	31	226	102.00
NKP324KSF	24	100	24	46	4 1/2	15	37	269	126.00
NKP328KSF	28	100	24	49	4 1/2	15	40	312	138.00
NKP332KSF	32	100	24	52	4 1/2	15	43	370	150.00
NKP336KSF	36	200	24	61	6	15	52	446	196.00
NKP340KSF	40	200	24	64	6	15	55	470	210.00
NKP344KSF	44	200	24	67	6	15	58	495	224.00
NKP348KSF	48	200	24	70	6	15	61	520	238.00
NKP352KSF	52	200	24	73	6	15	64	546	252.00
NKP356KSF	56	200	24	76	6	15	67	570	266.00
NKP360KSF	60	200	24	79	6	15	70	595	280.00

Panel boards with cartridge fuse connections in branches will be furnished without extra cost.

NOTE.—Panels will not be made for less than 8 circuit branches.

FA Type KP3 2-fuse Panel Boards and Cabinets

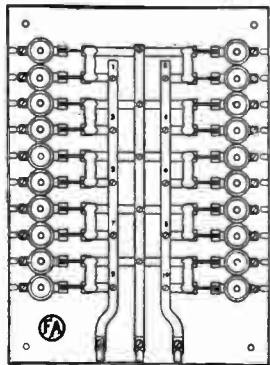
3-wire, 125-250-volt Mains

2-wire, 125-volt Branches with 30-ampere Double Pole Knife Switches with N. E. C. Plug Fuse Connections  
Capacity 1928 Code per Branch



Panels are made of 7/8-inch Ebonized Asbestos Lumber; dead black finish. Barriers, 1/2-inch transite board with FA Patented Adjustable Corner Supports. Box is of code thickness galvanized steel, gutter type. Front is of code thickness steel; black lacquer finish. Flush or surface.

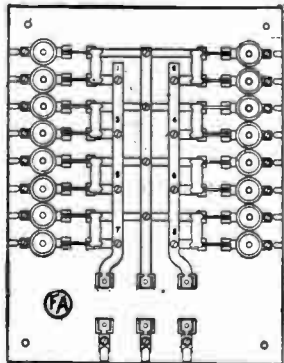
Main Lugs Only



Type KP3L

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP304L	4	30	22	17	4 1/2	15	10	73	\$50.00
KP306L	6	60	22	23	4 1/2	15	16	117	62.00
KP308L	8	60	22	26	4 1/2	15	19	139	72.00
KP310L	10	60	22	29	4 1/2	15	22	157	82.00
KP312L	12	60	22	32	4 1/2	15	25	182	92.00
KP314L	14	100	22	35	4 1/2	15	28	205	100.00
KP316L	16	100	22	38	4 1/2	15	31	226	110.00
KP318L	18	100	24	43	4 1/2	15	34	248	130.00
KP320L	20	100	24	46	4 1/2	15	37	270	140.00
KP322L	22	100	24	49	4 1/2	15	40	292	150.00
KP324L	24	100	24	52	4 1/2	15	43	358	160.00
KP326L	26	100	24	55	4 1/2	15	46	383	170.00
KP328L	28	100	24	58	4 1/2	15	49	408	190.00
KP330L	30	100	24	61	4 1/2	15	52	434	200.00
KP332L	32	100	24	64	4 1/2	15	55	458	210.00
KP334L	34	200	24	67	4 1/2	15	58	500	225.00

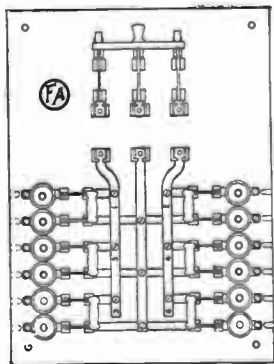
Main Fuse Connections—Solid Neutral



Type KP3F

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP304F	4	30	22	20	4 1/2	15	13	95	\$55.00
KP306F	6	60	22	26	4 1/2	15	19	139	68.00
KP308F	8	60	22	29	4 1/2	15	22	160	78.00
KP310F	10	60	22	32	4 1/2	15	25	182	88.00
KP312F	12	60	22	35	4 1/2	15	28	205	98.00
KP314F	14	100	24	43	4 1/2	15	34	248	120.00
KP316F	16	100	24	46	4 1/2	15	37	270	130.00
KP318F	18	100	24	49	4 1/2	15	40	292	140.00
KP320F	20	100	24	52	4 1/2	15	43	356	150.00
KP322F	22	100	24	55	4 1/2	15	46	383	160.00
KP324F	24	100	24	58	4 1/2	15	49	408	180.00
KP326F	26	100	24	61	4 1/2	15	52	434	190.00
KP328F	28	100	24	64	4 1/2	15	55	458	200.00
KP330F	30	100	24	67	4 1/2	15	58	483	210.00
KP332F	32	100	24	70	4 1/2	15	61	508	220.00
KP334F	34	200	24	76	4 1/2	15	67	558	240.00

Main Knife Switch with Fuse Connections—Solid Neutral



Type KP3KSF

Cat. No.	No. of Branch Circuits	Cap. Mains Amp.	OUTSIDE DIMENSIONS OF BOX, IN.			Marking of Box		Approx. Wt. Lbs.	Price Each
			Width	Height	Depth				
KP304KSF	4	30	22	23	4 1/2	15	16	117	\$62.00
KP306KSF	6	60	22	29	4 1/2	15	22	160	75.00
KP308KSF	8	60	22	32	4 1/2	15	25	182	85.00
KP310KSF	10	60	22	35	4 1/2	15	28	204	95.00
KP312KSF	12	60	22	38	4 1/2	15	31	226	105.00
KP314KSF	14	100	24	46	4 1/2	15	37	270	130.00
KP316KSF	16	100	24	49	4 1/2	15	40	292	140.00
KP318KSF	18	100	24	52	4 1/2	15	43	358	150.00
KP320KSF	20	100	24	55	4 1/2	15	46	384	160.00
KP322KSF	22	100	24	58	4 1/2	15	49	408	180.00
KP324KSF	24	100	24	61	4 1/2	15	52	434	190.00
KP326KSF	26	100	24	64	4 1/2	15	55	458	200.00
KP328KSF	28	100	24	67	4 1/2	15	58	483	210.00
KP330KSF	30	100	24	70	4 1/2	15	61	508	220.00
KP332KSF	32	100	24	73	4 1/2	15	64	534	230.00
KP334KSF	34	200	24	82	6	15	63	608	270.00

Panel boards with cartridge fuse connections in branches will be furnished without extra cost. NOTE.—Panels will not be made for less than four circuit branches.

## FA Panel Boards—Increased Mains and Sub-Feeders

Add to Standard Combination Panel and Cabinet Prices for Increasing Ampere Capacity of 2-Wire Mains

125-Volt Mains for 125-Volt Branches

No. of Br. Cir.	Std. Cap. of Mains		Main Lugs Only				Main Fuse Connections		Safety Main Switch with Fuse Connections	
			1-DOOR CONSTRUCTION		2-DOOR CONSTRUCTION		1 OR 2-DOOR CONSTRUCTION		1 OR 2-DOOR CONSTRUCTION	
			100A	200A	100A	200A	100A	200A	100A	200A
4	60A	Add to Panel Size... in.	3	3	....	....	3	6	3	9
		Add to List Price. each	\$6.00	\$8.00	\$1.50	\$3.50	\$3.60	\$8.60	\$5.20	\$30.00
6 to 10	100A	Add to Panel Size... in.	....	....	....	....	....	3	....	6
		Add to List Price. each	....	3.60	....	3.60	....	8.60	....	26.00

## Sub-Feeders

Add to Standard Combination Panel and Cabinet Prices After Adding for Increased Mains

125-Volt Mains for 125-Volt Branches

	Through Feed Lugs						One Sub-Feeder with Fuse Connections			One Sub-Feeder with Safety Type Main Switch with Fuse Connections		
	1-DOOR CONSTRUCTION			2-DOOR CONSTRUCTION			1 OR 2-DOOR CONSTRUCTION			1 OR 2-DOOR CONSTRUCTION		
	60A	100A	200A	60A	100A	200A	30A	60A	100A	30A	60A	100A
Add to Panel Size... in.	....	3	3	....	....	....	9	9	12	15	15	18
Add to List Price. each	\$1.30	7.20	7.80	1.30	1.60	2.20	17.00	17.00	22.50	38.00	39.00	44.00

To comply with the Underwriters' Rules, the following additions to the above prices shall be made:

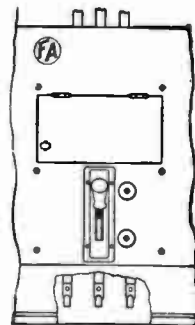
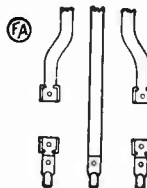
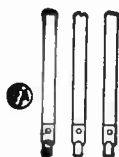
- When Additions Increase Height of the Panel from 46 or Less Inches, to 49 or More Inches, Add to Cover Shoot Bolts and Vault Door Handles, List..... each \$9.00
- When Additions Increase the Square Area of Box from 999 or Less Square Inches, to 1500 or Less, Add for Increasing Thickness of Box from No. 14 to No. 12 Gauge, List..... each 8.00
- When Additions Increase the Square Area of Box Containing from 1000 to 1500 Square Inches to 1500 or Over, Add for Increasing Thickness of Box from No. 12 to No. 10 Gauge, List..... each 3.00
- When Additions Increase the Square Area of Box Containing 999 or Less Square Inches to 1500 or Over, Add for Increasing Thickness of Box from No. 14 to No. 10 Gauge, List..... each 9.00

**FA Panel Boards—Increased Mains and Sub-Feeders**

Add to Standard Combination Panel and Cabinet Prices for Increasing Ampere Capacity of 3-Wire Mains

125-250-Volt Mains for 125-Volt Branches

No. of Br. Cir.	Std. Cap. of Mains		Main Lugs Only								
			1-DOOR CONSTRUCTION			2-DOOR CONSTRUCTION					
			60A	100A	200A	60A	100A	200A			
4	30A	Add to Panel Size... in.		3	3						
		Add to List Price... each	\$1.00	\$7.00	\$10.00	\$1.00	\$2.50	\$5.50			
6 to 12	60A	Add to Panel Size... in.		3	3						
		Add to List Price... each		6.20	7.50		1.60	3.00			
14 to 32	100A	Add to Panel Size... in.									
		Add to List Price... each			2.50			2.50			



Main Fuse Connections			
1 OR 2-DOOR CONSTRUCTION			
60A	100A	200A	
	3	6	
\$2.00	\$6.00	\$13.00	
	3	6	
	4.50	12.00	
		3	
		11.00	

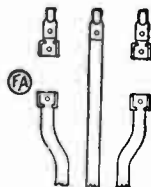
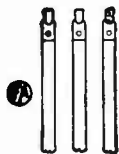
Safety Type Main Switch with Fuse Connections			
1 OR 2-DOOR CONSTRUCTION			
60A	100A	200A	
	3	9	
\$2.00	\$7.00	\$36.00	
	3	9	
	6.50	34.00	
		6	
		32.00	

**Sub-Feeders**

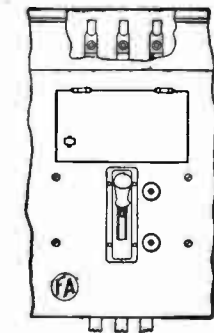
Add to Standard Combination Panel and Cabinet Prices After Adding for Increased Mains

125-250-Volt Mains for 125-Volt Branches

	Through Feed Lugs					
	1-DOOR CONSTRUCTION			2-DOOR CONSTRUCTION		
	60A	100A	200A	60A	100A	200A
Add to Panel Size... inches		3	3			
Add to List Price... each	\$1.60	7.80	8.50	1.60	2.20	3.00



One Sub-Feeder with Fuse Connections		
1 OR 2-DOOR CONSTRUCTION		
30A	60A	100A
9	9	12
17.00	20.00	25.00



One Sub-Feeder with Safety Main Switch with Fuse Connections		
1 OR 2-DOOR CONSTRUCTION		
30A	60A	100A
15	15	18
40.00	42.00	48.00

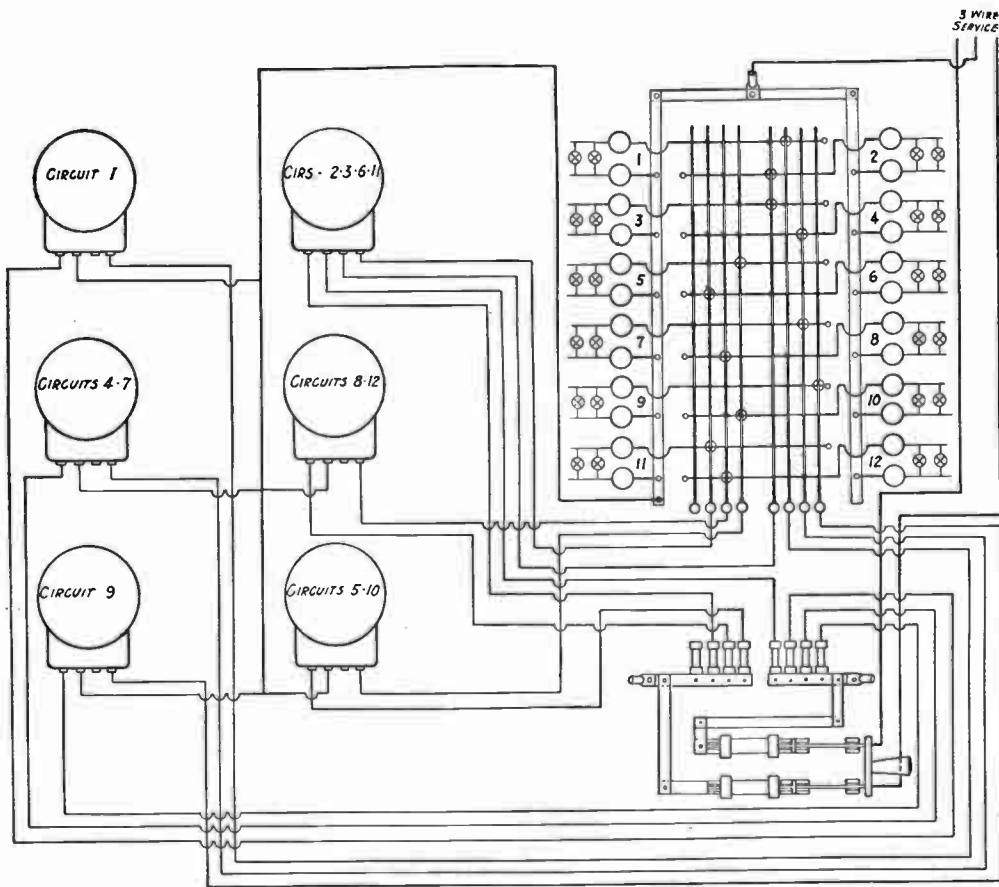
To comply with the Underwriters' Rules, the following additions to the above prices shall be made:

- When Additions Increase Height of Panel from 46 or Less Inches, to 49 or More Inches, Add to Cover Shoot Bolts and Vault Door Handles, List... each **\$9.00**
- When Additions Increase the Square Area of Box from 999 or Less Square Inches, to 1500 or Less, Add for Increasing Thickness of Box from No. 14 to No. 12 Gauge, List... each **8.00**
- When Additions Increase the Square Area of Box Containing from 1000 to 1500 Square Inches to 1500 or Over, Add for Increasing Thickness of Box from No. 12 to No. 10 Gauge, List... each **3.00**
- When Additions Increase the Square Area of Box Containing 999 or Less Square Inches to 1500 or Over, Add for Increasing Thickness of Box from No. 14 to No. 10 Gauge... each **9.00**

## FA Diagram of Connections

For a 12-tenant Circuit, 8-meter Fuse and 8-meter Bar, Meter Control Panelboard Installation, Showing Five 2-wire and One 3-wire Meter

NOTE.—At all points of crossing of the meter bars and circuit bars connection can be readily made with a special connector according to the Type of Meter-control Panelboard specified.



### Wiring

The proper circuit wiring for a Meter-control Panelboard installation is to provide a separate circuit to the outlets in each section of space that can be rented either separately or in combination with other sections, or space to meet the requirements of any tenant, in an office, store or warehouse building.

**FA Meter Control Panelboards and Cabinets**

FA Meter Control Panelboards and Cabinets were designed to take care of the demand for an economical and safe method of metering space in office buildings, arcades, lofts, stores, etc., that may be increased or decreased on demand.

**Branch Wiring**

Proper care should be taken in your branch circuit wiring by running a circuit to the outlets in each section of space that can be rented either separately or in combination with other sections to meet the possible demand of your tenants.

FA Meter Control Panelboards have the following advantages:

**To Owner**

The owner saves the expense of rewiring every time there is a change in tenant.

The owner does not have to worry about waste of current as each tenant pays for that which he uses.

**To Lighting Company**

When owner does not care to bother about the tenant's lighting and power bills, the lighting company will take direct control of the distribution of the electric current, and be safeguarded in all of their meter connections by requiring our special sealing devices.

**Protection Against Theft of Current**

On account of the central stations and building managers desiring protection, we have our cabinets so designed that the connections between the branch circuits and meter busses or wires can be enclosed under separate cover, and can be sealed if desired—so that any change in tenant space can only be made by authorized persons.

See additional cost for these protection covers.

**Standardization**

We have standardized on 2 distinct types of meter control panelboards, each with 3 types of gutter cabinets, as follows:

**FA Meter Control Panelboards and Cabinets**

**Additions and Deductions**

**Main Feeder Connections**

All FA standard design meter control panelboards have fusible main switch to comply with a number of city ordinances. If main lugs only are required, the following deductions apply:

All FA standard design meter control panelboards have fusible main switch to comply with a number of city ordinances. If main lugs only are required, the following deductions apply:

60 Amperes	100 Amperes	200 Amperes
\$4.60	\$6.00	\$7.30

If main fuses only are required, the following deductions apply:

60 Amperes	100 Amperes	200 Amperes
\$3.90	\$4.90	\$6.00

**Additional Charge for Meter Bars, Meter Fuse Connections and Meter Space**

Additional meter fuses without space for meter, type MWGC, add:

For 30-Amperes	per pair \$5.00
For 60-Amperes	per pair 6.00

No deduction for less number of meter fuse connections than listed.

Additional Meter Bars, no Meter Space, Type MBGC

Additional Space for Meters Over 18 Meters, Types MWSFC and MWSBC

Additional Meter Bars and Meter Space, Types MBSFC and MBSBC

Additional 30-Ampere S. P. Disconnecting Knife Switch for Meter Fuse Connections

**Additional Charge for Branches**

Tenant Branches Over 34:	
Meter Wire Type	per pair \$20.00
Meter Bar Type	per pair 30.00

**FA Type M. B. Bus Bar Type Meter Control Panelboards**

The FA Bus Bar Types are recommended when a good job is desired, as this type consists of a set of vertical meter bus bars and a horizontal bus bar for each branch circuit. Each branch circuit bus bar is equipped with a sliding FA Patented Bus Bar Connecting Device which makes it possible to connect any branch circuit or any number of branch circuits to any of the meter bus bars. With this type of meter control panelboard you do not have to remove the front or even disconnect the service when making changes—this feature alone will save enough labor to pay for the complete panelboard within a few years, as any engineer or even janitor can easily move the FA Patented Bus Bar Connecting Device from one meter to another and screw it in the selected position in a few minute's time, without the use of a screw driver or pliers.

**FA Type M. W. Wire Connecting Type Meter Control Panelboards**

For your less particular clients, and where first cost is given preference over quality and simplicity, we have designed our FA Wire Connecting Type Meter Control Panelboard, which, although designed to give the same results as our FA Bus Bar Type Meter Control Panelboard, requires more time to make meter changes and these changes cannot be made readily without disconnecting the entire panel, and, some types, it is also necessary to remove the front.

**FA Meter Control Panelboards Can Be Furnished with the Following Type Cabinets**

Type GC Cabinet having space for only meter control panelboards.

Type SFC Cabinets having space in cabinet for panelboard and space on front of meter cabinets for meters.

Type SBC Cabinets having space for panelboard and meters in cabinets.

**Owners' Branches:**

Meter Wire Type	per pair \$20.00
Meter Bar Type	per pair 30.00

When Switch is Specified in Either Tenant or Owners' Branches:

Add for Each Pair of Branches.....per pair \$8.00

**Extra Charge for Inside Door Over Meter Bars To be Added to Meter Bar Types Only**

On the meter bar type panelboards, an additional door (under the regular door), can be furnished on special order, covering only the meter bars. This special door is fastened with the regular standard meter seal device. The charge for this special door is as follows:

**Number of Meter Bars**

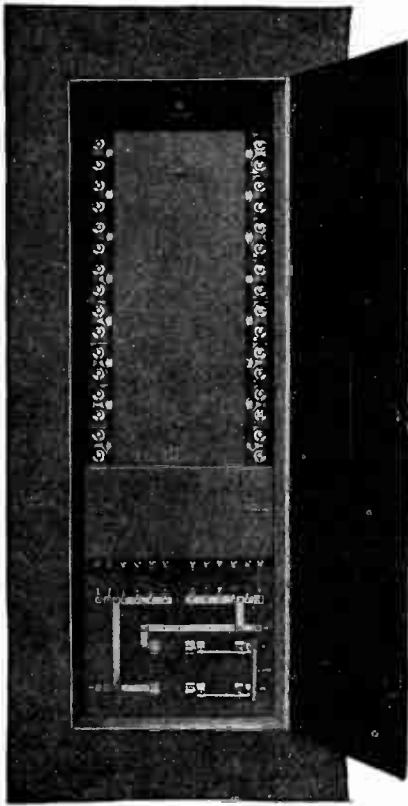
Branches	PRICE, EACH				
	6-8	14-16	18-20	22-24	26-Double Door in Front
4-6-8	\$18.00				
10-12-14	20.00	\$25.00			
16-18-20	22.00	27.00	\$32.00		
22-24-26	35.00	30.00	35.00	\$40.00	\$50.00
28-30-32	27.00	32.00	37.00	42.00	52.00

When main switch and meter fuse connections must also be arranged for sealing, the main cabinet door is divided into 2 sections, each with separate lock. One section opening over the branch circuits and the other over the main switch and meter fuse connections.

Add for this Feature..... \$7.00



## FA Meter Control Panelboards and Cabinets



Type MWGC

No Space for Meters

2-Fuse

Type MWGC Meter Wire Type

PANEL.—Made of sections of molded material.

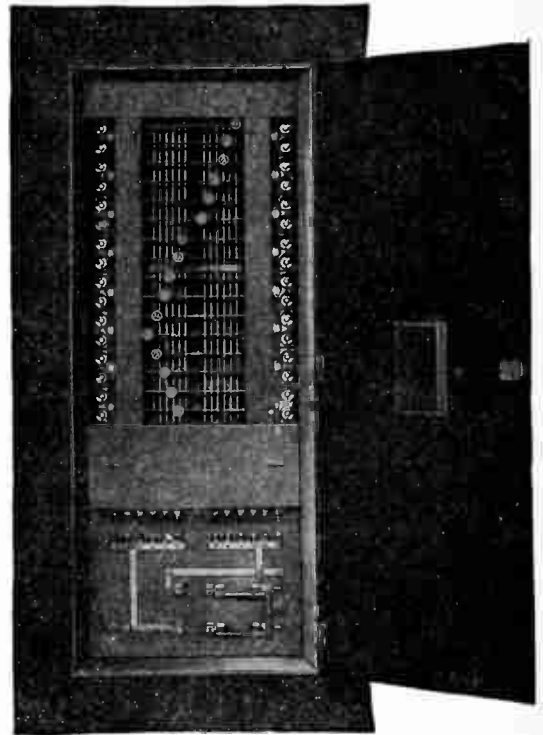
MAINS.—125-250-V. 3-wire; capacity, 1928 code per branch.

BRANCHES.—30-ampere D. P. N. E. C. plug fuse connections.

METER FUSE CONNECTIONS.—30-ampere, S. P. cartridge type. Ample space is left between circuit branch sections for all meter wires and this space is covered with a sheet steel cover held in position by standard meter sealing device. Each circuit branch has a special clamp type wire terminal that will hold wires from No. 14 to No. 6 size.

Box.—Code thickness galvanized steel, gutter type.

FRONT.—Code thickness steel. Black lacquer finish. Flush or surface.



Type MBGC

Branches	Amperage Mains	No. of Meter Fuse Conns.	DIMENSIONS, IN.			Marking of Box	Price Each	Branches	Amperage Mains	No. of Meter Fuse Conns.	DIMENSIONS, IN.			Marking of Box	Price Each
			Wide	High	Deep						Wide	High	Deep		
6	60	6	22	38	4½	15x31	\$85.00	22	100	18	24	67	4½	15x58	\$207.00
8	60	8	24	43	4½	15x34	97.00	24	100	18	24	70	4½	15x61	217.00
10	60	10	24	46	4½	15x37	108.00	26	100	18	24	73	4½	15x64	228.00
12	60	12	24	49	4½	15x40	130.00	28	100	18	24	76	4½	15x67	238.00
14	100	14	24	55	4½	15x46	148.00	30	100	18	24	79	4½	15x70	250.00
16	100	14	24	58	4½	15x49	158.00	32	100	18	24	82	4½	15x73	261.00
18	100	14	24	61	4½	15x52	167.00	34	200	20	24	88	6	15x79	290.00
20	100	14	24	64	4½	15x55	177.00	..	..	..	..	..	..	..	..

### Type MBGC Meter Bar Type

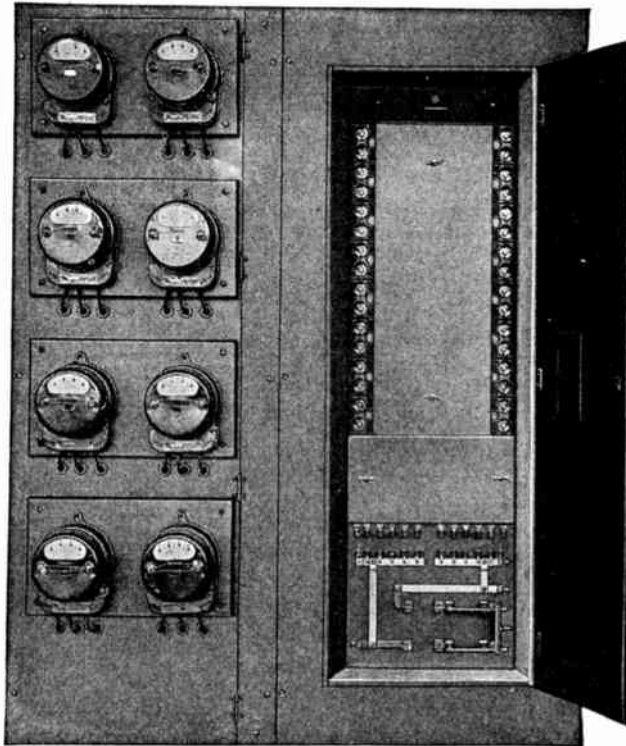
PANEL.—Made of sections of molded material.  
 MAINS.—125-250 V. 3-wire; capacity, 1928 code per branch.  
 BRANCHES.—30-ampere D. P. N. E. C. plug fuse connections.  
 METER FUSE CONNECTIONS.—30-ampere, S. P. cartridge type.  
 BOX.—Code thickness galvanized steel, gutter type.  
 FRONT.—Code thickness steel. Black lacquer finish. Flush or surface.

Branches	Amp. of Mains	NUMBER OF METER BARS AND METER FUSES															
		DIMEN., IN. BOXES 4½ IN. DEEP HEIGHT		6 PANEL 15 IN. WIDE		8 PANEL 15 IN. WIDE		10 PANEL 15 IN. WIDE		12 PANEL 15 IN. WIDE		14 PANEL 16 IN. WIDE		16 PANEL 17 IN. WIDE		18 PANEL 18 IN. WIDE	
		Panel	Box	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each
6	60	31	38	22	\$120.	..	..	..	..	..	..	..	..	..	..	..	..
8	60	34	43	24	140.	24	\$150.	..	..	..	..	..	..	..	..	..	..
10	60	37	46	24	160.	24	170.	24	\$180.	..	..	..	..	..	..	..	..
12	60	40	49	24	180.	24	190.	24	200.	24	\$210.	..	..	..	..	..	..
14	100	46	55	24	200.	24	210.	24	220.	24	230.	25	\$240.	..	..	..	..
16	100	49	58	24	220.	24	230.	24	240.	24	250.	25	260.	26	\$270.	..	..
18	100	52	61	24	240.	24	250.	24	260.	24	270.	25	280.	26	290.	27	\$300.
20	100	55	64	24	260.	24	270.	24	280.	24	290.	25	300.	26	310.	27	320.
22	100	58	67	24	280.	24	290.	24	300.	24	310.	25	320.	26	330.	27	340.
24	100	61	70	24	300.	24	310.	24	320.	24	330.	25	340.	26	350.	27	360.
26	100	64	73	24	320.	24	330.	24	340.	24	350.	25	360.	26	370.	27	380.
28	100	67	76	24	340.	24	350.	24	360.	24	370.	25	380.	26	390.	27	400.
30	100	70	79	24	360.	24	370.	24	380.	24	390.	25	400.	26	410.	27	420.
32	100	73	82	24	380.	24	390.	24	400.	24	410.	25	420.	26	430.	27	440.
34	200	79	88	24	420.	24	430.	24	440.	24	450.	25	460.	26	470.	27	480.

FA Type MWSFC Meter Control Panelboards and Cabinets

Meter Wire Type—Meter Space on Front

2-Fuse



Prices and dimensions are based on the use of A.C. house type meters. Prices and dimensions for installations where d.c. or other types of a.c. meters are used will be quoted upon application. Meters are not included in prices.

Cabinets under 61 inches wide are regularly furnished with one meter compartment at left of panelboard as illustrated. Meter compartments at both sides will be furnished at increased cost. Cabinets 61 inches in width or greater are regularly furnished with meter compartments at both sides of panelboard.

PANEL.—Made of sections of molded material.

MAINS.—125-250-Volt, 3-wire; capacity, 1928 code per branch.

BRANCHES.—30-ampere, S. P. cartridge type. Ample space is left between circuit branch sections for all meter wires and this space is covered with a sheet steel cover held in position by standard meter sealing device. Each circuit branch has a special clamp type wire terminal that will hold wires from No. 14 to No. 6 size.

Box.—Code thickness galvanized steel, gutter type for panelboard, with extension for meter mounting section.

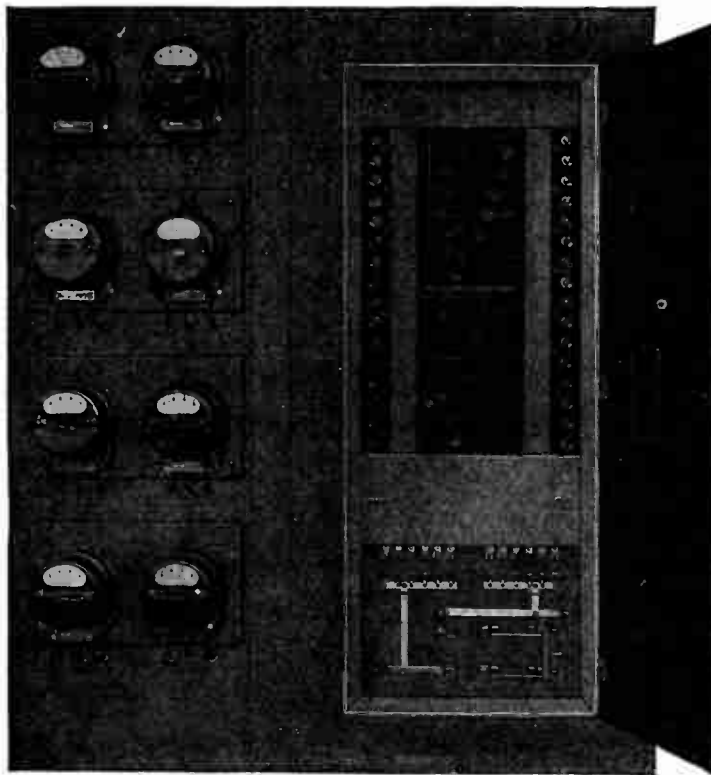
FRONT.—Code thickness steel with door or doors to which meters are fastened. Black lacquer finish. Flush or surface.

Branches	Amp. of Mains	DIMEN., IN.		NUMBER OF METER FUSES AND METER SPACE															
		Panel	Boxes 4 1/2 IN. DEEP HEIGHT	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE		
				Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each		
6	60	31	38	40 1/2	\$144.														
8	60	34	43	42 1/2	158.	49 1/2	\$188.												
10	60	37	46	42 1/2	172.	42 1/2	202.	49 1/2	\$206.										
12	60	40	49	42 1/2	186.	42 1/2	216.	49 1/2	220.	49 1/2	\$224.								
14	100	46	55	42 1/2	208.	42 1/2	226.	49 1/2	240.	49 1/2	244.	61	\$248.						
16	100	49	58	42 1/2	222.	42 1/2	240.	42 1/2	254.	49 1/2	258.	49 1/2	262.	61	\$308.				
18	100	52	61	42 1/2	236.	42 1/2	254.	42 1/2	258.	49 1/2	272.	49 1/2	276.	61	322.	61	\$326.		
20	100	55	64	42 1/2	250.	42 1/2	268.	42 1/2	272.	49 1/2	286.	49 1/2	290.	61	336.	61	340.		
22	100	58	67	42 1/2	264.	42 1/2	282.	42 1/2	286.	42 1/2	290.	49 1/2	304.	49 1/2	340.	49 1/2	344.		
24	100	61	70	42 1/2	278.	42 1/2	296.	42 1/2	300.	42 1/2	304.	49 1/2	318.	49 1/2	354.	49 1/2	358.		
26	100	64	73	42 1/2	292.	42 1/2	310.	42 1/2	314.	42 1/2	320.	49 1/2	332.	49 1/2	368.	49 1/2	372.		
28	100	67	76	42 1/2	306.	42 1/2	324.	42 1/2	328.	42 1/2	334.	42 1/2	336.	49 1/2	382.	49 1/2	386.		
30	100	70	79	42 1/2	320.	42 1/2	338.	42 1/2	342.	42 1/2	348.	42 1/2	350.	49 1/2	396.	49 1/2	400.		
32	100	73	82	42 1/2	334.	42 1/2	352.	42 1/2	356.	42 1/2	362.	42 1/2	364.	49 1/2	410.	49 1/2	414.		
34	200	79	88	42 1/2	390.	42 1/2	394.	42 1/2	398.	42 1/2	402.	42 1/2	406.	42 1/2	452.	49 1/2	472.		

## FA Type MBSFC Meter Control Panelboards and Cabinets

Meter Bar Type—Meter Space on Front

2-Fuse



Prices and dimensions are based on the use of a.c. house type meters. Prices and dimensions for installations where d.c. or other types of a.c. meters are used will be quoted upon application. Meters are not included in prices.

Cabinets under 62 inches wide are regularly furnished with one meter compartment at left of panelboard as illustrated. Meter compartments at both sides will be furnished at increased cost. Cabinets 62 inches in width or greater are regularly furnished with meter compartments at both sides of panelboard.

PANEL.—Made of sections of molded material.

MAINS.—125-250-volt 3-wire; capacity, 1928 code per branch.

BRANCHES.—30-ampere, D. P. N. E. C. plug fuse connections.

METER FUSE CONNECTIONS.—30-ampere, S. P., cartridge type.

BOX.—Code thickness galvanized steel, gutter type for panelboard, with extension for meter mounting section.

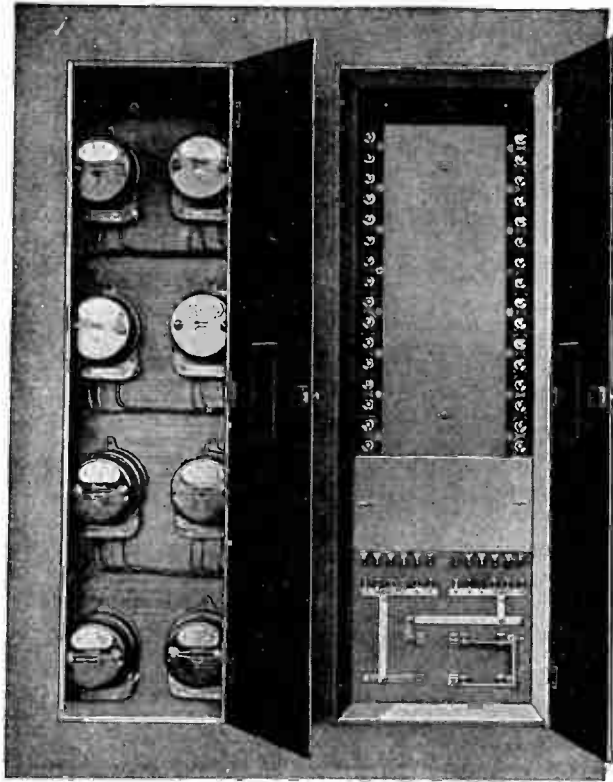
FRONT.—Code thickness steel with door or doors to which meters are fastened. Black lacquer finish. Flush or surface.

Branches	Amp. of Mains	DIMEN., IN. BOXES 4 1/2 IN. DEEP HEIGHT		NUMBER OF METERS, METER BARS AND FUSES													
				6		8		10		12		14		16		18	
				PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 15 IN. WIDE	PANEL 16 IN. WIDE	PANEL 17 IN. WIDE	PANEL 17 IN. WIDE	PANEL 18 IN. WIDE						
		Panel	Box	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each	Box In.	Price Each
6	60	31	38	40 1/2	\$160.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	60	34	43	42 1/2	180.	49 1/2	\$210.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	60	37	46	42 1/2	200.	42 1/2	230.	49 1/2	\$240.	.....	.....	.....	.....	.....	.....	.....	.....
12	60	40	49	42 1/2	220.	42 1/2	250.	49 1/2	260.	49 1/2	\$270.	.....	.....	.....	.....	.....	.....
14	100	46	55	42 1/2	250.	42 1/2	270.	49 1/2	290.	49 1/2	300.	62 1/2	\$310.	.....	.....	.....	.....
16	100	49	58	42 1/2	270.	42 1/2	290.	42 1/2	300.	49 1/2	320.	50 1/2	330.	63	\$390.	.....	.....
18	100	52	61	42 1/2	290.	42 1/2	310.	42 1/2	320.	49 1/2	340.	50 1/2	350.	63	410.	64	\$420.
20	100	55	64	42 1/2	310.	42 1/2	330.	42 1/2	340.	49 1/2	360.	50 1/2	370.	63	430.	64	440.
22	100	58	67	42 1/2	330.	42 1/2	350.	42 1/2	360.	42 1/2	370.	50 1/2	390.	51 1/2	440.	52 1/2	450.
24	100	61	70	42 1/2	350.	42 1/2	370.	42 1/2	380.	42 1/2	390.	50 1/2	410.	51 1/2	460.	52 1/2	470.
26	100	64	73	42 1/2	370.	42 1/2	390.	42 1/2	400.	42 1/2	410.	50 1/2	430.	51 1/2	480.	52 1/2	490.
28	100	67	76	42 1/2	390.	42 1/2	410.	42 1/2	420.	42 1/2	430.	43 1/2	440.	51 1/2	500.	52 1/2	510.
30	100	70	79	42 1/2	410.	42 1/2	430.	42 1/2	440.	42 1/2	450.	43 1/2	460.	51 1/2	520.	52 1/2	530.
32	100	73	82	42 1/2	430.	42 1/2	450.	42 1/2	460.	42 1/2	470.	43 1/2	480.	51 1/2	540.	52 1/2	550.
34	200	79	88	42 1/2	490.	42 1/2	500.	42 1/2	510.	42 1/2	520.	43 1/2	530.	44 1/2	580.	52 1/2	600.

FA Type MWSBC Meter Control Panelboards and Cabinets

Meter Wire Type—Space in Box for Meters

2-Fuse



Prices and dimensions are based on the use of a.c. house type meters. Prices and dimensions for installations where d.c. or other types of a.c. meters are used will be quoted upon application. Meters are not included in prices.

Cabinets under 61 inches wide are regularly furnished with one meter compartment at left of panelboard as illustrated. Meter compartments at both sides will be furnished at increased cost. Cabinets 61 inches in width or greater are regularly furnished with meter compartments at both sides of panelboard.

PANEL.—Made of sections of molded material.

MAINS.—125-250-volt 3-wire; capacity, 1928 code per branch.

BRANCHES.—30-ampere D. P. N. E. C. plug fuse connections.

METER FUSE CONNECTIONS.—30-ampere, S. P., Cartridge type. Ample space is left between circuit branch sections for all meter wires and this space is covered with a sheet steel cover held in position by standard meter sealing device. Each circuit branch has a special clamp type wire terminal that will hold wires from No. 14 to No. 6 size.

BOX.—Code thickness galvanized steel, gutter type for panelboard. Cabinets for meters are standard B. F. type, with wood boards for supporting meters.

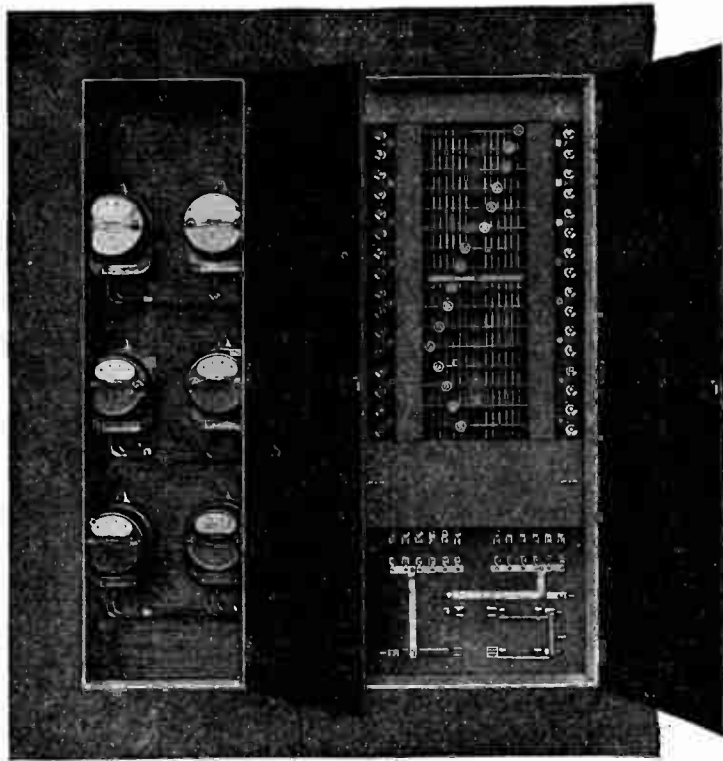
FRONT.—Code thickness steel. Black lacquer finish. Flush or surface.

Branches	Amp. of Mains	DIMEN., IN. BOXES 7 IN. DEEP HEIGHT		NUMBER OF METERS AND METER FUSES															
				6		8		10		12		14		16		18			
				PANEL 15 IN. WIDE		PANEL 15 IN. WIDE		PANEL 15 IN. WIDE		PANEL 15 IN. WIDE		PANEL 15 IN. WIDE		PANEL 15 IN. WIDE		PANEL 15 IN. WIDE			
Panel	Box	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each				
6	60	31	38	40 $\frac{1}{2}$	\$154.														
8	60	34	43	42 $\frac{1}{2}$	168.	49 $\frac{1}{2}$	\$198.												
10	60	37	46	42 $\frac{1}{2}$	182.	49 $\frac{1}{2}$	212.	49 $\frac{1}{2}$	\$216.										
12	60	40	49	42 $\frac{1}{2}$	196.	42 $\frac{1}{2}$	226.	49 $\frac{1}{2}$	230.	49 $\frac{1}{2}$	\$234.								
14	100	46	55	42 $\frac{1}{2}$	218.	42 $\frac{1}{2}$	236.	49 $\frac{1}{2}$	250.	49 $\frac{1}{2}$	254.	61	\$258.						
16	100	49	58	42 $\frac{1}{2}$	232.	42 $\frac{1}{2}$	250.	49 $\frac{1}{2}$	264.	49 $\frac{1}{2}$	268.	61	272.	61	\$318.				
18	100	52	61	42 $\frac{1}{2}$	246.	42 $\frac{1}{2}$	264.	42 $\frac{1}{2}$	268.	49 $\frac{1}{2}$	282.	49 $\frac{1}{2}$	286.	61	332.	61	\$336.		
20	100	55	64	42 $\frac{1}{2}$	260.	42 $\frac{1}{2}$	278.	42 $\frac{1}{2}$	282.	49 $\frac{1}{2}$	296.	49 $\frac{1}{2}$	300.	61	346.	61	350.		
22	100	58	67	42 $\frac{1}{2}$	274.	42 $\frac{1}{2}$	292.	42 $\frac{1}{2}$	296.	49 $\frac{1}{2}$	310.	49 $\frac{1}{2}$	314.	61	360.	61	364.		
24	100	61	70	42 $\frac{1}{2}$	288.	42 $\frac{1}{2}$	306.	42 $\frac{1}{2}$	310.	49 $\frac{1}{2}$	324.	49 $\frac{1}{2}$	328.	61	374.	61	378.		
26	100	64	73	42 $\frac{1}{2}$	302.	42 $\frac{1}{2}$	320.	42 $\frac{1}{2}$	324.	42 $\frac{1}{2}$	328.	49 $\frac{1}{2}$	342.	49 $\frac{1}{2}$	378.	49 $\frac{1}{2}$	382.		
28	100	67	76	42 $\frac{1}{2}$	316.	42 $\frac{1}{2}$	334.	42 $\frac{1}{2}$	338.	42 $\frac{1}{2}$	342.	49 $\frac{1}{2}$	356.	49 $\frac{1}{2}$	392.	49 $\frac{1}{2}$	396.		
30	100	70	79	42 $\frac{1}{2}$	330.	42 $\frac{1}{2}$	348.	42 $\frac{1}{2}$	352.	42 $\frac{1}{2}$	356.	49 $\frac{1}{2}$	370.	49 $\frac{1}{2}$	406.	49 $\frac{1}{2}$	410.		
32	100	73	82	42 $\frac{1}{2}$	344.	42 $\frac{1}{2}$	362.	42 $\frac{1}{2}$	366.	42 $\frac{1}{2}$	370.	42 $\frac{1}{2}$	374.	49 $\frac{1}{2}$	420.	49 $\frac{1}{2}$	424.		
34	200	79	88	42 $\frac{1}{2}$	400.	42 $\frac{1}{2}$	404.	42 $\frac{1}{2}$	408.	42 $\frac{1}{2}$	412.	42 $\frac{1}{2}$	416.	49 $\frac{1}{2}$	472.	49 $\frac{1}{2}$	482.		

## FA Type MBSBC Meter Control Panelboards and Cabinets

### Meter Bus Bar Type—Space in Box for Meters

2-Fuse



Prices and dimensions are based on the use of a.c. house type meters. Prices and dimensions for installations where d.c. or other types of a.c. meters are used will be quoted upon application. Meters are not included in prices.

Cabinets under 62 inches wide are regularly furnished with one meter compartment at left of panelboards as illustrated. Meter compartments at both sides will be furnished at increased cost. Cabinets 62 inches in width or greater are regularly furnished with meter compartments at both sides of panelboard.

PANEL.—Made of sections of molded material.

MAINS.—125-250-volt 3-wire; capacity, 1928 code per branch.

BRANCHES.—30-ampere D. P. N. E. C. plug fuse connections.

METER FUSE CONNECTIONS.—30-ampere, S. P., cartridge type.

BOX.—Code thickness galvanized steel, gutter type for panelboard. Cabinets for meters are standard B. F. type with wood boards for supporting meters.

FRONT.—Code thickness steel. Black lacquer finish. Flush or surface.

Branches	Amp. of Mains	DIMEN., IN.		NUMBER OF METERS, METER BARS AND METER FUSES															
		BOXES 7 IN. DEEP	HEIGHT	PANEL 6 15 IN. WIDE		PANEL 8 15 IN. WIDE		PANEL 10 15 IN. WIDE		PANEL 12 15 IN. WIDE		PANEL 14 16 IN. WIDE		PANEL 16 17 IN. WIDE		PANEL 18 18 IN. WIDE			
		Panel	Box	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each	Width of Box In.	Price Each		
6	60	31	38	40½	\$170.														
8	60	34	43	42½	190.	49½	\$220.												
10	60	37	46	42½	210.	49½	240.	49½	\$250.										
12	60	40	49	42½	230.	42½	260.	49½	270.	49½	\$280.								
14	100	46	55	42½	260.	42½	280.	49½	300.	49½	310.	62	\$320.						
16	100	49	58	42½	280.	42½	300.	49½	320.	49½	330.	62	340.	63	\$100.				
18	100	52	61	42½	300.	42½	320.	42½	330.	49½	350.	50½	360.	63	420.	64	\$430.		
20	100	55	64	42½	320.	42½	340.	42½	350.	49½	370.	50½	380.	63	440.	64	450.		
22	100	58	67	42½	340.	42½	360.	42½	370.	49½	390.	50½	400.	63	460.	64	470.		
24	100	61	70	42½	360.	42½	380.	42½	390.	49½	410.	50½	420.	63	480.	64	490.		
26	100	64	73	42½	380.	42½	400.	42½	410.	42½	420.	50½	440.	51½	490.	52½	500.		
28	100	67	76	42½	400.	42½	420.	42½	430.	42½	440.	50½	460.	51½	510.	52½	520.		
30	100	70	79	42½	420.	42½	440.	42½	450.	42½	460.	50½	480.	51½	530.	52½	540.		
32	100	73	82	42½	440.	42½	460.	42½	470.	42½	480.	43½	490.	51½	550.	52½	560.		
34	200	79	88	42½	500.	42½	510.	42½	520.	42½	530.	43½	540.	51½	600.	52½	610.		

**Bare and Insulated Wires**

**General Information**



**Stocks**

We carry at our various distributing houses large stocks of wire and cables, which, in addition to the large reserve stock carried by the manufacturers from whom we buy, gives this company a unique and comprehensive assortment. We handle thousands of types of wires, bare and insulated, suitable for general purposes, and, of course, in addition, special wires and cables for aerial, underground, submarine, mine, signal, telephone, and telegraph service.

**Factory Facilities**

Factory facilities for the manufacture of rubber covered wires and cables have been continually improved, so that to-day the Graybar Electric Company is in a position to offer its customers unsurpassed facilities for the production of rubber insulated wires, and we are as well able to have produced promptly special wires and cables such as are used by the railroads, the mines and the United States Government.

**Price and Quality**

The Graybar Electric Company sells its wires and cables at prices consistent with the quality of material used, and our customers will find that we are in line with other manufacturers producing high grade wire.

**Special Wires**

Although the foregoing refers principally to the standard types of rubber covered wire, the same holds good to other classes of rubber covered wire handled by the Graybar Electric Company. We are in a position to furnish not only material from a large stock of wires and cables, which meet these ordinary specifications, and from which shipment can usually be made as soon as order is received, but we also have exceptional facilities for executing promptly all orders for emergency or special cables even of the most complicated construction.

**Service**

Our distributing houses are so well located and our stocks are so large that we are able to give customers service of a quality that cannot be exceeded by any of our competitors in any part of the country, and salesmen can unhesitatingly assure their customers that all stock of Graybar Electric wire receives the most careful scrutiny and inspection by men experienced in that line of work.

**Bare and Insulated Wires**

**Wiring of Buildings**

**Classes of Wiring—Wiring Rules**

**CLASSES OF WIRING.** Wires may be installed in buildings:

- (1) In conduits or raceways
- (2) On porcelain knobs.

If the wiring must be enclosed, two systems are available:

- (1) Concealed conduit wiring.
- (2) Concealed knob and tube wiring.

If the wiring may be exposed, three systems are available:

- (1) Open conduit wiring.
- (2) Metal raceway wiring.
- (3) Exposed knob and cleat wiring.

In general, the above systems are used as follows:  
**CONCEALED CONDUIT WIRING.** Public buildings, office buildings, hotels, apartment houses and high class residences.

**CONCEALED OR KNOB AND TUBE WIRING.** Inexpensive frame houses, where it is not a serious drawback that wall and floors must be opened to make repairs.

**OPEN CONDUIT WIRING.** High class factories, power stations, warehouses.

**METAL RACEWAY WIRING.** Office buildings, factories, warehouses and garages.

**EXPOSED KNOB AND CLEAT WIRING.** Factories and mills.

**Selections of Wires and Cables for Given Service**

The type of wire or cable to use for a given service cannot always be determined without a knowledge of both the conditions of service and the capabilities of the various types of wires and cables available. The following tables give a general idea of the types used for various services:

- A. Wires and cables for indoor use.
- B. Flexible cords.
- C. Wires and cables for outdoor use.
- D. Wires and cables for vehicles.
- E. Wires and cables for ships.
- F. Wires and cables for mines.
- G. Telegraph wires.
- H. Telephone wires.

A description of each type of wire or cable will be found under the given name in the catalog section of this book.

**A. Wires and Cables for Indoor Use**

Type of Wiring	Condition of Service	SINGLE CONDUCTOR*		MULTIPLE CONDUCTOR	
		Smaller than No. 6 A.W.G.	and Larger No. 6 A.W.G.	Smaller than No. 6 A.W.G.	and Larger No. 6 A.W.G.
Armored Cable	Dry places			Armored Cable	
	Damp places			Armored Cable Leaded	
Concealed knob and tube		R		R	
				Double braid	
Conduit	Dry places			R	RD or AC
	Damp places	R	RL	Double braid	Double braid
				RL	RDL or ACL
Fixtures	In fixtures	F			
Open	Ordinary places				
	Extra hot places, Power stations, Substations, etc.	R	SB or SBW	R Double braid or SBW	
				Station Cable	
On electric machines	Flexible connections			Apparatus Cable	
On motion picture machines	Flexible connections			Motion Picture Machine Cable	

\*Except in power stations, substations, etc., single-conductor cables are not allowed by the National Electrical Code, for pressures over 550 volts between wires. No wires for over 35 volts are allowed in buildings other than those mentioned above.



## Bare and Insulated Wires

## Bare and Insulated Wires

Continued

Continued

### Key to Type Letters

(National Board of Fire Underwriters' Type Letters)

Letter	Type	Name
R	Rubber Insulated.....	Code Wire
S B	Slow Burning.....	Slow Burning Wire
S B W	" " Weather- proof.....	" " Weather- proof Wire
A C	Armored Braided.....	Armored Wire
A C L	" " and Leaded.....	Leaded Armored Wire
R L	Rubber, Lead.....	Lead Covered Cable
F	Rubber Insulated.....	Fixture Wire
RD	Rubber Insulated.....	Twin Wire (Flat)

### Railroad Cars and Locomotives

Use	Name
Lighting by axle or similar systems.....	} Car lighting cable
Connecting controllers, contactors, etc., of multiple unit cars.....	
Lighting of cars from traction circuits.....	} Car cable
Wiring electric headlights..	

### B. Flexible Cords

Use	Type Letter	Name
As pendants or portables in dry places.....	C	Lamp cord
Where not subject to hard usage.....	PD	Twisted portable
	PO	Parallel cord
	SJ	Light usage cord
	P	Reinforced cord
For hard usage.....	S	Hard service cord
	CA	Armored cord
	PA	Armor reinf. cord
	CB	Brewery cord
Pendants damp places.....	CC	Canvasite cord
	S	Hard service cord
	SJ	Light usage cord
	PWp	Reinforced cord wp.
Portable damp places.....	Pkwp	Packinghouse cord
	PAWp	Armored reinf. cord wp.
	S	Hard service cord
Theatre Stages.....	SJ	Light usage cord
	T	Stage Cable
Theatre Borders.....	S	See type S above
	B	Border light cable
Elevator lighting and control	E	Elevator cable
	S	See type S above
Portable heaters.....	H	Heater cord

### E. Wires and Cables for Ships

Use	Name
General wiring in conduits..	} 30% Hevea house wire, stranded if larger than No. 12
Exposed wiring.....	
Portables for use on decks, etc.....	} Deck cable

### F. Wires and Cables for Mines

Use	Name
Open wiring to three-phase motors.....	} *Mine cable, triplex
Operating locomotives, hoists, drills, etc.....	
Operating mining locomotives which are run on steel track rails available for return current.....	} *Mine cable, twin (flat)
Hanging in shaft.....	
	} *Gathering Reel cable single conductor, 2-conductor Flat or concentric
	} Armored cable (with rubber insulation). Bore Hole cable

\*Either braided or rubber sheathed.

### C. Wires and Cables for Outdoor Use

Use	Name
Aerial on messenger cable...	Aerial cable
Connecting suspended arc lamp to pole.....	Mast-arm cable
	Deck cable (See B. flexible cords)
Portable.....	Paper insulated cable or varnished cambric insulated cables with lead sheath
On wall (outdoors).....	Varnished cambric insulated cables with steel tape armor
On vibrating structures.....	Park cable
Buried in the ground.....	Signal wire
Signal wires in trunking, etc..	Paper insulated cable
In ducts.....	Armored submarine cable
Under water.....	

### D. Wires and Cables for Elevators

Connecting controller on car to stationary equipment..	} Elevator control cable
Connecting lights on car to source of supply.....	
Wiring lights on elevators..	} Elevator lighting cable
	} Code, house wire

### G. Telegraph Wires

Use	Name
Outdoor wiring.....	See telephone wires
Indoor wiring.....	} Special. Information on request

### H. Telephone Wires and Cables

Use	Name
Indoor wiring	Telephone wire, interior
Short runs of wire suspended in rings and similar outdoor use where span is short.....	} Telephone wire, bridle
In ducts.....	
Connecting terminals on poles to subscribers' premises by a span.....	} Dry core cable
Connections in central offices between different switch-board terminals and outside cable terminals.....	
Joining ends of cable conductors to terminals.....	} Telephone wire, drop
Underground entrances to subscribers' premises.....	
	} Telephone wire, distributing frame
	} Telephone wire, pot-head
	} Telephone wire, lead covered

**Bare and Insulated Wires**

**Rubber Covered Wire Data**

Continued

**Underwriters' Laboratories and Seal**

**Insulation**



The Underwriters' Laboratories is a Corporation which maintains laboratories for the examination and testing of appliances and devices, and enters into contracts with the owners and manufacturers of such appliances and devices respecting the recommendation

thereof to insurance organizations.

Its chief financial support has been received from the National Board of Fire Underwriters under whose general direction the work is carried on. It does its work for service and not for profit.

The Underwriters' Laboratories prescribe certain standards which must be met by the users in order to obtain fire insurance.

The principal method of carrying out this supervision of listed products is by inspection at the factories by the Laboratories' engineers and the labeling of standard materials whereby they may be recognized wherever found. In addition, systematic supplementary examinations and tests are made at the Laboratories of samples of labeled goods purchased in the open market.

The labels for wire are issued in seven denominations which are of the same size and of the general appearance shown by the following illustration:



The 7 denominations vary only with respect to the length of wire which they represent, and are as follows:

100, 200, 250, 300, 400, 500 and 1000 feet.

The blank space at the bottom of the label is for a serial number by means of which a record is kept of the name of the manufacturer and the date of manufacture.

**Code Cables and Wires**

Code wires are made in accordance with the requirements of the National Electrical Code and are inspected by the National Board of Fire Underwriters, whose label is attached to each length certifying that it has passed inspection.

Type letters are assigned to wires in order to briefly indicate the construction details. The following type designations are applied to all rubber covered wires intended for use in indoor lighting and power equipment. A description of each type will be found under the name indicated below.

Type Letter	Name
A C	Rubber Insulated Wires for use in Armored Cables.
A C L	Lead Covered Wires for use in Armored Cables.
B	Border-Light Cable.
C	Lamp Cord.
C A	Armored Cord.
C B	Brewery Cord.
C C	Canvasite Cord.
E	Elevator Lighting Cable. Elevator Control Cable.
H	Heater Cord.
P	Reinforced Cord.
P A	Armored Reinforced Cord.
P A Wp	Moisture-proof Armored Reinforced Cord.
Pk Wp	Packinghouse Cord.
P O	Parallel Cord.
P D	Twisted Parallel Cord.
P Wp	Reinforced Cord, Moisture Proof.
R F 64	Fixture Wire $\frac{1}{4}$ " Insulation.
R F 32	Fixture Wire $\frac{1}{8}$ " Insulation.
R F	Fixture Wire $\frac{1}{4}$ " Insulation.
R	Code, Wire Single Conductor.
R D	Code, Wire Twin Conductor (Flat).
R D L	Lead Covered Rubber Insulated Cable, 2-Conductor.
R L	Lead Covered Rubber Insulated Cable, Single Conductor.
S	Hard Service Cord.
S B	Slow Burning Wire.
S B W	Slow Burning Weatherproof Wire.
S J	Light Usage Cord.
T	Stage Cable.
WP	Weatherproof Wire.

Type Numerals	Maximum Working Pressure Volts	Type Numerals	Maximum Working Pressure Volts
15	1500	50	5000
25	2500	70	7000
35	3500		

For example, a No. 4 single conductor rubber insulated wire, intended for a 1100-volt circuit, would be designated by R-15.

Habirshaw Wires and Cables are insulated with rubber varnished cambric or paper.

Three standard and several special grades of rubber compounds are made. The highest standard grade, known as 30 per cent hevea compound, is favored for pressures exceeding 2500 volts, and many engineers prefer to use it for all pressures exceeding 600 volts. It is also used for low pressure work where the greatest reliability and permanence is desired, as in high grade buildings and railway signal work. Habirshaw 30 per cent hevea compounds are made in accordance with either the specifications of the American Society for Testing Materials which is used by several branches of the government, and by the most important railroads, lighting companies, and industrial organizations, or the specifications of the American Railway Association Signal Division, which is used by the signal departments of the principal railroads.

An intermediate grade of rubber compound, known as "Engineers' Grade," was developed by the Habirshaw Research Laboratories to obtain the longest life in proportion to the cost. "Engineers' Grade" wires are intermediate in cost between 30 per cent hevea and code wires. The long life of "Engineers' Grade" wire is demonstrated by its extraordinary showing when subjected to accelerated ageing tests.

"Black Core" rubber compound is used for the ordinary wiring of buildings. It is made with over 20 per cent of rubber in accordance with the requirements of the National Electrical Code, and is inspected by representatives of the Underwriters' Laboratories in order to be certified that it is in accordance with the regulations of the National Board of Fire Underwriters. "Black Core" wire, however, not only meets with the requirements of the regulations, but exceeds them by a wide margin, the circumstance to which it owes its high reputation. Indeed, it has been the policy of the Habirshaw Company to make the name "Black Core" represent a standard of quality.

The above grades are all in accordance with the best commercial standards, but Habirshaw also makes a grade known as Corona-Proof which is far above any commercial standard and represents the high development of the art.

Varnished cambric insulation is also used for large cables in buildings. It is particularly useful for high pressure cables in power stations and substations.

Paper insulation is used for outside cables but not generally for cables in buildings.

**Thirty Per Cent Hevea Wire and Cable**

Thirty per cent hevea rubber insulated wires and cables are used in place of Code wires, wherever circumstances justify the extra expenditure, to obtain safety and longer life.

Wires of this grade are recommended for public buildings and high class dwellings, and for general use for voltages over 2500.

Habirshaw 30 per cent hevea rubber compound is made in accordance with the specifications of the American Society for Testing Materials, which was approved by the Standards Committee of the American Institute of Electrical Engineers and published by order of the Board of Directors in the Proceedings of April, 1917. (Copies of this specification may be obtained from the American Society for Testing Materials.)

All types of rubber insulated wires and cables are made with 30 per cent hevea rubber compound if so ordered.

## Rubber Covered Wire Data



### Intermediate Grade Wire

Intermediate Grade wire is a distinctive product of the Habirshaw Research Laboratories, developed to meet the demand for wire of a quality intermediate between the 30 per cent hevea and code grades.

It is insulated with a compound which has been found by experience and experiment to be of a remarkably permanent character. It is made in all the various forms usually made with code compound except cords.

### Black Core Wire and Cable

Habirshaw Black Core wire is code wire, made by an organization with a generation of experience in rubber-covered wire manufacture in back of it, and three well equipped research laboratories to keep it abreast of the times.

Black Core wire is made in single and double braid, or lead sheath and with one, two or more separately insulated conductors. See under "Code Wires and Cables" for a list of all types of wires and cables insulated with Black Core Compound.

While Habirshaw Black Core compound is intended primarily to meet the requirements of the National Electric Code, it possesses superior electrical, mechanical and chemical properties.



Test Voltage	Code Requirements
14-18 A. W. G.	1500
6-2	2000
1-0000	2500
Return after stretch 2 to 5 ins.	2½ in.
Breaks when stretched from 2 in. to	6 in.
Tensile strength, lbs. per sq. in.	500

## Habirshaw Rubber Covered Flexible Cable



Size B. & S.	Carrying Cap. Amps.	No. of Wires	600 Volts		Diameter Over All In.	Approx. Wt. Lbs. per 1000 Feet
			Size Wires	Rubber Wall In.		
0000	225	133	.0399	5/64	.850	900
000	175	133	.0356	5/64	.780	730
00	150	133	.0317	5/64	.725	610
0	125	133	.0282	5/64	.670	490
1	100	133	.0251	5/64	.610	415
2	90	133	.0226	5/64	.550	325
4	70	49	.0291	3/64	.477	212
6	50	49	.0231	3/64	.423	146
8	35	49	.0183	3/64	.289	83
10	25	37	.0168	3/64	.240	55
12	20	19	.0186	3/64	.218	40
14	15	19	.0147	3/64	.198	30

## Habirshaw Rubber Covered Braided Solid Wires and Cables

Single Conductor—600 Volts N.E.C.S.



### Single Braided

Size A.W.G.	Approved Carrying Capacity Amperes	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package Bundle	Shipping Wt., Lbs. per 1000 Feet
*18	3	1	100	5000	5 Coils	10
*16	6	1	110	5000	5 Coils	14
18	3	2	135	5000	5 Coils	14
16	6	2	145	5000	5 Coils	18
14	15	3	190	2500	5 Coils	30
12	20	3	205	2500	5 Coils	40
10	25	3	225	2500	5 Coils	55
8	35	3	250	500	†Coil	76
6	50	4	315	500	†Coil	120
4	70	4	375	500	†Coil	180

### Double Braided

14	15	3	.220	2500	5 Coils	36
12	20	3	.235	2500	5 Coils	47
10	25	3	.255	2500	5 Coils	62
8	35	3	.280	500	†Coil	86
6	50	4	.360	500	†Coil	135
4	70	4	.405	500	†Coil	190

\*Fixture wire.

## Habirshaw Rubber Covered Braided Stranded Wires and Cables

Single Conductor—600 Volts N.E.C.S.



### Single Braided

Size A.W.G.	Approved Carrying Capacity Amperes	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package Bundle	Shipping Wt., Lbs. per 1000 Feet
14	15	3	.195	2500	5 Coils	32
12	20	3	.215	2500	5 Coils	43
10	25	3	.240	2500	5 Coils	59
8	35	3	.270	500	†Coil	83
6	50	4	.355	500	†Coil	135
4	70	4	.400	500	†Coil	195
2	90	4	.460	500	†Coil	285

### Double Braided

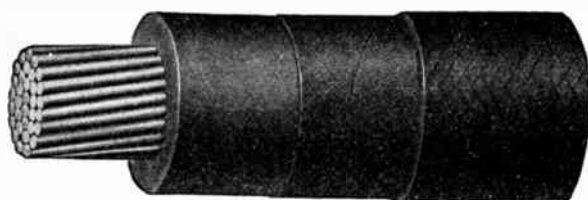
14	15	3	.225	2500	5 Coils	38
12	20	3	.245	2500	5 Coils	50
10	25	3	.270	2500	5 Coils	67
8	35	3	.300	500	†Coil	93
6	50	4	.385	500	†Coil	145
4	70	4	.430	500	†Coil	205
2	90	4	.490	500	†Coil	295
1	100	5	.565	1000	Reel, 30"	435
1/0	125	5	.605	1000	Reel, 36"	560
2/0	150	5	.650	1000	Reel, 36"	660
3/0	175	5	.700	1000	Reel, 36"	780
4/0	125	5	.760	1000	Reel, 36"	930

†Single coils paper wrapped.

NOTE.—Corrugated paper used on reels up to 42 inches, inclusive. Lagging used only when specified. Sizes 48 to 84 inches inclusive, lagged.

**Habirshaw Rubber Covered Braided Stranded Circular Mil Cables**

Single Conductors  
600 Volts N. E. C. S.



Size Circular Mils	Approved Carrying Capacity Amperes	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package	Shipping Wt., Lbs. per 1000 Feet
250000	240	6	.840	1000	Reel, 36"	1090
300000	275	6	.895	1000	Reel, 42"	1390
350000	300	6	.945	1000	Reel, 42"	1560
400000	325	6	.990	1000	Reel, 42"	1740
450000	370	6	1.035	1000	Reel, 42"	1905
500000	400	6	1.110	1000	Reel, 42"	2095
600000	450	7	1.220	500	Reel, 42"	2695
650000	...	7	1.255	500	Reel, 42"	2890
700000	500	7	1.290	500	Reel, 42"	3055
750000	...	7	1.325	500	Reel, 42"	3230
800000	550	7	1.360	500	Reel, 42"	3400
900000	600	7	1.420	500	Reel, 42"	3740
1000000	650	7	1.480	500	Reel, 42"	4070
1250000	750	8	1.645	500	Reel, 48"	5490
1500000	850	8	1.770	500	Reel, 48"	6305
1750000	950	8	1.885	500	Reel, 56"	7590
2000000	1050	8	1.990	500	Reel, 56"	8420

Unless otherwise specified the above lengths and packing will be furnished. Where special lengths are required, this should be specially noted on the orders.

NOTE.—Corrugated paper used on reels up to 42 inches, inclusive. Lagging used only when specified. Sizes 48 to 84 inches inclusive, lagged.

**Habirshaw Rubber Covered Braided Wire**

Twin Flat Conductor—600 Volts N. E. C. S.



**Solid**

Size A.W.G. Gauge	Approved Carrying Capacity Amperes	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package	Shipping Wt., Lbs. per 1000 Feet
14	15	3	.235x.420	500	†Coil	71
12	20	3	.250x.455	500	†Coil	92
10	25	3	.270x.495	500	†Coil	125
8	35	3	.295x.550	500	†Coil	170
6	50	4	.360x.680	1000	Reel, 30"	325

**Stranded**

14	15	3	.240x.440	500	Coil	76
12	20	3	.260x.475	500	Coil	99
10	25	3	.285x.525	500	Coil	130
8	35	3	.315x.585	500	Coil	180
6	50	4	.385x.725	1000	Reel, 30"	340

†Single coils paper wrapped.

NOTE.—Corrugated paper used on reels up to 42 inches, inclusive. Lagging used only when specified. Sizes 48 to 84 inches inclusive, lagged.

**Reels**

Some sizes and kinds of wires necessarily must be shipped on reels.

In such cases the reels will be billed at cost and credited at full billing value, less return freight charges, if returned to mill within six months of shipping date.

Obtain return tags and shipping instructions before shipping reels.

**Habirshaw Rubber Covered House Wire 3-Conductor—Solid**



Each conductor of the 3-Conductor Rubber Covered House Wire is insulated by Black Core rubber compound. The covering over insulation is a 2 to 6 A.W.G., one rubber filled tape, and an 8 to 14 A.W.G., one saturated braid.

The conductors are grouped by twisting. They are filled with jute, covered by one rubber filled tape. The whole is covered by a saturated cotton braid.

Size A.W.G. Gauge	No. of Strands	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package	Shipping Wt., Lbs. per 1000 Feet
14	1	3	.480	1000	Reel, 30"	185
12	1	3	.515	1000	Reel, 30"	215
10	1	3	.560	1000	Reel, 30"	265
8	1	3	.620	1000	Reel, 36"	380
6	1	4	.760	1000	Reel, 36"	545
4	1	4	.850	1000	Reel, 36"	720

NOTE.—Corrugated paper used on reels up to 42 inches, inclusive, lagging used on above sizes only when specified. Sizes 48 to 84 inches inclusive, lagged.

**Habirshaw Code House Cable**

3-Conductor—Stranded



The 3-conductor stranded code house cable is used under the same conditions as solid 3-conductor code house cable unless greater flexibility is required, especially in larger sizes.

Number of conductors, 3.

Range of sizes, 500,000 cm to 14 A. W. G., stranded.

Insulation on each conductor, "Black Core" rubber compound.

Covering over insulation, 500,000 cm to 6 A.W.G., one rubber filled tape, 8 to 14 A. W. G., one saturated braid.

Grouping of conductors, twisted.

Fillers, jute.

Covering over jute, one rubber filled tape.

Covering over all, one saturated braid.

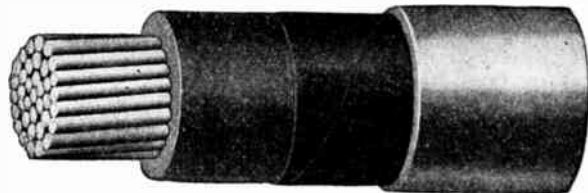
Size A.W.G. Gauge	No. of Strands	Rubber Wall 64th Inch	Approximate O.D. Inches	Std. Pkg. Feet	Type Package	Shipping Wt., Lbs. per 1000 Feet
14	7	3	.500	1000	Reel, 30"	190
12	7	3	.540	1000	Reel, 30"	230
10	7	3	.590	1000	Reel, 30"	280
8	7	3	.655	1000	Reel, 36"	405
6	7	4	.805	1000	Reel, 36"	575
4	7	4	.905	1000	Reel, 42"	890
3	7	4	.970	1000	Reel, 42"	1025
2	7	4	1.040	1000	Reel, 42"	1190
1	19	5	1.225	1000	Reel, 48"	1750
1/0	19	5	1.315	500	Reel, 42"	1985
2/0	19	5	1.410	500	Reel, 48"	2820
3/0	19	5	1.520	500	Reel, 48"	3220
4/0	19	5	1.645	500	Reel, 56"	4185
250000cm	37	6	1.815	500	Reel, 56"	4715
300000 "	37	6	1.935	500	Reel, 62"	5280
350000 "	37	6	2.045	500	Reel, 62"	6540
400000 "	37	6	2.145	500	Reel, 62"	7115
450000 "	37	6	2.240	500	Reel, 62"	7655
500000 "	37	6	2.330	500	Reel, 62"	8210

NOTE.—Corrugated paper used on reels up to 42 inches inclusive, lagging used on above sizes only when specified. Sizes 48 to 84 inclusive, lagged.

## Habirshaw Rubber and Lead Covered Circular Mil Cable

Stranded, Single-Conductor

600 Volts N. E. C. S.



Size A.W.G.	No. of Strands Concentric	Thickness of Insulation 64ths Inch	Thickness of Lead Sheath 64ths Inch	Diameter Over Lead Inches	Approx. Ship. Wt. Lbs. per 1000 Ft.
14	7	3	2	.260	175
12	7	3	2	.280	195
10	7	3	3	.335	300
8	7	3	3	.365	345
6	7	4	4	.465	575
4	7	4	4	.510	680
3	7	4	4	.540	745
2	7	4	4	.570	825
1	19	5	4	.645	1015
1/0	19	5	4	.685	1120
2/0	19	5	4	.730	1270
3/0	19	5	4	.780	1440
4/0	19	5	4	.840	1645
250,000 cm	37	6	5	.950	2355
300,000 cm	37	6	5	1.005	2595
350,000 cm	37	6	5	1.055	2950
400,000 cm	37	6	5	1.100	3180
450,000 cm	37	6	5	1.145	3400
500,000 cm	37	6	5	1.190	3610
600,000 cm	61	7	6	1.330	4665
650,000 cm	61	7	6	1.365	4890
700,000 cm	61	7	6	1.400	5355
750,000 cm	61	7	6	1.435	5575
800,000 cm	61	7	6	1.470	5785
900,000 cm	61	7	6	1.530	6210
1,000,000 cm	61	7	6	1.590	6625
1,250,000 cm	91	8	7	1.790	8645
1,500,000 cm	91	8	7	1.910	9655
1,750,000 cm	127	8	7	2.025	11300
2,000,000 cm	127	8	7	2.130	12305

## Habirshaw Lead Covered Cable

Stranded Twin Flat Conductor

600 Volts, N.E.C.S.



Used under the same conditions as stranded single conductor lead covered wire. Sizes range from 0000 to 14 A.W.G., stranded. Black Core rubber compound insulation on each conductor. Rubber filled tape or braid covering over insulation. Conductors grouped parallel. When specified, round cable with 2 conductors twisted will be furnished. Covering over all is lead sheath. Type letter R D L.

Size A.W.G.	No. of Strands Concentric	Thickness of Insulation 64ths Inch	Thickness of Lead Sheath 64ths Inch	Diameter Over Lead Inches	Approx. Ship. Wt. Lbs. per 1000 Ft.
14	7	3	2	.260x .455	265
12	7	3	3	.310x .525	430
10	7	3	3	.335x .575	485
8	7	3	3	.365x .635	565
6	7	4	4	.465x .804	955
4	7	4	4	.510x .900	1140
3	7	4	4	.540x .955	1270
2	7	4	4	.570x1.020	1670
1	19	5	5	.675x1.190	2170
1/0	19	5	5	.715x1.275	2550
2/0	19	5	5	.760x1.365	2835
3/0	19	5	5	.810x1.470	3185
4/0	19	5	5	.870x1.585	3835

## Habirshaw Lead Covered Cable

600 Volts, N.E.C.S.



Used for 3-phase circuits. Stranded are used where extra flexibility is required in smaller sizes and always in larger sizes where solid conductors would make cable too stiff to handle.

Contains 3 conductors. Sizes range from 500,000 cm. to 14 A. W. G. Each conductor insulated with Black Core rubber compound. Insulation covered by rubber filled tape. Conductors twisted, filled with jute. Rubber-filled tape covering over jute. Lead sheath covering over all.

### Stranded, 3-Conductor Round

Size A.W.G.	No. of Strands Concentric	Thickness of Insulation 64ths Inch	Thickness of Lead Sheath 64ths Inch	Diameter Over Lead Inches	Approx. Ship. Wt. Lbs. per 1000 Ft.
14	7	3	3	.550	535
12	7	3	3	.590	600
10	7	3	4	.670	890
8	7	3	4	.735	1030
6	7	4	4	.885	1595
4	7	4	5	1.015	2120
3	7	4	5	1.080	2455
2	7	4	5	1.150	2705
1	19	5	6	1.335	3695
1/0	19	5	6	1.425	4335
2/0	19	5	6	1.520	4785
3/0	19	5	6	1.630	5805
4/0	19	5	7	1.790	6910
250,000	37	6	7	1.960	7710
300,000	37	6	7	2.075	9110
350,000	37	6	7	2.185	9845
400,000	37	6	8	2.319	11145
450,000	37	6	8	2.415	11860
500,000	37	6	8	2.505	12580

### Solid, 3-Conductor Round

Size	No. of Strands	Thickness of Insulation	Thickness of Lead Sheath	Diameter Over Lead	Approx. Ship. Wt.
18	1	2	3	.410	375
16	1	2	3	.435	405
14	1	3	3	.530	515
12	1	3	3	.565	575
10	1	3	4	.640	850
8	1	3	4	.700	975
6	1	4	4	.840	1265
4	1	4	5	.980	2010

## Solid Cable, Single-Conductor



Size	No. of Strands	Thickness of Insulation	Thickness of Lead Sheath	Diameter Over Lead	Approx. Ship. Wt.
18	1	2	2	.195	130
16	1	2	2	.205	140
14	1	3	2	.250	170
12	1	3	2	.270	190
10	1	3	3	.320	285
8	1	3	3	.345	325
6	1	4	4	.440	545
4	1	4	4	.485	640

## Solid Cable, Twin Flat-Conductor



Size	No. of Strands	Thickness of Insulation	Thickness of Lead Sheath	Diameter Over Lead	Approx. Ship. Wt.
18	1	2	2	.195x.330	185
16	1	2	2	.205x.350	200
14	1	3	2	.250x.440	255
12	1	3	3	.300x.505	410
10	1	3	3	.320x.545	465
8	1	3	3	.345x.600	540
6	1	4	4	.440x.760	900
4	1	4	4	.485x.845	1075

**Habirshaw Parkway Cables**



Single Conductor



2-Conductor, Flat

Parkway cables are used for transmission and distribution where it is preferable to bury the cables directly in the ground rather than to put them in ducts. Any kind of cable will be furnished with park cable covering, but the following types are in general use for distribution purposes.

Standard parkway cables (0-600 volts). Number of conductors, one to three.

Insulation on each conductor, "Black Core" rubber compound for 5000 volts or less. For higher voltage, special high voltage rubber.

Covering over insulation, rubber filled tape. Covering over tape, lead sheath.

Covering over lead sheath, asphalted jute.

Protective armor, two ungalvanized steel tapes, wound in the same direction, the outer tape covering the spaces between turns of the inner tape.

Outside covering, asphalted jute.

Parkway cables with galvanized steel tapes will be furnished when so specified.

Habirshaw Parkway Cable with a single strip overlapping steel tape armor can be supplied. Complete data furnished upon application.

**600 Volts**

**1-Conductor Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64ths In.	Thick. Lead Covering 64ths In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	3	2	.020	370	.551	428
12	1	3	2	.020	397	.568	455
10	1	3	3	.020	524	.620	619
8	1	3	3	.020	575	.646	670
6	1	4	3	.020	700	.711	795
4	7	4	3	.020	860	.781	1200
2	7	4	3	.020	1027	.841	1367
1	19	5	3	.020	1191	.912	1531
0	19	5	3	.020	1323	.953	1663
00	19	5	3	.020	1477	.998	1817
000	19	5	3	.020	1667	1.050	2122
0000	19	5	3	.020	1887	1.108	2342

Put up on reels containing 1000 feet.

**2-Conductor Rubber Insulated (Flat)**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64ths In.	Thick. Lead Covering 64ths In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	3	2	.020	517	.551x .739	612
12	1	3	3	.020	673	.599x .804	768
10	1	3	3	.020	749	.620x .846	1089
8	1	3	3	.020	848	.646x .898	1188
6	1	4	3	.020	1075	.711x1.027	1415
4	7	4	3	.020	1354	.781x1.168	1809
2	7	4	3	.020	1659	.841x1.238	2114
1	19	5	4	.020	2237	.918x1.436	2917
0	19	5	4	.020	2496	.959x1.518	3176
00	19	5	4	.020	2810	1.004x1.608	3780
000	19	5	4	.020	3184	1.056x1.712	4094
0000	19	5	4	.020	3640	1.114x1.828	4550

Sizes 14 to 2 inclusive, put up on reels containing 1000 feet. Sizes 1 to 0000 inclusive, put up on reels containing 500 feet.

**3-Conductor Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64ths In.	Thick. Lead Covering 64ths In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	3	3	.020	833	.829	1173
12	1	3	3	.020	919	.866	1259
10	1	3	3	.020	1026	.911	1366
8	1	3	3	.020	1166	.967	1506
6	1	4	3	.020	1501	1.107	1956
4	7	4	3	.020	2174	1.289	2854
2	7	4	3	.020	2664	1.418	3574
1	19	5	5	.020	3437	1.602	4397
0	19	5	5	.020	3901	1.691	5281
00	19	5	5	.020	4387	1.788	5767
000	19	5	5	.020	4982	1.900	6362
0000	19	5	6	.020	6136	2.057	8196

Sizes 14 to 6 inclusive, put up on reels containing 1000 feet. Sizes 4 to 0000 inclusive, put up on reels containing 500 feet.

**Habirshaw Parkway Cables**

Continued

**1500 Volts**

**1-Conductor Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64th In.	Thick. Lead Covering 64th In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	4	3	.020	496	.613	591
12	1	4	3	.020	529	.630	624
10	1	4	3	.020	570	.651	665
8	1	4	3	.020	623	.677	718
6	1	5	3	.020	751	.742	846
4	7	5	3	.020	912	.812	1252
2	7	5	3	.020	1080	.872	1420
1	19	6	3	.020	1250	.944	1590
0	19	6	3	.020	1383	.985	1723
00	19	6	3	.020	1544	1.030	1884
000	19	6	3	.020	1728	1.082	2183
0000	19	6	4	.020	2184	1.172	2639

Put up on reels containing 1000 feet.

**2500 Volts**

**1-Conductor Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64th In.	Thick. Lead Covering 64th In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	6	3	.020	586	.676	681
12	1	6	3	.020	619	.693	714
10	1	6	3	.020	662	.714	757
8	1	6	3	.020	725	.740	820
6	1	6	3	.020	806	.774	1146
4	7	6	3	.020	965	.844	1305
2	7	6	3	.020	1136	.904	1476
1	19	7	3	.020	1307	.975	1647
0	19	7	3	.020	1440	1.016	1780
00	19	7	3	.020	1607	1.061	2062
000	19	7	4	.020	2006	1.144	2461
0000	19	7	4	.020	2252	1.202	2707

Put up on reels containing 1000 feet.

**2-Conductor Rubber Insulated (Flat)**

8	1	6	3	.020	1111	.740/1.086	1451
6	1	6	3	.020	1256	.774/1.154	1711

Put up on reels containing 1000 feet.

**3500 Volts**

**1-Conductor Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64th In.	Thick. Lead Covering 64th In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	8	3	.020	682	.738	777
12	1	8	3	.020	713	.755	1053
10	1	8	3	.020	762	.776	1102
8	1	8	3	.020	830	.802	1170
6	1	8	3	.020	911	.836	1251
4	7	8	3	.020	1076	.906	1416
2	7	8	3	.020	1251	.966	1591
1	19	8	3	.020	1366	1.006	1821
0	19	8	3	.020	1500	1.047	1955
00	19	8	3	.020	1661	1.092	2116
000	19	8	4	.020	2079	1.175	2534
0000	19	8	4	.020	2326	1.233	2781

Put up on reels containing 1000 feet.

**2-Conductor Rubber Insulated (Flat)**

8	1	8	3	.020	1290	.802x1.210	1745
6	1	8	3	.020	1439	.836x1.278	1894

Put up on reels containing 1000 feet.

**1-Conductor, 5000 Volts, Rubber Insulated**

Size A.W.G.	No. of Strands Con-centric	Thick. Insulation 64th In.	Thick. Lead Covering 64th In.	Thick. Steel Tape Armor, In.	Wt., Lbs. per Ft. Finished Cable	Overall O.D., In. Finished Cable	Shipping Wt., Lbs. per 100 Feet
14	1	10	3	.020	788	.801	1128
12	1	10	3	.020	819	.818	1159
10	1	10	3	.020	864	.839	1204
8	1	10	3	.020	935	.865	1275
6	1	10	3	.020	1024	.899	1334
4	7	10	3	.020	1194	.969	1534
2	7	10	3	.020	1372	1.029	1827
1	19	10	3	.020	1491	1.069	1946
0	19	10	4	.020	1846	1.141	2301
00	19	10	4	.020	2018	1.186	2473
000	19	10	4	.020	2228	1.238	2683
0000	19	10	4	.020	2477	1.296	3157

Sizes 14 to 000 inclusive put up on reels containing 1000 feet. Size 0000 put up on reels containing 500 feet.

**2-Conductor Rubber Insulated**

8	1	10	4	.020	1714	.836x1.367	2169
6	1	10	4	.020	1837	.930x1.435	2577

Size 8 put up on reels containing 1000 feet. Size 6 put up on reels containing 500 feet.



## Habirshaw Rubber Insulated High Pressure Wire and Cable

The National Electrical Code recognizes the following working pressures:

Low-pressure, 600 volts or less.

High-pressure, 600 to 3500 volts.

Extra-high pressure, over 3500 volts.

HIGH-PRESSURE CABLES (i.e. from 600 to 3500 volts) may be brought into buildings only as metal sheathed multiple conductor cables in metal conduit.

EXTRA-HIGH PRESSURE CABLES (i.e. for over 3500 volts) may not be brought into or over buildings except power stations and substations.

High-pressure cables (i.e. from 600 to 3500 volts) may be insulated with "Black Core" or Intermediate Grade compound, but we recommend Habirshaw 30 per cent heavy rubber insulation.

The following table gives the thickness of insulation recommended by N. E. Code for various alternating voltages.

### Thickness of Insulation—64ths Inch

Size A.W.G.	600 Volts	1500 Volts	2500 Volts	3500 Volts
No. 14 to No. 8, incl.....	3	6	8	10
No. 6 to No. 2, incl.....	4	7	9	10
No. 1 to 0000, incl.....	5	8	10	10
250000 to 500000 C.M., incl.....	6	9	10	11
550000 to 1000000 C.M., incl.....	7	10	10	12
1250000 to 2000000 C.M., incl.....	8	10	10	12

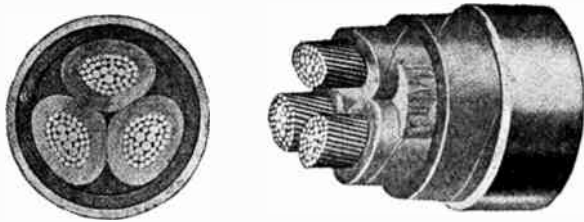
Size A.W.G.	5000 Volts	6000 Volts	7000 Volts
No. 14 to No. 8, incl.....	12	14	16
No. 6 to No. 2, incl.....	12	14	16
No. 1 to 0000, incl.....	12	14	16
250000 to 500000 C.M., incl.....	12	14	16
550000 to 1000000 C.M., incl.....	12	14	16
1250000 to 2000000 C.M., incl.....	14	16	18

NOTE.—In the case of multiple-conductor cables, the thickness of insulation on each conductor should correspond with the maximum effective working voltage across that insulation.

\*House wire for voltages up to 600, whether Code, Intermediate Grade or 30 per cent heavy.

## Habirshaw Sector Cable

Paper Insulated

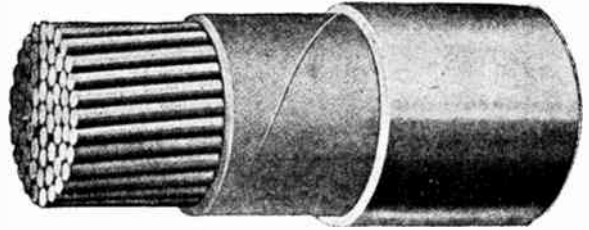


Sector cables are used in preference to round conductor cables because for a given outside diameter they have a greater carrying capacity. Habirshaw sector cable has been designed so as to secure all possible advantages of that type of cable to the maximum degree. There are seven such features to which attention may be called as follows:

1. Stability of form.
2. Flexibility.
3. Economy of size.
4. Maximum heat dissipation.
5. Minimum dielectric stresses.
6. Minimum dielectric losses.
7. Minimum injury to paper in manufacture.

The carrying capacity of sector cable is approximately the same as that of a round conductor cable of the same conductor cross-section.

## Habirshaw Paper Insulated Cable



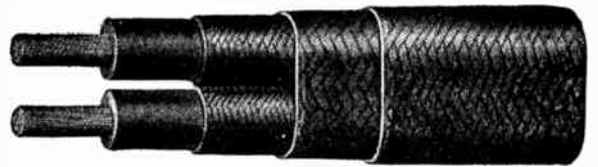
This cable has the advantage of cheapness, durability, low dielectric losses, and high current-carrying capacity.

The insulation consists of Swedish wood pulp paper applied helically to the conductor, and then saturated with a mineral oil compound which constitutes the essential insulation. In order to retain this oil the cable must have a sheath of lead.

Habirshaw Paper Insulated Cables have particularly low dielectric losses without sacrifice of dielectric strength. Great care is also taken to make the cable flexible at all temperatures at which it is likely to be operated.

Paper insulated cables are made in all sizes from No. 4 A. W. G. to 3,000,000 circular mils, and with any number of conductors within the usual limits.

## Habirshaw Mast-arm Cable



Mast-arm cable is used where a flexible cable, capable of passing over a pulley, is required to connect arc-lamps suspended from a mast-arm or bracket to the feeder line where the lamps must be lowered for maintenance purposes.

Number of conductors, 2. Range of sizes, 6 and 8 A. W. G.

Stranding, flexible. Insulation on each conductor, "Black Core" rubber compound. Thickness of insulation, code standard. Covering over insulation, one saturated cotton braid.

Grouping of conductors, parallel. Covering over all, 2 saturated cotton braids.

## Habirshaw Control Cable



Station control cables are used for the remote control of outdoor or automotive substations and are installed in conduit being either braid or lead covered.

Number of conductors, 1 to 7.

Usual size, 19 No. 22 A. W. G. or 37 No. 22 A. W. G.

Separator, soft cotton wind.

Insulation on each conductor, rubber compound of quality specified.

Thickness of insulation each conductor, 3/64 or 1/16 inch.

Covering over insulation, colored dry cotton braid.

Grouping of conductors, twisted.

Fillers, dry jute.

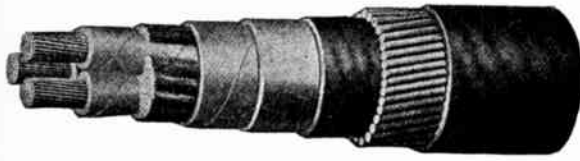
Covering over filler, one rubber filled tape.

Covering over all, two saturated cotton braids or lead as specified.

It is usual to have a different colored braid on each conductor in order to facilitate the identification of circuits.

Upon receipt of inquiry stating conditions of service, our Engineering Department will furnish additional data.

**Habirshaw Armored Submarine Cable**



Armored cable, or submarine cable, as it is sometimes called, is used under water for crossing rivers, bays and lakes.

Armored cable may be insulated with paper, varnished cambric or rubber compound. If insulated with paper or varnished cambric, a lead sheath is required. If insulated with rubber compound, a lead sheath is preferable, but may be omitted where the water, in which the cable is to be laid, does not contain injurious impurities and does not attain an unusually high temperature. If the cable is rubber insulated and not lead covered, it has a rubber filled cotton tape.

The leaded or taped core is served with jute yarn, run through hot asphalt compound, then armored with galvanized steel wires, \*run through hot asphalt compound, served with two layers of yarn and finally run through asphalt compound.

The asphalt and jute over the armor may be omitted, if desired.

Upon receipt of inquiry stating the conditions of service, our Engineering Department will furnish additional data.

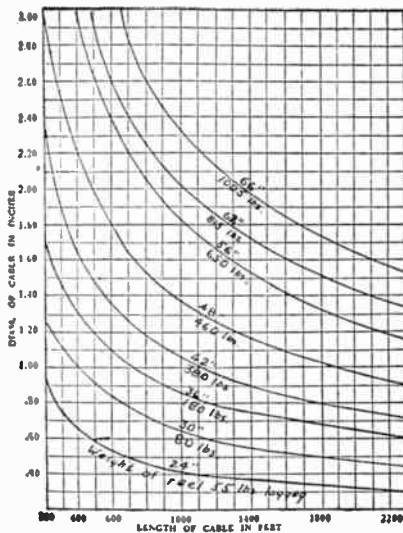
\*Hot asphalt compound is also applied during armoring at the points where the armor wires come into contact, insuring complete sealing of the armor.

**Reel Capacities**

**Curves Showing Reel Capacity for Cable Diameters Up to 3 Inches**

**Example**

Diameter of Cable.....	1.60 inches
Length of Cable.....	730 feet
Reel to Use.....	48-inch



**Habirshaw Fire Alarm Cable**



Fire Alarm cable is used to connect fire alarm boxes on streets and in buildings with fire department headquarters. Such cables are usually made according to customers' specifications. However, in general, the insulation consists of 30 per cent hevea rubber compound, the conductors are laid concentrically with jute fillers, each layer being taped, and the cable has an outside covering consisting of a lead sheath.

Upon receipt of inquiry stating conditions of service, our Factory Engineering Department will furnish additional data.

**Habirshaw Signal Wire and Cable**

**American Railroad Association Signal Division Standard**

Railway signal wire is made to conform with the exacting specifications of the American Railroad Association Signal Division Standard and represents the standard engineering practice in this line. Standard practice means a great deal more to the railway signal engineer than to most others, as upon the reliability of signals depends the safety of millions of passengers.

The present American Railroad Association Signal Division Standard specification for rubber insulation is a development resulting from a study of the manufacture, inspection and use of rubber insulated wire extending over a period of many years, by a strong and representative committee of signal engineers who have given considerable time and attention to this subject. The specification has undergone changes in this time and every change has improved the product and confirmed the opinion of signal engineers as to the excellent quality of the insulation which it exacts. Habirshaw also makes a higher grade signal wire known as "Corona" signal wire which is recommended for locations where operating conditions are exceptionally severe.

Habirshaw has specialized on A. R. A. Signal wire and makes all standard types including the following:

**I. Rubber Insulated Signal Wire for 660 Volts or Less**



Number of conductors, one or two.  
Range of sizes, 0 to 18 A. W. G., solid.  
Insulation on each conductor, A. R. A. Signal Division compound.  
Covering over insulation, one cotton braid, 3/64 inch thick, weatherproof.

Thickness of insulation, No. 0-2 A. W. G., inclusive, 3/64 inch; 4-8 A. W. G., inclusive, 1/16 inch; 9-14 A. W. G., inclusive, 1/8 inch; 16-18 A. W. G., inclusive, 3/16 inch.

Shipped on reels or in coils as ordered. If in coils the following lengths are standard: No. 6 A. W. G., 1000 ft; 8-12 A. W. G., inclusive, 1500 ft; 14 A. W. G., 2000 ft.

**II. Aerial Braided Cable for 660 Volts or Less**



Number of conductors, as specified.  
Range of sizes, 4 to 16 A. W. G. (not necessarily all the same size in a given cable).  
Insulation on each conductor, A. R. A. Signal Division compound.

Fillers, dry jute.  
Covering over each layer, rubber filled tape.  
Covering over all, one saturated cotton braid, 3/64 inch thick.

Thickness of insulation, No. 4 A. W. G., 1/16 inch; 6-9 A. W. G., inclusive, 1/8 inch, 10-14 A. W. G., inclusive, 1/4 inch; 16 A. W. G., 3/8 inch.

Cables of more than three and less than seven conductors are made with jute or sisal center. One wire in each layer is taped for a tracer.

Cables will be shipped on reels.  
Above cables can be furnished lead covered if required.

## Habirshaw Corona-Proof Cable



Used out-of-doors where rubber insulation is desirable, yet must be proof against the deteriorating effects of the elements and the oxidizing action of Corona discharges. It is a cable insulated with a special rubber compound, especially developed for this service, covered with a layer of tape, enclosed in one or more saturated cotton braids.

This cable is used for aerial distribution circuits at voltages of 2200 and over. Also for special purposes where extra high voltages are used.

Upon receipt of inquiry stating conditions of service, our Engineering Department will furnish additional data.

## Habirshaw Aerial Cable

Aerial transmission cable is used mostly for the transmission of power between 6,600 and 25,000 volts where it is uneconomical to construct subways and where the conditions for open wire construction are unfavorable. It is especially useful where existing pole lines are congested or along suburban streets lined with heavy shade trees, as well as for certain types of crossings over or under highways and railroads. For the three-conductor cable, paper insulation with lead sheath is the most satisfactory. For the smaller sizes the weight does not exceed the weight of cables commonly used by the Telephone Companies in aerial construction. For larger sizes, however, the weight is somewhat greater but offers no special difficulty in installing.

Upon request our Engineering Department will advise as to the most desirable type of cable to be used under specified conditions.

## Habirshaw Varnished Cambric Insulated Cable



Varnished cambric insulated cable is used:

a. In power stations and sub-stations for connecting machinery and apparatus of all voltages (see Apparatus Cable and Station Cable).

b. In buildings in place of rubber insulated cable, especially for the larger sizes.

c. For low voltage underground distribution, where special reliability is desired.

d. On vibrating structures where paper insulation cannot be used due to the crystallization of the lead sheath.

Varnished cambric insulation consists of varnished cambric tapes applied helically to the conductor with intervening layers of mineral base grease. The turns of tape overlap and the joints in successive layers are staggered. They are also reversed at least every three layers.

Varnished cambric insulated cable is usually covered as follows:

Apparatus cable, saturated cotton braid.

Station cable, a rubber filled cotton tape and a flameproof braid.

Building mains, a rubber filled cotton tape and two saturated cotton braids.

Underground cable, lead sheath.

Cable for outdoor structures, a rubber filled cotton tape, two galvanized steel tapes, and a layer of asphalted jute under and over the armor.

Upon receipt of inquiry stating conditions of service, our Engineering Department will furnish additional data.

## Habirlite

## Habirshaw Headlight Wire Single Conductor



Habirshaw wire is used where resistance to oil heat, sulphur fumes and steam is essential. Standard sizes, 10 to 14 A. W. G., solid. Wrapping, soft cotton wind, saturated. Insulation, heat proof compound insoluble in mineral oils, non-hygroscopic, chemically inert to reagents and flexible to breaking point of wire. Covering, three cotton braids saturated with heat resisting compound.

Size A.W.G.	Diameter Overall Inches	Weight Lbs. per 1000 Ft.	Type of Package	Feet in Package	Shipping Weight of Package
10	.220	51	10 coils in box	10000	540
12	.200	37	10 coils in box	10000	390
14	.190	29	10 coils in box	10000	310

## Habirshaw Battery Charging Cable 2-Conductor



Battery charging cable is used for connecting storage batteries of automobiles to the stationary charging outfit. Also used largely by railroads for charging train lighting batteries on electric baggage trucks both in the charging rooms and for boosting while in position under railroad cars and on the baggage trucks. Range of sizes, 0000 to 8 A. W. G., stranded. Insulation on each conductor, "Black Core" rubber compound. Covering over insulation, one saturated braid. Grouping of conductors, twin (flat), except No. 0 and larger, which are round. Fillers, jute (for No. 0 and larger, only). Covering over both conductors, two saturated braids.

Size A.W.G.	No. of Strands	Thickness of Insulation 64ths Inch	Outside Diameter Inches	Weight per 1000 Feet Lbs.	Type of Package	Feet in Package	Shipping Weight of Package Lbs.
0000	259	5	1.720	2220	Reel	1000	2870
0000	133	5	1.590	1750	Reel	1000	2400
00	133	5	1.474	1520	Reel	1000	2170
0	133	5	1.368	1265	Reel	1000	1915
1	91	5	.625x1.160	825	Reel	1000	1205
2	91	4	.560x1.030	645	Reel	1000	825
4	61	4	.495x .900	458	Reel	1000	638
6	61	4	.446x .802	317	Reel	1000	397
8	61	3	.375x .660	210	Reel	1000	290

## Habirshaw Mine Cable, Single Conductor

### Locomotive or Gathering Reel Cable



Single conductor mine cable is used for operating gathering reel locomotive run on steel tracks which can be used for the return current.

Number of conductors, one.

Range of sizes, 2 to 6 A. W. G., flexible.

Insulation, "Black Core" rubber compound.

Covering over insulation, rubber filled tape.

Covering overall, one extra heavy or seine-twine (as specified), extra tight weatherproof braid.

Size A.W.G.	No. of Strands	Thickness of Insulation 64ths Inch	Outside Diameter Inch	Weight per 1000 Feet Lbs.	Type of Package	Feet in Package	Shipping Weight of Package Lbs.
2	133	4	.59	337	Reel	1500	685
3	133	4	.55	271	"	1500	586
4	133	4	.52	234	"	1500	431
6	133	4	.46	167	"	1500	330

**Habirshaw Twin Mine Cable**  
Flat



Twin (flat) mine cable is used for gathering reel locomotives, cutting machines, hoists, drills, and other electrical machines in mines.

Number of conductors, two.

Range of sizes, 2 to 8 A.W.G., flexible.

Insulation on each conductor, "Black Core" rubber compound.

Covering over each conductor, one saturated braid.

Grouping of conductors, parallel.

Marker, raised thread in the braid of one conductor.

Covering over all, two or three saturated extra tight braids as specified.

**Double Braid**

Size A.W.G.	No. of Strands	Thickness of Insulation 64ths Inch	Outside Diameter Inches	Weight per 1000 Feet Lbs.	Type of Package	Feet in Package	Shipping Weight of Package Lbs.
2	49	4	1.094x.592	640	Reel	1500	1340
3	49	4	1.018x.554	550	"	1500	1205
4	49	4	.954x.522	460	"	1500	1070
5	49	4	.898x.494	390	"	1500	965
6	49	4	.846x.468	325	"	1500	668
8	49	3	.698x.394	220	"	1500	410
<b>Triple Braid</b>							
2	49	4	1.139x.637	700	Reel	1500	1430
3	49	4	1.063x.599	605	"	1500	1288
4	49	4	.999x.567	510	"	1500	1145
5	49	4	.943x.539	430	"	1500	1025
6	49	4	.891x.513	360	"	1500	720
8	49	3	.743x.439	250	"	1500	555

**Habirshaw Triplex Mine Cable**



Triplex mine cables are used with three-phase motor equipments, and are usually made for pressures up to 600 volts.

Range of sizes, 2 to 8 A.W.G., flexible.

Insulation on each conductor "Black Core" rubber compound.

Covering over insulation, one saturated cotton braid or rubber-filled tape.

Grouping of conductors, twisted.

Fillers, jute.

Covering over filler, rubber filled tape.

Covering over all, one or two saturated extra tight braids.

Size A.W.G.	No. of Strands	Thickness of Insulation 64ths Inch	Outside Diameter Inches	Weight per 1000 Feet Lbs.	Type of Package	Feet in Package	Shipping Weight of Package Lbs.
2	49	4	1.203	1020	Reel	1500	2180
4	49	4	.997	725	"	1500	1548
6	49	4	.890	525	"	1500	1248
8	49	3	.730	345	"	1500	703

**Habirshaw Flameproof Cable**



Flameproof cable is used about power houses in the vicinity of switchboards and apparatus where special fireproof protection is desired. This method of protection consists essentially in impregnating the braided covering with a flameproof paint, and may be used in connection with any conductors having braided covering, when so specified.

**Annunciator Wire**

**Regular**

Insulated with two winds of cotton yarn applied in opposite directions, saturated with a special wax compound and highly polished. This makes a very compact insulation. Furnished either on spools containing about 7 lbs., or exactly 1 lb. and in 1-lb. and 1/2 lb. coils, and packed in cases containing approximately 200 lbs. Furnished in colors and styles as follows: either plain copper or tinned; plain copper furnished unless otherwise ordered; red, blue, red and white, brown, brown and white, white, olive, yellow, yellow and white, blue and white, green, green and white and special colors where possible for us to obtain proper colored yarns.

**Single Conductor**

Size B. & S.	Wt. Lbs. per 1000 Ft.	NET ADDITIONS TO BASE			
		6-7-lb. Spools	1-lb. Spools	1/2-lb. Coils	1-lb. Coils
14	15	\$ .06	\$ .11	\$ .08	\$ .07
16	9.5	.08	.13	.10	.09
18	6.5	.11	.16	.13	.12
20	4.5	.18	.23	.20	.19
22	3.2	.22	.27	.24	.23

Tinned wire furnished on application at \$.02 1/2 per pound extra.

**Twisted Pairs**

Size B. & S.	Wt. Lbs. per 1000 Ft.	6-7-lb. Spools
14	30	\$ .08
16	19	.10
18	13	.13
20	9	.20
22	7	.24

Tinned wire furnished on application at \$.02 extra.

**Damp-proof Office Wire**



This wire is double braided, the inner braid saturated with black weatherproof compound. The outer braid is specially treated with wax, highly polished and will not collect dust. Damp-proof office wire is carried regularly in the following colors: red, red and white, blue, blue and white. It is put up in coils of about 10 lbs. each, or on spools of 5 lbs. each, and packed in cases of approximately 200 pounds each.

Sizes 16 and 18 wire, in red, red and white, blue, blue and white, are also carried in duplex wire, being two separately insulated conductors under one braid.

**Single Conductor**

Size B. & S.	Wt. Lbs. per 1000 Ft.	NET ADDITIONS TO BASE	
		In 10-lb. Coils	On 5-lb. Spools
14	20	\$ .12	\$ .17
16	14.5	.14	.20

Size B. & S.	Wt. Lbs. per 1000 Ft.	NET ADDITIONS TO BASE	
		In 10-lb. Coils	On 5-lb. Spools
18	10	\$ .16	\$ .21

**Duplex Double Conductor**

Size B. & S.	Wt. Lbs. per 1000 Ft.	Net Additions to Base In 10-lb. Coils	
14	35		\$ .14
16	27		.16
18	18		.18

Tinned wire furnished on application.

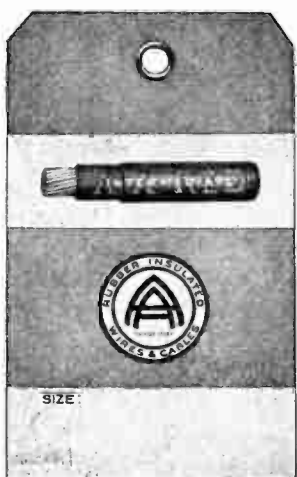
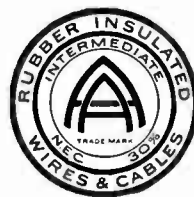
**Annunciator Cables**

This cable is designed for connecting the annunciator in an elevator car with the push buttons on the different floors.

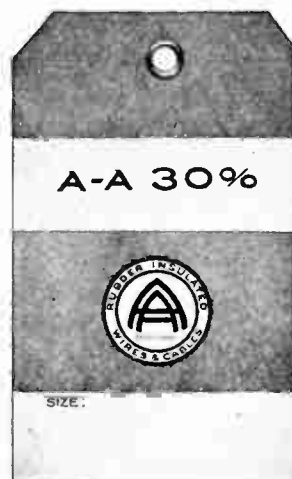
Each conductor is composed of 16 strands of No. 30 B. & S. gauge soft untinned copper wire and insulated with two reverse wrappings of cotton and one cotton braid. The insulated conductors are then cabled (using a steel supporting strand if desired, in order to give extra tensile strength, but ordinarily supplied without same) then covered with two cotton braids, the inner one being white and the outer one black. This is a dry cable, and the outer braids are not flameproof.

Prices on application.

## SAFETY CABLE PRODUCTS



PAPER  
CAMBRIC  
RUBBER  
LEAD COVERED  
STEEL ARMORED  
CABLES



### A-A RED INTERMEDIATE

A special rubber compound designed for high grade installations where long life and continuity of service are required.

Insulation and braid are red, insuring a wire easily identified both before and after installation and affording the architect and engineer protection against substitution.

All copper is of the highest conductivity, uniform in diameter, free of flaws and evenly coated with tin of sufficient thickness to protect conductors against chemical action.

The compound (A-A Red) contains not less than 25 per cent high grade rubber and is applied to the copper conductor in such manner as to give uniform walls of insulation, the minimum thicknesses of which are shown on the following page, together with the mechanical and electrical characteristics.

### A-A 30 PER CENT

The gray compound containing 30-33 per cent by weight of new, unused Hevea rubber, distinctive from National Electrical Code black and intermediate red, as well as the green braid, assure the architect, engineer and owner of no substitution of grades and enable them to identify the quality of product specified.

## Parac Rubber Covered Wires and Cables

For 600 Volts and Under



Parac rubber insulated wires and cables conform to the rules and regulations of the National Electric Code.

The test characteristics of the insulation, physical, chemical and electrical, largely exceed those stipulated by the National Board of Fire Underwriters and are established, not on the minimum required, but on the high standard of the company that produces Parac.

### Solid Conductor Single and Double Braid



Size B. & S. Gauge	Capacity C. M.	Thick. Rubber Wall Inches	Std. Pkg. Feet	SINGLE BRAID		DOUBLE BRAID	
				Diam. Over All, In.	Wt., Lbs. per 1000 Feet	Diam. Over All, In.	Wt., Lbs. per 1000 Feet
0	105500	5/64	3000	19/32	420	45/64	460
1	83690	5/64	500	33/64	335	5/8	350
2	66370	1/16	500	29/64	270	9/16	280
3	52640	1/16	500	27/64	218	33/64	225
4	41740	1/16	500	25/64	180	15/32	185
6	26250	1/16	500	5/16	128	25/64	137
8	16510	3/64	500	17/64	79	11/32	86
10	10380	3/64	2500	15/64	55	19/64	62
12	6530	3/64	2500	7/32	41	9/32	45
14	4107	3/64	2500	3/16	30	1/4	36
16	2583	1/32	5000	11/64	17	...	...

### Stranded Conductor Single and Double Braid



Size B. & S. Gauge	CONC. STR. No. of Wires	Diam. In. of Each	Thick. Rubber Wall Inches	Std. Pkg. Feet	SINGLE BRAID		DOUBLE BRAID	
					Diam. Over All, In.	Wt., Lbs. per 1000 Feet	Diam. Over All, In.	Wt., Lbs. per 1000 Feet
0000	19	.106	5/64	2000	13/16	800	15/16	845
000	19	.094	5/64	2200	3/4	660	7/8	700
00	19	.084	5/64	2500	45/64	535	13/16	575
0	19	.075	5/64	3000	5/8	440	47/64	480
1	19	.066	5/64	500	9/16	350	43/64	370
2	7	.097	1/16	500	1/2	275	39/64	300
3	7	.087	1/16	500	23/64	225	9/16	240
4	7	.077	1/16	500	7/16	185	17/32	200
6	7	.061	1/16	500	3/8	133	27/64	140
8	7	.049	3/64	500	21/64	81	13/32	90
10	7	.039	3/64	2500	19/64	59	3/8	67
12	7	.031	3/64	2500	17/64	43	27/64	50
14	7	.024	3/64	2500	15/64	33	19/64	39

## Parac Rubber Covered Wires and Cables

Continued

### Circular Mills Feeder Cables Double Braid



The wires comprising circular mills cable are laid up in a manner to give great flexibility when insulated and braided.

Cables with a greater or lesser number of wires than shown in table, composing the strand will be furnished only on special order.

Capacity C. M.	No. of Wires	Conc. Str. Diam. In. of Each	Diam. Cond. Mils In.	Thick. Rubber Wall In.	Std. Pkg. Feet	Approx. Diam. Over All, In.	Approx. Wt., Lbs. per 1000 Feet
1750000	91	.139	1529	1/8	...	2 3/64	6150
1500000	91	.128	1408	1/8	...	1 15/16	5320
1250000	91	.117	1287	1/8	...	1 13/16	4490
1000000	61	.128	1152	7/64	500	1 5/8	3600
900000	61	.121	1089	7/64	...	1 9/16	3220
800000	61	.115	1035	7/64	500	1 1/2	2950
750000	61	.111	999	7/64	500	1 15/32	2740
700000	61	.107	963	7/64	500	1 7/16	2600
650000	61	.103	927	7/64	...	1 25/64	2300
600000	61	.099	891	7/64	{ 500 1000 }	1 3/8	2230
500000	37	.116	812	3/32	1000	1 1/4	1860
450000	37	.110	770	3/32	...	1 1/32	1670
400000	37	.104	728	3/32	{ 1000 1500 }	1 1/4	1540
350000	37	.097	679	3/32	1500	1 1/4	1370
300000	37	.090	630	3/32	1500	1 1/16	1210
250000	37	.082	574	3/32	{ 1500 2000 }	1	1010

### Fixture Wire Solid Conductor



Size B. & S. Gauge	THICKNESS, IN.		Approx. Diameter Over All Inches	Approx. Wt., Lbs. per 1000 Feet	Std. Pkg. Feet
	Rubber Wall	Braid			
16	1/32	1/64	11/64	17	5000
18	1/64	1/64	7/64	10	5000

### Rubber Covered Duplex Conductors



Size B. & S. Gauge	SOLID		STRANDED		Std. Pkg. Feet
	Diameter Over All Inches	Wt., Lbs. per 1000 Feet	Diameter Over All Inches	Wt., Lbs. per 1000 Feet	
8	11/16	175	4 5/64	180	500
10	37/64	130	5/8	135	500
12	1/2	90	9/16	100	500
14	27/64	74	15/32	78	500



## Safety Rubber Covered Wires and Cables

W. P. F Braided

Single Conductor—2500 Volts

Solid



Single Braid

Size B.&S. Gauge	No. of Strands	Rubber Wall 64ths Inch	Approx. O. D. Inches	Wt., Lbs. per 1000 Feet	Std. Pkg.	
					Quantity Feet	Shipping Weight
14	1	8	.380	75	1000 Coil	115
12	1	8	.395	85	1000 Coil	125
10	1	8	.420	105	1000 Coil	160
8	1	8	.450	130	1000 Coil	190
6	1	9	.510	180	1000 Reel	280

Double Braid

14	1	8	.430	85	1000 Coil	145
12	1	8	.450	95	1000 Coil	150
10	1	8	.470	115	1000 Coil	170
8	1	8	.500	140	1000 Coil	195
6	1	9	.565	200	1000 Reel	290

Stranded



Single Braid

Size B.&S. Gauge	No. of Strands	Rubber Wall 64ths Inch	Approx. O. D. Inches	Wt., Lbs. per 1000 Feet	Std. Pkg.	
					Quantity Feet	Shipping Weight
14	7	8	.390	80	1000 Coil	120
12	7	8	.410	90	1000 Coil	130
10	7	8	.435	110	1000 Coil	170
8	7	8	.465	140	1000 Coil	200
6	7	9	.535	200	1000 Reel	290

Double Braid

14	7	8	.445	85	1000 Coil	150
12	7	8	.465	100	1000 Coil	160
10	7	8	.485	120	1000 Coil	180
8	7	8	.515	145	1000 Coil	205
6	7	9	.585	205	1000 Reel	300
4	7	9	.635	275	1000 Reel	365
2	7	9	.695	375	1000 Reel	515
1	19	10	.765	455	1000 Reel	600
0	19	10	.805	545	1000 Reel	685
00	19	10	.855	655	1000 Reel	800
000	19	10	.905	795	1000 Reel	985
0000	19	10	.965	960	1000 Reel	1230
250000	37	10	1.010	1100	1000 Reel	1370
300000	37	10	1.065	1280	1000 Reel	1550
350000	37	10	1.125	1455	1000 Reel	1725
400000	37	10	1.170	1635	1000 Reel	2105
450000	37	10	1.210	1810	1000 Reel	2280
500000	37	10	1.275	2000	1000 Reel	2670
600000	61	10	1.355	2335	500 Reel	1440
650000	61	10	1.390	2510	500 Reel	1525
700000	61	10	1.430	2680	500 Reel	1610
750000	61	10	1.460	2860	500 Reel	1700
800000	61	10	1.495	3300	500 Reel	1925
900000	61	10	1.555	3365	500 Reel	1955
1000000	61	10	1.650	3705	500 Reel	2320

## Safety Lead Covered Cable

N. E. Code 600 Volts



Solid

Single Conductor

Size B. & S. Gauge	No. of Strands	Rubber Lead Wall Sheath 64ths		Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	Std. Pkg.	
		In.	In.			Quantity	Shipping Wt., Lbs.
18	1	2	2	.190	95	1000	150
16	1	2	2	.205	110	1000	165
14	1	3	2	.245	140	1000	195
12	1	3	2	.265	160	1000	210
10	1	3	3	.315	250	1000	300
8	1	3	3	.340	300	1000	355
6	1	4	4	.440	495	1000	550
4	1	4	4	.480	595	1000	680

Duplex Flat

18	1	2	2	.190x.320	155	1000	210
16	1	2	2	.205x.340	175	1000	230
14	1	3	2	.245x.430	230	1000	285
12	1	3	3	.295x.495	365	1000	420
10	1	3	3	.315x.535	420	1000	475
8	1	3	3	.340x.590	500	1000	585
6	1	4	4	.440x.750	815	1000	950
4	1	4	4	.480x.835	1000	1000	1135

3-Conductor Round

18	1	2	3	.390	300	1000	355
16	1	2	3	.415	330	1000	385
14	1	3	3	.510	440	1000	525
12	1	3	4	.580	630	1000	715
10	1	3	4	.625	730	1000	865
8	1	3	4	.700	870	1000	1070
6	1	4	5	.870	1370	1000	1590
4	1	4	5	.965	1640	1000	1925

Stranded

Single Conductor

14	7	3	2	.255	150	1000	205
12	7	3	2	.275	175	1000	230
10	7	3	3	.330	270	1000	325
8	7	3	3	.360	320	1000	375
6	7	4	4	.460	530	1000	585
4	7	4	4	.510	630	1000	715
3	7	4	4	.535	695	1000	780
2	7	4	4	.570	780	1000	865
1	19	5	4	.640	920	1000	1050
0	19	5	4	.680	1050	1000	1180
00	19	5	4	.725	1190	1000	1325
000	19	5	4	.780	1370	1000	1500
0000	19	5	4	.835	1570	1000	1700
250000	37	6	5	.955	2050	1000	2335
300000	37	6	5	1.010	2300	1000	2585
350000	37	6	5	1.065	2525	1000	2815
400000	37	6	5	1.110	2750	1000	3015
450000	37	6	5	1.150	2970	1000	3255
500000	37	6	5	1.195	3180	1000	3670
600000	61	7	6	1.340	4010	500	2275
650000	61	7	6	1.375	4240	500	2400
700000	61	7	6	1.410	4440	500	2500
750000	61	7	6	1.445	4640	500	2600
800000	61	7	6	1.475	4875	500	2710
900000	61	7	6	1.540	5300	500	2925
1000000	61	7	6	1.595	5720	500	3150

\* All lengths shipped on reels.

Safety Lead Covered Cable

N. E. Code 600 Volts

Continued  
Stranded  
Duplex Flat

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Lead Sheath 64ths In.	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Srn. Qty	Pkg. Shipping Wt., Lbs.
14	7	3	2	.255x .445	240	1000	295
12	7	3	3	.305x .515	385	1000	440
10	7	3	3	.330x .565	445	1000	500
8	7	3	3	.360x .625	530	1000	615
6	7	4	4	.460x .795	870	1000	1000
4	7	4	4	.510x .890	1065	1000	1200
3	7	4	4	.535x .945	1185	1000	1320
2	7	4	4	.570x1.010	1345	1000	1480
1	19	5	5	.670x1.185	1850	1000	2165
0	19	5	5	.710x1.265	2085	1000	2370
00	19	5	5	.760x1.360	2375	1000	2660
000	19	5	5	.810x1.460	2725	1000	3010
0000	19	5	5	.865x1.575	3140	1000	3630
<b>3-Conductor Round</b>							
14	7	3	3	.530	460	1000	545
12	7	3	4	.605	670	1000	755
10	7	3	4	.670	785	1000	920
8	7	3	4	.735	925	1000	1060
6	7	4	5	.920	1450	1000	1585
4	7	4	5	1.025	1770	1000	2055
3	7	4	5	1.085	1970	1000	2255
2	7	4	5	1.155	2215	1000	2500
1	19	5	6	1.345	2985	1000	3635
0	19	5	6	1.435	3400	1000	4050
00	19	5	6	1.535	3835	1000	4485
000	19	5	6	1.650	4370	1000	5020
0000	19	5	7	1.810	5490	1000	6220
250000	37	6	7	1.960	6320	500	3830
300000	37	6	7	2.075	7105	500	4220
350000	37	6	7	2.190	7830	500	4585
400000	37	6	8	2.320	9130	500	5235
450000	37	6	8	2.410	9820	500	5580
500000	37	6	8	2.510	10550	500	6035

N. E. Code 2500 Volts

Solid

Single Conductor

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Lead Sheath 64ths In.	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Srn. Qty	Pkg. Shipping Wt., Lbs.
14	1	8	4	.480	470	1000	525
12	1	8	4	.500	500	1000	590
10	1	8	4	.520	540	1000	630
8	1	8	4	.550	590	1000	680
6	1	9	4	.615	710	1000	800
4	1	9	4	.655	810	1000	950

Duplex Flat

14	1	8	4	.480x .820	770	1000	910
12	1	8	4	.500x .855	810	1000	950
10	1	8	4	.520x .895	880	1000	1020
8	1	8	4	.550x .950	970	1000	1110
6	1	9	5	.645x1.115	1420	1000	1685
4	1	9	5	.690x1.200	1620	1000	1890

3-Conductor Round

14	1	8	5	.930	1295	1000	1565
12	1	8	5	.975	1375	1000	1650
10	1	8	5	1.015	1490	1000	1760
8	1	8	5	1.080	1650	1000	1920
6	1	9	5	1.220	2000	1000	2470
4	1	9	6	1.345	2630	1000	3300

Safety Lead Covered Cable

N. E. Code 2500 Volts



Stranded

Single Conductor

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Lead Sheath 64ths In.	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Srn. Qty	Pkg. Shipping Wt., Lbs.
14	7	8	4	.490	480	1000	570
12	7	8	4	.510	515	1000	605
10	7	8	4	.530	555	1000	645
8	7	8	4	.560	615	1000	705
6	7	9	4	.630	735	1000	875
4	7	9	4	.680	850	1000	990
2	7	9	4	.745	1005	1000	1145
1	19	10	4	.815	1160	1000	1300
0	19	10	5	.900	1515	1000	1660
00	19	10	5	.950	1675	1000	1945
000	19	10	5	1.000	1865	1000	2130
0000	19	10	5	1.060	2090	1000	2360
250000	37	10	5	1.110	2185	1000	2460
300000	37	10	5	1.165	2530	1000	2800
350000	37	10	6	1.250	3065	1000	3730
400000	37	10	6	1.295	3310	500	1925
450000	37	10	6	1.340	3540	500	2040
500000	37	10	6	1.385	3770	500	2155
600000	61	10	6	1.460	4220	500	2380
650000	61	10	6	1.500	4445	500	2500
700000	61	10	6	1.530	4655	500	2600
750000	61	10	6	1.565	4880	500	2710
800000	61	10	6	1.600	5095	500	2825
900000	61	10	7	1.690	5925	500	3435
1000000	61	10	7	1.720	6360	500	3650

Duplex Flat

14	7	8	4	.490x .835	780	1000	920
12	7	8	4	.510x .885	850	1000	990
10	7	8	4	.530x .925	915	1000	1055
8	7	8	4	.560x .990	1015	1000	1155
6	7	9	5	.670x1.160	1495	1000	1765
4	7	9	5	.720x1.260	1710	1000	1985
2	7	9	5	.780x1.380	2025	1000	2300
1	19	10	5	.850x1.520	2325	1000	2800
0	19	10	6	.940x1.660	2955	1000	3625
00	19	10	6	.985x1.750	3270	1000	3940
000	19	10	6	1.035x1.855	3640	1000	4310
0000	19	10	6	1.095x1.970	4095	1000	4770

3-Conductor Round

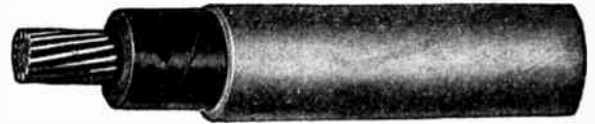
14	7	8	5	.950	1325	1000	1595
12	7	8	5	1.000	1415	1000	1685
10	7	8	5	1.050	1545	1000	1815
8	7	8	5	1.115	1720	1000	1990
6	7	9	5	1.265	2095	1000	2765
4	7	9	6	1.405	2775	1000	3445
2	7	9	6	1.535	3280	1000	3950
1	19	10	6	1.630	3790	1000	4460
0	19	10	7	1.835	4635	1000	5460
00	19	10	7	1.935	5195	1000	5955
000	19	10	7	2.045	5795	1000	6675
0000	19	10	7	2.170	6320	1000	7330
250000	37	10	8	2.300	7690	500	4515
300000	37	10	8	2.420	8490	500	4915
350000	37	10	8	2.530	9265	500	5390
400000	37	10	8	2.635	10025	500	5775
450000	37	10	8	2.725	10755	500	6215
500000	37	10	8	2.820	11490	500	6585

\*All lengths shipped on reels.

\*All lengths shipped on reels.

## Safety Lead Covered Cable N. E. Code 5000 Volts

## Safety Varnished Cambric Wires and Cables Leaded N. E. C. 600 Volts



### Solid Single Conductor

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Lead Sheath 64ths In.	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Str. Qty.	Pkg. Shipping Wt., Lbs.
14	1	12	4	.605	640	1000	730
12	1	12	4	.620	670	1000	760
10	1	12	4	.645	715	1000	855
8	1	12	4	.670	770	1000	910
6	1	12	4	.705	845	1000	985
4	1	12	4	.750	950	1000	1090
<b>Duplex Flat</b>							
14	1	12	5	.640x1.110	1300	1000	1450
12	1	12	5	.660x1.145	1360	1000	1630
10	1	12	5	.680x1.185	1440	1000	1710
8	1	12	5	.710x1.240	1545	1000	1815
6	1	12	5	.745x1.305	1690	1000	1960
4	1	12	5	.785x1.390	1910	1000	2180
<b>3-Conductor Round</b>							
14	1	12	5	1.205	1805	1000	2275
12	1	12	5	1.245	1900	1000	2375
10	1	12	5	1.290	2015	1000	2685
8	1	12	6	1.380	2520	1000	3190
6	1	12	6	1.455	2765	1000	3435
4	1	12	6	1.550	3120	1000	3790

### Stranded

#### Single Conductor

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Lead Sheath 64ths In.	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Str. Qty.	Pkg. Shipping Wt., Lbs.
14	7	12	4	.610	655	1000	745
12	7	12	4	.635	690	1000	830
10	7	12	4	.660	735	1000	875
8	7	12	4	.690	790	1000	930
6	7	12	4	.730	880	1000	1020
4	7	12	4	.775	1000	1000	1140
2	7	12	4	.845	1165	1000	1310
1	19	12	4	.920	1505	1000	1645
0	19	12	5	.965	1635	1000	1805
00	19	12	5	1.010	1800	1000	1975
000	19	12	5	1.065	1990	1000	2320
0000	19	12	5	1.125	2220	1000	2500
<b>Duplex Flat</b>							
14	7	12	5	.650x1.125	1310	1000	1580
12	7	12	5	.665x1.165	1385	1000	1655
10	7	12	5	.695x1.210	1475	1000	1750
8	7	12	5	.725x1.275	1595	1000	1865
6	7	12	5	.765x1.350	1765	1000	2035
4	7	12	5	.815x1.445	2000	1000	2275
2	7	12	5	.890x1.590	2355	1000	2825
1	19	12	6	.960x1.700	2920	1000	3590
0	19	12	6	1.005x1.785	3190	1000	3860
00	19	12	6	1.040x1.875	3510	1000	4180
000	19	12	6	1.100x1.980	3880	1000	4550
0000	19	12	6	1.160x2.095	4350	1000	5025
<b>3-Conductor Round</b>							
14	7	12	5	1.230	1840	1000	2310
12	7	12	5	1.270	1955	1000	2625
10	7	12	6	1.355	2415	1000	3085
8	7	12	6	1.420	2615	1000	3285
6	7	12	6	1.500	2885	1000	3555
4	7	12	6	1.605	3270	1000	3940
2	7	12	7	1.790	4290	1000	2815
1	19	12	7	1.880	4645	500	2995
0	19	12	7	1.970	5090	500	3215
00	19	12	7	2.065	5595	500	3475
000	19	12	7	2.175	6205	500	3870
0000	19	12	8	2.335	7505	500	4425

\*All lengths shipped on reels.

### Solid Single Conductor

Size B. & S. Gauge	No. of Strands	Varnished Cambric Wall 64th In.	Lead Sheath 64ths Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Str. Qty.	Pkg. Shipping Wt., Lbs.
14	1	3	3	.265	185	1000	240
12	1	3	3	.285	200	1000	255
10	1	3	3	.305	215	1000	270
8	1	3	3	.335	230	1000	290
6	1	4	4	.430	470	1000	525
4	1	4	4	.470	555	1000	645
<b>Duplex Flat</b>							
14	1	3	3	.265x.425	290	1000	345
12	1	3	3	.285x.460	330	1000	385
10	1	3	3	.305x.500	375	1000	430
8	1	3	3	.335x.555	460	1000	550
6	1	4	4	.430x.715	760	1000	900
4	1	4	4	.470x.800	935	1000	1075
<b>3-Conductor Round</b>							
14	1	3	4	.485	485	1000	575
12	1	3	4	.520	545	1000	635
10	1	3	4	.565	635	1000	725
8	1	3	4	.640	780	1000	920
6	1	4	4	.775	1045	1000	1185
4	1	4	5	.900	1525	1000	1675

### Stranded Single Conductor

Size B. & S. Gauge	No. of Strands	Varnished Cambric Wall 64th In.	Lead Sheath 64ths Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Str. Qty.	Pkg. Shipping Wt., Lbs.
14	7	3	3	.275	190	1000	245
12	7	3	3	.295	220	1000	275
10	7	3	3	.320	250	1000	300
8	7	3	3	.350	290	1000	345
6	7	4	4	.450	485	1000	540
4	7	4	4	.500	585	1000	675
3	7	4	4	.525	650	1000	740
2	7	4	4	.560	725	1000	815
1	19	5	4	.645	875	1000	1020
0	19	5	4	.685	990	1000	1130
00	19	5	4	.735	1125	1000	1265
000	19	5	4	.785	1290	1000	1430
0000	19	5	4	.810	1490	1000	1640
250000	37	6	5	.950	1945	1000	2210
300000	37	6	5	1.005	2175	1000	2450
350000	37	6	5	1.060	2490	1000	2670
400000	37	6	5	1.105	2625	1000	2900
450000	37	6	5	1.145	2830	1000	3110
500000	37	6	5	1.190	3050	1000	3250
600000	61	7	6	1.335	3845	500	2230
650000	61	7	6	1.335	4085	500	2315
700000	61	7	6	1.400	4280	500	2410
750000	61	7	6	1.440	4490	500	2515
800000	61	7	6	1.470	4635	500	2615
900000	61	7	6	1.535	5110	500	2825
1000000	61	7	6	1.590	5515	500	3030
1250000	91	8	7	1.790	7030	500	4185
1500000	91	8	7	1.910	8035	500	4330
1750000	127	8	7	2.025	9030	500	5185
2000000	127	8	7	2.135	10025	500	5685
<b>Duplex Flat</b>							
14	7	3	3	.275x.445	300	1000	360
12	7	3	3	.295x.480	340	1000	395
10	7	3	3	.320x.530	400	1000	455
8	7	3	3	.350x.590	475	1000	570
6	7	4	4	.450x.750	805	1000	945
4	7	4	4	.500x.855	985	1000	1125
3	7	4	4	.525x.910	1110	1000	1250
2	7	4	4	.560x.975	1250	1000	1390
1	19	5	5	.675x1.165	1755	1000	2025
0	19	5	5	.715x1.245	1990	1000	2260
00	19	5	5	.765x1.335	2265	1000	2535
000	19	5	5	.815x1.440	2590	1000	2875
0000	19	5	5	.875x1.555	3000	1000	3475

\*All lengths of this type cable shipped on reels.

**Safety Varnished Cambric Wires and Cables**  
**N. E. C. 600 Volts**  
**Stranded—Continued**

**Safety Varnished Cambric Wires and Cables**  
**N. E. C. 2500 Volts**  
**Stranded—Continued**

Size B. & S. Gauge	No. of Strands	Varnished Lead Cambric Sheath Wall 64ths In. Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Strd. Pkg. Quantity	Ship. Wt. Lbs.	
14	7	3	4	.500	505	1000	600
12	7	3	4	.545	585	1000	675
10	7	3	4	.595	675	1000	765
8	7	3	4	.675	825	1000	965
6	7	4	4	.825	1110	1000	1250
4	7	4	5	.960	1620	1000	1890
3	7	4	5	1.020	1810	1000	2080
2	7	4	5	1.090	2045	1000	2315
1	19	5	6	1.275	2780	1000	3450
0	19	5	6	1.365	3150	1000	3820
00	19	5	6	1.465	3600	1000	4270
000	19	5	6	1.575	4130	1000	4800
0000	19	5	7	1.730	5105	1000	5775
250000	37	6	7	1.900	5970	500	3655
300000	37	6	7	2.015	6700	500	4020
350000	37	6	7	2.130	7425	500	4380
400000	37	6	8	2.260	8680	500	5010
450000	37	6	8	2.350	9380	500	5360
500000	37	6	8	2.445	10130	500	5735

Size B. & S. Gauge	No. of Strands	Varnished Lead Cambric Sheath Wall 64ths In. Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Strd. Pkg. Quantity	Ship. Wt. Lbs.	
14	7	7	4	.435x .730	625	1000	740
12	7	7	4	.455x .770	705	1000	785
10	7	7	4	.480x .820	785	1000	925
8	7	7	4	.510x .880	880	1000	1025
6	7	8	4	.580x1.020	1085	1000	1220
4	7	8	5	.665x1.150	1510	1000	1650
3	7	8	5	.725x1.270	1815	1000	2100
2	7	8	5	.765x1.350	2025	1000	2310
1	19	8	5	.810x1.430	2260	1000	2525
0	19	8	5	.855x1.525	2545	1000	2800
000	19	8	6	.940x1.660	3220	1000	2875
0000	19	8	6	.995x1.775	3665	1000	4335
<b>3-Conductor Round</b>							
14	7	4x3	4	.675	730	1000	875
12	7	4x3	4	.715	800	1000	940
10	7	4x3	4	.765	910	1000	1050
8	7	4x3	5	.865	1260	1000	1400
6	7	4x4	5	.975	1540	1000	1725
4	7	4x4	5	1.080	1865	1000	2150
2	7	4x4	5	1.210	2300	1000	2775
1	19	4x4	6	1.330	2925	1000	3595
0	19	4x4	6	1.420	3305	1000	3975
00	19	4x4	6	1.520	3750	1000	4420
000	19	4x4	6	1.630	4285	1000	4955
0000	19	4x4	7	1.785	5380	1000	6050
250,000	37	5x4	7	1.955	6170	500	3755
300,000	37	5x4	7	2.075	6915	500	4130
350,000	37	5x4	7	2.185	7640	500	4490
400,000	37	5x4	8	2.315	8910	500	5125
450,000	37	5x4	8	2.405	9600	500	5470
500,000	37	5x4	8	2.560	10320	500	5925

**N. E. C. 2500 Volts**

Size B. & S. Gauge	No. of Strands	Varnished Lead Cambric Sheath Wall 64ths In. Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Strd. Pkg. Quantity	Ship. Wt. Lbs.	
<b>Solid</b>							
<b>Single Conductor</b>							
14	1	7	4	.425	400	1000	455
12	1	7	4	.445	430	1000	485
10	1	7	4	.465	465	1000	525
8	1	7	4	.495	510	1000	565
6	1	8	4	.560	625	1000	715
4	1	8	4	.585	720	1000	810
<b>Duplex Flat</b>							
14	1	7	4	.425x .705	625	1000	710
12	1	7	4	.441x .745	695	1000	775
10	1	7	4	.465x .790	755	1000	890
8	1	7	4	.495x .840	845	1000	960
6	1	8	4	.560x .970	1035	1000	1155
4	1	8	5	.635x1.100	1450	1000	1560
<b>3-Conductor Round</b>							
14	1	4x3	4	.650	710	1000	840
12	1	4x3	4	.685	780	1000	910
1	1	4x3	4	.735	870	1000	1010
8	1	4x3	5	.825	1200	1000	1325
6	1	4x4	5	.930	1465	1000	1650
4	1	4x4	5	1.025	1760	1000	2050
<b>Stranded</b>							
<b>Single Conductor</b>							
14	7	7	4	.435	410	1000	465
12	7	7	4	.455	440	1000	495
10	7	7	4	.480	485	1000	540
8	7	7	4	.510	540	1000	630
6	7	8	4	.580	650	1000	740
4	7	8	4	.630	760	1000	850
2	7	8	4	.690	910	1000	1050
1	19	8	4	.735	1010	1000	1150
0	19	8	4	.775	1125	1000	1265
00	19	8	4	.825	1260	1000	1400
000	19	8	5	.905	1645	1000	1785
0000	19	8	5	.965	1870	1000	2140
250000	37	8	5	1.01	2055	1000	2325
300000	37	8	5	1.065	2285	1000	2560
350000	37	8	5	1.115	2520	1000	2800
400000	37	8	5	1.165	2740	1000	3015
450000	37	8	5	1.205	2960	1000	3425
500000	37	8	6	1.280	3475	1000	4180
600000	61	8	6	1.360	3920	500	2230
650000	61	8	6	1.400	4135	500	2340
700000	61	8	6	1.430	4355	500	2450
750000	61	8	6	1.465	4570	500	2555
800000	61	8	6	1.500	4770	500	2655
900000	61	8	6	1.560	5190	500	2865
1000000	61	8	6	1.620	5595	500	3070
1250000	91	9	7	1.820	7120	500	4230
1500000	91	9	7	1.945	8135	500	4735
1750000	127	9	7	2.055	9130	500	5235
2000000	127	9	7	2.165	10120	500	5730

\*All lengths of this type cable shipped on reels.

\*All lengths of this type cable shipped on reels.

**N. E. C. 5000 Volts**

Size B. & S. Gauge	No. of Strands	Varnished Lead Cambric Sheath Wall 64ths In. Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	*Strd. Pkg. Quantity	Ship. Wt. Lbs.	
<b>Solid</b>							
<b>Single Conductor</b>							
8	1	10	4	.580	635	1000*	715
6	1	10	4	.615	710	1000	790
<b>Duplex Flat</b>							
8	1	10	4	.580x1.030	1035	1000	1175
6	1	10	5	.650x1.130	1420	1000	1560
<b>3-Conductor Round</b>							
8	1	6x5	5	1.025	1550	1000	1825
6	1	6x5	5	1.095	1675	1000	2040
<b>Stranded</b>							
<b>Single Conductor</b>							
8	7	10	4	.605	660	1000	745
6	7	10	4	.640	735	1000	870
4	7	10	4	.685	840	1000	975
2	7	10	4	.750	995	1000	1135
1	19	10	4	.790	1105	1000	1255
0	19	10	4	.840	1225	1000	1365
00	19	10	5	.915	1580	1000	1720
000	19	10	5	.970	1770	1000	2040
0000	19	10	5	1.030	1995	1000	2265
250,000	37	10	5	1.075	2185	1000	2460
300,000	37	10	5	1.130	2425	1000	2705
350,000	37	10	5	1.180	2655	1000	3125
400,000	37	10	6	1.260	3185	500	1735
450,000	37	10	6	1.305	3405	500	1975
500,000	37	10	6	1.345	3635	500	2085
600,000	61	10	6	1.425	4075	500	2310
650,000	61	10	6	1.460	4300	500	2420
700,000	61	10	6	1.495	4510	500	2525
750,000	61	10	6	1.530	4735	500	2640
800,000	61	10	6	1.565	4940	500	2745
900,000	61	10	7	1.655	5760	500	3350
1,000,000	61	10	7	1.715	6190	500	3565
1,250,000	91	11	7	1.885	7320	500	4330
1,500,000	91	11	7	2.000	8325	500	4835
1,750,000	127	11	7	2.120	9335	500	5335
2,000,000	127	11	7	2.225	10320	500	5830
<b>Duplex Flat</b>							
8	7	10	4	.605x1.065	1100	1000	1375
6	7	10	5	.675x1.175	1425	1000	1745
4	7	10	5	.725x1.275	1695	1000	1960
2	7	10	5	.785x1.395	2000	1000	2275
1	19	10	5	.830x1.475	2215	1000	2540
0	19	10	5	.865x1.560	2450	1000	2940
00	19	10	6	.950x1.680	3090	1000	3625
000	19	10	6	1.000x1.785	3450	1000	4120
0000	19	10	6	1.060x1.900	3905	1000	4575

## Safety Varnished Cambric Wires and Cables Leaded

### N. E. C. 5000 Volts Stranded—Continued 3-Conductor Round

Size B. & S. Gauge	No. of Strands	Varnished Lead Cambric Sheath 64ths In. Inch	Approximate O. D. Inches	Wt., Lbs. per 1000 Feet	Quantity	*Std. Pkg. Ship. Wt. Lbs.
8	7	6x5	5	1.065	1615	1000 1875
6	7	6x5	5	1.175	1855	1000 2125
4	7	6x5	5	1.250	2180	1000 2650
2	7	6x5	6	1.410	2075	1000 3680
1	19	6x5	6	1.500	3305	1000 4000
0	19	6x5	6	1.585	3700	1000 4370
00	19	6x5	6	1.685	4160	500 2550
000	19	6x5	7	1.825	5150	500 3250
0000	19	6x5	7	1.950	5860	500 3600
250,000	37	6x5	7	2.055	6470	500 3905
300,000	37	6x5	7	2.170	7210	500 4275
350,000	37	6x5	8	2.315	8500	500 4925
400,000	37	6x5	8	2.415	9260	500 5300
450,000	37	6x5	8	2.505	9965	500 5745
500,000	37	6x5	8	2.600	10680	500 6100

\*All lengths of this type cable shipped on REELS.

## Safety Standard 7500 Volts

Solid						
Single Conductor						
8	1	14	4	.715	810	1000 950
6	1	14	4	.740	890	1000 1030
Duplex Flat						
8	1	14	5	.745x1.315	1625	1000 1900
6	1	14	5	.780x1.380	1790	1000 2060
3-Conductor Round						
8	1	7x7	5	1.155	1805	1000 2075
6	1	7x7	5	1.230	2025	1000 2695
Stranded						
Single Conductor						
8	7	14	4	.725	835	1000 975
6	7	14	4	.770	915	1000 1055
4	7	14	4	.825	1030	1000 1170
2	7	14	5	.915	1400	1000 1670
1	19	14	5	.955	1520	1000 1790
0	19	14	5	.995	1660	1000 1930
00	19	14	5	1.045	1820	1000 2100
000	19	14	5	1.095	2010	1000 2280
0000	19	14	5	1.155	2240	1000 2510
250,000	37	14	5	1.200	2430	1000 2900
300,000	37	14	5	1.255	2675	1000 3345
350,000	37	14	6	1.340	3230	1000 3900
400,000	37	14	6	1.385	3480	1000 4150
450,000	37	14	6	1.430	3705	1000 4375
500,000	37	14	6	1.470	3945	1000 4615
600,000	61	14	6	1.550	4400	500 2470
650,000	61	14	6	1.585	4625	500 2585
700,000	61	14	7	1.650	5235	500 3090
750,000	61	14	7	1.685	5470	500 3210
800,000	61	14	7	1.720	5685	500 3315
900,000	61	14	7	1.780	6130	500 3735
1,000,000	61	14	7	1.840	6565	500 3955
Duplex Flat						
8	7	14	5	.765x1.345	1685	1000 1955
6	7	14	5	.800x1.425	1845	1000 2115
4	7	14	5	.850x1.520	2075	1000 2545
2	7	14	6	.945x1.675	2740	1000 3110
1	19	14	6	.985x1.755	2965	1000 3635
0	19	14	6	1.030x1.840	3245	1000 3915
00	19	14	6	1.075x1.935	3550	1000 4220
000	19	14	6	1.125x2.035	3935	1000 4600
0000	19	14	6	1.185x2.150	4400	1000 5070
3-Conductor Round						
8	7	7x7	5	1.195	1875	1000 2345
6	7	7x7	5	1.275	2120	1000 2790
4	7	7x7	6	1.410	3800	1000 3170
2	7	7x7	6	1.540	3295	1000 3965
1	19	7x7	6	1.630	3645	1000 4315
0	19	7x7	7	1.745	4465	1000 5135
00	19	7x7	7	1.845	4950	500 3145
000	19	7x7	7	1.955	5545	500 3445
0000	19	7x7	7	2.050	6265	500 3805
250,000	37	7x7	7	2.180	6880	500 4110
300,000	37	7x7	8	2.355	8215	500 4780
350,000	37	7x7	8	2.445	8965	500 5240
400,000	37	7x7	8	2.545	9745	500 5635
450,000	37	7x7	8	2.635	10445	500 5980
500,000	37	7x7	8	2.730	11195	500 6450

## Safety Parkway Cables 5000 Volts



Protection: Two steel tapes, .020 inch thick.

Solid						
Single Conductor						
Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths Inch	Lead Sheath 64ths Inch	Approx. O. D. Inches	Weight Pounds per 1000 Feet	Weight Pounds Std. Pkg.
10	1	10	4	.850	980	1130
8	1	10	4	.875	1105	1250
8	1	10	3	.845	940	1100
8	1	12	3	.920	1045	1315
8	1	12	4	.950	1220	1500
6	1	10	4	.910	1200	1475
Stranded						
Single Conductor						
6	7	10	4	.935	1250	1520
4	7	10	4	.985	1390	1675
Solid Duplex						
10	1	10	4	.850x1.295	1605	1850
8	1	10	4	.875x1.350	1730	2065
6	1	10	4	.910x1.420	1900	2235
Stranded Duplex						
6	7	10	4	.935x1.465	1985	2325
4	7	10	4	1.020x1.590	2530	2875

## Safe-T-Flex Single Strip Steel Armored Cable



This is a product especially designed to meet requirements for street and boulevard lighting and for further use in all classes of underground installations requiring insulated copper conductors with a protective covering against mechanical injury.

As the uses for steel armored cable have increased, the need for flexibility and more perfect protection for the insulated conductors has been responsible for the development in the art of making cables under the general class of Parkway or suburban cables. While cable, double stripped, with 2 flat steel tapes, has served satisfactorily for the conditions that have been met over the many years during which this type has been used, the apparent need for a flexible interlocking type makes available Safe-T-Flex. This is of single strip construction, the arch of which is designed to give the maximum mechanical protection against crushing load and at the same time affording flexibility beyond that available in the older type. The joints operate on a ball and socket plan, providing maximum flexibility and full protection for the conductors contained therein.

Safe-T-Flex construction may be used on any type or size of conductors, for any standard voltage or under any condition of service ordinarily met with where park cable is used.

This type cable is further recommended for use in train control and other service where it is essential to have the conductors protected not only against possible injury after installation, but during the time that the cable is in transit.

Prices upon application.

**Safety Parkway Cables  
600 Volt**



Protection—Two steel tapes .020 inch thick.

**Solid  
Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. In.	Wt. Per 100 Ft. Lbs.	*Std. Pkg. Quantity	Shipping Wt., Lbs.
14	1	3	3	.560	450	2500	1265
12	1	3	3	.580	475	2500	1460
10	1	3	3	.600	520	2500	1570
8	1	3	3	.625	580	2500	1720
6	1	4	4	.720	830	2500	2350
<b>Duplex Flat</b>							
14	1	3	3	.560x.740	630	2500	2245
12	1	3	3	.580x.780	685	2500	2385
10	1	3	3	.600x.825	765	2500	2585
8	1	3	3	.625x.875	870	2500	2815
6	1	4	4	.720x1.045	1270	2500	3850
<b>3-Conductor Round</b>							
14	1	3	3	.785	800	2500	2670
12	1	3	4	.850	1030	2500	3250
10	1	3	4	.895	1150	2500	3545
8	1	3	4	.955	1310	2000	3300
6	1	4	4	1.095	1675	2000	4020

**Stranded  
Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. In.	Wt. Per 100 Ft. Lbs.	*Std. Pkg. Quantity	Shipping Wt., Lbs.
6	7	4	4	.750	865	2500	2635
4	7	4	4	.800	1000	2000	2270
2	7	4	4	.860	1185	2000	2840
1	19	5	4	.935	1385	1500	2300
0	19	5	4	.975	1520	1500	2750
<b>Duplex Flat</b>							
6	7	4	4	.750x1.090	1330	2500	4000
4	7	4	4	.800x1.185	1585	2000	3850
2	7	4	4	.860x1.305	1910	2000	4500
1	19	5	5	.965x1.480	2515	1500	4445
0	19	5	5	1.005x1.560	2790	1500	4855
<b>3-Conductor Round</b>							
6	7	4	4	1.145	1770	1500	3325
4	7	4	5	1.275	2375	1500	4235
2	7	4	5	1.405	2900	1000	3570
1	19	5	5	1.560	3420	1000	4090
0	19	5	5	1.650	3825	1000	4500

**2500 Volts**

**Solid  
Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. In.	Wt. Per 100 Ft. Lbs.	*Std. Pkg. Quantity	Shipping Wt., Lbs.
14	1	6	4	.685	705	2500	2035
12	1	6	4	.700	745	2500	2135
10	1	6	4	.725	795	2500	2260
8	1	6	4	.755	860	2500	2620
6	1	6	4	.790	950	2500	3045
<b>Duplex Flat</b>							
14	1	6	4	.685x.965	1050	2500	3295
12	1	6	4	.700x1.000	1120	2500	3470
10	1	6	4	.725x1.040	1200	2500	3670
8	1	6	4	.755x1.100	1310	2500	3945
6	1	6	4	.790x1.170	1470	2500	4350
<b>3-Conductor Round</b>							
14	1	6	4	1.010	1335	2500	4010
12	1	6	4	1.055	1430	2500	4250
10	1	6	4	1.100	1555	2500	4560
8	1	6	4	1.160	1730	2000	4130
6	1	6	5	1.260	2210	2000	5180

\*Shipped on reels.

**Safety Parkway Cables  
2500 Volt**



Protection—Two steel tapes .020 inch thick.

**Stranded  
Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. Inches	Weight Pounds per 1000 Feet	*Std. Pkg. Quantity	Shipping Wt., Lbs.
6	7	6	4	.815	995	2500	3160
4	7	6	4	.865	1130	2000	2730
2	7	6	4	.925	1315	2000	3300
1	19	7	4	1.000	1505	1500	2730
0	19	7	4	1.040	1655	1500	3155
<b>Duplex Flat</b>							
6	7	6	4	.815x1.215	1560	2500	4660
4	7	6	4	.865x1.310	1800	2000	4270
2	7	6	5	.960x1.460	2385	2000	5530
1	19	7	5	1.030x1.600	2770	1500	4825
0	19	7	5	1.070x1.685	3050	1500	5245
<b>3-Conductor Round</b>							
6	7	6	5	1.310	2340	1500	4180
4	7	6	5	1.415	2720	1500	4750
2	7	6	5	1.545	3250	1000	3920
1	19	7	5	1.695	3790	1000	4460
0	19	7	5	1.785	4200	1000	4960

**3500 Volt**

**Solid  
Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. In.	Wt. Per 1000 Ft. Lbs.	*Std. Pkg. Quantity	Shipping Wt., Lbs.
14	1	8	4	.745	825	2500	2535
12	1	8	4	.765	865	2500	2635
10	1	8	4	.785	910	2500	2945
8	1	8	4	.815	980	2500	3120
6	1	8	4	.850	1070	2500	3350
<b>Duplex Flat</b>							
14	1	8	4	.745x1.085	1250	2500	3800
12	1	8	4	.765x1.120	1320	2500	3975
10	1	8	4	.785x1.165	1395	2500	4250
8	1	8	4	.815x1.225	1525	2500	4575
6	1	8	4	.850x1.290	1685	2500	4975
<b>3-Conductor Round</b>							
14	1	8	4	1.155	1630	2500	4835
12	1	8	5	1.220	1960	2500	5660
10	1	8	5	1.265	2105	2500	6140
8	1	8	5	1.325	2300	2000	5360
6	1	8	5	1.395	2555	2000	5985

**Stranded**

**Single Conductor**

Size B. & S. Gauge	No. of Strands	Rubber Wall 64ths In.	Sheath 64ths In.	Approx. O. D. Inches	Weight Pounds per 1000 Feet	*Std. Pkg. Quantity	Shipping Wt., Lbs.
6	7	8	4	.875	1110	2500	3450
4	7	8	4	.925	1255	2000	3180
2	7	8	4	.990	1440	2000	3550
1	19	8	4	1.030	1580	1500	3040
0	19	8	4	1.070	1725	1500	3260
00	19	8	4	1.115	1905	1000	2175
000	19	8	5	1.210	2360	1000	2830
0000	19	8	5	1.270	2635	1000	3305
<b>Duplex Flat</b>							
6	7	8	4	.875x1.340	1760	2500	5275
4	7	8	4	.925x1.435	2015	2000	4790
2	7	8	5	1.020x1.535	2635	2000	6145
1	19	8	5	1.060x1.665	2890	1500	5095
0	19	8	5	1.100x1.750	3180	1500	5530
00	19	8	5	1.145x1.840	3510	1000	4180
000	19	8	5	1.210x1.965	3950	1000	4620
0000	19	8	5	1.270x2.085	4440	1000	5200
<b>3-Conductor Round</b>							
6	7	8	5	1.445	2685	1500	4790
4	7	8	5	1.545	3070	1500	5365
2	7	8	5	1.675	3620	1000	4300
1	19	8	5	1.765	3965	1000	4725
0	19	8	5	1.850	4395	1000	5155
00	19	8	6	1.985	5325	1000	6200
000	19	8	6	2.120	6025	1000	6900
0000	19	8	6	2.245	6780	1000	7650

Shipped on reels.



## Rome Trenchlay Non-Metallic Underground Cable

For Working Pressure up to and Including 5000 Volts



Designed particularly for secondary circuits, rural extensions, street lighting circuits, airport lighting and all low and medium-voltage underground installations. It is especially adapted to higher-amperage street lighting circuits.

Trenchlay differs from all other underground cables. Older forms were built by adding one or more protective sheaths to existing cable structures. Instead of depending on a single thickness of some easily punctured material, the whole structure of Trenchlay is a plastic, ageless, changeless seal. It is built from the most highly refined forms of the best rot, moisture, acid and alkali-resisting materials. Under the tough, outer sheaths of Trenchlay cable is a homogeneous anhydrous structure that is tough and flexible and unaffected by the heavy strains of installation.

Water cannot reach the vitals of Trenchlay from the outside, for the conductors are completely sealed in an asbestos sheath impregnated with asbestos base caulk that is impervious to water. Nor will water wick in from open ends, cuts or abrasions. The fibre sheaths are too well filled, too well saturated with long-life compounds.

Trenchlay is unaffected by earth acids or alkalis. It will not corrode, rust or crystallize. Electrolysis, stray currents, and sheath loss troubles have been entirely eliminated.

Trenchlay is 68 per cent lighter than steel-taped cable. It is far more flexible than any metal-sheathed cable. Can be installed without a specially trained crew and costs much less.

Rome Trenchlay control cable and signal cable are manufactured with the same exclusive asbestos sheath and asbestos base caulk.

**SIZES AND MULTIPLES.**—Cable will be furnished in sizes and multiples listed in accompanying specification table.

**CONDUCTOR.**—Soft drawn tinned copper, solid or stranded as listed in accompanying specification table.

**RUBBER WALL.**—Rome Nokrono rubber compound unless otherwise specified.

**FIRST SHEATH.**—Single wrap of rubberized cloth tape, in colors for ready identification.

**SECOND SHEATH.**—Cotton braid thoroughly saturated with special saturant and then completely filled with asbestos base caulk.

**ASSEMBLY.**—Twin conductor types laid parallel; multiple conductor types twisted.

**CAULKING.**—After cabling, the valleys between individual conductors are thoroughly filled with asbestos base caulk so as to provide a symmetrical cross section.

**THIRD SHEATH.**—Asbestos braid of thickness shown in accompanying specification table. This braid completely filled with special saturant and then completely covered with asbestos base caulk.

**FOURTH AND FIFTH SHEATHS.**—Double wrap of closely butted anhydrous laminated non-metallic kraft armor. The outer surface of this armor is well coated with asbestos base caulk.

**FINAL SHEATH.**—Closed and tightly served sheath of thoroughly saturated jute. This sheath finished with special finishing compound and well dusted with soap stone.

**PUT UP.**—1000 feet on reels, or where large sizes do not permit reeling of 1000-foot lengths, to be furnished in the longest lengths permitted by reel dimensions.

## Rome Trenchlay Non-Metallic Underground Cable

Continued

600-Vo't Working Pressure

AWG Size	No. of Conductors	No. of Strands	THICKNESS, INCHES			Approx. O.D. or Width, In.	Approx. Wt., Lbs. 1000 Ft.
			Rubber Wall	Asbestos Sheath	Jute Sheath		
10	1	Solid	3/64	1/16	3/64	.660	225
10	2	Solid	3/64	1/16	3/64	.920	400
10	3	Solid	3/64	1/16	3/64	.950	530
8	1	Solid	3/64	1/16	3/64	.690	265
8	2	Solid	3/64	1/16	3/64	.950	450
8	3	Solid	3/64	3/32	1/16	1.050	600
6	1	7	7/64	1/16	3/64	.750	325
6	2	7	7/64	3/32	1/16	1.110	600
6	3	7	7/64	3/32	1/16	1.220	800
4	1	7	7/64	1/16	3/64	.790	440
4	2	7	7/64	3/32	1/16	1.200	795
4	3	7	7/64	3/32	1/16	1.270	1050
2	1	7	7/64	1/16	3/64	.750	535
2	2	7	7/64	3/32	1/16	1.310	960
2	3	7	7/64	3/32	1/16	1.370	1340
1	1	19	5/64	1/16	3/64	.870	610
1	2	19	5/64	3/32	1/16	1.370	1095
1	3	19	5/64	3/32	1/16	1.440	1525
1/0	1	19	5/64	1/16	3/64	.930	690
1/0	2	19	5/64	3/32	1/16	1.480	1260
1/0	3	19	5/64	3/32	1/16	1.550	1815
2/0	1	19	5/64	3/32	1/16	1.35	875
2/0	2	19	5/64	3/32	1/16	1.90	1725
2/0	3	19	5/64	3/32	1/16	2.10	2385
3/0	1	19	5/64	3/32	1/16	1.40	1020
3/0	2	19	5/64	3/32	1/16	2.10	1875
3/0	3	19	5/64	3/32	1/16	2.20	2875
4/0	1	19	5/64	3/32	1/16	1.50	1190
4/0	2	19	5/64	3/32	1/16	2.20	2400
4/0	3	19	5/64	3/32	1/16	2.30	3425

3000-Volt Working Pressure

10	1	Solid	7/64	1/16	3/64	.750	300
10	2	Solid	7/64	3/32	1/16	1.100	505
10	3	Solid	7/64	3/32	1/16	1.000	675
8	1	Solid	7/64	1/16	3/64	.780	345
8	2	Solid	7/64	1/16	3/64	.980	580
8	3	Solid	7/64	3/32	1/16	1.210	775
6	1	7	7/64	1/16	3/64	.850	390
6	2	7	7/64	3/32	1/16	1.300	710
6	3	7	7/64	3/32	1/16	1.370	985
4	1	7	7/64	1/16	3/64	.880	510
4	2	7	7/64	3/32	1/16	1.360	920
4	3	7	7/64	3/32	1/16	1.430	1250
2	1	7	7/64	1/16	3/64	.930	620
2	2	7	7/64	3/32	1/16	1.500	1120
2	3	7	7/64	3/32	1/16	1.550	1590
1	1	19	5/64	3/32	3/64	.970	705
1	2	19	5/64	3/32	1/16	1.580	1275
1	3	19	5/64	3/32	1/16	1.660	1810
1/0	1	19	5/64	3/32	1/16	1.000	800
1/0	2	19	5/64	3/32	1/16	1.650	1470
1/0	3	19	5/64	3/32	1/16	1.700	2110
2/0	1	19	5/64	3/32	1/16	1.40	930
2/0	2	19	5/64	3/32	1/16	2.10	1850
2/0	3	19	5/64	3/32	1/16	2.20	2750
3/0	1	19	5/64	3/32	1/16	1.50	1085
3/0	2	19	5/64	3/32	1/16	2.20	2000
3/0	3	19	5/64	3/32	1/16	2.30	3025

5000-Vo't Working Pressure

10	1	Solid	19/64	1/16	3/64	.850	365
10	2	Solid	19/64	3/32	1/16	1.300	620
10	3	Solid	19/64	3/32	1/16	1.330	870
8	1	Solid	19/64	1/16	3/64	.860	425
8	2	Solid	19/64	3/32	1/16	1.290	700
8	3	Solid	19/64	3/32	1/16	1.420	960
6	1	7	19/64	1/16	3/64	.900	475
6	2	7	19/64	3/32	1/16	1.440	870
6	3	7	19/64	3/32	1/16	1.520	1200
4	1	7	19/64	1/16	3/64	.950	600
4	2	7	19/64	3/32	1/16	1.560	1080
4	3	7	19/64	3/32	1/16	1.630	1475
2	1	7	19/64	1/16	3/64	1.020	710
2	2	7	19/64	3/32	1/16	1.670	1290
2	3	7	19/64	3/32	1/16	1.730	1840
1	1	19	19/64	3/32	7/16	1.060	800
1	2	19	19/64	3/32	1/16	1.760	1450
1	3	19	19/64	3/32	1/16	1.830	2070
1/0	1	19	19/64	3/32	1/16	1.090	900
1/0	2	19	19/64	3/32	1/16	1.810	1650
2/0	1	19	19/64	3/32	1/16	1.35	1050
2/0	2	19	19/64	3/32	1/16	2.30	1930
2/0	3	19	19/64	3/32	1/16	2.40	2920

Approximate outside diameters or widths listed above are figured with ample average tolerances and represent maximum dimensions.

**Tirex Rubber Armored Cable**

The flexible copper conductors are insulated with a rubber compound of high dielectric strength containing a minimum of 30 per cent of new Para rubber.

The inner jacket is a 40 per cent Para rubber compound and fills the interstices between the conductors.

The outer jacket or rubber armor contains a high percentage of new Para rubber and is securely locked to the cable.

A double reinforcement of hard twisted seine twine between the jackets adds greatly to the wearing qualities of Tirex Cables.

The outer covering or rubber armor effectively protects the cable and safeguards the user.

Tirex Cables, being all rubber, do not absorb moisture and are not appreciably affected by oils or acids under ordinary industrial conditions.

**Tirex Single Cable—600 Volts**

For use wherever a single conductor portable cable is needed. Specially suitable for electric mine locomotives of the gathering reel type when it is necessary to leave the trolley wire in the main entry and enter rooms to pick up or place cars.

To insure adequate tensile strength the conductors of Tirex Single Conductor Cable are reinforced with steel strands.



Size B. & S.	No. of Strands	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.	Price per 1000 Ft.
0000	427	59/64 - .922	975	
0000	259	59/64 - .922	960	
000	427	55/64 - .859	795	
000	259	55/64 - .859	810	
00	259	25/32 - .813	675	
00	133	25/32 - .813	685	
0	259	49/64 - .766	570	
0	133	49/64 - .766	575	
1	133	23/32 - .719	505	
2	133	21/32 - .656	410	
3	133	20/32 - .625	355	
3	49	20/32 - .625	345	
4	133	18/32 - .563	255	
4	49	18/32 - .563	250	
5	49	33/64 - .516	230	
6	49	31/64 - .484	195	
8	49	27/64 - .422	140	

**Two-Conductor**



Size B. & S.	No. of Strands	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.	Price per 1000 Ft.
0000	427	58/32 - 1.813	2720	
0000	259	58/32 - 1.813	2685	
000	427	5 1/2 - 1.688	2285	
000	259	5 1/2 - 1.688	2250	
00	259	4 9/32 - 1.531	1840	
00	133	4 9/32 - 1.531	1860	
0	259	4 6/32 - 1.438	1570	
0	133	4 6/32 - 1.438	1580	
1	133	4 2/32 - 1.313	1300	
2	133	3 8/32 - 1.188	1040	
3	133	3 6/32 - 1.125	910	
3	49	3 6/32 - 1.125	915	
4	133	3 1/2 - 1.063	785	
4	49	3 1/2 - 1.063	790	
5	49	3 1/32 - .969	645	
6	49	2 9/32 - .906	550	
8	49	2 1/2 - .750	370	

**Tirex Rubber Armored Cable**

Maximum flexibility is obtained by proper stranding of the copper conductors and the omission of stiff, fibrous braids and fillings. Tirex Cables never kink.

The smooth, clean, outer surface of Tirex Cables does not collect and hold dirt and grease. It may easily be wiped clean when soiled.

Rigid electrical tests are made during the manufacture of Tirex Cables. These tests insure the integrity of every length.

The rubber armor has remarkable wear-resisting properties and protects the cable from outside injury.

**Concentric, Two-Conductor**



Size B. & S.	No. of Strands	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.	Price per 1000 Ft.
0000	427	4 2/32 = 1.313	1960	
0000	259	4 2/32 = 1.313	1945	
000	427	3 9/32 = 1.219	1620	
000	259	3 9/32 = 1.219	1605	
00	259	3 7/32 = 1.156	1360	
00	133	3 7/32 = 1.156	1370	
0	259	6 9/64 = 1.078	1150	
0	133	6 9/64 = 1.078	1155	
1	133	3 2/32 = 1.000	945	
2	133	5 9/64 = .922	780	
3	133	5 7/64 = .891	680	
3	49	5 7/64 = .891	685	
4	133	2 7/32 = .844	585	
4	49	2 7/32 = .844	590	
5	49	5 1/64 = .797	500	
6	49	2 1/32 = .750	425	
8	49	3 3/64 = .609	280	

**Three-Conductor**



Size B. & S.	No. of Strands	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.	Price per 1000 Ft.
0000	427	6 5/32 = 1.969	3530	
0000	259	6 3/32 = 1.969	3560	
000	427	11 7/64 = 1.828	3000	
000	259	11 7/64 = 1.828	2970	
00	259	5 1/32 = 1.688	2450	
00	133	5 1/32 = 1.688	2460	
0	259	5 1/32 = 1.594	2075	
0	133	5 1/32 = 1.594	2095	
1	133	8 9/64 = 1.391	1630	
2	133	4 9/32 = 1.250	1290	
3	133	3 8/32 = 1.188	1130	
3	49	3 8/32 = 1.188	1135	
4	133	3 6/32 = 1.125	975	
4	49	3 6/32 = 1.125	990	
5	49	6 5/64 = 1.016	790	
6	49	6 1/64 = .953	675	
8	49	2 5/32 = .750	445	

## Type S Tirez All Rubber Portable Cord

For Electrical Tools and Appliances



Tirez fits standing bushings. It is most satisfactory for portable lamps, tools or other appliances. Oils and acids have no appreciable effect upon it and the clean, smooth outer surface does not collect dirt or grease. The conductors are copper wire, stranded and cotton wound. Insulation is 30 per cent. The insulated conductors are twisted and covered with a high-grade rubber jacket which entirely fills the interstices between the conductors. Electrical tests are applied to each length of cord after 12 hours' submersion in water.

Two and three-conductor Nos. 14, 16 and 18 and 2-conductor No. 12 are packed in special cartons containing approximately 250 feet each (from 200 to 270 feet), so constructed that the cord may be drawn out as needed without disturbing the remainder of the coil.

### \*1-Conductor 2-Conductor

Size B. & S.	Strands	Thickness Insulation Inches	Wt., Lbs. per 1000 Ft.	OUTSIDE DIAMETER INCHES	Wt., Lbs. per 1000 Ft.	OUTSIDE DIAMETER INCHES		
10	No. 30 A. W. G.	3/64	67	19/64	.297	214	41/64	.641
12	No. 30 A. W. G.	3/64	50	17/64	.266	189	37/64	.578
14	No. 30 A. W. G.	3/64	40	8/32	.250	219	17/32	.531
16	No. 34 A. W. G.	1/32	26	13/64	.203	95	27/64	.422
18	No. 34 A. W. G.	1/32	21	6/32	.188	79	25/64	.391

### 3-Conductor 4-Conductor

10	No. 30 A. W. G.	3/64	303	27/32	.688	372	21/32	.750
12	No. 30 A. W. G.	3/64	277	33/64	.609	280	45/64	.672
14	No. 30 A. W. G.	3/64	182	18/32	.563	219	39/64	.609
16	No. 34 A. W. G.	1/32	116	29/64	.453	136	31/64	.484
18	No. 34 A. W. G.	1/32	93	13/32	.406	107	14/32	.438

\*There are no N. E. C. standards for 1-conductor rubber sheathed flexible cord.

Prices upon application.

## Type SJ Tirez Portable Cord

2-conductor



Recommended for pendent drop lights, floor or table lamps, vacuum cleaners and small electrical tools and apparatus.

It is suitable for portable use in offices, dwellings and reasonably dry places where conditions are not so severe, and for pendent use in manufacturing plants and garages.

The cord is practically wearproof, never frays or kinks and is so flexible that its full length is always available without delay or annoyance.

The outer covering or rubber armor is smooth and attractive in appearance and is furnished in black or green as desired.

The colors are permanent and the wear and tear of ordinary service has no appreciable effect on them.

The insulation of each conductor is of a distinctive color for identification and polarity marking.

Tirez is packed in convenient cartons containing approximately 250 feet each, (from 200 to 270 feet) so constructed that any desired length may be removed without disturbing the remainder of the coil.

Other lengths may be obtained in coils or on reels.

Size B. & S.	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.	Size B. & S.	Outside Diameter Inches	Wt., Lbs. per 1000 Ft.
16	1 1/32	58	18	3/4	45

Prices upon application.

## Tirez Shot Fire Cable

Two-conductor



Suitable for rough work in damp or wet places. Not affected by acid, gas or oil.

The particular features which will appeal to the shot firer, are the small diameter of about 1/4 inch and the light weight of 4 1/2 pounds to 100 feet.

Cable is flexible and has adequate tensile strength for the work for which it was designed. Does not kink or snarl.

Size A. W. G.	Approx. O. D. Inches	Approx. Wt., Lbs. per 1000 Ft.	Price per 1000 Ft.
18	270	45	.....

## Tirez Welding Cables 600-Volt



Extra flexible, with a paper separator between the insulation and the copper. Single conductor.

Size	Strands	O.D. In.	Net Wt., Lbs. 1000 Ft.	Size	Strands	O.D. In.	Net Wt., Lbs. 1000 Ft.
*4-0	5292	2 5/32	890	1	2107	1 9/32	380
*3-0	4214	2 1/32	735	2	1666	3 5/64	315
2-0	3332	2 3/32	580	*3	1323	1 6 3/32	255
1-0	2646	2 1/32	470	*4	1029	1 5 3/32	210

\*Not in stock. Made on special order only.

Prices upon application.

## Type PS and P Duracord Portable Cord



Duracord has a tough covering of thick, heavy, long fibre cotton woven like fire hose, not braided.

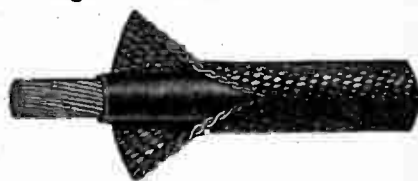
Size No. of B. & S. Cond.	Approx. Outside Diam. In.	Amp. Cap.	Ship. Wt. Lbs. per 1000 Ft.	Size No. of B. & S. Cond.	Approx. Outside Diam. In.	Amp. Cap.	Ship. Wt. Lbs. per 1000 Ft.
*18PS 2	2	3	73	6P 2	3 5/32	50	750
18P 2	2	3	105	16P 3	1 1/2	6	130
16P 2	1 1/32	6	115	14P 3	2 9/32	15	215
14P 2	2 9/32	15	190	12P 3	2 1/2	20	270
12P 2	2	20	215	10P 3	3 1/2	25	360
10P 2	2	25	270	8P 3	2 3/32	35	625
8P 2	2	35	494	6P 3	3 9/32	50	975

Furnished in coils of 250 feet. Prices on application.

\*This size does not bear Underwriters' tags.

## Duracord Single Conductor Cable

This cable is made up in extra flexible stranding, rope lay with code thickness of 30 per cent rubber, and with a heavy woven cover on the outside



which is impregnated with a water-proof, oil-resisting compound. Used as welding cables, mine cable and motor leads.

Size	Stranding	Amp. Cap.	Shipping Wt. Lbs. per 1000 Ft.	Size	Stranding	Amp. Cap.	Shipping Wt. Lbs. per 1000 Ft.
4	133/25	70	222	0	259/24	125	508
3	168/25	80	260	00	259/23	150	640
2	210/25	90	328	0000	259/21	225	977
1	259/25	100	403	.....	.....	.....	.....

Prices on application.

**Whitney Blake Automotive Cables**

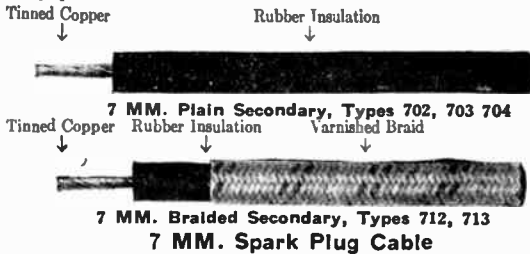
The best quality electrolytic copper, accurately drawn to size and carefully annealed, is used in all conductors.

The rubber used in these wires and cables is of the best grade, carefully compounded with the skill gained by years of experience, assuring a product of long life and serviceability. Easy-stripping characteristics, but firmly holds the fine strands of wire. The varnished cambric tape used is of the best quality obtainable, and has high dielectric strength.

Standard wires are covered with a brown color braid of hard glazed yarn which is varnished or lacquered. The varnish used is a clear insulating varnish evenly applied producing a moisture and oil resisting coating. Blue tracer threads are also woven in the braid. Specification wires will be made with braid of any color desired.

Armored cables are protected with a galvanized steel ribbon armor, half oval in section, which gives maximum flexibility and longest wearing qualities.

Wires calling for a weatherproof finish are first saturated with a compound which thoroughly penetrates the braid. A second coating of a special compound is then applied and highly polished to a uniform texture.



**7 MM. Spark Plug Cable**

**TYPE No. 703 PLAIN.**—For use between plugs and magneto, or distributor, where a very high quality high tension cable is desired. Made in accordance with S.A.E. specifications.

**TYPE No. 713 BRAIDED.**—For use between plugs and magneto, or distributor, where a high quality high tension cable is desired. Made in accordance with S.A.E. specifications.

**TYPE No. 704 PLAIN.**—For same use as type 703. This is a still higher quality high tension cable than type 703 and is made for extremely long life and resistance to Corona deterioration. Conforms to S.A.E. specifications.

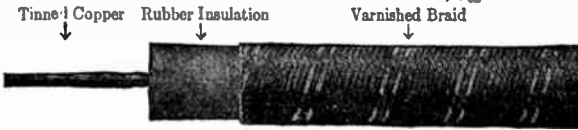
**TYPE No. 702 PLAIN** } For use between plugs and magneto, or distributor.

**TYPE No. 712 BRAIDED** }

**TYPE No. 714 SECONDARY CABLE** is a new type added recently—Dimensions are given in the following table. This cable is designed for extremely long life and will practically indefinitely withstand the so-called "Corona Tests" which cause plain high tension cables to fail in a short time. The rubber is protected by a specially finished flexible black enameled fine cotton braid from oil, gasoline and moisture. Full details and samples will be furnished upon application to the factory.

**3/32-Inch Spark Plug or Secondary Cable**

**TYPE No. 611 BRAIDED.**—For use between plugs and magneto, or distributor, when a cable of good quality but smaller diameter is desired. Nominal overall diameter, 3/32 inch.



**9 MM. Braided Secondary, Type 912 Secondary or High Tension Cable**

**9 MM. Spark Plug Cable**

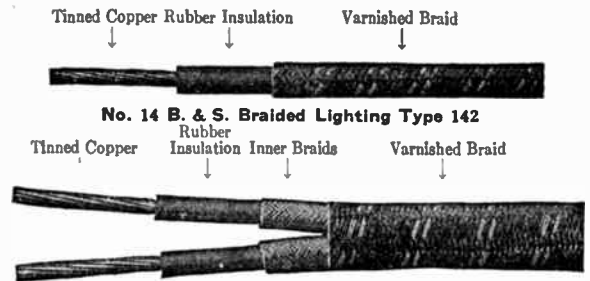
**TYPE No. 902 PLAIN** } For use with high voltage magneto or coils.

**TYPE No. 912 BRAIDED** }

Type No.	Size B.&S. Gauge ductors	No. of Co-ductors	Standard Construction Stranding	Construction Diameter Over Rubber	No. of Braids	Approx. Max. Diam. Over All 1000 Ft.	Approx. Wt. Lbs. per 1000 Ft.
902	14	1	19 No. 27's	9 mm.	None	3/8 in.	82
703**	14	1	19 No. 27's	7 mm.	None	9/32 in.	52
702	16	1	19 No. 29's	7 mm.	None	9/32 in.	49
912	14	1	19 No. 27's	9 mm.	1	13/32 in.	95
713**	14	1	19 No. 27's	*7 mm.	1	9/32 in.	53
714**	14	1	19 No. 27's	.....	1	7 mm.	45
712	16	1	19 No. 29's	7 mm.	1	5/16 in.	57
611	16	1	19 No. 29's	†3/32 ins.	1	19/64 in.	49
704**	Spec.	1	12 No. 26's	7 mm.	None.	9/32 in.	50

\*Over all. †Wall rubber. \*\*S.A.E. standard.

**Whitney Blake Automotive Wires and Cables**



**No. 14 B. & S. Duplex Lighting Type 142-D Primary Cable**

The rubber insulated lighting cables all have an insulation of high grade rubber compound, 1/32 inch thick. They are covered with a close braid of hard glazed cotton yarn varnished or lacquered, are flexible and will withstand a great amount of wear.

**Single Lighting or Primary Cable**

**TYPE No. 102.**—For use as a low voltage generator cable, where amperage carried is high. Suitable for bus lighting.

**TYPE No. 122.**—For use as a low voltage wire for very large headlights or main lighting and ignition currents lead from battery or generator. Suitable for lighting circuits on small buses or large ones using 12 or 32 volt systems.

**TYPE No. 142.**—For general primary or lighting use, battery to coil, headlights, interior body wiring, etc.

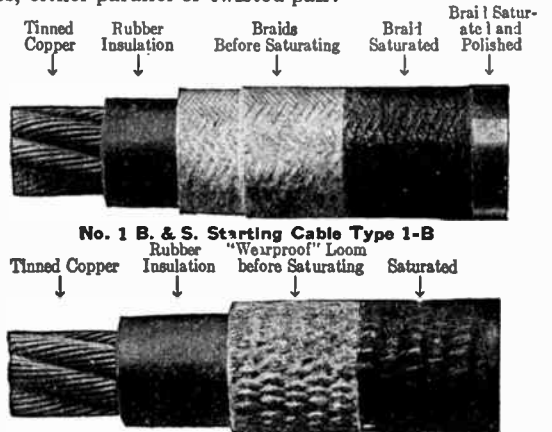
**TYPE No. 162.**—General utility lighting or primary wire, sufficiently heavy for majority of low voltage circuits.

**Primary or Lighting Cable**

Type No.	Size No. of B.&S. Con-gauge ductors	Stranding	Thickness Insulation Wall Rubber	No. of Braids	Approx. Max. Diam. per Over All 1000 Ft.	Approx. Wt. Lbs. per 1000 Ft.
102	10	1	19 No. 23's	1/32 In.	1	7/32 In. 48
122	12	1	19 No. 25's	1/32 In.	1	13/64 In. 33
142	14	1	19 No. 27's	1/32 In.	1	3/16 In. 24
162	16	1	19 No. 29's	1/32 In.	1	11/64 In. 18
182	18	1	16 No. 30's	1/32 In.	1	9/64 In. 14
202	20	1	7 No. 28's	1/32 In.	1	9/64 In. 12
1402	14	1	19 No. 27's	*5 mm.	None	13/64 In. 34
142BB	14	1	19 No. 27's	1/32 In.	2	13/64 In. 29

\*Diameter over rubber.

The above lighting cables are also made in two conductor styles, either parallel or twisted pair.



**No. 1 B. & S. Starting Cable Type 1-W**

**Starting Cable**

Type No.	Size No. of B. & S. Con-gauge ductors	Stranding	Thickness Insulation Wall Rubber	No. of Braids	Approx. Max. Diam. per Over All 1000 Ft.	Approx. Wt. Lbs. per 1000 Ft.
1-B	1	1	133 No. 22's	3/64 In.	2	5/8 375
1-W	1	1	133 No. 22's	3/64 In.	Loom	21/32 335
10-B	1	1	133 No. 22's	1/16 In.	None	1/2 353
11-S	1	1	133 No. 22's	3/64 In.	1	35/64 354
20-B	2	1	133 No. 23's	1/16 In.	None	13/32 208
21-S	2	1	133 No. 23's	3/64 In.	1	1/2 294
40-B	4	1	49 No. 21's	1/16 In.	None	25/64 182
41-S	4	1	49 No. 21's	3/64 In.	1	27/64 182

Starting cables are insulated with acid proof rubber. Prices upon application.



## Grico Flexible Cords



Lamp Cord—Type C. Single or Twisted Pair with Cotton or Silk Braid Over Each Conductor



Parallel Cord—Type PO. Has Cotton Braid Over Each of Two Conductors Laid Parallel Under Cotton or Silk Outer Braid

The conductors of our regular cords are composed of a number of 30 B. & S. bare annealed copper strands, grouped into a cable of the required capacity, as follows: No. 8 B. & S., 165 strands; No. 10 B. & S., 104 strands; No. 12 B. & S., 65 strands; No. 14 B. & S., 41 strands; No. 16 B. & S., 26 strands; No. 18 B. & S., 16 strands; No. 20 B. & S., 10 strands; No. 22 B. & S., 7 strands. Sizes smaller than No. 18 are not approved by the Underwriters.

NEW CODE INSULATION.—(Approved by Underwriters) require  $\frac{1}{32}$ -inch wall on number 16 and number 18 B. & S.;  $\frac{3}{64}$ -inch wall on number 14 and larger;  $\frac{1}{64}$ -inch wall of rubber now approved by Underwriters for use on Types P, PO and PWP for 18 B. & S. Gauge only.

COMMERCIAL INSULATION.—(Not Approved by Underwriters) requires  $\frac{1}{64}$ -inch wall of rubber of a grade but slightly lower in quality than New Code Rubber. We can also furnish  $\frac{1}{64}$ -inch wall of New Code Insulation.

### Seven Points to Cover When Ordering Graybar Flexible Cords

Amount Feet	Size B. & S. Gauge	Insulation	Conductors	Style	Finish	Color
		†New Code Old Code Commercial $\frac{1}{64}$ In. New Code	Single Twisted Pair Three Conductor	Lamp Cord Parallel Cord Reinforced Cord Special Cords	Cotton Rayon Weatherproof	Use Standard Colors as per Color Card
Examples	1000	New Code	Twisted Pair	Lamp Cord	Cotton	Green & Yellow
	500	Old Code	Single	Lamp Cord	Rayon	Black
	1000	Commercial		Parallel Cord	Rayon	Green
	500	$\frac{1}{64}$ In. New Code	3 Cond.	Lamp Cord	Rayon	Blue
	750	New Code		Reinforced Cord	Cotton	Black
	500	New Code		Brewery Cord	Cotton	Weatherproof

Two conductor is always understood (unless otherwise specified) for parallel and reinforced cords. †Weatherproof finish is always black and need not be specified. ‡Orders not specifying the insulation required,  $\frac{1}{32}$  new code will be furnished.

### List of Standard Colors

Cotton		Rayon		Mercerized	
White	Red	White	Old Brass	White	Old Gold
Yellow	Blue	Yellow	Rose	Green	Old Brass
Green	Olive Green	Green	Brown	Blue	Tiffany Green
Black	Old Brass	Black	Tiffany Green	Olive Green	Bronze
Dark Brown	Gray	Red	Olive		
Med. Brown	Oak	Blue	Maroon		
Light Brown	Maroon	Old Gold	Gray		

### Table of Weights (Lbs.) per 1000 Feet

Size	Insulation	LAMP CORDS		PARALLEL CORDS		REINFORCED CORDS		Wp
		Cotton	Silk	Cotton	Silk	Cotton	Silk	
12 B. & S.	$\frac{3}{64}$ In. Wall	80	76	82	79	161.23		192
	$\frac{1}{64}$ In. Wall	56	48	55	47			
14 B. & S.	$\frac{3}{64}$ In. Wall	60	56	60	57	121		138
	$\frac{1}{64}$ In. Wall	38.5	36.5	40	38			
16 B. & S.	$\frac{3}{32}$ In. Wall	37	34	38	36	72	67.5	79
	$\frac{1}{64}$ In. Wall	26	24	27	25	52	49	66
18 B. & S.	$\frac{1}{32}$ In. Wall	27	25	29	27	64	60	71
	$\frac{1}{64}$ In. Wall	19	17	20	18	40	37	45
20 B. & S.	$\frac{1}{32}$ In. Wall	22	19	23	21			
	$\frac{1}{64}$ In. Wall	13.5	12	14.5	13			
22 B. & S.	$\frac{1}{32}$ In. Wall	18	16	19	17			
	$\frac{1}{64}$ In. Wall	10.5	9	11	10			

NOTE.—1909 Code Cords, weight the same as New Code. Commercial Cords, weight the same as  $\frac{1}{64}$ -inch wall. The above weights are all based on two conductor cords

### General Construction of Special Flexible Cords

Trade Name	Code Type Letter	Use	CONDUCTOR		Reinforcement and Filler	OUTER COVER			Color
			Braid	No. of Conductors Used		No. of Cotton Braids	Saturated with Weatherproof Compound and Polished	Dry Braid of Hard Finished Cotton	
Brewery Cord	CB	Breweries and other	Cotton Wp.	Two			Yes		Black
Canvasite Cord	CC	Damp Places	Cotton Wp.	Two		One	Yes		Black
Stage Cable	T	Theatre Stages	Cotton Wp.	Two	Jute Filler	Two	Yes		Black
Packing House Cord	PkWp	Packing Houses	Cotton	Two	Jute Filler	Two	Yes		Black
Deck Cable	PWp	Boats and General Marine Use	Cotton	Two	Rubber Jacket and Jute Filler	One	Yes		Black
Border Light Cable	B	Theatre Borders	Cotton Wp.	Two or More		Two	Yes		Black
Heater Cord	H	Heating Devices	Asbestos	Two		One		Yes	Black
Vacuum Cleaner Cord	P- $\frac{1}{64}$ in Wall Rubber	Vacuum Cleaners	Cotton Yellow	Two	Rubber Jacket	One		Yes	Black

\*Wp. saturated with a weatherproof compound. †Braids saturated with a flameproof compound. When ordering please use the trade name.



## Grigo Special Flexible Stage Cable and Packing House Cord



Constructed to withstand severe abrasion. Conductors are reinforced with jute and rubber jacket. The cord is then covered with an outer weatherproof braid.

## Grigo Special Flexible Deck Cable



Watertight flexible cord, made to stand severe abrasion. Made as follows: Two conductors of new code cotton braided cord, twisted together, reinforced by jute, and a rubber jacket. It is then covered with a weatherproof braid.

## Grigo Special Flexible Border Light Cable



The construction of border light cables corresponds with canvasite cord, but consists of 2 or more conductors and has 2 outer braids weatherproofed.

## Grigo Special Flexible Heater Cord



Conductor consists of a number of small copper strands grouped into a cable, cotton wrapped, insulated with a thin wall of rubber compound asbestos wound.

## Grigo Special Flexible Canvasite Cord



An acidproof flexible cord, unusually tough and durable. For use in tanneries and other places where mechanical and chemical conditions are severe. Made up similar to Brewery Cord except that it has an extra weatherproof braid.

## Grigo Special Flexible Brewery Cord



A weatherproof lamp cord which conforms in all respects with the requirements of The National Board of Fire Underwriters. This is a specially designed cord for use in breweries and other places where dampness is prevalent.

## Whitney Blake Inside Telephone Wire



Packed in coils in burlap bags. Furnished in single, twisted pair or triple conductors. A tracer thread is used in all conductors.

Gauge B.&S.	Description	Wt., per 1000 Ft.	Coil Lengths, Ft.
19	Twisted Pair, Olive Green Finished...	20	200-1500
20	Twisted Pair, Olive Green Finished...	19	200-1500

## Whitney Blake Outside Telephone Wire



Furnished in coils. Single and triple conductor, when specified.

Gauge B.&S.	Description	Wt., per 1000 Ft.	Coil Lengths, Ft.
17	Weatherproof, Copperweld Wire.....	33	200-1500
14	Weatherproof, Copper Wire.....	60	200-1500
17	Weatherproof, Twisted Pair, Bronze Wire	33	200-1500
17	Weatherproof, Parallel Bronze Wire.....	33	200-1500

## Whitney Blake Bridle Telephone Wire

Furnished in coils. Single conductors, when specified.

Gauge B.&S.	Description	Wt., per 1000 Ft.	Coil Lengths, Ft.
18	Twisted Pair, Weatherproof Braid....	33	200-1500
16	Twisted Pair, Weatherproof Braid....	42	200-1500

## Whitney Blake Outside Drop Wire

Stronger and lighter than copper and quite as flexible. Conductor is a high grade non-rusting steel insulated with good grade rubber compound, cotton braided and weatherproofed. The sizes most generally used are as follows:

Gauge	Description
19 BWG (18 B. & S.)	3/4 Inch Diam.; Twisted Pair
18 BWG (16 B. & S.)	5/8 or 3/2 Inch Diam.; Twisted Pair
16 BWG (14 B. & S.)	1/2 Inch Diam.; Twisted Pair
14 BWG (12 B. & S.)	3/4 Inch Diam.; Twisted Pair

## Whitney Blake Flameproof Telephone Wire



Gauge B. & S.	Description	Wt., per 1000 Ft.	Coil Lengths, Ft.
16	Single, Twisted or Triple Conductor...	38	200-1500
20	Single, Twisted or Triple Conductor...	17	200-1500
22	Single, Twisted or Triple Conductor...	13	200-1500
18	Single Ground or Sub-station Wire....	13	200-1500

## Whitney Blake Pot Head Wire



Standard wire is either 19, 20 or 22 B. & S. gauge in single or twisted conductor. Insulation is suitable to withstand effects of the hot sealing compound and outside exposure without a protecting braid. One conductor of the twisted pair has a double ridge on insulation insuring quality. Weight, per 1000 ft., 19 lbs. Coil length, 200-1500 ft.

## Armco Galvanized Iron Drop Wire

For Outside Service

Stronger and lighter than copper and quite as flexible. Manufactured from Armco (American Ingot) Iron, universally known to be the only pure iron manufactured today. It is guaranteed 99.84 per cent pure iron (minimum), is equal or superior to the genuine Swedish, Norway and other brands of pure irons. The purity of iron has a great deal to do with its rust-resisting power. Its uniformity assures uniform conductivity, no pitting to cause weak spots and eventually breaks, uniform strength throughout, 65,000 to 75,000 pounds tensile strength per square inch; mass conductivity 18 per cent as compared to steel at 12 per cent. The conductor is thoroughly galvanized, insulated with a high-grade rubber compound on which is woven a braid, weatherproof and twisted together. The sizes most generally used are as follows: Gauge No. 14 BWG, No. 16 BWG, No. 18 BWG and No. 19 BWG.

Prices upon application.

## Telegraph Wire

Wires are furnished in strict accordance with the standard specifications of the largest telegraph companies of this country. They are a high-class product and furnished in all sizes as required. The sizes ordinarily specified are Nos. 14, 16, 18 single and twisted, with a weatherproof braid, and No. 18 in twisted pair and triple, with gray braid, with tracer in one conductor. Flameproof wires in size No. 16 single and twisted are also used by the telegraph companies.

**Deltabeston Fixture Wire—Plain  
Single Conductor—Stranded**



The flexible conductor is insulated with a 1/2-inch wall of asbestos fiber, purified by a special process. Felted asbestos fixture wire is recommended for all classes of fixture wiring, etc., and is especially adapted for fixtures in which the temperature liable to be attained by some parts are such as to render the use of rubber covered wires or cords either undesirable or impracticable. It can be "fished" through fixtures with the utmost ease. Standard length, 250 feet. Furnished on spools.

Size B. & S.	Diam. Over All In.	Stranding B. & S.	Wt., Lbs. per 1000 Ft.
10	0.180	65/28	42
12	0.157	66/30	29
14	0.137	41/30	20
16	0.119	26/30	14
18	0.107	16/30	10

**Colored Finish, Plain**

Single conductor fixture wire, plain, similar to that described above, can be finished with gray, cream, old brass or bronze colored filling compound at an increase in price.

**Single Conductor—Solid**

Either the black finish or colored finish fixture wire described above can be furnished with solid conductor where extreme flexibility is not necessary.

**Deltabeston Fixture Wire  
Cotton and Art Silk**

This is the plain, black finish fixture wire with a braided outer covering of art silk or cotton. It is especially adapted for fixtures on which the wiring is exposed to view. It has a small diameter and is neat and attractive in appearance. This wire is furnished in single and two conductors.

**Single Conductor  
Plain with Braid**



Size B. & S.	Diam. Overall In.	Standard Length of Spools, Ft.	Wt., Lbs. per 1000 Ft.
12	0.179	250	29
14	0.167	250	22
16	0.149	250	16
18	0.137	250	12

**Duplex**

Two Plain Conductors Twisted Together and Braided

Size B. & S.	Diam. Overall In.	Standard Length of Spools, Ft.	Wt., Lbs. per 1000 Ft.
12	0.333	250	59
14	0.294	250	44
16	0.258	250	32
18	0.234	250	23

**Parallel**

Two Plain Conductors Laid Flat and Braided Together



**Twisted Pair**

Two Plain Conductors Each Braided and Twisted Together

Size B. & S.	Diam. Overall In.	Standard Length of Spools, Ft.	Wt., Lbs. per 1000 Ft.
12	0.358	250	60
14	0.324	250	45
16	0.288	250	33
18	0.264	250	25

**Deltabeston Boiler Room Wire**



This wire is generally furnished in sizes 8, 10, 12 and 14 B. & S. with 1/4-inch felted asbestos insulation, lead covered, to prevent absorption of moisture. Prices quoted on application.

**Deltabeston Heater Cord  
2-Conductor, Stranded  
Style A, Asbestos Braid Overall**



For service where rubber is not necessary, felted asbestos heater cord is satisfactory. Each conductor is composed of 30 B.&S. gauge copper wires stranded together and insulated with a 1/2 inch wall of pure asbestos fiber. This is filled with a compound which gives it high dielectric strength and provides a tough, pliable insulation.

Style A is a fire-proof cord. The twisted conductors are covered with an asbestos braid.

The felted asbestos insulation does not deteriorate with age. The insulation so cements the wires that, even should some of them break, the fine strands will not penetrate the outer covering and cause short circuits.

Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.	Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.
12	.399	66/30	87	16	.323	26/30	52
14	.359	41/30	67	18	.299	16/30	41

**2-Conductor, Braided**

The braided conductor is made by braiding 34 B.&S. gauge copper wires instead of stranding 30 B.&S. wires.

**Style C, Glazed Cotton Braid Overall**

Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.	Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.
14	.294	107/34	44	17	.264	52/34	27
16	.258	66/34	32	18	.234	41/34	23

**Style D, Glazed Cotton Braid on Each Conductor**

Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.	Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.
14	.324	107/34	45	17	.276	52/34	28
16	.288	66/34	33	18	.264	41/34	24

**Style E, Glazed Cotton Braid on Each Conductor and Glazed Cotton Braid Overall**

Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.	Size B.&S.	Diameter Over All Inches	Strand-ing B.&S.	Wt. Lbs. per 1000 Ft.
14	.352	107/34	49	17	.306	52/34	30
16	.312	66/34	35	18	.282	41/34	26

**Deltabeston Moving Picture Machine Cable  
Standard  
Stranded Conductor**



Size B.&S.	Stranding B.&S.	Diam. Overall Inches	Standard Length	Wt., Lbs. per 1000 Ft.
00	133-20	0.690	250-Ft. Reels	562
9	133-21	0.635	250-Ft. Reels	459
1	133-22	0.590	500-Ft. Reels	377
2	133-23	0.515	500-Ft. Reels	296
4	84-23	0.455	500-Ft. Reels	204
6	84-25	0.395	250-Ft. Coils	142
8	52-25	0.310	250-Ft. Coils	90
10	65-28	0.270	500-Ft. Coils	64
12	66-30	0.250	500-Ft. Coils	49
14	41-30	0.230	500-Ft. Coils	38

**Moving Picture Machine Cable—Special  
Extra Flexible Stranded Conductor**

Where extreme flexibility is desired cable similar to the standard described above but having an extra flexible conductor is recommended.

Size B. & S.	Stranding B. & S.	Diam. Overall Inches	Standard Length	Wt., Lbs. per 1000 Ft.
2	2695-36	0.515	250-Ft. Reels	296
4	1715-36	0.455	250-Ft. Reels	204
6	1078-36	0.395	250-Ft. Coils	142
8	.....	0.310	5000-Ft. Coils	90
10	.....	0.270	5000-Ft. Coils	64

Prices upon application.

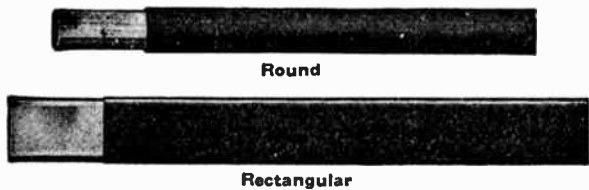
**Deltabeston Switchboard Wire**



Size B. & S.	Diameter Over All Inches	Wt., Lbs. per 1000 Ft.	Size B. & S.	Diameter Over All Inches	Wt., Lbs. per 1000 Ft.
6	.322	113	12	.221	38
8	.268	75	14	.204	29
10	.242	52	16	.191	22
			18	.180	18

Prices upon application.

## Deltabeston Round and Rectangular Magnet Wire



In the manufacture of felted asbestos insulated magnet wire, soft drawn copper of at least 98 per cent conductivity is used.

The insulation is asbestos fiber treated by a special process which removes all impurities. The asbestos is applied in an adhesive, uniform, smooth mass of approximately the same wall thickness as double cotton covered magnet wire. It is finally treated with a special compound which renders it both moistureproof and tough. Notwithstanding its toughness, the insulation is so flexible that it does not crack or break even when sharp bends are made. The standard color of finish is black, but white finish can be supplied, at the same price.

The desirability of rectangular sections is evident, because a greater cross section of copper is secured. Since felted asbestos magnet wire is now procurable in nearly all sizes and shapes, the advantages of flat or square wires may be had together with the benefits derived from a fireproof insulation.

The satisfactory application of an asbestos covering on flat and square magnet wires presents certain difficulties not encountered in the insulating of round wires. To apply a smooth, uniform covering over the rounded corners as well as on the flat surfaces of the wire is obviously essential. This is accomplished with absolute certainty.

Insulation thickness is approximately equal to that of double cotton covered magnet wire.

Standard full spool for rectangular magnet wire, any size 200 pounds.

Size B. & S.	DIAMETER, INCHES		Length Feet per Lb.	Ship. Wt., Lbs. per Reel
	Bare Wire	Over Insulation (Approx.)		
3/0	.4100	.429	1.950	200
2/0	.3650	.384	2.446	200
0	.3249	.339	3.075	200
1	.2893	.303	3.871	200
2	.2576	.272	4.864	200
3	.2294	.242	6.124	200
4	.2043	.216	7.716	200
5	.1819	.194	9.690	200
6	.1620	.174	12.18	200
7	.1443	.156	15.31	150
8	.1285	.140	19.32	150
9	.1144	.126	24.25	150
10	.1019	.112	30.37	150
11	.0907	.101	38.33	150
12	.0808	.091	48.05	150
13	.0720	.082	60.83	150
14	.0641	.074	76.28	150
15	.0571	.067	95.51	150
16	.0508	.059	119.3	125
17	.0453	.053	149.6	125
18	.0403	.048	186.7	50
19	.0359	.044	231.9	50
20	.0320	.040	288.6	50

### Round Magnet Wire

Size B. & S.	Full Spool Pounds	150 to 199 Lbs.	50 to 149 Lbs.	20 to 49 Lbs.	5 to 19 Lbs.	4 lbs. and Less
3/0 to 6	200	2	4	8	20	40
7 to 15	150	...	4	6	16	40
16 to 20	50	...	...	4	12	40
21 to 25	20	...	...	...	8	40

### Rectangular Magnet Wire

Size Nils Thick	Full Spool Pounds	100 to 199 Lbs.	50 to 99 Lbs.	25 to 49 Lbs.	24 Lbs. and Less
60 to 300	200	3	6	12	25
20 to 50	100	...	3	6	25

Prices upon application.

## Round Magnet Wire

Size B. & S. Wire No.	Diam. In.	Single Cotton Covered		Double Cotton Covered		
		Thickness of Ins. In.	D'am. Over All In.	Thickness of Ins. In.	Diam. Over All In.	
1	.2893	.009	.2983	3.91	.018 .3073	3.88
2	.2576	.009	.2666	4.94	.018 .2756	4.9
3	.2294	.009	.2384	6.23	.018 .2474	6.17
4	.2043	.009	.2133	7.84	.018 .2223	7.81
5	.1819	.009	.1909	9.88	.014 .1959	9.84
6	.1620	.009	.1700	12.44	.014 .1760	12.37
7	.1443	.009	.1523	15.66	.014 .1583	15.58
8	.1285	.009	.1375	19.71	.014 .1425	19.6
9	.1144	.006	.1204	24.81	.012 .1264	24.71
10	.1019	.006	.1079	31.21	.012 .1119	31.07
11	.0907	.006	.0967	39.5	.010 .1007	39.12
12	.0808	.005	.0858	49.83	.010 .0908	49.12
13	.0720	.005	.0770	62.71	.009 .0820	62.00
14	.0641	.005	.0691	78.79	.009 .0731	77.86
15	.0571	.005	.0621	99.27	.009 .0661	97.80
16	.0508	.005	.0558	125.09	.009 .0598	122.91
17	.0452	.005	.0502	157.59	.009 .0542	154.04
18	.0403	.005	.0453	198.31	.009 .0493	193.64
19	.0359	.005	.0409	249.19	.009 .0449	233.16
20	.032	.005	.0370	313.	.009 .0410	303.
21	.0285	.005	.0335	394.	.009 .0375	379.
22	.0253	.0045	.0298	493.	.009 .0343	471.
23	.0226	.0045	.0271	618.	.009 .0316	584.
24	.0201	.0045	.0246	773.	.009 .0291	726.
25	.0179	.00425	.02215	982.	.0085 .0264	932.
26	.0159	.00425	.02015	1228.	.0085 .0244	1149.
27	.0142	.00425	.01845	1533.	.0085 .0227	1419.
28	.0126	.00425	.01685	1907.	.0085 .0211	1739.
29	.0113	.00425	.01555	2365.	.0085 .0198	2130.
30	.01002	.00425	.01427	2945.	.0085 .01852	2606.
31	.00892	.00425	.01317	3680.	.0085 .01742	3233.
32	.00795	.00425	.01220	4542.	.0085 .01645	3894.
33	.00708	.00425	.01133	5569.	.0085 .01558	4666.
34	.0063	.00425	.01055	6000.	.0085 .01480	5477.
35	.00561	.00425	.00986	8331.	.0085 .01411	6602.
36	.005	.00425	.00925	9960.	.0085 .0135	7556.
37	.00445	.00425	.00870	10884.	.0085 .01295	8462.
38	.00396	.00425	.00821	13536.	.0085 .01246	9860.
39	.00353	.00425	.00778	16174.	.0085 .01203	12052.
40	.00314	.00425	.00739	19900.	.0085 .01164	14334.

### Single Silk Covered

### Double Silk Covered

Size B. & S.	Diam. In.	Thickness of Ins. In.	D'am. Over All In.	Ft. per Lb.	Thickness of Ins. In.	Diam. Over All In.	Ft. per Lb.
16	.0508	.002	.0528	127	.0035	.0543	126
17	.0452	.002	.0472	160	.0035	.0487	159
18	.0403	.002	.0423	201	.0035	.0438	199
19	.0359	.002	.0379	253	.0035	.0394	250
20	.032	.002	.034	319	.0035	.0355	314
21	.0285	.002	.0305	402	.0035	.032	396
22	.0253	.002	.0273	506	.0035	.0288	498
23	.0226	.002	.0246	637	.0035	.0261	626
24	.0201	.002	.0221	802	.0035	.0236	787
25	.0179	.002	.0199	1009	.0035	.0214	990
26	.0159	.002	.0179	1268	.0035	.0198	1242
27	.0142	.002	.0162	1595	.0035	.0177	1560
28	.0126	.002	.0146	2004	.0035	.0161	1946
29	.0113	.002	.0133	2516	.0035	.0148	2431
30	.01002	.002	.01202	3145	.0035	.01352	3030
31	.00892	.002	.01092	3930	.0035	.01242	3763
32	.00795	.002	.00995	4923	.0035	.01145	4662
33	.00708	.002	.00908	6156	.0035	.01058	5800
34	.0063	.002	.0083	7671	.0035	.0098	7064
35	.00561	.002	.00761	9547	.0035	.00911	8666
36	.005	.002	.007	11836	.0035	.0085	10832
37	.00445	.002	.00645	13396	.0035	.00795	12149
38	.00396	.002	.00596	16656	.0035	.00746	14776
39	.00353	.002	.00553	20678	.0035	.00703	18369
40	.00314	.002	.00514	25628	.0035	.00664	22052

## Magnet Wire Reels and Spools

Size B. & S. No.	Kind of Cover	Reel No.	Diam. in.	Lbs. per Reel	Size B. & S. Nos.	Kind of Cover	Reel No.	Diam. In.	Lbs. per Reel
*1	.....	1	28	200	27-31	Cotton	15	5	2-5
1-14	.....	2	23	200	27-31	Silk	15	5	4-8
15-18	.....	11	13	50	32-36	Cotton	16	4	1-2 1/2
19-21	.....	13	9	25	32-36	Silk	16	4	1-5
22-26	Cotton	14	6	7-10	36-40	Cotton	17	3	1-2
21-26	Silk	14	6	8-12	37-40	Silk	17	3	1-2

\*No. 1 and larger.

Square and Rectangular Magnet Wire

Increasing attention is being given to the economies to be secured by the substitution of Square or Rectangular for round magnet wire. When round wire is used, considerable space is wasted, even when turns are fitted together as closely as possible, whereas the waste spaces are filled when square or rectangular wire is used, and a greater current carrying capacity secured.

Square Magnet Wire

Square magnet wire can be furnished in all sizes from number 14 to 0000 B. & S. gauge. (In computing the gauge the diameter of round wire is comparable to the thickness of square wire.) Sizes smaller than No. 14 cannot be regularly procured owing to the difficulty of winding.

Rectangular Magnet Wire



Rectangular magnet wire sizes have not, as yet, been standardized but can be supplied in sizes from .410 to .020 in thickness and from .460 to .064 in width and the regular insulation is double cotton wound. Rectangular wire is not carried in stock, but made specially on order, and in view of this, orders should not be for less than 200 pounds of any size.

Prices on square and rectangular magnet wire will be quoted upon application.

Enameled Magnet Wire

Sizes B. & S. Gauge	Diameter of Bare Wire Inches	Increase Thickness of Enamel Insulation Inches	Diameter of Enamel Wire	Ohms per Pound	Weight per 1000 Feet Lbs.	Ohms per Cubic Inch	Turns per Square Inch
8	.12850	.0021	.1306	.012	50.55	.003	57
9	.11440	.0021	.1165	.020	40.15	.005	72
10	.10190	.0021	.1040	.031	31.80	.007	90
11	.09074	.0020	.0927	.050	25.25	.011	113
12	.08081	.0020	.0828	.079	20.05	.019	141
13	.07196	.0020	.0740	.125	15.90	.029	177
14	.06408	.0020	.0661	.200	12.60	.046	221
15	.05707	.0020	.0591	.318	10.00	.073	277
16	.05082	.0020	.0528	.505	7.930	.116	348
17	.04526	.0018	.0470	.805	6.275	.184	437
18	.04030	.0018	.0421	1.278	4.980	.291	548
19	.03589	.0018	.0377	2.032	3.955	.456	681
20	.03196	.0018	.0337	3.239	3.135	.720	852
21	.02846	.0017	.0302	5.138	2.490	1.134	1065
22	.02535	.0016	.0269	8.186	1.970	1.800	1340
23	.02257	.0015	.0241	12.97	1.565	2.820	1665
24	.02010	.0014	.0215	20.60	1.245	4.488	2100
25	.01790	.0013	.0192	32.70	.988	7.080	2630
26	.01594	.0012	.0171	51.95	.784	11.27	3320
27	.01420	.0011	.0153	82.55	.622	17.75	4145
28	.01264	.0010	.0136	131.2	.494	28.33	5250
29	.01126	.0009	.0122	208.7	.391	44.32	6510
30	.01003	.0008	.0109	331.5	.310	70.15	8175
31	.00893	.0008	.0097	526.5	.246	110.4	10200
32	.00795	.0007	.0087	836.5	.196	172.6	12650
33	.00708	.0007	.0077	1332.	.155	279.0	16200
34	.00630	.0006	.0069	2118.	.123	433.2	19950
35	.00561	.0006	.0062	3352.	.098	684.5	25000
36	.00500	.0005	.0055	5340.	.078	1094.	21700
37	.00445	.0005	.0049	8480.	.062	1823.	39600
38	.00396	.0004	.0044	13490.	.049	2693.	49100
39	.00353	.0004	.0039	21450.	.039	4332.	65600
40	.00314	.0004	.0035	34100.	.031	6770.	77600

Prices on application.

O.K. Weather-Proof Triple Braided Wire

Solid



This wire is insulated with 3 close cotton braids, all thoroughly saturated with O.K. Weather-proof Compound. The outer braid is smoothly polished.

Size B. & S.	Underwriters' Approved Carrying Capacity Amperes	Appr. Wt., Lbs.		Approx. Diam. In. Over Insul.	Put up for Shipment		
		Per 1000 Ft.	Per Mile		Reels Diam. In.	Approx. Length Ft.	Approx. Weight Lbs.
0000	325	767	4050	25/32	45	2500	1920
000	275	629	3320	47/64	40	3000	1890
00	225	502	2650	39/64	40	3500	1760
0	200	407	2150	9/16	40	4000	1630
1	150	316	1670	1/2	28	800	250
2	125	260	1370	15/32	28	1000	260
3	100	199	1050	27/64	28	1250	250
4	90	164	865	15/64	28	1600	260
5	80	135	710	11/32	28	2000	270
6	70	112	590	5/16	28	2500	280
8	50	75	395	17/64	28	4000	300
10	30	53	280	1/4	28	6400	340

Sizes 1, 2, 3 and 4 also put up in coils of approximately 130 pounds. Sizes 5 and 6, 140 pounds. Sizes 8 and 10, 160 pounds.

Size B. & S.	Underwriters' Approved Carrying Capacity Amperes	Appr. Wt., Lbs.		Approx. Diam. In. Over Insul.	Put up in	
		Per 1000 Ft.	Per Mile		Bundles of 100 Lbs. No. Coils	Wt. Lbs.
8	50	75	395	17/64	4	25
10	30	53	280	1/4	4	25
12	25	35	185	1/2	4	25
14	20	25	130	3/16	4	25
16	10	14	75	5/32	4	25
18	5	11	58	1/8	4	25

Stranded



Cap. B. & S. Gauge	Underwriters' Approved Carrying Capacity Amperes	Conc. No. of Wires	Str. Diam. of Each	Appr. Wt. Lbs. Per 1000 Ft.	Approx. Diam. In. Over Insul.	Std. Diam. Reels In.	Pkg., Reels	
							Appr. Lth. Feet	Appr. Wt. Lbs.
0000	325	19	.106	800	55/64	45	2500	2000
000	275	12	.118	653	51/64	40	3000	1960
00	225	12	.105	522	43/64	40	3500	1830
0	200	7	.123	424	37/64	40	4000	1700
1	150	7	.109	328	33/64	28	800	260
2	125	7	.097	270	33/64	28	1000	270
3	100	7	.087	206	15/32	28	1200	250
4	90	7	.077	170	7/16	28	1500	255
5	80	7	.069	140	3/8	28	2000	280
6	70	7	.061	115	11/32	28	2500	285
8	50	7	.049	78	9/32	28	3500	275

Feeder Cables

Cap. Circular Mils	Underwriters' Approved Carrying Capacity Amperes	Conc. No. of Wires	Str. Diam. of Each	Appr. Wt. Lbs. per 1000 Ft.	Diam. Over Insul. In.	Std. Diam. Reels In.	Pkg., Reels	
							Appr. Lth. Ft.	Appr. Wt. Lbs.
2000000	...	91	.148	7000	21/32	50	500	3500
1750000	...	91	.139	6200	2	50	600	3720
1500000	...	91	.128	5400	17/8	50	700	3780
1250000	...	91	.117	4500	13/4	50	800	3600
1000000	1000	61	.128	3675	121/32	50	900	3300
900000	920	61	.121	3330	131/64	50	1000	3300
800000	840	61	.115	3000	19/16	50	1000	3000
700000	760	61	.107	2650	115/32	50	1200	3180
600000	680	61	.099	2235	121/64	50	1500	3340
500000	600	37	.116	1900	11/4	50	1800	3120
450000	550	37	.110	1725	13/16	45	1500	2590
400000	500	37	.104	1550	17/64	45	1500	2325
350000	450	27	.114	1345	1	45	1800	2450
300000	400	27	.105	1175	31/32	45	2000	2350
250000	350	19	.115	985	29/32	45	2500	2460

## O.K. Slow-Burning Triple Braided Wire

Solid



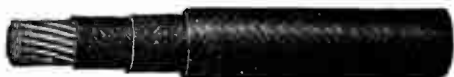
All 3 braids of cotton thoroughly saturated with white fireproof compound. The compound used on the outer braid becomes very hard, but still the wire retains its flexibility. As this insulation does not deteriorate in a continued high temperature, it is especially suitable for engine and boiler rooms, furnaces and foundries.

Size B. & S.	Appr. Wt., Lbs.		Appr. Diam. In. Over Insul.	Put up for Shipment Reels		
	Per 1000 Ft.	Per Mile		Diam. Reels Inches	Approx. Length Feet	Approx. Weight Pounds
0000	925	4890	3/4	45	2500	2310
000	760	4020	45/64	40	3000	2280
00	600	3170	37/64	40	3500	2100
0	495	2610	17/32	40	4000	1980
1	365	1930	15/32	28	800	290
2	320	1690	7/16	28	1000	320
3	270	1425	13/32	28	1250	340
4	220	1160	3/8	28	1600	350
5	190	1000	11/32	28	2000	380
6	160	845	5/16	28	2500	400

Sizes 1, 2, 3 and 4 also put up in coils of approximately 160 pounds. Sizes 5 and 6, 200 pounds.

Size B. & S.	Appr. Wt., Lbs.		Appr. Diam., In. Over Ins.	Put up in Bundles of 100 Lbs.	
	Per 1000 Ft.	Per Mile		No. Coils	Wt. Lbs.
8	100	530	17/64	4	25
10	80	420	1/4	4	25
12	55	290	7/32	4	25
14	40	210	3/16	4	25
16	18	95	5/32	4	25
18	14	75	1/8	4	25

Stranded



Cap. B. & S. Gauge	Conc. No. of Wires	Str. Diam. of Each	Appr. Wt. Lbs. Per 1000 Ft.	Appr. Diam. Over Insul. In.	Std. Pkg., Reels		
					Diam. Reels In.	Appr. Length Feet	Appr. Weight Lbs.
0000	19	.106	960	55/64	45	2500	2400
000	12	.118	785	49/64	40	3000	2355
00	12	.105	625	41/64	40	3500	2190
0	7	.123	510	37/64	40	4000	2040
1	7	.109	380	33/64	28	800	300
2	7	.097	335	31/64	28	1000	335
3	7	.087	280	29/64	28	1200	335
4	7	.077	230	27/64	28	1500	340
5	7	.069	195	3/8	28	2000	390
6	7	.061	165	11/32	28	2500	410
8	7	.049	105	9/32	28	3500	370

## Feeder Cables

Cap. Circular Mils	Conc. No. of Wires	Str. Diam. of Each	Appr. Wt. Lbs. per 1000 Ft.	Diam. Over Insul. In.	Std. Pkg., Reels		
					Diam. Reels In.	Appr. Lgth. Ft.	Appr. Wt. Lbs.
2000000	91	.148	7800	2	50	500	3900
1750000	91	.139	6900	1 7/8	50	600	4140
1500000	91	.128	6000	1 3/4	50	700	4200
1250000	91	.117	5000	1 1/16	50	800	4000
1000000	61	.128	3980	1 39/64	50	900	3580
900000	61	.121	3640	1 9/16	50	1000	3640
800000	61	.115	3280	1 33/64	50	1000	3280
700000	61	.107	2920	1 27/64	50	1200	3500
600000	61	.093	2460	1 33/32	50	1500	3690
500000	37	.116	2080	1 3/64	50	1800	3740
450000	37	.110	1900	1 3/64	45	1500	2850
400000	37	.104	1700	1 3/32	45	1500	2550
350000	27	.114	1500	1 1/32	45	1800	2700
300000	27	.105	1310	15/16	45	2000	2620
250000	19	.115	1120	7/8	45	2500	2800

## O.K. Weatherproof Hard-Drawn Copper Wire

Copper Wire

Triple Braided



These wires are insulated especially for the telephone and telegraph trade and railway signal work, combining the highest conductivity with the greatest tensile strength.

Size B.&S. Gauge	Cap. Circ. Mils	Approx. Wt., Lbs. per Mile	Std. Pkg. Coil
8	16510	395	1/2 Mile
9	13090	325	1/2 Mile
10	10380	280	1/2 Mile
12	6530	185	1/2 Mile
14	1407	139	1/2 Mile

## O.K. Weatherproof Twisted Pairs

For Inside Use Only



One conductor of plain copper, and one of tinned copper. These wires are insulated with two reversed winds of cotton yarn, covered with a close protecting braid, all thoroughly saturated with "O.K." Weatherproof Compound, and finished with a hard and lasting polish. The conductors are then twisted together. These pairs are extensively used in interior telephone work.

Size B.&S. Gauge	Approx. Wt. Lbs. per 1000 Ft.	Std. Pkg., 100 Lbs. Bundles	Weight
14	53	4	25
16	32	4	25
18	23	4	25
19	20	4	25

## Hard-Drawn Bare Copper Wire

These wires are drawn accurately to specification, in either B. & S. or N.B.S. gauge. They are designed especially for telephone, telegraph, and railway signal work.

They are put up in approximately 200-pound coils, and are thoroughly wrapped for shipment.

Size	Diam. in Mils	Cap. Circ. Mils	Weight Pounds per Mile
8B.&S.	128.	16510	264
10B.&S.	102.	10380	166
12B.&S.	81.	6530	104
14B.&S.	64.	4107	66
8N.B.S.	160.	25690	409
10N.B.S.	128.	16384	262
12N.B.S.	104.	10816	173
14N.B.S.	80.	6400	102

## O.K. Weatherproof Iron Wire

Double and Triple Braided



These wires are extensively used in telephone and telegraph work, and have the same insulation as regular "O.K." weatherproof line wires.

Size B. W. Gauge	APPROX. WT., LBS. PER MILE		Std. Pkg. Coils
	Double Braided	Triple Braided	
8	470	520	1/4 Mile
9	400	450	1/3 Mile
10	350	400	1/2 Mile
12	230	260	1/2 Mile
14	150	175	1/2 Mile

Phillips Bare Copper Wire

Phillips Bare Copper Wire

Solid Conductor  
Annealed or Hard-Drawn

Concentric Strands



These wires are drawn accurately to gauge according to specification. They are of the highest conductivity and greatest tensile strength. They are regularly drawn to B.&S. gauge and annealed, and all will be filled accordingly unless otherwise stated.

B. & S. Gauge	Weight Pounds per 1000 Feet	Weight Pounds per Mile	Diam. Inches	Cap. Circ. Mills	Std. Pkg. in Coil Pounds
0000	640.5	3382	.460	211600	200
000	507.9	2682	.410	167800	200
00	402.8	2127	.365	133100	200
0	319.5	1687	.325	105500	200
1	253.3	1337	.289	83690	200
2	200.9	1061	.258	66370	200
3	159.3	841	.229	52640	200
4	126.4	667	.204	41740	200
5	100.2	529	.182	33100	200
6	79.46	420	.162	26250	200
7	63.02	333	.144	20820	200
8	49.98	264	.128	16510	200
9	39.63	209	.114	13090	200
10	31.43	166	.102	10380	200
11	24.92	132	.091	8234	200
12	19.77	104	.081	6530	200
13	15.68	83	.072	5178	200
14	12.43	66	.064	4107	200
15	9.858	52	.057	3257	200
16	7.818	41	.051	2583	100
17	6.200	33	.045	2048	100
18	4.917	26	.040	1624	100
19	3.899	21	.036	1288	50
20	3.092	16	.032	1022	50

Cap. Circ. Mills	Wt. Lbs. per 1000 Feet	Wt. Lbs. per Mile	METHODS OF STRANDING Diam. Mile when Composed of		
			3 Wires	7 Wires	12 Wires
2000000	6175	32604	.....	535	408
1750000	5403	28529	.....	500	382
1500000	4631	24453	.....	463	354
1250000	3859	20378	.....	423	323
1000000	3088	16302	.....	378	289
950000	2933	15487	.....	368	281
900000	2779	14672	.....	359	274
800000	2470	13042	.....	338	258
750000	2316	12227	.....	327	250
700000	2161	11412	.....	316	242
650000	2007	10596	.....	305	233
600000	1853	9781	.....	293	224
550000	1698	8966	.....	280	214
500000	1544	8151	.....	267	204
450000	1389	7336	.....	253	194
400000	1235	6521	.....	239	183
350000	1080	5706	.....	224	171
300000	926	4891	.....	207	158
250000	772	4076	.....	189	144
4/0 B.&S.	653	3450	.....	175	133
3/0 B.&S.	518	2736	.....	155	118
2/0 B.&S.	411	2169	.....	138	105
1/0 B.&S.	326	1720	.....	123	94
1 B.&S.	258	1364	167	109	83
2 B.&S.	205	1082	149	97	75
4 B.&S.	129	681	118	77	59
6 B.&S.	81	428	93.5	61.2	46.8
8 B.&S.	51	269	74.2	48.6	37.0
10 B.&S.	32	169	58.8	38.6	29.4
12 B.&S.	20	107	.....	30.6	23.4
14 B.&S.	13	67	.....	24.2	18.5

Approximate Breaking Weight in Pounds

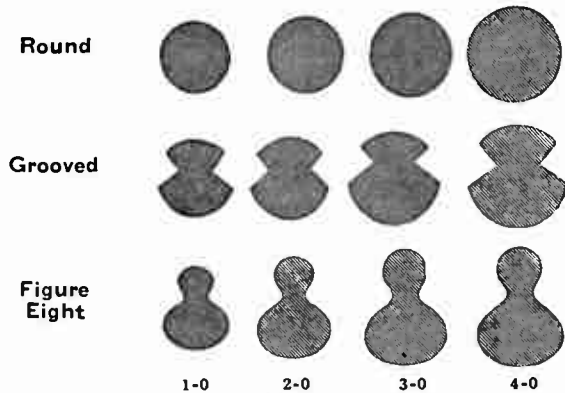
B. & S. Gauge	ANNEALED		HARD-DRAWN	
	Actual Strength	Per Sq. In.	Actual Strength	Per Sq. In.
0000	5983	36000	8143	49000
000	4755	36000	6722	51000
00	3736	36000	5519	52800
0	2984	36000	4517	54500
1	2432	37000	3688	56100
2	1929	37000	3003	57600
3	1530	37000	2439	59000
4	1213	37000	1970	60100
5	962	37000	1591	61200
6	763	37000	1280	62100
7	605	37000	1030	63000
8	480	37000	826	63700
9	380	37000	661	64300
10	314	38500	529	64900
11	249	38500	423	65400
12	197	38500	337	65700
13	157	38500	268	65900
14	124	38500	214	66200
15	98	38500	170	66400
16	78	38500	135	66600
17	62	38500	107	66800
18	49	38500	85	67000
19	39	38500	68	67200
20	31	38500	54	67400

VARIOUS METHODS OF STRANDING  
Diam. in Mills when Composed of

Cap. Circ. Mills	19 Wires	27 Wires	37 Wires	61 Wires	91 Wires
2000000	324	272	232	181	148
1750000	303	254	217	169	139
1500000	281	235	201	157	128
1250000	256	215	184	142	117
1000000	229	192	164	128	105
950000	224	187	160	125	102
900000	218	182	156	121	100
800000	205	172	147	115	94
750000	199	167	143	111	91
700000	192	161	138	107	88
650000	185	155	133	103	84
600000	178	149	127	99	81
550000	170	142	122	95	78
500000	162	136	116	91	74
450000	154	129	110	86	70
400000	145	122	104	81	66
350000	136	114	97	76	62
300000	126	105	90	70	57.4
250000	115	96	82	64	52.4
4/0 B.&S.	106	86	76	58.9	48.2
3/0 B.&S.	94	79	67	52.5	43.0
2/0 B.&S.	84	70	60	46.7	38.3
1/0 B.&S.	75	62.6	53.4	41.6	34.1
1 B.&S.	66	55.6	47.5	37.0	30.3
2 B.&S.	59.2	49.7	42.4	33.0	27.1
4 B.&S.	46.8	39.3	33.5	26.1	21.4
6 B.&S.	37.2	31.2	26.6	20.7	17.0
8 B.&S.	29.4	24.6	21.1	16.4	13.4
10 B.&S.	23.4	19.6	16.8	13.1	10.7
12 B.&S.	18.6	15.6	13.3	10.4	8.5
14 B.&S.	14.7	12.3	10.5	8.2	6.7



## Trolley Wire



### Round Section

Size B. & S.	Diam. Mils.	Wt., Lbs. per 1000 Feet	Wt., Lbs. per Mile	Ohms per 1000 Ft.	Ohms per Mile
0000	460	610.5	3382	.0504	.2663
000	410	507.9	2682	.0636	.3359
00	365	402.8	2127	.0802	.4235
0	325	319.5	1687	.1011	.5340

### Grooved Section

Size B. & S.	Depth Mils.	THICKNESS IN MILS OF		Web
		Upper Lobe	Lower Lobe	
0000	482	376	482	250
000	430	340	429	220
00	392	318	388	200
0	360	246	352	138

### Figure 8 Section

Size B. & S.	Depth Mils.	Upper Lobe	Lower Lobe	Web
0000	600	250	450	150
000	540	222	400	130
00	480	196	352	108
0	420	175	312	106

## Crapo Galvanized Steel Strand Guy Wire

7 Wires Twisted Into a Single Strand



Diameter Inches	Size of Wires	Weight Pounds per 1000 Feet	Standard Single and Double Galvanized		Siemens-Martin Double Galvanized	
			Strength Pounds	Price 100 Ft.	Strength Pounds	Price 100 Ft.
5/8	6	813	11600	\$8.50	19100	\$8.25
1/2	8	517	7400	5.50	12100	5.25
7/16	9 1/2	399	5700	4.50	9350	4.30
3/8	11	296	4250	3.50	6950	3.25
5/16	12	205	3200	2.50	5350	2.50
1/4	14	121	1900	1.75	4250	2.05
3/16	16	72.9	1150	1.25	3150	1.70
5/32	17	51.3	870	1.15	1900	1.35

### High Strength Strand

Diameter Inches	Size of Wires	Weight Pounds per 1000 Feet	Double Galvanized		Extra High Strength Strand Double Galvanized	
			Strength Pounds	Price 100 Ft.	Strength Pounds	Price 100 Ft.
5/8	6	813	29600	\$12.00	42400	\$14.60
1/2	8	517	18800	7.25	26900	8.80
7/16	9 1/2	399	24500	6.00	20800	7.20
3/8	11	296	10800	4.40	15400	5.25
5/16	12	205	8000	3.20	11200	4.25
1/4	14	121	4750	2.25	6650	2.85
3/16	16	72.9	2850	1.80	3990	2.40

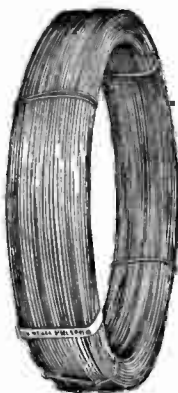
### Special Strength Specification Strand

Approx. Diam. In.	Trade Name	A. T. & W. U. T. Spec. No.	W. U. Spec. No.	Packing Lths. Feet	Wt., Lbs. per 1000 Feet	Ult. Stgth. Lbs.	Price per 100 Ft.	
								3/16
9/32	4000-Lb. Strand	6001	807A	†2500,	500	164	4000	2.05
5/16	6000-Lb. Strand	6001	807A	*500		205	6000	2.50
3/8	10000-Lb. Strand	6001	807A	*500		296	11500	4.40
7/16	16000-Lb. Strand	6001	807A	†1000, 2500 and 5000	400	18000		7.25

\*On coils. †On reels.

Also furnished in 1-mile length or multiples thereof.

## Extra Double Galvanized Telephone and Telegraph Wire



The Indiana Steel & Wire Company's process of galvanizing (Crapo Patents) overcomes the inherent defects in certain grades of galvanized wire, more especially those which approach pure iron. The use of the process results in a perfect mechanical bond between the zinc coating and the iron base metal, thus insuring a protective coating which will not crack or peel even if the wire is bent or twisted abruptly, as when wrapped around its own diameter.

Aside from the introduction of a molten salt treating bath which in no way adversely affects the finished product, the process follows closely the old standard hot-dip method of applying a zinc coating. The molten salt bath is of such composition as to prepare the surface of the iron base metal so that after being made chemically clean, fluxed and dipped in the molten zinc, the resulting galvanizing is thick, non-peeling, and contains the maximum amount of pure zinc which means the best possible protection against corrosion.

Extra Best Best (E. B. B.) is highest in electrical conductivity, having a range of electrical resistance of 4700 to 5000 mile ohms.

Best Best (B.B.). Slightly higher in resistance than E. B. B. but combines conductivity with tensile strength to make a popular grade, having a maximum electrical resistance of 5600 mile ohms.

Steel is designed for short-line service, where electrical conductivity can be sacrificed for tensile strength. Maximum resistance 6500 mile ohms.

All grades galvanized under the same improved process.

Size B.W.G.	Diam. In.	Wt., Lbs. per Mile	Miles Wire in Bundle	APPROX. BREAKING STRAIN, LBS.		
				E. B. B.	B. B.	Steel
4	.238	811	1/4	2929	2271	2433
6	.203	590	1/3	1475	1652	1770
8	.165	390	1/2	975	1092	1170
9	.148	314	1/2	785	879	942
10	.134	258	1/2	645	722	774
11	.120	206	1/2	515	577	618
12	.109	170	1/2	425	476	510
14	.083	99	1/2	247	277	297

Prices upon application.

## American Galvanized Arc Lamp Chain



Made in three sizes: Nos. 31 and 33 for suspending arc lamps, and No. 35 for suspending incandescent lamps. It is heavily galvanized and rust-proof.

Put up on 500 or 1000-foot reels.

Size No.	Description	Tensile Strength Pounds	Wt., Lbs. per 1000 Feet	Price per Foot
31	For Heavy Street Fixtures	915	118	\$8.50
33	For Medium Street Fixtures	725	89	8.25
35	For Light Street Fixtures	550	71	7.50

### Galvanized Attachments

Hooks				
For Chain Nos.	31	33	35	
Price, Hooks	per 100	\$6.00	6.00	4.00
Rings				
For Chain Nos.	31	33	35	
Price, Rings	per 100	\$9.00	5.00	3.00
Connecting Links				
For Chain Nos.	31	33	35	
Price, Connecting Links	per 1000 sets	\$38.00	38.00	30.00

Universal Insulator Supports



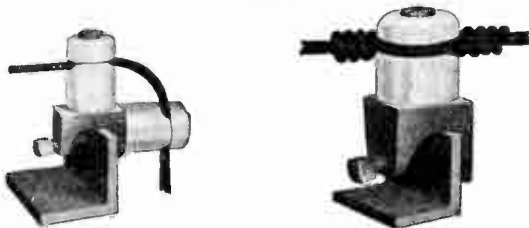
Universal Insulator Supports are specially designed malleable iron clamps for securing insulators in any position to open steel framework, for wiring mills, foundries, factories, shops, bridges, piers, elevated railways, subways, train sheds and similar structures. They are easily attached, and by their use, electric wiring for lights, motors, generators, cranes, etc., can be installed with a saving of labor and material.

The principal advantage of the single set screw feature is the three-point contact which is more rigid and secure than the four-point contact. A wrench can be used more freely than when two set screws were close together.

Cat. No.	Size of Support Inches	Standard Tapping for Screws and Bolts (See Note A)	Price per 100
500	1	1/4-Inch—20 (No. 14-20)	\$20.00
501	1 1/2	5/16-Inch—18 (No. 18-18)	34.00
502	2	3/8-Inch—16 (No. 24-16)	46.00
503	2 1/2	1/2-Inch—13	68.00

Prices include leather washers for insulators, but do not include machine screws or bolts for insulators.

Table of Wires, Insulators, Supports and Screws



Showing No. 500 Support with Two No. 5 1/2 Split Insulators Support is Tapped Special for No. 10—24-Thread Machine Screw

Showing No. 502 Support with No. 3 1/2 Insulator. Support is Tapped Standard for No. 24—16-Thread Machine Screw

These combinations of wire sizes, insulators and supports should be followed only after consideration of the problem in hand, taking account of character of work and stresses involved, strength of insulators, etc. Table shows largest size of wires suitable for insulators listed; smaller wires may, of course, be used as desired.

See Notes	Largest Wire Fitting Insulator Groove	Insulator Std. No.	Size of Insulator Support Inches		Screws and Bolts Sherardized		Price per 100
			Support	Inches	Size		
.....	No. 12	5 1/2	1	2	-In. No. 14-20-F.H.	\$1.46	
A	No. 12	5 1/2 Split	1	2 1/4	-In. No. 10-24-F.H.	1.18	
.....	No. 8	33 Sec.	1 1/2	2 3/4	-In. No. 18-18-F.H.	2.88	
A	No. 6	9419	1 1/2	2 1/2	-In. No. 14-20-F.H.	1.84	
.....	No. 6	4 1/2	1 1/2	2 1/4	-In. No. 18-16-F.H.	2.26	
.....	No. 4	3 1/2	2	2 1/2	-In. No. 24-18-F.H.	3.68	
A	No. 4	9420	2	2 3/4	-In. No. 18-18-F.H.	2.88	
B	No. 2	2	2	2 1/2	-In. No. 24-16-F.H.	3.68	
B	No. 1	26	2	2 1/2	-In. No. 24-16-F.H.	3.68	
B	No. 0	24	2	2 1/4	-In. No. 24-16-F.H.	3.44	
B	No. 0	30	2	2 1/2	-In. No. 24-16-F.H.	3.68	
C	No. 2-0	3 W. G.	2	2 1/2	-In. No. 24-16-F.H.	3.68	
C	No. 2-0	1	2	3 1/4	-In. No. 24-16-F.H.	6.11	
B-C	250000C.M.	49	2 1/2	2	-In. x 1/2-In. Bolt	3.86	
B-C	300000C.M. Murdock-B	2	3 1/2	3 1/2	-In. x 3/8-In. Bolt	3.04	
B-C	300000C.M. Murdock-B	2 1/2	3 1/2	3 1/2	-In. x 1/2-In. Bolt	4.64	
A-B-C	500000C.M.	29	2 1/2	3	-In. x 3/8-In. Bolt	2.88	
B-C	1000000C.M.	52	2 1/2	3 3/4	-In. x 1/2-In. Bolt	4.90	
B-C	1000000C.M.	53	2 1/2	3 1/2	-In. x 1/2-In. Bolt	4.64	
B-C	1000000C.M. Murdock-A	2 1/2	4	4	-In. x 1/2-In. Bolt	4.90	
.....	To Fit Glass Ins. 33 and Glass 2 1/2				Special Wood Pin and Bolts	10.00	

NOTE A.—Items marked require supports to be tapped special for screws or bolts, without extra charge.

NOTE B.—Should have iron washer under screw or bolt head. NOTE C.—B. & D. Cleats also recommended.

Bull Dog Insulator Supports

Bull Dog Insulator Supports are certified malleable iron clamps, galvanized finish for attaching porcelain or glass insulators to exposed steel framework in mill buildings and similar structures.

They are designed to secure a Bull Dog grip on the steel framework with the slightly slanted case-hardened steel set screws. Made in four sizes to accommodate all standard insulators.

No. 400



One-Inch Bull Dog Insulator Supports. Specify No. 10-24 tapping for No. 5 1/2 Split Knobs. Specify No. 14-20 tapping for No. 5 1/2 Solid Knobs.

Packed 200 in a wooden box.

Shipping weight per 100, 25 pounds.

Price, No. 400.....per 100 \$20.00

No. 401



1 1/2-Inch Bull Dog Insulator Supports. Specify No. 14-20 tapping for No. 9419 Split Knobs. Specify No. 18-18 tapping for No. 4 1/2 Solid and No. 33 Split Knobs. Specify No. 18-18 tapping for No. 1 and No. 1 1/2 B & D Cleats.

Packed 100 in a wooden box.

Shipping weight, 55 pounds.

Price, No. 401.....per 100 \$30.00

No. 402



2-Inch Bull Dog Insulator Supports. Specify No. 18-18 tapping for No. 9420 Split Knobs. Specify No. 24-16 tapping for No. 1, No. 2, No. 3 W. G., No. 3 1/2 and No. 24 Solid Knobs. Specify 1/2 inch-13 tapping for No. 26 and No. 30 Solid Knobs. Specify No. 24-16 tapping for No. 2, No. 2 1/2 and No. 3 B & D Cleats.

Packed 50 in a wood box.

Shipping weight per 100, 90 pounds.

Price, No. 402.....per 100 \$45.00

No. 403



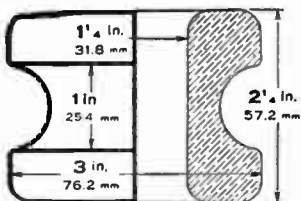
2 1/2-Inch Bull Dog Insulator Supports. Specify 3/8 inch-16 tapping for No. 52 Solid Knobs. Specify 1/2 inch-13 tapping for No. 29, No. 49 and No. 53 Solid Knobs. Specify 1/2 inch-13 tapping for No. 3 1/2 and No. 4 B & D Cleats. Specify 1/2 inch-13 tapping for No. 72 Hubbard or No. 450. Wood Pins for DGDP Glass Insulators.

Packed 50 in a wooden box.

Shipping weight per 100, 140 pounds.

Price, No. 403.....per 100 \$75.00

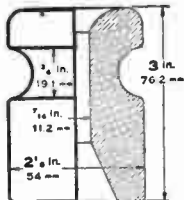
## Porcelain Insulators



**No. 0**  
 Cat. No. .... 0  
 No. in Bbl. .... 350  
 Ship. Weight per Bbl. .... lbs. 350  
 Price ..... per 1000 \$127.10

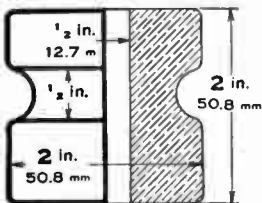
### No. 1

Catalogue No. .... 1  
 No. in Bbl. .... 600  
 Ship. Weight per Bbl. .... lbs. 460  
 Price ..... per 1000 \$88.50



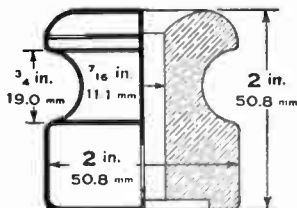
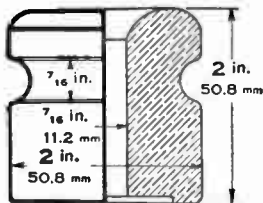
### No. 2

Catalogue No. .... 2  
 No. in Bbl. .... 850  
 Ship. Weight per Bbl. .... lbs. 400  
 Price ..... per 1000 \$54.50



### No. 3

Catalogue No. .... 3  
 No. in Bbl. .... 900  
 Ship. Weight per Bbl. .... lbs. 435  
 Price ..... per 1000 \$54.50

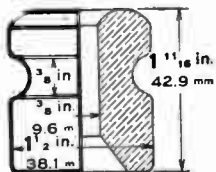


### No. 3 1/2

Catalogue No. .... 3 1/2  
 No. in Bbl. .... 1000  
 Ship. Weight per Bbl. .... lbs. 415  
 Price ..... per 1000 \$54.50

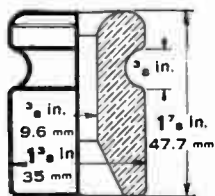
### No. 4

Catalogue No. .... 4  
 No. in Bbl. .... 2000  
 Ship. Weight per Bbl. .... lbs. 415  
 Price ..... per 1000 \$24.50



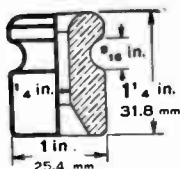
### No. 4 1/2

Catalogue No. .... 4 1/2  
 No. in Bbl. .... 1700  
 Ship. Weight per Bbl. .... lbs. 410  
 Price ..... per 1000 \$23.60

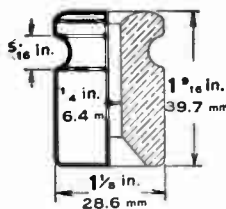


### No. 5

Catalogue No. .... 5  
 No. in Bbl. .... 6000  
 Ship. Weight per Bbl. .... lbs. 460  
 Price ..... per 1000 \$14.10



## Porcelain Insulators

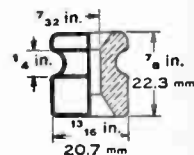


**No. 5 1/2**  
 Catalogue No. .... \*5 1/2  
 No. in Bbl. .... 3500  
 Ship. Weight per Bbl. .... lbs. 450  
 Price ..... per 1000 \$16.90

\*Can be furnished packed in cartons of 100 knobs, 10 cartons in a case, at \$20.20 per case.

### No. 6

Catalogue No. .... 6  
 No. in Bbl. .... 13500  
 Ship. Weight per Bbl. .... lbs. 460  
 Price ..... per 1000 \$15.00



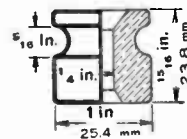
### No. 7

Catalogue No. .... 7  
 No. in Bbl. .... 15000  
 Ship. Weight per Bbl. .... lbs. 370  
 Price ..... per 1000 \$13.90



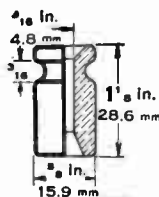
### No. 8

Catalogue No. .... 8  
 No. in Bbl. .... 8000  
 Ship. Weight per Bbl. .... lbs. 430  
 Price ..... per 1000 \$16.70



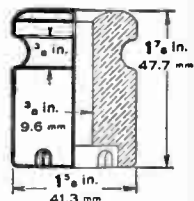
### No. 9

Catalogue No. .... 9  
 No. in Bbl. .... 20000  
 Ship. Weight per Bbl. .... lbs. 400  
 Price ..... per 1000 \$15.60



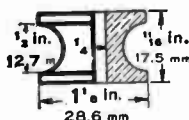
### No. 10

Catalogue No. .... 10  
 No. in Bbl. .... 1500  
 Ship. Weight per Bbl. .... lbs. 385  
 Price ..... per 1000 \$38.40



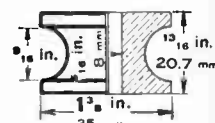
### No. 11

Catalogue No. .... 11  
 No. in Bbl. .... 9000  
 Ship. Weight per Bbl. .... lbs. 415  
 Price ..... per 1000 \$22.60

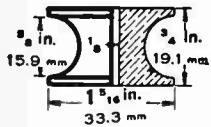


### No. 12

Catalogue No. .... 12  
 No. in Bbl. .... 5000  
 Ship. Weight per Bbl. .... lbs. 275  
 Price ..... per 1000 \$30.50



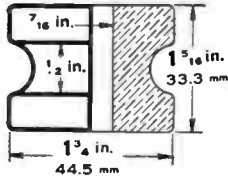
Porcelain Insulators



**No. 13**  
 Catalogue No. .... 13  
 No. in Bbl. .... 4500  
 Ship. Weight per Bbl. lbs. .... 300  
 Price ..... per 1000 \$31.80

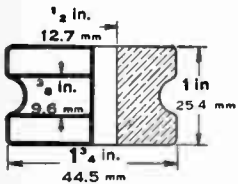
**No. 15**

Catalogue No. .... 15  
 No. in Bbl. .... 2000  
 Ship. Weight per Bbl. lbs. .... 445  
 Price ..... per 1000 \$48.70



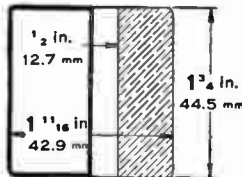
**No. 16**

Cat. No. .... 16  
 No. in Bbl. .... 2200  
 Ship. Weight per Bbl. lbs. .... 455  
 Price ..... per 1000 \$37.00



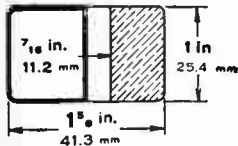
**No. 17**

Cat. No. .... 17  
 No. in Bbl. .... 1200  
 Ship. Weight per Bbl. lbs. .... 400  
 Price ..... per 1000 \$37.00



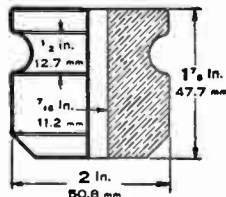
**No. 18**

Catalogue No. .... 18  
 No. in Bbl. .... 3000  
 Ship. Weight per Bbl. lbs. .... 350  
 Price ..... per 1000 \$31.80



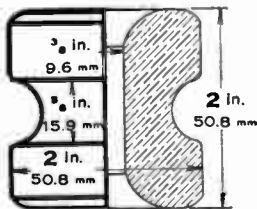
**No. 19**

Catalogue No. .... 19  
 No. in Bbl. .... 1000  
 Ship. Weight per Bbl. lbs. .... 450  
 Price ..... per 1000 \$62.90



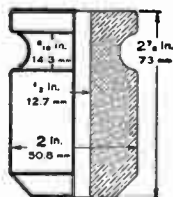
**No. 20**

Catalogue No. .... 20  
 No. in Bbl. .... 1000  
 Ship. Weight per Bbl. lbs. .... 420  
 Price ..... per 1000 \$52.00



**No. 21**

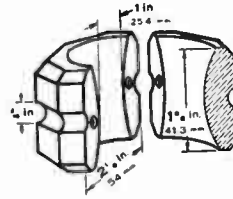
Catalogue No. .... 21  
 No. in Bbl. .... 600  
 Ship. Weight per Bbl. lbs. .... 440  
 Price ..... per 1000 \$83.40



Porcelain Insulators

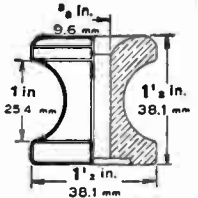
**No. 22 Split**

Cat. No. .... 22  
 No. in Bbl. .... 1000  
 Ship. Weight per Bbl. lbs. .... 400  
 Price ..... per 1000 \$62.00



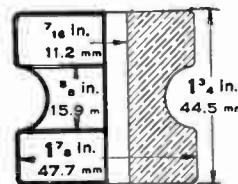
**No. 23**

Cat. No. .... 23  
 No. in Bbl. .... 2000  
 Ship. Weight per Bbl. lbs. .... 345  
 Price ..... per 1000 \$44.00



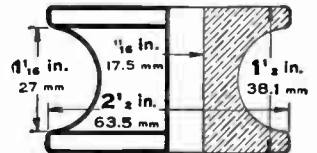
**No. 24**

Cat. No. .... 24  
 No. in Bbl. .... 1200  
 Ship. Weight per Bbl. lbs. .... 425  
 Price ..... per 1000 \$55.60



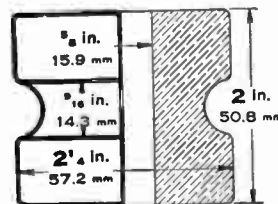
**No. 25**

Cat. No. .... 25  
 No. in Bbl. .... 750  
 Ship. Wt. per Bbl. lbs. .... 310  
 Price ..... per 1000 \$76.20



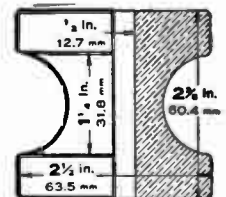
**No. 26**

Cat. No. .... 26  
 No. in Bbl. .... 700  
 Ship. Wt. per Bbl. lbs. .... 420  
 Price ..... per 1000 \$70.00



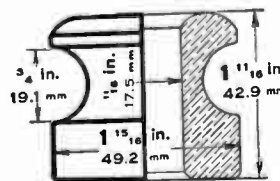
**No. 29**

Cat. No. .... 29  
 No. in Bbl. .... 500  
 Ship. Weight per Bbl. lbs. .... 380  
 Price ..... per 1000 \$91.10



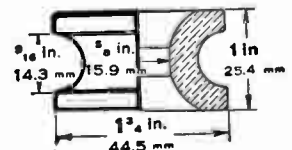
**No. 30**

Cat. No. .... 30  
 No. in Bbl. .... 1250  
 Ship. Wt. per Bbl. lbs. .... 375  
 Price ..... per 1000 \$62.10

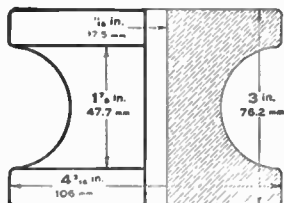


**No. 31**

Cat. No. .... 31  
 No. in Bbl. .... 2500  
 Ship. Wt. per Bbl. lbs. .... 350  
 Price ..... per 1000 \$37.00



## Porcelain Insulators

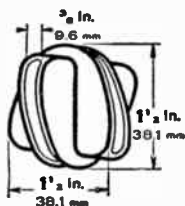
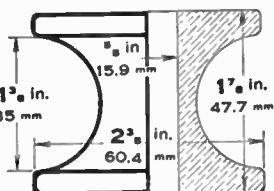


**No. 32**

Cat. No. .... 32  
 No. in Bbl. .... 140  
 Ship. Wt. per Bbl. .... lbs. 390  
 Price ..... per 1000 \$328.00

**No. 34**

Cat. No. .... 34  
 No. in Bbl. .... 600  
 Ship. Wt. per Bbl. .... lbs. 295  
 Price ..... per 1000 \$76.90

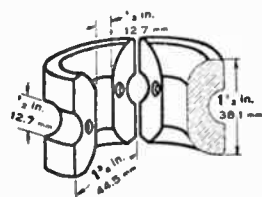
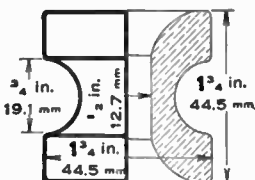


**No. 35 Guy Strain Insulators**

Cat. No. .... 35  
 No. in Bbl. .... 1500  
 Ship. Wt. per Bbl. .... lbs. 415  
 Price ..... per 1000 \$123.00

**No. 36**

Cat. No. .... 36  
 No. in Bbl. .... 1500  
 Ship. Wt. per Bbl. .... lbs. 395  
 Price ..... per 1000 \$50.90

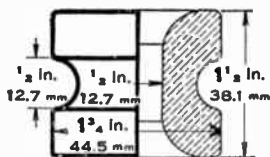


**No. 37 Split**

Cat. No. .... 37 Split  
 No. in Bbl. .... 1500  
 Ship. Wt. per Bbl. .... lbs. 370  
 Price ..... per 1000 \$57.00

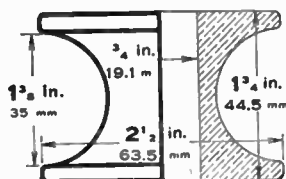
**No. 37 Solid**

Cat. No. .... 37 Solid  
 No. in Bbl. .... 1750  
 Ship. Wt. per Bbl. .... lbs. 385  
 Price ..... per 1000 \$47.80



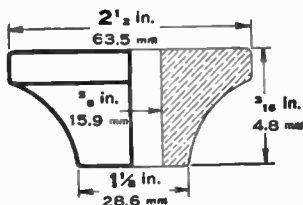
**No. 39**

Cat. No. .... 39  
 No. in Bbl. .... 700  
 Ship. Wt. per Bbl. .... lbs. 310  
 Price ..... per 1000 \$78.40

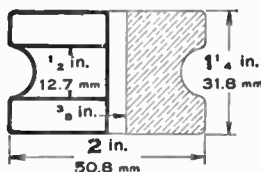


**No. 40**

Cat. No. .... 40  
 No. in Bbl. .... 2000  
 Ship. Wt. per Bbl. .... lbs. 400  
 Price ..... per 1000 \$52.60



## Porcelain Insulators

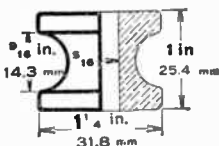
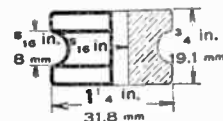


**No. 41**

Cat. No. .... 41  
 No. in Bbl. .... 1300  
 Ship. Wt. per Bbl. .... lbs. 400  
 Price ..... per 1000 \$52.90

**No. 45**

Cat. No. .... 45  
 No. in Bbl. .... 5000  
 Ship. Wt. per Bbl. .... lbs. 300  
 Price ..... per 1000 \$37.20

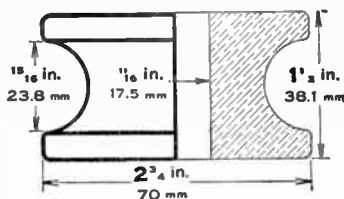
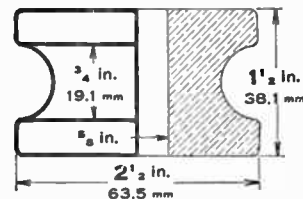


**No. 46**

Cat. No. .... 46  
 No. in Bbl. .... 4500  
 Ship. Wt. per Bbl. .... lbs. 350  
 Price ..... per 1000 \$38.20

**No. 48**

Cat. No. .... 48  
 No. in Bbl. .... 850  
 Ship. Wt. per Bbl. .... lbs. 420  
 Price ..... per 1000 \$75.00

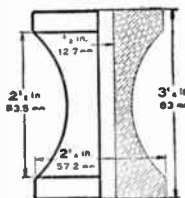
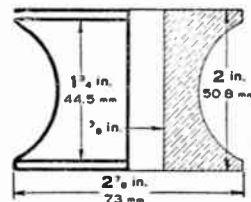


**No. 49**

Cat. No. .... 49  
 No. in Bbl. .... 700  
 Ship. Wt. per Bbl. .... lbs. 425  
 Price ..... per 1000 \$87.00

**No. 50**

Cat. No. .... 50  
 No. in Bbl. .... 450  
 Ship. Wt. per Bbl. .... lbs. 310  
 Price ..... per 1000 \$150.80

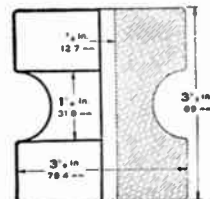


**No. 51**

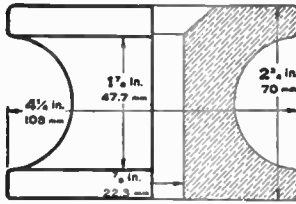
Cat. No. .... 51  
 No. in Bbl. .... 450  
 Ship. Weight per Bbl. .... lbs. 320  
 Price ..... per 1000 \$107.50

**No. 52**

Cat. No. .... 52  
 No. in Bbl. .... 180  
 Ship. Weight per Bbl. .... lbs. 400  
 Price ..... per 1000 \$330.00

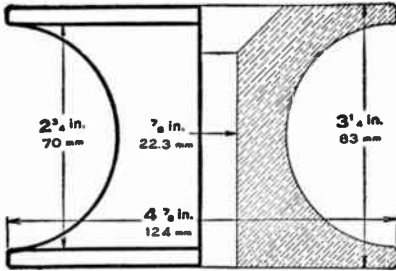


**Porcelain Insulators  
No. 53**



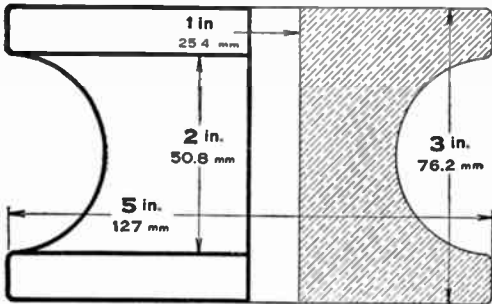
Catalogue No. .... 53  
 Number in Barrel ..... 150  
 Shipping Weight per Barrel ..... pounds 345  
 Price ..... per 1000 \$334.00

**No. 54**



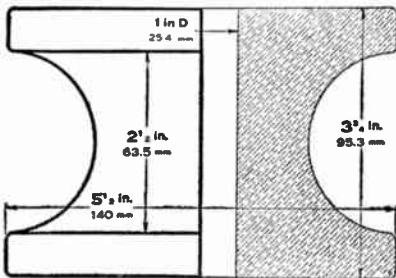
Catalogue No. .... 54  
 Number in Barrel ..... 90  
 Shipping Weight per Barrel ..... pounds 285  
 Price ..... per 1000 \$436.40

**No. 55**



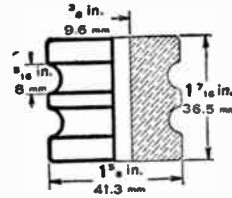
Catalogue No. .... 55  
 Number in Barrel ..... 80  
 Shipping Weight per Barrel ..... pounds 275  
 Price ..... per 1000 \$443.00

**No. 56**



Catalogue No. .... 56  
 Number in Barrel ..... 65  
 Shipping Weight per Barrel ..... pounds 250  
 Price ..... per 1000 \$674.00

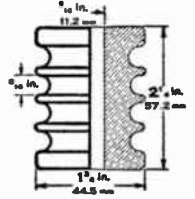
**No. 6061 Thomas Solid  
Porcelain Telephone  
Knobs**



Cat. No. .... 6061  
 No. in Bbl. .... 2000  
 Ship. Wt. per Bbl. .... lbs. 455  
 Price ..... per 1000 \$42.20

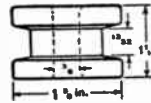
**No. 6062 Thomas Solid  
Porcelain Telephone Knobs**

Cat. No. .... 6062  
 No. in Bbl. .... 1000  
 Ship. Wt. per Bbl. .... lbs. 375  
 Price ..... per 1000 \$64.50



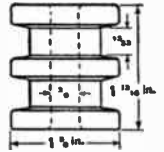
**No. 7138 Thomas Solid  
Porcelain Telephone  
Knobs**

Cat. No. .... 7138  
 No. in Barrel ..... 2500  
 Ship. Wt., per Barrel ..... lbs. 370  
 Price ..... per 1000 \$32.50



**No. 7139 Thomas Solid  
Porcelain Telephone  
Knobs**

Cat. No. .... 7139  
 No. in Barrel ..... 1500  
 Ship. Wt., per Barrel ..... lbs. 355  
 Price ..... per 1000 \$48.10



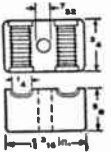
**No. 6250 Thomas Split  
Porcelain Telephone  
Knobs**



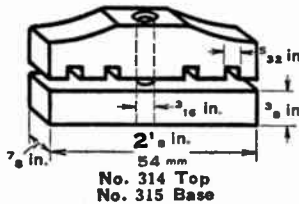
Cat. No. .... 6250  
 No. in Barrel ..... 5000  
 Ship. Wt., per Barrel ..... lbs. 470  
 Price ..... per 1000 \$36.70

**No. 7137 Thomas Split  
Porcelain Telephone  
Knobs**

Cat. No. .... 7137  
 No. in Barrel ..... 5000  
 Ship. Wt., per Barrel ..... lbs. 470  
 Price ..... per 1000 \$36.10



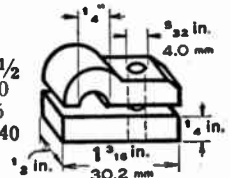
**Thomas Porcelain  
Telephone Cleats**



Cat. No. .... 314 315  
 No. in Barrel. 3000 3000  
 Ship. Wt. per Barrel. lbs. 350 375  
 Price..per 100 \$26.60 \$24.00

**Thomas Porcelain  
Telephone Cleats**

Cat. No. .... 333 333 1/2  
 No. in Box. .... 5000 5000  
 Ship. Wt. per Box... lbs. 160 165  
 Price ..... per 1000 \$12.40 \$12.40



**Small Bushings  
Heads Only**

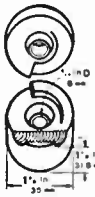
Cat. No.	DIMENSIONS, In.			No. in Bbl.	Wt., Lbs. per Bbl.	Price per 1000
	A	B	L			
400	1/4	1/2	3/8	*5000	100	\$21.10
401	5/16	3/4	3/8	*5000	175	27.50
402	3/8	1 1/8	1 1/8	5000	225	37.20
403	3/8	3/4	1	4000	275	33.40

\*Nos. 400 and 401 packed in boxes.



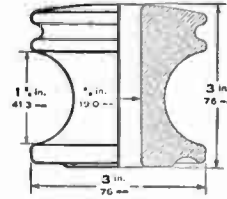
## Porcelain Split Wiring Knobs

## No. 5897 Thomas Porcelain Secondary Rack Insulators



### No. 33

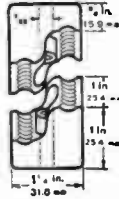
Catalogue No. .... 33  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 1500  
 Ship. Weight per Bbl. .... lbs. 435  
 Price ..... per 1000 \$43.80



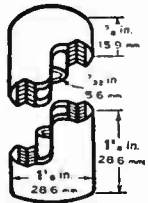
Catalogue Number.....	5897	Dry Process	5897-W
Number in Box.....	50	Wet Process	50
Shipping Weight per Box.....	pounds 60		65
Price.....	per 100 \$14.00		16.00

### No. 55 1/2

Catalogue No. .... 55 1/2  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 2500  
 Ship. Wt. per Bbl. .... lbs. 410  
 Price ..... per 1000 \$41.60

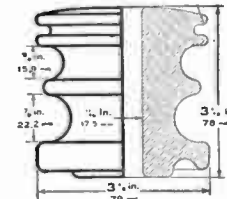


## No. 6342 Thomas Porcelain Secondary Rack Insulators



### No. 101

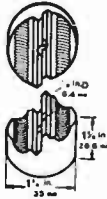
Catalogue No. .... 101  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 3000  
 Ship. Wt. per Bbl. .... lbs. 425  
 Price ..... per 1000 \$35.20



Catalogue Number.....	6342	Dry Process	6342-W
Number in Box.....	50	Wet Process	50
Shipping Weight per Box.....	pounds 70		75
Price.....	per 100 \$15.30		17.20

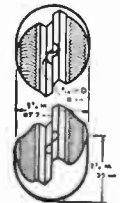
### No. 5135

Catalogue No. .... 5135  
 Wire Nos. .... 8 to 10  
 No. in Bbl. .... 1500  
 Ship. Wt. per Bbl. .... lbs. 410  
 Price ..... per 1000 \$44.80



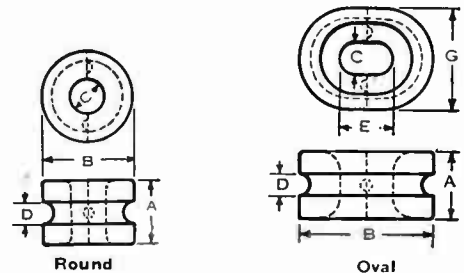
## Forestry Service Tree Insulators

Brown or White Glazed



### No. 5147

Catalogue No. .... 5147  
 Wire Nos. .... 4 to 6  
 No. in Bbl. .... 900  
 Ship. Wt. per Bbl. .... lbs. 430  
 Price ..... per 1000 \$75.20



### Round

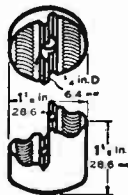
Cat. No.	Type	DIMENSIONS, INCHES						No. in Bbl.	Wt. Lbs. per Bbl.	Price per 1000
		A	B	C	D	E	G			
6147	Split	1 1/2	2	3/8	1/2			1200	400	\$67.70
6572	Solid	1 1/2	2 1/4	3/8	1/2			1000	410	63.50

### Oval

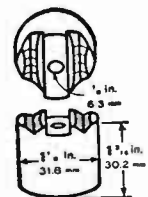
6539	Split	1 1/2	2 1/4	3/8	1/2	3/8	2 1/4	1000	405	\$77.20
6651	Split	1 1/2	3	3/4	1/2	1 1/4	2 1/4	700	410	109.80
6844	Solid	1 1/2	3	3/4	1/2	1 1/4	2 1/4	650	420	78.70

### No. 5517

Catalogue No. .... 5517  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 3750  
 Ship. Wt. per Bbl. .... lbs. 465  
 Price ..... per 1000 \$32.80

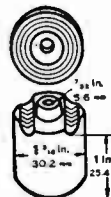


## No. 5 1/2 Thomas Porcelain Split Wiring Knobs



### Detroit

Catalogue No. .... Detroit  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 2500  
 Ship. Wt. per Bbl. .... lbs. 430  
 Price ..... per 1000 \$27.80



Cat. No. .... 5 1/2  
 Wire Nos. .... 12 to 14  
 No. in Bbl. .... 3000  
 Ship. Wt. per Bbl. .... lbs. 465  
 Price, Glazed ..... per 1000 \$22.00  
 Price, Unglazed ..... per 1000 13.70  
 Price 4-Groove ..... per 1000 22.00



**Porcelain Split Insulators**

No. 9419

Has 4 grooves and will take wire sizes 8 to 10.

Cat. No.	Diam. Inches	Height Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 1000
9419	1½	1⅞	1800	460	\$87.00

No. 9420

Four grooves; will take wire sizes 4 to 6.

9420	2	2⅛	850	495	\$142.00
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**Nail Assembled Knobs**

Consists of cap, base, 10d nail and nail head assembled. Has two grooves and will take wire sizes 12 to 14.

Cat. No.	Diam. Inches	Height Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 1000
5½ Split	1⅜	1¾	3000	435	\$70.00



**Screw-It Split Knobs**

Consists of base, cap and 3-inch screw assembled. No. 5½ Split and Detroit have 2 grooves, and take wire sizes 12 to 14. Nos. 9419 and 9420, 4 grooves, take wire sizes 8 to 10 and 4 to 6 respectively.

Cat. No.	Diameter Inches	Height Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 1000
5½ Split	1⅜	1¾	2600	440	\$90.00
Detroit	1¼	1¾	2100	475	100.00
9419 Type	1½	1⅞	1400	480	150.00
9420 Type	1⅝	2⅞	700	485	225.00

**Federal Porcelain Clamp Ring Bushings**



Made of 1 piece of the best grade of vitrified porcelain. Clamping rings are of metal, threaded to fit threads on the porcelain. Clamping ring may be reversed for material thicker than ¼ inch.

Cat. No.	K. O. Conduit Size, In.	Inside Inches	Max. Size R. C. Wire	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
A-1	*1¼	9/32	10	500	16	\$6.25
A-1½	1½	9/32	10	250	18	7.50
A-2	1½	13/32	8	250	17	7.50
A-3	¾	9/16	3	250	24	8.75
A-4	1	¾	00	125	18	10.00
A-5	1½	1½	4500000	125	25	15.00
A-6	2	1⅝	10000000	60	24	31.25
B-1 Extra Long	*1¼	9/32	10	250	15	12.50
K-1 Elbow	*1¼	9/32	10	250	15	18.75
K-2 "	1½	13/32	8	125	13	25.00

\*Loom.

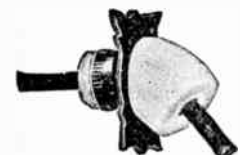
**Type B Federal Extra Long Porcelain Clamp Bushings**

Can be used with material 5/8 to ¾ inch in thickness. Length over all, 1¼ inches; under head, 1⅝ inches. Will fit No. 10 solid single braid rubber covered wire.

Cat. No.	Diam., In. Inside	Outside	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
B-1	5/8	1¼	250	15	\$.12½



**Federal Porcelain Elbow Type Clamp Bushings**



Special shape for outdoor work, preventing water from entering wire. Also used instead of regular bushing where wires leave surface at an angle. A small projection behind the head, designed to engage a notch which can be made easily in the metal opening, prevents the bushing from turning after the clamping ring is tightened.

Cat. No.	Diam., In. Inside	Outside	Approx. Max. Size Wire	Carton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
K-1	5/8	1¼	No. 10 S. B. R. C. Solid	50	250	15	\$.19
K-2	5/8	5/8	" 8 S. B. R. C. "	25	125	13	.25

**Porcelain Tubes**



Price, per 100

For Tubes Up to and including 24 Inches Long

Length Under Head Inches	INSIDE AND OUTSIDE DIMENSIONS OF TUBES IN INCHES						
	1x1½	1½x1½	1½x2	2x2	2x2½	2½x2½	3x4
1/2	\$1.60	\$2.00	...	...	...	...	...
1	1.70	2.10	\$2.70	\$4.00	\$6.00	\$10.00	...
1½	1.80	2.20	2.80	4.60	7.00	11.20	...
2	1.90	2.40	3.00	5.20	8.00	12.50	...
2½	2.10	2.70	3.30	5.80	9.00	13.80	\$19.00
3	2.30	3.00	3.70	6.50	10.00	15.00	21.00
4	3.00	4.00	4.80	8.00	11.60	16.80	24.00
5	3.90	5.00	6.00	9.50	13.20	18.60	27.20
6	5.00	6.00	7.20	11.00	14.80	20.40	30.60
8	9.00	10.50	13.00	14.00	18.00	24.00	37.60
10	16.70	18.60	21.50	25.00	29.00	37.50	45.00
12	24.40	26.70	30.00	34.00	39.00	50.00	70.00
14	32.10	34.80	38.50	43.00	49.20	62.50	87.00
16	39.80	42.90	47.00	52.00	59.40	75.00	104.00
18	47.50	51.00	55.50	61.00	69.60	87.50	121.00
20	55.20	59.10	64.00	70.00	79.80	100.00	138.00
24	70.60	75.30	81.00	88.00	100.00	125.00	172.00

Length Under Head Inches	INSIDE AND OUTSIDE DIMENSIONS OF TUBES IN INCHES						
	1½x2	1½x2½	2x2½	2½x3	2½x3½	2½x4	3x4½
2½	\$25.50	\$34.00	\$46.00	\$59.00	\$74.00	\$92.00	\$115.00
3	28.00	37.00	50.00	64.00	80.00	100.00	125.00
4	32.00	44.50	63.00	83.50	109.00	145.00	175.00
5	36.00	52.00	76.00	103.00	138.00	190.00	225.00
6	40.50	60.00	90.00	122.50	167.00	235.00	275.00
8	49.00	75.00	116.00	161.50	225.00	325.00	375.00
10	58.00	90.00	143.00	200.50	283.00	415.00	475.00
12	102.50	160.00	170.00	240.00	342.00	505.00	575.00
14	123.50	190.00	280.00	400.00	560.00	595.00	680.00
16	144.50	220.00	320.00	452.00	624.00	820.00	1020.00
18	166.00	250.00	360.00	504.00	688.00	890.00	1115.00
20	187.50	280.00	400.00	556.00	752.00	960.00	1210.00
24	230.00	340.00	480.00	660.00	880.00	1100.00	1400.00

**Special Porcelain Tubes**



To obtain list price of floor, curved and curved end, split and cross-over tubes, multiply as follows:

**Solid Floor Tubes**

Multiply list by three. For list price on these tubes add three inches to length of standard tubes.

**Split Floor Tubes**

Multiply list by six. For list price on these tubes add three inches to length of standard tubes.

**Headless Tubes Above Eight Inches Long**

Multiply list by 4. On these tubes measurements are to be computed over all.

**Headless Tubes Eight Inches Long and Under**

Same list as standard tubes. On these tubes measurements are to be computed over all.

**Curved and Curved End Tubes**

Multiply list by three. On these tubes measurements are to be computed over all.

**Split Regular Tubes**

Multiply list by 10. On these tubes measurements are to be computed under head.

**Cross-over Split Tubes**

Multiply list by 12. On these tubes measurements are to be computed between heads.

**Cross-over Solid Tubes**

Multiply list by six. On these tubes measurements are to be computed between heads.

Add 50 per cent to list for glazed tubes.

## Porcelain Tubes



Standard Package Quantities and Weights Per Standard Package

Length Under Head Inches	INSIDE AND OUTSIDE DIMENSIONS OF TUBES IN INCHES					
	$\frac{5}{16} \times \frac{9}{16}$		$\frac{3}{4} \times 1\frac{1}{16}$		$\frac{1}{2} \times 1\frac{3}{16}$	
	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.
1/2	15000	375	12500	375	8500	360
1	11000	375	9500	375	8500	360
1 1/2	9000	375	8000	375	7500	360
2	7000	375	7000	370	5000	355
2 1/2	6000	360	5000	350	4000	350
3	5400	355	3800	340	2700	340
4	3900	315	2900	340	2000	335
5	3200	330	2500	340	1700	340
6	3000	330	2000	335	1500	340
8	2290	340	1600	340	1200	335
10	1700	335	1200	320	1000	335
12	1200	340	1000	305	800	340
14	1000	335	800	200	700	320
16	800	340	700	300	550	300
18	500	340	450	290	475	250
20	450	340	400	290	300	270
24	400	340	400	300	300	260

Length Under Head Inches	INSIDE AND OUTSIDE DIMENSIONS OF TUBES IN INCHES					
	$\frac{5}{8} \times 1\frac{1}{16}$		$\frac{3}{4} \times 1\frac{3}{16}$		$1 \times 1\frac{1}{16}$	
	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.
1	4500	380	3700	330	2000	350
1 1/2	3200	375	3500	320	1500	360
2	2500	355	1800	310	1100	345
2 1/2	2000	325	1500	295	900	330
3	1800	320	1250	285	750	315
4	1450	325	850	250	600	300
5	1200	320	700	255	500	290
6	1000	305	600	255	400	280
8	700	275	450	245	325	290
10	500	255	350	240	245	270
12	375	220	325	240	190	255
14	310	215	250	230	150	230
16	250	205	185	205	140	230
18	200	205	160	200	110	210
20	160	175	125	180	85	195
24	160	195	125	210	85	215

Length Under Head Inches	INSIDE AND OUTSIDE DIMENSIONS OF TUBES IN INCHES					
	$1\frac{1}{4} \times 1\frac{3}{16}$		$1\frac{1}{2} \times 2\frac{3}{16}$		$1\frac{3}{4} \times 2\frac{3}{16}$	
	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.	Std. Pkg.	Wt. Lbs.
2 1/2	525	320	350	325	250	380
3	425	310	300	315	225	370
4	360	310	250	305	200	360
5	325	305	225	305	175	340
6	250	300	180	305	150	320
8	180	290	140	300	100	300
10	140	265	110	300	80	290
12	120	265	90	280	70	280
14	100	255	75	275	90	260
16	85	175	65	265	60	255
18	70	235	55	250	50	250
20	55	215	40	220	50	240
24	55	240	40	250	50	250

For tubes larger than 1 3/4 x 24 inches, a standard package is 50.

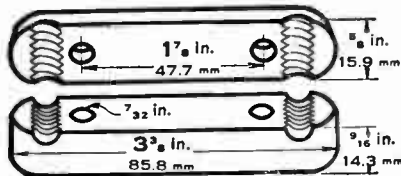
Barrel size is 20-inch head and 30-inch stave.

A standard package or unit container cannot be made up of assorted sizes.

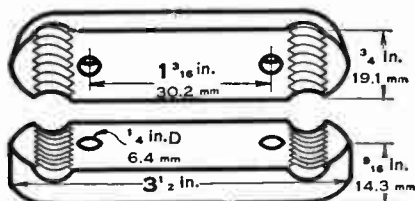
A standard package is a barrel for which a charge will be made. When ordered put up in paper boxes, or in wooden or corrugated boxes of kegs containing 500 or 1000 pieces or pairs, an additional charge will be made. Prices for special packages will be furnished upon application.

## 2 and 3-Wire Cleats

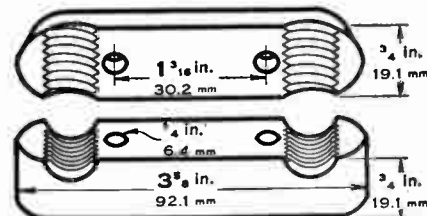
### Standard Cleats



No. 334



No. 335



No. 350

Any of the sizes listed below can be furnished for either 2 or 3 wires; 2-wire cleats will always be furnished unless 3-wire are specified.

For prices on 3-wire cleats add 10 per cent to 2-wire prices, listed below.

Wire Size No.	No. in Bbl.	Unglazed			White Glazed		
		Cat. No.	Wt. Lbs. per Bbl.	Price per 1000	Cat. No.	Wt. Lbs. per Bbl.	Price per 1000
12-14	*1850	334-UG	385	\$17.60	334-G	390	\$33.10
9-10	1500	335-UG	410	21.90	335-G	405	39.10
2-6	1250	350-UG	395	27.90	350-G	400	55.00

### Mill Type Cleats

These are exactly the same as those listed above excepting that cleats with a heavy 1-inch base are furnished.

For construction in damp places or where cleats are attached to metal supports as in mills, foundries, etc.

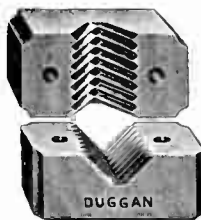
12-14	1400	334 1/2-UG	395	\$25.80	334 1/2-G	400	\$41.30
8-10	1100	335 1/2-UG	415	30.80	335 1/2-G	420	46.90
2-6	850	350 1/2-UG	385	36.90	350 1/2-G	390	60.30

\*Can also be furnished packed in paper cartons. Each carton contains 100 cleats, and 10 cartons are packed to a case. The price for cleats packed this way is: No. 334-UG, \$20.70 per case; No. 334-G, \$36.20 per case.

## Duggan Cleats

### One-wire Glazed

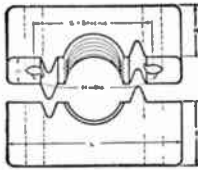
- No. 4 holds wires No. 16 to No. 8.
- No. 5 holds wires No. 8 to No. 2.
- No. 6 holds wires No. 030 to 250000.
- No. 7 holds wires No. 6 to No. 2.
- No. 8 holds cables 300000 to 500000.
- No. 8 1/2 holds cables 600000 to 1000000.
- No. 9 holds cables 1250000 to 1750000.



Cat. No.	Regular			Price per 1000	Style A			Price per 1000
	Std. Pkg.	Wt. Lbs.	Std. Pkg.		Cat. No.	Std. Pkg.	Wt. Lbs.	
4	3000	500	500	\$74.00	4A	2300	500	\$80.00
5	1000	490	490	110.00	5A	1350	490	120.00
6	700	480	480	180.00	6A	600	490	196.00
7	1500	490	490	110.00	7A	1300	490	120.00
8	500	480	480	.....	8A	500	480	330.00
8 1/2	400	480	480	.....	8 1/2A	400	480	410.00
9	200	480	480	.....	9A	250	480	500.00

**Standard B & D 1-Wire Cleats**

White Glaze



**Light Cap and Light Base**

Cat. No.	Wire Size	DIMENSIONS, INCHES				No. in Bbl.	Wt. Lbs. per Bbl.	Price per 1000
		H	L	S	W			
110	14 to 6	1/4	1 7/8	1 1/8	7/8	2000	430	\$45.80
111	6 to 2	5/16	2 1/4	1 3/8	1	1600	465	55.50
112	2 to 0	5/16	2 5/8	1 1/2	1 1/8	1250	455	63.40
113	0 to 000	3/8	3	1 1/2	1 1/4	700	440	86.50
114	{ 000 to 200000 CM }	3/8	3 3/8	2 1/4	1 3/8	500	430	106.70

**Light Cap and Heavy Base**

115	14 to 6	1/4	1 7/8	1 1/8	7/8	1600	410	\$49.00
116	6 to 2	5/16	2 1/4	1 3/8	1	1250	455	62.40
117	2 to 0	5/16	2 5/8	1 1/2	1 1/8	1000	450	69.80
118	0 to 000	3/8	3	1 1/2	1 1/4	650	450	90.80
119	{ 000 to 200000 CM }	3/8	3 3/8	2 1/4	1 3/8	450	445	114.00

**Heavy Cap and Heavy Base**

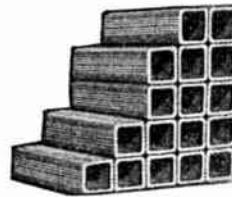
120	14 to 6	1/4	1 7/8	1 1/8	7/8	1400	435	\$55.90
121	6 to 2	5/16	2 1/4	1 3/8	1	1050	420	69.40
122	2 to 0	5/16	2 5/8	1 1/2	1 1/8	800	430	75.50
123	0 to 000	3/8	3	1 1/2	1 1/4	600	445	97.00
124	{ 000 to 200000 CM }	3/8	3 3/8	2 1/4	1 3/8	400	425	121.30
125	No. 10 Duplex	3/8	3 3/8	2 1/4	1 3/8	400	435	123.60
126	{ 200000 to 500000 CM }	7/16	4 1/4	2 5/16	1 5/8	250	475	186.10
127	{ 500000 to 1000000 CM }	9/16	4 3/4	3 1/4	1 5/8	200	515	240.20
128	{ 800000 to 1250000 CM }	5/8	5 3/8	3 5/8	2	140	525	304.00
129	{ 1000000 to 2000000 CM }	5/8	6	4 3/8	2 1/4	100	505	409.50

**Thomas Light Duty 1-Wire Cleats**

White Glaze

Cat. No.	Wire Size	DIMENSIONS, INCHES			No. in Bbl.	Wt. Lbs. per Bbl.	Price per 1000
		H	L	W			
1 -Reg.	14 to 6	1/4	1 7/8	5/16	2000	415	\$42.00
1 1/2 -Reg.	6 to 2	5/16	2 1/4	5/16	1600	450	49.00
2 -Reg.	2 to 0	5/16	2 1/4	1 1/8	1350	375	55.80
2 1/2 -Reg.	0 to 000	3/8	2 1/2	1 1/8	900	450	77.80
3 -Reg.	{ 000 to 200000 CM }	3/8	3 1/8	1 1/4	625	460	86.20
1-A	14 to 6	1/4	1 7/8	5/16	1800	410	44.50
1 1/2-A	6 to 2	5/16	2 1/4	5/16	1300	450	53.22
2-A	2 to 0	5/16	2 1/4	1 1/8	1150	450	61.00
2 1/2-A	0 to 000	3/8	2 1/2	1 1/8	750	475	85.60
3-A	{ 000 to 200000 CM }	3/8	3 1/8	1 1/4	600	450	92.70
1-B	14 to 6	1/4	1 7/8	5/16	1500	435	47.10
1 1/2-B	6 to 2	5/16	2 1/4	5/16	1050	460	58.30
2-B	2 to 0	5/16	2 1/4	1 1/8	900	440	66.80
2 1/2-B	0 to 000	3/8	2 1/2	1 1/8	650	460	88.60
3-B	{ 000 to 200000 CM }	3/8	3 1/8	1 1/4	500	450	98.40
3 1/4-B	No. 10 Duplex	3/8	3 3/8	1 3/8	460	450	106.50
3 1/2-B	{ 200000 to 500000 CM }	7/16	3 3/8	1 3/8	460	450	126.50
4-B	{ 500000 to 1000000 CM }	5/8	3 3/4	1 3/8	350	460	153.20
4 1/4-B	{ 800000 to 1250000 CM }	5/8	5	1 7/8	165	360	234.80
4 1/2-B	{ 1000000 to 2000000 CM }	5/8	5 1/2	2	150	280	285.80

**Vitrified Clay Conduit**

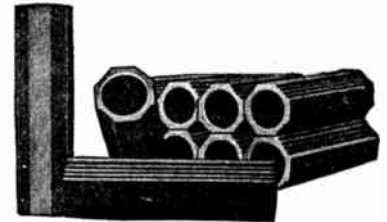


Square Duct, Single

The conduit clays are of peculiar character in being naturally compounded by having the proper fluxing materials associated in relatively correct proportions in a high grade plastic fire clay which possesses certain necessary properties rarely found in other clays. In burning, these fluxing materials in combination in the one clay, produce vitrification of the clay mass, one of the most essential features of good conduit. Also the salt glazing of clay is caused by a chemical reaction and few clays are favored with properties giving a successful salt glaze finish.

**Single-Duct Conduit**

Single-duct conduit permits of the breaking of joints. It allows two heavy insulating walls between all cables where multiple duct conduit only allows for one. Single-duct conduit is thus adapted particularly for the building up of high service trunk lines for the transmission of power and light. It is also used for the construction of single-cable terminals and laterals of low tension and telephone lines.



Round Duct Single

Length of Piece Feet	Duct Feet in Piece	Square Duct, Single		Duct Feet in Min. Carload	Price per Duct Ft.
		Approx. Wt., Lbs. per Duct Foot	Diam. Duct Inches		
1.5	1.5	11	3 1/2	7000	\$ .25
1.5	1.5	12	4 1/4	5400	.25
<b>Round Duct, Single</b>					
1.5	1.5	10	3 1/4	6700	\$ .25
1.5	1.5	12	4 1/8	5000	.25

**2 and 3-Duct Multiple Conduit**

The 2 and 3-duct standard conduit is intended for the laying of 2 or 3 cables in terminals or laterals from the main trunk line, or for the purpose of building up trunk lines to the number of ducts required. On account of the narrow lateral diameter of this ware, it has been found impossible to manufacture this style of conduit in pieces longer than 2 feet, and insure good, straight pieces. In many cases it will prove cheaper to lay an extra duct in the longer multiple conduit, especially if the future contemplates the use of the extra duct.

Length of Piece Feet	Duct Feet in Pieces	2-Duct, Multiple		Duct Feet in Min. Carload	Price per Duct Ft.
		Approx. Wt., Lbs. per Duct Foot	Diam. Duct Inches		
2	4	10	3 1/4	8000	\$ .25
<b>3-Duct, Multiple</b>					
2	6	10	3 1/4	8200	\$ .25

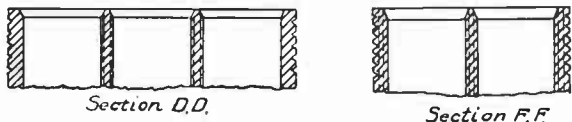
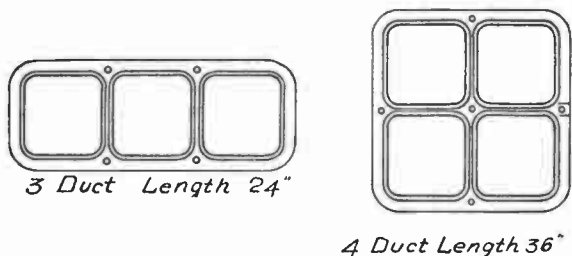
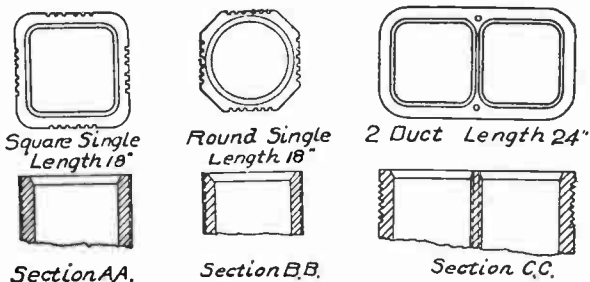
**4, 6 and 9-Duct Multiple Conduit**

Telephone and telegraph specifications ordinarily require a larger percentage of 4, 6 or 9-duct than of the smaller forms. These designs are the more economical and permit of considerable saving in installation over the smaller forms. There is no constructive reason why single-duct conduit should take the place of multiples in building up a telephone trunk line. The long multiples present the advantage of economy, constructive simplicity, working efficiency and ease in pulling cables.

Length of Piece Feet	Duct Feet in Pieces	4-Duct, Multiple		Duct Feet in Min. Carload	Price per Duct Ft.
		Approx. Wt., Lbs. per Duct Foot	Diam. Duct Inches		
3	12	8	3 1/4	9300	\$ .2!
<b>6-Duct, Multiple</b>					
3	18	8	3 1/4	10000	\$ .2!
<b>9-Duct, Multiple</b>					
3	27	8	3 1/4	10400	\$ .2.

Vitrified Salt Glazed Clay Conduit

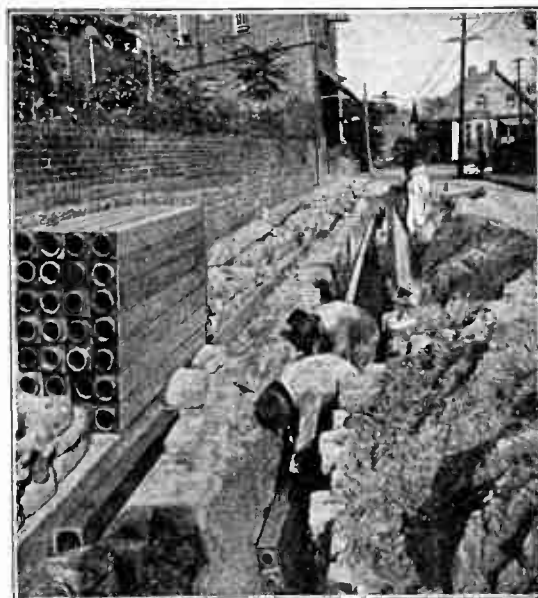
Creosoted Wood Conduit



Dowel Pins

Metal dowel pins are made of commercial wrought iron. They are circular in cross section, 3 inches long,  $\frac{5}{8}$  inches in diameter of shaft, with a thin collar projection mid-way of the shaft to prevent the pin from slipping more than half-way into the conduit hole. C. P. C. Conduit is reamed about the dowel pin holes to allow the conduit pieces to make a close-butt-joint over the dowel pin collar.

Prices upon application.



This material is manufactured from yellow pine at the plants at Norfolk, Virginia, and Atlanta, Georgia and from Douglas fir at our plant at Tacoma, Washington; creosoted full vacuum treatment is an economical and satisfactory conduit for the carrying of all forms of lead cable and wires.

Comes in random lengths.

Outside measurement,  $4\frac{1}{2} \times 4\frac{1}{2}$  inches.

Has a 3-inch hole in center, a mortise at one end and a tenon on the other.

It is in general use by the large telegraph companies and telephone companies all over the country and by many railroads.

Uses for which it is adapted:

**RAILROADS.**—Trunking, underground signal wires, high tension transmission lines, yard drainage where clay conduit is easily broken through, and system is usually placed on the surface of the ground.

**TELEPHONE COMPANIES.**—All underground work.

**TELEGRAPH COMPANIES.**—All underground work.

**POLICE AND FIRE ALARM SYSTEMS.**—For carrying wires, either high or low tension under ground.

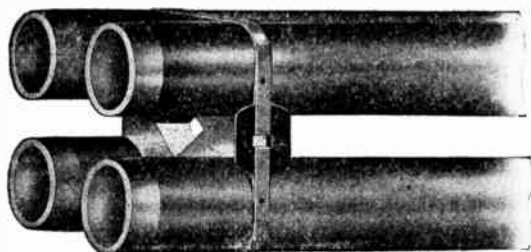
**CENTRAL STATIONS.**—For distribution mains and services.

**SPECIFICATION CREOSOTED CONDUIT.**—Free from large, unsound or loose knots, or other defects which would impair strength. Creosoted steam and vacuum treatment, dead oil of coal tar under pressure either 12 pounds per cubic foot (full cell) or 8 pounds per cubic foot (empty cell) as ordered.

Any additional information regarding the practicability of installing this conduit will be furnished upon request.

Prices on application.

**Bermico Multiple Fibre Conduit**



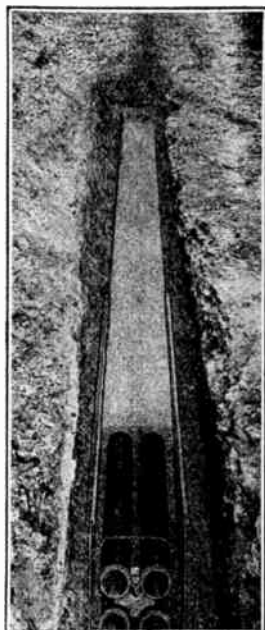
Forty-Eight feet of Bermico Multiple can be laid in a few seconds. Two men can do it. Put one man in the trench and let the other pass him the 6-duct Bermico Multiple. Being light in weight Bermico brings a saving in freight. It is easier to handle, reduces the element of fatigue in workmen and hence keeps the job moving speedily throughout the day. Trenches may be made narrower, with economy in cement and in the labor of excavating and refilling. And then, there is practically no breakage with the Bermico Multiple.



**Cement Block Separator**



**Fibre Insulator and Insulated Iron Band**

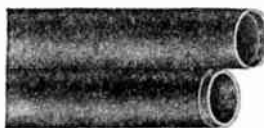


The suggested multiple ducts required are not over 6 to insure ease of handling. Bermico Multiple Conduit is manufactured in lengths of 23, 46, 69 and 92 inches. If desired, shipments can be made up entirely of the 92-inch length. While this length covers more distance per unit of installation, it is found that shipments carrying assorted lengths bring about savings at manholes and other places where the shorter pieces fit in.

All lengths of Bermico Multiple adapt themselves to long curves without danger to the carefully constructed sleeve joints. The ducts of this conduit are bound with iron bands, which are equipped with strong fibre insulator to break any induced current which may be set up within the strap. Spacing between ducts can be made according to your specifications. Bermico standard spacing is 1 inch. Each piece of Bermico Multiple Conduit is properly aligned on the accurate cement block separators about which it is bound.

Size.....in.	1½	2	2½	3	3½
Bulk...per 100 duct ft.					
Crated...per 100 duct ft.					
Size.....in.	4	4½	5	6	
Bulk...per 100 duct ft.					
Crated...per 100 duct ft.					

**Bermico Fibre Conduit**



**Socket Joint Type**

Bermico Fibre Conduit is manufactured in a long established pulp and paper plant that specializes in high grade products. It is produced under standardized conditions under the supervision of expert chemists and engineers.

The pure spruce pulp fibre is converted into 8-foot lengths of automatic machines which produce a higher degree of precision than any skilled operative could produce, wall thicknesses for example being gauged automatically to the thousandth of an inch.

Automatically regulated and elaborate machinery is used to slowly dry and season the conduit, overcoming the defects of ordinary drying methods such as blistering, warping, etc. The result is straight, tough, uniform tubes all exactly up to standard.

Impregnating is effected in great steel sealed chambers forcing out all moisture and forcing in the binding material under correct temperature conditions and for the right length of time.

Machining is done automatically, both ends of the conduit being milled at once insuring uniformity.



**Sleeve Joint Type**

The use of only first quality materials, expert supervision and exactness of construction results in a product which meets the highest standards for dielectric and physical strength, moisture absorption and uniformity.

LENGTHS.—Approximately 8 feet, except 1½, 2 and 2½-inch sizes which are approximately 5 feet; 3-inch size is furnished in both 5 and 8-foot lengths.

**Socket Joint Type**

Size Inside Diameter Inches	Approx. Net. Wt. per Ft. Lbs.	Approx. Max. Gross Wt. in Full 36-Ft. Car	Approx. Max. No. of Ft. in 36-Ft. Car	Approx. Min. No. of Ft. in 3000-Lb. Carload	Price per Foot
1½	0.70	31800	45000	42500	....
2	0.92	32500	35000	32300	....
2½	1.10	33300	30000	27000	....
3	1.35	34000	25000	22000	....
3½	1.65	35000	21000	18000	....
4	1.85	30900	16500	16000	....
4½	2.25	30000	13300	13200	....
5	3.00	30000	10000	10000	....
6	4.00	33600	9500	8400	....

**\*Bermico Sleeve Joint Type**

1½	0.75	30300	40000	39600	....
2	0.95	31600	33000	31300	....
2½	1.20	32700	27000	24700	....
3	1.45	33700	23000	20500	....
3½	1.75	35300	20000	17000	....
4	2.00	31300	15500	14850	....
4½	2.45	31000	12500	12100	....
5	3.20	31000	9200	9200	....
6	4.30	31800	9000	7200	....

**Standard Crates**

**For Socket Joint Type Conduit**

Size Inside Diameter Inches	Approx. Gross Wt., Lbs.	Approx. No. of Feet	OUTSIDE DIMEN. CRATE, INCHES	
			For Socket Joint Type Conduit	For Sleeve Joint Type Conduit
1½	245	300	61¾x20½x20½	61¾x20½x20½
2	270	200	62¼x19¾x20½	62¼x19¾x20½
2½	215	125	62¼x19¾x17¾	62¼x19¾x17¾
3	360	200	99½x22¾x20½	99½x22¾x20½
3½	435	200	99½x25 x23½	99½x25 x23½
4	500	200	99½x27¾x25¾	99½x27¾x25¾
4½	595	200	99½x29¾x27¾	99½x29¾x27¾
5	550	160	99½x24½x24½	99½x24½x24½
6	430	95	99½x23¾x30½	99½x23¾x30½

\*One coupling supplied with each length.



## Bermico Fibre Conduit Bends and Fittings



45° Bend, 36-Inch Radius

Bends 2 and 2½-inch are furnished in approximately 5-foot lengths.  
Bends 3-inch and larger are furnished in approximately 8-foot lengths.

LENGTHS.—Approximately 8 feet, except 1, 1½ and 2-inch sizes which are approximately 5 feet; 3-inch size is furnished in both 5 and 8-foot lengths.

### Socket Joint Type

Size Inside Diameter Inches	Radius of Standard 45° and 90° Bends Inches	Radius of Standard "S" Bends (20-In. Offset) Inches	Approx. Gross Wt., Lbs. Standard Crate Bends	Standard Crate of Bends Contains Pieces	Price per Standard Bend	Price Each 45° and 90° Elbows
1½	18-24-36	36	280	40	.....	.....
2	18-24-36	36	260	25	.....	.....
2½	24-36	36	290	25	.....	.....
3	36	36	285	20	.....	.....
3½	36	36	305	15	.....	.....
4	36	36	295	12	.....	.....
4½	36	36	250	9	.....	.....
5	36	36	260	10	.....	.....
6	36	36	250	8	.....	.....

### \*Bermico Sleeve Joint Type

Size Inside Diameter Inches	Radius of Standard 45° and 90° Bends Inches	Radius of Standard "S" Bends (20-In. Offset) Inches	Approx. Gross Wt., Lbs. Standard Crate Bends	Standard Crate of Bends Contains Pieces	Price per Standard Bend	Price Each 45° and 90° Elbows
1½	18-24-36	36	280	40	.....	.....
2	18-24-36	36	260	25	.....	.....
2½	24-36	36	290	25	.....	.....
3	36	36	285	20	.....	.....
3½	36	36	305	15	.....	.....
4	36	36	295	12	.....	.....
4½	36	36	250	9	.....	.....
5	36	36	260	10	.....	.....
6	36	36	250	8	.....	.....

\*One coupling supplied with each bend or elbow.

### Extra Couplings

Size Inside Diameter Inches	O.S. Measurement of Crate, Inches	Number to Each Crate	Approx. Wt., Lbs. per Crate	Price Each
1½	32 x26 x27	960	285	.....
2	36 x30 x25	960	334	.....
2½	41½x31½x25½	864	335	.....
3	41 x37 x29½	720	358	.....
3½	41½x32 x29½	504	338	.....
4	46½x31 x32½	432	347	.....
4½	46 x34½x29½	336	354	.....
5	36½x36½x32½	288	387	.....
6	46½x39 x34½	240	450	.....

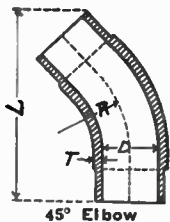
### Approximate Dimensions of Elbows for Socket and Bermico Sleeve Joint Types

#### For 90° Elbows

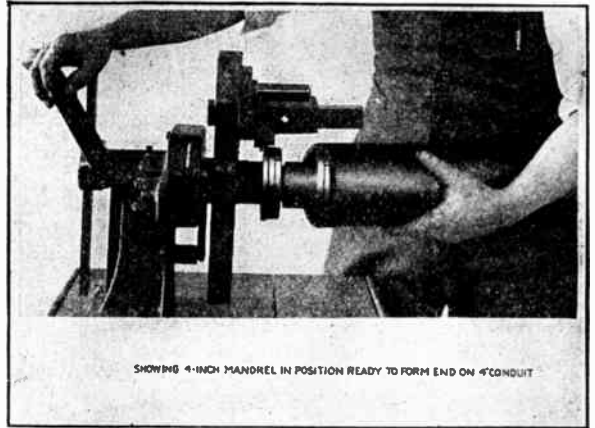
Diameter Inches	Radius Inches	L Inches	Thickness Wall Inches
1½	3	8	1/8
2	4	9	1/8
2½	4	9	1/8
3	5	10	1/8
3½	5	10	1/8
4	6	11	1/8
4½	8	13	3/16
5	9	14	3/16
6	10	15	3/16

#### For 45° Elbows

Diameter Inches	Radius Inches	L Inches	Thickness Wall Inches
1½	3	8	1/8
2	4	9	1/8
2½	4	9	1/8
3	5	10	1/8
3½	5	11	1/8
4	6	12	1/8
4½	8	13	3/16
5	9	14	3/16
6	10	15	3/16



## Bermico Fibre Conduit Field Machines



SHOWING 4-INCH MANDREL IN POSITION READY TO FORM END ON 4" CONDUIT

The Bermico Conduit Field Machine for sleeve, screw and socket joints enables the conduit-laying crew to machine a short length of conduit to a perfect fit.

The machine is light, portable, inexpensive and ensures a finished conduit possessing tight joints. Both types of the machine carries all mandrels, cutting tools, tool holders, and other parts required for machining joints on 2, 2½, 3, 3½, 4, 4½ and 6-inch conduit, including necessary adjusting and tightening wrenches. No wrenches or other tools should be used except those supplied with the outfit.

The taper or angle for all joints is set by the manner in which the machine is assembled at factory and cannot be changed. It is set exactly right, and remains so.

The screw-joint type machine cuts the standard male thread, and finishes thread complete in one operation. Operator can only vary the depth of cut, and a little practice will enable him to get correct depth. This type carries also a cutting tool for trimming the entering end of the conduit before thread is cut. This trim is made quickly and ensures a tight seat for the conduit-end when butted end to end.

While spare parts may be obtained, each conduit machine is assembled in a rugged cabinet with a padlocked lid which also functions as the operating stand for the machine when in use. This cabinet contains a tool compartment in which all accessory parts are snugly held, handy for instant use. If the machine is properly closed and padlocked when not in use, there should be no occasion for buying duplicate parts.

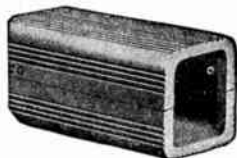
### Parts for Conduit Field Machine

H.K. 3	Crank	H.K. 15	Cutter Feed Bracket
H.K. 8	Feed Cutter Rest	H.K. 17	2-Inch Spider
H.K. 9B	Cutter Knife	H.K. 18	2½-Inch Spider
	Block Complete	H.K. 19	3-Inch Spider
H.K. 12	Cutter Feed Screw	H.K. 20	3½-Inch Spider
H.K. 13	Cutter Feed Screw Ratchet	H.K. 21	4-Inch Spider
H.K. 14	Cutter Feed Rack	H.K. 22	4½-Inch Spider
H.K. 24	Extension Bars for Holding Spiders, 3 to 6-Inch Sizes	H.K. 23	6-Inch Spider
H.K. 25	Screws for Extension Bars		
H.K. 26	Cone Expander Washer		
H.K. 27	Gauge for Setting	H.K. 53	in Line so as to operate with its Counterparts when Assembled.
H.K. 28	Wing Nut for Cutter Feed Bracket		
H.K. 29	Cutter Blade (Tool Steel)		
H.K. 53	Cone Expander to Hold Spiders		
H.K. 54	Tool Sweep Nut		
H.K. 58	Wing Nut Washer for H.K. 28		
H.K. 59	½-Inch Socket Wrench		
H.K. 60	½-Inch Socket Wrench		
H.K. 61	Thumb Screw to Hold H.K. 53.		
H.K. 62	Cap Screws Attaching Machine to Box Cover		
H.K. 63	Lock for Steel Box		
H.K. 64	Spring for Cutter Feed Rack	H.K. 14	
H.K. 65	Tool Sweep Nut Wrench		
H.K. 56	Cutter Knife Block Complete	Socket	
H.K. 56B	Cutter Blades (Tool Steel)	Joint	
H.K. 57	Feed Cutter Rest		

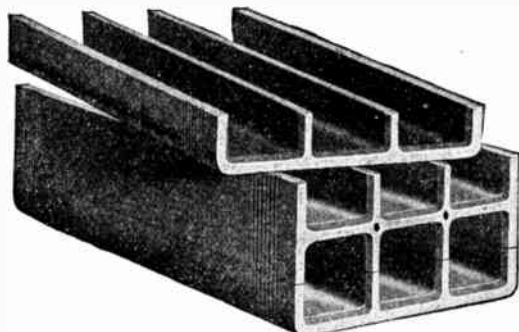
**Natco Split Clay Conduit**



Single Duct, Round Bore Split 18 Inches Long



Single Duct Square Bore Split 18 Inches Long



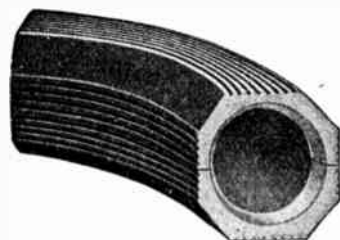
6-Duct Split 18 Inches Long

Natco Split Conduit is made in all single and multiple duct forms, both in standard lengths and in short lengths.

It is scored or knifed for splitting apart on the job. This split section makes it easier to replace or repair conduit lines without the necessity of removing cables.

These split sections may also be used to enclose cable joints or splices in place of building manholes. This is of advantage in reducing manhole costs.

**Bends**



Single Duct Curve, Round Bore Split

Natco Single Duct Bends are furnished in all standard size bores, i.e., 3¼-inch and 3½-inch round, and 3½-inch square bore and are furnished in either 45 or 90-degree angles and in 12, 18, 24, 30 and 36-inch radii.

Bends of special angles or of special radii can be made to order on short notice.

The radius of single duct bends is measured from the center line of the duct hole.

These bends are furnished either knifed for splitting apart or are furnished solid without any knifing.

**Natco Transposition Conduit**

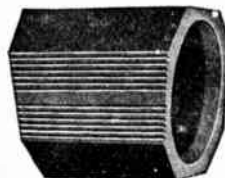


Natco Transposition Conduit is supplied in 6, 3, and 2-way multiples, all 24 inches long, with either right hand or left hand twist of 22½ degrees.

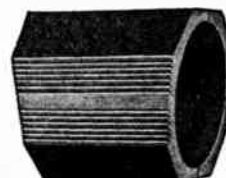
It is designed to permit the transposition of conduit lines from a flat to an edge position, or vice-versa, in a distance of 8 lineal feet and back again, if desired, to their original position in another 8 feet. Each transposition of 90 degrees is accomplished by the use of 4 pieces of transposition conduit.

This shape is of considerable advantage in changing the position of the conduit lines to avoid certain underground street obstructions or to change the position of cables on approaching manholes or central offices.

**Natco Slant Clay Conduit**

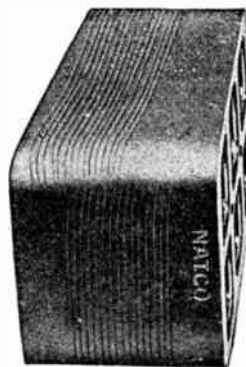


Single Duct Slant Round Bore Solid



Single Duct Slant Round Bore Split

Natco Slant Conduit is adapted for building curves of various angles and various radii and may be used in place of bends. This is of advantage where the angle or radius of the curve cannot be definitely determined before actual construction is started or where the curve is of unusual or intricate design and under such conditions fills a long felt want.



Unit of Multiple Duct, Slant Conduit

Natco Slant Conduit, both single duct and multiple duct, is supplied in one standard cut—3-degree 10-foot radius, and in all standard size bores and positions. In combination with standard 6-inch short lengths these slants will build curves from 10 to 25 feet in radius and in various angles, ranging from 3 degrees up to 90 degrees.

Slants can also be supplied in special cuts for radii less than 10 feet if desired and can also be furnished knifed for splitting apart. The radius of the slants is measured from the center line of the conduit.

Cables can be easily pulled through curves built of Natco Slant Conduit, and, more important, tight fitting joints are assured.

**Quality Rating on Underground Clay Conduit**

**Inspection Test on Natco Conduit**

Shape	Perfect Score in Points	Percent Free from Defects	Actual Score in Points
Uniformity of Dimensions . . .	8	100.	8.00
Absence of Twist . . . . .	15	100.	15.00
Perpendicularity of Ends . . .	4	99.	3.96
Perpendicularity of Sides . . .	4	100.	4.00
Absence of Flared Ends . . . .	5	99.5	4.97
Straightness . . . . .	14	97.5	13.65
		<hr/> 50	<hr/> 49.58
<b>Finish</b>			
Bevel . . . . .	3	99.	2.97
Scarification . . . . .	2	100.	2.00
Glaze . . . . .	20	99.	19.80
Absence of Chipped Ends . . .	3	100.	3.00
Absence of Broken Ends . . . .	3	100.	3.00
Absence of Cracks . . . . .	10	96.5	9.65
Absence of Blisters . . . . .	9	99.	8.91
		<hr/> 50	<hr/> 49.3:
		100	98.9

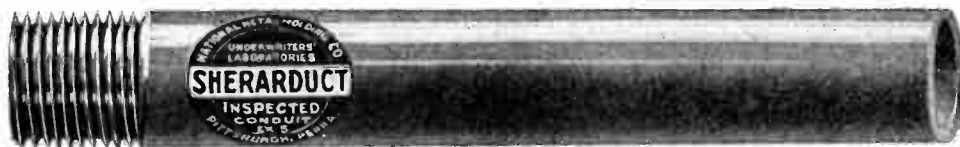
Column 1, above, represents various points of perfection weighted according to their relative importance to the user

Applied to an average lot of Natco Conduit, an actual test inspection (Column 2) was made by a disinterested inspector and in column 3 appears the actual calculated rating.

## Rigid Steel Conduit

Installation of Rigid Steel Conduit in buildings is recognized as the most practicable method of protecting electric wires, and making provision for their replacement when judged advisable. The first requirement of such conduit is that it shall be permanent.

### Sherarduct



Sherarduct Rigid Steel Conduit manufactured from spellerized steel is the impregnable wiring raceway.

Zinc-alloy and pure zinc protection obtained over the inside and outside surfaces in the sherardizing process, and elastic acid-proof enamel baked on, assure permanence under all conditions of moisture and acid corrosion.

Sherarduct elbows, nipples and couplings are manufactured

of the same high grade spellerized steel as Sherarduct conduit, and are given the same zinc and enamel protection against corrosion.

The threads on Sherarduct conduit are cut clean and sharp. The annealed steel bends, cuts, and threads easily because of annealing. Wires slide quickly on glass-like inside enamel of sherarduct.

### Economy



Economy Rigid Steel Conduit is thoroughly coated inside and outside with elastic and acid-proof enamel, for installation under less rigorous corrosive conditions.

It is manufactured of the same high grade spellerized steel as Sherarduct Conduit, and bends easily for offsets and angles. The enamel used on Economy Conduit will not crack or chip off under the roughest handling and remains

intact when Economy is bent. Economy Elbows, nipples and couplings are given the same thorough enamel protection as Economy Conduit.

On sizes of Economy Conduit up to 2 inches inclusive, thread protectors are furnished; on all larger sizes excess enamel is carefully removed from the threads before shipment.

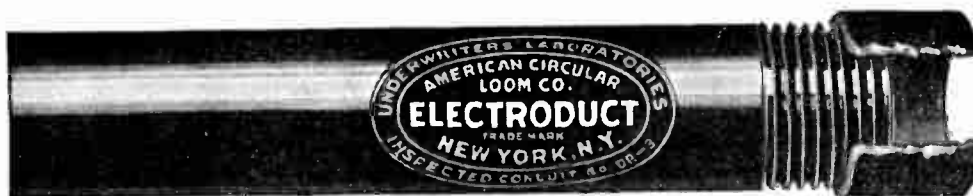
### X Duct



Xduct is electro-galvanized conduit manufactured from spellerized and scale-free tubing, the inner surface raceway is coated with a highly glazed, hard, conduit enamel,

unaffected by acids and alkali, this enamel is elastic and is not affected when the conduit is bent.

### Electroduct



Electroduct is enameled both inside and outside, manufactured from spellerized, scale-free tubing. The enamel will

bend with the conduit without cracking or flaking. Electroduct is full standard weight, threads are cut sharp and clean.

**Rigid Steel Conduit  
Enamelled Conduit**



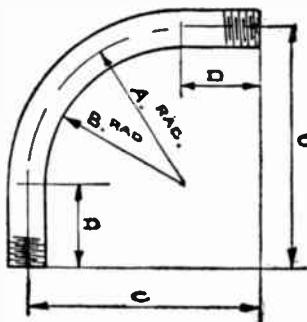
Enamelled conduit is manufactured from mild drawn steel tubing. Before enameling, the tubing is thoroughly cleaned and freed from dirt, grease, scale, silicates and burrs. This process leaves clean surface for the application of the compound. **Sherarduct**



Sherarduct rigid conduit is made of full weight mild spellerized steel tube and finished under the famous sherardizing process. In this process pure zinc is alloyed with the steel tube both inside and outside to form a rustproof finish which is so entirely a part of the pipe that it cannot be knocked or chipped off.

Standard Pipe Size Inches	DIAMETER, INCHES		Threads per Inch	Weight Pounds per 100 Feet	Price per 100 Feet
	Inside	Outside			
1/2	.622	.840	14	85.2	\$8.50
3/4	.824	1.050	14	113.4	11.50
1	1.049	1.315	11 1/2	168.4	17.00
1 1/4	1.380	1.660	11 1/2	228.1	23.00
1 1/2	1.610	1.900	11 1/2	273.1	27.50
2	2.067	2.375	11 1/2	367.8	37.00
2 1/4	2.469	2.875	8	581.9	58.50
3	3.068	3.500	8	761.6	76.50
3 1/4	3.548	4.000	8	920.2	92.00
4	4.026	4.500	8	1088.9	109.00
4 1/4	4.506	5.000	8	1264.2	127.00
5	5.047	5.563	8	1481.0	148.00
6	6.065	6.625	8	1918.5	192.00

**Conduit Elbows**



Size Inches	ACTUAL DIAMETER INCHES		DIMENSIONS, INCHES				Weight Pounds per 100
	Inside	Outside	A	B	C	D	
1/4	.364	.540	3 3/4	3 1/2	6 3/4	3	41
3/8	.493	.675	3 3/4	3 7/16	6 3/4	3	55
1/2	.622	.840	4	3 9/16	6 3/4	2 3/4	82
3/4	.824	1.050	4 1/2	4	6 27/32	2 11/32	109
1	1.049	1.315	5 3/4	5 1/16	8 1/2	2 23/32	201
1 1/4	1.380	1.660	7 1/4	6 7/16	9 5/16	2 11/16	313
1 1/2	1.610	1.900	8 1/4	7 3/16	11 5/8	3 3/8	441
2	2.067	2.375	9 1/2	8 5/16	14 5/16	4 13/16	707
2 1/2	2.469	2.875	10 1/2	9 1/16	17	6 1/2	1411
3	3.068	3.500	11 3/4	10	17 1/4	5 1/2	1850
3 1/2	3.548	4.000	13 3/4	11 3/4	22 7/16	8 13/16	2979
4	4.026	4.500	16	13 3/4	23 1/16	7 1/16	3528
5	5.047	5.563	24	21 1/4	32	8	6575
6	6.065	6.625	30	26 1/16	36 3/4	6 3/4	9645

**Couplings**

Standard Pipe Size Inches	Weight Pounds per 100	Price per 100	Pipe Size Inches	Weight Pounds per 100	Price per 100
3/4	20.9	10.00	3 1/2	424.1	80.00
1	34.3	13.00	4	474.1	100.00
1 1/4	53.5	17.00	4 1/2	550.0	150.00
1 1/2	74.3	21.00	5	700.0	165.00
2	120.8	28.00	6	750.0	240.00
2 1/2	172	40.00	.....	.....	.....

In ordering, specify finish desired.

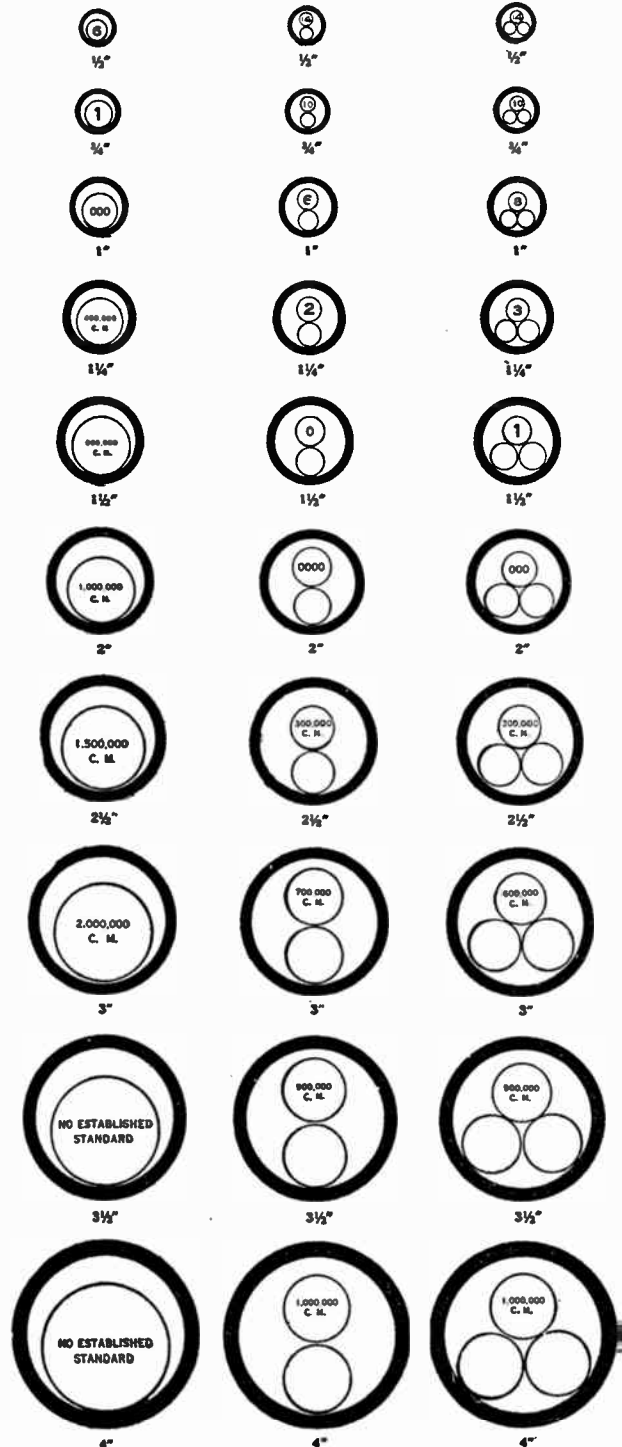
**Standard Sizes of Conduit**

For the Installation of Wire and Cables

As Adopted and Recommended by the National Association of Electricians

Based on the use of not more than three 90-degree elbows in runs taking up to and including No. 10 wires, and two elbows for wires longer than No. 10. Wires Nos. 8 and larger are stranded.

Single wire combinations are based on straight run without elbows. Special permission is required of the inspection department having jurisdiction for the installation of more than nine wires in the same conduit.



## Wire and Conduit Information

### Useful Combination Table

ALLOWABLE CARRYING CAPACITIES OF WIRES					NUMBER OF WIRES IN ONE CONDUIT									
B&S Gauge	Area in Circular Mills	CARRYING CAPACITY AMPERES			MINIMUM SIZE OF CONDUIT IN INCHES									
		A Rubber	B Varnish Cloth	C Other Insulation	1	2	3	4	5	6	7	8	9	
18	1624	3	....	5	...	...	...	...	...	...	...	...	...	...
16	2583	6	....	10	...	...	...	...	...	...	...	...	...	...
14	4107	15	18	20	1/2	1/2	1/2	3/4	3/4	1	1	1	1	1
12	6530	20	25	25	1/2	1/2	3/4	3/4	3/4	1	1	1	1	1 1/4
10	10380	25	30	30	1/2	3/4	3/4	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4
8	16510	35	40	50	1/2	3/4	1	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
6	26250	50	60	70	1/2	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2
5	33100	55	65	80	3/4	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2	2	2
4	41740	70	85	90	3/4	1 1/4	1 1/4	1 1/2	2	2	2	2	2	2 1/2
3	52630	80	95	100	3/4	1 1/4	1 1/4	1 1/2	2	2	2	2	2 1/2	2 1/2
2	66370	90	110	125	3/4	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2	2 1/2
1	83690	100	120	150	3/4	1 1/2	1 1/2	2	2 1/2	2 1/2	2 1/2	2 1/2	3	3
0	105500	125	150	200	1	1 1/2	2	2	2 1/2	2 1/2	3	3	3	3
00	133100	150	180	225	1	2	2	2 1/2	2 1/2	3	3	3	3	3 1/2
000	167800	175	210	275	1	2	2	2 1/2	3	3	3	3	3 1/2	3 1/2
....	200000	200	240	300	1 1/4	2	2 1/2	2 1/2	3	3	3 1/2	3 1/2	3 1/2	4
0000	211600	225	270	325	1 1/4	2	2 1/2	2 1/2	3	3	3 1/2	3 1/2	3 1/2	4
....	225000	225	270	325	1 1/4	2 1/2	2 1/2	3	3	3 1/2	...	...	...	...
....	250000	250	300	350	1 1/4	2 1/2	2 1/2	3	3	3 1/2	...	...	...	...
....	300000	275	330	400	1 1/4	2 1/2	3	3	3 1/2	3 1/2	...	...	...	...
....	350000	300	360	450	1 1/4	2 1/2	3	3 1/2	3 1/2	4	...	...	...	...
....	400000	325	390	500	1 1/4	3	3	3 1/2	4	4	...	...	...	...
....	450000	362	435	550	1 1/2	3	3	3 1/2	4	4 1/2	...	...	...	...
....	500000	400	480	600	1 1/2	3	3	3 1/2	4	4 1/2	...	...	...	...
....	550000	425	510	640	1 1/2	3	3 1/2	4	4 1/2	5	...	...	...	...
....	600000	450	540	680	2	3	3 1/2	4	4 1/2	5	...	...	...	...
....	650000	475	570	720	2	3 1/2	3 1/2	4	...	...	...	...	...	...
....	700000	500	600	760	2	3 1/2	3 1/2	4 1/2	...	...	...	...	...	...
....	750000	525	630	800	2	3 1/2	3 1/2	4 1/2	...	...	...	...	...	...
....	800000	550	660	840	2	3 1/2	4	4 1/2	...	...	...	...	...	...
....	850000	575	690	880	2	3 1/2	4	4 1/2	...	...	...	...	...	...
....	900000	600	720	920	2	3 1/2	4	4 1/2	...	...	...	...	...	...
....	950000	625	750	960	2	4	4	5	...	...	...	...	...	...
....	1000000	650	780	1000	2	4	4	5	...	...	...	...	...	...
....	1100000	690	830	1080	2 1/2	4	4 1/2	6	...	...	...	...	...	...
....	1200000	730	880	1150	2 1/2	4 1/2	4 1/2	6	...	...	...	...	...	...
....	1250000	750	900	1185	2 1/2	4 1/2	4 1/2	6	...	...	...	...	...	...
....	1300000	770	920	1220	2 1/2	4 1/2	5	6	...	...	...	...	...	...
....	1400000	810	970	1290	2 1/2	4 1/2	5	6	...	...	...	...	...	...
....	1500000	850	1020	1360	2 1/2	4 1/2	5	6	...	...	...	...	...	...
....	1600000	890	1070	1430	2 1/2	5	5	6	...	...	...	...	...	...
....	1700000	930	1120	1490	3	5	5	6	...	Gauge	NUMBER OF WIRES		...	...
....	1750000	950	1140	1520	3	5	5	6	...	14	4	7	...	...
....	1800000	970	1160	1550	3	5	6	6	...	12	3	6	...	...
....	1900000	1010	1210	1610	3	5	6	...	...	10	....	4	...	...
....	2000000	1050	1260	1670	3	5	6	...	...	8	....	3	...	...

If single braid solid wires only, are used, then following sizes are permissible:

Gauge	NUMBER OF WIRES	
	1/2-Inch	3/4-Inch
14	4	7
12	3	6
10	....	4
8	....	3

(Courtesy of ELECTRICAL WEST)

**Standard Sizes of Conduit**

**For the Installation of Wire and Cable**

As adopted and recommended by the National Association of Electragists.

Conduit sizes based on the use of not more than three 90° elbows in runs taking up to and including No. 10 wires; and two elbows for wires larger than No. 10. Wires No. 8 and larger are stranded.

Size Wire	Cap. Amps.	SIZE OF CONDUIT, INCHES—							
		ONE WIRE IN A CONDUIT		TWO WIRES IN A CONDUIT		THREE WIRES IN A CONDUIT		FOUR WIRES IN A CONDUIT	
		Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.
14	15	1/2	.84	1/2	.84	1/2	.84	3/4	1.05
12	20	1/2	.84	1/2	.84	3/4	1.05	3/4	1.05
10	25	1/2	.84	3/4	1.05	3/4	1.05	1	1.31
8	35	1/2	.84	3/4	1.05	1	1.31	1	1.31
6	50	1/2	.84	1	1.31	1 1/4	1.66	1 1/4	1.66
5	55	3/4	1.05	1 1/4	1.66	1 1/4	1.66	1 1/4	1.66
4	70	3/4	1.05	1 1/4	1.66	1 1/4	1.66	1 1/2	1.9
3	80	3/4	1.05	1 1/4	1.66	1 1/4	1.66	1 1/2	1.9
2	90	3/4	1.05	1 1/4	1.66	1 1/4	1.9	1 1/2	1.9
1	100	3/4	1.05	1 1/2	1.9	1 1/2	1.9	2	2.37
0	125	1	1.31	1 1/2	1.9	2	2.37	2	2.37
00	150	1	1.31	2	2.37	2	2.37	2 1/2	2.87
000	175	1	1.31	2	2.37	2	2.37	2 1/2	2.87
0000	225	1 1/4	1.66	2	2.37	2 1/4	2.87	2 1/2	2.87
250000	250	1 1/4	1.66	2 1/2	2.87	2 1/2	2.87	3	3.5
300000	275	1 1/4	1.66	2 1/2	2.87	3	3.5	3	3.5
400000	325	1 1/4	1.66	3	3.5	3	3.5	3 1/2	4
500000	400	1 1/2	1.9	3	3.5	3	3.5	3 1/2	4
600000	450	1 1/2	1.9	3	3.5	3 1/2	4	.....	.....
700000	500	2	2.37	3 1/2	4	3 1/2	4	.....	.....
800000	505	2	2.37	3 1/2	4	4	4.5	.....	.....
900000	600	2	2.37	3 1/2	4	4	4.5	.....	.....
1000000	650	2	2.37	4	4.5	4	4.5	.....	.....
1250000	750	2 1/2	2.87	4 1/2	5	4 1/2	5	.....	.....
1500000	850	2 1/2	2.87	4 1/2	5	5	5.56	.....	.....
1750000	950	3	3.5	5	5.56	5	5.56	.....	.....
2000000	1050	3	3.5	5	5.56	6	6.62	.....	.....

**Duplex Wire**

14	15	1/2	.84	3/4	1.05	1	1.31	1	1.31
12	20	1/2	.84	3/4	1.05	1	1.31	1 1/4	1.66
10	25	3/4	1.05	1	1.31	1 1/4	1.66	1 1/4	1.66

**EXAMPLE.**—To ascertain the size of conduit for three No. 0000 wire, follow down the wire column to No. 0000 and then across to the section headed "Three Wires in a Conduit," and it will be seen that 2 1/2-inch conduit is the size to use and that the external diameter is 2.87 inches.

**3-Wire Convertible System**

No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.		No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.	
		Int.	Ext.			Int.	Ext.
14	10	3/4	1.05	00	350000	2 1/2	2.87
12	8	3/4	1.05	000	400000	2 1/2	2.87
10	6	1	1.31	0000	550000	3	3.5
8	4	1	1.31	250000	600000	3	3.5
6	2	1 1/4	1.66	300000	800000	3	3.5
5	1	1 1/4	1.66	400000	1000000	3 1/2	4
4	0	1 1/2	1.9	500000	1250000	4	4.50
3	00	1 1/2	1.9	600000	1500000	4	4.5
2	000	1 1/2	1.9	700000	1750000	4 1/2	5
1	0000	2	2.37	800000	2000000	4 1/2	5
0	250000	2	2.37	.....	.....	.....	.....

**Single Wire Combination**

Based on straight run without elbows. Size wire, No. 14 rubber covered, double braided, solid.

**NOTE.**—Special permission is required of the inspection department having jurisdiction for the installation of more than nine wires in the same conduit.

No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.		No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.	
		Int.	Ext.			Int.	Ext.
3	1/2	.84		26	1 1/2	1.9	
7	3/4	1.05		43	2	2.37	
11	1	1.31		61	2 1/2	2.87	
19	1 1/4	1.66		95	3	3.35	

**Signal System**

Based on straight run without elbow. Light insulation fixture wire.

No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.		No. of Wires	Size of Wire	SIZE OF CONDUIT, IN.	
		Int.	Ext.			Int.	Ext.
10	16	1/2	.84	18	18	1 1/2	.84
20	16	3/4	1.05	30	18	3/4	1.05
30	16	1	1.31	40	18	1	1.31
70	16	1 1/4	1.66	100	18	1 1/4	1.66
90	16	1 1/2	1.9	130	18	1 1/2	1.9
150	16	2	2.37	200	18	2	2.37

**Weights of Conduit**

Size Inches	QUANTITY, IN FEET						
	500	1000	2000	3000	4000	5000	6000
1/2	426	852	1704	2556	3408	4260	5112
3/4	567	1134	2268	3402	4536	5670	6804
1	842	1684	3368	5052	6736	8420	10104
1 1/4	1140 1/2	2281	4562	6843	9124	11405	13686
1 1/2	1365 1/2	2731	5462	8193	10924	13655	16386
2	1839	3678	7356	11034	14712	18390	22068
2 1/2	2909 1/2	5819	11638	17457	23276	29095	34914
3	3808	7616	15232	22848	30464	38080	45696
3 1/2	4631	9202	18404	27606	36808	46010	55212
4	5444 1/2	10889	21778	32667	43556	54445	65334
4 1/2	6321	12642	25284	37926	50568	63210	75852

Size Inches	QUANTITY, IN FEET						
	7000	8000	9000	10000	15000	20000	25000
1/2	5964	6816	7668	8520	12780	17040	21300
3/4	7938	9072	10206	11340	17010	22680	28350
1	11788	13472	15156	16840	25260	33680	42100
1 1/4	15967	18248	20529	22810	34215	45620	57025
1 1/2	19117	21848	24579	27310	40965	54620	68275
2	25746	29424	33102	36780	55170	73560	91950
2 1/2	40733	46552	52371	58190	87285	116380	145475
3	53312	60928	68544	76160	114240	152320	190400
3 1/2	64414	73616	82818	92020	138030	184040	230050
4	76223	87112	98001	108890	163335	217780	272225
4 1/2	88494	101136	113778	126420	189630	252840	316050

**Weights of Elbows**

Size Inches	QUANTITY						
	1	2	3	4	5	6	7
3/4	1.2	2.4	3.6	4.8	6	7.2	8.4
1	2	4	6	8	10	12	14
1 1/4	3	6	9	12	15	18	21
1 1/2	4.2	8.5	12.8	17.1	21.3	25.6	29.8
2	7	14	21	28	35	42	49
2 1/2	13	26	39	52	65	78	91
3	17	34	51	68	85	102	119
3 1/2	23	46	69	92	115	138	161
4	27	54	81	108	135	162	189
4 1/2	31	62	93	124	155	186	217

Size Inches	QUANTITY					
	8	9	10	15	20	25
3/4	9.6	10.8	12	18	24	30
1	16	18	20	30	40	50
1 1/4	24	27	30	45	60	75
1 1/2	34.1	38.4	42.7	64.1	85.4	106.7
2	56	63	70	105	140	175
2 1/2	104	117	130	195	260	325
3	136	153	170	255	340	425
3 1/2	184	207	230	345	460	575
4	216	243	270	405	540	675
4 1/2	248	279	310	465	620	775

**Weights of Couplings**

Size Inches	QUANTITY						
	1	2	3	4	5	6	7
3/4	.2	.4	.6	.8	1	1.2	1.4
1	.3	.6	1	1.3	1.7	2	2.4
1 1/4	.5	1	1.6	2.1	2.6	3.2	3.7
1 1/2	.7	1.4	2.2	2.9	3.7	4.4	5.2
2	1.2	2.4	3.6	4.8	6	7.2	8.4
2 1/2	1.7	3.4	5.1	6.8	8.6	10.3	12.
3	2.4	4.9	7.4	9.9	12.4	14.9	17.4
3 1/2	4.2	8.4	12.7	16.9	21.2	25.4	29.6
4	4.7	9.4	14.2	18.9	23.7	28.4	33.1
4 1/2	5.5	11	16.5	22	27.5	33	38.5

Size Inches	QUANTITY					
	8	9	10	15	20	25
3/4	1.6	1.8	2.3	3.1	4.1	5.2
1	2.7	3	3.4	5.1	6.8	8.5
1 1/4	4.2	4.8	5.3	8	10.7	13.3
1 1/2	5.9	6.6	7.4	11.1	14.8	18.5
2	9.6	10.8	12.1	18.1	24.1	30.2
2 1/2	13.7	15.4	17.2	25.8	34.4	43
3	19.9	22.4	24.9	37.4	49.9	62.4
3 1/2	33.9	38.1	42.4	63.6	81.8	106
4	37.9	42.6	47.4	71.1	94.8	118.5
4 1/2	44	49.5	55	82.5	110	137.5



## National Conduit Bushings

Sherardized Finish

†Packed in strong wooden cases.



Size In.	†Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100	Size In.	†Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
1/4	1000	30	\$6.00	2 1/2	30	9	\$60.00
3/8	1000	35	6.00	3	25	10	90.00
1/2	2500	60	6.00	3 1/2	25	14	200.00
3/4	1000	35	8.00	4	25	20	300.00
1	500	45	15.00	4 1/2	10	12	400.00
1 1/4	200	24	20.00	5	10	15	500.00
1 1/2	100	15	25.00	6	10	23	600.00
2	50	10	40.00				



## T & B Malleable Conduit Bushings

Bushings are non-breakable and thoroughly rust-proofed.

Approved by the National Board.

Packed in neat, strong boxes, each box marked to show contents.

No.	Size In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100	No.	Size In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
121	3/8	100	1000	2	\$6.00	128	2 1/2	30	30	23	\$60.00
122	1/2	100	2500	3	6.00	129	3	25	25	42	90.00
123	3/4	100	1000	4	8.00	130	3 1/2	25	25	82	200.00
124	1	50	500	6	15.00	131	4	25	25	103	300.00
125	1 1/4	25	200	9	20.00	132	4 1/2	10	10	112	400.00
126	1 1/2	50	100	13	25.00	133	5	10	10	143	500.00
127	2	25	50	15	40.00	134	6	10	10	240	600.00

## National Conduit Locknuts

Sherardized Finish

†Packed in strong wooden cases.



Size In.	†Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100	Size In.	†Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
1/4	1000	10	\$2.50	2 1/2	30	6	\$30.00
3/8	1000	12	2.50	3	25	7 1/2	50.00
1/2	2500	42	2.50	3 1/2	25	9	70.00
3/4	1000	26	3.50	4	25	12	100.00
1	500	20	6.00	4 1/2	10	7 1/2	140.00
1 1/4	200	16	10.00	5	10	9	160.00
1 1/2	100	12	15.00	6	10	19	200.00
2	50	8	20.00				

## T & B Special Locknuts

Have clean cut machine threads and are galvanized finish. Made of extra heavy steel to insure ease in gripping with pliers or fingers.

Packed in neat boxes, each box marked to show contents.



No.	Size In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100	No.	Size In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
140	3/8	500	1000	2	\$2.50	147	2 1/2	30	30	23	\$30.00
141	1/2	100	2500	2	2.50	148	3	25	25	39	50.00
142	3/4	100	1000	3	3.50	149	3 1/2	25	25	48	70.00
143	1	50	500	4	6.00	150	4	25	25	56	100.00
144	1 1/4	50	200	7	10.00	151	4 1/2	10	10	69	140.00
145	1 1/2	50	100	8	15.00	152	5	10	10	95	160.00
146	2	50	50	13	20.00	153	6	10	10	113	200.00

## National Bushcaps

Sherardized Bushings—Tin Caps

National Bushcaps placed on the open ends, when conduits are installed, will keep them clean and clear until wires are drawn in. Std. pkg. 1000.

Price, 1/2-inch..... per 100 \$6.00  
 " 3/4 " ..... " 100 8.00  
 " 1 " ..... " 100 15.00



## T & B Capped Bushings



Bushing Cat. No.	Comp. with Cap. In.	Unit Pkg.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
1460	1/2	100	100	3 1/2	\$7.50
1461	3/4	100	100	6	10.00
1462	1	100	100	9	17.50
1463	1 1/4	50	100	10	22.50
1464	1 1/2	25	100	15	27.50
1465	2	25	50	24	32.50

## T & B Male Conduit Reducers

Bushed



For securing conduit in outlet of next smaller size.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
1245	3/4 to 1/2	100	13	\$20.00
1246	1 " 3/4	50	17	30.00
1244	1 1/4 " 1	50	36	40.00

## T & B Female Conduit Enlargers

Bushed



For securing conduit in outlet of next larger size.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
1250	1/2 to 3/4	100	10	\$10.00
1251	3/4 " 1	50	15	20.00
1252	1 " 1 1/4	50	27	35.00
1253	1 1/4 " 1 1/2	50	29	50.00

## Chase Nipples—Galvanized



Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. per 100	Price per 100	Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. per 100	Price per 100
840	1/4	100	2	\$5.00	846	1 1/2	50	27	\$20.00
841	3/8	200	3	5.00	847	2	50	45	30.00
842	1/2	200	5	5.00	848	2 1/2	25	68	50.00
843	3/4	100	6	8.00	849	3	25	108	80.00
844	1	100	12	15.00	850	3 1/2	20	122	250.00
845	1 1/4	100	19	18.00					

**Chase Couplings**

Chase couplings are plain finish but can be galvanized to order.

Cat. No.	Size In.	Std. Pkg.	Wt. per 100 in Lbs.	List Price per 100
830	1/4	100	4	\$10.00
831	3/8	200	5	10.00
832	1/2	200	7	10.00
833	3/4	100	10	12.00



**T & B Erickson Conduit Couplings**

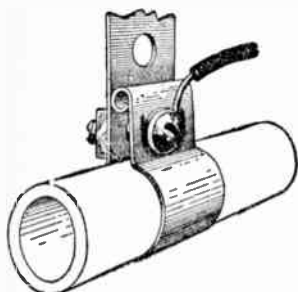


Conduit Union does away with running threads, saving dies and labor. Permits opening of conduit at any desired point. Enables the start of circuit from 2 outlets and makes a good, strong connection at any

point in the run. The pipe ends abut so that no space is left between the lengths of conduit, therefore, it is not necessary to draw the 2 ends of the conduit together. Vibration will not loosen a connection made with an Erickson coupling. The hexagon shoulder and ridges on the outside of the coupling make an easy grip for a pipe wrench.

Cat. No.	Size Inches	Unit Std. Pkg.	Weight Pounds per 100	Price per 100
674	3/8 for 3/8-Inch Conduit	25 100	20	\$32.00
675	1/2 for 1/2-Inch Conduit	25 100	25	32.00
676	3/4 for 3/4-Inch Conduit	25 50	33	40.00
677	1 for 1-Inch Conduit	5 25	53	56.00
678	1 1/4 for 1 1/4-Inch Conduit	5 25	96	100.00
679	1 1/2 for 1 1/2-Inch Conduit	5 25	120	150.00
680	2 for 2-Inch Conduit	5 20	190	260.00
681	2 1/2 for 2 1/2-Inch Conduit	5 20	370	500.00
682	3 for 3-Inch Conduit	5 10	408	800.00
683	3 1/2 for 3 1/2-Inch Conduit	5 5	500	1200.00
684	4 for 4-Inch Conduit	5 5	600	1600.00

**Sherman Ground Clamps**



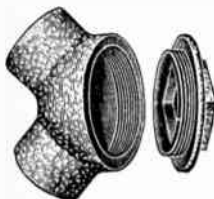
An all copper, one-piece clamp which can be drawn up tight. The roll portion for soldering is turned in to rest against opposite tongue of clamp, preventing the two ends from tipping together when tightened; holding the ears parallel, and insuring large amount of drawing power.

Can be used for both soldered and solderless connections.

Cat. No.	Size Pipe Inches	Carton	Std. Pkg.	Approx. Wt. Lbs., Std. Pkg.	Price Each
1	3/8 to 1	100	1000	110	\$.20
2	3/8 " 2	100	1000	150	.25
3	3/8 " 3	50	500	100	.30
4	3/8 " 4	...	250	52	.60

**Type L Bendhicks**

A short elbow, weatherproof fitting for making a short bend in a conduit system. Is fitted with a weatherproof capped opening to allow an easy passage of wires around the sharp angle. No locknuts or bushings required to make it weatherproof. Thoroughly galvanized throughout by hot dip process.



Cat. No.	Size Conduit Inches	Unit Pkg.	Std. Pkg.	Price Each
L-1/2	1/2	20	100	\$.60
L-3/4	3/4	10	100	.70
L-1	1	10	50	.90
L-1 1/4	1 1/4	6	24	2.50
L-1 1/2	1 1/2	4	20	3.00
L-2	2	2	10	6.00
L-2 1/2	2 1/2	1	4	8.00
L-3	3	1	4	10.00
L-3 1/2	3 1/2	2	2	16.00
L-4	4	1	2	18.00

**Tempered Steel Fish Tapes**



Regularly furnished a ny assortment of lengths, from 100 to 500 feet, put up in coils. If wire is desired in continuous lengths of 2000 feet or over it will be furnished on reels when specified.

Cat. No.	Size Inches	Weight per 1000 Feet Pounds	Price per 100 Feet
1000	1/8 x .060	24	\$2.00
1001	3/16 x .060	35	3.00
1002	1/4 x .060	46	4.00
1003	5/16 x .030	13	1.50
1004	3/8 x .030	19	2.00
1005	1/2 x .030	25	2.50

**Keystone Fish Wire**

Flat tempered spring steel in 7 sizes. Will not snap and will not become distorted with use.

Furnished in 100, 150 and 200-foot coils. Longer lengths may be ordered, if required. Each coil is packed in a heavy orange and blue, metal-edge carton.



Cat. No.	Size Inches	Wt., Lbs. per 1000 Ft.	Price per 100
500	1/8 x .030	14	\$1.50
501	3/16 x .030	20	2.00
502	1/4 x .030	25	2.50
600	1/8 x .060	25	2.00
601	3/16 x .060	35	3.00
602	1/4 x .060	45	4.00
604	3/8 x .060	70	6.00

**No. 1629 Klein's Fish Tape Pullers**

A simple husky come-along for standard size fish tape or snake.

Gives a positive hold that does not injure the wire and will not slip.

This tape puller is light in weight, strong and can be carried in the vest pocket.

Can be modified for round wire on special orders.

Weight each, 3 1/2 ounces.



Price, No. 1629.....each \$1.50

**National Adjustable Fixture Studs**

Nos. 2251 and 2252, unit pkg. 50, std. pkg. 1000. Bolts with nuts, unit pkg. 100, std. pkg. 1000.

Cat. No.	Size In.	Description	Price per 100
2251	3/8	Male	\$5.00
2252	1/2	Male	6.50
....	3/8 x 3/16	Round Head Shermanized Steel Bolts with Nuts	.50



**Hickey Fixture Hangers**

Made of malleable iron and galvanized to prevent rust.



Cat. No.	Description	Price per 100
1315	3/8-inch male 1/2-inch female	\$30.00
1316	1/2 " " 1/2 " "	30.00
1317	3/8 " " 3/4 " "	30.00
1318	1/2 " " 3/4 " "	30.00

## Galvanized Conduit Straps



Cat. No.	Size Inches	No. to Pound	Price per Lb.	Cat. No.	Size Inches	No. to Pound	Price per Lb.
BX	Armored Cable	68	\$.25	214	1 1/2	11	\$.25
210	1/2	45	.25	215	2	7	.25
211	3/4	30	.25	216	2 1/2	5	.25
212	1	17	.25	230	3	4	.25
213	1 1/4	13	.25	231	3 1/2	2	.25

## Diamond One-hole Malleable Clamps

Made in all sizes to fit standard steel electric conduit or steel pipe from 3/8 up to 4-inch inside diameter.

The ribbing of the clamp is such as to provide maximum strength with minimum weight.

Furnished at the same price either in a baked black japanned finish or galvanized.

Have but one screw hole and cut in half the expense of screws or expansion bolts and the labor of installing them as compared to the old two-hole strap.



Conduit or Pipe Size, Normal Inside Diam., In.	Cable Size or Outside Diam. Conduit, In.	Diam. Screw Hole In.	Expansion Shield or Anchor Size, In.	Wt. per 100 Lbs.	Std. Pkg.	Price per 100
3/8	.67	3/16	3/8x1	6	100	\$4.80
1/2	.84	1/4	3/8x1	8	100	6.00
3/4	1.05	5/16	1/2x1	12	100	7.20
1	1.31	3/8	1/2x1	18	100	9.60
1 1/4	1.66	7/16	3/8x1	24	50	16.80
1 1/2	1.9	1/2	3/8x2	35	50	24.00
2	2.37	9/16	1/2x2	74	25	48.00
2 1/2	2.87	5/8	1/2x2	115	12	72.00
3	3.50	5/8	1/2x3 1/2	160	10	96.00
3 1/2	4.00	11/16	5/8x3 1/2	225	10	144.00
4	4.50	11/16	5/8x3 1/2	300	10	156.00

## T & B Adjustable Conduit Hangers



Type A

Hanger will fit any flange from 2 3/4 to 12 inches. It is adjustable for varying plaster lines and will support any number of conduits from 1 to 8, which may run at any angle with the beams and close against the beam, or far enough below to permit a second line of conduits to be run above.

Additional runs of conduit can be added without interfering with lines already in position. It is not necessary to loosen clamp to meet any condition which may arise. No other conduit hanger will accomplish half as much at twice the cost. Clamps of stamped steel.

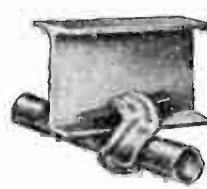
Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt. per 100 Lbs.	Price per 100
700	Type A Clamp (Incl. Bolts) Fits Flange from 2 3/4 to 7 3/8 In.	25	100	33	\$30.00
701	Type B Clamp (Incl. Bolts) Fits Flange from 7 to 12 In.	10	100	62	45.00
702	Type C Clamp (Incl. Bolts) Fits Flange 8 1/2 to 11 3/8 In.	10	100	46	45.00
703	Special Bolts	100	100	6	5.00

Extension used with 2 inner parts of Type A clamp, becomes Type C clamp.

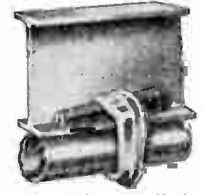
Complete with Support	Std. Pkg.	Cat. No.	Wt., Lbs. per 100	Price per 100	Cat. No.	Wt., Lbs. per 100	Price per 100
1- 1/2"	100	710	45	\$34.00	760	74	\$49.00
1- 3/4"	100	711	46	38.00	761	75	53.00
1-1"	50	712	48	44.00	762	77	59.00
1-1 1/4"	50	713	51	48.00	763	80	63.00
1-1 1/2"	25	714	52	52.00	764	81	67.00
1-2"	25	715	56	60.00	765	85	75.00
1-2 1/2"	25	716	59	68.00	766	88	83.00
1-3"	25	717	63	78.00	767	92	93.00
2- 1/2"	100	718	58	38.00	768	87	53.00
2- 3/4"	100	719	65	42.00	769	94	57.00
2-1"	25	730	73	48.00	780	102	63.00
2-1 1/4"	25	731	85	52.00	781	114	67.00
2-1 1/2"	25	732	95	56.00	781	124	71.00

## Wedgtite Pipe Hangers

Furnished with Wedge



Type CHR Installed



Type CHP Installed

Wedgtite Pipe Hangers are quickly and easily installed as only a few blows of a hammer are necessary. They can be used with any I beam, channel, or other structural shape having a lower flange 1/8 to 5/8 inch thick. They consist of two pieces, a hook and a wedge, which is provided with saw teeth so that vibration will not loosen it. The wedge is interchangeable with all types and sizes of hooks.

Types CHP and CHR are made so that one end hooks under the pipe and the other over the flange of the structural shape. The end that hooks over the flange has a groove into which the wedge is driven, tightly drawing the pipe against the flange and securely holding it in position.

Type CHU is wedged to the flange independently of the pipe or group of pipes it is to support. A bolt is used for suspending the pipe, its head resting securely in a pocket in body of hanger. This pocket takes a 1/2-inch bolt. Bolt can be inserted after the hanger has been secured to the flange.

Type CHA consists of a Type CHU Hanger and a bracket to carry 2 or 3 porcelain knobs for wires. Bracket is attached to CHU Hanger with a bolt and nut. Bolt can be loosened and bracket turned to accommodate wires running either parallel with or at right angles to the structural shape.

Any assortment of 100 galvanized Wedgtite Hangers of any type or size will be considered a standard package.

Standard finish is galvanized. Black enamel finish will be furnished if ordered at the same price as galvanized.

### Type CHP Hangers

### Type CHR Hangers



For pipe running parallel with a structural shape.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. per Pkg.	Price per Each
CHP1	1/2	100	80	\$.40
CHP2	3/4	100	85	.45
CHP3	1	100	90	.50
CHP4	1 1/4	100	95	.55
CHP5	1 1/2	100	105	.60
CHP6	2	100	115	.65

For pipe running at right angles to a structural shape.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. per Pkg.	Price per Each
CHR1	1/2	100	85	\$.40
CHR2	3/4	100	90	.45
CHR3	1	100	100	.50
CHR4	1 1/4	100	105	.55
CHR5	1 1/2	100	110	.60
CHR6	2	100	120	.65

### Type CHU Hangers

### Type CHA Hangers



For suspending a pipe or group of pipes from a structural shape. Takes 1/2-inch hanger bolt.

CHU1	100	100	\$.55
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For carrying open wires on structural steel work.

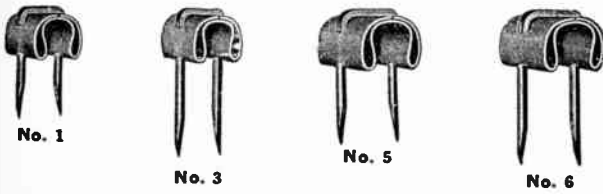
CHA2	50	100	\$1.10
CHA3	50	170	\$1.50

### Wedges for Wedgtite Hangers



Cat. No.	Thickness Flange, In.	Std. Pkg.	Wt., Lbs. per Pkg.	Price per Each
CHW1	1/8-1/2	100	15	\$.20
CHW2	1/4-5/8	100	15	.20

**Blake Insulated Staples**



Illustrations Are Actual Size

The fibre insulation of Blake Insulated Staples is of double thickness where it contacts with the wires.

At no point can the wires come in contact with an uninsulated part of the staple. The staples may be driven over two or more wires without danger of causing a short circuit or even a ground.

Nos. 1 and 5 are for use in hardwood; Nos. 3 and 6 are for general use. Nos. 1 and 3 are for single wire and twisted pair; Nos. 5 and 6 for extra heavy pair wire and twisted 3-wire.

Packed 100 in a small container—10 small containers (1000 staples) per carton.

Cat. No.	Quantity	CARTON WEIGHT		STANDARD CASE		PRICE	
		Lbs.	Oz.	Quantity	Wt. Lbs.	Per 100	Per 1000
1	1000	1	10	25000	42	\$.25	\$1.60
3	1000	2	1	25000	50	.25	1.60
5	1000	2	4	25000	54	.30	1.80
6	1000	2	7	25000	59	.30	1.80

**No. 20 Blake Cleats**

Made of compressed wood. For use in places where Blake Staples will not hold, as on plastered walls and similar places. The center partition protects the wire from the nail or screw.



Price, No. 20.....per 1000 \$2.75

**Rhodes Wiring Nails and Fibre Insulators**

Tough, compressed fibre heads, selected brads and waterproof, dielectric finish. In boxes of 100; 1000 to carton.



**Telephone**  
For paired or triple-braided telephone wires.  
Size.....in. 1/2 5/8 3/4 7/8  
Case Lots..... 50000 40000 40000 40000  
Olive Green..... per 1000 \$1.40 \$1.44 \$1.50 \$1.54  
White..... per 1000 1.54 1.58 1.64 1.68

**Nobby**

There is only 1 point to drive and no matter how this nail is driven at least one of the nibs will engage the wire.

Size.....in. 1/2 5/8 3/4 7/8  
Case Lots..... 50000 40000 40000 40000  
Neutral Gray... per 1000 \$1.70 \$1.74 \$1.78 \$1.82  
White..... per 1000 1.80 1.84 1.88 1.92



**Co'ssuss**

This rugged nail is intended for ground wires paired or triple-braided wires and for parallel (duplex) wires that are flat-braided together. The nib prevents the wire from sliding out from under the offset head.

Size.....in. 5/8 7/8  
Case Lots..... 40000 40000  
Neutral Gray... per 1000 \$2.20 \$2.30  
White..... per 1000 2.34 2.44



**Rhodes Staples**

Can be driven into hard wood.  
Size.....in. 1/2 5/8 3/4  
Case Lots..... 50000 30000 30000  
Neutral Gray... per 1000 \$2.20 \$2.40 \$2.50  
White..... per 1000 2.30 2.54 2.65



**Fibre Insulators**

For use where it is necessary to run conductors along surfaces that are likely to be damp.

Size.....in. 3/4 1  
Case Lots..... 50000 50000  
Neutral Gray... per 1000 \$2.30 \$2.30  
White..... per 1000 2.44 2.44



**Flextube Non-metallic Flexible Conduit**

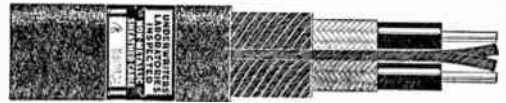


Made from an especially prepared stiff fiber cord interwoven with a tough yarn. The result is a seamless tube with a smooth, hard, canvas-like roller-bearing interior which affords the best obtainable fishing surface. This interwoven insulating tubing is then treated with a superior moisture and flame resisting compound, is further protected by a strong, tough braiding which is also compounded.

Regularly inspected and labeled by the Underwriters' Laboratories.

Inside Diam., In.	Feet to Coil	Wt., Lbs. per 1000 Ft.	Price per Ft.	Inside Diam., In.	Feet to Coil	Wt., Lbs. per 1000 Ft.	Price per Ft.
7/32	250	42	\$.05 1/2	1	100	160	\$.25
1/4	250	45	.06	1 1/4	100	205	.33
3/8	250	61	.09	1 1/2	100	245	.40
1/2	200	183	.12	1 3/4	50	425	.47
5/8	200	102	.15	2	50	460	.55
3/4	150	115	.18	2 1/4	50	700	.65
				2 1/2	50	740	.....

**LoomWire Non-Metallic Sheathed Cable**



**14/2 Duplex LoomWire**

Size of Cable	Feet per Coil	WEIGHT, POUNDS		Size of Cable	Feet per Coil	WEIGHT, POUNDS	
		Per Coil	Per 1000 Feet			Per Coil	Per 1000 Feet
14/2	250	26	104	14/3	200	39	195
12/2	200	26	130	12/3	200	47	235
10/2	200	31	155	10/3	200	56	280
8/2	125	35	280	8/3	125	60	480

**LoomWire Fittings**



Cat. No.	Description	Std. Pkg.	Weight Pounds
9000	Clip for Open Wiring 14/2 and 12/2.....	1000	15
9011	Strap for Concealed Wiring 14/2 and 12/2.	1000	5
9012	Strap for Concealed Wiring 14/3 and 12/3.	1000	5

**Connectors**

A 1/2-inch connector for use with duplex or triplex LoomWire. Take out bushing or shim to use triplex LoomWire.

Cat. No.	With Shim Holds	Without Shim Holds	K.O. In.	Std. Pkg.	Wt. Lbs. Std. Pkg.
9050S	14/2, 12/2	14/3, 12/3	1/2	1000	100
9052S	10/2	10/3	1/2	100	12
9054S	8/2	8/3	3/4	100	20

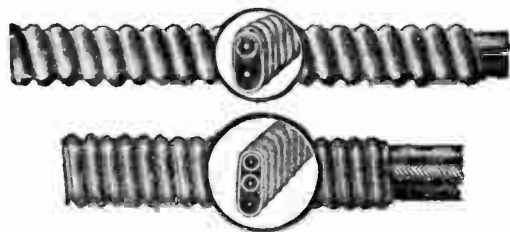
Prices upon application.



Nos. 9050S 9052S and 9054S



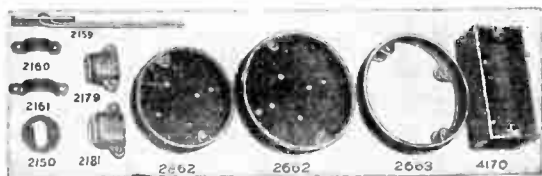
## Ovalflex Flat Armored Cable



Ovalflex has the great advantage over round armored cable in that its depth is from  $\frac{3}{16}$  inch to  $\frac{1}{4}$  inch less. On this account, it can be readily covered by the thickness of plaster commonly used on brick and tile surfaces, while round armored cable cannot. It can be bent edgewise to about the same radius as ordinary armored cable, and flatwise to a much smaller radius. On account of these features, surface installations of Ovalflex are neat and inconspicuous and may be used in may places where surface installations of round armored cable would not be tolerated.

Size B. & S.	Description	Feet per Coil	Wt., Lbs. per 1000 Feet	Price per 1000 Feet
14-2	2 No. 14 Conductors	250	248	\$115.00
14-3	3 No. 14 Conductors	100 to 250	348	152.00
12-2	2 No. 12 Conductors	100 to 250	378	150.00

## Ovalflex Fittings



Cat. No.	Description	Price per 100
412	Connector for 2-Wire Ovalflex to Metal Molding Devices.....	\$20.00
413	Same as No. 412 but for 3-Wire Ovalflex....	24.00
2150	Adapter Bushing for Use with Connectors 2179 and 2181 in $\frac{1}{2}$ -Inch Conduit Knock-outs.....	1.20
2154	Set Screw Connector for 14-2 or 12-2 Ovalflex to Boxes Having $\frac{3}{8}$ and $\frac{23}{32}$ K. O.'s and Cable Clamps.....	12.00
2155	90° Box Connector; Takes 14-2 or 12-2 Ovalflex into $\frac{1}{2}$ -Inch Conduit K.O.'s.....	28.00
2156	Same as No. 2155 but for 14-3 Ovalflex.....	28.00
2157	1-Screw Folding Strap for 14-2 and 12-2 Ovalflex.....	1.00
2159	Toggle Fastener with Wire Loop.....	2.40
2160	Strap Fastener for 14-2 Ovalflex.....	.80
2161	Strap Fastener for 14-3 Ovalflex.....	1.00
2176A	Set Screw Connector for 14-2 and 12-2 Ovalflex to $\frac{1}{2}$ -Inch Threaded Fittings or Boxes with $\frac{1}{2}$ -Inch K.O.'s.....	12.00
2180	Same as No. 2176-A but for 14-3 Ovalflex....	12.00
2179	Special Box Connector to Take 14-2 and 12-2 Ovalflex into Oval K.O.'s.....	7.00
2181	Same as No. 2179 but for 14-3 Ovalflex.....	7.60
2662	Outlet Box, 4x $\frac{3}{4}$ -Inch, 6 Oval K.O.'s in Side; 5- $\frac{1}{2}$ -Inch Conduit K.O.'s in Bottom.....	16.80
2665	Same as No. 2662 but with $\frac{3}{8}$ -Inch Fixture Stud.....	23.00
2663	Extension or Plaster Ring, 4x $\frac{3}{4}$ -Inch with 6 Oval K.O.'s.....	18.00
2862	Outlet Box, 3 $\frac{1}{4}$ x $\frac{3}{4}$ -Inch, 4 Oval K.O.'s in Side; One $\frac{1}{2}$ -Inch Conduit K.O. in Bottom.....	15.60
2865	Same as No. 2862 but with $\frac{3}{4}$ -Inch Fixture Stud.....	21.80
*4170	Flush Device Box, 4x1 $\frac{3}{8}$ -Inch, 1 $\frac{1}{2}$ Inches Deep.....	35.00
*4170S1	Same as No. 4170 but with One Oval K. O. in Each End and Two in One Side.....	35.00
*4172S1	Spacer (Box Less Sides) for Forming Gangs..	31.00
9050	Squeeze Connector for 14-2 or 12-2 Ovalflex to $\frac{1}{2}$ -inch Threaded Fittings or Boxes with $\frac{1}{2}$ -Inch K.O.'s.....	8.00

\*These boxes and spacers can be equipped with the usual supporting ears but because of the length of box, 4 inches, an ordinary switch plate will not cover the ears.

## Flexsteel Flexible Conduit



Designed to give the greatest flexibility.

Size In.	Single Strip			Double Strip		
	Approx. Feet in Coil	Wt., Lbs. per 1000 Feet	Price per 1000 Feet	Approx. Feet in Coil	Wt., Lbs. per 1000 Feet	Price per 1000 Feet
$\frac{5}{16}$	100-250	156	\$60.00	100-250	...	.....
$\frac{3}{8}$	100-250	276	75.00	100-250	356	\$75.00
$\frac{1}{2}$	50-100	520	110.00	50-100	610	110.00
$\frac{3}{4}$	50	720	150.00	25-50	740	150.00
1	50	1180	270.00	25-50	1300	270.00
1 $\frac{1}{4}$	50	1400	300.00	25-50	1600	300.00
1 $\frac{1}{2}$	25	1640	430.00	25	2000	430.00
2	25	2280	570.00	25	2520	530.00
2 $\frac{1}{2}$	25	2760	670.00	...	.....	.....
3	25	3360	875.00	...	.....	.....

## Flexsteel Armored Conductors



The perfectly flat, smooth exterior results in great advantages in cutting, stripping and pulling around corners, joists, etc. The opposed channel construction of the strip allows the utmost range of flexibility, and will not spread no matter how small the radius to which bent. Steel strip used is thoroughly annealed and zinc coated. Distinguishing braids on each conductor permit certain and quick identification of polarities.

### Type S Single Strip—1-Conductor

Size B & S Gauge	Solid			Size B & S Gauge	Stranded		
	Approx. Feet in Coil	Wt., Lbs. per 1000 Feet	Price per 1000 Feet		Approx. Feet in Coil	Wt., Lbs. per 1000 Feet	Price per 1000 Feet
14S	100-250	145	\$120.00	10S	100-250	165	\$150.00
12S	100-250	155	130.00	8S	100-250	190	165.00
10S	100-250	165	140.00	6S	100-250	320	210.00
8S	100-250	190	155.00	4S	100-250	400	355.00
6S	100-250	320	195.00	...	.....	.....	.....

### Type FS Single Strip—2-Conductor

14FS	100-250	260	\$104.00	8FS	100-150	680	\$305.00
12FS	100-250	238	135.00	6FS	100	910	440.00
10FS	100-200	300	185.00	*4FS	100	1100	680.00

### Type FS3 Single Strip—3-Conductor

14FS3	100-250	320	\$140.00	8FS3	100-150	810	\$375.00
12FS3	100-250	348	180.00	6FS3	100	1130	530.00
10FS3	100-200	410	235.00	*4FS3	100	1320	900.00

### Type FS4 Single Strip—4-Conductor

14FS4	100-250	464	\$225.00	.....	.....	.....	.....
12FS4	100-200	610	275.00	.....	.....	.....	.....

### Type SL Single Strip—1-Conductor, Lead Covered

14SL	100-150	248	\$85.00	10SL	100-150	530	\$120.00
12SL	100-150	265	105.00	8SL	100-150	720	145.00

### Type FS Double Strip—2-Conductor

14FS	100-250	300	\$104.00	8FS	100-150	800	\$305.00
12FS	100-250	375	135.00	6FS	100	1150	440.00
10FS	100-200	425	185.00	4FS	100	1400	680.00

### Type FS3 Double Strip—3-Conductor

14FS3	100-250	432	\$140.00	8FS3	100-150	950	\$375.00
12FS3	100-250	480	180.00	6FS3	100	1400	530.00
10FS3	100-200	555	235.00	4FS3	100	1500	900.00

### Type FS4 Double Strip—4-Conductor

14FS4	100-250	365	\$225.00	*8FS4	100-150	1080	\$500.00
12FS4	100-200	740	275.00	*6FS4	100	1120	700.00
10FS4	100-150	760	310.00	*4FS4	100	1700	1000.00

### Type FSL Double Strip—2-Conductor, Lead Covered

14FSL	100-150	620	\$180.00	8FSL	100	1200	\$420.00
12FSL	100-150	850	225.00	6FSL	100	1900	615.00
10FSL	100	900	275.00	4FSL	100	2190	750.00

### Type FSL3 Double Strip—3-Conductor

14FSL3	100-150	720	\$220.00	8FSL3	100	1410	\$500.00
12FSL3	100-150	900	275.00	6FSL3	100	2010	800.00
10FSL3	100	1010	325.00	4FSL3	100	2380	1000.00

\*Not stocked—made to order only

**Flexsteel Armored Lamp Cord**



Size.....	18F	16F	14F
Diameter.....inches	.43	.45	.54
Approximate Feet...per coil	100-250	100-250	100-250
Price.....per 1000 feet	\$80.00	95.00	130.00

**Flexsteel Reinforced Armored Lamp Cord**



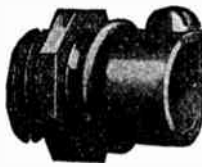
Size.....	18FM	16FM	14FM
Approx. Feet per Coil.....	100-250	100-250	100-250
Weight, per 1000 Feet...pounds	244	260	300
Price.....per 1000 feet	\$115.00	135.00	175.00



**Flexsteel Box Connectors**

For Armored Cable and Flexible Conduit

Malleable iron, rust-proofed by sherardizing.



Screw Type

Squeeze Type

Will hold single strip: 14-2, 14-3, 4-1, 6-1, 12-2 armored cable; 8-1 armored lead cable; 14-2, 16-2, 16-3, 18-3 plain lamp cord; 16-2, 18-2 reinforced lamp cord; 3/8 and 5/16-inch flexible conduit. Also double strip: 4-1, 14-2, 14-3 armored cable; 6-1 armored lead cable; 3/8-inch flexible conduit.

Cat. No.	I.D., In.		Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
	Open	Closed					
2163	.655	.437	.437	1/2	50	500	\$6.48

**Squeeze Type**

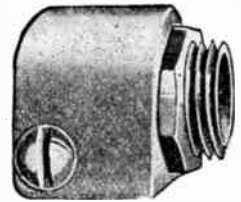
Single strip: 14-2, 14-3, 6-1, 4-1 armored cable; 8-1 armored lead cable; 14-2, 16-2, 16-3, 18-3 plain lamp cord; 16-2, 18-2 reinforced lamp cord; 3/8-inch flexible conduit. Also 6-1 double strip armored cable.

2163S	.593	.437	.437	1/2	50	500	\$7.02
12-4 double strip armored cable; 14-3, 12-3, 10-2, 4-1 double strip armored lead cable.							
2164S	.843	.687	.562	1/2	20	100	\$23.34
12-4, 10-3 single strip armored cable; 14-3, 14-4, 12-2, 12-3, 10-2, 10-3 double strip armored cable; 14-2, 12-2 double strip armored lead cable.							
2165S	.718	.625	.515	1/2	20	100	9.72
10-4, 8-2, 8-3 single strip armored cable; 1/2-inch single strip flexible conduit; 10-4, 8-2, 8-3 double strip armored cable; 14-4, 12-4, 12-3, 10-3, 10-2, 4-1 double strip armored lead cable;							
2166S	.937	.718	.609	1/2	20	100	23.34
6-3 single strip armored cable; 6-2, 6-3 double strip armored cable; 3/4-inch single and double strip flexible conduit.							
2167S	1.156	.937	.750	3/4	20	100	38.88
1-inch single strip flexible conduit; 4-4 double strip armored cable; 6-4, 4-2, 4-3 double strip armored lead cable.							
2169S	1.406	1.187	1.000	1	10	50	64.80
4-4 double strip armored cable; 6-4, 4-2, 4-3 double strip armored lead cable; 1-inch single or double strip conduit.							
2169SD	1.531	1.250	1.000	1	10	50	64.80
1/4-inch single strip flexible conduit,							
2170S	1.703	1.500	1.218	1 1/4	10	50	90.72
1/4-inch double strip flexible conduit.							
2170SD	1.781	1.562	1.250	1 1/4	10	50	90.72
1/2-inch single strip flexible conduit.							
2171S	1.984	1.718	1.463	1 1/2	5	25	129.60
1 1/2-inch double strip flexible conduit.							
2171SD	2.125	1.875	1.437	1 1/2	5	25	129.60
2-inch single and double strip conduit.							
2172S	2.468	2.125	1.937	2	5	25	194.40
2 1/2-inch single and double strip conduit.							
2173S	3.093	2.687	2.431	2 1/2	1	10	259.20
3-inch single strip flexible conduit.							
2174S	3.531	3.250	2.955	3	1	10	318.90

**Flexsteel Box Connectors**

**Tangent Screw Type**

For Armored Cable and Flexible Conduit



Sherardized throughout, rust-proof even at the base of the threads.

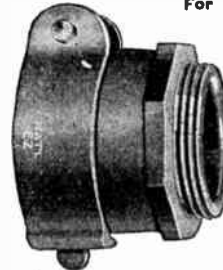
No. 2164 will hold 12-4 single strip armored cable; 10-3, 14-4, 12-4, 10-2 double strip armored cable; 12-2, 14-3, 4-1 double strip armored lead cable.

Cat. No.	I.D., In.		Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
	Open	Closed					
2164	.781	.656	.562	1/2	20	100	\$23.34
Will hold 10-2, 14-4 double strip armored lead cable; 1/2-inch single and double strip flexible conduit.							
2166	.930	.781	.562	1/2	20	100	\$23.34
Holds 3/4-inch single and double strip flexible conduit.							
2167	1.195	1.000	.750	3/4	20	100	\$38.88
Holds 1-inch single strip conduit; 4-2 double strip armored lead cable.							
2169	1.437	1.187	.937	1	10	50	\$64.80
Holds 1 1/4-inch single and double strip flexible conduit.							
2170	1.828	1.593	1.250	1 1/4	10	50	\$90.72
Holds 1 1/2-inch single and double strip flexible conduit.							
2171	2.093	1.875	1.437	1 1/2	5	25	\$129.60
Holds 2-inch single and double strip flexible conduit.							
2172	2.562	2.281	1.875	2	5	25	\$193.50

**Flexsteel Box Connectors**

**EZ Type**

For Flexible Steel Conduit



EZ Connectors have a clamping strap hinged at one side—not cast integral with the body of the connector. They take a wider range of sizes both single and double strip cable and conduit, are easier to tighten and have a stronger grip.

Sherardized throughout, rust-proof.

No. 2169EZ will hold 4-4 single strip armored cable; 4-4 double strip armored cable; 4-3, 4-3, 6-4 double strip armored lead cable; 1-inch single and double strip flexible conduit.

Cat. No.	I.D., In.		Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
	Open	Closed					
2169EZ	1.422	1.125	1.000	1	10	50	\$64.80
Holds 1 1/4-inch single and double strip flexible conduit.							
2170EZ	1.765	1.343	1.250	1 1/4	10	50	\$93.72
Holds 1 1/2-inch single and double strip flexible conduit.							
2171EZ	2.047	1.687	1.500	1 1/2	5	25	\$129.60
Holds 2-inch single and double strip flexible conduit.							
2172EZ	2.531	2.187	2.000	2	5	25	\$194.40

**No. 2175 Flexsteel Duplex Connectors**

For use in taking two armored conductors in one box outlet.

Simply tightening two screws holds the cables firmly and securely in place.

Sherardized malleable iron, clean cut, rust-proof threads.



Will hold 14-2, 14-3, 12-2, 4-1 single strip armored cable 14-2, 14-3 plain lamp cord, single strip; 16-2 reinforced lamp cord, single strip; 14-2, 14-3 double strip armored cable; and 3/8-inch single and double strip flexible conduit.

Cat. No.	I.D., In.		Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
	Open	Closed					
2175	.625	.500	.593	1/2	200	1000	\$17.85



## Flexsteel Panel Box Connectors

### Squeeze Type



For Armored Cable, Armored Cords and Flexible Conduit

Malleable iron, sherardized throughout. Rust-proof inside and out, even at the base of the threads.

Holds 14-3, 14-4, 12-2, 12-3, 10-2, 4-1 single strip armored cable; 14-2, 14-3, 12-2, 4-1 double strip armored cable; 14-2, 6-1 double strip armored lead cable; 3/8-inch single and double strip flexible conduit.

Cat. No.	I.D., In. Open	I.D., In. Closed	Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
2200S	.671	.562	.500	1/2	20	100	\$41.17

Holds 10-3, 12-4 single strip armored cable; 10-2, 10-3, 12-3, 12-4, 14-4 double strip armored cable; 12-2, 14-2, 14-3, 4-1 double strip armored lead cable.

*2201	.781	.625	.562	1/2	20	100	\$55.74
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Holds 10-4, 8-2, 8-3 single strip armored cable; 10-1, 8-2, 8-3, 12-4 double strip armored cable; 14-4, 12-4, 12-3, 10-3, 10-2, 4-1 double strip armored lead cable; 1/2-inch single and double strip flexible conduit.

2202S	.937	.718	.609	1/2	20	100	\$58.74
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6-3 Single strip armored cable; 6-2, 6-3 double strip armored cable; 3/4-inch single and double strip conduit.

2203S	1.156	.937	.750	3/4	20	100	\$77.76
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1-inch single strip flexible conduit; 4-4 double strip armored cable; 4-2, 4-3, 6-4 double strip armored lead cable.

2204S	1.406	1.187	.968	1	5	20	\$129.60
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4-4 double strip armored cable; 4-2, 4-3, 6-4 double strip armored lead cable; 1-inch double strip flexible conduit.

2204SD	1.531	1.250	1.000	1	50	20	\$129.60
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Holds 1 1/4-inch single strip flexible conduit.

2205S	1.703	1.500	1.218	1 1/4	5	20	\$181.44
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Holds 1 1/4-inch double strip flexible conduit.

2205SD	1.781	1.562	1.250	1 1/4	5	20	\$181.44
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Holds 1 1/2-inch single strip flexible conduit.

2206S	1.984	1.718	1.468	1 1/2	5	20	\$259.20
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Holds 1 1/2-inch double strip flexible conduit.

2206SD	2.125	1.875	1.437	1 1/2	5	20	\$226.80
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Holds 2-inch single strip flexible conduit.

2207S	2.468	2.125	1.968	2	5	20	\$432.00
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Holds 2-inch double strip flexible conduit.

2207SD	2.562	2.250	2.000	2	5	20	\$432.00
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Holds 2 1/2-inch single and double strip flexible conduit.

2228S	3.093	2.687	2.403	2 1/2	5	10	\$518.40
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Holds 3-inch single strip flexible conduit.

2229S	3.531	3.250	2.955	3	5	10	\$615.60
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\*Tangent screw type.

## Flexsteel Panel Box Connectors

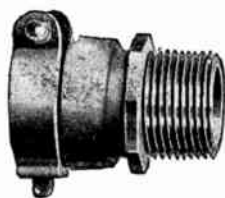
### EZ Type

For Armored Cable and Flexible Conduit

The clamping strap on EZ Connectors is hinged at one side, instead of being cast integral with the body of the connector. This makes them easier to tighten and gives them a stronger grip that will satisfactorily hold a wider range of materials than connectors of the usual construction.

Sherardized throughout. Clean cut, rust-proof threads.

Will hold 4-4 single and double strip armored cable; 4-3, 4-2, 6-4 double strip armored lead cable; 1-inch single and double strip flexible conduit.



Cat. No.	I.D., In. Open	I.D., In. Closed	Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
2204EZ	1.422	1.125	.968	1	5	20	\$129.60

2205EZ	1.765	1.343	1.218	1 1/4	5	20	\$181.44
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Will hold 1 1/4-inch single and double strip flexible conduit.

2206EZ	2.047	1.687	1.468	1 1/2	5	20	\$226.80
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Will hold 1 1/2-inch single and double strip flexible conduit.

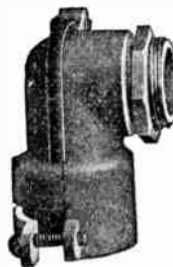
2207EZ	2.531	2.187	1.968	2	5	20	\$388.80
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Will hold 2-inch single and double strip flexible conduit.

## Flexsteel Angle Box Connectors

### Open Back, Squeeze Type

For Armored Cable and Flexible Conduit



90° Angle



45° Angle

Sherardized throughout—rust-proof.

Holds 14-3, 12-2, 4-1 single strip armored cable; 14-2 double strip armored cable; 6-1 double strip armored lead cable; 3/8-inch single and double strip flexible conduit.

Cat. No.	Angle	I.D., In. Open	I.D., In. Closed	Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
2208SO	45°	.625	.562	.437	1/2	10	100	\$41.46

2210SO	90°	.625	.562	.437	1/2	10	100	41.46
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Holds 1/2-inch single and double strip flexible conduit.

2209SO	45°	.937	.843	.625	1/2	10	100	\$52.84
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2211SO	90°	.937	.875	.593	1/2	10	100	52.84
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Holds 6-3 single and double strip armored cable; 3/4-inch single and double strip flexible conduit.

2214SO	90°	1.156	.968	.750	3/4	10	50	\$103.68
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2215SO	45°	1.156	.968	.750	3/4	10	50	103.68
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Holds 4-4 double strip armored cable; 6-4, 4-3, 4-2 double strip armored lead cable; 1-inch single and double strip flexible conduit.

2216SO	90°	1.531	1.250	1.000	1	5	25	\$155.52
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2217SO	45°	1.531	1.250	1.000	1	5	25	155.52
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Holds 1 1/4-inch single and double strip flexible conduit.

2218SO	90°	1.718	1.437	1.218	1 1/4	1	10	\$194.40
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2219SO	45°	1.718	1.437	1.218	1 1/4	1	10	194.40
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## Flexsteel Angle Box Connectors

### Solid, Squeeze Type

For Armored Cable and Flexible Conduit



45° Angle



90° Angle

Sherardized malleable iron, rust-proof.

Holds 14-2, 14-3, 12-2, 4-1, 6-1 single strip armored cable; 14-3, 14-2, 16-3 single strip plain lamp cord; 16-2, 18-2 single strip reinforced lamp cord; 3/16 and 3/8-inch single strip flexible conduit. Also 14-2, 6-1 double strip armored cable and 3/8-inch double strip flexible conduit.

Cat. No.	Angle	I.D., In. Open	I.D., In. Closed	Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
2208S	45°	.625	.468	.562	1/2	10	100	\$41.46

2210S	90°	.625	.468	.562	1/2	10	100	41.46
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Holds 8-2, 10-4 single strip armored cable; 12-4, 10-4, 8-2, 10-3 double strip armored cable; 14-4, 12-4, 14-3, 12-3, 10-2, 10-3, 4-1 double strip armored lead cable; also 1/2-inch single and double strip flexible conduit.

2209S	45°	.937	.687	.593	1/2	10	100	\$51.84
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2211S	90°	.937	.687	.593	1/2	10	100	51.84
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**Flexsteel Angle Box Connectors**

Solid, Tangent Screw Type

For Armored Cable and Flexible Conduit



45° Angle



90° Angle

Sherardized malleable iron. Rust-proof throughout, even the base of the threads.

Holds 14-2, 14-3, 14-4, 12-2, 12-3, 10-2, 10-3, 4-1 single strip armored cable; 14-3, 14-2 single strip plain lamp cord; 16-2, 14-2 single strip reinforced lamp cord; 3/8-inch single strip flexible conduit. Also 14-2, 14-3, 12-2, 12-3, 4-1, 6-1 double strip armored cable; 14-2, 6-1 double strip armored lead cable; and 3/8-inch double strip flexible conduit.

Cat. No.	Angle	I.D., In. Open	I.D., In. Closed	Wire Throat In.	Knock-out In.	Car-ton	Std. Pkg.	Price per 100
2208	45°	.687	.500	.500	1/2	10	100	\$41.46
2210	90°	.687	.500	.562	1/2	1	100	41.46

Holds 12-4 single strip armored cable; 14-4, 12-4, 10-2, 10-3 double strip armored cable; 14-2, 12-2, 12-3, 10-2, 4-1, 14-4 double strip armored lead cable; also 1/2-inch single and double strip flexible conduit.

2211	90°	.953	.676	.562	1/2	1	100	\$51.84
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**Flexsteel Flexible Conduit Couplings**

For Flexible Steel Conduit

Cat. No.	I. D. Open In.	For Conduit In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
†2182	.531	5/16	10	100	5	\$18.80
2183	.671	3/8	10	100	15	30.60
2134	.953	1/2	10	100	30	33.30
2185	1.156	3/4	10	100	35	43.20
†2186	1.437	1	10	50	25	59.60
†2186D	1	1	10	50	25	59.60
2187	1.828	1 1/4	5	50	45	79.20
2188	2.093	1 1/2	5	25	35	108.00
2189	2.562	2	5	25	50	154.80
*2232	3.062	2 1/2	1	10	15	270.00
†2233	3.500	3	1	10	15	324.00



No. 2184 Solid Type

\*Split type. All others are solid type.

†For single strip conduit only. †For double strip only. All others are for single strip and double strip.

**Flexsteel Rigid to Flexible Conduit Couplings**



No. 2190S Squeeze Type

Cat. No.	I. D. Open In.	For Conduit In.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2190S	.937	1/2	10	100	22	\$27.00
2191S	1.156	3/4	10	50	27	36.00
†2192S	1.406	1	10	50	25	45.00
2192SD	1.531	1	10	50	25	45.00
†2193S	1.703	1 1/4	5	25	45	63.00
*2193	1.828	1 1/4	5	25	45	63.00
†2194S	1.994	1 1/2	5	25	35	90.00
*2194	2.093	1 1/2	5	25	35	90.00
†2195S	2.463	2	1	10	50	135.00
*2195	2.562	2	1	10	50	135.00
2196S	3.093	2 1/2	1	10	25	180.00
†2198S	3.531	3	1	10	30	225.00

†For single strip conduit only. All others are for single strip and double strip.

**Flexsteel Rigid to Flexible Conduit Couplings**

EZ Type

Fits both single and double strip flexible conduit or armored cable.

The clamping strap is hinged at one side instead of being cast integral with the body; this makes the connector easier to tighten and gives it a stronger grip.

Sherardized throughout.



Cat. No.	I.D., In. Open	I.D., In. Closed	*Conduit In.	Car-ton	Std. Pkg.	Price per 100
2192EZ	1.422	1.125	1	10	50	\$64.80
2193EZ	1.765	1.343	1 1/4	5	25	85.05
2194EZ	2.047	1.687	1 1/2	5	25	129.60
2195EZ	2.531	2.187	2	1	10	194.40

\*Single and double strip.

**Flexsteel Lamp Cord Connectors**



No. 2220S Squeeze Type



No. 2221 Tangent Screw Type

Carton quantity, 20. Standard package, 100. Weight, standard package, 15 pounds.

Cat. No.	I.D. Open In.	Knock-out In.	Armored Cable	Armored Lead Cable	Lamp Cord	Flex. Con. in.	Price per 100
2220S	.453	3/8	* 12-1, 10-1, 8-1	14-1, 12-1	.....	..	\$23.80
2221	.453	1/8	* { 14-1, 10-1 12-1, 8-1	14-1, 12-1	18-2 Plain	..	23.80
2222S	.547	3/8	* ..	8-1, 10-1	18-2 Plain 18-3 Plain 16-2 Plain	5/16	23.80
2226S	.460	1/2	* 8-1	12-1	18-2 Plain	..	27.00

\*Single strip.

**No. 2224 Flexsteel Lamp Cord Connectors**



Brass nipple and coupling for use with No. 2221 in hanging armored lamp cord on deep rosettes.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2224	50	200	6	\$7.50

**No. 2225 Flexsteel Lamp Cord Connectors**

Brass nipple and coupling for use with No. 2221 in hanging armored lamp cord on deep rosettes.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2225	50	200	10	\$10.00

**Flexsteel Lamp Cord Connectors**

Hard fibre bushing for use with No. 2220S in hanging armored lamp cord on conduit outlet boxes.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2220-A	50	200	7	\$28.50

## Flexsteel Brass Terminal Bushings or Ferrules

For Armored Cable and Flexible Conduit

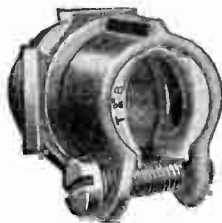


For use at ends of armored cable and flexible conduit, with clamps which do not themselves protect the wires from abrasion.

Cat. No.	Description	O.D. In.	Car-ton	Std. Pkg.	Price per 100
1265	For 14-2 Single Strip Cable	.598	100	200	\$14.40
1266	For 14-3 and 12-2 Double Strip Cable Only	.685	100	200	24.00
1267	For 14-3 and 12-2 Single Strip Cable and 3/8-Inch Single Strip Flexible Conduit	.630	100	200	14.40

## T & B Squeeze Type Connectors

For Non-Metallic Sheathed Cable and Flexible Tubing



Each connector has an insert so held in place that it cannot accidentally be displaced but it can readily be removed without taking out and replacing the screw. Connector has threaded ends and is supplied with locknuts. Connector is malleable iron, insert steel galvanized.

Cat. No.	Knock-out In.	MADE TO HOLD			Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
		With Insert	Insert Removed	14W3, 12W3				
2005	1/2	14W2, 12W2	14W3, 12W3	14W3, 12W3	50	100	8	\$85.00
2006	1/2	10W2	10W3	10W3	50	100	13	100.00
2007	3/4	10W2	10W3	10W3	25	100	15	120.00
2008	3/4	8W2	8W3	8W3	25	100	13	120.00
2009	1	6W2	6W3	6W3	50	20	20	180.00

## T & B Inclined Set Screw Connectors

The screw is on the right-hand side, making it easier to tighten.

Locknuts are furnished with connectors without charge.



Cat. No.	Size In.	Knock-out In.	Made to Hold	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
240	3/8	1/2	14W2, 14W3, 12W2	50	5000	8	\$7.50
241	1/2	1/2	8W2, 8W3, 10W2L, 8W2L, 10W3L, 1/2-Inch S.S. and 1/2-Inch D.S. Conduit	50	100	14	9.00

## T & B Squeeze Combination Couplings

Malleable Iron—Galvanized



For connecting flexible and rigid metallic conduits, also for connecting flexible metallic conduit to outlet boxes by means of chase nipple. One-piece malleable iron, galvanized. Cannot pull apart.

Cat. No.	Size In.	Made to Hold	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
230	1/2	1/2" S.S. and D.S. Conduit; 6W2 S.S.; 8W3 and 6W2 D.S.	10	100	18	\$15.00
231	3/4	3/4" S.S. and D.S. Conduit; 4W2, 6W3 and 4W3 S.S.; 4W2 and 6W3 D.S.	10	100	25	20.00
232	1	1" S.S. Conduit; 2W2 S.S. and D.S.	10	50	35	25.00
233	1 1/4	1 1/4" S.S. Conduit	10	50	40	35.00
234	1 1/2	1 1/2" S.S. Conduit	50	76	50.00	
235	2	2" S.S. and D.S. Conduit	50	92	75.00	

## T & B 2020 Type Connectors

Holds 14W2, 14W3, 12W2, 12W3, 10W2, 10W3 non-metallic sheathed cable; also 3/8, 1/4, 3/8-inch flexible fibre tubing.

Installed inside or outside of box. Made of steel, galvanized.



Cat. No.	Size In.	Knockout In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
2020	3/8	1/2	50	2000	3 1/2	\$7.50

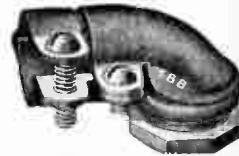
## T & B 45° and 90° Squeeze Connectors

Malleable Iron—Galvanized For Flexible Steel Conduit and Armored Conductors

The removable cap eliminates fishing wires and enables one to make a quick and sure connection.

Locknuts are furnished.

Holds 14W2 s.s., 12W2 s.s., 14W3 s.s., 14W2 d.s., 12W2 d.s., 14W3 d.s., 6D solid s.s., 14E s.s., 14W2L, 18EM s.s., 16EM d.s., 18EM d.s., 14E d.s.; 3/8-inch s.s. conduit, 3/8-inch d.s. conduit; 12W3 s.s.



Cat. No.	Size Inches	Knock-out In.	Approx. Open In.	Approx. Closed In.	Inside Dia. In.	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
265	3/8-45°	1/2	5/8	1/2	9/16	50	100	12	\$16.00
266	3/8-90°	1/2	5/8	1/2	9/16	50	100	13	16.00
280	3/8-90° Large	1/2	1 1/16	1 1/2	9/16	50	100	14	\$16.00
272	3/8A-90°	1/2	1 3/16	1 1/16	9/16	50	100	15	\$20.00
267	1/2-45°	1/2	1 3/16	1 3/16	9/16	25	100	16	\$20.00
268	1/2-90°	1/2	1 3/16	1 3/16	9/16	25	100	18	20.00
279	3/4-90°	3/4	1	7/8	3/4	25	50	21	\$40.00
269	3/4-45°	3/4	1 1/8	1	2 3/32	25	50	22	\$40.00
270	3/4-90°	3/4	1 1/8	1	2 3/32	25	50	24	40.00
273	1-90°	1	1 1 3/32	1 1/16	...	25	25	25	\$60.00
274	1 1/4-90°	1 1/4	1 2 1/32	1 3/8	1 1/4	10	...	10	\$75.00
275	1 1/2-90°	1 1/2	1 7/8	1 5/8	1 1/2	10	...	10	\$100.00
276	2-90°	2	2 3 3/32	2 1/4	2 1/4	5	...	5	\$150.00

## T & B Slip-In Box Connectors

To install, snap the connector into the knockout; flexible conduit or armored conductor is then slipped into the connector and the screw is tightened.

The tension of the spring will hold the fitting in place.



Cat. No.	Size Inches	Made to Hold	With Spring		Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
			Pkg.	Pkg.				
A1S	3/8	14W2, 12W2, 14W3, 14C, 14P	50	100	5	100	5	\$7.50
A2S	3/8	12W2, 12W3, 10W2	50	100	7	100	7	9.00
A18S	3/16	(Fits Std. 1/2-Inch K.O.) 14D Solid, 12D Solid S.S., 10D Solid S.S., 8D Solid S.S., 14D Solid D.S.	100	100	5	100	5	9.00
A1	3/8	14W2, 12W2, 14W3, 14P	50	100	5	100	5	\$7.50
A2	3/8A	12W2, 12W3, 10W2	50	100	7	100	7	9.00

## No. 1267 T & B Spring Cable Bushings

The bushing protects the insulation of the wire even after it leaves the armor of the cable.



Cat. No.	Made to Take	Unit Pkg.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
1267	No. 14 W2, 14 W3, 12 W2, 12 W3	5000	15	2.50	\$2.50

**National Metal Molding**

National Metal Molding is for light and power circuits up to 300 volts and 2500 watts, to hold two to four wires, 14 or 12 single braid. It is used also for bell, telephone, and signal work taking any number of wires for that class. For rules governing the use of metal molding see section 504-1925 National Electrical Code and 1926 Supplement.

Made in two styles, each in two sizes—one-piece for fishing wires, two-piece for either laying in or fishing wires.

Fittings, elbows, tees, etc., are made for each size, two and four-wire, but are interchangeable for one or two-piece molding. Devices, boxes, sockets, etc., are interchangeable with all four moldings, 033 and 044 entering them directly, and the smaller moldings, 022 and 222, entering by means of No. 300 adapter.

Fastenings: No. 222, use No. 6 flat head wood screws; No. 033, use No. 6 or No. 8 flat head wood screws.

Toggle bolts of equivalent sizes can also be used.

One-piece moldings are fastened with straps or spring clips.

Metal molding is rust-proof, being zinc treated inside and outside by the sherardizing process. The color is a neutral gray. The surface readily takes enamels, oil or water-mixed paints.

Handbook of instructions for installation will be sent upon request.

**2-Piece, for 2 Wires**



Width, 5/8 inch; height, 1 1/2 inch; length, 8 feet 4 inches.

Cat. No.	Unit Pkg. Feet	Std. Pkg. Feet	Wt., Lbs. Std. Pkg.	Price per 100 Feet
222	100	1000	250	\$5.25

**1-Piece, for 2 Wires**



Width, 5/8 inch; height, 1 1/2 inch; length, 10 feet.

Cat. No.	Unit Pkg. Feet	Std. Pkg. Feet	Wt., Lbs. Std. Pkg.	Price per 100 Feet
022	100	1000	225	\$5.05

**2-Piece, for 2 to 4 Wires**



Width, 1 inch; height, 2 3/4 inch; length, 8 feet 4 inches.

Cat. No.	Unit Pkg. Feet	Std. Pkg. Feet	Wt., Lbs. Std. Pkg.	Price per 100 Feet
033	100	1000	375	\$5.75

**1-Piece, for 2 to 4 Wires**



Width, 1 inch; height, 2 3/4 inch; length, 10 feet.

Cat. No.	Unit Pkg. Feet	Std. Pkg. Feet	Wt., Lbs. Std. Pkg.	Price per 100 Feet
044	100	1000	330	\$5.85

**Group 1 National Metal Molding Fittings**

For 022 and 222 Two-Wire Molding

**Crosses**



Snap cover; room for splices.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
234	1	10	4 1/2	\$ .23

**90° External Elbows**



Snap cover

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
239	10	50	5 1/2	\$ .13

**Adapters**



This adapter takes 022 and 222 into all boxes and devices equipped with tongues in base, also into push-fit elbows, tees, etc.

300	10	100	5	\$ .05
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**Adapters**



This adapter takes 022 and 222 into old style boxes and devices equipped with set screws in base and rectangular twistouts.

278	10	100	5	\$ .04
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**Bushings**



This bushing is used to protect wires from abrasion; it is needed only when the molding does not end in fittings.

For 222 Molding				
200	100	100	1	\$ .01

For 022 Molding				
201	100	100	1	\$ .01

**Spring Clips**



Spring clip for holding capping of 222 molding to base; also used as a joint cover for 022 and 222 where coupled in 232.

223	100	1000	4	\$ .02
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**Coupling and Support**



Coupling and support for 022 and 222 molding.

232	50	500	8	\$ .03
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**Tees**



Snap cover; room for splices.

235	1	20	3	\$ .13
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**90° Flat Elbows**



Snap cover.

236	20	100	11	\$ .13
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**45° Flat Elbows**



Snap cover.

237	1	20	2	\$ .13
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**90° Internal Elbows**



Snap cover.

238	10	50	5 1/2	\$ .13
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## Group 2 National Metal Molding Fittings

For 033 and 044 Two to Four-Wire Molding  
Crosses



Snap cover; room for splices.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
334	30	120	20	\$ .25

### Tees



Snap cover; room for splices.

335	1	30	5	\$ .13
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### 90° Flat Elbows



Snap cover.

336	30	60	6	\$ .13
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### 45° Flat Elbows



Snap cover.

437	1	20	2	\$ .13
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### 90° External Elbows



Snap cover.

337	30	30	3	\$ .13
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### Caps



For 90° external elbow.

337-B	30	30	3	\$ .08
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### 90° Internal Elbows



Snap cover.

338	30	60	5	\$ .13
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### Caps



For 90° internal elbow.

338-B	30	60	3	\$ .08
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Has a twistout on each side and one at each end for molding, and a knockout for 1/2-inch rigid conduit in both arms of the base.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
376	1	10	5	\$ .25

### Joint Caps



For 033 and 044 moldings where coupled with 332 or 344, and elsewhere.

323	50	500	4	\$ .02
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### Coupling and Support



For 044 molding; also for 033 when installed as a unit with base and capping assembled.

332	50	500	13	\$ .03
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### Base Couplings



For 033 molding only. Fits key holes punched in ends of base. Use when installing base and capping separately.

344	50	500	11	\$ .04
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### Couplings



For fittings such as elbows and tees, either push-fit or set-screw type.

436	50	250	5	\$ .05
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### Adapters



For connecting 033 and 044 to old style boxes and devices equipped with screws.

377	50	100	4	\$ .05
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### Bushings



For 033 and 044; required at ends in fittings and devices to protect wires from abrasion.

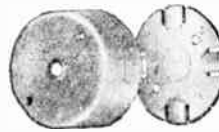
500	100	500	3	\$ .02
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## Group 3 National Metal Molding Fittings

Round Base Devices

Those with push-fit bases take 033 and 044 Molding direct, and 022 and 222 with No. 300 Adapter. Those with tunnelled or grouted bases take 033 Molding only.

### Drop Cord Boxes



Diameter, 3 inches; 1 inch deep; 1/2-inch conduit knockout in bottom.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
339	1	20	7	\$ .20

### Junction Boxes



Diameter, 3 inches; 1 inch deep; 1/2-inch conduit knockout in bottom.

341	1	20	7	\$ .23
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### Surface Device Boxes



Diameter, 3 inches; 1 inch deep; 1/2-inch conduit knockout in bottom. Two No. 6-32x1/8-inch screws furnished for mounting sockets, switches, etc.

342	1	20	6	\$ .23
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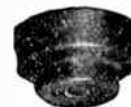
### Drop Cord Rosettes



Solderless type, 2 1/2-inch diameter, with terminal block; push-fit base; 4 twistouts.

348	10	20	6	\$ .20
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### Fixture Rosettes



Solderless type, 2 1/2-inch diameter, with terminal block; combination bushing for 1/8 and 3/8-inch pipe; push-fit base, 4 twistouts.

430	10	10	4	\$ .40
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### Convenience Outlets



660-watt for parallel or tandem blade plugs; push-fit base, 2 1/2-inch diameter, 2 twistouts.

360	10	10	4	\$ .50
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### Keyless Sockets



660-watt, 2 1/2-inch diameter; push-fit base, 2 twistouts.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
356	10	20	7	\$ .45



660-watt, 2 1/2-inch diameter; grouted or tunnelled base, 2 twistouts.

357	10	20	10	\$ .45
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660-watt, 2-inch diameter; flat porcelain base for mounting on junction box No. 342.

399	10	100	22	\$ .31
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### Key Sockets



No. 397

250-watt, 2 1/4-inch diameter; grouted or tunnelled base for use with 033 molding only; 2 twistouts.

397	10	10	5	\$ .50
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No. 398

250-watt, 2-inch diameter; flat porcelain base for mounting on junction box No. 342.

398	10	100	42	\$ .31
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### Chain Pull Sockets



250-watt, 2-inch diameter; flat porcelain base for mounting on junction box No. 342.

396	10	100	44	\$ .75
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### Bases



With terminal block for fluted shell sockets and devices; 2 1/2-inch diameter; push-fit base, 4 twistouts.

400	5	50	16	\$ .31
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**Group 6 National Metal Molding Fittings**

Group 6 includes straps, screw anchors, toggles, ground clamps and tools.

**Plain Single Straps**



For 022 and 222 molding.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
245	50	500	4	\$.02

**Ground-Clamps**



For 022 and 222 molding.

255	10	100	3	\$.04
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For 033 and 044 molding.

355	20	20	1	\$.04
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**Plain Straps**



For 033 and 044 molding.

345	100	100	1	\$.01
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**Double**

354	50	50	1	\$.02
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**Base-Plate Type Straps**



For 033 and 044 molding.

434	100	100	3	\$.03
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**Double**

435	50	50	2	\$.04
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**Plain Folding Straps**



For 033 molding only.

425-A	100	100	1	\$.01
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**Folding Straps with Screw Hole**



For supporting 033 and 044 molding.

428-A	100	100	1	\$.02
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**2-Line Suspension Straps**



To fit holes punched in base of 222 and 033 molding; screw centers 1 1/16 inches.

426	50	50	2	\$.03
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**3-Line Suspension Straps**



To fit holes punched in base of 222 and 033 molding; screw centers 1 1/2 inches.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
427	20	20	1	\$.04

**No. 8 Rawl Plugs**



Fibre anchor, for No. 8 wood screw.

3/16x3/4-Inch

321-A	100	1200	2	\$.03
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3/16x1-Inch

321-B	100	1200	2	\$.03
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**No. 8 Rawl Plug Drills**



Size, 3/16 inch.

321-C	12	144	2	\$.30
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**No. 8 Rawl Plug Drill Holders**



321-D	1	12	3	\$1.25
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**Toggle Bolts**



1/2x4-Inch

419-A	50	50	2	\$.05
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3/16x4-Inch

419-B	50	50	3	\$.06
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1/4x4-Inch

419-C	50	50	4	\$.08
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**Spring Head Toggles**



5/32x2-Inch

420-A	100	100	2	\$.05
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5/32x3-Inch

420-B	100	100	2	\$.06
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5/32x4-Inch

420-C	100	100	3	\$.08
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**Lead Expansion Shields**



For No. 8 wood screw.

421	25	25	1	\$.08
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**No. 418 National Metal Molding Punches**

For 033 Molding Only



The new push-fit method of attaching Metal Molding base to fittings and the plan of installing the molding does away with the need for punching keyhole slots in ends of molding. However, for those who have stocks of fittings equipped with screws, or who prefer to install the base separately and lay in the wires, No. 418 is listed.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
418	1	1	11	\$8.60

**Parts for No. 418 National Metal Molding Punches**



No. 418-D Punch Holder



No. 418-E Die



No. 418-F Punch



No. 418-G Taper Pin

Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt. Oz. Std. Pkg.	Price Each
418-D	Punch Holder	1	1	16	\$3.00
418-E	Punch Die	1	1	2	1.20
418-F	Keyhole Punch	1	1	2	.60
418-G	Taper Pin for Punch	1	1	1	.12

**No. 422 National Metal Molding Shears**

For 033 Molding Only



Metal Molding No. 022 must be cut by a file or a hacksaw with fine-toothed tubing blade. No. 033 Molding may be cut with a hacksaw when backing and capping are assembled or capping and base may be cut separately without No. 422 Shear.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
422	1	1	12	\$6.85

**Parts for No. 422 National Metal Molding Shears**



422-D Blade

Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Oz. Std. Pkg.	Price Each
422-D	1	1	2	\$1.10
422-E	1	1	3	1.20
422-F	1	1	7	1.30



422-E Block



422-F Block

**No. 322 National Metal Molding Bending Tools**

A simple tool that bends both sizes of metal molding to any desired curve or offset.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
322	1	1	2	\$2.00





## Wiremold Conduit and Fittings

### General Description

Wiremold Conduit is made in 2 and 4-wire sizes and Master Size for main and sub-feeders is furnished in 10-foot lengths and is designed for surface wiring exclusively.

The base and capping is permanently assembled at the factory, hence conductors cannot be laid into it as in similar materials, but must be fished in all cases.

The base is galvanized and its capping is finished with special, high grade enamel of neutral tint particularly selected to blend with colorings of average walls and ceilings.

Wiremold Conduit and its accompanying fittings require no special tools of any kind for assembly; only a screw driver, hack saw and No. 600 Wiremold Bender are needed for installation.

Like rigid conduit, Wiremold is furnished with one coupling to each length, as shown in Fig. 1.



Fig. 1



Fig. 2

Fig. 3

Fig. 4

To install Wiremold, push the coupling forward until screw hole is clear and then fasten to wall with a No. 8 flat head screw as shown in Fig. 2. Slip the next length over edges of coupling as shown in Fig. 3 and close up as in Fig. 4.

Base plates of all Wiremold Fittings are provided with coupling tongues similar to tongue shown in broken end view of a fitting base plate in Fig. 5. Wiremold



Fig. 5



Fig. 6

Conduit is connected with Wiremold Fittings by simply shoving the ribs in the upper side edges over the coupling tongues as shown in Fig. 6.

### Wiremold Conduit

New No. 1000 Master Size Wiremold Conduit for main and sub-feeders and No. 700 Wiremold Conduit for branch circuits in large industrial and commercial installations. No. 500 Wiremold Conduit is for smaller installations requiring 2 wire circuits.

Wiremold Conduit is rolled from high grade sheet steel and is so finished that the portion which lays against the surface wired over is galvanized, while the section visible after installation is finished in a neutral tone enamel that will blend with any color scheme and act as a ground coat for graining or staining. Also covers with one coat of flat white.



Cat. No.	Size	Unit Pkg.	Wt., Lbs. per 100 Ft.	Price Each
500	2-Wire	100 Ft.	33	\$12.00
700	4-Wire	100 Ft.	36	15.00
1000	Master Size	100 Ft.	76	31.00

### Master Size Wiremold Base Couplings

One coupling is furnished with each length of Master Size Wiremold Conduit but extra couplings must be used where short lengths are installed.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5701	50	500	9	\$.04
1001	None	100	7	.08

### Wiremold Conduit Bushings

For use wherever Wiremold enters fittings. The bushing is slipped into the end of Wiremold and should be installed in all cases before molding is assembled with fittings. It is locked tightly in place by the base plate of fittings.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
502	50	500	5	\$.04
702	50	500	2	.04
1002	None	200	2	.06



### No. 5703 Wiremold Supporting Clips

To support Wiremold in the middle of lengths. It is secured to wall with a No. 8 flat wood screw and Wiremold snapped into it. Screw hole is slotted to allow clip to be adjusted.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5703	50	500	8	\$.06

### Wiremold Supporting Straps

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
504	50	500	9	\$.04
704	50	500	16	.06



No. 504

### No. 1005 Wiremold Master Size 1-Hole Straps

For supporting No. 1000 Master Size Wiremold.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1005	None	200	7	\$.10

### Wiremold Connection Covers

Designed to cover cracks between adjoining lengths of No. 500 or No. 700 Wiremold which have not been cut square enough to make a good appearing joint.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
506	50	500	5	\$.04
706	50	500	5	.04



### No. 5707 Wiremold Multiple Straps

For supporting multiple runs of Wiremold Conduit. As furnished it is for use in supporting three runs and by breaking off the scored section it may be used for supporting two runs of Wiremold.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5707	50	500	15 7/8	\$.05

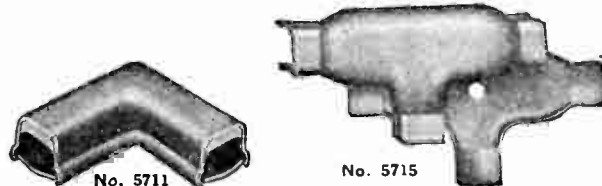
### Wiremold Ground Couplings

A standard, screwless ground coupling. In installing it, first solder ground wire into its lug and then push the coupling over the base into the grooved edges.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5709	5	100	2	\$.12
1009	None	100	8	.20

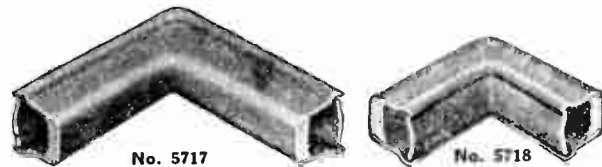


### Wiremold Elbows and Tees



No. 5711

No. 5715



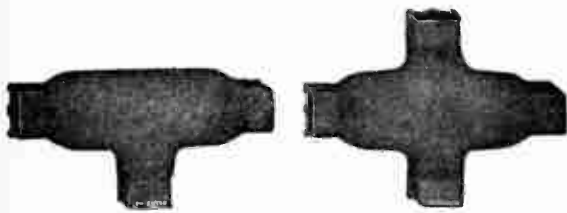
No. 5717

No. 5718

Consist of base plates provided with tongues for slip joint connections with No. 500 or 700 Wiremold, and cover pieces. Cover pieces will fit No. 500 Wiremold, and by breaking off twistouts will fit No. 700 Wiremold.

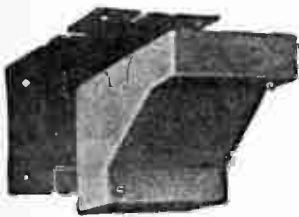
Cat. No.	Description	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5711	90° Flat Elbow....	10	100	12	\$.24
5712	45° Flat Elbow....	5	50	4	.24
5715	Tee.....	5	100	18	.44
5717	External Elbow...	10	100	17	.30
5718	Internal Elbow...	10	100	11	.24

**Wiremold Plain Tees and Crosses**



Cat. No.	Description	Unit Pkg.	Std. Pkg.		Price Each
			Qty.	Wt., Lbs.	
515	Tee	5	100	16	\$ .44
516	Cross	5	50	11	.46

**No. 5719 Wiremold Corner Boxes**



Designed to provide in a single fitting, with abundant splice room, for the many corner junctions and other combinations such as twisted elbow, twisted tee, twisted cross, that can be made with Wiremold Conduit.

Consist of a base plate provided with four holes for No. 8 flat head supporting screws and two knockouts for 1/2-inch pipe or BX connector, also four tongues on side edges and one tongue in back center for slip joint connections with both No. 500 and No. 700 Wiremold Conduit, and a cover piece. The cover piece has four double twistouts making it possible to use this fitting with both No. 500 and No. 700 Wiremold Conduit. Note that this fitting is reversible.

Cat. No.	Unit Pkg.	Std. Pkg.		Price Each
		Qty.	Wt., Lbs.	
5719	5	50	21	\$ .56

**No. 5720 Wiremold Narrow Fittings**

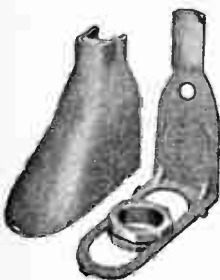
A small, rigid, straight line fitting for use with Wiremold conduit in wiring places having narrow dimensions, such as wall cases, store windows, show cases, etc.



Has a base with exceptionally long tongues to provide a rigid connection with both No. 500 or No. 700 Wiremold conduit, and a cover equipped with a male nipple to take any standard 1/8-inch socket for reflectors. Tongues of the base are scored to permit breaking them off to make a dead end and the cover has double twistouts to permit making extensions with both No. 500 or No. 700 Wiremold conduit.

Cat. No.	Unit Pkg.	Std. Pkg.		Price Each
		Qty.	Wt., Lbs.	
5720	5	50	11	\$ .64

**No. 5786 Wiremold Adjustable Connectors**

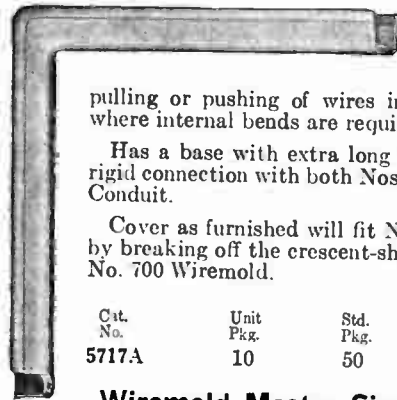


Eliminates offsetting wiremold conduit in connecting with surface type panel cabinets.

The base has a chase nipple with locknut in an elongated slot in the bottom to connect with knockout in cabinet and to permit of adjusting fitting flush with wall. In the back is a knockout for 1/2-inch pipe and a tongue at the end for slip joint connection with No. 500 or No. 700 wiremold conduit and a cover piece as shown.

Cat. No.	UNIT PKG.		STD. PKG.		Price Each
	Quantity	Wt., Lbs.	Quantity	Wt., Lbs.	
5786	5	1 1/4	50	13	\$ .50

**No. 5717A Wiremold Elbow Pull Boxes**



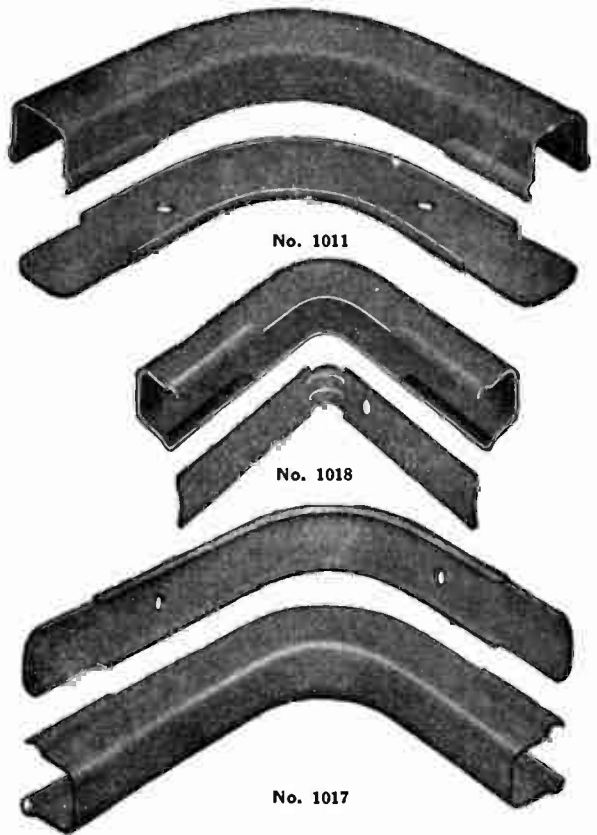
No. 5717A is designed for use as an internal elbow pull box to permit easy pulling or pushing of wires in breaking beams or where internal bends are required.

Has a base with extra long tongues to provide a rigid connection with both Nos. 500 or 700 Wiremold Conduit.

Cover as furnished will fit No. 500 Wiremold and by breaking off the crescent-shaped twistout will fit No. 700 Wiremold.

Cat. No.	Unit Pkg.	Std. Pkg.		Price Each
		Qty.	Wt., Lbs.	
5717A	10	50	18	\$ .60

**Wiremold Master Size Elbows**



Cat. No.	Description	Unit Pkg.	Std. Pkg.		Price Each
			Qty.	Wt., Lbs.	
1011	90-Degree Flat Elbow	None	10	6	\$ .46
1017	Internal Elbow.....	None	10	7	.48
1018	External Elbow.....	None	10	5	.42

**No. 1087 Wiremold Master Size Kick Plates**

For protecting Master Size Wiremold from mechanical injury at intersection of wall and floor when installed as risers.



Cat. No.	Unit Package	Standard Package	Weight, Pounds	Standard Package	Price Each

## No. 5721 Wiremold 1-Piece Rosettes

An all steel rosette for drop cords and may also be used with a 1/8-inch male loop for chain pendants. Base is provided with tapped hole for use of contact block when desired and cover has four double twistouts for use with both Nos. 500 or 700 Wiremold Conduit.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5721	5	100	33	\$ .42

## No. 5724 Wiremold Fixture Rosettes



Steel rosette with contact block for taps, fibre insulation washer to hang heavy drop cords and special chase nipple with locknut to hang 3/8 or 1/2-inch fixtures. Cover has four double twistouts for use with both Nos. 500 or 700 Wiremold Conduit.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5724	5	50	20	\$ .92

## No. 5725 Wiremold Receptacle Bases

All steel, equipped with ready-to-wire tap block and standard fluted or wrinkled ring, so that any standard Schedule B device designed to fit fluted or wrinkled socket caps may be mounted upon it. Cover has four double twistouts for use with both Nos. 500 or 700 Wiremold Conduit.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5725	5	100	42	\$ .96

## No. 5726 Wiremold Keyless Receptacles



All steel keyless standard Edison type, equipped with special, easy-to-wire keyless socket interior and designed for use at lighting outlets or at any point where a screw type receptacle is desired. Cover has four double twistouts for use with both Nos. 500 or 700 Wiremold Conduit.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5726	5	100	42	\$1.26

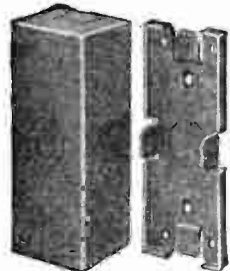
## No. 5727 Wiremold Attachment Plugs

Made up of a steel housing in which is mounted a standard, easy-to-wire, 10-amp. attachment plug base with double T slots for plug caps having either tandem or parallel blades. Cover has four double twistouts for use with Nos. 500 or 700 Wiremold Conduit.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5727	5	100	42	\$1.40

## No. 5728 Wiremold Utility Boxes

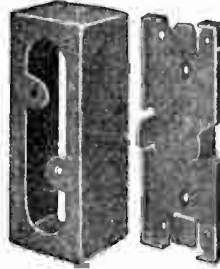


Has a base with two holes for No. 8 flat head supporting screws and a knockout for 1/2-inch pipe or BX connector, also four tongues for slip joint connections with both Nos. 500 and 700 Wiremold Conduit.

In addition the cover has a 1/8-inch knockout in which there is a 1 1/2-inch flanged hole with a plug for use as a junction box and by pushing the plug may be used as a rosette for drop cords.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5728	10	100	39	\$ .46

## No. 5729 Wiremold Condulet Type Utility Boxes



Has a base with two holes for No. 8 flat head supporting screws and knockout for 1/2-inch pipe or BX connector, also four tongues on ends and sides for slip joint connections with both No. 500 and No. 700 Wiremold Conduit. The cover piece has four double twistouts for use with both No. 500 and No. 700 Wiremold Conduit, and an opening which will take all standard 1/2-inch condulet covers.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5729	10	100	35	\$ .50

## No. 5730 Wiremold Contact Blocks

For use with Wiremold Fittings Nos. 5721, 5724, 5725, 5728, 5729, 5732, 5733, 5735, 5738 and 5739.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5730	20	100	6	\$ .16

## No. 5731 Wiremold Blank Covers

For use with Nos. 5732 and 5733 boxes where they are used as pull or junction boxes or for hanging light pendant fixtures with large stems, as it is provided with a 1/2-inch pipe knockout.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5731	5	100	8	\$ .16

## No. 5732 Wiremold Outlet Boxes

Designed as a base for a standard 5-ampere snap or toggle switch but may also be used as a junction or pull box and for mounting back wired fittings with 2 1/2-inch base. Cover has four double twistouts for use with both Nos. 500 and 700 Wiremold.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5732	5	100	23	\$ .52

## No. 5733 Wiremold Outlet Boxes

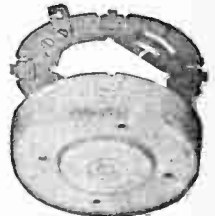
Designed primarily as a base for all types of standard 5 or 10-ampere switches, but may be used also as a pull or junction box or for mounting various wall sockets for concealed base receptacles and rosettes, ceiling pull switches, etc., bases of which do not exceed 3 inches.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5733	5	100	27	\$ .52

## No. 5734 Wiremold Closed Extension Boxes

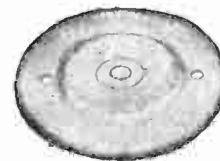
For use in extending No. 500 or 700 Wiremold from existing concealed outlets, its base plate having four tongues for slip joint connections with both No. 500 or 700 Wiremold. Cover has four double twistouts and 1/2-inch pipe knockout.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5734	5	20	31 1/2	....

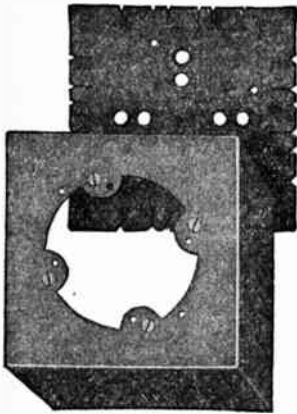
## No. 5736 Wiremold Blank Covers

A 4-inch blank cover for use with boxes Nos. 5737, 5738, 5739 and 5739A where they are used as pull or junction boxes or for hanging 1/2-inch fixtures or drop cords.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5736	5	100	13	\$ .18

**Wiremold Distribution Boxes**



For the distribution of branch circuits of Wiremold; also has screw holes in cover to permit mounting any device which may be hung on a 3 1/4 or 4-inch box.

Base has four holes for fixture studs three knockouts for 1/2-inch pipe and two 3/8-inch knockouts for loom, also tongues on each side for slip-joint connections with both No. 500 and 700 Wiremold.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5735	1	20	17 3/4	\$ .90
1035	None	10	15 1/2	1.32

**No. 5737 Wiremold 4 3/4-Inch Extension Boxes**

Primarily designed for use in extending Nos. 500 and 700 Wiremold Conduit from existing outlets, its base plate having four tongues for slip joint connections, and special slots for attaching to 3 1/4 and 4-inch boxes.

Both base and cover are split so that it may be installed by simply dropping canopy.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5737	5	50	28	\$ .76

**No. 5738 Wiremold 4 3/4-Inch Fixture Boxes**

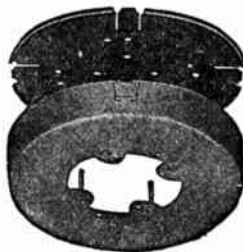
Primarily designed for use in hanging fixtures but is also equipped with screw holes in its cover to permit mounting any device which may be hung on a 3 1/4-inch or 4-inch box. The base has four tongues for slip joint connections with Wiremold Conduit.

Outside dimensions: Diameter, 4 3/4 inches; height, 1 inch. Fixture and device screw spacings on 2 3/4 and 3 1/2-inch centers. Base has four holes for fixture studs and five knockouts for 1/2-inch pipe or BX connectors.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5738	5	50	30	\$ .76

**No. 5739 Wiremold 6 3/8-Inch Fixture Boxes**

Primarily designed for use in hanging fixtures with canopies up to 6 3/8 inches in diameter, but can also be used for any device which may be mounted on 3 1/4 or 4-inch boxes.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5739	5	20	22	\$1.16

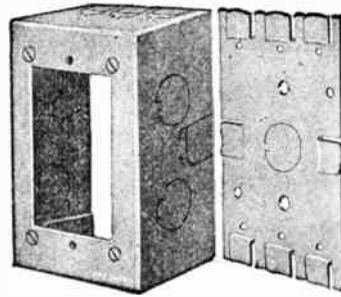
**No. 5739A Wiremold 6 3/8-Inch Extension Boxes**



For use in extending Wiremold conduit from existing fixture outlets. Both the base and cover are split so they may be installed by simply dropping canopy.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5739A	5	20	22	\$1.16

**No. 5745 Wiremold Combination Boxes**

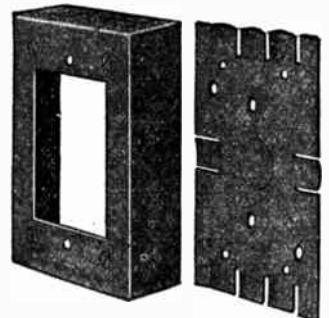


Base has 4 holes for No. 8 flat head supporting screws, a knockout for 1/2-inch pipe, 3 tongues in each end and 1 tongue in each side for slip joint connections with No. 500 or 700 Wiremold. Cover has 3 double twistouts in one end and 1 in each side; also two 1/2-inch pipe knockouts in each side and 1 in one end.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5745	1	20	13 1/2	\$ .90

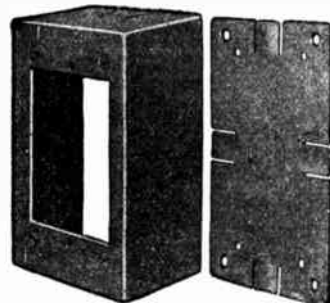
**No. 5747 Wiremold Shallow Surface Type Switch and Receptacle Boxes**

Designed to permit Wiremold Conduit to be installed close up to door-frames, window-sash and base-boards for shallow surface type switches or receptacle outlets. Base has 4 holes for No. 8 flat head supporting screws, a knockout for 1/2-inch pipe, 3 tongues in each end and one tongue in each side for slip-joint connections with No. 500 or 700 Wiremold. Also furnished in 2 and 3-gangs.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5747	1	20	12	\$ .96
5747-2	1	10	10	1.32
5757-3	1	10	15	1.42

**No. 5748 Wiremold Surface Type Switch Boxes**



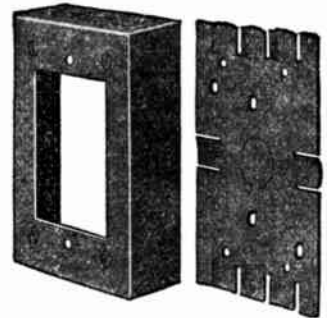
Consists of a base plate with 4 holes for No. 8 flat head supporting screws and a knockout for 1/2-inch pipe or BX connector, also 8 tongues for slip joint connections, with both Nos. 500 and 700 Wiremold Conduit, and a cover piece. Also furnished in 2 and 3 gangs.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5748	1	20	13	\$1.09
5748-2	1	10	12	1.46
5748-3	1	10	16	1.52

**No. 5748-S Wiremold Shallow Type Outlet Boxes**

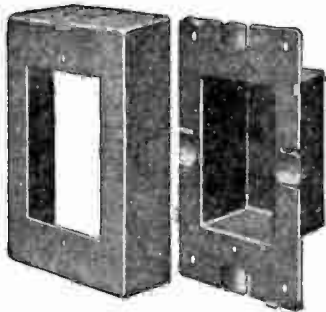
This outlet box is only 1 5/8 inch deep, designed to take standard shallow type duplex receptacles.

Has a base with knockout for 1/2-inch pipe or BX connector, with 8 tongues for slip-joint connections with Wiremold. Cover has 8 double twistouts for use with both Nos. 500 and 700 Wiremold.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5748-S	1	20	11	\$ .83

## No. 5749 Wiremold Flush Switch and Receptacle Boxes



Made in single gang only.

Consists of a switch box with four holes for No. 8 flat head supporting screw and four tongues for slip joint connections with both Nos. 500 and 700 Wiremold Conduit, and a cover piece.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5749	1	20	13	\$1.20

## No. 5780 Wiremold Special Chase Nipples

For use in bushing Wiremold Fittings having covers with 1/2-inch pipe knockout to hang either 3/8 or 1/2-inch fixtures as the nipple is tapped inside for standard 3/8-inch thread and standard 1/2-inch thread on the outside.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5780	5	50	2 1/4	\$.20

## Wiremold Box Connectors

For use to couple Nos. 500 and 700 Wiremold Conduit to fittings having knockouts for 1/2 and 3/4-inch pipe.

Cat. No.	Size Inches	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5781	1/2	5	50	3	\$.40
5781-A	3/4	5	50	4	.40



## Wiremold Pipe Couplings

For use in coupling Nos. 500 and 700 Wiremold Conduit to 1/2 or 3/4-inch pipe.

Cat. No.	Size Inches	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5782	1/2	5	50	4	\$.42
5782-A	3/4	5	50	7	.42



## No. 5783 Wiremold 1/2-Inch Elbow Box Connectors

For use where an elbow coupling between Wiremold and fittings having knockouts for 1/2-inch conduit is necessary.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5783	5	20	3	\$.42



## No. 5784 Wiremold 1/2-Inch Elbow Pipe Couplings

For use where a direct elbow coupling must be made between Wiremold and 1/2-inch conduit.

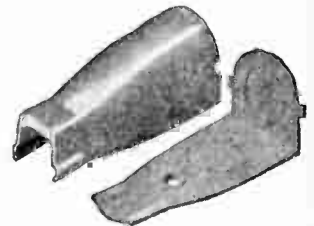
Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5784	5	20	4	\$.42



## No. 5785 Wiremold Combination Connectors

Unit package, 5; standard package, 50.

Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
5785	8	\$.30



## No. 588 Wiremold Open Work Couplings

For use where a tap is made from No. 500 Wiremold to open work, as in coming out to meter, fractional horse power motors and similar devices.

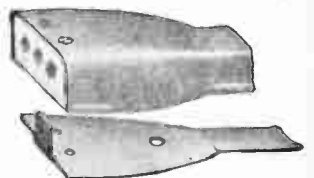
Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
588	5	20	4	\$.46



## No. 5788 Wiremold Open Work Couplings

For use where a tap must be made from Wiremold Conduit to open work.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5788	5	20	5 1/2	\$.27



## No. 701 Wiremold Reducing Connectors

No. 701 four-wire connector is used to connect No. 700 Wiremold with No. 500 Wiremold fittings.

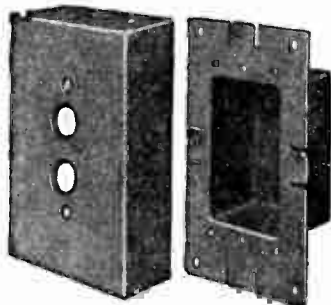


Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
701	10	100	7	\$.18

## No. 5750 Wiremold Push Switch Boxes

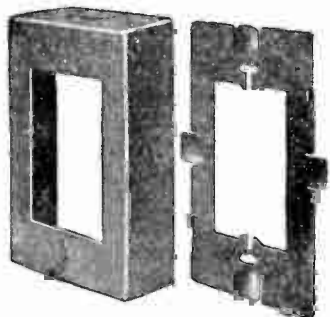
Made in single gang only.

For use in installing any shallow type push switch with Wiremold, and consists of a shallow type flush switch case and a special cover with standard openings for push buttons and mounting screws.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5750	1	20	14	\$1.26

## Wiremold Flush Switch and Receptacle Adapters



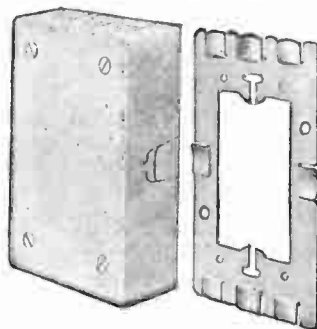
For use in picking up and extending a circuit in both Nos. 500 and 700 Wiremold Conduit from existing outlets.

Adapters are not complete fittings in themselves but are designed to mount over the old switch box found in a wall at existing switch and receptacle outlets.

Cat. No.	No. in Gang	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5751	1	1	20	9	\$1.12
5752	2	1	10	7	1.86
5753	3	1	10	9	2.00

## No. 5760 Wiremold Blank Extension Boxes

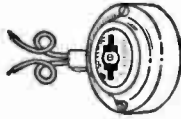
For use in extending single or parallel runs of both No. 500 or 700 Wiremold from existing switch or receptacle outlets. Base has three tongues in each end and one in each side; cover has three double twistouts in each end and one in each side making it possible to use this fitting with both No. 500 or 700 Wiremold. Also serves as an ideal Mat.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5760	1	20	8 3/4	.....



**No. BO Wiremold Bracket Outlets**



A safe, permanent, neat fitting bracket that can be attached to any side-wall fixture and always ready for use. Avoids unscrewing lamps and removing shades. Equipped with standard plug and No. 14 wire to meet all appliance requirements. Furnished in brass finish to harmonize with most fixtures. Prices for special finishes upon application.

Cat. No.	Unit Pkg.	Std. Pkg.	Price Each
BO	5	50	\$ .60

**No. CO Wiremold Ceiling Outlets**



A simple, rugged unit to provide a convenient outlet in kitchens or other places where the only electrical connection is through a ceiling fixture. This unit consists of a short length of Wiremold Conduit and a box with its base plate permanently attached to the conduit. Unit may be extended from any ceiling canopy for attaching a pendant with plug. An ideal outlet for any electrical appliance. Finished in white enamel.

Cat. No.	Unit Pkg.	Std. Pkg.	Price Each
CO	1	10	\$ .62

**No. WO Wiremold Window Outlets**



This unit consists of a short length of Wiremold Conduit permanently attached to base plate of 4-inch round box and assembled for 16-inch centers or, centers less than 16 inches may be made by cutting the conduit of each unit. Base plate of box is equipped with 5 tongues and its cover with 5 twistouts to permit making extensions of any number of units at any desired angle. Cover of box is provided with standard screw spacings to take all 3-inch or 4-inch box porcelain receptacles.

Cat. No.	Unit Pkg.	Std. Pkg.	Price Each
WO	1	10	\$ .62

**No. 51151 4-Inch Square Outlet Boxes**



Black enamel or galvanized finish. Has 1/4-inch nail holes in bottom and sides for fixture studs or nails. Twist out on 2 opposite sides for 1/2-inch gas pipe.

**Five 1/2-Inch Knockouts in Bottom  
Eight 1/2-Inch Knockouts in Sides**

Cat. No.	Depth Inside Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
51151	1 1/2	100	98	\$32.00

**Three 1/2-Inch and Two 3/4-Inch Knockouts in Bottom  
Eight 3/4-Inch Knockouts in Sides**

51151	3/4-In.	1 1/2	100	98	\$32.00
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**No. 51151 Special 4-Inch Square Outlet Boxes**

Black enamel or galvanized finish. Has 1/4-inch nail holes in bottom and sides for fixture studs or nails.

**Five 1/2-Inch Knockouts in Bottom, Eight 1/2-Inch and Two Combination 1/2 and 3/4-Inch in Sides**

51151	Spec.	1 1/2	100	98	\$32.00
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**No. 52151 4-Inch Square Outlet Boxes**

Black enamel or galvanized finish. Boxes have 1/4-inch holes in bottom and sides for fixture studs or nails.



**Five 1/2-Inch Knockouts in Bottom and Ten in Sides**

Cat. No.	Depth Inside Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52151	1 1/2	100	98	\$32.00

**Three 1/2-Inch and Two 3/4-Inch Knockouts in Bottom  
Eight 3/4-Inch Knockouts in Sides**

52151	3/4-In.	1 1/2	100	98	\$32.00
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**No. 52151 Combination 4-Inch Square Outlet Boxes**

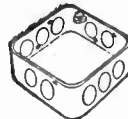
Black enamel or galvanized finish. Has 1/4-inch nail holes in bottom and sides for fixture studs or nails.

**Three 1/2-Inch and Two 3/4-Inch Knockouts in Bottom, Eight 1/2-Inch and Four 3/4-Inch in Sides**

52151	Comb.	1 1/2	100	98	\$32.00
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**No. 53151 4-Inch Extension Rings for 4-Inch Square Boxes**

**Ten 1/2-Inch or Eight 3/4-Inch Knockouts**



Two tapped cover lugs at each end and 2 untapped lugs at one end.

Black enamel or galvanized finish.

Cat. No.	Depth Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
53151	1 1/2	100	65	\$35.00

**No. 51C4 Covers for 4-Inch Square Boxes**

Raised closed cover with flange for gas pipe.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
51C4	10	100	50	\$20.00

**No. 51C5 Covers for 4-Inch Square Boxes**

Raised open cover 3/8 inches deep, 2 1/2 inches opening. Lugs tapped for 5/32 screws or 2 3/4-inch centers. Flange for gas pipe.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
51C5	10	100	45	\$22.00

**No. 51C55 Covers for 4-Inch Square Boxes**

Raised open cover 3/8 inches deep, 2 1/2 inches opening with flange or gas pipe.

Black enamel or galvanized finish.

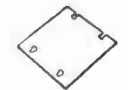


Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
51C55	10	100	43	\$21.00

**No. 52C1 Covers for 4-Inch Square Boxes**

Flat closed cover.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C1	10	100	40	\$13.00

GraybaR

*Symbol of  
Distribution*

from **GraybaR**  
ELECTRIC COMPANY



## No. 52C2 Covers for 4-inch Square Boxes



Raised closed cover. Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C2	10	100	49	\$15.00

## No. 52C3 Covers for 4-inch Square Boxes

Raised open cover, 2 1/2 inches opening.

Lugs tapped for 3/32 screws on 2 3/4-inch centers. Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C3	10	100	32	\$17.00

## No. 52C7 Covers for 4-inch Square Boxes



Raised closed cover with 1/2-inch knockout in center. Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C7	10	100	52	\$16.00

## No. 52C12 Covers for 4-inch Square Boxes

Raised cover with 3/8-inch metal turned back bushing for drop cord.

Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C12	10	100	49	\$17.00

## No. 52C13 Covers for 4-inch Square Boxes

For Flush Devices



Has extra security holes so that cover may be turned 90 degrees if desired.

Black enamel or galvanized finish.

Cat. No.	Depth Inches	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C13	1/2	1	100	44	\$21.00

## No. 52C14 Covers for 4-inch Square Boxes

For Flush Devices

Has extra security holes so that cover may be turned 90 degrees if desired.

Black enamel or galvanized finish.



Cat. No.	Depth Inches	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C14	3/4	1	100	46	\$22.00

## No. 52C15 and 52C16 Covers for 4-inch Square Boxes

For Flush Devices

Has extra security holes so that cover may be turned 90 degrees if desired.

Black enamel or galvanized finish.



Cat. No.	Depth Inches	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C15	1	1	100	47	\$23.00
52C16	1 1/4	1	100	51	\$24.00

## No. 52C17, 52C18, 52C19 and 52C21 Covers for 4-inch Square Boxes

For Flush Devices

Black enamel or galvanized finish.



Cat. No.	Depth Inches	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C17	1/2	2	100	44	\$26.00
52C18	3/4	2	100	48	\$27.00
52C19	1	2	100	52	\$28.00
52C21	1 1/4	2	100	59	\$29.00

## No. 52C28 Covers for 4-inch Square Boxes



Flat cover for all surface mounted devices with screw centers 7/8 to 1 1/8 inches.

Black enamel or galvanized finish.

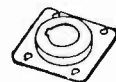
Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C28	10	100	36	\$16.00

## No. 52C35 Covers for 4-inch Square Boxes

Raised cover for sign receptacles, screw ring type, opening 1 1/2 inches.

Notched for protruding lug on porcelain.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C35	10	100	42	\$16.00

## No. 52C36 Covers for 4-inch Square Boxes

Raised cover for sign receptacles, screw ring type, opening 1 1/2 inches, bent under tongue for 5 notched porcelain.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C36	10	100	42	\$16.00

## No. 52C44 Covers for 4-inch Square Boxes

Flat cover with intruding tongue.

For Federal sign receptacles.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C44	10	100	40	\$14.00

## No. 52C48 Covers for 4-inch Square Boxes

Raised cover, 3/8 inches deep, with 2 3/8-inch diameter opening.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C48	10	100	40	\$16.00

## No. 52C57 Covers for 4-inch Square Boxes

Cover for French fixtures, 1x2-inch opening, 3/8 inches deep.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C57	10	100	37	\$45.00

## No. 52C62 Covers for 4-inch Square Boxes

Has extra security holes so that cover may be turned 90 degrees if desired.

Black enamel or galvanized finish.



Cat. No.	Depth Inches	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C62	1/4	1	100	44	\$21.00

## No. 52C63 Covers for 4-inch Square Boxes

Cover for Elixir devices.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
52C63	10	100	44	\$42.00

**No. 72151 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**



Black enamel or galvanized.  
Has 1/4-inch holes in bottom for fixture studs and nails.

**Three 1/2-inch and Two 3/4-inch Knockouts in Bottom  
Eight 1/2-inch Knockouts in Sides**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72151	1 1/2	100	123	\$50.00

**Three 1/2-inch and Two 3/4-inch Knockouts in Bottom  
Eight 3/4-inch Knockouts in Sides**

72151, 3/4-in.	1 1/2	100	123	\$50.00
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**No. 72171 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**

Black enamel or galvanized finish.  
Has 1/4-inch holes in bottom for fixture studs and nails.



**Three 1/2-inch and Two 3/4-inch Knockouts in Bottom  
Eight 1/2-inch Knockouts in Sides**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72171	2 1/8	100	155	\$60.00

**Three 1/2-inch and Two 3/4-inch Knockouts in Bottom  
Eight 3/4-inch Knockouts in Sides**

72171, 3/4-in.	2 1/8	100	155	\$60.00
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**Three 1/2-inch and Two 3/4-inch Knockouts in Bottom  
Eight 1-inch Knockouts in Sides**

72171, 1-in.	2 1/8	100	155	\$60.00
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**Nos. 72C1 and 72C2 Covers for 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**



No. 72C1, flat closed cover; No. 72C2, raised closed cover.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72C1	10	100	48	\$18.00
72C2	10	100	63	20.00

**No. 72C3 Covers for 4<sup>1</sup>/<sub>16</sub>-inch Boxes**

Raised open cover, 2 1/8-inch opening.  
Lugs tapped for 3/32 screws, 2 3/4-inch centers.  
Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72C3	10	100	54	\$22.00

**Nos. 72C7 and 72C12 Covers for 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**



No. 72C7, raised cover with 1/2-inch knockout in center; No. 72C12, raised cover with 3/8-inch bushing.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72C7	10	100	63	\$21.00
72C12	10	100	63	22.00

**Nos. 72C14 and 72C18 Covers for 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**

**For Flush Devices**  
Black enamel or galvanized finish.



Cat. No.	Depth In.	No. of Devices	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72C14	3/4	1	100	56	\$24.00
72C18	3/4	2	100	62	28.00

**No. 72C48 Covers for 4<sup>1</sup>/<sub>16</sub>-inch Square Outlet Boxes**



Raised cover with 2 1/8-inch opening, 3/8 inch deep.  
Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
72C48	10	100	54	\$21.00

**No. 24151 3/4-inch Octagon Outlet Boxes**



Box has 1/4-inch holes in bottom for fixture studs and nails.

Furnished in black enamel or galvanized finish.

**Four 1/2-inch Knockouts in Sides  
One in Bottom**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24151	1 1/2	100	61	\$24.00

**Four 3/4-inch Knockouts in Sides, One in Bottom**

24151, 3/4-inch	1 1/2	100	61	\$24.00
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**No. 24155 3 1/2-inch Octagon Outlet Boxes**

Box has 1/4-inch holes in bottom for fixture studs and nails.

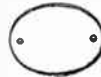


Furnished in black enamel or galvanized finish.

**One 1/2-inch and Eight Loom Knockouts in Bottom  
Four 1/2-inch and Four Loom Knockouts in Sides**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24155	1 1/2	100	61	\$24.00

**No. 24C1 Covers for 3 1/4-inch Octagon Outlet Boxes**



Flat closed cover.

Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C1	10	100	24	\$9.00

**No. 24C2 Covers for 3 1/4-inch Octagon Outlet Boxes**

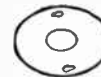
Raised closed cover.

Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C2	10	100	26	\$11.00

**No. 24C6 Covers for 3 1/4-inch Octagon Outlet Boxes**



Flat cover with 1/2-inch knockout in center.

Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C6	10	100	24	\$10.00

**No. 24C7 Covers for 3 1/4-inch Octagon Outlet Boxes**

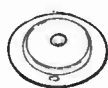
Raised cover with 1/2-inch knockout in center.

Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C7	10	100	26	\$12.00

## No. 24C12 Covers for 3 1/4-inch Octagon Outlet Boxes



Raised cover with 3/8-inch metal bushing for drop cord.

Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C12	10	100	26	\$13.00

## No. 24C28 Covers for 3 1/4-inch Octagon Outlet Boxes

Flat cover for all surface mounted devices with screw centers 3/8 inch to 1 1/8 inches.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C28	10	100	24	\$12.00

## No. 24C33 Covers for 3 1/4-inch Octagon Outlet Boxes



Flat cover for A. M. E. S. 2 screw sign receptacles. 1 3/8-inch opening; 1 9/16-inch screw spacing.

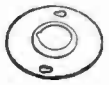
Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C33	10	100	24	\$10.00

## No. 24C35 Covers for 3 1/4-inch Octagon Outlet Boxes

Raised cover for sign receptacles, screw ring type, opening 1 1/2 inches. Notched for protruding lug on porcelain.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C35	10	100	25	\$12.00

## No. 24C36 Covers for 3 1/4-inch Octagon Outlet Boxes



Raised cover for sign receptacles, screw ring type, opening 1 1/2 inches bent under tongue for 5 notched porcelain.

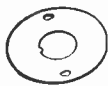
Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C36	10	100	25	\$12.00

## No. 24C44 Covers for 3 1/4-inch Octagon Outlet Boxes

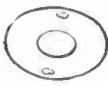
Flat cover with intruding tongue for Federal sign receptacles.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C44	10	100	24	\$10.00

## No. 24C49 Covers for 3 1/4-inch Octagon Outlet Boxes

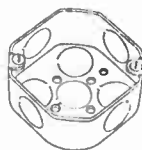


Flat cover for Benjamin 2 screw sign receptacles.

Black enamel or galvanized finish

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
24C49	10	100	24	\$10.00

## No. 54151 4-inch Octagon Outlet Boxes



Has 1/4-inch holes in bottom for fixture studs and nails.

Black enamel or galvanized finish.

### Five 1/2-inch Knockouts in Bottom and Four in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54151	1 1/2	100	75	\$28.00

### Three 1/2-inch and Two 3/4-inch Knockouts in Bottom Four 3/4-inch Knockouts in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54151, 3/4-inch	1 1/2	100	75	\$28.00

## No. 54155 4-inch Round Outlet Boxes

Has 1/4-inch holes in bottom for fixture studs and nails.

Black enamel or galvanized finish.



### Three 1/2-inch and Six Loom Knockouts in Bottom

### Four 1/2-inch and Eight Loom Knockouts in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54155	1 1/2	100	75	\$30.00

## No. 54171 4-inch Octagon Outlet Boxes

Has 1/4-inch holes in bottom for fixture studs and nails.

Furnished in black enamel or galvanized finish.



### Five 1/2-inch Knockouts in Bottom Four in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54171	2 1/8	100	98	\$38.00

### Three 1/2-inch and Two 3/4-inch Knockouts in Bottom Four 3/4-inch Knockouts in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54171, 3/4-inch	2 1/8	100	98	\$38.00

### Three 1/2-inch and Two 3/4-inch Knockouts in Bottom Four 1-inch Knockouts in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54171, 1-inch	2 1/8	100	98	\$38.00

## No. 55151 Extension Rings for 4-inch Octagon Outlet Boxes

Two tapped cover lugs at each end and 2 untapped lugs at one end.

Furnished in black enamel or galvanized finish.



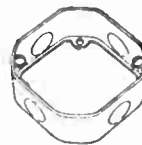
### Four 1/2-inch or 3/4-inch Knockouts in Sides

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
55151	1 1/2	100	51	\$31.00

## No. 55171 Extension Rings for 4-inch Octagon Boxes

Two tapped cover lugs at each end and 2 untapped lugs at one end.

Black enamel or galvanized finish.



### Four Knockouts in Either Side 1/2, 3/4 or 1-inch

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
55171	2 1/4	100	74	\$41.00

**No. 54C1 Covers for 4-inch Octagon Outlet Boxes**



Flat closed cover.  
Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C1	10	100	30	\$12.00

**No. 54C2 Covers for 4-inch Octagon Outlet Boxes**

Raised closed cover.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C2	10	100	41	\$14.00

**No. 54C3 Covers for 4-inch Octagon Outlet Boxes**



Raised open cover, 3/8 inch deep, 2 7/8-inch opening. Lugs tapped for 5/32 screws on 2 3/4-inch centers.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C3	10	100	37	\$16.00

**No. 54C6 Covers for 4-inch Octagon Outlet Boxes**

Flat cover with 1/2-inch knockout in the center.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C6	10	100	30	\$13.00

**No. 54C7 Covers for 4-inch Octagon Outlet Boxes**



Raised cover with 1/2-inch knockout in center.

Furnished in black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C7	10	100	41	\$15.00

**No. 54C12 Covers for 4-inch Octagon Outlet Boxes**

Raised cover with 3/8-inch metal turned back bushing for drop cord.

Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C12	10	100	41	\$16.00

**No. 54C28 Covers for 4-inch Octagon Outlet Boxes**

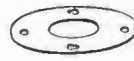


Flat cover for all surface mounted devices with screw centers 3/8 to 1 1/8 inches.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C28	10	100	27	\$15.00

**No. 54C33 Covers for 4-inch Octagon Outlet Boxes**



Flat cover for A. M. E. S. 2 screw sign receptacles, 1 3/8-inch opening, 1 1/8 inch screw spacing.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C33	10	100	27	\$13.00

**No. 54C35 Covers for 4-inch Octagon Outlet Boxes**

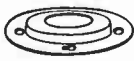
Raised cover for sign receptacles screw ring type, opening 1 1/2 inches. Notched for protruding lug on porcelain.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C35	10	100	37	\$15.00

**No. 54C36 Covers for 4-inch Octagon Outlet Boxes**



Raised cover for sign receptacles, screw ring type, opening 1 1/2 inches.

Bent under tongue for 5 notched porcelain. Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C36	10	100	37	\$15.00

**No. 54C37 Covers for 4-inch Octagon Outlet Boxes**

Flat cover for flush floor receptacles. Notched opening 1 1/2 inches in diameter, 1 1/8 inch screw centers.

Black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C37	10	100	27	\$13.00

**No. 54C44 Covers for 4-inch Octagon Outlet Boxes**



Flat cover with intruding tongue for Federal sign receptacles.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C44	10	100	27	\$13.00

**No. 54C48 Covers for 4-inch Octagon Outlet Boxes**

Raised open cover, 3/8 inch deep, with 2 7/8 inches opening. Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C48	10	100	37	\$15.00

**No. 54C49 Covers for 4-inch Octagon Outlet Boxes**

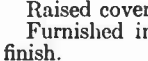


Flat cover for Benjamin 2 screw sign receptacles.

Black enamel or galvanized finish.

Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C49	10	100	27	\$13.00

**No. 54C63 Covers for 4-inch Octagon Outlet Boxes**

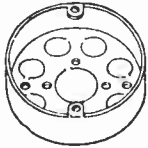


Raised cover for Elexit devices. Furnished in black enamel or galvanized finish.



Cat. No.	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
54C63	10	100	37	\$40.00

## No. 26125 3 1/4-inch Ceiling Outlet Boxes



Ears drilled and tapped. Has 1/4 inch holes in bottom for fixture studs or nails. Black enamel or galvanized finish.

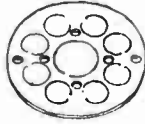
**One 1/2-inch and Seven Loom Knockouts in Bottom**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price per 100
26125	5/8	100	40	\$18.00

## No. 26716 3 1/4-inch Plates for Use with No. 26125

Has one 1/2 inch and 8 loom knockouts. Black enamel or galvanized finish.

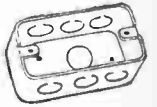
Cat. No.	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price per 100
26716	10	100	25	\$12.00



## No. 58371 Switch Boxes

Has 1/4-inch holes in bottom for fixture studs and nails. Designed for flush rotary snap switches and plug receptacles.

Black enamel or galvanized finish.



**One 1/2-inch Knockout in Each End**

**Three 1/2-inch Knockouts in Each Side**

**One 1/2-inch Knockout in Bottom**

Cat. No.	Length Inches	Width Inches	Depth Inches	Wt., Lbs. Std. Pkg.	Price per 100
58371	4	2 1/4	2 1/8	81	\$30.00

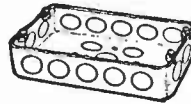
Price, Flat Closed Cover for Box No. 58371..per 100 \$12.00

## Gang Boxes

All boxes are 4 1/2 inches wide and 1 1/8 inches deep inside.

The length varies as shown in table.

Suitable holes are provided in bottom for nails. Black enamel or galvanized finish.



No. of Gangs	Lgth. In.	No. of Knockouts			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
		Bottom	Each Side	Each End			
2	6 7/8	5	5	2	50	85	\$60.00
3	8 5/8	10	6	2	25	54	90.00
4	10 1/2	10	8	2	25	60	120.00
5	12 1/4	10	8	2	20	65	160.00
6	14	10	10	2	15	50	310.00
7	16	10	10	2	10	43	470.00
8	17 3/4	10	12	2	5	23	500.00
9	19 1/2	10	14	2	5	24	550.00

## Gang Box Covers



Furnished in black enamel or galvanized finish.

Gangs	Cat. No. of Box Designed for	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2	3002	37	50	\$30.00
3	3003	25	21	45.00
4	3004	25	27	60.00
5	3005	20	27	75.00
6	3006	15	23	145.00
7	3007	10	18	260.00
8	3008	5	11	290.00
9	3009	5	12	330.00

## National Shallow Boxes for Armored Cable



No. 2365

Will take loom or both loom and armored cable in same box. Holds from 1 to 4 cables of 2 or 3 wires each or 4 pieces of loom or combination of both. With two CL-65 clamps. Nos. 2365 and 2365-D supplied mounted on Bendit or duplex bar; No. 2367 on duplex bar. Four 1/4-inch k.o.'s for 14/2, 14/3 and 12/2 cable. Diameter, 3 1/4 in. Depth, 3/4 in. except Nos. 2365-D and 2368-D which are 1 1/2 inches deep.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
2365	With 3/8-Inch Fixture Stud.....	100	44	\$27.00
2365-D	With 3/8-Inch Fixture Stud.....	10	60	40.80
2366	With Sleeve for 3/8-Inch Gas Pipe..	10	44	27.00
2367	With 3/8-Inch Female Thread.....	10	44	27.00
2368	With 1/2-Inch Conduit K.O. in Center	10	44	14.80
2368-D	With 1/2-Inch Conduit K.O. in Center	10	60	22.00

## No. 36115 3 1/2-inch Ceiling Outlet Boxes With Ears



Has 1/4-inch holes in bottom for fixture studs and nails.

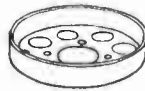
**Three 1/2-inch and Four Loom Knockouts in Bottom**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
36115	1/2	100	38	\$18.00

## No. 36116 3 1/2-inch Ceiling Outlet Boxes Without Ears

Same as No. 36115 without ears. Furnished in black enamel or galvanized finish.

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
36116	1/2	100	38	\$14.00



## No. 56111 4-inch Ceiling Outlet Boxes With Ears



Has 1/4-inch holes in bottom for fixture studs and nails. Black enamel or galvanized finish.

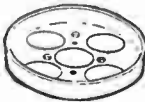
**Five 1/2 or 3/4-inch Knockouts in Bottom**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
56111	1/2	100	50	\$19.00

## No. 56112 4-inch Ceiling Outlet Boxes Without Ears

Same as No. 56111 but has no ears. Furnished in black enamel or galvanized finish.

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
56112	1/2	100	48	\$15.00



## No. 56121 4-inch Ceiling Outlet Boxes With Ears



Has 1/4-inch holes in bottom for fixture studs and nails. Black enamel or galvanized finish.

**Five 1/2 or 3/4-inch Knockouts in Bottom**

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
56121	3/4	100	58	\$20.00

## No. 56122 4-inch Ceiling Outlet Boxes Without Ears

Same as No. 56121 but without ears. Black enamel or galvanized finish.

Cat. No.	Depth Inside, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
56122	3/4	100	56	\$16.00



**Deep Octagon and Round Boxes  
For Armored Cable**

Box is equipped with either fixture stud or 1/2-inch center conduit knockout. Box will be supplied mounted on Bendit box bars as complete units. Two CL-55 clamps used with side knockouts. Box has cover lugs and screws for standard covers. Standard package is 100. Sherardized finish.

**Octagon**

With 8-cable and loom and four 1/2-in. conduit knockouts in side; No. 2315 has two 1/2-inch conduit knockouts in bottom. No. 2348 has three 1/2-inch conduit knockouts in bottom.



Cat. No.	Size In.	Fixture Stud, In.	Car. Wt., ton	Lbs. per 100	Price per 100
2345	4x1 1/2	3/8 Male	10	85	\$45.60
2348	4x1 1/2	No	10	75	37.80

**Round**

With 4-cable and loom and two 1/2-inch conduit knockouts in side; No. 2355 has 2-cable or loom in bottom. No. 2358 has one 1/2-inch conduit knockout and 2-cable or loom in bottom.



Cat. No.	Size In.	Fixture Stud, In.	Car. Wt., ton	Lbs. per 100	Price per 100
2355	3 1/4 x 1 1/2	3/8 Male	10	70	\$40.80
2358	3 1/4 x 1 1/2	No	10	60	33.30

Extra CL-55 clamps and screws, \$1.00 per 100.

**Shallow Boxes**

**For Loom and Loom Wire**

National Bendit bar 2260 will fit any box listed. With CL2 clamps for loom and loom wire. Standard package, 100.

**Without Cover Lugs**

With three 1/2-inch conduit knockouts, 6-loom. Has 2 clamps.



Cat. No.	Size In.	Car-ton	Wt., Lbs. per 100	Price, En-ameled	Price, Sherardized
2626-L2	4x1 1/2	10	46	\$17.10	\$20.10

**With Cover Lugs**

With three 1/2-inch conduit knockouts, 6-loom. Has 2 clamps.



Cat. No.	Size In.	Car-ton	Wt., Lbs. per 100	Price, En-ameled	Price, Sherardized
2632-L2	4x1 1/2	10	48	\$20.10	\$23.10

**Without Cover Lugs**

With three 1/2-inch conduit knockouts, 6-loom. Has 2 clamps.



Cat. No.	Size In.	Car-ton	Wt., Lbs. per 100	Price, En-ameled	Price, Sherardized
2638-L2	4x3/4	10	53	\$16.50	\$20.10

**With Cover Lugs**

With three 1/2-inch conduit knockouts, 6-loom. Has 2 clamps.



Cat. No.	Size In.	Car-ton	Wt., Lbs. per 100	Price, En-ameled	Price, Sherardized
2644-L2	4x3/4	10	55	\$19.50	\$23.10

**Without Cover Lugs**

With one 1/2-inch conduit knockout, 8-loom. Nos. 2829-L2 and 2841-L2 have 2 clamps.

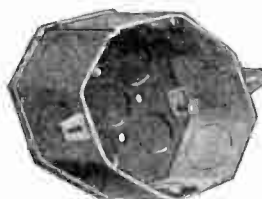


Cat. No.	Size In.	Car-ton	Wt., Lbs. per 100	Price, En-ameled	Price, Sherardized
*2829-L2	3 1/2 x 1 1/2	10	38	\$14.70	\$16.50
*2841-L2	3 1/2 x 3/4	10	43	17.25	20.25

\*Boxes equipped with lugs to take 3/4-inch covers or cover devices for \$1.25 per 100.  
Extra CL2 clamp screws, 50 cents per 100.

**National Outlet Boxes for Concrete Work**

**Sherardized Finish**



No. 3202



No. 3203

Cat. No.	Universal No.	Depth Inches	Knockouts No. and Size, Inches	Stud	Std. Pkg.	Wt., Lbs. per 100	Price per 100
3102	54521	1 1/2	4-1/2 & 4-3/4	No	100	102	\$27.50
3103	54521	1 1/2	4-1/2 & 4-3/4	Yes	100	102	32.50
3202	54531	2	4-1/2 & 4-3/4	No	100	118	33.00
3203	54531	2	4-1/2 & 4-3/4	Yes	100	118	38.00
3302	54551	3	4-1/2 & 4-3/4	No	100	150	40.00
3303	54551	3	4-1/2 & 4-3/4	Yes	100	150	45.00
3304	54551	3	4-3/4 & 4-1	No	100	150	40.00
3305	54551	3	4-3/4 & 4-1	Yes	100	150	45.00
3402	54561	3 1/2	4-1/2 & 4-3/4	No	100	166	44.00
3403	54561	3 1/2	4-1/2 & 4-3/4	Yes	100	166	49.00
3404	54561	3 1/2	4-3/4 & 4-1	No	100	166	44.00
3405	54561	3 1/2	4-3/4 & 4-1	Yes	100	166	49.00
3502	54571	4	4-1/2 & 4-3/4	No	100	180	48.00
3503	54571	4	4-1/2 & 4-3/4	Yes	100	180	53.00
3504	54571	4	4-3/4 & 4-1	No	100	180	48.00
3505	54571	4	4-3/4 & 4-1	Yes	100	180	53.00
3602	54581	5	4-1/2 & 4-3/4	No	100	210	56.00
3603	54581	5	4-1/2 & 4-3/4	Yes	100	210	61.00
3604	54581	5	4-3/4 & 4-1	No	100	210	56.00
3605	54581	5	4-3/4 & 4-1	Yes	100	210	61.00
3702	54591	6	4-1/2 & 4-3/4	No	100	240	68.00
3703	54591	6	4-1/2 & 4-3/4	Yes	100	240	73.00
3704	54591	6	4-3/4 & 4-1	No	100	240	68.00
3705	54591	6	4-3/4 & 4-1	Yes	100	240	73.00

**No. 2708 National Deep Boxes**

**For Loom and Loomwire**

These octagon boxes have three 1/2-inch knockouts and 6-loom or loomwire in the bottom, and one 1/2-inch knockouts or 8-loom or loomwire.

They are furnished with cover lugs.

No. 2708-L2 has two CL-2 clamps.

No. 2708-L4 has four CL-2 clamps.

These boxes can be used for armored cable with brass ferrules.



Cat. No.	Diam. In.	Depth In.	Std. Pkg.	Car-ton	Wt., Lbs. per 100	Price, Enameled	Price, Sherardized
2708-L2	4	1 1/2	100	10	70	\$31.50	\$36.00
2708-L4	4	1 1/2	100	10	76	23.00	26.00

Extra CL-65 clamps and screws can be furnished at 50 cents per 100 net extra.

**No. 2910-L2 National Deep Boxes**

**For Loom and Loom Wire**

This octagon box has 8 loom knockouts and one 1/2-inch conduit in the bottom, and 4 loom and four 1/2-inch conduit knockouts in the sides.

Furnished with cover lugs.

Has two CL-55 clamps.

Can be used for armored cable with brass ferrules.

Diameter, 3 1/4 inches; depth, 1 1/2 inches.



Standard package, 100.	Weight per 100, 25 pounds.
Price, No. 2910-L2, Enameled	per 100
Price, No. 2910-L2, Sherardized	per 100

Extra CL-65 clamps and screws can be furnished at 75 cents per 100 net extra.



## National Box and Bar Sets

Cable and Loom Boxes Mounted on Bendit  
Bar No. 2260



No. 2270 has four knockouts for armored cable or loom. A 3/8-inch stud is part of the box.

Furnished with cover lugs and two CL65 clamps.

Set Cat. No.	Box Used	Diam. In.	Depth In.	Fixture Stud	Clamps	Wt. Lbs. Std. Pkg.	PRICE, PER 100	Black Enam. sized	Sheradized
2270	2365	3 1/4	3/4	3/8-In.	2CL65	108	\$42.00		

Nos. 2271, 2272 and 2273 have 8 loom or LoomWire knockouts.

Regularly furnished without cover lugs; cover lugs for standard 3/4-inch covers and devices will be supplied at \$4.50 extra per 100.

2271	2829	3 1/2	1/2	3/8-In.	None	96	\$35.40	\$36.90	
2272	2829-L1	3 1/2	1/2	3/8-In.	1CL2	100	36.75	38.25	
2273	2829-L2	3 1/2	1/2	3/8-In.	2CL2	104	38.10	39.60	



Nos. 2277, 2279, 2286 and 2288 have two 1/2-inch conduit and 6 loom or LoomWire knockouts.

Nos. 2277 and 2279 are furnished without cover lugs; Nos. 2286 and 2288, with cover lugs.

2277	2626	4	1/2	3/8-In.	None	106	\$38.10	\$41.25	
2279	2626-L2	4	1/2	3/8-In.	2CL2	110	41.25	43.95	
2286	2614	4	3/4	3/8-In.	None	116	40.80	43.95	
2288	2614-L2	4	3/4	3/8-In.	2CL2	120	44.45	46.65	

Nos. 2292 and 2295 have five 1/2-inch conduit knockouts.

No. 2292 is furnished without cover lugs; No. 2295 is furnished with cover lugs.

No clamps are supplied.

2292	2624	4	1/2	3/8-In.	None	106	\$31.50	\$33.00	
2295	2612	4	3/4	3/8-In.	None	112	43.50	46.20	



No. 2305 has two 1/2-inch knockouts in bottom, No. 2306 has three 1/2-inch in bottom. Both have four 1/2-inch insides, 8 loom or LoomWire knockouts in sides.

Furnished with cover lugs.

2305	2325	4	1 1/2	3/8-In.	2CL45	138	\$58.65		
2306	2328	4	1 1/2	None	2CL45	130	51.30		

Nos. 2307 and 2308 have two 1/2-inch knockouts in sides, 4 loom or LoomWire knockouts in sides and two in bottom. No. 2308 also has one 1/2-inch knockout in bottom. Furnished with cover lugs.

2307	2335	3 1/4	1 1/2	3/8-In.	1CL45	122	\$48.60		
2308	2338	3 1/4	1 1/2	None	1CL45	114	41.85		



Nos. 2346 and 2349 have four 1/2-inch conduit and 8 loom or cable knockouts in sides; No. 2346 has two 1/2-inch conduit knockouts in bottom; No. 2349 has three 1/2-inch in bottom. Furnished with cover lugs.

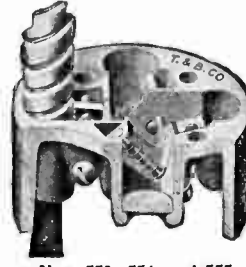
2346	2345	4	1 1/2	3/8-In.	2CL45	145	\$60.00		
2349	2348	4	1 1/2	None	2CL45	135	52.95		

Nos. 2356 and 2359 have two 1/2-inch conduit knockouts in sides, 4 loom or cable knockouts in sides and 2 in bottom; No. 2359 also has one 1/2-inch conduit knockout in bottom. Furnished with cover lugs.

2356	2355	3 1/4	1 1/2	3/8-In.	2CL45	130	\$52.50		
2359	2358	3 1/4	1 1/2	None	2CL45	120	48.90		



## T & B Dead Ground Cable Boxes For Armored Conductors



Nos. 553, 554 and 555



Nos. 556 and 557

These boxes have a simple, yet effective connecting and grounding device, based on the wedge and inclined plane principle, which entirely does away with the multiplicity of parts required in boxes of other makes.

The mechanical and electrical connection between box and armor is perfect. They are easy to install.

Boxes are galvanized.

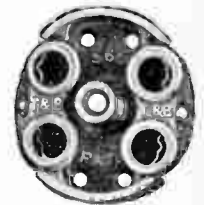
Shallow boxes are 3 inches in diameter by 3/4 inch deep. Standard package, 100.

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price per 100
553	Shallow Box for Straight Electric Work, 3/8-inch Fixture Stem	50	\$22.00
554	Shallow Box for Comb. Gas and Electric, to Slip 3/8-inch Gas Pipe	47	22.00
555	Shallow Box for Comb. Gas and Electric, to Slip 1/2-inch Gas Pipe	47	22.00
556	Shallow Box for Comb. Gas and Electric, to Slip 3/8-inch Gas Pipe	60	22.00
557	Shallow Box for Comb. Gas and Electric, to Slip 1/2-inch Gas Pipe	60	22.00
549	Shutter for Use with Cable Box No. 556	4	5.00
548	" " " " " " 557	5	6.00

## T & B Cable Boxes

Particularly well adapted to narrow bracket installations because of its small diameter.

Boxes are 2 3/4 inches in diameter by 3/4 inch deep.



No. 565

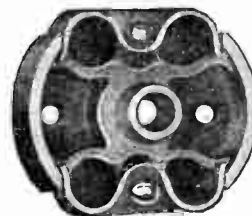
Cat. No.	Description	Std. Pkg.	Wt. Lbs. per 100	Price per 100
565	For Straight Electric Work, 3/8-inch Fixture Stem	100	50	\$22.00
566	For Combination Gas and Electric to Slip 3/8-inch Gas Pipe	100	50	22.00

## T & B Clamp Loom Boxes

Particularly well adapted to narrow bracket installations because of its small diameter.

Boxes are 2 3/4 inches in diameter by 3/4 inch deep.

No. 568 has set screw to bond gas pipe.



No. 567

Cat. No.	Description	Std. Pkg.	Wt. Lbs. per 100	Price per 100
567	For Straight Electric Work, 3/8-inch Fixture Stem	100	50	\$22.00
568	For Combination Gas and Electric, to Slip 3/8-inch Gas Pipe	100	50	22.00

Carton quantity, 10. Standard package, 100.  
Extra clamps and screws, \$1.80 per 100 extra.

**Economy Bar Hangers**

Will Fit Any Box Having 1/2-Inch Center Knockout  
With 3/8-Inch Stud  
Straight Bar Hanger



For shallow boxes in new work or for holding boxes to concrete forms. With 1/2-inch deep boxes where bar is nailed to joists or studding, edge of box will be flush with ordinary plaster.

Cat. No.	Length Bar, In.	Unit Pkg.	Wt., Lbs. Unit Pkg.	Price per 100
2263	18	100	62	\$28.50
*2263-L	24	100	72	39.00

**Shallow Offset Bar Hangers**



Hanger for 1 1/2-inch deep boxes without switch covers or plaster rings; offset brings box edge flush with plaster.

Cat. No.	Length Bar Inches	Depth Offset Inches	Unit Pkg.	Wt., Lbs. Unit Pkg.	Price per 100
2265	19 1/2	1 1/16	50	33	\$34.50

**Deep Offset Bar Hangers**



For 1 1/2-inch deep boxes with switch covers or plaster rings; offset brings 5/8-inch deep covers flush with plaster.

Cat. No.	Length Bar Inches	Depth Offset Inches	Unit Pkg.	Wt., Lbs. Unit Pkg.	Price per 100
2266	19 1/2	1 1/16	50	35	\$34.50

**Old Work Bar Hangers**



For mounting shallow boxes or plates in buildings already plastered. Make a small hole about 1 1/2-inch in diameter; push bar all the way into hole, long end first as shown in cut; hold stud in one hand and pull wire with the other until bar is centered across hole.

Cat. No.	Length Bar Inches	Unit Pkg.	Wt., Lbs. Unit Pkg.	Price per 100
2267	12	100	35	\$22.50

**Box Cleats**



For 1 1/2-inch deep boxes with covers and integral studs, or without studs. Offset has slots for stove bolts to hold box, and is right depth to bring 5/8-inch covers flush with the plaster.

Cat. No.	Length Bar Inches	Depth Offset Inches	Unit Pkg.	Wt., Lbs. Unit Pkg.	Price per 100
2268	21	1 1/16	50	30	\$17.10

\*Special length bars over 24 inches, add 60 cents per 100 to price for each additional inch.

For 1/2-inch studs, \$1.20 per 100 extra.

**Union Set-Up Boxes**

With Straight Bar Hanger and Fixture Stud  
For Conduit



Cat. No.	Description	Price per 100
109B	Box, 4-Inch Round, 1/2 Inch Deep, without Ears; Four 1/2-Inch Knockouts. (Also Furnished with Four 3/4-Inch Knockouts.)	\$48.00
109LB	Box, 4-Inch Round, 1/2 Inch Deep, with Ears Tapped 5/32 on 3 1/2-Inch Centers; Otherwise Same as 109B.	52.00

**For Loom**

260B	Box, 3 1/2-Inch Round, 1/2 Inch Deep, without Ears; 8 Loom Knockouts.	\$47.00
260CB	Same as 260B, but with 2 Loom Clamps.	52.00
261B	Same as 260B, Except Has Ears Tapped 5/32 on 2 3/4-Inch Centers.	51.00
261CB	Box, 3 1/2-Inch Round, 1/2 Inch Deep, with Ears Tapped 5/32 on 2 3/4-Inch Centers; 8 Loom Knockouts with 2 Loom Clamps.	56.00

**For Sheathed or Metallic Cable or Loom**



1286B	Box, 3 1/2-Inch Round, 1/2 Inch Deep; Four 5/8-Inch Knockouts; without Bushing Plate; Equipped with Two Clamps.	\$54.00
1287XB	Box, 3 1/2-Inch Round, 3/4 Inch Deep; Four 5/8-inch Knockouts. Equipped with Bushing Plates and Clamps. Galvanized Finish Only	60.00
1289B	Box, 3 1/4-Inch Octagon, 1 1/2 Inches Deep; Four 5/8 and 1/2-Inch Conduit Knockouts in Bottom, Two 5/8-Inch Knockouts in Each Two Opposite Sides and 1/2-Inch Conduit Knockout in Each of Two Opposite Sides; Equipped with 2 Clamps.	54.00
1289XB	Same as 1289B Except Equipped with 2 Bushing Plates.	64.00
1290B	Box, 4-Inch Octagon, 1 1/2 Inches Deep; Four 5/8-Inch and Three 1/2-Inch Conduit Knockouts in Bottom, Two 5/8-Inch Knockouts in Each of Two Opposite Sides; Equipped with 2 Clamps.	60.00
1290XB	Same as 1290B Except Equipped with Two Bushing Clamps.	70.00

Black enamel and galvanized are the standard finishes with the exception of box 1287XB. Finish desired should be specified.

**Union Set-Up Outlet Boxes**  
With Straight Bar Hanger and Fixture Stud  
For Rigid Conduit



For use in lath and plaster. Box adjustable to any position after bar is nailed fast.

Black enamel or galvanized finish, as desired.

Size of boxes, 4-inch round. Depth, 1/2 inch. Length of bar, 18 inches. Standard package, 100.

Cat. No.	Description	Weight Pounds Std. Pkg.	Price per 100
109B 3/4	Box has Four 3/4-Inch Knockouts in Bottom	98	\$48.00
109LB 3/4	Box has Four 3/4-Inch Knockouts in Bottom, Ears Tapped 5/32 on 3 1/2-Inch Centers.	100	52.00

## Types S, C and A Gem Sectional Switch Boxes

For Non-Metallic Flexible Conduit



Equipped with reversible and sliding ears which have an adjustment of 1/2 inch up to 3/4 inch, suitable for both old and new work.

Types S, C and A boxes are square-cornered and are particularly adapted for new work on account of the space that is available in corners for wiring, bushing, etc.

Length, 3 inches; width, 2 inches.

Knockouts, 5/8 inch, 2 in each side, 2 in each end and 4 in bottom.

Regularly finished with coat of black insulating enamel. Galvanized at a slight advance in price.

Type	Depth In.	Description	Std. Pkg.	Wt. per 50	Lbs. per 50	Price Each
S	2	No Clamps	50	30	\$ .30	
S	2	Unit without Sides or Clamps	50	19 1/2	.22	
C	2 1/2	No Clamps	50	37	.30	
C	2 1/2	Unit without Sides or Clamps	50	20	.22	
A	3	No Clamps	50	47	.50	
A	3	Unit without Sides or Clamps	50	25	.40	

## Types D, F, FC and E Gem Sectional Switch Boxes

For Non-Metallic Flexible Conduit

Equipped with reversible and sliding ears which have an adjustment of 1/2 inch up to 3/4 inch, suitable for both old and new work.

Types D, F, FC and E boxes are bevel-cornered and are practical for use in rewiring old buildings.

Length, 3 inches; width, 2 inches.

Knockouts, 5/8 inch for loom, 2 in each side and 2 in each beveled corner only.

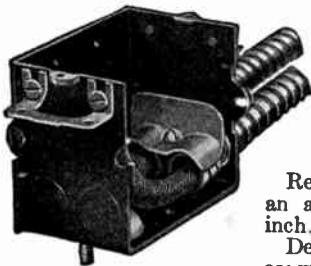
Finished with coat of black enamel. Galvanized extra.



Type	Depth In.	Description	Std. Pkg.	Wt. per 50	Lbs. per 50	Price Each
D	2	No Clamps	50	28	\$ .30	
D	2	Unit without Sides or Clamps	50	18 1/2	.22	
F	2 1/4	No Clamps	50	31	.30	
F	2 1/4	Unit without Sides or Clamps	50	16	.22	
FC	2 1/4	With No. 2 Clamps	50	33	.35	
FC	2 1/4	Unit with No. 2 Clamps without Sides	50	18	.27	
E	2 1/2	No Clamps	50	36	.50	
E	2 1/2	Unit without Sides or Clamps	50	21	.40	

## Type X Gem Sectional Switch Boxes

For Non-Metallic Sheathed Cable, Metallic Cable and Loom



Stamped from 14 gauge steel. With 2 No. 7 clamps.

Ears tapped 6-32 on 3/8-inch centers.

Knockouts: 2 3/8 inch, 2 in each side, 2 in each end; 4 in bottom.

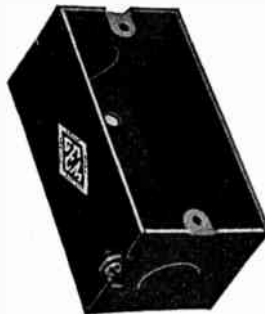
Reversible and sliding ears have an adjustment of 1/2 inch up to 3/4 inch.

Depth, 2 1/2 inches; length, 3 inches; width, 2 inches.

Type	Description	Wt. Carton	Lbs. per Carton	Price per 100
X Box	With Sides	50	38	\$40.00
X Unit	Without Sides	50	23	32.00

## Type R Gem Sectional Switch Boxes

For Rigid Conduit



The Type R Box is designed for installation in thin walls and partitions.

Knockouts, one in each end, for half-inch conduit only. This box is suitable for new work only.

Length, 3 3/4 inches.

Width, 2 inches.

Depth, 1 1/2 inches.

Type	Description	Std. Pkg.	Wt. per 50	Lbs. per 50	Price Each
R	For New Work Only	50	28	\$ .25	
R	Unit, without Sides	50	16	.20	

## Types BS, BM, B and BD Gem Sectional Switch Boxes

For Rigid Conduit



These switch boxes accommodate all standard makes of switches and receptacles and can be furnished with 1/2-inch or 3/4-inch conduit knockouts. May also be used for flexible tubing or larger than 1/2-inch size if desired and for standard BX conductors by using box connectors.

All boxes are 3 inches long and 2 inches wide.

FINISH.—Regularly furnished with coat of black insulating enamel. Galvanized extra.

Type	Depth In.	Description	Std. Pkg.	Wt. per 50	Lbs. per 50	Price Each
BS	2	.....	50	30	\$ .35	
BS	2	Unit without Sides	50	19 1/2	.27	
BM	2 1/2	.....	50	37	.35	
BM	2 1/2	Unit without Sides	50	20	.27	
B	2 3/4	.....	50	39	.35	
B	2 3/4	Unit without Sides	50	18	.27	
BD	3 1/2	.....	50	48	.35	
BD	3 1/2	Unit without Sides	50	22	.27	

## No. 160 Union Sectional Conduit Switch Boxes

For Rigid Conduit

For Push Button Switches and Plug Receptacles



No. 160 Box



No. 160-S Spacer

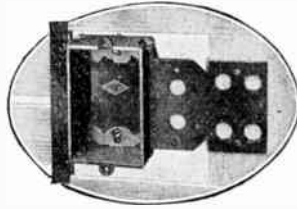
The hook-eye construction permits rapid assembling when additional gangs are required. With the aid of spacers, this box can be built up to any size for accommodating additional switches. Four inches long, 5 1/4 inches wide. Four knockouts in each side, two in each end, for 1/2 or 3/4-inch rigid conduit (specify which). Screw centers 3 3/8 inches. No. 160-S spacer is 4 inches long, 1 1/8 inches wide. Screw centers 3 3/8 inches.

Supplied with black enamel or galvanized finish. When finish is not specified, black enamel will be furnished.

Cat. No.	Depth Inches	No. of Gangs	Std. Pkg.	Wt. per 100	Lbs. per 100	Price Each
160	2 5/8	2	25	51	\$ .60	
160-S	2 5/8	Spacer	100	49	.26	

**Gem 3-Inch Bracket Switch Boxes  
With Lath and Mounting Supports**

Bracket is nailed to joist, 2 lugs squaring box, which is brought flush with plaster line. There are holes to key plaster to bracket, and lath support insures a rigid installation. Takes any standard switch or blank receptacle.



Type FCB

With a heavy coat of black insulating enamel.

Ears tapped 6-32 on 3 3/8-inch centers.

**For Loom**

Depth, 2 1/4 inches; length, 3 inches; width, 2 inches.

Knockouts: 5/8 inch, 2 in each side, 2 in each beveled corner; none in bottom.

Type	Clamps	Car- ton	Wt., Lbs. per Carton	Price Each
FB	None	50	42	\$.45
FCB	With No. 2 Clamps	50	44	.50

**For Non-Metallic Sheathed Cable,  
Metallic Cable or Loom**

Depth, Type XSB, 2 inches; Type XB, 2 1/2 inches; length, 3 inches; width, 2 inches.

Knockouts: 2 3/8 inch, 2 in each side, 2 in each end; 4 in bottom.

XSB	With 2 No. 7 Clamps	50	46	\$.55
XB	With 2 No. 7 Clamps	50	50	.55

**For Rigid Conduit**

Depth, Type BSB, 2 inches; Type BB and BB 3/4, 2 1/4 inches; length, 3 inches; width, 2 inches.

Knockouts: Type BSB, two 5/8 inch, each side, one 1/2 inch, each end; two 1/2 inch in bottom; Type BB, two 1/2 inch, each side; one 1/2 inch each end; two 1/2 inch in bottom; Type BB 3/4, two 5/8 inch each side; one 3/4 inch each end, none in bottom.

BSB	None	50	44	\$.50
BB	None	50	50	.50
BB 3/4	None	50	50	.50

**No. 170 Union Sectional Switch Boxes**

**For Loom or Rigid Conduit**



The No. 170 box is 4 inches long, 2 inches wide and 1 1/8 inches deep.

The end knockouts are for 1/2-inch conduit, the two knockouts in each side for loom or 3/8-inch flexible conduit. Not provided with external supporting ears.

Has one mounting hole in bottom.

Cat. No.	Depth Inches	No. of Gangs	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
170	1 1/8	1	50	35	\$.20
170-S	1 3/8	Spacer	50	17	.18

**Union Solid Drawn Switch Boxes**

**For Flexible Non-Metallic Conduit**

For use in old or new work. Equipped with reversible and sliding ears.

Single gang has 2 knockouts in each side and 2 in each beveled corner for loom. Furnished with 1/2-inch conduit knockout in bottom, if specified.

Two-gang has 2 knockouts in each side, 4 in each beveled corner for loom. Two knockouts provided in bottom for 1/2-inch conduit.

Three-gang has 2 knockouts in each side and 6 in each beveled corner for loom. Furnished with 3 knockouts in bottom for 1/2-inch conduit, if required.



Cat. No.	Type	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Depth	Width	Length			
SS	Single	2 1/2	2	3	100	62	\$.30
SS2	2-Gang	2 1/2	3 3/4	3	50	52	.50
SS3	3-Gang	2 1/2	5 1/2	3	50	67	.70

**Type DS Union Door Switch Boxes  
For Rigid or Flexible Conduit**

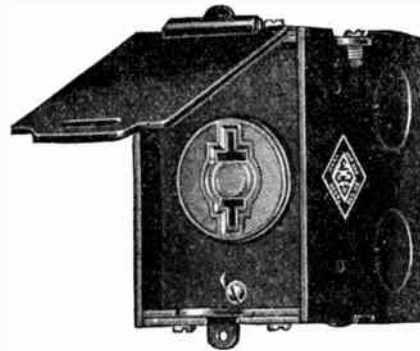
Approved by Underwriters' Laboratories, Inc. Made of 14-gauge steel, finished with black insulating enamel; can be furnished galvanized, at a small advance.



No. 1.—For Perkins and Arrow E Door Switches. One 5/8-inch knockout in one end and bottom for flexible non-metallic and 1/2-inch knockout in opposite end for rigid. Screw centers 3 3/4 in. No. 2.—Same as above, but with 2 3/8-inch knockouts and clamps. No. 3.—For Diamond H Door Switches. One 5/8-inch knockout for flexible non-metallic conduit and 1/2-inch knockout for rigid. Screw centers 3 1/4 inches. No. 4.—Same as above, but with 2 3/8-inch knockouts and clamps. No. 5.—For H & H Door Switches. One 5/8-inch knockout for flexible conduit; 1/2-inch knockout for rigid. Screw centers 3 1/2 inches. No. 6.—Same as above, but with 2 3/8-inch knockouts and clamps.

Type	Clamps	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price Each
		Length	Width	Depth			
DS-1	Without	3 5/8	1 3/16	2 5/8	100	75	\$.50
DS-2	With	3 5/8	1 3/16	2 5/8	100	73	.65
DS-3	Without	3 1/4	1 3/16	2 5/8	100	68	.50
DS-4	With	3 1/4	1 3/16	2 5/8	100	69	.65
DS-5	Without	3	1 3/16	3	100	69	.50
DS-6	With	3	1 3/16	3	100	70	.65

**Gem Sectional Laundry Boxes**



Designed to prevent the theft of current which is so often the case in apartment buildings. Each box is equipped with a hinged cover and lug for padlocking.

The box complete consists of the unit as shown mounted in the regular Gem B Conduit Switch Box. The unit can be inserted in any of the regular Gem switch boxes by removing the ears and using the same screws to fasten the fitting.

The Gem Laundry Box can be built into any number of gangs from single boxes, each unit having its own cover.

Type	Depth Inches	Description	Std. Pkg. per 100	Wt., Lbs. per 100	Price Each
66	2 3/4	Box, Complete with Cover and Receptacle	50	59	\$.150
99	2 3/4	Unit, Consists of Box Cover Attachment with Receptacle	50	21	1.00

**No. 200 Union Midget Receptacle Boxes**

**For Hubbell, Bryant and Arrow E Flush Receptacles**

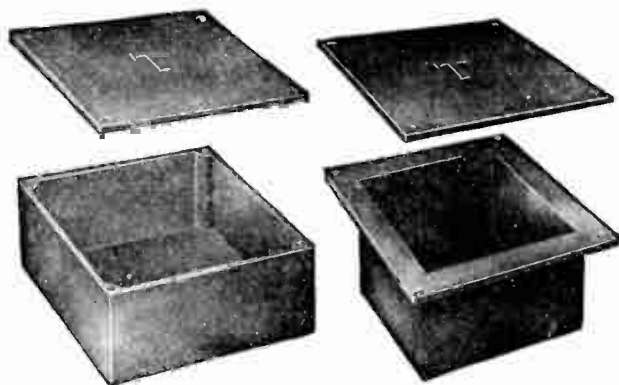


Four knockouts in sides and two in bottom for 1/4-inch and 3/8-inch flexible non-metallic conduit or when specified, one 1/2-inch knockout in bottom for connecting bushing for flexible metallic conduit. Ears are set to give screw centers of 1 1/8 inches for mounting such receptacles as Hubbell No.

6282, Bryant No. 115 and Arrow E No. 8230. When ears are reversed, screw centers are 1 1/2 inches and will mount Arrow E No. 522, Bryant Nos. 309, 1508 and 1509. Designed for old work; for new work, No. 106 outlet boxes and special covers recommended. Black enamel finish.

Cat. No.	Diam. In.	Depth In.	KNOCKOUTS		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
			Sides	Bottom			
200	2 1/4	1 1/8	4 Loom	2 Loom	100	38	\$.28
200 3/4	2 1/4	1 1/8	4 Loom	1-1/2 Loom	100	38	.28

## T & B Cast Iron Junction Boxes and Covers



Unflanged Type

Flanged Type

Japanned finish only; extra charge for galvanized.

When ordering box only use number and add letter B, or cover only add letter C (No. 860B means box only, No. 860C cover only, but No. 860 means box with cover complete).

### Unflanged Type

Cat. No.	INSIDE DIMENSIONS INCHES			WT., POUNDS		PRICE, EACH			
	L.	W.	D.	Box	Cover	Box Only	Cover Only	Complete	Rubber Gasket
861	4x	4x	2	2	.6	\$1.40	\$.20	\$1.60	\$.30
862	4x	4x	3	3	.5	2.10	.20	2.30	.30
867	6x	5x	3	4	2	1.90	.75	2.65	.45
868	6x	6x	4	8	1.2	4.15	.45	4.60	.50
871	8x	6x	3	6	2	3.25	.75	4.00	.70
872	8x	6x	4	9	3	4.60	1.10	5.70	.60
873	8x	8x	4	12	4	6.30	1.45	7.75	.80
874	8x	6x	6	13	3	6.10	1.10	7.20	.70
875	9x	6x	4	6.5	3	3.70	1.10	4.80	.80
878	10x	6x	4	12.5	3.5	5.75	1.25	7.00	.85
880	12x	6x	3	7	4	4.15	1.45	5.60	1.10
881	12x	12x	4	29	5	12.80	1.95	14.75	1.80
882	12x	6x	6	25	4	11.50	1.45	12.95	1.20
883	14x	14x	10	64	16	27.90	5.80	33.70	1.90
886	18x	12x	5	43	17	19.35	6.20	25.55	2.20
887	24x	16x	8	.....	.....	49.55	6.80	56.35	2.50
888	28x	24x	3 1/2	.....	.....	49.55	6.80	56.35	2.75
962	6x	6x	3	6	1.75	3.00	.70	3.70	.50
965	8x	8x	3	13	4	6.20	1.45	7.65	.75
968	12x	6x	4	9	4	5.00	1.50	6.50	1.20
969	12x	12x	6	26	6	12.00	2.20	14.20	1.80
970	14x	10x	8	50	11	23.50	4.00	27.50	1.90
971	18x	12x	4	42	17	18.60	6.20	24.80	2.10

### Flanged Type

895	4x	4x	3	3.5	1.75	\$2.40	\$.55	\$2.95	\$.40
896	6x	5x	3	5	2	2.60	.75	3.35	.45
897	6x	6x	3	6	2.5	3.05	.90	3.95	.50
898	6x	6x	4	9	2	4.25	.75	5.00	.50
899	8x	4x	3	10.5	3	4.90	1.10	6.00	.45
900	8x	6x	3	13	2	5.85	.75	6.60	.70
901	8x	8x	3	13	4	5.90	1.45	7.35	.70
902	8x	6x	4	11	4	4.95	1.45	6.40	.70
903	8x	8x	4	12.5	6	5.80	2.20	8.00	.85
904	8x	8x	6	21	6	9.30	2.15	11.45	.85
905	10x	10x	8	38	10	16.40	3.60	20.00	1.40
906	12x	6x	3	17	3.5	8.25	1.70	9.95	1.40
907	12x	12x	3	32	13	14.75	4.70	19.45	1.75
908	12x	6x	4	19	3.5	9.05	1.25	10.30	1.20
909	12x	12x	4	37	13	16.80	4.70	21.50	1.80
910	12x	6x	6	30	3.5	12.75	1.25	14.00	1.20
911	12x	12x	6	39	5	17.15	1.85	19.00	1.80
912	18x	14x	6	75	21	32.65	7.60	40.25	2.30
913	24x	9x	8	70	22	29.60	7.70	37.30	2.80
914	6x	4x	3	4.5	1.5	2.35	.55	2.90	.40
915	6x	6x	6	8	2.5	3.80	.90	4.70	.50
916	8x	6x	6	12	2	5.40	.75	6.15	.70
917	12x	8x	4	20	8	9.00	2.90	11.90	1.40
918	12x	8x	8	32	8	14.50	2.90	17.40	1.60

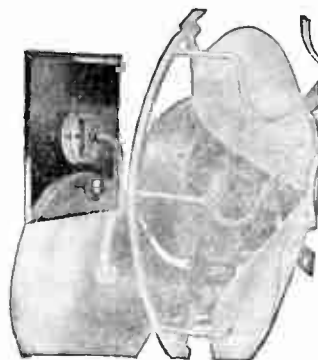
### Drilling Holes

Size	..... inches	1/2	3/4	1	1 1/4 to 3
Price	..... each	\$.12	.15	.23	.30

### Drilling and Tapping Holes

Size	..... inches	1/2	3/4	1	1 1/4	1 1/2 to 3
Price	..... each	\$.18	.24	.45	.63	.90

## No. FHSB FA Fan Hangers



Front View, Installed

Designed for use with standardized outlet boxes and covers. This fan hanger is furnished with a beveled edge face plate, universal receptacle and special fan supporting part. The fan supporting part is adjustable for plumbing the outlet if box is out of line.

A heavy steel bolt (1/4-20) with brass washer for attaching the fan, is furnished with the unit. This bolt is installed through face plate, or it can be installed from rear of supporting part as a stud and fitted with a fastening nut.

Fan hanger outlets are a permanent fixture, because they are built in at the same time as the rest of the equipment.

The box is not furnished. Any N. E. M. A. 4x4x1 1/2-inch outlet box with N. E. M. A. rectangular opening single switch cover 1/2 inch deep can be used. Nos. 52C13, 52C14, 52C15, 52C16, 52C62 and 72C14 covers, or Appleton No. 8434 cover with 4-inch octagon box may be used.

Cover is 2 3/4x4 1/2-inch struck-up brass with satin brass finish, or black finish; universal receptacle which is included in price. Struck-up bronze plates with natural brush finish can be furnished at an advance of 15 per cent. Prices on finish to match Bakelite, and special finishes upon request, with sample. Special finishes are difficult to match and it is recommended that plates be purchased unfinished, so special finish can be applied locally.

Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FHSB	1	50	29	\$2.50

## R & S Fan Hanger and Outlet



No. 661

Consists of a rugged receptacle of the standard convenience outlet type securely mounted to a sherardized steel plate.

Receptacle will accommodate any of the standard attachment plug caps. Plugs are not furnished. Any standard 4-inch square outlet box with standard switch cover will accommodate this fitting. Box or cover not furnished.

Brass plate 2 3/4x4 1/2x.060 inches thick. Standard finish is brush brass.

Special finishes to order. Adapted for individually illuminated picture mountings and for glow heaters.

No.	Description	Weight Ounces	Price Each
661	With Brushed-Brass Plate	14	\$2.00
662	With Bakelite Finished Plate	14	2.00

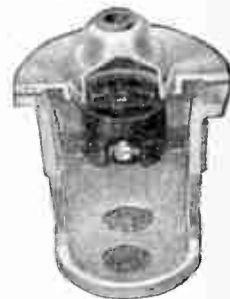
## No. 200 T & B Watertight Floor Boxes

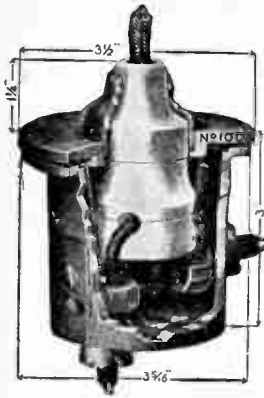
No plug is supplied with this box. The strap and receptacle are assembled ready to place in the box.

Approved by National Board.

Packed in a neat, strong box. Weight, 2 1/2 pounds each.

Cat. No.	Description	Price Each
201	Iron Box with 3 Plugs	\$.85
202	Brass Cover (without No. 203 Disc)	1.50
203	Brass Disc for Cover 1 3/4 In. Diam.	.75
204	Brass Nozzle (Fibre Insulating Bushing)	1.25
205	Receptacle (without Plug) and Supporting Strap Attached	.90
207	Large Rubber Gasket	.20
208	Small Rubber Gasket	.10
200	Box Complete as Shown	4.00





**No. 100 T & B Floor Boxes**

Approved by National Board. Just the right size for private house work.

Hot galvanized; no rubber bushings to break; no hard taps required for wiring; no screws to hold strap in place; watertight.

Packed in a neat, strong box, clearly marked to show contents.

Weight of complete box, 2 1/2 pounds.

**No. 110 Latrobe Non-Adjustable Watertight Boxes**



No. 110

Cover plates are 3 1/2 inches in diameter.

Illustration shows cut-away view of No. 110 box showing how the tapered unit receptacle fits tapered opening in top of box body.

The No. 208 receptacle is designed to eliminate the use of small screws, receptacle straps, filler plates, complicated assembly, etc. The wireman simply attaches the wires to the receptacle, fastens on the cover plate and the receptacle is ready for use.

Price, No. 110, with Receptacle and Bell Nozzle, each \$4.00

**No. 130 Latrobe Adjustable Watertight Floor Boxes**

Cut-away illustration of No. 130 Box shows how tapered unit receptacle fits tapered opening in adjusting ring.

Furnished complete with receptacle at the factory. Cover plates are 3 1/2 inches in diameter.

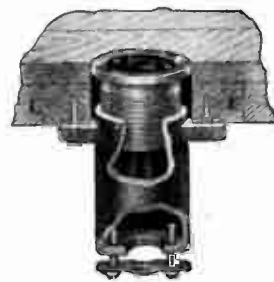
Adjustable top with brass edge ring insures cover being absolutely flush with finished floor in fireproof construction.



No. 130 Box with No. 207 Bell Nozzle

Price, No. 130, without No. 207 Nozzle, each \$4.60  
Price, No. 207 Nozzle, each 1.00

**No. 300 Latrobe Midget Floor Receptacle and Box**



Installation in Floor

Approved by the Underwriters' Laboratories for installation in wood floors.

Designed to provide an extremely small flush convenience outlet, 2 inches in diameter, with low installation cost.

For installation under dining tables, in living rooms, show windows, etc. Ideal for all-electric a.c. radio sets. Cheaper to install in old houses than baseboard outlets.

Price, No. 300, each \$2.00

**No. 100 Latrobe Non-Adjustable Watertight Boxes**



Furnished complete with No. 206 Stem Nozzle but without receptacle. Cover plate is 3 1/2-inch diameter with 1/2-inch flush brass plug. Used as a telephone outlet or junction box.

Price, No. 100, each \$3.15  
Price, Less 206 Nozzle, each 2.15

**No. 208 T Slot Receptacles**

This receptacle with tapered sides fits tapered tops of all Latrobe Watertight Boxes and is interchangeable. It is a complete unit and does not have to be taken apart to be wired. Guaranteed against breakage. Broken receptacles replaced: no charge.

Designed to eliminate many of the small parts such as small screws, receptacle straps, filler plates, etc.  
Price, No. 208, each \$ .60



Cat. No.	Description	Price Each
101	Iron Box with 3 Plugs	\$ .85
102	Brass Cover without Disc	1.50
103	Brass Disc for Cover, 1 3/4-Inch Diam.	.75
104	Brass Nozzle	1.25
105	Receptacle and Supporting Strap	.90
107	Large Rubber Gasket	.20
108	Small Rubber Gasket	.10
100	Box Complete, as Illustrated	4.00

**No. 1200 T & B Floor Boxes**

For telephone and electric light outlets. Hot galvanized. Weatherproof.

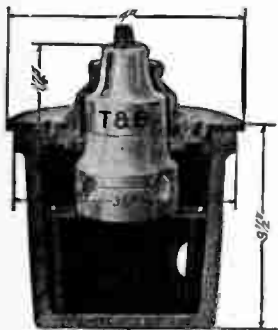
Cat. No.	Description	Price Each
1201	Iron Box with Three Plugs	\$ .85
1202	Brass Cover with 1/2-inch removable plug	2.25
1200	Box Complete, as Illustrated	3.00

Weight of complete box, 1 3/4 pounds.

Packed in a neat, strong box, clearly marked to show contents.



**No. 1100 T & B Watertight Floor Boxes**



Takes from 1/2-inch to 1-inch conduit with receptacle in place.

Receptacle can be taken out without removing any screws.

No hard taps required; no rubber bushings to break.

Specify number, size and location of holes.

Packed in a neat, strong box, clearly marked to show contents.

Cat. No.	Description	Price Each
1101	Iron Box	\$1.10
1102	Brass Cover without Disc	1.75
1103	" Disc for Cover	.75
1104	" Nozzle	1.50
1105	Receptacle and Supporting Strap	.90
1107	Large Rubber Gasket	.20
1108	Small "	.10
1106	Brass Cover with 1/2-inch Removable Plug	2.50
1100	Box Complete, as Illustrated	5.00

Weight of complete box, 3 3/4 pounds.



## No. 120 Latrobe Adjustable Watertight Floor Boxes



No. 120 Box with No. 206 Stem Nozzle

Designed for telephone outlet or where permanent connections are made, or as a junction box. Adjustable top with brass edge ring insures cover being absolutely flush with finished floor in fireproof construction. Cover plates are 3½-inch diameter.

Price, No. 120, without No. 206 Nozzle..... each \$3.75  
 Price, No. 206 Nozzle..... each 1.00

## No. 251 Latrobe Adjustable Watertight Floor Boxes

The No. 251 square box is equipped with No. 207 nozzle and No. 208 receptacle.

Cover plates are 3½ inches square and interchangeable with covers of gang boxes as covers harmonize in size and appearance.

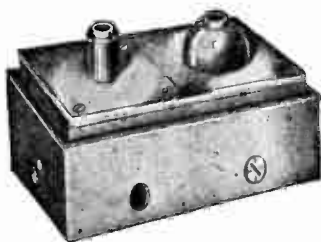
Flat sides permit several conduit holes in each side if required.



No. 251 Box with No. 207 Nozzle and No. 208 Receptacle

Price, No. 251, with ½-Inch Plug in Cover..... each \$5.00  
 Price, No. 251, with Receptacle and 2-Inch Plug in Cover..... each 5.80

## No. 252 Latrobe Gang Floor Boxes



No. 252 Box with No. 206 and No. 207 Nozzles

Double, square box furnished with interchangeable 3½-inch square covers.

One or more sections can be furnished with No. 208 receptacles.

Partitions between sections to separate low and high tension wires.

Price, with ½-inch Plug in Cover Plate.... per section \$5.00  
 Price, with No. 208, Receptacle and 2-Inch Plug in Cover Plate..... per section 5.80

## No. 285 Latrobe Double Duplex Nozzles



No. 285

No. 285 Nozzle consists of two standard Duplex receptacles enclosed in heavy brass housing with ½-inch brass pipe extension 3 inches long. Longer pipe extensions can be furnished if desired. Mounted on No. 200 cover plate.

Very neat and compact in appearance and suitable for use with No. 100, 120 and 251 boxes or sections of gang boxes for desk lamps, fans, motor driven office appliances, factory sewing machines, etc. Also used extensively in public libraries and banking rooms or where multiple service is required from one floor outlet.

Price, No. 285..... each \$6.00

## No. 206 Standard Stem Nozzles

Mounted on No. 200 cover plate.

For use at telephone or similar outlets where a permanent connection is made.



No. 206

Price, No. 206..... each \$1.00

## No. 207 Standard Bell Nozzles

Mounted on No. 201 cover plate.



No. 207

For use with all floor boxes equipped with No. 208 receptacles. When the outlet is not in use the bell nozzle is removed and a 2-inch brass plug is screwed into the cover plate.

Price, No. 207..... each \$1.00

## No. 270 Stem Nozzles

Mounted on No. 200 cover plate.

Equipped with ½-inch female thread for armored cable or ½-inch conduit extension.

Especially suitable for running armored cable from floor boxes up to aisle lights in theatres, etc.



No. 270

Price, No. 270..... each \$1.00

## No. 271 Bell Nozzles

Mounted on No. 201 cover plate.



No. 271

Equipped with female thread for armored cable or ½-inch conduit extension.

Price, No. 271..... each \$1.25

## No. 272 Stem Nozzles

Mounted on No. 200 cover plate.

Has wire slot and screw cap. The cap protects the insulation on wires when floor box is installed under a desk or table.



No. 272

Price, No. 272..... each \$1.25

## No. 274 Bell Nozzles

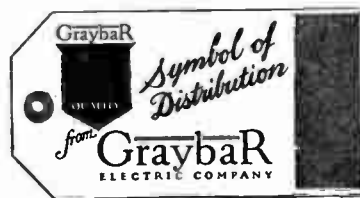
Mounted on No. 201 cover plate.



No. 274

Has wire slot and screw cap. The cap protects the insulation on wires when floor box is installed under desk or table.

Price, No. 274..... each \$1.50



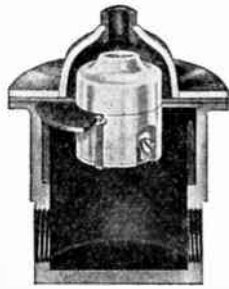
**Fullman Non-Adjustable Floor Outlets**

**No. 477**

PATENTED AND PATENTS PENDING



No. 477



Sectional View of No. 477 Showing Hubbell Receptacle Mounted on Steel Ring

Design and construction of the No. 477 is simple with few parts, small outside dimensions and plenty of room inside for wiring. Fitted complete with Hubbell receptacle and bell nozzle. The receptacle is mounted on a flat steel ring which also serves as a seat for the bell nozzle or flush brass plug. This construction permits use of only one rubber gasket.

Cover plate is 3½ inches in diameter with 2-inch opening for bell nozzle or flush brass plug. Height is 3⅞ inches to top of cover plate.

Conduit holes: 1 in each side and 2 in bottom tapped for ½-inch conduit. Three of the holes are plugged with brass plugs.

All brass parts are brushed brass finish. All iron and steel parts are sherardized to prevent rust.

Standard package, 25 complete outlets.

Complete outlet as described, consists of No. 481 box body, No. 478 porcelain plug, receptacle and flat steel ring, No. 484 rubber gasket, No. 483 brass cover plate, No. 480 flush brass plug and No. 479 bell nozzle.

Weight, 2½ pounds.

Price, No. 477.....each \$5.00

**No. 490**



No. 490

Complete outlet similar to No. 477, consisting of Nos. 481, 482, 484 and 487 parts listed below. Nos. 465 and 467 nozzles can be used in cover plate.

Weight, 1¾ pounds.

Price, No. 490.....each \$2.90

**No. 491**

Complete outlet same as No. 477, except furnished complete with 20-ampere polarized receptacle and plug and No. 466 bell nozzle.

Weight, 2¾ pounds.

Price, No. 491.....each \$5.00

**Parts for Nos. 477, 490 and 491 Outlets**

Cat. No.	Description	Wt. Oz.	Price Each
478	Porcelain Plug, Receptacle and Flat Steel Ring.....	7	\$ .85
479	Brass Bell Nozzle.....	2	1.00
480	2-Inch Flush Brass Plug for No. 483 Cover	2	.35
481	Box Body Only.....	20	2.00
482	Brass Cover Plate with ½-Inch Tapped Hole	6	.65
483	Brass Cover Plate with 2-Inch Hole.....	4	.70
484	Rubber Gasket.....	1	.10
487	½-Inch Flush Brass Plug for No. 482 Cover	1	.15
492	20-Ampere Polarized Receptacle and Plug, Steel Ring, Brass Cover Plate and Rubber Gasket for No. 491 Box.....	16	2.00

**Fullman Adjustable Floor Outlets**

PATENTED AND PATENTS PENDING

Cover plates are 4 inches in diameter, ¼ inch thick sheet brass. The flange ring is ½ inch thick, making the total diameter of the top of box 4¼ inches.

The height of standard box is 3¾ inches over all. Other heights may be had by the following combinations:

No. 402 body with No. 406 adjusting ring, minimum over all, 4¼ inches; with No. 407, 4⅜ inches; with No. 408, 5½ inches.

No. 404 body with No. 405 adjusting ring, minimum over all, 4⅜ inches; with No. 406, 4⅞ inches; with No. 407, 5½ inches; with No. 408, 6⅜ inches.

An adjustment of ½ inch higher may be had on each of these measurements in setting adjusting rings in the No. 476 cement. These boxes can be furnished special with shallow box body making minimum height 3¼ inches over all.

Conduit holes: Standard is 4 holes tapped for ½-inch conduit, 3 of which are plugged with brass plugs, making them water tight. Can be tapped for larger conduit without extra cost to meet requirements when sketches are furnished showing size and location of conduit holes. Only 1 conduit hole can be tapped in each of 4 sides of box bodies. Plugs larger than ½-inch charged for extra.

Receptacles are not furnished unless ordered.



No. 400, Complete



No. 400

No. 401, Complete

Complete standard outlet consisting of No. 402 box body tapped for ½-inch conduit, No. 405 combination adjusting ring and brass flange ring, No. 409 brass cover plate with No. 471 ½-inch brass plug, No. 411 rubber gasket, and No. 476 sealing cement. Weight, 5 pounds.

Price, No. 400.....each \$4.00

**No. 401**

Complete standard outlet consisting of No. 402 box body tapped for ½-inch conduit, No. 405 combination adjusting ring and brass flange ring, No. 410 brass cover plate with No. 472 2-inch brass plug, No. 414 steel plate, forming seat for No. 411 rubber gasket, and No. 476 sealing cement. Weight, 5 pounds.

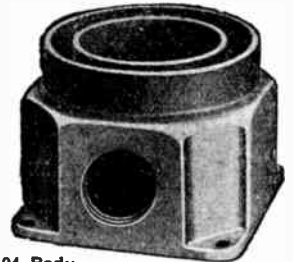
Price, No. 401.....each \$4.50

At an extra cost, both Nos. 400 and 401 outlets may be had with the special No. 404 deep body box tapped for standard ½-inch conduit or tapped special to meet specified requirements. Special depth adjusting rings, Nos. 406, 407 and 408, can be furnished without extra cost.

**Parts for Nos. 400 and 401 Outlets**



No. 402 Body



No. 404 Body

**No. 402 Standard Box Body**

Standard tapping is 4 holes tapped for ½-inch conduit, 3 of which are closed with ½-inch brass plugs. Can be tapped for ¾ or 1-inch conduit, when specified. Height over all, 3⅞ inches; depth of groove, 1 inch; opening in top, 3¼ inches in diameter. Weight, 3½ pounds.

Price, No. 402.....each \$2.27

**No. 404 Special Deep Box Body**

Can be tapped for conduit up to 1½ inches with room for bushing inside or for 2-inch conduit without room for bushing. Height over all, 3¾ inches; depth of groove, 1 inch; opening in top, 3 inches in diameter. Weight, 6¼ pounds.

Price, No. 404.....each \$2.27

## Fullman Adjustable Floor Outlets

### Separate Parts Adjusting Rings



No. 405

The No. 405 adjusting ring is 1½ inches deep over all (standard). Deeper rings also furnished as per Nos. 406, 407 and 408. These rings give a range of adjustment of about 2½ inches. All are interchangeable.

Cat. No.	Description	Net Wt. Lbs. Ea.	Price Each
405	Standard Combination Adjusting Ring and Brass Flange Ring, 1½ Inches Deep Over All	1	\$ .50
406	Combination Adjusting and Brass Flange Ring, 2⅝ Inches Deep	1¼	.50
407	Combination Adjusting and Brass Flange Ring, 2¾ Inches Deep	1½	.50
408	Combination Adjusting and Brass Flange Ring, 3⅞ Inches Deep	1¾	.50

### No. 409 Brass Cover Plates



No. 409

No. 409 brass cover plate has a diameter of 4 inches with ½-inch opening in center for Nos. 465 and 467 nozzles, No. 471 flush brass plug

or ½-inch pipe extension. Net weight, 10 ounces. Price, No. 409.....each \$1.06

### No. 410 Brass Cover Plates

No. 410 brass cover plate has a diameter of 4 inches with 2-inch opening in center for No. 466 nozzle or No. 472 flush brass plug. Net weight, 12 ounces.

Price, No. 410.....each \$1.56



No. 410

### No. 465 Nozzles

No. 465 nozzle is threaded to fit a ½-inch conduit hole in No. 409 cover plate. The two openings are for wire extensions.

Net weight, 4 ounces.

Price, No. 465.....each \$1.00



No. 465

### No. 466 Nozzles

No. 466 nozzle is threaded to fit a 2-inch opening in No. 410 cover plate. This nozzle protects the porcelain plug from injury when inserted in receptacle.

Net weight, 3 ounces.

Price, No. 466.....each \$1.00



No. 466

### No. 467 Nozzles

No. 467 nozzle is threaded to fit a ½-inch conduit hole in No. 409 cover plate.

Net weight, 3 ounces.

Price, No. 467.....each \$1.00



No. 467

### No. 468 Duplex Nozzles

Cast brass combination duplex nozzle for use with No. 409 cover plate when duplex receptacle is used.

Can be furnished with 2 duplex receptacles allowing 4 connections at extra cost.

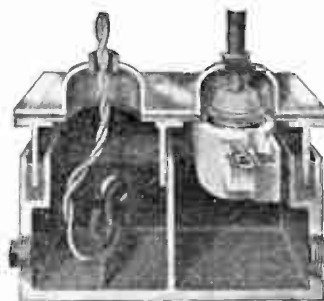
Price, No. 468.....each \$5.00



No. 468

Cat. No.	Description	Net Wt. Oz. Each	Price Each
411	Rubber Gasket	1	\$ .07
471	½-Inch Flush Brass Plug	1	.15
472	2 Inch Flush Brass Plug	2	.35
476	Sealing Cement for One Outlet	4	.10

## Fullman Gang Floor Outlets



This rectangular gang floor outlet is for supplying a variety of service such as electric lights, fans, telephones, etc., from one point.

It makes a neater appearance than several single outlets grouped near a desk or table.

Lugs are provided in each section for flush type receptacles.

No. 459 cover plates are furnished standard for use

with No. 466 bell nozzle. No. 458 cover plate may be substituted for one or more sections if desired for use with No. 465 or No. 467 nozzles or ½-inch pipe extension. Brass edge frame extends around all cover plates.

Minimum height to top of cover plate is four inches. Box body only is 3¼ inches high. The cover of No. 411 outlet is 5½ inches by 4 inches over all. The cover of No. 412 outlet is 5½ inches by 7 inches over all. Each additional section adds three inches.

End sections are provided with three holes tapped for ½-inch conduit. Intermediate sections have two ½-inch tapped holes. Can be tapped for ¾-inch and 1-inch conduit with room for bushings or for 1¼-inch conduit without room for bushings. Sketches must be furnished showing size and location of conduit holes if special tapping is required.

All brass parts furnished brushed brass finish. All iron and steel parts sherardized to prevent rust.

### Complete Outlets

Complete rectangular outlets are regularly furnished with No. 459 cover plates. Can be provided with No. 458 cover plates when specified.

Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each	Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each
441	1	6½	\$5.50	444	4	19¾	\$22.00
442	2	10¾	11.00	445	5	24½	27.50
443	3	15¾	16.50	446	6	31½	33.00

### Bodies Only

Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each	Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each
447	1	4½	\$2.20	450	4	11¼	\$8.80
448	2	6¾	4.40	451	5	14½	11.00
449	3	9¾	6.60	452	6	18½	13.20

### Adjusting Frames with Rubber Gasket and Brass Edge Frame

Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each	Cat. No.	No. of Gangs	Net Wt. Lbs., Each	Price Each
488	1	1½	\$1.74	455	4	6½	\$6.96
453	2	2¾	3.48	456	5	7	8.70
454	2	4½	5.22	457	6	9½	10.44

### Brass Cover Plates

Cat. No.	Description	Net Wt. Oz., Ea.	Price Each
458	For One Section of Gang Outlet with ½-Inch Flush Brass Plug. Takes Nos. 465 and 467 Nozzles.	8	\$ .96
459	For One Section of Gang Outlet with 2-Inch Flush Brass Plug. Takes No. 466 Nozzle.	10	1.46

### Nozzles

465	Brass Drip, for No. 458 Cover Plate	4	\$1.00
466	Brass Bell, for No. 459 Cover Plate	3	1.00
467	Brass Stem, for No. 458 Cover Plate	3	1.00

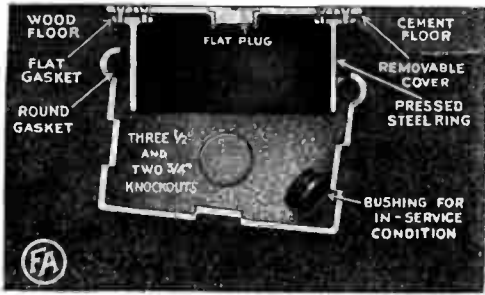
### Brass Plugs

471	½-Inch Flush Brass Plug	1	\$ .15
472	2-Inch Flush Brass Plug	2	.35

### Sealing Cement

476	For One Outlet or One Section of Gang Outlet	4	\$ .10
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**FA Competition Type Floor Boxes**



Made for cement and granolithic type floor work. Pressed steel ring with cover is readily adjustable, for a variation of 3/4 inch; also made special for greater variation and is made a permanent part of box and floor by means of a fine cement mortar grouting.

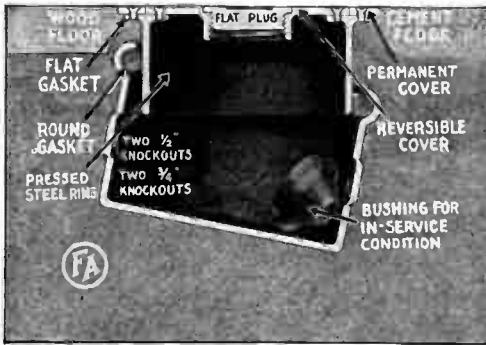
Box is 4-inch octagon shape by 3 1/4 inches deep. Of drawn steel. Four sides are made flat, each side and bottom with 1/2-inch knockout. Contractor can ream knockouts to 1-inch conduit size. Round gasket in groove, makes box watertight at any angle. Drawn steel flange ring, complete with gasket and removable cover fitted with flat plug, also with composition bushing.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FB5	24	112	\$5.00

Each floor box described above is packed in an individual carton.

Price does not include receptacle.

**FA Reversible Cover Floor Boxes**



Adjustable floor boxes are made for cement and granolithic type floor work. Pressed steel ring with cover is readily adjustable for a variation of 3/4-inch; also made special for greater variation and is made a permanent part of box and floor by means of a fine cement mortar grouting.

The reversible cover when not in place leaves a clear opening of 3 inches for connecting wires and installing receptacle. Any standard universal flush receptacles with ears removed can be installed by means of special steel hangers furnished with box.

The box is of drawn steel, 4 inches round by 3 1/4 inches deep. Four sides made flat, two sides and bottom with 1/2-inch knockouts, and two sides with 3/4-inch knockouts. Contractor can ream knockouts to 1-inch conduit size. Round gasket in groove makes box watertight at any angle. The cover is of drawn steel, flanged ring, complete with gasket and permanent cover rim and reversible cover, fitted with flat plug, also with composition split bushing.

Receptacles not furnished.

Cat. No.	Std. Pkg.	Weight of Standard Package	Price Each
FB345	24	112	\$6.00

Each floor box packed in individual carton. Floor boxes are simple to install.

**Patterson Non-adjustable Floor Boxes**

Patterson Non-adjustable Floor Outlet Boxes are designed for wood floor work and for work where it is unnecessary to have the plates of the boxes adjustable.

Boxes shown on this page are double gasketed throughout, thoroughly waterproof; all parts, except floor box itself, are heavily cast bronze; the box is galvanized iron.

In No. 3000 standard 10-ampere receptacles are provided with plugs. With other floor boxes on this page, receptacles and plugs cannot be used.

Iron floor boxes are regularly drilled and tapped for four 1/2-inch conduit entrances, two in sides and two in bottom, adapting them to flexible or rigid conduit work without extra drilling. They will be furnished, when specially ordered to take 3/4-inch conduit on two sides and 1/2-inch on bottom. Removable plugs are furnished closing all but one outlet.

Cardboard shims are furnished with each box and with these shims bronze plate can be easily brought flush with the floor without taking extreme care in cutting; the setting of a Patterson Floor Box is thus made quicker and easier than any floor box on the market.

Receptacles may be removed from box for easy wiring by simply loosening two screws.

Rubber gasket fits into undercut of bronze plate, so that it does not easily fall out.

Patterson Floor Outlet Boxes may be set with an expansion bit guaranteeing rapid work.

**Nos. 3000 and 3000B**



No. 3000 with Outlet Nozzle and Flush Disc

No. 3000B with Blank Bronze Plate

**With Outlet Nozzle and Flush Disc**  
Furnished Complete with 10-ampere, 250-volt Receptacle and Plug

Cat. No.	Diam. Bronze Plate, In.	Depth Over All, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3000	3 1/4	3 3/8	25	95	\$4.00
<b>Parts for No. 3000 Boxes</b>					
3001	Iron box only, with three iron plugs				.85
3002	Large cast brass flange for No. 3000 box				1.50
3004	Cast brass outlet nozzle				1.25
3005	Flush brass disc for flange				.75
3006	Large rubber gasket				.20
3007	Small " "				.10
3008	Porcelain receptacle and supporting strap				.90

**With Blank Bronze Plate**

Cat. No.	Diam. Bronze Plate, In.	Depth Over All, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3000B	3 1/4	3 3/8	25	86	\$3.00
<b>Parts for No. 3000B Boxes</b>					
3009	Iron box only with three iron plugs				.85
3010	Large cast brass flange with 1/2-inch plug in center				2.25

Other parts same as for No. 3000.

**No. 3000BN**  
**With Double Outlet Nozzle**

Receptacles and Plugs Cannot be Used in These Boxes

Cat. No.	Diam. Bronze Plate, In.	Depth Over All, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3000BN	3 1/4	3 3/8	25	92	\$4.00



No. 3000BN with Double Outlet Nozzle

**Parts for No. 3000BN Boxes**

3014	Iron box only with three iron plugs				.85
3015	Large cast brass flange for 3000BN box				2.25
3017	Cast brass double outlet nozzle				1.50

Other parts same as for No. 3000.

## Patterson Adjustable Floor Boxes

Designed primarily for cement and granolithic type floor work. Boxes have double sliding, galvanized cast iron bodies; they are adjustable vertically to 1 inch and have side or off-level adjustment of  $\frac{3}{8}$  inch. Regularly tapped for four  $\frac{1}{2}$ -inch conduit entrances in sides, and one in bottom.



**With Outlet Nozzle, Flush Disc and Receptacle and Plug**

Furnished with 10-ampere, 250-volt receptacle, brass covered plug and flush disc for closing opening when dome and cap are removed.

No. 4003, with 3-wire, polarity plug, is for installations when telephone connection from floor outlet is wanted.

Cat. No.	Receptacle	Diam. Plate, In.	Depth Over All, In.	Std. Pkg.	Wt. Std. Pkg.	Price Each
4000	2-Wire	5 $\frac{3}{16}$	5 $\frac{1}{8}$ to 4 $\frac{1}{8}$	25	244	\$9.00
4003	3-Wire	5 $\frac{3}{16}$	5 $\frac{1}{8}$ to 4 $\frac{1}{8}$	25	270	10.50

### With Blank Bronze Plate

Same as above, but with plain, solid plate and universal template. No receptacle or plug.

Standard package, 25; standard weight, 230 pounds.

Price, No. 4000B.....each \$8.00

### With Double Outlet Nozzle

Regular type box, fitted with removable, double outlet, fibre-brushed brass outlet. With 10-ampere, 250-volt, 2-wire receptacle and plug.



No. 4000BN

4000BN	2-Wire	5 $\frac{3}{16}$	5 $\frac{1}{8}$ to 4 $\frac{1}{8}$	25	240	\$9.00
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## R & S Adjustable Floor Boxes Round Type

This box is of simple design, making it easy to install. Special adjustment and grounding feature eliminate the use of special cement. The box is ruggedly designed and equipped with a flange ring to prevent chipping of the finished floor.

Maximum size of outlets, 1 inch. When ordering, specify outlets required.



No. 2502

Cat. No.	Description	Wt. Lbs.	Price Each
2502	With $\frac{1}{2}$ -In. Pipe Size Cap in Cover Plate	4	\$4.00
2503	With $\frac{2}{8}$ -In. Pipe Size Cap in Cover Plate	4	4.50

### Rectangular Gang Type



No. 2537  $\frac{1}{2}$ -Inch Cover Plate



No. 2512 with One No. 2537 and One No. 2538 Cover Plate



No. 2538  $\frac{2}{8}$  Inch Cover Plate

Maximum size of outlets, 1 $\frac{1}{2}$  inches. When ordering, specify outlets required.

2511	Single Gang with No. 2537 Cover Plate..	6 $\frac{3}{4}$	\$5.00
2512	2-Gang with 2 No. 2537 Cover Plates....	11	10.00
2513	3-Gang with 3 No. 2537 Cover Plates....	15 $\frac{1}{4}$	15.00
2514	4-Gang with 4 No. 2537 Cover Plates....	19 $\frac{1}{2}$	20.00
2515	5-Gang with 5 No. 2537 Cover Plates....	23 $\frac{3}{4}$	25.00

For No. 2538,  $\frac{2}{8}$ -inch cover plates, add 50 cents each.

## R & S Non-Adjustable Floor Boxes



A high grade floor box intended for use in wood flooring, easy to install and can be firmly secured.

Box is made of galvanized cast iron, floor plate of heavy brass and provided with suitable gaskets to make it watertight.

These fittings are furnished with or without receptacles and plugs, providing for uniformity when used for either high or low tension installations.

Height,  $\frac{3}{4}$  inches; diameter of floor plate,  $3\frac{1}{2}$  inches. Two  $\frac{1}{2}$ -inch outlets on sides; two  $\frac{1}{2}$ -inch outlets on bottom; three outlets plugged. Cannot be tapped for larger conduit. Receptacle and plug, 10 amperes 250 volts, furnished with No. 2580. All parts of these floor boxes are interchangeable and various available combinations of boxes and accessories can be furnished. Each box is packed in a strong carton.

### No. 2580

Furnished complete with receptacle, cone nozzle and  $2\frac{1}{8}$ -inch diameter flush cap. Weight, about  $2\frac{1}{2}$  pounds.

Price, No. 2580.....each \$2.85

### No. 2590

Plain box and cover with  $\frac{1}{2}$ -inch pipe flush cap. Weight, about  $1\frac{3}{4}$  pounds.

Price, No. 2590.....each \$2.35

### No. 2581

Furnished complete with 3-wire receptacle, plug, cone nozzle and  $2\frac{1}{8}$ -inch diameter flush cap.

Weight, about  $2\frac{1}{2}$  pounds.

Price, No. 2581.....each \$3.85

## R & S Shallow Type Adjustable Floor Boxes



No. 2504

This floor outlet can be used with a 3-inch floor fill. It is designed and constructed along the same lines as the larger type box. All cast iron parts are galvanized and the adjustable flange and cap are of brass with a machined finish across the top.

The No. 2504 box is furnished complete with a tee slot receptacle, which will accommodate the standard type plug cap and will take the standard No. 2558 cone nozzle same as used in conjunction with the larger type floor boxes. Gaskets are provided to make this box watertight.

**ADJUSTMENTS.**—Ample angular and  $\frac{3}{8}$ -inch vertical.

**OUTLETS.**—Maximum size,  $\frac{3}{4}$  inch. When ordering specify outlets required.

Height,  $2\frac{5}{8}$  inches. Minimum diameter box,  $3\frac{1}{4}$  inches. Diameter flange ring,  $3\frac{3}{8}$  inches.

Cat. No.	Description	Weight Pounds	Price Each
2504	Complete with Tee Slot Receptacle and $2\frac{1}{8}$ -Inch Diameter Flush Cap.....	2 $\frac{3}{4}$	\$7.00
2505	Complete with $\frac{1}{2}$ -Inch Flush Cap but without Receptacle.....	2 $\frac{3}{4}$	6.50
2509	Special Tee Slot Receptacle for Use with No. 2504.....	2 oz.	.50
2558	Cone Nozzle with Composition Bushing..	$\frac{1}{4}$	1.00

**Type A Obround Condulet Bodies**



**Form 7**

Galvanized finish. Take Obround covers and Conduletts.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
A17	1/2	100	75		\$ .24	A87	3	5	55		\$ 5.00
A27	3/4	50	50		.31	A97	3 1/2	5	70		8.15
A37	1	20	30		.43	A107	4	5	70		9.00
A47	1 1/4	20	50		.62	A0117	4 1/2	1	20		11.50
A57	1 1/2	10	40		.80	A0127	5	1	25		14.00
A67	2	5	30		1.66	A0147	6	1	25		20.25
A77	2 1/2	5	50		4.20						

**Type B Obround Condulet Bodies**

**Form 7—One-Piece Body**

Galvanized finish. Take Obround covers and Conduletts.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
B17	1/2	100	95		\$ .29
B27	3/4	50	70		.36
B37	1	20	40		.50

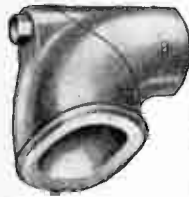


**Type B Obround Condulet Bodies**

**Form 7—Two-Piece Body**

Galvanized or black enamel finish. Take Obround covers and Conduletts.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
B47	1 1/4	20	65		\$ 1.25
B57	1 1/2	10	50		1.50
B67	2	5	40		2.60
B77	2 1/2	5	60		4.20
B87	3	5	75		5.60
B97	3 1/2	5	85		7.00
B107	4	5	130		12.80
B0117	4 1/2	1	100		17.40
B0127	5	1	110		18.20
B0147	6	1	125		22.80



**Type C Obround Condulet Bodies**

**Form 7**

Galvanized or black enamel finish. Take Obround covers and Conduletts.

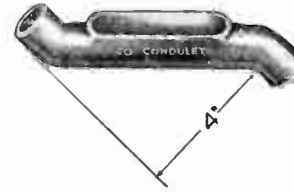
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
C187	1/8	50	25		\$ .25	C57	1 1/2	10	45		\$ 1.22
C287	1/4	50	50		.25	C67	2	5	40		2.43
C387	3/8	50	55		.30	C77	2 1/2	5	45		4.80
C17	1/2	100	95		.36	C87	3	5	60		6.20
C27	3/4	50	65		.41	C97	3 1/2	5	85		9.00
C37	1	20	40		.59	C107	4	5	100		11.00
C47	1 1/4	20	70		.94						



**Type CO Obround Condulet Bodies**

**Form 7**

Galvanized finish. Take Form 7 Obround covers or Conduletts. Provides an offset of 4 inches in a conduit system for such conditions as are encountered in brick walls of varying thickness.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
CO17	1/2	50	75		\$ .50
CO27	3/4	50	95		.65
CO37	1	20	50		.75
CO47	1 1/4	10	35		1.25
CO57	1 1/2	10	50		1.60
CO67	2	5	45		3.25
CO777	2 1/2	5	60		5.20
CO87	3	5	70		7.90
CO97	3 1/2	5	90		12.60
CO107	4	5	95		13.80

**Type COV Obround Condulet Bodies**

**Form 7**

Galvanized finish. Take Form 7 Obround covers or Conduletts. Two type COV Condulets connected by a nipple of suitable length form a convenient cross-over for 2 or more pipes or conduits.



Cat. No.	Size Inches	Size Pipe Crossed Over, Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
COV147	1/2	1 1/4	50	80	\$ .50
COV247	3/4	1 1/4	50	100	.65
COV347	1	1 1/4	20	50	.75
COV457	1 1/4	1 1/2	10	35	1.25
COV567	1 1/2	2	10	50	1.60
COV677	2	2 1/2	5	45	3.25
Use CO777	2 1/2	3 1/2	..	..	..
Use CO87	3	3 1/2	..	..	..

**Type CUB Obround Condulet Bodies**

**Form 7**

Galvanized finish. Take New Obround covers or Conduletts. Provides a cross-over wherever it is necessary to bridge a single pipe or conduit.



Cat. No.	Size Inches	Size Pipe Crossed Over, Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CUB127	1/2	3/4	25	50	\$ .75
CUB147	1/2	1 1/4	25	55	.85
CUB247	3/4	1 1/4	10	40	.95
CUB347	1	1 1/4	10	50	1.40
CUB457	1 1/4	1 1/2	10	60	1.90
CUB567	1 1/2	2	10	70	2.40
CUB677	2	2 1/2	5	60	4.80

**Type E Obround Condulet Bodies**

**Form 7**



Galvanized finish. Take New Obround covers or Conduletts.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
E17	1/2	100	80		\$ .29	E67	2	5	30		\$ 2.14
E27	3/4	50	50		.35	E77	2 1/2	5	45		4.20
E37	1	20	30		.50	E87	3	5	55		5.00
E47	1 1/4	20	60		.80	E97	3 1/2	5	70		8.15
E57	1 1/2	10	40		1.04	E107	4	5	80		9.00

**Type F Obround Condulet Bodies**

**Form 6—With Cover**

Galvanized finish. Furnished with Form 6 3-wire porcelain cover. If specified on order, condulets will be furnished with 2, 4, or 5-wire porcelain covers at the same price.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Each	Price Each
F163	1/2	50	70		\$ .37
F263	3/4	50	75		.46
F363	1	20	45		.65
F463	1 1/4	20	65		1.05
F563	1 1/2	10	55		1.80
F663	2	5	40		3.15





## Type F Obround Condulet Bodies

Form 7



Galvanized finish.  
Take New Obround Form 7 covers.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
F77	2 1/2	5	60	5	\$4.20	F0117	4 1/2	1	100	1	\$17.40
F87	3	5	75	5	5.60	F0127	5 1/2	1	110	1	18.20
F97	3 1/2	5	85	7	7.00	F0147	6	1	125	1	22.80
F107	4	5	130	12	8.00						

## Type LB Obround Condulet Bodies

Form 6—With Cover

Galvanized finish.  
Furnished with Form 6 blank metal cover.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LB17	1 1/2	50	50	50	\$.44
LB26	3/4	50	65	50	.50
LB36	1	20	45	50	.65
LB46	1 1/4	20	55	50	1.30
LB56	1 1/2	10	50	50	1.55
LB666	2	5	35	50	2.75



## Type LB Obround Condulet Bodies

Form 7



Galvanized finish.  
Take New Obround covers or Condulettos.

Cat. No.	Size Inches	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LB187	1/8	50	25	50	\$.30	LB57	1 1/2	10	45	50	\$1.40
LB287	1/4	50	50	50	.30	LB67	2	5	40	50	2.50
LB387	3/8	50	55	50	.35	LB777	2 1/2	5	50	50	5.00
LB17	1/2	100	95	50	.40	LB87	3	5	65	6.50	
LB27	3/4	50	65	50	.45	LB97	3 1/2	5	90	10.50	
LB37	1	20	40	50	.65	LB107	4	5	100	12.00	
LB47	1 1/4	20	80	50	1.05						

## Type LL Obround Condulet Bodies

Form 7



Galvanized finish.  
Take New Obround covers or Condulettos.

Cat. No.	Size In.	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LL187	1/8	50	25	50	\$.30	LL57	1 1/2	10	45	50	\$1.40
LL287	1/4	50	50	50	.30	LL67	2	5	40	50	2.50
LL387	3/8	50	55	50	.35	LL777	2 1/2	5	50	50	5.00
LL17	1/2	100	95	50	.40	LL87	3	5	65	6.50	
LL27	3/4	50	65	50	.45	LL97	3 1/2	5	90	10.50	
LL37	1	20	40	50	.65	LL107	4	5	100	12.00	
LL47	1 1/4	20	80	50	1.05						

## Type LR Obround Condulet Bodies

Form 7



Galvanized finish.  
Take New Obround covers or Condulettos.

Cat. No.	Size In.	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	*Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LR187	1/8	50	25	50	\$.30	LR57	1 1/2	10	45	50	\$1.40
LR287	1/4	50	50	50	.30	LR67	2	5	40	50	2.50
LR387	3/8	50	55	50	.35	LR777	2 1/2	5	50	50	5.00
LR17	1/2	100	95	50	.40	LR87	3	5	65	6.50	
LR27	3/4	50	65	50	.45	LR97	3 1/2	5	90	10.50	
LR37	1	20	40	50	.65	LR107	4	5	100	12.00	
LR47	1 1/4	20	80	50	1.05						

\*Types LB, LL, LR and LF, Form 7 Condulets of the same size may be assorted to make a standard package.

## Type LF Obround Condulet Bodies

Form 7



Galvanized finish. Take Obround covers or Condulettos.

Types LB, LL, LR and LF, Form 7 Condulets of the same size may be assorted to make a standard package.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LF17	1 1/2	100	125	50	\$4.40	LF67	2	5	45	50	\$2.50
LF27	3/4	50	70	50	.45	LF777	2 1/2	5	60	50	5.00
LF37	1	20	50	50	.65	LF87	3	5	75	6.50	
LF47	1 1/4	20	70	50	1.05	LF97	3 1/2	5	105	10.50	
LF57	1 1/2	10	50	50	1.40	LF107	4	5	120	12.00	

## Type LBB Obround Condulet Bodies

Form 7

Galvanized finish. Take Obround covers or Condulettos.



Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LBB17	1 1/2	100	100	50	\$4.40	LBB67	2	5	40	50	\$2.50
LBB27	3/4	50	65	50	.45	LBB777	2 1/2	5	50	50	5.00
LBB37	1	20	40	50	.65	LBB87	3	5	70	6.50	
LBB47	1 1/4	20	60	50	1.05	LBB97	3 1/2	5	90	10.50	
LBB57	1 1/2	10	45	50	1.40	LBB107	4	5	100	12.00	

## Type LLB Obround Condulet Bodies

Form 7



Galvanized finish. Take Obround covers or Condulettos.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LLB17	1 1/2	100	100	50	\$4.40	LLB67	2	5	40	50	\$2.50
LLB27	3/4	50	65	50	.45	LLB777	2 1/2	5	50	50	5.00
LLB37	1	20	40	50	.65	LLB87	3	5	70	6.50	
LLB47	1 1/4	20	60	50	1.05	LLB97	3 1/2	5	90	10.50	
LLB57	1 1/2	10	45	50	1.40	LLB107	4	5	100	12.00	

## Type LRB Obround Condulet Bodies

Form 7

Galvanized finish. Take Obround covers or Condulettos.



Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LRB17	1 1/2	100	100	50	\$4.40	LRB67	2	5	40	50	\$2.50
LRB27	3/4	50	65	50	.45	LRB777	2 1/2	5	50	50	5.00
LRB37	1	20	40	50	.65	LRB87	3	5	70	6.50	
LRB47	1 1/4	20	65	50	1.05	LRB97	3 1/2	5	90	10.50	
LRB57	1 1/2	10	45	50	1.40						

## Type LFB Obround Condulet Bodies

Form 7



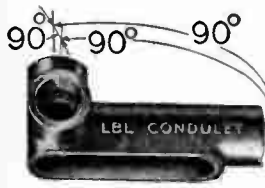
Galvanized finish. Take Obround covers or Condulettos.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt. Lbs.	Lbs. Std. Pkg.	Price Each
LFB17	1 1/2	100	110	50	\$4.40	LFB67	2	5	45	50	\$2.50
LFB27	3/4	50	75	50	.45	LFB777	2 1/2	5	55	50	5.00
LFB37	1	20	40	50	.65	LFB87	3	5	75	6.50	
LFB47	1 1/4	20	60	50	1.05	LFB97	3 1/2	5	100	10.50	
LFB57	1 1/2	10	50	50	1.40	LFB107	4	5	110	12.00	

**Type LBL Oround Condulet Bodies**

Form 7

Galvanized finish. Take Oround covers or Condulettos.



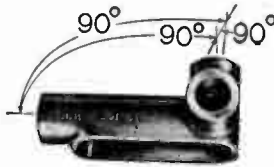
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
LBL17	1/2	50	60		\$ .65
LBL27	3/4	25	40		.80
LBL37	1	25	55		.95
LBL47	1 1/4	10	40		1.25
LBL57	1 1/2	10	55		2.00
LBL67	2	5	45		2.65
LBL77	2 1/2	5	60		6.55

**Type LBR Oround Condulet Bodies**

Form 7

Galvanized finish. Take Oround covers or Condulettos.

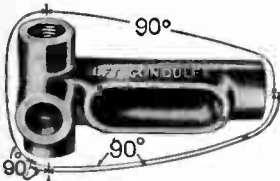
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
LBR17	1/2	50	60		\$ .65
LBR27	3/4	25	40		.80
LBR37	1	25	55		.95
LBR47	1 1/4	10	40		1.25
LBR57	1 1/2	10	55		2.00
LBR67	2	5	45		2.65
LBR77	2 1/2	5	60		6.55



**Type LFT Oround Condulet Bodies**

Form 7

Galvanized finish. Take Oround covers or Condulettos.



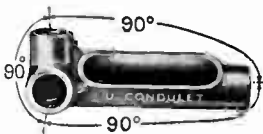
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
LFT17	1/2	50	90		\$1.05
LFT27	3/4	25	60		1.15
LFT37	1	25	75		1.30

**Type LU Oround Condulet Bodies**

Form 7

Galvanized finish. Take Oround covers or Condulettos.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
LU17	1/2	50	80		\$ .65
LU27	3/4	25	55		.80
LU37	1	25	60		.95



**Type TB Oround Condulet Bodies**

Form 7

Galvanized finish. Take Oround covers or Condulettos.

Size of cover or conduletto for this condulet is the same size as hubs at ends of cover opening.



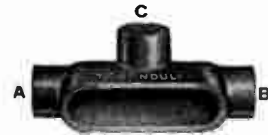
Cat. Nos. TB27 and TB237 may be assorted to make a standard package.

Cat. Nos. TB37, TB317 and TB327 may be assorted to make a standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
TB187	1/8	50	25		\$ .33
TB287	1/4	50	50		.33
TB387	3/8	50	55		.40
TB17	1/2	100	130		.48
TB27	3/4	50	80		.57
TB237	3/4-1-3/4	50	80		.65
TB317	1-1/2-1	20	50		.80
TB327	1-3/4-1	20	50		.80
TB37	1	20	50		.80
TB47	1 1/4	10	40		1.22
TB57	1 1/2	10	50		1.69
TB67	2	5	45		2.55
TB77	2 1/2	5	60		5.00
TB87	3	5	80		7.50
TB97	3 1/2	5	110		11.00
TB107	4	5	120		13.00

**Type T Oround Condulet Bodies**

Form 7



Galvanized finish. Take New Oround covers or Condulettos.

Size of cover or wiring devices for a type T Condulet is same as size of hubs at ends of cover opening.

Condulets with same size cover opening may be assorted to make a standard package.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
	A	B	C				
T187	1/8	1/8	1/8	50	25		\$ .33
T287	1/4	1/4	1/4	50	50		.33
T387	3/8	3/8	3/8	50	55		.40
T17	1/2	1/2	1/2	100	130		.48
T127	1/2	1/2	3/4	100	130		.56
T137	1/2	1/2	1	100	130		.63
T217	3/4	3/4	1 1/2	50	90		.57
T27	3/4	3/4	3/4	50	90		.65
T237	3/4	3/4	1	50	90		.90
T257	3/4	3/4	1 1/2	20	50		.80
T317	1	1	3/4	20	50		.80
T327	1	1	1	20	50		.80
T37	1	1	1	20	50		.80
T367	1	1	2	20	50		1.45
T417	1 1/4	1 1/4	1 1/2	20	70		1.22
T427	1 1/4	1 1/4	3/4	20	70		1.22
T437	1 1/4	1 1/4	1	20	70		1.22
T47	1 1/4	1 1/4	1 1/4	20	70		1.22
T457	1 1/4	1 1/4	1 1/2	20	70		1.50
T467	1 1/4	1 1/4	2	20	70		1.69
T517	1 1/2	1 1/2	1 1/2	10	45		1.69
T527	1 1/2	1 1/2	3/4	10	45		1.69
T537	1 1/2	1 1/2	1	10	45		1.69
T547	1 1/2	1 1/2	1 1/4	10	45		1.69
T57	1 1/2	1 1/2	1 1/2	10	45		1.69
T567	1 1/2	1 1/2	2	10	45		2.52
T617	2	2	1 1/2	5	40		2.55
T627	2	2	3/4	5	40		2.55
T637	2	2	1	5	40		2.55
T647	2	2	1 1/4	5	40		2.55
T657	2	2	1 1/2	5	40		2.55
T67	2	2	2	5	40		2.55
T7577	2 1/2	2 1/2	1 1/2	5	55		5.00
T7677	2 1/2	2 1/2	2	5	55		5.00
T77	2 1/2	2 1/2	2 1/2	5	55		5.00
T867	3	3	2	5	75		7.50
T87	3	3	3	5	75		7.50
T977	3 1/2	3 1/2	2 1/2	5	100		11.00
T97	3 1/2	3 1/2	3 1/2	5	100		11.00
T107	4	4	4	5	110		13.00

**Type TA Oround Condulet Bodies**

Form 7



Galvanized finish. Take New Oround covers or Condulettos.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
TA17	1/2	50	75		\$ .70
TA27	3/4	50	95		.75
TA37	1	20	60		1.00
TA47	1 1/4	10	50		1.55
TA57	1 1/2	10	75		2.30
TA67	2	5	45		3.95

## Type TL Obround Condulet Bodies

Form 7



Galvanized finish. Take New Obround covers or Condulettos.

Size of cover or wiring devices is same as size of hubs at ends of cover opening.

Types TL and TR with same size cover opening may be assorted to make a standard package.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C			
TL17	1/2	1/2	1/2	100	130	\$ .48
TL127	1/2	1/2	3/4	100	130	.56
TL137	1/2	1/2	1	100	130	.63
TL217	3/4	3/4	1/2	50	80	.57
TL27	3/4	3/4	3/4	50	80	.57
TL237	3/4	3/4	1	50	80	.65
TL317	1	1	1/2	20	50	.80
TL327	1	1	3/4	20	50	.80
TL37	1	1	1	20	50	.80
TIA7	1 1/4	1 1/4	1 1/4	10	45	1.22
TL57	1 1/2	1 1/2	1 1/2	10	60	1.69

## Type TR Obround Condulet Bodies

Form 7



Galvanized finish. Take New Obround covers or Condulettos.

Size of cover or wiring devices is same as the size of the hubs at the ends of the cover opening.

Types TL and TR with same size cover opening may be assorted to make a standard package.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C			
TR17	1/2	1/2	1/2	100	130	\$ .48
TR127	1/2	1/2	3/4	100	130	.56
TR137	1/2	1/2	1	100	130	.63
TR217	3/4	3/4	1/2	50	80	.57
TR27	3/4	3/4	3/4	50	80	.57
TR317	1	1	1/2	20	50	.80
TR327	1	1	3/4	20	50	.80
TR37	1	1	1	20	50	.80
TR47	1 1/4	1 1/4	1 1/4	10	45	1.22
TR57	1 1/2	1 1/2	1 1/2	10	60	1.69

## Type U Obround Condulet Bodies

Form 7

Galvanized finish. Take New Obround covers or Condulettos.

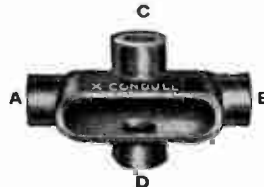
Types TBE, U and UB of same size may be assorted to make a standard package.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
U187	1/8	50	25	\$ .33	U47	1 1/4	20	65	\$1.26
U287	1/4	50	50	.33	U57	1 1/2	10	60	1.68
U387	3/8	50	60	.40	U67	2	5	45	3.00
U17	1/2	100	100	.48	U777	2 1/2	5	55	6.00
U27	3/4	50	80	.54	U87	3	5	70	7.80
U37	1	20	40	.78	U97	3 1/2	5	90	12.60

## Type X Obround Condulet Bodies

Form 7



Galvanized finish. Take Obround covers or wiring devices.

Size of cover or conduletto is same as size of largest hub.

Condulets with same size cover opening may be assorted to make a standard package.

Cat. No.	SIZE, INCHES				Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C	D			
X17	1/2	1/2	1/2	1/2	75	105	\$ .60
X21117	3/4	1/2	1/2	1/2	50	70	.77
X217	3/4	3/4	1/2	1/2	50	70	.77
X27	3/4	3/4	3/4	3/4	50	70	.77
X31127	1	3/4	1/2	1/2	20	65	1.05
X32227	1	3/4	3/4	3/4	20	65	1.05
X317	1	1	1/2	1/2	20	65	1.05
X327	1	1	3/4	3/4	20	65	1.05
X37	1	1	1	1	20	65	1.05
X41137	1 1/4	1	1/2	1/2	20	70	1.40
X42227	1 1/4	3/4	3/4	3/4	20	70	1.40
X42237	1 1/4	1	3/4	3/4	20	70	1.40
X43337	1 1/4	1	1	1	20	70	1.40
X417	1 1/4	1 1/4	1/2	1/2	20	70	1.40
X427	1 1/4	1 1/4	3/4	3/4	20	70	1.40
X47	1 1/4	1 1/4	1 1/4	1 1/4	20	70	1.40
X51147	1 1/2	1 1/4	1/2	1/2	10	70	1.78
X52247	1 1/2	1 1/4	3/4	3/4	10	70	1.78
X527	1 1/2	1 1/2	3/4	3/4	10	70	1.78
X53337	1 1/2	1	1	1	10	70	1.78
X53347	1 1/2	1 1/4	1	1	10	70	1.78
X537	1 1/2	1 1/2	1	1	10	70	1.78
X57	1 1/2	1 1/2	1 1/2	1 1/2	10	70	1.78
X61157	2	1 1/2	1/2	1/2	5	55	3.50
X62257	2	1 1/2	3/4	3/4	5	55	3.50
X63357	2	1 1/2	1	1	5	55	3.50
X637	2	2	1	1	5	55	3.50
X67	2	2	2	2	5	55	3.50
X73357	2 1/2	1 1/2	1	1	5	65	6.00
X75557	2 1/2	1 1/2	1 1/2	1 1/2	5	65	6.00
X757	2 1/2	2 1/2	1 1/2	1 1/2	5	65	6.00
X77	2 1/2	2 1/2	2 1/2	2 1/2	5	65	6.00
X85567	3	2	1 1/2	1 1/2	5	85	10.00
X86677	3	2 1/2	2	2	5	85	10.00
X87	3	3	3	3	5	85	10.00
X96677	3 1/2	2 1/2	2	2	5	100	13.00
X97787	3 1/2	3	2 1/2	2 1/2	5	100	13.00
X97	3 1/2	3 1/2	3 1/2	3 1/2	5	100	13.00
X10787	4	3	2 1/2	2 1/2	5	120	16.00
X10897	4	3 1/2	3	3	5	120	16.00
X107	4	4	4	4	5	120	16.00

## Type TBE Obround Condulet Bodies

Form 7



Galvanized finish. Take Obround covers or wiring devices.

Condulets of the same size may be assorted to make a standard package.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
TBE27	3/4	25	60	\$1.00

**Type XA Obround Condulet Bodies**

Form 7



Galvanized finish. Take New Obround covers or Conduletts.

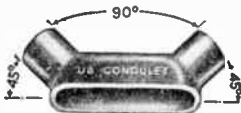
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
XA17	1/2	50	70	\$1.00
XA27	3/4	50	80	1.15
XA37	1	25	60	1.45

**Type UB Obround Condulet Bodies**

Form 7

Galvanized finish. Take Obround covers or Conduletts.

Types TBE, U, and UB Condulets of the same size may be assorted to make a standard package.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UB187	1/8	50	25	\$ .33	UB57	1 1/2	10	60	\$1.68
UB287	1/4	50	50	.33	UB67	2	5	45	3.00
UB387	3/8	50	60	.40	UB777	2 1/2	5	55	6.00
UB17	1/2	100	100	.48	UB87	3	5	70	7.80
UB27	3/4	50	80	.54	UB97	3 1/2	5	90	12.60
UB37	1	20	40	.78	UB107	4	5	100	14.40
UB47	1 1/4	20	65	1.26					

**Type LBV Obround Flanged Condulet Bodies**

Form 7



Galvanized finish. Take New Obround covers or Conduletts.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LBV17	1/2	50	100	\$ .80	LBV47	1 1/4	10	40	\$1.80
LBV27	3/4	25	60	.90	LBV57	1 1/2	10	60	2.00
LBV37	1	25	70	1.10	LBV67	2	5	40	3.00

**Type LBVE Obround Flanged Condulet Bodies**

Form 7



Galvanized finish. Take Obround covers or Conduletts.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LBVE17	1/2	50	110	\$1.60	LBVE37	1	25	75	\$2.20
LBVE27	3/4	25	65	1.80	LBVE47	1 1/4	10	45	2.75

**Type OHN Obround Adapters**

Form 7



Galvanized finish. Adapts old style Obround Condulets to new style covers.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
OHN1	1/2	100	35	\$ .15	OHN4	1 1/4	20	20	\$ .35
OHN2	3/4	50	25	.20	OHN5	1 1/2	10	20	.50
OHN3	1	20	15	.25					

**Type AM Obround Flanged Condulet Bodies**

Form 7



Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AM17	1/2	25	60	\$1.15
AM27	3/4	25	70	1.30
AM37	1	25	85	1.55

**Type BM Obround Flanged Condulet Bodies**

Form 7

Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BM17	1/2	25	70	\$1.15
BM27	3/4	25	75	1.30
BM37	1	25	85	1.55



**Type BNM Obround Flanged Condulet Bodies**

Form 7



Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BNM17	1/2	25	55	\$1.15
BNM27	3/4	25	60	1.30

**Type CM Obround Flanged Condulet Bodies**

Form 7



Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size Inches	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
CM17	1/2	25	75	\$1.25
CM27	3/4	25	85	1.40
CM37	1	25	95	1.65

**Type DF Obround Flanged Condulet Bodies**

Form 7

One Hub

Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
DF17	1/2	25	75	\$1.15
DF27	3/4	25	85	1.30
DF37	1	25	95	1.55



**Type DM Obround Flanged Condulet Bodies**

Form 7

Two Hubs



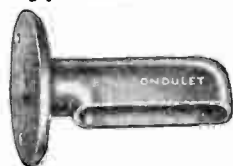
Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
DM17	1/2	25	75	\$1.35
DM27	3/4	25	85	1.50
DM37	1	25	95	1.75

## Type EM Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.



Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
EM17	1/2	25	70	\$1.15
EM27	3/4	25	75	1.30
EM37	1	25	85	1.55

## Type LFN Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.

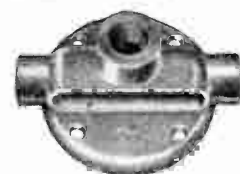
Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LFN17	1/2	25	65	\$1.15
LFN27	3/4	25	75	1.30
LFN37	1	25	85	1.55



## Type TM Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.



Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
TM17	1/2	25	80	\$1.30
TM27	3/4	25	90	1.45
TM37	1	25	100	1.70

## Type TBM Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
TBM17	1/2	25	80	\$1.30
TBM27	3/4	25	90	1.45
TBM37	1	25	100	1.70



## Type TMD Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.



Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
TMD17	1/2	25	85	\$1.55
TMD27	3/4	25	95	1.70
TMD37	1	25	105	1.95

## Type XM Obround Flanged Condulet Bodies

### Form 7

Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
XM17	1/2	25	85	\$1.55
XM27	3/4	25	95	1.70
XM37	1	25	105	1.95



## Type CMB Obround Flanged Condulet Bodies

### Form 7

For use in show windows where it is desirable to support conduit line and condulet bodies at a sufficient distance from window to enable use of angle type reflectors.

Galvanized finish. Take Obround covers or wiring devices.



Cat. No.	Size Inches	Standard Package	Wt. Lbs. Std. Pkg.	Price Each
CMB17	1/2	25	75	\$1.25
CMB27	3/4	25	80	1.40

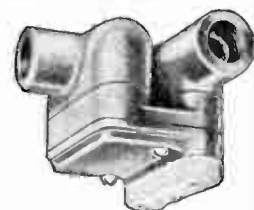
## Type OCB Obround Branch Extensions

### Form 7

For Bridging from One Condulet to Another



Type OCB with Blank Cover Bridging from Type C to B New Obround Condulets



Type OCB with Cover and 2-Wire Porcelain Cover Bridging from Type C to B New Obround Condulets

This extension provides a means of making extensions to existing conduit installations by bridging from one Condulet to another through the cover opening; thereby making it unnecessary to alter or cut into the existing conduit line.



Galvanized finish. Take Obround covers or wiring devices.

Cat. No.	For Connecting Condulets Size, Inches	Standard Package	Wt. Lbs. Std. Pkg.	Price Each
OCB17	1/2 to 1/2	50	35	\$.40
OCB217	3/4 to 1/2	50	40	.50
OCB27	3/4 to 3/4	50	65	.60
OCB317	1 to 1/2	25	35	.70
OCB327	1 to 3/4	25	40	.80
OCB37	1 to 1	25	45	.90
OCB47	1 1/4 to 1 1/4	25	50	1.00

## Obround Covers for Type OCB Extensions

### Form 7



Blank



With Cover Opening

Covers are made both blank and with opening to take Obround covers or Obround wiring devices.

Galvanized finish.

Covers of same size may be assorted to make a standard package.

### Blank Covers

Cat. No.	For Extensions	Std. Wt. Lbs. Pkg.	Std. Pkg.	Price Each
OCB170	OCB17	50	35	\$.25
OCB270	OCB217 and OCB27	50	65	.40
OCB370	OCB317, OCB327 and OCB37	25	60	.55
OCB470	OCB47	25	65	.70

### Covers with Cover Opening

Cat. No.	Size In.	For Extensions	Std. Wt. Lbs. Pkg.	Std. Pkg.	Price Each
OCB171	1/2	OCB17	50	30	\$.30
OCB272	3/4	OCB217 and OCB27	50	60	.45
OCB373	1	OCB317, OCB327 and OCB37	25	55	.65
OCB474	1 1/4	OCB47	25	60	.90

## Obround Gaskets

### Form 7

For Use Between Type OCB Extensions and Type OCB Covers



Cat. No.	Size Inches	For Covers	Std. Pkg.	Price Each
Gask361	1/2	OCB170, 171	200	\$.10
Gask362	3/4	OCB270, 272	100	.10
Gask363	1	OCB370, 373	50	.15
Gask364	1 1/4	OCB470, 474	25	.20

**Threadless Obround Condulets**  
For Standard Conduit with or without Threads

Galvanized Finish  
Take Form 7 Covers and Condulettos

**Type A**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
A197	1/2	100	75	\$ .33
A297	3/4	50	50	.44
A397	1	20	30	.60

**Type B**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
B197	1/2	100	95	\$ .38
B297	3/4	50	70	.50
B397	1	20	40	.68

**Type C**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
C197	1/2	100	95	\$ .53
C297	3/4	50	65	.67
C397	1	20	40	.95

**Type E**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
E197	1/2	100	80	\$ .38
E297	3/4	50	50	.48
E397	1	20	30	.67

**Type LB**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LB197	1/2	100	95	\$ .58
LB297	3/4	50	65	.70
LB397	1	20	40	1.00

**Type LL**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LL197	1/2	100	95	\$ .58
LL297	3/4	50	65	.70
LL397	1	20	40	1.00

**Threadless Obround Condulets**  
For Standard Conduit With or Without Threads

Galvanized Finish  
Take Form 7 Covers and Condulettos

**Type LR**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LR197	1/2	100	95	\$ .58
LR297	3/4	50	65	.70
LR397	1	20	40	1.00

**Type LF**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LF197	1/2	100	125	\$ .58
LF297	3/4	50	70	.70
LF397	1	20	50	1.00

**Type T**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
T197	1/2	100	130	\$ .74
T297	3/4	50	90	.96
T397	1	20	50	1.32
T2197	3/4-1/2	50	90	.96
T3197	1-1/2	100	130	1.32
T3297	1-3/4	50	90	1.32

**Type TB**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
TB197	1/2	100	130	\$ .74
TB297	3/4	50	80	.96
TB397	1	20	50	1.32

**Type X**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
X197	1/2	75	105	\$ .95
X297	3/4	50	70	1.30
X397	1	20	65	1.75

**Type UCA Connectors**

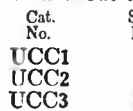
For screwing into the threaded hub of a conduit.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UCA1	1/2	200	45	\$ .17
UCA2	3/4	100	35	.22
UCA3	1	50	35	.40

**Type UCC Couplings**

For connecting 2 pieces of conduit, with or without threads.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UCC1	1/2	200	65	\$ .23
UCC2	3/4	100	50	.34
UCC3	1	50	55	.59





## 1-Wire Obround Porcelain Condulet Covers

### Form 7



Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

#### Standard

Cat. No.	Size Cover Inches	Diameter Hole Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
171	1/2	7/16	200	50	\$.10
271	3/4	7/16	100	35	.15
371	1	7/16	50	30	.25
471	1 1/4	7/16	25	25	.36
571	1 1/2	1 3/8	10	20	.48
671	2	1 3/4	5	15	.60
871	2 1/2 or 3	2 5/16	5	20	.80
971	3 1/2 or 4	3 1/4	5	30	.90
<b>Special</b>					
171S	1/2	5/8	200	50	\$.10
271S	3/4	25/32	100	35	.15
371S	1	1	50	30	.25
471S	1 1/4	1 1/8	25	25	.36

## 2-Wire Obround Porcelain Condulet Covers

### Form 7

Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.



Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
172	1/2	3/8	200	50	\$.10
272	3/4	15/32	100	35	.15
372	1	1/2	50	30	.25
472	1 1/4	1 1/16	25	25	.36
572	1 1/2	1 3/16	10	20	.48
672	2	1	5	15	.60
872	2 1/2 or 3	1 7/16	5	20	.80
972	3 1/2 or 4	1 15/16	5	30	.90

## 3-Wire Obround Porcelain Condulet Covers

### Form 7



Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
173	1/2	5/16	200	50	\$.10
273	3/4	15/32	100	35	.15
373	1	1/2	50	30	.25
473	1 1/4	1 1/16	25	25	.36
573	1 1/2	1 3/16	10	20	.48
673	2	1	5	15	.60
873	2 1/2 or 3	1 7/16	5	20	.80
973	3 1/2 or 4	1 15/16	5	30	.90

## 4-Wire Obround Porcelain Condulet Covers

### Form 7

Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.



Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
174	1/2	5/16	200	50	\$.10
274	3/4	5/16	100	35	.15
374	1	13/32	50	30	.25
474	1 1/4	1 7/32	25	25	.36
574	1 1/2	5/8	10	20	.48
674	2	1	5	15	.60
874	2 1/2 or 3	1 7/16	5	20	.80
974	3 1/2 or 4	1 15/16	5	30	.90

## 5-Wire Obround Porcelain Condulet Covers

### Form 7



Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
275	3/4	5/16	100	35	\$.15
375	1	13/32	50	30	.25
475	1 1/4	1 7/32	25	25	.36
575	1 1/2	5/8	10	20	.48
675	2	13/16	5	15	.60
875	2 1/2 or 3	1 1/16	5	20	.80

## 6-Wire Obround Porcelain Condulet Covers

### Form 7

Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.



Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
276	3/4	5/16	100	35	\$.15
376	1	3/8	50	30	.25
476	1 1/4	1/2	25	25	.36
576	1 1/2	1 1/32	10	20	.48
676	2	5/8	5	15	.60
876	2 1/2 or 3	7/8	5	20	.80

## 7-Wire Obround Porcelain Condulet Covers

### Form 7



Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
377	1	1 1/32	50	30	\$.25
477	1 1/4	7/16	25	25	.36

## 8-Wire Obround Porcelain Condulet Covers

### Form 7

Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.



Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
378	1	5/16	50	30	\$.25
478	1 1/4	3/8	25	25	.36

## 9-Wire Obround Porcelain Condulet Covers

### Form 7



Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
379	1	1 3/4	50	30	\$.25

**1-Wire Obround Composition  
Condulet Covers  
Form 7**

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
1771	1/2	3/16	200	50	\$ .20
2771	3/4	7/16	100	40	.30
3771	1	7/16	50	30	.50
4771	1 1/4	7/16	25	25	1.00
5771	1 1/2	1 3/8	10	20	1.10
6771	2	1 3/4	5	18	1.20

**2-Wire Obround Composition  
Condulet Covers  
Form 7**

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
1772	1/2	3/8	200	50	\$ .20
2772	3/4	1 5/32	100	40	.30
3772	1	1 1/2	50	30	.50
4772	1 1/4	1 11/16	25	25	1.00
5772	1 1/2	1 13/16	10	20	1.10
6772	2	1	5	18	1.20
8772	2 1/2 or 3	1 7/16	5	25	1.60
9772	3 1/2 or 4	1 15/16	5	30	2.50
14772	4 1/2, 5 or 6	2 1/4	1	15	4.00

**3-Wire Obround Composition  
Condulet Covers  
Form 7**

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
1773	1/2	3/8	200	50	\$ .20
2773	3/4	1 5/32	100	40	.30
3773	1	1 1/2	50	30	.50
4773	1 1/4	1 11/16	25	25	1.00
5773	1 1/2	1 13/16	10	20	1.10
6773	2	1	5	18	1.20
8773	2 1/2 or 3	1 7/16	5	25	1.60
9773	3 1/2 or 4	1 15/16	5	30	2.50
14773	4 1/2, 5 or 6	2 1/4	1	15	4.00

**4-Wire Obround Composition  
Condulet Covers  
Form 7**

Cat. No.	Size Cover Inches	Diameter Hole Inches	Standard Package Assorted	Wt., Lbs. Std. Pkg.	Price Each
1774	1/2	5/16	200	50	\$ .20
2774	3/4	5/16	100	40	.30
3774	1	1 13/32	50	30	.50
4774	1 1/4	1 17/32	25	25	1.00
5774	1 1/2	1 5/8	10	20	1.10
6774	2	1	5	18	1.20
8774	2 1/2 or 3	1 7/16	5	25	1.60
9774	3 1/2 or 4	1 15/16	5	30	2.50
14774	4 1/2, 5 or 6	1 7/8	1	15	4.00

**Blank Obround Composition  
Condulet Covers  
Form 7**

Cat. No.	Size Cover, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
18770	1/8	200		\$ .20
28770	1/4	200		.25
38770	3/8	200		.30
1770	1/2	200	50	.30
2770	3/4	100	40	.40
3770	1	50	30	.60
4770	1 1/4	25	25	1.10
5770	1 1/2	10	20	1.20
6770	2	5	18	1.40
8770	2 1/2 or 3	5	25	3.25
9770	3 1/2 or 4	5	30	4.50
14770	4 1/2, 5 or 6	1	15	5.75

Porcelain, composition and metal Obround, Form 7 covers of the same size may be assorted to make a standard package, regardless of the style of cover.

If specified on the order, blank composition covers will be furnished with special drilling at an advance of 10 cents list per hole up to 1/2-inch diameter; 20 cents list per hole over 1/2 to 1 inch diameter; 30 cents list per hole over 1 inch diameter.

**Obround Sheet Steel Condulet Covers  
Form 7**



Galvanized finish. Porcelain, composition and metal Obround, Form 7 covers of same size may be assorted to make a standard package.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1870	1/8	100	15	\$ .06	470	1 1/4	25	10	\$ .32
2870	1/4	100	18	.06	570	1 1/2	10	10	.45
3870	3/8	100	25	.06	670	2	5	5	.56
170	1/2	200	30	.08	870	2 1/2 or 3	5	10	.75
270	3/4	100	15	.11	970	3 1/2 or 4	5	15	.80
370	1	50	10	.23					

**Obround Cast Iron Condulet Covers  
Form 7**

Galvanized finish. Porcelain, composition and metal Obround, Form 7 covers of same size may be assorted to make a standard package.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
170f	1/2	200	50	\$ .16	570f	1 1/2	10	15	\$ .70
270f	3/4	100	40	.22	670f	2	5	10	.90
370f	1	50	30	.35	870f	2 1/2 or 3	5	10	1.15
470f	1 1/4	25	25	.50	970f	3 1/2 or 4	5	15	1.25

**Obround Gaskets for Metal Covers  
Form 7**

Cat. No.	Size Inches	Std. Pkg.	Price Each	Cat. No.	Size Inches	Std. Pkg.	Price Each
Gask 371	1/2	200	\$ .10	Gask 375	1 1/2	25	\$ .20
Gask 372	3/4	100	.10	Gask 376	2	25	.25
Gask 373	1	50	.15	Gask 378	2 1/2 or 3	25	.40
Gask 374	1 1/4	25	.20	Gask 379	3 1/2 or 4	25	.50

**2-Wire Obround Condulet Covers with  
Wire Holes**

For Type F Condulets  
Form 6

Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. per Pkg.	Price Each
262	1/2 or 3/4	15/32	50	9	\$ .07
362	1	1 1/2	20	4	.10
462	1 1/4	1 11/16	20	5	.15
562	1 1/2	1 13/16	10	4	.20
662	2	1	5	5	.30
2672	1/2 or 3/4	15/32	50	7	\$ .10
3672	1	1 1/2	20	3	.15

**3-Wire Obround Condulet Covers with  
Wire Holes**

For Type F Condulets  
Form 6

Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. per Pkg.	Price Each
263	1/2 or 3/4	15/32	50	9	\$ .07
363	1	1 1/2	20	4	.10
463	1 1/4	1 11/16	20	5	.15
563	1 1/2	1 13/16	10	4	.20
663	2	1	5	5	.30
2673	1/2 or 3/4	15/32	50	7	\$ .10
3673	1	1 1/2	20	3	.15

**4-Wire Obround Condulet Covers with  
Wire Holes**

For Type F Condulets  
Form 6

Cat. No.	Size Cover Inches	Diameter Holes Inches	Std. Pkg. Assorted	Wt., Lbs. per Pkg.	Price Each
264	1/2 or 3/4	5/8	50	9	\$ .07
364	1	1 13/32	20	4	.10
464	1 1/4	1 7/8	20	5	.15
564	1 1/2	5/8	10	4	.20
664	2	1	5	5	.30
3674	1	13/32	20	3	\$ .15



**Type BC Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BC3	1	25	90	\$1.90
BC4	1 1/4	10	40	2.15
BC5	1 1/2	10	80	4.15
BC6	2	5	50	5.00
BC7	2 1/2	5	85	9.30
BC8	3	5	100	11.00
BC9	3 1/2	5	165	22.00
BC10	4	5	180	24.00

**Type BEE Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BEE3	1	25	75	\$1.70
BEE4	1 1/4	10	35	1.90
BEE5	1 1/2	10	70	3.70
BEE6	2	5	45	4.50
BEE7	2 1/2	5	75	8.15
BEE8	3	5	85	9.75
BEE9	3 1/2	5	140	17.00
BEE10	4	5	150	19.00

**Type BLB Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BLB3	1	25	90	\$1.90
BLB4	1 1/4	10	40	2.15
BLB5	1 1/2	10	80	4.15
BLB6	2	5	50	5.00
BLB7	2 1/2	5	85	9.30
BLB8	3	5	100	11.00
BLB9	3 1/2	5	165	22.00
BLB10	4	5	180	24.00

**Type BT Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BT3	1	25	105	\$2.25
BT4	1 1/4	10	55	2.50
BT5	1 1/2	10	90	4.65
BT6	2	5	60	5.60
BT7	2 1/2	5	100	10.40
BT8	3	5	120	12.25
BT9	3 1/2	5	190	28.00
BT10	4	5	210	30.00

**Type BTB Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BTB3	1	25	105	\$2.25
BTB4	1 1/4	10	55	2.50
BTB5	1 1/2	10	90	4.65
BTB6	2	5	60	5.60
BTB7	2 1/2	5	100	10.40
BTB8	3	5	120	12.25
BTB9	3 1/2	5	190	28.00
BTB10	4	5	210	30.00

**Type BU Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BU3	1	25	90	\$1.90
BU4	1 1/4	10	45	2.15
BU5	1 1/2	10	80	4.15
BU6	2	5	50	5.00
BU7	2 1/2	5	85	9.30
BU8	3	5	100	11.00
BU9	3 1/2	5	165	22.00
BU10	4	5	180	24.00

**Type BUB Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BUB3	1	25	90	\$1.90
BUB4	1 1/4	10	45	2.15
BUB5	1 1/2	10	80	4.15
BUB6	2	5	50	5.00
BUB7	2 1/2	5	85	9.30
BUB8	3	5	100	11.00
BUB9	3 1/2	5	165	22.00
BUB10	4	5	180	24.00

**Type BUF Mogul Condulet Bodies**

Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BUF3	1	25	90	\$1.90
BUF4	1 1/4	10	45	2.15
BUF5	1 1/2	10	80	4.15
BUF6	2	5	50	5.00
BUF7	2 1/2	5	85	9.30
BUF8	3	5	100	11.00
BUF9	3 1/2	5	165	22.00
BUF10	4	5	180	24.00

## Type BX Mogul Condulet Bodies



Galvanized or black enamel finish.

Take Mogul covers. Have an unusually long cover opening to avoid kinking heavy wires when pulling in or feeding through a conduit system.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BX3	1	25	125	\$2.50
BX4	1 1/4	10	60	2.75
BX5	1 1/2	10	100	5.15
BX6	2	5	70	6.25
BX7	2 1/2	5	110	11.60
BX8	3	5	140	13.90
BX9	3 1/2	5	210	35.00
BX10	4	5	235	38.00

## 1-wire Composition Covers

For Mogul Condulet bodies. Furnished with screws.



Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF241	1 or 1 1/4	1 5/8	10	25	\$1.90
CF261	1 1/2 " 2	2	5	15	3.50
CF281	2 1/2 " 3	2 5/8	5	20	5.50
CF291	3 1/2 " 4	2 5/8	5	30	8.25

## 2 and 3-wire Composition Covers



For Mogul Condulet bodies. Furnished with screws.

Composition, black enameled, and galvanized Mogul covers of the same size may be assorted to make a standard package, regardless of style of cover.

Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF242	1 or 1 1/4	1 1/8	10	25	\$1.90
CF262	1 1/2 " 2	1 1/8	5	15	3.50
CF282	2 1/2 " 3	1 1/2	5	20	5.50
CF292	3 1/2 " 4	2	5	30	8.25

Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF243	1 or 1 1/4	2 1/32	10	25	\$1.90
CF263	1 1/2 " 2	1	5	15	3.50
CF283	2 1/2 " 3	1 3/8	5	20	5.50
CF293	3 1/2 " 4	1 13/16	5	30	8.25

## 4, 5 and 6-wire Composition Covers

For Mogul Condulet bodies. Furnished with screws.



Composition, black enameled, and galvanized Mogul covers of the same size may be assorted to make a standard package, regardless of style of cover.

Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF244	1 or 1 1/4	1 9/32	10	25	\$1.90
CF264	1 1/2 " 2	7/8	5	15	3.50
CF284	2 1/2 " 3	1 1/4	5	20	5.50
CF294	3 1/2 " 4	1 5/8	5	30	8.25

Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF245	1 or 1 1/4	1 7/32	10	25	\$1.90
CF265	1 1/2 " 2	3/4	5	15	3.50
CF285	2 1/2 " 3	1 1/8	5	20	5.50
CF295	3 1/2 " 4	1 1/8	5	30	8.25

Cat. No.	Size Inches	Diam. Wire Hole, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CF246	1 or 1 1/4	1/2	10	25	\$1.90
CF266	1 1/2 " 2	1/16	5	15	3.50
CF286	2 1/2 " 3	1	5	20	5.50
CF296	3 1/2 " 4	1 3/8	5	30	8.25

## 7, 8 and 9-wire Composition Covers



For Mogul Condulet bodies. Furnished with screws.

Composition, black enameled, or galvanized Mogul covers of the same size may be assorted to make a standard package, regardless of style of cover.

### 7-wire

Cat. No.	Size Inches	Diam. Hole, In.	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
CF247	1 or 1 1/4	1/2	10	25	\$1.90
CF267	1 1/2 " 2	1/16	5	15	3.50
CF287	2 1/2 " 3	1	5	20	5.50
CF297	3 1/2 " 4	1 3/8	5	30	8.25

### 8-wire

Cat. No.	Size Inches	Diam. Hole, In.	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
CF248	1 or 1 1/4	7/16	10	25	\$1.90
CF268	1 1/2 " 2	5/8	5	15	3.50
CF288	2 1/2 " 3	7/8	5	20	5.50
CF298	3 1/2 " 4	1 3/16	5	30	8.25

### 9-wire

Cat. No.	Size Inches	Diam. Hole, In.	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
CF249	1 or 1 1/4	3/8	10	25	\$1.90
CF269	1 1/2 " 2	9/16	5	15	3.50
CF289	2 1/2 " 3	1 1/16	5	20	5.50
CF299	3 1/2 " 4	1 3/16	5	30	8.25

## Blank Composition Covers

For Mogul Condulet bodies. Furnished with screws.



Cat. No.	Size Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
CF240	1 or 1 1/4	10	25	\$1.90
CF260	1 1/2 " 2	5	15	3.50
CF280	2 1/2 " 3	5	20	5.50
CF290	3 1/2 " 4	5	30	8.25

## Blank Cast Iron Covers

### Without Gasket

For Mogul Condulet bodies. Galvanized or black enamel finish.

No gaskets are furnished with these covers, nor can they be used with gaskets.

Screws are included with covers.

Black enameled, galvanized, and composition Mogul covers of the same size may be assorted to make a standard package, regardless of style of cover.

Cat. No.	Size Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
BG47	1 or 1 1/4	10	35	\$1.10
BG67	1 1/2 " 2	5	25	1.75
BG87	2 1/2 " 3	5	40	4.00
BG97	3 1/2 " 4	5	55	6.00

## Blank Cast Iron Covers

### With Gasket

For Mogul Condulet bodies. Galvanized or black enamel finish.

These covers are designed for use with gaskets, which are furnished.

Screws are included with covers.

Black enameled, galvanized, and composition Mogul covers of the same size may be assorted to make a standard package, regardless of style of cover.

Cat. No.	Size Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
BG48	1 or 1 1/4	10	40	\$1.50
BG68	1 1/2 " 2	5	30	2.40
BG88	2 1/2 " 3	5	45	5.40
BG98	3 1/2 " 4	5	60	7.50

**Type G Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see Pages 414 to 417, Condulet catalogue No. 2000. 250 assorted bodies of the G-H series with adjustable bar make a standard package.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
G151	5	1/2	100	120	\$.55
G252	5	3/4	50	75	.65
G353	5	1	25	45	.90
G1101	10	1/2	50	55	.65
G2102	10	3/4	25	50	.80
G3103	10	1	25	55	1.00
G1201	20	1/2	50	75	.90
G2202	20	3/4	25	55	.95
G3203	20	1	25	65	1.20

**Type GA Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see Pages 414 to 417, Condulet catalogue No. 2000. 250 assorted bodies of the G-H series with adjustable bar make a standard package.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GA151	5	1/2	100	125	\$.75
GA252	5	3/4	50	90	.85
GA353	5	1	25	55	1.10
GA1101	10	1/2	50	70	.85
GA2102	10	3/4	25	55	1.00
GA3103	10	1	25	60	1.20
GA1201	20	1/2	50	75	1.10
GA2202	20	3/4	25	65	1.20
GA3203	20	1	25	70	1.50

**Type GL Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see Pages 414 to 417, Condulet catalogue No. 2000. Furnished with adjustable bar and screws.



250 assorted bodies of the G-H series with adjustable bar make a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GL151	5	1/2	100	120	\$.60
GL252	5	3/4	50	75	.70
GL353	5	1	25	40	.95
GL1101	10	1/2	50	55	.70
GL2102	10	3/4	25	50	.85
GL3103	10	1	25	50	1.05
GL1201	20	1/2	50	75	.95
GL2202	20	3/4	25	55	1.05
GL3203	20	1	25	65	1.35

**Type GT Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see Pages 414 to 417, Condulet catalogue No. 2000. 250 assorted bodies of the G-H series with adjustable bar make a standard package.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GT151	5	1/2	100	125	\$.75
GT252	5	3/4	50	90	.85
GT353	5	1	25	55	1.10
GT1101	10	1/2	50	70	.85
GT2102	10	3/4	25	55	1.00
GT3103	10	1	25	60	1.20
GT1201	20	1/2	50	75	1.10
GT2202	20	3/4	25	65	1.20
GT3203	20	1	25	70	1.50

**Type GX Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000.



250 assorted bodies of the G-H series with adjustable bar make a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GX151	5	1/2	100	155	\$.90
GX252	5	3/4	50	100	1.00
GX353	5	1	25	60	1.35
GX1101	10	1/2	50	75	1.00
GX2102	10	3/4	25	60	1.15
GX3103	10	1	25	70	1.45
GX1201	20	1/2	50	75	1.25
GX2202	20	3/4	25	70	1.40
GX3203	20	1	25	75	1.80

**Type H Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000.



250 assorted bodies of the G-H Series with adjustable bar make a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H15	5	1/2	100	115	\$.45
H25	5	3/4	50	70	.55
H35	5	1	25	40	.80
H110	10	1/2	50	50	.55
H210	10	3/4	25	45	.70
H310	10	1	25	50	.90
H120	20	1/2	50	70	.80
H220	20	3/4	25	50	.85
H320	20	1	25	55	1.10

**Type HA Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000.



250 assorted bodies of the G-H series with adjustable bar make a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HA15	5	1/2	100	115	\$.50
HA25	5	3/4	50	70	.60
HA35	5	1	25	40	.85
HA110	10	1/2	50	50	.60
HA210	10	3/4	25	45	.75
HA310	10	1	25	50	.95
HA120	20	1/2	50	70	.85
HA220	20	3/4	25	50	.90
HA320	20	1	25	55	1.20

**Type HH Condulet Bodies**

**With Adjustable Bar**

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000.



250 assorted bodies of the G-H series with adjustable bar make a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HH151	5	1/2	100	120	\$.55
HH252	5	3/4	50	75	.65
HH353	5	1	25	50	.90
HH1101	10	1/2	50	60	.65
HH2102	10	3/4	25	50	.80
HH3103	10	1	25	55	1.00
HH1201	20	1/2	50	75	.90
HH2202	20	3/4	25	60	.95
HH3203	20	1	25	65	1.20



## Type HHC Condulet Bodies

### With Adjustable Bar

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000. 250 assorted bodies of the G-II series with adjustable bar make a standard package.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HHC151	5	1/2	100	125	\$.75
HHC252	5	3/4	50	80	.85
HHC353	5	1	25	55	1.10
HHC1101	10	1/2	50	75	.85
HHC2102	10	3/4	25	55	1.00
HHC3103	10	1	25	65	1.20
HHC1201	20	1/2	50	80	1.10
HHC2202	20	3/4	25	65	1.20
HHC3203	20	1	25	75	1.50

## Type HLA Condulet Bodies

### With Adjustable Bar

Galvanized or black enamel finish. Take covers or round base wiring devices. For wiring devices see pages 414 to 417, Condulet catalogue No. 2000.

250 assorted bodies of the G-II series with adjustable bar make a standard package.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HLA15	5	1/2	100	120	\$.60
HLA25	5	3/4	50	75	.70
HLA35	5	1	25	50	.95
HLA110	10	1/2	50	60	.70
HLA210	10	3/4	25	50	.85
HLA310	10	1	25	55	1.05
HLA120	20	1/2	50	75	.95
HLA220	20	3/4	25	60	1.05
HLA320	20	1	25	65	1.35

## 1 and 2-wire Porcelain Covers



For Condulet bodies of the G-II series with adjustable bar, Z series, and types FH and FHF. Furnished with screws.

Porcelain, black enameled, and galvanized covers of the same size may be assorted to make a standard package, regardless of style of cover. Any assortment of 250 of these covers will be considered a standard package.

make a standard package, regardless of style of cover. Any assortment of 250 of these covers will be considered a standard package.

### 1-wire for Form 5 or Form 10 Bodies

Cat. No.	Diam. Wire Holes, In.	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
5101	17/32	100	40	\$.15

### 2-wire for Form 5 or Form 10 Bodies

5102	5/16	100	40	\$.15
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### 1-wire for Form 20 Bodies

201	17/32	50	40	\$.35
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### 2-wire for Form 20 Bodies

202	5/16	50	40	\$.35
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## 3 and 4-wire Porcelain Covers



For Condulet bodies of the G-II series with adjustable bar, Z series, and types FH and FHF. Furnished with screws.

Porcelain, black enameled, and galvanized covers of the same size may be assorted to make a standard package, regardless of style of cover. Any assortment of 250 of these covers will be considered a standard package.

### 3-wire for Form 5 or Form 10 Bodies

Cat. No.	Diam. Wire Holes, In.	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
5103	5/16	100	40	\$.15

### 4-wire for Form 5 or Form 10 Bodies

510400	5/16	100	40	\$.15
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### 3-wire for Form 20 Bodies

203	5/16	50	40	\$.35
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### 4-wire for Form 20 Bodies

20400	5/16	50	40	\$.35
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## Type GLA Condulet Bodies

### With Adjustable Bar

Black enamel finish.

Take covers or round base wiring devices. Furnished with adjustable bar and screws.



Cat. No.	For Form	Size, Nipple Inches	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
GLA 151	5	1/2	100	125	\$.75
GLA 252	5	3/4	50	90	.85
GLA 353	5	1	25	55	1.10
GLA1101	10	1/2	50	70	.85
GLA2102	10	3/4	25	55	1.00
GLA3103	10	1	25	60	1.20
GLA1201	20	1/2	50	75	1.10
GLA2202	20	3/4	25	65	1.20
GLA3203	20	1	25	70	1.50

## Type GTA Condulet Bodies

### With Adjustable Bar

Black enamel finish.

Take covers or round base wiring devices.

Furnished with adjustable and screws.



GTA	Form	Size, Nipple	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
GTA 151	5	1/2	100	150	\$.90
GTA 252	5	3/4	50	100	1.00
GTA 353	5	1	25	60	1.35
GTA1101	10	1/2	50	75	1.00
GTA2102	10	3/4	25	60	1.15
GTA3103	10	1	25	70	1.45
GTA1201	20	1/2	50	75	1.25
GTA2202	20	3/4	25	70	1.40
GTA3203	20	1	25	75	1.80

## Metal Covers with Nipples



Sheet steel with brass nipple. For Condulet bodies of the G-II series with adjustable bar, Z series, and types FH and FHF. Furnished with screws.

Black enameled, galvanized, and porcelain covers of the same size may be assorted to make a standard package, regardless of style of cover. Any assortment of 250 of these covers will be considered a standard package.

### For Form 5 and Form 10 Bodies

Cat. No.	Size Nipple	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
5105	1/8-inch Male	100	30	\$.20
51013	1/4-inch Male	100	30	.25
5107	3/8-inch Male	100	30	.30
51015	1/2-inch Male	100	30	.35
5106	1/8-inch Female	100	30	.20
51014	1/4-inch Female	100	30	.25
5108	3/8-inch Female	100	30	.30
51016	1/2-inch Female	100	30	.35

### For Form 20 Bodies

205	1/8-inch Male	50	35	\$.30
2013	1/4-inch Male	50	35	.35
207	3/8-inch Male	50	35	.40
2015	1/2-inch Male	50	35	.45
206	1/8-inch Female	50	35	.30
2014	1/4-inch Female	50	35	.35
208	3/8-inch Female	50	35	.40
2016	1/2-inch Female	50	35	.45

## Blank Metal Covers

For Condulet bodies of the G-II series with adjustable bar, Z series, and types FH and FHF. Furnished with screws.

Cat. No.	Sheet Steel		Wt., Lbs. Std. Pkg.	Price Each
	For Form	Std. Pkg.		
51000	5 or 10	100	20	\$.10
2000	20	50	20	.25
	Cast Iron			
51000G	5 or 10	100	30	\$.20
2000G	20	50	30	.35



**G-H Series Condulet Bodies**

**Without Adjustable Bar**

The bodies of the G-H series without adjustable bar differ from those with the adjustable bar in the following particulars:

First, the adjustable bar is omitted; second, the flange of the body is drilled and tapped for four screws.

This series does not have so wide a range of application as the series with the adjustable bar; the variety of wiring devices which can be mounted is limited to those whose fastening screw hole centers are the same as those of the Condulet bodies to which they are to be attached.

A complete series of covers, connection blocks, and Conduletts is made for use with the Condulet bodies of this series.

The fastening screws are furnished with, and so retained in the covers, connection blocks and Conduletts that they cannot fall out.

Wiring devices, page 418, Condulet catalogue No. 2000.

**Type G Condulet Bodies**

**Without Adjustable Bar**



Galvanized or black enamel finish. Take covers, Conduletts or other wiring devices, see page 418, Condulet catalogue No. 2000.

250 assorted bodies of the G-H series without adjustable bar will be considered a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
G157	5	1/2	100	115	\$ .40
G257	5	3/4	50	75	.50
G357	5	1	25	40	.75
G117	10	1/2	50	55	.50
G217	10	3/4	25	50	.65
G317	10	1	25	50	.85
G127	20	1/2	50	75	.70
G227	20	3/4	25	55	.75
G327	20	1	25	65	1.00

**Type GL Condulet Bodies**

**Without Adjustable Bar**

Galvanized or black enamel finish. Take covers and Conduletts. Also other wiring devices, see page 418, Condulet catalogue No. 2000.

250 assorted bodies of the G-H series without adjustable bar will be considered a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GL157	5	1/2	100	115	\$.45
GL257	5	3/4	50	75	.55
GL357	5	1	25	40	.80
GL117	10	1/2	50	55	.55
GL217	10	3/4	25	50	.70
GL317	10	1	25	50	.90
GL127	20	1/2	50	75	.75
GL227	20	3/4	25	55	.85
GL327	20	1	25	65	1.15

**Type GT Condulet Bodies**

**Without Adjustable Bar**



Galvanized or black enamel finish. Take covers and Conduletts. Also other wiring devices, see page 418, Condulet catalogue No. 2000.

250 assorted bodies of the G-H series without adjustable bar will be considered a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GT157	5	1/2	100	120	\$ .60
GT257	5	3/4	50	90	.70
GT357	5	1	25	55	.95
GT117	10	1/2	50	70	.70
GT217	10	3/4	25	55	.85
GT317	10	1	25	60	1.05
GT127	20	1/2	50	75	.90
GT227	20	3/4	25	65	1.00
GT327	20	1	25	70	1.30

**Type H Condulet Bodies**

**Without Adjustable Bar**



Galvanized or enamel. Take covers and Conduletts. Also other wiring devices, see Page 418, Condulet catalogue No. 2000. 250 assorted bodies of the G-H series without adjustable bar

will be considered a standard package.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H157	5	1/2	100	110	\$ .30
H257	5	3/4	50	70	.40
H357	5	1	25	45	.65
H117	10	1/2	50	55	.40
H217	10	3/4	25	45	.55
H317	10	1	25	50	.75
H127	20	1/2	50	70	.60
H227	20	3/4	25	50	.65
H327	20	1	25	55	.90

**Conduletto Connection Blocks**

For form 5 bodies of the G-H series without adjustable bar. Furnished with screws.

**Porcelain**

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H535	Complete	100	90	\$.40
H533	Base Only	100	60	.25

**Composition**

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H555	Complete	100	95	.50
H545	Base Only	100	65	.30



**Conduletto Lamp Receptacles**

With connection block, for form 5 bodies of the G-H series without adjustable bar. With screws.

If specified, will be furnished with lamp grip at slight addition to list price.

Standard package, 100; weight, standard package, 100 pounds.



No. H546

Price, No. H546, with Shade Holder Groove... each \$ .50

" " H547, without Shade Holder Groove.. " .45

**Porcelain Conduletto Fixture Rosettes**

**With Male Nipple**

With connection block, for form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

Cat. No.	Size, Nipple Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H549	1/8	100	90	\$.55
H551	3/8	100	90	.65



**Porcelain Conduletto Fixture Rosettes**

**With Female Nipple**

With connection block, for form 5 bodies of the G-H series without adjustable bar. With screws.



Cat. No.	Size, Nipple Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H548	1/8	100	90	\$.55
H552	3/8	100	90	.65

**Composition Conduletto Fixture Rosettes**

**With 3/8-inch Male Nipple**

With connection block, for form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

Standard package, 100.

Weight, standard package, 90 pounds.

Price, No. H571..... each \$ .75



**Composition Conduletto Fixture Rosettes**

**With 3/8-inch Female Nipple**

With connection block, for form 5 bodies of the G-H series, without adjustable bar.

Furnished with screws.

Standard package, 25.

Weight, standard package, 25 pounds.

Price, No. H572..... each \$ .75



### Conduletto Cord Rosettes



With connection block, for form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

Standard package, 100.

Weight, standard package, 90 pounds.

Price, No. H553, Porcelain, ..... each \$.40  
 " " H554, Composition, ..... " .50

### Conduletto Lamp Receptacles

One piece porcelain. Without connection block. For form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

A gasket can be used between the body and the lamp receptacle to make the installation weatherproof. Standard package, 100; weight, standard package, 55 pounds.

Price, No. H556, with Shade Holder Groove, ..... each \$.25

Price, No. H557 without Shade Holder Groove, ..... each .25



### Receptacle Metal Covers

#### Galvanized or Enamel

For form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

Take lamp receptacle No. H557.

Standard package, 50.

Weight, standard package, 60 pounds.

Price, No. H558, ..... each \$.50



### Receptacle Metal Covers

#### Galvanized or Enamel

For 2 1/4-inch shade holder. For form 5 bodies of the G-H series without adjustable bar.

Furnished with screws.

Takes lamp receptacle No. H557.

Standard package, 50.

Weight, standard package, 70 pounds.

Price, No. H559, ..... each \$.80



### Receptacle Metal Covers

#### Cast Iron—Galvanized or Enamel

For form 10 bodies of the G-H series without adjustable bar. Furnished with screws.

Takes sign receptacle.

Standard package, 50.

Weight, standard package, 70 pounds.

Price, No. H1032, ..... each \$.50



### Blank Metal Covers

#### Sheet Steel—Galvanized or Enamel

For forms 5, 10 and 20 bodies of the G-H series without adjustable bar. Furnished with screws.

Cat. No.	For Form	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
H500	5	100	30	\$.15
H1000	10	100	35	.20
H2000	20	50	40	.25



### Blank Metal Covers

#### Cast Iron—Galvanized or Enamel

For forms 5, 10 and 20 bodies of the G-H series without adjustable bar. Furnished with screws.

Cat. No.	For Form	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
H531	5	100	40	\$.25
H1031	10	100	45	.30
H2031	20	50	50	.40



### 1-wire Porcelain Covers

For forms 5, 10 and 20 bodies of the G-H series without adjustable bar. Furnished with screws.

Cat. No.	For Form	Diam. Wire Hole	Std. Pkg. Assorted	Wt., Lbs. Std. Pkg.	Price Each
H51	5	1 3/32	100	45	\$.20
H101	10	1 3/32	100	50	.25
H201	20	1 3/32	50	65	.40



### Midget Guard and Receptacle Holders

#### Pendent



For bodies of the G-H series without adjustable bar. Furnished with screws.

Standard package, 25.

Weight, standard package, 25 pounds.

Price, No. RMP3 for Nos. HGV3595 and HGV-3597, ..... each \$.30

Price, No. RMP4 for No. HGV4598, ..... each .30

### Lamp Receptacles

#### Without Connection Block

Porcelain—one piece. For form 5 condulet cut bodies of the G-H series without adjustable 1/8-inch wide bar. A gasket can be used between the condulet body and the lamp receptacle to make the installation weatherproof. These receptacles cannot be used with Type OHG adapters.

Standard package, 100. Weight, 55 pounds.

Price, No. H556, with Shadeholder Groove, ..... each \$.25

Price, No. H557, without Shadeholder Groove, ..... each .25

### Midget Guards

For G-H and G-S Midget Fixtures.

Cat. No.	Lgth. In.	For Fixtures	For Lamps	Price Each
HGV95	5 5/8	RMP3, HGH7, GS111	G18 1/2 or Mill P19	\$1.40
HGV97	7 1/4	RMP3, HGH7, GS111	50-watt Mazda B	1.45
HGV98	7 1/4	RMP4, HGH8,	75-watt Mazda C	1.50

Standard package, 25; weight, standard package, 35 pounds.



### Midget Fixture Receptacles

For G-H Midget Guard Fixtures.

If so specified, will be furnished with lamp grip at a slight advance in list price.

Standard package, 200.

Weight, standard package, 85 pounds.

Price, No. PE55, ..... each \$.40



### Type HV Guard Fixtures

For form 20 bodies of the G-H series without adjustable bar. Consists of holder, receptacle No. C337, guard, gaskets and screws.

Cat. No.	Length of Guard, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HV294	4 5/8	25	55	\$2.30
HV296	6 1/4	25	60	2.40



### Holder Only

For form 20 bodies of the G-H series without adjustable bar.

Furnished with screws.

Standard package, 25.

Weight, standard package, 25 pounds.

Price, No. RMP2, ..... each \$.50



### Type HV Guards

For RMP2 Holder.

Cat. No.	Length of Guard, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
HV94	4 5/8	25	25	\$1.40
HV96	6 1/4	25	30	1.50



### Lamp Receptacle Conduletto

For HV guard fixture without shade holder groove.

If specified, will be furnished with lamp grip, at slight addition in price.

Standard package, 200.

Weight, standard package, 90 pounds.

Price, No. C337, ..... each \$.40





**Type GS Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Wiring devices, pages 419 and 420, Condulet catalogue No. 2000. Also furnished with lugs in certain types.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS15	5	1/2	25	65	\$ .90
GS25	5	3/4	25	70	1.05
GS35	5	1	10	30	1.25
GS110	10	1/2	25	70	1.00
GS210	10	3/4	25	75	1.15
GS310	10	1	10	35	1.35
GS120	20	1/2	25	90	1.50
GS220	20	3/4	25	95	1.65
GS320	20	1	10	45	1.85

**Type GSA Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Wiring devices, pages 419 and 420, Condulet catalogue No. 2000.

With fastening strap and screws for wiring devices. Also furnished with lugs in certain types.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSA15	5	1/2	25	65	\$ .90
GSA25	5	3/4	25	70	1.05
GSA35	5	1	10	30	1.25
GSA110	10	1/2	25	70	1.00
GSA210	10	3/4	25	75	1.15
GSA310	10	1	10	35	1.35
GSA120	20	1/2	25	90	1.50
GSA220	20	3/4	25	95	1.65
GSA320	20	1	10	45	1.85



**Type GSC Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Wiring devices, pages 419 and 420, Condulet catalogue No. 2000.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSC15	5	1/2	25	70	\$1.00
GSC25	5	3/4	25	75	1.15
GSC35	5	1	10	30	1.35
GSC110	10	1/2	25	75	1.10
GSC210	10	3/4	25	80	1.25
GSC310	10	1	10	35	1.45
GSC120	20	1/2	25	95	1.60
GSC220	20	3/4	25	100	1.75
GSC320	20	1	10	50	1.95

Any assortment of 100 black enameled and galvanized bodies of the GS series except 2 and 3-gang, make std. pkg.

**Type GSS Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Wiring devices, pages 419 and 420, Condulet catalogue No. 2000. With fastening strap and screws for wiring devices. Also furnished with lugs in certain types.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSS15	5	1/2	25	70	\$1.00
GSS25	5	3/4	25	75	1.15
GSS35	5	1	10	30	1.35
GSS110	10	1/2	25	75	1.10
GSS210	10	3/4	25	80	1.25
GSS310	10	1	10	35	1.45
GSS120	20	1/2	25	95	1.60
GSS220	20	3/4	25	100	1.75
GSS320	20	1	10	50	1.95



**Type GSSC Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks.

With fastening strap and screws for wiring devices. For wiring devices see pages 419 and 420, Condulet catalogue No. 2000. Also furnished with lugs in certain types.

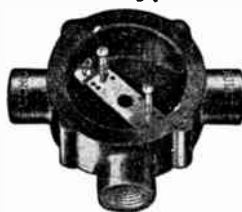
Cat. No.	Form	Size, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSSC15	5	1/2	25	75	\$1.20
GSSC25	5	3/4	25	80	1.35
GSSC35	5	1	10	35	1.55
GSSC110	10	1/2	25	80	1.30
GSSC210	10	3/4	25	85	1.50
GSSC310	10	1	10	40	1.70
GSSC120	20	1/2	25	100	1.80
GSSC220	20	3/4	25	105	2.00

**Types GSL Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks.

With fastening strap and screws for wiring devices. For wiring devices see pages 419 and 420, Condulet catalogue No. 2000. Also furnished with lugs in certain types.

Cat. No.	Form	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price. Ea.
GSL15	5	1/2	25	70	\$1.00
GSI 25	5	3/4	25	75	1.15
GSL35	5	1	10	30	1.35
GSL110	10	1/2	25	75	1.10
GSL210	10	3/4	25	80	1.25
GSL310	10	1	10	35	1.45
GSL120	20	1/2	25	95	1.60
GSL220	20	3/4	25	100	1.75
GSL320	20	1	10	50	1.95



**Type GST Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks.

With fastening strap and screws for wiring devices. For wiring devices see pages 419 and 420, Condulet catalogue No. 2000. Also furnished with lugs in certain types.

Cat. No.	Form	Size In.	Std. Pkg.	Wt., Pkg.	Price Each
GST15	5	1/2	25	75	\$1.20
GST25	5	3/4	25	80	1.35
GST35	5	1	10	35	1.55
GST110	10	1/2	25	80	1.30
GST210	10	3/4	25	85	1.50
GST310	10	1	10	40	1.70
GST120	20	1/2	25	100	1.80
GST220	20	3/4	25	105	2.00
GST320	20	1	10	55	2.30

**Type GSX Condulet Bodies**

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks.

With fastening strap and screws for wiring devices. For wiring devices see pages 419 and 420, Condulet catalogue No. 2000. Also furnished with lugs in certain types.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CSX15	5	1/2	25	80	\$1.35
CSX25	5	3/4	25	85	1.50
GSX35	5	1	10	35	1.80
GSX110	10	1/2	25	85	1.45
GSX210	10	3/4	25	90	1.70
GSX310	10	1	10	40	2.10
GSX120	20	1/2	25	105	1.95
GSX220	20	3/4	25	110	2.20



## Type GSB Condulet Bodies



**2-gang, with Lugs**  
Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSB1529	5	1/2	25	150	\$2.10
GSB2529	5	3/4	25	160	2.40
GSB3529	5	1	10	70	2.80
GSB1129	10	1/2	25	160	2.30
GSB2129	10	3/4	25	170	2.60
GSB3129	10	1	10	80	3.00
GSB1229	20	1/2	25	200	3.30
GSB2229	20	3/4	25	210	3.60
GSB3229	20	1	10	100	4.00

## Type GSD Condulet Bodies

### 2-gang, with Lugs

Iron, galvanized or enamel. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSD1529	5	1/2	25	160	\$2.30
GSD2529	5	3/4	25	170	2.60
GSD3529	5	1	10	75	3.00
GSD1129	10	1/2	25	170	2.50
GSD2129	10	3/4	25	180	2.80
GSD3129	10	1	10	85	3.20
GSD1229	20	1/2	25	210	3.50
GSD2229	20	3/4	25	220	3.80
GSD3229	20	1	10	110	4.20

## Type GSE Condulet Bodies

### 2-gang, with Lugs



Iron, galvanized or enamel. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSE1529	5	1/2	25	150	\$2.10
GSE2529	5	3/4	25	160	2.40
GSE3529	5	1	10	70	2.80
GSE1129	10	1/2	25	160	2.30
GSE2129	10	3/4	25	170	2.60
GSE3129	10	1	10	80	3.00
GSE1229	20	1/2	25	200	3.30
GSE2229	20	3/4	25	210	3.60
GSE3229	20	1	10	100	4.00

## Type GSC Condulet Bodies

### 2-gang, with Lugs

Iron, galvanized or enamel. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSC1529	5	1/2	25	160	\$2.30
GSC2529	5	3/4	25	170	2.60
GSC3529	5	1	10	75	3.00
GSC1129	10	1/2	25	170	2.50
GSC2129	10	3/4	25	180	2.80
GSC3129	10	1	10	85	3.20
GSC1229	20	1/2	25	210	3.50
GSC2229	20	3/4	25	220	3.80
GSC3229	20	1	10	110	4.20

## Type GSB Condulet Bodies



**3-gang, with Lugs**  
Iron, galvanized or enamel. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420 Condulet catalogue No. 2000.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSB1539	5	1/2	25	215	\$3.15
GSB2539	5	3/4	25	225	3.60
GSB3539	5	1	10	100	4.20
GSB1139	10	1/2	25	230	3.45
GSB2139	10	3/4	25	240	3.90
GSB3139	10	1	10	115	4.50
GSB1239	20	1/2	25	290	4.95
GSB2239	20	3/4	25	300	5.40
GSB3239	20	1	10	145	6.00

## Type GSD Condulet Bodies

### 3-gang, with Lugs

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420 Condulet catalogue No. 2000.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSD1539	5	1/2	25	230	\$3.45
GSD2539	5	3/4	25	240	3.90
GSD3539	5	1	10	105	4.50
GSD1139	10	1/2	25	245	3.75
GSD2139	10	3/4	25	255	4.20
GSD3139	10	1	10	120	4.80
GSD1239	20	1/2	25	305	5.25
GSD2239	20	3/4	25	375	5.70
GSD3239	20	1	10	160	6.30

## Type GSE Condulet Bodies



### 3-gang, with Lugs

Iron, galvanized or enamel. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSE1539	5	1/2	25	215	\$3.15
GSE2539	5	3/4	25	225	3.60
GSE3539	5	1	10	100	4.20
GSE1139	10	1/2	25	230	3.45
GSE2139	10	3/4	25	240	3.90
GSE3139	10	1	10	115	4.50
GSE1239	20	1/2	25	290	4.95
GSE2239	20	3/4	25	300	5.40
GSE3239	20	1	10	145	6.00

## Type GSC Condulet Bodies

### 3-gang with Lugs

Iron, galvanized or black enamel finish. Take covers, vaporproof fixtures, plug receptacle housings, connection or fuse blocks. Also wiring devices, pages 419 and 420, Condulet catalogue No. 2000.



Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSC1539	5	1/2	25	230	\$3.45
GSC2539	5	3/4	25	240	3.90
GSC3539	5	1	10	105	4.50
GSC1139	10	1/2	25	245	3.75
GSC2139	10	3/4	25	255	4.20
GSC3139	10	1	10	120	4.80
GSC1239	20	1/2	25	305	5.25
GSC2239	20	3/4	25	375	5.70
GSC3239	20	1	10	160	6.30

**Vaporproof Iron Switch Covers**



For bodies of the GS series. Galvanized or black enamel finish. Furnished with screws and gaskets. 100 assorted GS covers make standard package.

Cat. No.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS58	5	25	40	\$1.30
GS108	10	25	55	1.40
GS208	20	25	65	2.00

**Vaporproof Iron Hub Covers**

For bodies of the GS series. Galvanized or black enamel finish. Furnished with screws and gaskets.



Cat. No.	Form	Size of Hub In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS53	5	3/8	25	40	\$.60
GS54	5	1/2	25	40	.60
GS13	10	3/8	25	50	.70
GS14	10	1/2	25	50	.70
GS23	20	3/8	25	65	1.00
GS24	20	1/2	25	65	1.00

**Vaporproof Iron Blank Covers**

Std. pkg., 100 assorted covers of the GS series.

Cat. No.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS50	5	25	35	\$.50
GS100	10	25	45	.60
GS200	20	25	60	.90

**Midget Guard Fixtures**

For form 10 bodies of the GS series. Galvanized or black enamel finish. Furnished with screws. Take 50-watt Mazda B lamps (S 19 bulb) or any lamp not exceeding 2 3/8 x 5 1/4 inches.

Consists of holder, guard No. HGV95, receptacle No. GS126, gaskets and screws. Standard package, 25; weight, standard package, 50 pounds. Price, No. GS121.....each \$2.95



**Half Shade Fixtures**

Cast iron. Black enamel finish. For form 10 condulets of the GS Series and Type GSG. Takes 50-watt (S19) Mazda B lamps, 25-watt (A19) lamps or any lamp not exceeding 2 3/8 x 5 1/4 inches.

Furnished with lamp receptacle GS1621 with lamp grip, gaskets and screws.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS155	Complete.....	25	70	\$2.35
GS145	Half Shade Only.....	25	60	1.50

**Iron Receptacle Covers**

For form 10 bodies of the GS series. Galvanized or black enamel finish, furnished with gasket and screws.



Cat. No.	Take Receptacle	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS109	Inside of Cover	25	30	\$.60

**Iron Switch Covers**

For form 10 bodies of the GS series. Galvanized or black enamel finish. Furnished with screws.

100 assorted GS covers make a standard package.

Cat. No.	Switches Accommodated	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS113	H & H Tumbler	25	35	\$.40
GS114	Hubbell Toggle	25	35	.40

**Composition Lamp Receptacles**

Furnished with gasket and screws. If so specified, will be furnished with lamp grip at slight addition to price.



Cat. No.	No. Binding Screws	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS59	2	5	25	15	\$.50
GS126	2	10	25	20	.75

**Lamp Receptacles with Lamp Grip**



Black enamel finish. For form 10 lamp receptacle covers and GS midget guard or half shade fixtures of the GS Series and Type GSG. Composition. 660-watt, 250-volt.

Cat. No.	No. of Binding Screws	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS1621	2	25	20	\$.85

**Iron Plug Receptacle Covers**

For Bryant Marine Plug Receptacles and GS series Condulet bodies.



Cat. No.	Form	Plain		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Wt., Lbs. Std. Pkg.			
GS123	10	25	25	25	25	\$.50
GS124	10	25	35	1.10		



**Main Line Composition Fuse Blocks**

2-Pole, 30-Ampere, 250-Volt

For Condulet bodies of the GS series.

Cat. No.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS34	20	25	20	\$.75



**Connection Blocks**

For Condulet bodies of the GS series.

Cat. No.	Form	Composition		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
		No. of Wires	Form				
CF209	2	20	25	20	20	\$.85	
CF210	5	10-20	25	20		.65	
GS32	2	Porcelain		20	25	15	\$.75



**Type GS Vaporproof Fixtures**

**Pendent**



For form 20 Condulet bodies of the GS series. Iron, galvanized or black enamel finish.

Form 75 takes 75-watt Mazda C lamps, 60-watt Mazda B lamps or any lamp not exceeding 2 3/8 x 6 1/8 inches.

Form 200 takes 200-watt Mazda C lamps, 100-watt Mazda B lamps or any lamp not exceeding 3 3/4 x 8 3/8 inches.

Cat. No.	Form	Globe Furnished	Guard Furnished	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS675	75	V75	V759	25	180	\$6.10
GS8200	200	V200	V2009	25	230	6.80

**GS Vaporproof Fixtures**

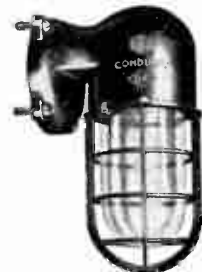
**Bracket**

For form 20 Condulet bodies of the GS series. Iron, galvanized or black enamel finish.

Form 75 takes 75-watt Mazda C lamps, 60-watt Mazda B lamps or any lamp not exceeding 2 3/8 x 6 1/8 inches.

Form 200 takes 200-watt Mazda C lamps, 100-watt Mazda B lamps or any lamp not exceeding 3 3/4 x 8 3/8 inches.

Cat. No.	Form	Guard Furnished	Guard Furnished	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS775†	75	V75	V759	25	180	\$6.10
GS9200†	200	V200	V2009	25	230	6.80



†Sealing plates are required and furnished.



## Type BRG Plug Receptacle Housings

For Condulet Bodies of the GS Series



2-pole housings are furnished with 30-ampere, 250-volt receptacles BR1302 or BR302, which take 2-pole type BP plugs. 3-pole housings are furnished with 30-ampere, 250-volt receptacles BR1303 or BR303, which take 3-pole type BP plugs.

Plugs, see after type BRM.

Type BRG plug receptacle housings with their Condulet bodies make desirable Condulet receptacles for portable devices, especially in marine or similar installations. They make desirable Condulet receptacles for plugs in cold storage plants, boiler rooms, bakeries, flour mills, oil houses, or any place where dust, moisture, or gasproofing plug receptacle Condulets are required.

## Type BRG Plug Receptacle Housings

Plain

For GS series bodies. Galvanized or black enamel finish. Capacity, 30 amperes, 250 volts A. C. Same rating on D. C. if circuit is broken before plug is withdrawn.



Furnished with receptacles and screws.

Any assortment of 25 black enameled and galvanized type BRG plug receptacle housings will be considered a standard package.

2-pole

Cat. No.	Form	Receptacle Furnished	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BRG5302	5	BR1302	25	45	\$2.50
BRG1302	10	BR302	25	50	2.60
BRG2302	20	BR302	25	80	3.10

3-pole

BRG1303	10	BR1303	25	60	\$3.25
BRG2303	20	BR303	25	85	3.75

## Type BRG Plug Receptacle Housings

Threaded, with Brass Cap



For GS series bodies. Galvanized or black enamel finish. Capacity, 30 amperes, 250 volts A. C. Same rating on D. C. if circuit is broken before plug is withdrawn.

Furnished with receptacle, gasket and screws.

Any assortment of 25 black enameled and galvanized type BRG plug receptacle housings will be considered a standard package.

2-pole

Cat. No.	Form	Receptacle Furnished	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BRG58302	5	BR1302	25	65	\$3.65
BRG18302	10	BR302	25	70	3.75
BRG28302	20	BR302	25	100	4.25

3-pole

BRG18303	10	BR1303	25	85	\$4.85
BRG28303	20	BR303	25	115	5.35

## Type BRG Plug Receptacle Housings

Spring Door

For GS series bodies. Galvanized or black enamel finish. Capacity, 30 amperes, 250 volts A. C. Same rating on D. C. if circuit is broken before plug is withdrawn. Furnished with receptacle and screws.

Any assortment of 25 black enameled and galvanized type BRG plug receptacle housings will be considered a standard package.

2-pole

Cat. No.	Form	Receptacle Furnished	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BRG56302	5	BR1302	25	80	\$5.10
BRG16302	10	BR302	25	85	4.20
BRG26302	20	BR302	25	115	4.70

3-pole

BRG16303	10	BR1303	25	95	\$5.05
BRG26303	20	BR303	25	125	5.55



## FD Series Condulet Bodies

Deep—Black Enamel or Galvanized Finish

Condulets of the FD series, with their variety of covers, permit flush rectangular wiring devices to be mounted either on the surface of, or flush with the wall.

There is ample room around the wiring device for the passage of extra wires. The hubs are cast solid with the body and have an integral bushing and tapered thread.

Over All dimensions, not including hubs, 4 3/8 x 2 3/4 x 2 1/8 inches.

Special Assortment

Any assortment of 200 black enameled and galvanized bodies of the FD series will be considered a standard package.

## Type FD Condulet Bodies

Deep type, galvanized or enamel.

Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FD1	1/2	50	125	\$.75
FD2	3/4	50	135	.85
FD3	1	25	80	1.00



## Type FDC Condulet Bodies

Deep type, galvanized or enamel.

With screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDC1	1/2	50	130	\$.85
FDC2	3/4	50	140	1.05
FDC3	1	25	90	1.25



## Type FDL Condulet Bodies

Deep type, galvanized or enamel.

Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDL1	1/2	50	130	\$.85
FDL2	3/4	50	140	1.05
FDL3	1	25	90	1.25



## Type FDR Condulet Bodies

Deep type, galvanized or enamel.

Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDR1	1/2	50	130	\$.85
FDR2	3/4	50	140	1.05
FDR3	1	25	90	1.25



## Type FDCT Condulet Bodies

Deep type, galvanized or enamel.

With screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDCT1	1/2	50	140	\$1.10
FDCT2	3/4	50	150	1.35
FDCT3	1	25	100	1.55



## Type FDT Condulet Bodies

Deep type, galvanized or enamel.

Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDT1	1/2	50	140	\$1.10
FDT2	3/4	50	150	1.35
FDT3	1	25	100	1.55



## Type FDX Condulet Bodies

Deep type, galvanized or enamel.

With screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FDX1	1/2	50	145	\$1.30
FDX2	3/4	50	155	1.60
FDX3	1	25	105	1.80



**FS Series Condulet Bodies**

**Shallow—Galvanized or Black Enamel Finish**

Condulets of the FS series, with their variety of covers, permit flush rectangular wiring devices to be mounted either on the surface of, or flush with the wall.

There is ample room around the wiring device for the passage of extra wires. The hubs are cast solid with the body and have an integral bushing and tapered thread.

Over all dimensions, not including hubs,  $4\frac{1}{2} \times 2\frac{3}{4} \times 1\frac{1}{8}$  inches.

**Special Assortment—Single**

Any assortment of 200 black enameled and galvanized bodies of the F series, except two-gang, two-gang tandem, and two, three, and four-gang, will be considered a standard package.

**Type FS Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FS1	$\frac{1}{2}$	50	100	\$ .65
FS2	$\frac{3}{4}$	50	105	.75
FS3	1	25	60	.85

**Type FSA Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSA1	$\frac{1}{2}$	50	100	\$ .65
FSA2	$\frac{3}{4}$	50	105	.75
FSA3	1	25	60	.85

**Type FSC Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSC1	$\frac{1}{2}$	50	110	\$ .75
FSC2	$\frac{3}{4}$	50	115	.90
FSC3	1	25	65	1.10

**Type FSL Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSL1	$\frac{1}{2}$	50	110	\$ .75
FSL2	$\frac{3}{4}$	50	115	.90
FSL3	1	25	65	1.10

**Type FSR Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSR1	$\frac{1}{2}$	50	110	\$ .75
FSR2	$\frac{3}{4}$	50	115	.90
FSR3	1	25	65	1.10

**Type FSS Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSS1	$\frac{1}{2}$	50	110	\$ .75
FSS2	$\frac{3}{4}$	50	115	.90
FSS3	1	25	65	1.10

**Type FSCC Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. Over all dimensions, not including hubs,  $4\frac{1}{2} \times 2\frac{3}{4} \times 1\frac{1}{8}$  inches.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSCC1	$\frac{1}{2}$	50	115	\$1.00
FSCC21	$\frac{3}{4}$ - $\frac{1}{2}$	50	120	1.25
FSCC31	1- $\frac{1}{2}$	25	70	1.45

**Type FSCT Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSCT1	$\frac{1}{2}$	50	115	\$1.00
FSCT2	$\frac{3}{4}$	50	120	1.25
FSCT3	1	25	70	1.45

**Type FST Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FST1	$\frac{1}{2}$	50	115	\$1.00
FST2	$\frac{3}{4}$	50	120	1.25
FST3	1	25	70	1.45

**Type FSX Condulet Bodies**

Shallow type, galvanized or black enamel finish. Furnished with screws for wiring devices. For wiring devices see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSX1	$\frac{1}{2}$	50	120	\$1.20
FSX2	$\frac{3}{4}$	50	125	1.50
FSX3	1	25	80	1.70

**Type FS 2-gang Tandem Bodies**

Take the same wiring devices, plug receptacle housings and covers as FS series. Any assortment of 75 black enameled and galvanized Condulet bodies of FS series, two-gang tandem, make standard package.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FS17	$\frac{1}{2}$	50	220	\$1.65
FS27	$\frac{3}{4}$	25	120	1.75
FS37	1	10	60	1.85

**Type FSC 2-gang Tandem Bodies**

Take same wiring devices, plug receptacle housings and covers as the FS series. Any assortment of 75 black enameled and galvanized bodies of FS series, two-gang tandem, make standard package.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSC17	$\frac{1}{2}$	50	230	\$1.75
FSC27	$\frac{3}{4}$	25	130	1.85
FSC371	1	10	70	1.95

**Covers**

**For Condulet Bodies of the FS Series Two-gang Tandem, and Type FH**

Made of sheet steel, galvanized or black enamel finish. Will fit rectangular base wiring devices as designated.

Any assortment of 200 black enameled, galvanized and vaporproof covers will be considered a standard package.

Numerous styles of covers are made in two, three and four-gang.

**Metal Condulet Covers**

**For Single Push Button Switches**

Sheet steel, galvanized or black enamel finish. Furnished with screws.

Standard package, 50. Weight, standard package, 25 pounds.

Price, No. DS7.....each \$ .15

## Metal Condulet Covers

**For Double Push Button, Double Push Button Momentary Contact and Double Push Lock Switches; Also Flush Receptacles**



Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.

Price, No. DS8, Surface.....each \$ .15  
Price, No. DSS8, Flush.....each .15

## Metal Condulet Covers

**For Rotary Flush Switches**

Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.



Price, No. DS9, Surface.....each \$ .15  
Price, No. DSS9, Flush.....each .15

## Metal Condulet Covers

**For Round Flush Receptacles**



Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.

Price, No. DS10, Surface.....each \$ .60  
Price, No. DSS10, Flush.....each .60

## Metal Condulet Covers

**For Hubbell and Arrow-E Toggle Flush Switches**

Made of sheet steel.  
Standard package, 50.  
Weight, standard package, 10 pounds.



Price, No. DS29.....each \$ .15

## Metal Condulet Covers

**For Round Flush Receptacles**



Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50 pounds.  
Weight, standard package, 25 pounds.

Price, No. DS21.....each \$ .25

## Metal Condulet Covers

**For G-E 30-Ampere Flush Plug Receptacles**

Sheet steel, galvanized or enamel.  
Standard package, 50.  
Weight, standard package, 10 pounds.



Price, No. DS35.....each \$ .25

## Metal Condulet Covers

**For Standard Duplex Flush Receptacles**



Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.

Price, No. DS23.....each \$ .30

## Metal Condulet Covers

**For G-E Tumbler Flush Switches**

Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.



Price, No. DS32.....each \$ .15

## Metal Condulet Covers

**For Pilot Lamp Flush Receptacles**



Made of sheet steel.  
Standard package, 50.  
Weight, standard package, 15 pounds.

Price, No. DS49, With Blue Jewel, Surface.....each \$1.00  
Price, No. DSS49, With Blue Jewel, Flush.....each 1.00  
Price, No. DS24, With Ruby Jewel, Surface.....each 1.00  
Price, No. DSS24, With Ruby Jewel, Flush.....each 1.00

## Metal Condulet Covers

**For H.&H. Tumbler Flush Switches**

Sheet steel, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 25 pounds.



Price, No. DS27, Surface.....each \$ .15  
Price, No. DSS27, Flush.....each .15

## Metal Condulet Covers

**Blank**

Galvanized or enamel, furnished with screws.

**Sheet Steel**

Std. Pkg., 50. Wt., Std. Pkg., 25 lbs.  
Price, No. DS100.....each \$ .10

**Cast Iron**

Furnished with gasket.  
Std. Pkg., 50. Wt., Std. Pkg., 40 lbs.

Price, No. DS100G, Surface or Flush.....each \$ .25

## Metal Condulet Covers

**For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches**

With guard, cast iron, galvanized or enamel. Furnished with screws.  
Standard package, 50; weight, standard package, 40 pounds.



Price, No. DS8g.....each \$ .35

## Metal Condulet Covers

**For Round Flush Receptacles**

With spring door. Cast iron, galvanized or enamel. Furnished with screws.  
Standard package, 50.  
Weight, standard package, 45 pounds.

Price, No. DS10g.....each \$1.25

## Metal Condulet Covers—Vaporproof

**With Switch Operating Mechanism**

For double push button switches.  
Cast iron, galvanized or enamel. Furnished with gasket and screws.  
Standard package, 25.



Weight, standard package, 40 pounds.  
Price, No. DS108.....each \$1.75

## Metal Condulet Covers—Vaporproof

**With Switch Operating Mechanism**

For momentary contact switches.  
Cast iron, galvanized or enamel. Furnished with gasket and screws.  
Standard package, 25.  
Weight, standard package, 40 pounds.

Price, No. DS107.....each \$1.75

## Type BRD Housings

Threaded, furnished with receptacle, gasket and screws. Capacity: 30 amperes, 250 volts, A.C. Same capacity D.C. if circuit is broken before plug is withdrawn.



Cat. No.	Wt., Lbs.		Std. Pkg.		Price, Each	
	2-Pole	3-Pole	2-Pole	3-Pole	2-Pole	3-Pole
BRD7302			25	70	\$2.80	\$3.35
BRD7303						



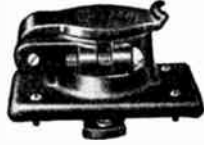
**Type BRD Housings**

Threaded, with brass cap. Furnished with receptacle, gaskets and screws. Capacity: 30 amperes, 250 volts A. C. Same capacity D. C. if circuit is broken before plug is withdrawn.

CATALOGUE NUMBER		Std. Pkg.	Wt., Lbs.		PRICE, EACH	
2-pole	3-pole	Assorted	2-pole	3-pole	2-pole	3-pole
BRD8302	BRD8303	25	90	105	\$3.75	\$4.70

**Type BRD Housings**

Spring door, furnished with receptacles and screws. Capacity: 30 amperes, 250 volts A. C. Same capacity D. C. if circuit is broken before plug is withdrawn.



CATALOGUE NUMBER		Std. Pkg.	Wt., Lbs.		PRICE, EACH	
2-pole	3-pole	Assorted	2-pole	3-pole	2-pole	3-pole
BRD6302	BRD6303	25	100	110	\$4.20	\$4.90

**Type FS Two-gang Condulet Bodies**

**Shallow Type—Galv. Black Enamel Finish**

Take covers and flush rectangular wiring devices. Overall dimensions of body, not including hubs, length, 4 3/8 inches; width, 4 5/8 inches; depth, 1 1/8 inches. Furnished with screws for wiring devices. Any assortment of 100 black enameled and galvanized FS series two-gang bodies makes a standard package.

**Type FS Two-gang Bodies**

Take covers. Also flush rectangular wiring devices, see pages 412 to 414 Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FS12	1/2	50	140	\$1.20
FS22	3/4	25	75	1.30
FS32	1	10	35	1.40



**Type FSA Two-gang Bodies**

Take covers. Also flush rectangular wiring devices. See pages 412 to 414 Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSA12	1/2	50	145	\$1.20
FSA22	3/4	25	80	1.30
FSA32	1	10	40	1.40



**Type FSC Two-gang Bodies**

Take covers. Also flush rectangular wiring devices, see pages 412 to 414 Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSC12	1/2	50	150	\$1.30
FSC222	3/4	25	85	1.40
FSC32	1	10	45	1.55



**Type FSD Two-gang Bodies**

Take covers. Also flush rectangular wiring devices. See pages 412 to 414 Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSD12	1/2	50	160	\$1.45
FSD212	3/4-1/2	25	90	1.55
FSD312	1-1/2	10	50	1.65



**Type FSS Two-gang Bodies**

Take covers. Also flush rectangular wiring devices. See pages 412 to 414 Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSS222	3/4	25	85	\$1.40



**FS Series 2-Gang Metal Covers**

For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches  
Cast iron with guard. Galvanized or black enamel finish. Furnished with screw. Standard package, 50. Weight, standard package, 50 pounds.



Price, No. S82g.....each \$.65

**FS Series 2-Gang Metal Covers**

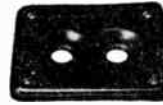
For Double Push Button, Double Push Button Momentary Contact, and Double Push Lock Switches; and Flush Receptacles

Sheet steel, galvanized or black enamel finish. Furnished with screws. Standard package, 50. Weight, standard package, 30 pounds.  
Price, No. S82.....each \$.30



**FS Series 2-Gang Metal Covers**

For Rotary Flush Switches



Sheet steel, galvanized or black enamel finish. Furnished with screws.  
Standard package, 50. Weight, standard package, 30 pounds.  
Price, No. S92.....each \$.30

**FS Series 2-Gang Metal Covers**

For General Electric Tumbler Flush Switches

Sheet steel, galvanized or black enamel finish. Furnished with escutcheon plate, spring and screws.  
Standard package, 50. Weight, standard package, 20 pounds.  
Price, No. S322.....each \$.30



**FS Series 2-Gang Metal Covers**  
For Hubbell, Arrow-E, Toggle Flush Switches

Made of sheet steel.  
Standard package, 50.  
Weight, standard package, 20 pounds.  
Price, No. S292.....each \$.30



**FS Series 2-Gang Metal Covers**

For Hart & Hegeman Tumbler Flush Switches

Sheet steel, galvanized or black enamel finish. Furnished with screws.  
Standard package, 50. Weight, standard package, 20 pounds.  
Price, No. S272.....each \$.30



**FS Series 2-Gang Metal Covers**

Blank  
Galvanized or black enamel finish. Furnished with screws.

Sheet Steel  
Standard package, 50. Weight, standard package, 30 pounds.  
Price, No. S1002.....each \$.20

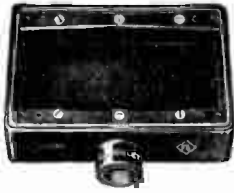


Cast Iron with Gasket  
Standard package, 50. Weight, standard package, 55 pounds.  
Price, No. S1002g.....each \$.50

**FS Series 2-Gang Metal Covers**

Vaporproof—For Double Push Button Switches  
Cast iron with switch operating mechanism. Furnished with gasket and screws. Switches, Page 414, Condulet catalogue No. 2000.  
Standard package, 25. Weight, standard package, 75 lbs.  
Price, No. DS1082.....each \$.30





### Type FS 3-Gang Condulet Bodies

Take covers. Also flush rectangular wiring devices, see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FS23	3/4	25	100	\$1.80
FS33	1	10	40	1.95

### Type FSC 3-Gang Condulet Bodies

Take covers. Also flush rectangular wiring devices, see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSC23	3/4	25	105	\$1.90
FSC333	1	10	45	2.05



### Type FS 4-Gang Condulet Bodies

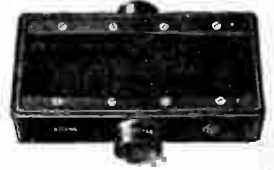
Take covers. Also flush rectangular wiring devices, see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FS24	3/4	25	115	\$2.20
FS34	1	10	60	2.40

### Type FSC 4-Gang Condulet Bodies

Take covers. Also flush rectangular wiring devices, see pages 412 to 414, Condulet catalogue No. 2000.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSC24	3/4	25	125	\$2.35
FSC34	1	10	65	2.50



### FS Series 3-Gang Metal Covers

For Double Push Button Switches

Galvanized or black enamel finish. Furnished with screws.

#### Sheet Steel

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S83.....each \$ .45



#### Cast Iron with Guard

Standard package, 25. Weight, standard package, 50 pounds.

Price, No. S83g.....each \$1.00

### FS Series 3-Gang Metal Covers

For Single Push Button Switches

Sheet steel, galvanized or black enamel finish. Furnished with screws.

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S73.....each \$ .45



### FS Series 3-Gang Metal Covers

For Rotary Flush Switches

Sheet steel, galvanized or black enamel finish. Furnished with screws.

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S93.....each \$ .45



### FS Series 3-Gang Metal Covers

For Square Handle Tumbler Flush Switches

Sheet steel, galvanized or black enamel finish. Furnished with screws.

Standard package, 25.

Weight, standard package, 30 pounds.

Price, No. S323.....each \$ .45



### FS Series 3-Gang Metal Covers

For Hart & Hegeman Tumbler Flush Switches With Round Handles

Made of sheet steel.

Standard package, 25.

Weight, standard package, 30 pounds.

Price, No. S273.....each \$ .45



### FS Series 3-Gang Metal Cover Blanks

Galvanized or black enamel finish. Furnished with screws.

#### Sheet Steel

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S1003.....each \$ .40

#### Cast Iron with Gasket

Standard package, 25. Weight, standard package, 50 pounds.

Price, No. S1003g.....each \$ .75



### FS Series 4-Gang Metal Covers

For Double Push Button Switches

Galvanized or black enamel finish. Furnished with screws.

#### Sheet Steel

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S84.....each \$ .60



#### Cast Iron with Guard

Standard package, 25. Weight, standard package, 55 pounds.

Price, No. S84g.....each \$1.40

### FS Series 4-Gang Metal Covers

For Single Push Button Switches

Sheet steel, galvanized or black enamel finish. Furnished with screws.

Standard package, 25. Weight, standard package, 25 pounds.

Price, No. S74.....each \$ .60



### FS Series 4-Gang Metal Covers

For Hubbell and Arrow-E Toggle Flush Switches

Made of sheet steel. Standard package, 25. Weight, standard package, 40.

Price, No. S294.....each \$ .60



### FS Series 4-Gang Metal Covers

For G-E, Arrow-E, H & H, and Hubbell Tumbler Flush Switches with Square Handles

Made of sheet steel. Standard package, 25. Weight, standard package, 40.

Price, No. S324.....each \$ .60



### FS Series 4-Gang Metal Covers

Blank

Galvanized or black enamel finish. Furnished with screws.

#### Sheet Steel

Standard package, 25. Weight, standard package, 30 pounds.

Price, No. S1004.....each \$ .60



#### Cast Iron with Gasket

Standard package, 25. Weight, standard package, 55 pounds.

Price, No. S1004g.....each \$1.00

**Type FS Switches**



**With Cover—For Tumbler Flush Switches with Square Handles**

No. FS132g consists of a standard FS1 Condulet with cover for tumbler switches with square handles. Type FS takes any standard square

handle, single-pole, flush tumbler switch. Price, No. FS132g, 1/2 Inch.....each ....

**Type FSS Fusible Switches**

**With Covers—For Tumbler Flush Switches with Square Handles and Plug Fuse Cutouts**

No. FSS1732 consists of a condulet with one cover for tumbler flush switches with square handles and one for plug fuse cutout. It takes one standard square handle, double-pole, flush tumbler switch and one No. 62965 standard, double-pole, plug fuse cutout.

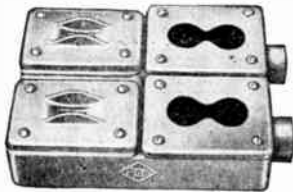


Price, No. FSS1732 1/2 Inch.....each ....

**Type FSS 2-Gang Fusible Switches**

**With Covers—For Tumbler Flush Switches**

**with Square Handles and Plug Fuse Cutouts**



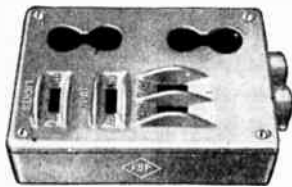
No. FSS2834 is a 2-gang switch designed for convenience where 2 fusible switches are required. Price, No. FSS2834 3/4 Inch.....each ....

**Type FSF Fan Control Switches**

No. FSF251 consists of a body and cover together with a cutout mounting plate and resistance. It takes one standard square handle, 2-circuit flush tumbler switch; one standard square handle, 2-circuit flush tumbler switch Bryant No. 2892 or similar; and one standard, double-pole plug fuse cutout No. 62965.



When lower double-pole switch is thrown to On position, it starts the fan in low speed. If medium or high speed is desired, switch indicated as medium or high may be thrown in to obtain those speeds; in order to stop fan, throw lower double-pole switch to the Off position. If fan is thrown off with either medium or high switches left in the On position, fan will start in either of those speeds when next it is turned on. Furnished with cover and resistance for 32-volt fan. Price, No. FSF251 3/4 Inch.....each ....



**Type FSF Combination Fan and Light Control Switches**

A 2-gang switch performing the functions of one FSS1732 light control switch and one FSF251 fan control switch. Takes 2 standard

square handle, double-pole, flush tumbler switches; one standard square handle, 2-circuit, flush tumbler switch; Bryant No. 2892 or similar; 2 standard double-pole, plug fuse cutouts No. 62965. Furnished with cover, resistance for 32-volt fan and one RE21 reducer.

Price, No. FSF2281 3/4 Inch.....each ....

**Type FSFR Resistance**

Type D, 2 inch, tapped. For 3-speed fan. Used in Type FSF switches.

Cat. No. ....	FSFR10	FSFR100	FSFR100
Voltage.....	32	64	110
Resistance			
.....ohms	5-10	*25-50	50-100

Price...each ....

\*One half of 100-ohm resistance for 50 ohms, and 2 halves in multiple for 25 ohms.



**J-K Series Condulet Bodies**

Condulets of the J-K series prevent rain, ice, sleet, and snow from coming in contact with current carrying parts.

The cap of the receptacle or rosette is secured to its base by two screws, which also complete the electrical connections. The fastening screws furnished are so retained that they cannot fall out.

Any assortment of 250 black enameled and galvanized bodies of the J-K series will be considered a standard package.



**Type J Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
J1	1/2	100	130	\$.60
J2	3/4	50	75	.75
J3	1	25	40	1.05

**Type JA Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
JA1	1/2	100	30	\$.70
JA2	3/4	50	75	.85
JA3	1	25	40	1.15



**Type JB Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
JB1	1/2	100	140	\$.70
JB2	3/4	50	80	.85
JB3	1	25	50	1.15

**Type JT Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
JT1	1/2	100	170	\$.95
JT2	3/4	50	90	1.05
JT3	1	25	55	1.15



**Type K Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
K1	1/2	100	100	\$.50
K2	3/4	50	60	.65
K3	1	25	40	.95

**Type KC Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KC1	1/2	100	135	\$.60
KC2	3/4	50	75	.75
KC3	1	25	45	1.05



**Type KD Condulet Bodies**

Galvanized or black enamel finish. Take Norbitt Conduletts or blank cover.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KD1	1/2	100	135	\$.60
KD2	3/4	50	75	.75
KD3	1	25	45	1.05



## Norbitt Conduletts

### For Condulet Bodies of the J-K Series

These fittings are weatherproof, and can be installed either in or out of doors. Made in two parts—base and cap. The base is secured to the Condulet body by a single center screw. The cap is secured to the base by two screws which also complete the electrical connection.

Furnished with gasket and fastening screw.

### Conduletto Lamp Receptacles

#### With Shade Holder Groove



If specified, will be furnished with lamp grip, at slight addition to list price. Furnished with gasket and fastening screw.

Standard package, 200.

Weight, standard package, 130 pounds.

Price, No. CC227g.....each \$ .45

### Conduletto Lamp Receptacles

#### Without Shade Holder Groove

If specified will be furnished with lamp grip, at slight addition to list price. Furnished with gasket and fastening screw.

Standard package, 200.

Weight, standard package, 130 pounds.

Price, No. CC227.....each \$ .40



### Conduletto Plug Receptacles

#### Hubbell Attachment

6 Amperes



Furnished with gasket and fastening screw. Standard package, 100.

Weight, standard package, 60 pounds.

Price, No. CC5.....each \$ .50

### Conduletto Plug Receptacles

#### Hubbell Polarity

Furnished with gasket and fastening screw. Standard package, 100.

Weight, standard package, 60 pounds.



Price, No. CC20.....each \$ .65

### Conduletto Cord Rosettes



For use where it is desired to install a drop cord light or other similar extension or connection.

Furnished with gasket and fastening screw. Standard package, 200.

Weight, standard package, 140 pounds.

Price, No. CC332.....each \$ .35

### Conduletto Fixture Rosettes

#### With 1/8-inch Male Nipple

For use where it is desired to attach socket or other fitting having 1/8-inch threaded opening, direct to the Conduletto.

Standard package, 100.

Weight, standard package, 60 pounds.



Price, No. CC339.....each \$ .40

### Conduletto Fixture Rosettes

#### With 1/8-inch Female Nipple



For use where it is desired to attach socket or other fitting having 1/8-inch threaded opening, direct to the Conduletto.

Standard package, 100.

Weight, standard package, 60 pounds.

Price, No. CC338.....each \$ .40

## RJ—RK Series Condulet Bodies

For installations requiring wiring devices that are weatherproof but not watertight, or where space is limited, these bodies will meet most conditions. Ample space is provided for the unobstructed passage of extra wires.

Any assortment of 250 black enameled and galvanized Condulet bodies of the RJ—RK series will be considered a standard package.

### Type RJ Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2-pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RJ1	1/2	100	100	\$ .50
RJ2	3/4	50	60	.60
RJ3	1	25	40	.90

### Type RK Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2 pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RK1	1/2	100	8	\$ .40
RK2	3/4	50	50	.55
RK3	1	25	35	.80

### Type RJB Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2-pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RJB1	1/2	100	100	\$ .70
RJB2	3/4	50	60	.80
RJB3	1	25	40	.90

### Type RJL Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2-pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RJL1	1/2	100	100	\$ .70
RJL2	3/4	50	60	.80
RJL3	1	25	40	.90

### Type RJR Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2-pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RJR1	1/2	100	100	\$ .70
RJR2	3/4	50	60	.80
RJR3	1	25	40	.90

### Type RJT Condulet Bodies

Elliptical opening. Galvanized or black enamel finish. Take elliptical covers and Conduletts or 2-pole plug receptacle housings.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RJT1	1/2	100	130	\$ .80
RJT2	3/4	50	80	.90
RJT3	1	25	50	1.00

### Conduletto Lamp Receptacles

#### With Shade Holder Groove



Elliptical, for the RJ—RK series bodies. If specified, will be furnished with lamp grip, at slight addition to list price. Furnished with gasket and screws.

Standard package, 200

Weight, standard package, 100 pounds.

Price, No. RK527g.....each \$ .45

**Conduletto Lamp Receptacles**



**Without Shade Holder Groove**

Elliptical, for bodies of the RJ-RK series. If specified, will be furnished with lamp grip at slight addition to list price. Furnished with gasket and screws.

Standard package, 200. Weight, standard package, 100 lbs. Price, No. RK527.....each \$ .40

**Conduletto Plug Receptacles**

**Hubbell Attachment**

6 Amperes

Elliptical, for bodies of the RJ-RK series. Will accommodate regular 6-ampere Hubbell cap.

Furnished with gasket and screws. Standard package, 100. Weight, standard package, 60 pounds. Price, No. RK5.....each \$ .50



**Conduletto Plug Receptacles**

**Hubbell Polarity**

20 Amperes

Elliptical, for bodies of the RJ-RK series. Will accommodate 20-ampere Hubbell polarity cap.

Furnished with gasket and screws. Standard package, 100. Weight, std. pkg., 60 lbs. Price, No. RK20.....each \$ .65



**Conduletto Cord Rosettes**

Elliptical, for bodies of the RJ-RK series. For use where it is desired to install a drop cord light or other similar extension.

Furnished with gasket and screws. Standard package, 200. Weight, standard package, 110 pounds. Price, No. RK532.....each \$ .35



**Type PG Condulet Bodies**

Galvanized or enamel. Take Bryant-Perkins 2597 or G. E. 151394, 3-pole snap switch with cast iron protective cover.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PG1	1/2	25	60	\$1.10
PG2	3/4	25	70	1.25
PG3	1	10	30	1.40

**Type PGC Condulet Bodies**

Galvanized or enamel. With screws. Any assort. of 100 black enameled and galvanized bodies of PG series make a std. pkg.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PGC1	1/2	25	80	\$1.25
PGC2	3/4	25	90	1.40
PGC3	1	10	50	1.55



**Type PGT Condulet Bodies**

Galvanized or enamel. Take Bryant-Perkins 2597 or G. E. 151394, 3-pole snap switch with cast iron protective cover.

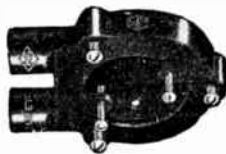


Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PGT1	1/2	25	85	\$1.45
PGT2	3/4	25	95	1.60
PGT3	1	10	55	1.75

**Type PGG Condulet Bodies**

Galvanized or enamel. With screws. Any assortment of 100 black enameled and galvanized bodies of PG series make a standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PGG1	1/2	25	80	\$1.25
PGG2	3/4	25	90	1.40
PGG3	1	10	50	1.55



**SK Series Condulets**

Condulets of the SK series are for use in concealed conduit installations, particularly in concrete construction. They will take blank covers, or covers with hubs, and are drilled and tapped to take fixture studs or wiring devices. If specifically ordered, drilling for fixture studs will be omitted.

The bodies are provided with two lugs on the outside for nailing to the wooden forms, holding them in place while the concrete is being poured.

There are two blank covers, one of which has countersunk fastening screw holes for flat head screws. This cover is particularly adapted for installations in floors or sidewalks, as the heads of the screws will be flush with the face of the cover. The other cover is furnished with round head screws.

A gasket is made for use with blank covers so that when used with any Condulet of the SK series, an excellent watertight junction box is provided.

**Assortments**

**ASSORTMENTS.**—Black enameled and galvanized Condulets of the same type and size may be assorted to make a standard package.

Black enameled and galvanized covers of the same style may be assorted to make a standard package.

**SPECIAL ASSORTMENTS.**—Any assortment of 100 black enameled and galvanized Condulets of the SK series will be considered a standard package.

Any assortment of 100 black enameled and galvanized covers of the SK series will be considered a standard package.

**Type SK Condulet Bodies**

Galvanized or black enamel finish.

Take covers, fixture studs, or 3/4-inch outlet box round base wiring devices with 2 3/4-inch screw centers.



Cat. No.	Size In.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SK12	1/2	2	50	100	\$1.20
SK22	3/4	2	25	55	1.30
SK32	1	2	10	35	1.40
SK13	1/2	3	50	110	1.30
SK23	3/4	3	25	60	1.40
SK33	1	3	10	40	1.50

**Type SKC Condulet Bodies**

Galvanized or black enamel finish.

Take covers, fixture studs, or 3/4-inch outlet box round base wiring devices with 2 3/4-inch screw centers.



Cat. No.	Size In.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SKC12	1/2	2	50	105	\$1.30
SKC22	3/4	2	25	60	1.40
SKC32	1	2	10	40	1.50
SKC13	1/2	3	50	115	1.40
SKC23	3/4	3	25	65	1.50
SKC33	1	3	10	40	1.60

## Type SKL Condulet Bodies



Galvanized or black enamel finish.

Take covers, fixture studs, or 3/4-inch outlet box round base wiring devices with 2 3/4-inch screw centers.

Cat. No.	Size In.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SKL12	1/2	2	50	110	\$1.30
SKL22	3/4	2	25	65	1.40
SKL32	1	2	10	45	1.50
SKL13	1/2	3	50	120	1.40
SKL23	3/4	3	25	70	1.50
SKL33	1	3	10	50	1.60

## Type SKT Condulet Bodies

Galvanized or black enamel finish.

Take covers, fixture studs, or 3/4-inch outlet box round base wiring devices with 2 3/4-inch screw centers.

Cat. No.	Size In.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SKT12	1/2	2	50	115	\$1.40
SKT22	3/4	2	25	65	1.50
SKT32	1	2	10	45	1.60
SKT13	1/2	3	50	125	1.50
SKT23	3/4	3	25	70	1.60
SKT33	1	3	10	50	1.70



## Type SKX Condulet Bodies

Galvanized or black enamel finish.

Take covers, fixture studs, or 3/4-inch outlet box round base wiring devices with 2 3/4-inch screw centers.

Cat. No.	Size In.	Depth In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SKX12	1/2	2	50	120	\$1.50
SKX22	3/4	2	25	70	1.60
SKX32	1	2	10	50	1.70
SKX13	1/2	3	50	130	1.60
SKX23	3/4	3	25	75	1.70
SKX33	1	3	10	55	1.80

## Hub Covers

For Condulets of the SK Series

Galvanized or black enamel finish.

Furnished with fastening screws.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SK83	3/8	50	30	\$.65
SK84	1/2	50	30	.65
SK86	3/4	50	35	.75



## Blank Covers

For Condulets of the SK Series

Galvanized or black enamel finish.

Furnished with fastening screws.

Cat. No.	Style of Fastening Screw	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SK80	Round Head	50	40	\$.30
SK809	Flat " Countersunk	50	40	.30



## Gaskets

For Condulets of the SK Series

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GASK208	50	10	\$.25



## S Series Condulet Bodies

Galvanized or Black Enamel Finish

Take covers, Norbitt Clamp Condulettos, or other wiring devices.

Furnished with fastening strap and screws.

Any assortment of 200 black enameled and galvanized Condulet bodies of the S series will be considered a standard package.

## Type S Condulet Bodies

Galvanized or black enamel finish. Take covers, Norbitt clamp Condulettos or other wiring devices, see pages 428 to 430, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
S1	1/2	100	140	\$.70
S2	3/4	50	75	.75
S3	1	25	40	.90



## Type SA Condulet Bodies

Galvanized or black enamel finish. Take covers, Norbitt clamp Condulettos or other wiring devices, see pages 428 to 430, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SA1	1/2	100	140	\$.70
SA2	3/4	50	75	.75
SA3	1	25	40	.90



## Type SC Condulet Bodies

Galvanized or enamel. Take covers, Norbitt clamp Condulettos or other wiring devices.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SC1	1/2	100	155	\$.80
SC2	3/4	50	80	.85
SC3	1	25	45	1.05



## Type SL Condulet Bodies

Galvanized or enamel. Take covers, Norbitt clamp Condulettos or other wiring devices, see pages 428 to 430, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SL1	1/2	100	155	\$.80
SL2	3/4	50	80	.85
SL3	1	25	45	1.05



## Type ST Condulet Bodies

Galvanized or enamel. Take covers, Norbitt clamp Condulettos or other wiring devices, see pages 428 to 430, catalogue 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ST1	1/2	100	175	\$.90
ST2	3/4	50	90	1.00
ST3	1	25	50	1.20



## Type SX Condulet Bodies

Galvanized or enamel. Take covers, Norbitt clamp Condulettos or other wiring devices, see pages 428 to 430, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SX1	1/2	100	200	\$1.00
SX2	3/4	50	110	1.10
SX3	1	25	80	1.35



## Covers for Wiring Devices

For bodies of the S series. Galvanized or black enamel finish. Furnished with screws.

Cat. No.	Kind of Metal	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
00	Sheet Steel	100	50	\$.12
00g	Cast Iron	100	70	.35
00k	Sheet Steel	100	50	.12
00kg	Cast Iron	100	70	.35



**Blank Covers**



For bodies of the S series. Galvanized or black enamel finish. Furnished with screws.

Cat. No.	Kind of Metal	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
00b	Sheet Metal	100	50	\$ .12
00bg	Cast Iron	100	70	.35

**Lamp Receptacle Conduletts**

For bodies of the S series and type FH, and SRH holders. If specified, will be furnished with lamp grip, at slight addition to list price.

Standard package, 200; weight, standard package, 90 pounds.



Price, No. C337g, with Shade Holder Groove.....	each	\$ .45
" " C337, without Shade Holder Groove....	"	.40

**Cord Rosette Conduletts**



For S series type and FH bodies, HV guard fixtures, and SRH holders.

For use where it is desired to install a drop cord light or other similar extension.

Standard package 200; weight, standard package, 90 pounds.

Price, No. C442.....	each	\$ .35
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**FA Series Condulets**

Condulets of the FA series with 2-pole, 30-ampere, 250-volt, tumbler switch are for use on branch circuits, where such switches would be subjected to unusually severe service conditions. The switch handle operates through a slot in the cast cover, and is surrounded and protected by a guard rim. The handle is self indicating and can also be furnished with luminous finder at 50 cents extra.

**Type FA**

With 2-pole Tumbler Switch and Guarded Cover

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FA129	1/2	25	150	\$6.25
FA229	3/4	25	155	6.35
FA329	1	10	65	6.45



**Type FA**

With 2-pole Tumbler Switch and Water-tight Cover

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FA128	1/2	25	170	\$8.90
FA228	3/4	25	175	9.00
FA328	1	10	75	9.10



**Type FAC**

With 2-pole Tumbler Switch and Guarded Cover

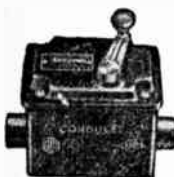
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FAC129	1/2	25	155	\$6.35
FAC229	3/4	25	160	6.45
FAC329	1	10	70	6.55



**Type FAC**

With 2-pole Tumbler Switch and Watertight Cover

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FAC128	1/2	25	175	\$9.00
FAC228	3/4	25	180	9.10
FAC328	1	10	80	9.20



**FA Series without Hub Plates**



With Guarded Cover



With Watertight Cover

Safety switch condulets. Galvanized or black enamel finish. Take conduit hub plates of the YYP series. Furnished with Crouse Hinds tumbler switch cover and gasket. Any assortment of 25 black enameled and galvanized condulets of the FA Series considered a standard package.

**3-Pole, 30-Ampere, 250-Volt, or 5-Ampere, 600-Volt Takes YYP7 Conduit Hub Plates**

Style	Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
With Guarded Cover.....	FA7739	5	70	\$12.00
With Watertight Cover.....	FA7738	5	80	15.50
With Momentary Contact Self-Restoring, Watertight Cover:				
Switch Normally "On".....	FA7736	5	70	15.50
Switch Normally "Off".....	FA7737	5	80	15.50

**2-Gang**

Takes YYP8 Conduit Hub Plates

2-Pole, 30-Ampere, 250-Volt or 5-Ampere, 600-Volt

Style	Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
With Guarded Cover.....	FA88292	5	75	\$12.50
With Watertight Cover.....	FA88282	5	85	16.00
With Momentary Contact, Self-Restoring, Watertight Cover:				
Switch Normally "On".....	FA88262	5	85	16.00
Switch Normally "Off".....	FA88272	5	85	16.00
<b>3-Way, 20-Ampere, 125-Volt or 10-Ampere, 250-Volt</b>				
With Guarded Cover.....	FA88692	5	75	\$13.00
With Watertight Cover.....	FA88682	5	85	16.50
With Momentary Contact, Self-Restoring, Watertight Covers...	FA88672	5	85	16.50

**3-Gang**

Takes YYP8 Conduit Hub Plates

2-Pole, 30-Ampere, 250-Volt or 5-Ampere, 600-Volt

Style	Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
With Guarded Covers.....	FA88293	5	80	\$17.50
With Watertight Covers.....	FA88283	5	90	22.25
With Momentary Contact, Self-Restoring, Watertight Covers:				
Switch Normally "On".....	FA88263	5	90	\$22.25
Switch Normally "Off".....	FA88273	5	90	22.25
<b>3-Way, 20-Ampere, 125-Volt or 10-Ampere, 250-Volt</b>				
With Guarded Covers.....	FA88693	5	80	\$18.25
With Watertight Covers.....	FA88683	5	90	23.00
With Momentary Contact, Self-Restoring, Watertight Covers...	FA88673	5	90	23.00

**4-Gang**

Takes YYP8 Conduit Hub Plates

2-Pole, 30-Ampere, 250-Volt or 5-Ampere, 600-Volt

Style	Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
With Guarded Covers.....	FA88294	5	85	\$25.00
With Watertight Covers.....	FA88284	5	95	31.00
With Momentary Contact, Self-Restoring, Watertight Covers:				
Switch Normally "On".....	FA88264	5	95	\$31.00
Switch Normally "Off".....	FA88274	5	95	31.00
<b>3-Way, 20-Ampere, 125-Volt or 10-Ampere, 250-Volt</b>				
With Guarded Covers.....	FA88694	5	85	\$26.00
With Watertight Covers.....	FA88684	5	95	32.00
With Momentary Contact, Self-Restoring, Watertight Covers...	FA88674	5	95	32.00

## Type SJ Condulet Bodies



Galvanized or black enamel finish. Take covers and tumbler or toggle switches. For switches see page 431, Condulet Catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJ1	1/2	50	80	\$.65
SJ2	3/4	25	40	.75

## Type SJA Condulet Bodies

Galvanized or black enamel. Take covers and tumbler or toggle switches. 200 assorted black enameled and galvanized SJ series bodies make standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJA1	1/2	50	80	\$.65
SJA2	3/4	25	40	.75



## Type SJC Condulet Bodies



Galvanized or black enamel. Take covers and tumbler or toggle switches. For switches see page 431, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJC1	1/2	50	85	\$.75
SJC2	3/4	25	45	.85

## Type SJL Condulet Bodies

Galvanized or black enamel finish. Take covers and tumbler or toggle switches. 200 assorted black enameled and galvanized SJ series bodies make standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJL1	1/2	50	85	\$.75
SJL2	3/4	25	45	.85



## Type SJT Condulet Bodies



Galvanized or black enamel finish. Take covers and tumbler or toggle switches. For switches see page 431, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJT1	1/2	50	85	\$.85
SJT2	3/4	25	50	.95

## Type SJX Condulet Bodies

Galvanized or black enamel. Take covers and tumbler or toggle switches. 200 assorted black enamel and galvanized SJ series bodies make standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SJX1	1/2	50	90	\$.95
SJX2	3/4	25	55	1.05



## Cast Iron Covers



For bodies of the SJ series. Galvanized or black enamel finish. Standard package, 50. Weight, 20 pounds.

Price, No. SJ28 with Guard for Tumbler Switches.... \$.30  
Price, No. SJ32 with Guard for Toggle Switches..... .30

## Cast Iron Covers

For bodies of the SJ series. Galvanized or black enamel finish. Standard package, 50. Weight, 15 pounds.

Price, No. SJ27 without Guard for Tumbler Switches... \$.25  
Price, No. SJ31 without Guard for Toggle Switches.... .25



## Type SJH Condulet Bodies

Black enamel finish. Takes covers and tumbler switches. Size, 1/2 inch. Standard package, 50. Weight, standard package, 50 pounds.

Any assortment of 200 black enameled and galvanized condulet bodies of the SJ series and Type SJH will be considered a standard package. Price, No. SJH1..... each \$.50



## Cast Iron Covers

### For Type SJH Condulet Bodies

Black enamel finish. Any assortment of 200 black enameled and galvanized covers for the SJ series and Type SJH will be considered a standard package.



### With Guard

Standard package, 50. Weight, standard package, 15 pounds. Price, No. SJH28..... each \$.25

### Without Guard

Standard package, 50. Weight, standard package, 15 pounds. Price, No. SJH27..... each \$.20



## Type SE Condulet Bodies

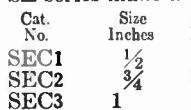
Galvanized or black enamel. Take 3/4-inch outlet box round base wiring devices. For wiring devices see pages 430 and 431, Condulet catalogue No. 2000.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SE1	1/2	50	100	\$.80
SE2	3/4	25	50	.90
SE3	1	25	55	1.10

## Type SEC Condulet Bodies

Galvanized or enamel. Take 3/4-inch outlet box round base wiring devices. With screws. 200 assorted bodies of SE series make a standard package.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SEC1	1/2	50	105	\$.95
SEC2	3/4	25	55	1.05
SEC3	1	25	60	1.25



## Type SEL Condulet Bodies

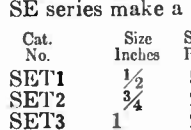
Galvanized or enamel. Take 3/4-inch outlet box round base wiring devices. For wiring devices see pages 430 and 431, Condulet catalogue No. 2000.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SEL1	1/2	50	105	\$.95
SEL2	3/4	25	55	1.05
SEL3	1	25	60	1.25

## Type SET Condulet Bodies

Galvanized or enamel. Take 3/4-inch outlet box round base wiring devices. With screws. 200 assorted bodies of SE series make a standard package.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SET1	1/2	50	110	\$1.05
SET2	3/4	25	60	1.15
SET3	1	25	65	1.35



## Type SEX Condulet Bodies

Galvanized or black enamel finish. Take 3/4-inch outlet box round base wiring devices. For wiring devices see pages 430 and 431, Condulet catalogue No. 2000.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SEX1	1/2	50	115	\$1.15
SEX2	3/4	25	65	1.25
SEX3	1	25	70	1.45

**W Series Condulets**

These Condulets completely house attachment plug receptacles in such a manner that it is practically impossible to injure them.

Hubs are cast solid with the body and have an integral bushing and tapered thread. Plank sheet steel or cast iron covers are provided for Condulet bodies of this series, permitting them to be used as pull or junction boxes.

**Type W Condulet Bodies**



Galvanized or black enamel finish. Take covers and attachment plug receptacles. Wiring devices, page 432, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
W1	1/2	100	90	\$ .50
W2	3/4	50	70	.60
W3	1	25	40	.70

**Type WC Condulet Bodies**

Galvanized or black enamel finish. Take covers and attachment plug receptacles. 200 assorted bodies of W series make a standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WC1	1/2	100	115	\$ .60
WC2	3/4	50	75	.65
WC3	1	25	55	.80



**Type WL Condulet Bodies**



Galvanized or black enamel finish. Take covers and attachment plug receptacles. Wiring devices, page 432, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WL1	1/2	100	155	\$ .60
WL2	3/4	50	75	.65
WL3	1	25	55	.80

**Type WT Condulet Bodies**

Galvanized or black enamel finish. Take covers and attachment plug receptacles. 200 assorted bodies of W series make a standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WT1	1/2	100	125	\$ .70
WT2	3/4	50	80	.80
WT3	1	25	60	1.00



**Type WX Condulet Bodies**

Take covers and attachment plug receptacles. Wiring devices, page 432, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WX1	1/2	100	135	\$ .80
WX2	3/4	50	85	.90
WX3	1	25	65	1.15



**Metal Covers**

**For Attachment Plug Receptacles**

For bodies of W series. Galvanized or enamel. Furnished with screws. 200 assorted covers for this series make a standard package.



Catalogue No.	Sheet Steel	Cast Iron
Standard Package	0	0g
Weight, Standard Package	100	100
Price, Standard Package	lbs. 30	40
Price, each	\$ .10	.20

**Metal Covers**

**Blank**

For bodies of W series. Galvanized or enamel. Furnished with screws. 200 assorted covers for this series make a standard package.

Catalogue No.	Sheet Steel	Cast Iron
Standard package	0b	0bg
Weight, Standard Package	100	100
Price, Standard Package	lbs. 30	45
Price, each	\$ .10	.20



**Type WD Condulet Bodies**



Galvanized or black enamel finish. Take covers and receptacles or connection blocks. Wiring devices, pages 432 and 433, Condulet catalogue No. 2000.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WD1	1/2	100	120	\$ .60
WD2	3/4	50	65	.70
WD3	1	25	35	.80

**Type WDC Condulet Bodies**

Galvanized or black enamel finish. Take covers and receptacles or connection blocks.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WDC1	1/2	100	130	\$ .70
WDC2	3/4	50	70	.75
WDC3	1	25	35	.90



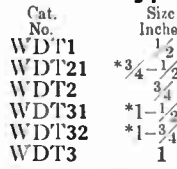
**Type WDL Condulet Bodies**



Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WDL1	1/2	100	130	\$ .70
WDL21	*3/4-1/2	50	70	.75
WDL2	3/4	50	70	.75
WDL31	*1-1/2	25	35	.90
WDL32	*1-3/4	25	35	.90
WDL3	1	25	35	.90

\*Larger hub is at top in illustration.

**Types WDT Condulet Bodies**



Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WDT1	1/2	100	140	\$ .80
WDT21	*3/4-1/2-3/4	50	75	.90
WDT2	3/4	50	75	.90
WDT31	*1-1/2-1	25	40	1.10
WDT32	*1-3/4-1	25	40	1.10
WDT3	1	25	40	1.10

\*Smaller hub is at top in illustration.



**Type WDX Condulet Bodies**

Any assortment of 200 WD series bodies or 200 covers will be considered a standard package. Take covers and receptacles or connection blocks.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WDX1	1/2	100	150	\$ .90
WDX2	3/4	50	80	1.00
WDX3	1	25	45	1.25



**Metal Covers for WD Series**

**For Sign Receptacles, Cast Iron**

Standard package, 100. Weight, 50 pounds. Price, No. WD001..... each \$ .40

**For Clamp Receptacles**

Cat. No.	Opening	Kind of Metal	Std. Pkg.	Wt. Pkg.	Price Each
WD054	1 11/16	Sheet Steel	100	25	\$ .15
WD0054	1 1/8	Cast Iron	100	40	.30
WD048	1 1/2	Sheet Steel	100	25	.15
WD0048	1 1/2	Cast Iron	100	40	.30



**Metal Covers**

**Blank**

Galvanized or black enamel finish. Furnished with screws so retained that they cannot fall out.



Cat. No.	Kind of Metal	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
WD00	Sheet Steel	100	25	\$ .15
WD000	Cast Iron	100	45	.30

For Condulet bodies of the WD series and form 5 bodies of the GS series. Furnished with screws.

**Connection Blocks**

For Condulet bodies of the WD series and form 5 bodies of the GS series. Furnished with screws.

Standard Package	100
Weight, Standard Package	pounds 30
Price, No. PE72, Porcelain	each \$ .25
Standard Package	50
Weight, Standard Package	pounds 15
Price, No. CF101, Composition	each \$ .50





## P Series Condulets

Used in exposed conduit systems, and take standard canopies and standard canopy insulating rings from four to six inches in diameter.

Take electroliers or combination gas and electric fixtures. Any assortment of 100 black enameled and galvanized Condulets of the P series will be considered a standard package.

### Type P Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
P1	1/2	25	90	\$1.40
P2	3/4	25	95	1.55
P3	1	10	55	1.70
P4	1 1/4	10	65	1.85
P5	1 1/2	10	80	2.00

### Type PC Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PC1	1/2	25	100	\$1.50
PC2	3/4	25	110	1.65
PC3	1	10	60	1.80
PC4	1 1/4	10	70	1.95
PC5	1 1/2	10	85	2.10



### Type PL Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PL1	1/2	25	100	\$1.50
PL2	3/4	25	110	1.65
PL3	1	10	60	1.80
PL4	1 1/4	10	70	1.95
PL5	1 1/2	10	85	2.10

## PM Series of Condulets

Used in exposed conduit systems, and take standard canopies and standard canopy insulating rings from three to four inches in diameter.

Take electroliers or combination gas and electric fixtures. Any assortment of 100 black enameled and galvanized Condulets of the PM series will be considered a standard package.

### Type PM Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PM1	1/2	25	60	\$.90
PM2	3/4	25	65	1.05
PM3	1	10	45	1.20
PM4	1 1/4	10	50	1.35
PM5	1 1/2	10	55	1.50



### Type PMC Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PMC1	1/2	25	80	\$1.05
PMC2	3/4	25	85	1.20
PMC3	1	10	45	1.35
PMC4	1 1/4	10	50	1.50
PMC5	1 1/2	10	55	1.65

### Type PML Condulets

Galvanized or black enamel finish. Furnished with screws for fixture stud.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PML1	1/2	25	80	\$1.05
PML2	3/4	25	85	1.20
PML3	1	10	45	1.35
PML4	1 1/4	10	50	1.50
PML5	1 1/2	10	55	1.65



## Type VS Vaporproof Portable Hand Lamps

Type VS hand lamps for extension cords are well suited for use in garages, refineries, bakeries, flour mills, grain elevators, marine work, or wherever inflammable vapor, dust, or moisture is present.

The globe screws into the body and is protected by a guard. If armored cord or flexible conduit is to be used with these hand lamps, CGU or CGV connectors of the proper size should be ordered.



### Type VS Portable Hand Lamps

#### Screw Guard

Vaporproof with 5 3/8-inch globe. Takes 60-watt Mazda B lamps or any lamp not exceeding 2 1/4 x 3 5/8 inches.

Aluminum, scratch brush finish. Furnished with receptacle, gaskets, globe, guard, cord guard spring, and watertight stuffing box in handle.

If specified on order, lamp receptacle with lamp grip will be furnished at slight addition to list price.

Standard package, 25.

Weight, standard package, 70 pounds.

Price, No. VS060 ..... each \$8.15

#### Guard for Type VS Portable Hand Lamps

##### Screw Guard

Galvanized iron. Will accommodate globe 5 3/8 inches long.

Standard package, 25.

Weight, standard package, 30 pounds.

Price, No. VS0955 ..... each \$2.00



#### Clear Glass

For use with type VS portable hand lamps.

Cat. No.	Length In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
V85	5	25	30	\$.80
V15	5 3/8	25	30	.80



## Safety Hand Lamps

### With Grounding Terminal

Nos. LPG24 and LPH24 safety hand lamps are constructed to withstand the severe service encountered in railroad shops, garages, industrial plants, storehouses and similar places.

A terminal is provided for a safety circuit wire in the connecting cord for grounding the guard and other metal parts not connected with the electrical circuit. This wire should not be smaller than No. 14 B & S.

The handle is of well seasoned maple and is black enameled. A metal bracket on which the ground terminal is mounted also provides a cord strain relief and support for the lamp socket as a unit. The strain relief, being a unit with the lamp socket assembly, provides a more secure support for the cord entirely independent of the handle and the unit is very accessible for making the splice between the lamp cord and the socket terminal wires.

The guard and half shade are made of aluminum alloy, light in weight, but strong and will resist bending or breaking.

The hook, which is large and strong, can be turned so that when the half shade is used the light can be directed as desired.

A compression washer prevents a twisted lamp cord from turning the lamp out of a set position.

### Type LPG, Guard Type

Takes 15 to 60-watt A17, A19, A21, P19, PS20, S17 S19, S21 lamps.

Standard package, 10. Weight, standard package, 20 pounds. Price ..... each \$3.00



### Type LPH, Guard and Half Shade Type

Takes 15 to 60 watt, A17, A19, A21, P19, PS20, S17, S19, S21 lamps.

Standard package, 10. Weight, standard package, 20 pounds. Price ..... each \$3.15



**V Series Condulets**

**Screw Guard**

Vaporproof, galvanized or black enamel finish. Form 75 takes 75-watt Mazda C lamps, 60-watt Mazda B lamps, or any lamp not exceeding 2 3/4 x 6 1/8 inches. Form 200 takes 200-watt Mazda C lamps, 100-watt Mazda B lamps, or any lamp not exceeding 3 3/4 x 8 3/8 inches.

Furnished with receptacle, sealing plate, gaskets, globe and guard.

If specified on order, lamp receptacle with lamp grip will be furnished at a slight advance in list price. For key receptacle, add \$1.00 to list price.

Blue, green, opal, orange and ruby globes can be furnished for Condulet bodies of this series at an advance in list prices.

For reflectors see page 432, Condulet catalogue No. 2000.

Any assortment of 100 black enameled and galvanized iron Condulets of the V series, screw guard, will be considered a standard package.

**Type V Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. Furnished with receptacle, sealing plate, gaskets, globe and guard

**Form 75**

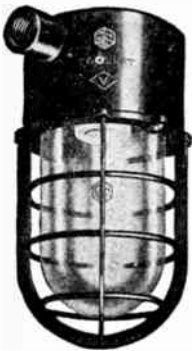
Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
V1759	1/2	25	140	\$4.50
V2759	3/4	25	150	4.55
V3759	1	10	75	4.60

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
V12009	1/2	25	180	\$5.40
V22009	3/4	25	190	5.45
V32009	1	10	100	5.50



**Type VL Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. For reflectors see page 432, Condulet catalogue No. 2000.

**Form 75**

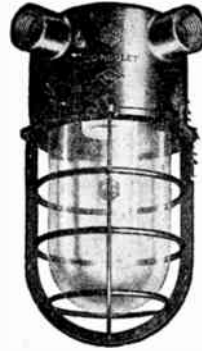
Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VL1759	1/2	25	145	\$4.60
VL2759	3/4	25	155	4.70
VL3759	1	10	80	4.80

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VL12009	1/2	25	185	\$5.50
VL22009	3/4	25	195	5.60
VL32009	1	10	100	5.65



**Type VT Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. Furnished with receptacle, sealing plate, gaskets, globe and guard.

**Form 75**

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VT1759	1/2	25	150	\$4.75
VT2759	3/4	25	160	4.85
VT3759	1	10	85	5.05

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VT12009	1/2	25	100	\$5.60
VT22009	3/4	25	200	5.75
VT32009	1	10	105	5.85



**Type VA Condulets**

**Screw Guard**

For reflectors see page 432, Condulet catalogue No. 2000.

**Form V75**

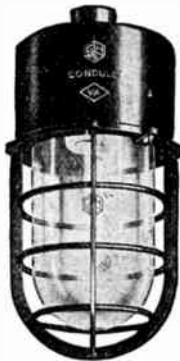
Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VA1759	1/2	25	140	\$4.50
VA2759	3/4	25	150	4.55
VA3759	1	10	75	4.60

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VA12009	1/2	25	180	\$5.40
VA22009	3/4	25	190	5.45
VA32009	1	10	100	5.50



**Type VX Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. For reflectors see page 432, Condulet catalogue No. 2000.

**Form 75**

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VX1759	1/2	25	155	\$4.85
VX2759	3/4	25	165	5.05
VX3759	1	10	85	5.20

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VX12009	1/2	25	195	\$5.70
VX22009	3/4	25	205	5.90
VX32009	1	10	105	6.05



**Type VC Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. Furnished with receptacle, sealing plate, gaskets, globe and guard.

**Form 75**

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VC1759	1/2	25	145	\$4.60
VC2759	3/4	25	155	4.70
VC3759	1	10	80	4.80

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VC12009	1/2	25	185	\$5.50
VC22009	3/4	25	195	5.60
VC32009	1	10	100	5.65



**Type VE Condulets**

**Screw Guard**

Iron, galvanized or black enamel finish. Furnished with receptacle, sealing plate, gaskets, globe and guard.

**Form 75**

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VE1759	1/2	25	170	\$4.75
VE2759	3/4	25	180	4.85
VE3759	1	10	90	4.95

**Form 200**

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VE12009	1/2	25	200	\$5.50
VE22009	3/4	25	210	5.60
VE32009	1	10	105	5.70





### Type VF Condulets

#### Screw Guard

Furnished with receptacle, sealing plate, gaskets, globe and guard.  
For reflectors see page 432, Condulet catalogue No. 2000.

#### Form 75

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VF1759	1/2	25	180	\$4.90
VF2759	3/4	25	190	5.00
VF3759	1	10	95	5.10

#### Form 200

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VF12009	1/2	25	210	\$5.75
VF22009	3/4	25	220	5.85
VF32009	1	10	110	5.95

### Type VJ Condulets

#### Screw Guard

Furnished with receptacle, sealing plate, gaskets, globe and guard.  
For reflectors see page 432, Condulet catalogue No. 2000.

#### Form 75

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VJ1759	1/2	25	220	\$5.15
VJ2759	3/4	25	230	5.25
VJ3759	1	10	120	5.35

#### Form 200

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VJ12009	1/2	25	250	\$5.90
VJ22009	3/4	25	260	6.00
VJ32009	1	10	130	6.10



### Type VG Condulets

#### Screw Guard

Iron, galvanized or black enamel finish. Furnished with receptacle, sealing plate, gaskets, globe and guard.

#### Form 75

Complete with No. V75 Globe, and No. V759 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VG1759	1/2	25	175	\$4.75
VG2759	3/4	25	190	4.85
VG3759	1	10	100	4.95

#### Form 200

Complete with No. V200 Globe, and No. V2009 Guard

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VG12009	1/2	25	245	\$5.50
VG22009	3/4	25	260	5.60
VG32009	1	10	130	5.70



### Globes for V Series Condulets

For V series, screw guard Condulets and GS vaporproof fixtures. Standard package, 25.

Color	FORM 75, 6 3/4-INCH			FORM 200, 9 1/4-INCH		
	Cat. No.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Wt., Lbs. Std. Pkg.	Price Each
Clear	V75	30	\$0.80	V200	60	\$0.80
Green	VN72	30	1.70	VO202	60	2.35
Ruby	VN75	30	2.35	VO205	60	2.90



### Guards for V Series Condulets

For V series screw guard Condulets, and GS vaporproof fixtures. Brass, marine finish.

#### Form 75

Cat. No.	For Globe Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
V759	6 3/4	25	35	\$1.80

#### Form 200

V2009	9 1/4	25	45	\$2.25
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### Vaporproof Condulets with Reflectors V Series, Screw Guard

#### Type V



Iron, galvanized or black enamel finish.

#### Form 75 with Globe V75

With Reflector SH21 for 50-watt Lamps

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
V1821	1/2	25	215	\$5.70
V2821	3/4	25	220	5.75
V3821	1	10	80	5.80

With Reflector SH22 for 75-watt Lamps

V1822	1/2	25	225	\$6.20
V2822	3/4	25	230	6.25
V3822	1	10	85	6.30

#### Form 200 with Globe V200

With Reflector SH23 for 100 and 150-watt Lamps

V1823	1/2	25	305	\$7.15
V2823	3/4	25	315	7.20
V3823	1	10	140	7.25

With Reflector SH24 for 200-watt Lamps

V1824	1/2	25	340	\$7.65
V2824	3/4	25	350	7.70
V3824	1	10	155	7.75

#### Type VCA



Iron, galvanized or black enamel finish.

#### Form 75 with Globe V75

With Reflector SH21 for 50-watt Lamps

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VCA1821	1/2	25	230	\$5.95
VCA2821	3/4	25	235	6.05
VCA3821	1	10	90	6.25

With Reflector SH22 for 75-watt Lamps

VCA1822	1/2	25	240	\$6.45
VCA2822	3/4	25	245	6.55
VCA3822	1	10	95	6.75

#### Form 200 with Globe V200

With Reflector SH23 for 100 and 150-watt Lamps

VCA1823	1/2	25	320	\$7.35
VCA2823	3/4	25	330	7.50
VCA3823	1	10	150	7.60

With Reflector SH24 for 200-watt Lamps

VCA1824	1/2	25	355	\$7.85
VCA2824	3/4	25	365	8.00
VCA3824	1	10	165	8.10

SPECIAL ASSORTMENT.—Any assortment of 100 black enameled and galvanized Condulets of the V series, screw guard, with reflectors, will be considered a standard package.

**Vaporproof Condulets with Reflectors  
V Series, Screw Guard**

**Type VDA**



Iron, galvanized or black enamel finish.

**Form 75 with Globe V75**

With Reflector SH21 for 50-watt Lamps

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VDA1821	1/2	25	215	\$5.70
VDA2821	3/4	25	220	5.75
VDA3821	1	10	80	5.80

With Reflector SH22 for 75-watt Lamps

VDA1822	1/2	25	225	\$6.20
VDA2822	3/4	25	230	6.25
VDA3822	1	10	85	6.30

**Form 200 with Globe V200**

With Reflector SH23 for 100 and 150-watt Lamps

VDA1823	1/2	25	305	\$7.15
VDA2823	3/4	25	315	7.20
VDA3823	1	10	140	7.25

With Reflector SH24 for 200-watt Lamps

VDA1824	1/2	25	340	\$7.65
VDA2824	3/4	25	350	7.70
VDA3824	1	10	155	7.75

**Type VA**



Iron, galvanized or black enamel finish.

**Form 75 with Globe V75**

With Reflector SH21 for 50-watt Lamps

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VA1821	1/2	25	215	\$5.70
VA2821	3/4	25	220	5.75
VA3821	1	10	80	5.80

With Reflector SH22 for 75-watt Lamps

VA1822	1/2	25	225	\$6.20
VA2822	3/4	25	230	6.25
VA3822	1	10	85	6.30

**Form 200 with Globe V200**

With Reflector SH23 for 100 and 150-watt Lamps

VA1823	1/2	25	305	\$7.15
VA2823	3/4	25	315	7.20
VA3823	1	10	140	7.25

With Reflector SH24 for 200-watt Lamps

VA1824	1/2	25	340	\$7.65
VA2824	3/4	25	350	7.70
VA3824	1	10	155	7.75

SPECIAL ASSORTMENT.—Any assortment of 100 black enameled and galvanized Condulets of the V series, screw guard, with reflectors, will be considered a standard package.

**Type VC Vaporproof Condulets with Reflectors—V Series, Screw Guard**



**Form 75 with Globe V75**

With Reflector SH21 for 50-watt Lamps  
Iron, galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VC1821	1/2	25	225	\$5.80
VC2821	3/4	25	230	5.90
VC3821	1	10	85	6.00

With Reflector SH22 for 75-watt Lamps

VC1822	1/2	25	235	\$6.30
VC2822	3/4	25	240	6.40
VC3822	1	10	90	6.50

**Form 200 with Globe V200**

With Reflector SH23 for 100 and 150-watt Lamps

VC1823	1/2	25	315	\$7.25
VC2823	3/4	25	325	7.35
VC3823	1	10	145	7.40

With Reflector SH24 for 200-watt Lamps

VC1824	1/2	25	350	\$7.75
VC2824	3/4	25	360	7.85
VC3824	1	10	160	7.90

**Type VSB Portable Protected  
Vaporproof Lanterns**



Takes 75-watt Mazda C lamps, 60-watt Mazda B lamps or any lamp not exceeding 2 3/4 x 6 1/8 inches. Furnished with bail, key receptacle with lamp grip, gaskets, globe, and guard.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
VSB075	10	75	\$10.00

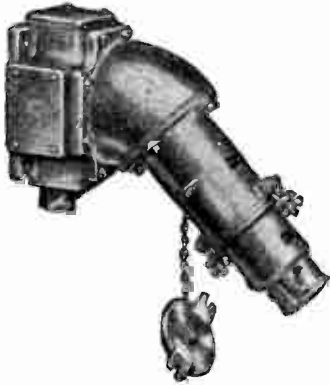
**Type LM Portable Protected Lanterns**



Takes 15 and 25-watt Mazda G18 1/2 lamps, 25 and 50-watt Mazda P19 lamps, or any lamp not exceeding 3 3/4 inches in length. Furnished with receptacle with lamp grip, cord clamp, plain wire glass front, and gasket.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LM50	5	50	\$10.00

## Arktite Circuit-breaking Plugs and Receptacles



**Type AJX Plug Receptacle Condulet; Plug Inserted**

Arktite Plugs and Receptacles embody an entirely new principle in plug and receptacle construction, which meets the demand for circuit-breaking plugs and receptacles in capacities heretofore considered impractical.

The arc formed by pulling the plug is so completely confined in a chamber of insulating material that it is impossible to form a short circuit or ground. The air and gases confined in the chamber expand rapidly and smother the arc.

Arktite series of plugs and receptacles protect the current carrying parts; enclose the contact parts in separate chambers of insulating material; break the circuit in separate chambers, and provide a means for effectively grounding portable apparatus.

The Arktite series is made in 2, 3 and 4-pole; for 10, 30, 60, 100 and 200-ampere; 250-volt A.C. or D.C. or 600-volt A.C. The 10-ampere receptacle housings are mounted on Form 10 Condulets of the QE series. The 30 and 60-ampere receptacle housings are mounted on Form 20 Condulets of the QE series. The 100 and 200-ampere receptacles are mounted on Types AJ and AJX Condulets.

### Information on Rating

The Underwriters limit the use of plugs and receptacles as circuit-breaking devices to 100 amperes, 125 volts, and 75 amperes, 250 volts. For higher amperages and voltages, they require a switch in series with the plug and receptacle. They also will permit the use of all approved plugs and receptacles as disconnecting devices on all voltages up to and including 600 volts A.C.

However, exhaustive tests prove that all Arktite plugs and receptacles can be safely used as circuit-breaking devices at the listed ampere ratings on 250-volt A.C. or D.C., or 600-volt A.C. circuits.

For quick reference the above information is given in the following schedule:

Rating	CIRCUIT-BREAKING DEVICES			Disconnecting Devices	
	Volts A.C. or D.C.		600 Amperes	All Voltages up to 600 A.C.	
	125 Amperes	250 Amperes		600 Amperes	10 to 200 Amperes
Crouse-Hinds'	10 to 200	10 to 200	10 to 200	10 to 200	10 to 200
Underwriters'	10 " 100	10 " 75	.....	10 " 200	10 " 200

Unless otherwise specified, Arktite plugs and receptacles will be marked with the Underwriters' rating for circuit-breaking devices. The 200-ampere Arktite plug will be marked with the Underwriters' maximum rating for a disconnecting device. If Arktite plugs and receptacles are to be used at Crouse-Hinds' ratings; order by catalogue number, and add, Crouse-Hinds' Rating.

These devices are marked by their simplicity of construction. Contact members in the receptacle are fingers and those of the plug are tubes, each of a single piece of alloy brass machined to an accurate fit. Receptacles have two phosphor bronze detent springs which hold the plug in the receptacle housing against the weight of the cable.

The retaining ring, which holds the interior parts in position, can be removed or replaced in a few seconds, so that the plug and receptacle can be taken apart and reassembled quickly and easily, making these devices easy to wire.



**Type QEF with Spring Door Plug Receptacle Housing Plug Inserted**

## Type CP Arktite Circuit-breaking Non-watertight Plugs

250-volt A. C. or D. C.; 600-volt A. C.

For round flexible cord or cable and flexible conduit or armored conductor.

Aluminum handles with strain relief clamp.

Scratch brush finish.

Any assortment of Arktite circuit-breaking plugs and receptacles aggregating \$100.00 list value or more will be considered an assorted standard package.

### Type CP Plain Plugs



Two-pole, 10-ampere plug is furnished with cord reinforcement.

Cat. No.	DIAMETER OF CLAMP OPENING, INCHES		Standard Package	Wt., Lbs. Std. Pkg.	Price Each
	Minimum	Maximum			
<b>10-ampere</b>					
2-pole					
CP112	.313	.5	10	10	\$3.70
CP312	.5	.75	10	10	3.70
3-pole					
CP113	.438	.75	10	10	\$4.40
CP313	.688	.938	10	10	4.40
4-pole					
CP114	.438	.75	10	10	\$4.70
CP314	.688	.938	10	10	4.70
CP714	.875	1.188	10	10	4.70
<b>30-ampere</b>					
2-pole					
CP132	.5	.875	5	10	\$6.50
CP332	.75	1.188	5	10	6.50
3-pole					
CP133	.5	.875	5	10	\$6.90
CP333	.75	1.188	5	10	6.90
4-pole					
CP134	.688	1.0	5	15	\$7.80
CP334	.938	1.469	5	15	7.80
<b>60-ampere</b>					
2-pole					
CP162	.75	1.188	5	20	\$8.35
CP362	1.188	1.813	5	20	8.35
3-pole					
CP163	.75	1.188	5	20	\$8.90
CP363	1.188	1.813	5	20	8.90
4-pole					
CP164	.938	1.313	5	25	\$10.00
CP364	2.063	2.063	5	25	10.00

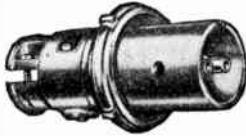
### Type CP Plugs with Retaining Ears



Cat. No.	DIAMETER OF CLAMP OPENING, INCHES		Standard Package	Wt., Lbs. Std. Pkg.	Price Each
	Minimum	Maximum			
<b>100-ampere</b>					
2-pole					
CP1102	.938	1.469	1	10	\$22.00
CP3102	1.313	2.063	1	10	22.00
3-pole					
CP1103	.938	1.469	1	10	\$25.00
CP3103	1.313	2.063	1	10	25.00
4-pole					
CP1104	1.188	1.813	1	15	\$30.00
CP3104	1.75	2.563	1	15	30.00
<b>200-ampere</b>					
2-pole					
CP1202	1.188	1.813	1	20	\$53.00
CP3202	1.75	2.563	1	20	53.00
3-pole					
CP1203	1.188	1.813	1	20	\$58.00
CP3203	1.75	2.563	1	20	58.00
4-pole					
CP1204	1.313	2.063	1	25	\$65.00
CP3204	2.0	3.25	1	25	65.00

**Type CP Arktite Circuit-breaking Non-watertight Plugs**

Continued  
250-volt A. C. or D. C.; 600-volt A. C.  
Type CP Plugs with Threaded Retaining Ring



Cat. No.	DIAMETER OF CLAMP OPENING, INCHES		Standard Package	Wt., Lbs. Std. Pkg.	Price Each
	Minimum	Maximum			
<b>10-ampere</b>					
CP412	.5	.75	10	15	\$4.20
CP213	.438	.75	10	15	\$4.90
CP413	.688	.938	10	15	4.90
<b>4-pole</b>					
CP214	.438	.75	10	15	\$5.20
CP414	.688	.938	10	15	5.20
CP814	.875	1.188	10	15	5.20
<b>30-ampere</b>					
<b>2-pole</b>					
CP232	.5	.875	5	20	\$7.25
CP432	.75	1.188	5	20	7.25
<b>3-pole</b>					
CP233	.5	.875	5	20	\$7.65
CP433	.75	1.188	5	20	7.65
<b>4-pole</b>					
CP234	.688	1.0	5	25	\$8.65
CP434	.938	1.469	5	25	8.65
<b>60-ampere</b>					
<b>2-pole</b>					
CP262	.75	1.188	5	25	\$9.20
CP462	1.188	1.813	5	25	9.20
<b>3-pole</b>					
CP263	.75	1.188	5	25	\$9.75
CP463	1.188	1.813	5	25	9.75
<b>4-pole</b>					
CP264	.938	1.313	5	30	\$11.00
CP464	1.313	2.063	5	30	11.00

**Type CP Arktite Circuit-breaking Watertight Plugs**

250-volt A. C. or D. C.; 600-volt A. C.



For flexible cord or cable.  
Aluminum handles with tapered rubber bushing, gland nut, and threaded retaining ring.  
Scratch brush finish.  
Two-pole, 10-ampere plug is furnished with cord reinforcement.

Any assortment of Arktite circuit-breaking plugs and receptacles aggregating \$100.00 list value or more will be considered an assorted standard package.

Cat. No.	Diam. of Hole Through Rubber Bushing, In.	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
<b>10-ampere</b>				
<b>2-pole</b>				
CP512	.406	10	20	\$5.50
<b>3-pole</b>				
CP513	.625	10	20	\$6.75
<b>4-pole</b>				
CP514	.625	10	20	\$7.05
<b>30-ampere</b>				
<b>2-pole</b>				
CP532	.781	5	20	\$9.40
<b>3-pole</b>				
CP533	.781	5	20	\$9.80
<b>4-pole</b>				
CP534	.969	5	25	\$11.50
<b>60-ampere</b>				
<b>2-pole</b>				
CP562	1.078	5	25	\$12.00
<b>3-pole</b>				
CP563	1.078	5	25	\$12.55
<b>4-pole</b>				
CP564	1.172	5	30	\$13.85

**Type QE Arktite Circuit-breaking Receptacles with Housings**

250-volt A. C. or D. C.; 600-volt A. C.

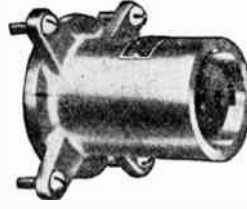
For use on condulets of the QE series. Take Arktite circuit-breaking plugs.

Galvanized finish.

Any assortment of Arktite circuit-breaking plugs and receptacles aggregating \$100.00 list value or more will be considered an assorted standard package.

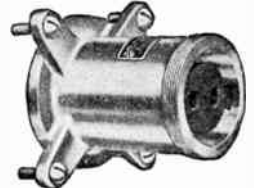
**Type QE Receptacles with Plain Housings For QE Series Form 10**

Cat. No.	No. of Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
<b>10-ampere</b>				
QE312	2	10	30	\$3.00
QE313	3	10	30	4.00
QE314	4	10	30	4.25
<b>For QE Series Form 20</b>				
<b>30-ampere</b>				
QE332	2	5	35	\$5.75
QE333	3	5	35	6.25
QE334	4	5	35	7.25
<b>60-ampere</b>				
QE362	2	5	40	\$7.50
QE363	3	5	40	8.25
QE364	4	5	40	9.00



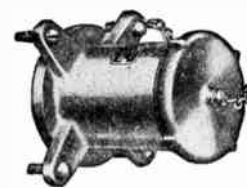
**Type QE Receptacles with Threaded Housing For QE Series Form 10**

Cat. No.	No. of Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
<b>10-ampere</b>				
QE712	2	10	30	\$3.25
QE713	3	10	30	4.25
QE714	4	10	30	4.50
<b>For QE Series Form 20</b>				
<b>30-ampere</b>				
QE732	2	5	35	\$6.25
QE733	3	5	35	6.75
QE734	4	5	35	7.75
<b>60-ampere</b>				
QE762	2	5	40	\$8.25
QE763	3	5	40	9.00
QE764	4	5	40	9.75



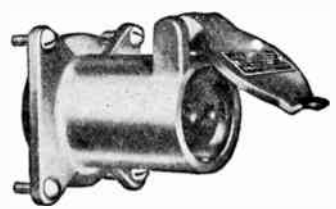
**Type QE Receptacles with Threaded Housing and Brass Cap For QE Series Form 10**

Cat. No.	No. of Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
<b>10-ampere</b>				
QE812	2	10	35	\$4.15
QE813	3	10	35	5.35
QE814	4	10	35	5.60
<b>For QE Series Form 20</b>				
<b>30-ampere</b>				
QE832	2	5	40	\$7.50
QE833	3	5	40	8.00
QE834	4	5	40	9.25
<b>60-ampere</b>				
QE862	2	5	45	\$9.50
QE863	3	5	45	10.25
QE864	4	5	45	11.25



**Type QE Receptacles with Spring Door Housing For QE Series Form 10**

Cat. No.	No. of Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
<b>10-ampere</b>				
QE612	2	10	35	\$3.85
QE613	3	10	35	5.00
QE614	4	10	35	5.25
<b>For QE Series Form 20</b>				
<b>30-ampere</b>				
QE632	2	5	40	\$6.75
QE633	3	5	40	7.25
QE634	4	5	40	8.50
<b>60-ampere</b>				
QE662	2	5	45	\$8.75
QE663	3	5	45	9.50
QE664	4	5	45	10.50





## QE Series Condulets

Forms 10 and 20

For Arktite Receptacle Housings

Galvanized finish.

Any assortment of 50 galvanized condulets of the QE series will be considered an assorted standard package.

### Type QE Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE110	1/2	25	40	\$ .90
QE210	3/4	25	45	1.00
QE310	1	25	50	1.10

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE120	1/2	25	80	\$1.30
QE220	3/4	25	85	1.40
QE320	1	25	90	1.50
QE420	1 1/4	25	100	1.60
QE520	1 1/2	25	105	1.70



### Type QEC Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEC110	1/2	25	45	\$1.00
QEC210	3/4	25	50	1.10
QEC310	1	25	55	1.20

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEC120	1/2	25	85	\$1.40
QEC220	3/4	25	90	1.50
QEC320	1	25	95	1.60
QEC420	1 1/4	25	105	1.70
QEC520	1 1/2	25	110	1.80



### Type QEE Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEE110	1/2	25	35	\$1.00
QEE210	3/4	25	40	1.10
QEE310	1	25	50	1.20

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEE120	1/2	25	70	\$1.45
QEE220	3/4	25	80	1.55
QEE320	1	25	90	1.65
QEE420	1 1/4	25	105	1.75
QEE520	1 1/2	25	120	1.85



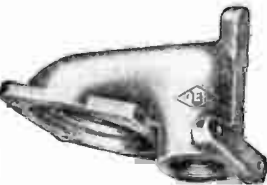
### Type QEF Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEF110	1/2	25	45	\$1.15
QEF210	3/4	25	50	1.25
QEF310	1	25	60	1.35

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEF120	1/2	25	75	\$1.60
QEF220	3/4	25	85	1.70
QEF320	1	25	95	1.80
QEF420	1 1/4	25	110	1.90
QEF520	1 1/2	25	125	2.00



### Type QEJ Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEJ110	1/2	25	55	\$1.30
QEJ210	3/4	25	60	1.40
QEJ310	1	25	70	1.50
QEJ510	1 1/2	25	80	1.70

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEJ120	1/2	25	80	\$1.75
QEJ220	3/4	25	90	1.85
QEJ320	1	25	100	1.95
QEJ420	1 1/4	25	115	2.05
QEJ520	1 1/2	25	130	2.15



## QE Series Condulets

Forms 10 and 20

For Arktite Receptacle Housings

Galvanized finish.

Any assortment of 50 galvanized condulets of the QE series will be considered an assorted standard package.

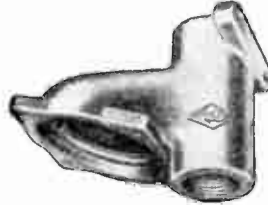
### Type QED Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QED110	1/2	25	50	\$1.45
QED210	3/4	25	55	1.55
QED310	1	25	65	1.65

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QED120	1/2	25	80	\$1.90
QED220	3/4	25	90	2.00
QED320	1	25	100	2.10
QED420	1 1/4	25	115	2.20
QED520	1 1/2	25	130	2.30



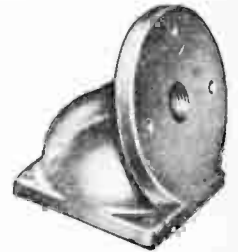
### Type QEG Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEG110	1/2	25	70	\$1.20
QEG210	3/4	25	75	1.30
QEG310	1	25	80	1.40

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEG120	1/2	25	120	\$1.70
QEG220	3/4	25	125	1.80
QEG320	1	25	130	1.90
QEG420	1 1/4	25	140	2.00
QEG520	1 1/2	25	150	2.10



### Type QEK Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEK110	1/2	25	45	\$1.00
QEK210	3/4	25	50	1.10
QEK310	1	25	60	1.20

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEK120	1/2	25	75	\$1.45
QEK220	3/4	25	85	1.55
QEK320	1	25	95	1.65
QEK420	1 1/4	25	110	1.75
QEK520	1 1/2	25	125	1.85



### Type QEP Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEP110	1/2	25	45	\$1.00
QEP210	3/4	25	50	1.10
QEP310	1	25	60	1.20

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEP120	1/2	25	75	\$1.45
QEP220	3/4	25	85	1.55
QEP320	1	25	95	1.65
QEP420	1 1/4	25	110	1.75
QEP520	1 1/2	25	125	1.85



### Type QEA Condulets

Form 10 for 10-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEA110	1/2	25	40	\$ .90
QEA210	3/4	25	45	1.00
QEA310	1	25	50	1.10

Form 20 for 30 or 60-Ampere Housings, 2, 3 or 4-Pole

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QEA120	1/2	25	80	\$1.30
QEA220	3/4	25	85	1.40
QEA320	1	25	90	1.50
QEA420	1 1/4	25	100	1.60
QEA520	1 1/2	25	105	1.70



**Arktite Circuit-breaking Receptacles and Condulets**

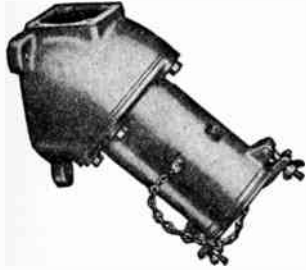
250-volt A. C. or D. C.; 600-volt A.C.

Take Arktite circuit-breaking plugs. Galvanized finish.

Any assortment of Arktite circuit-breaking plugs and receptacles aggregating \$1.00 list value or more will be considered an assorted standard package.

**Type AJ without Hub Plates**  
45 Degree Angle

Consists of receptacle, housing, conduit, and gaskets.

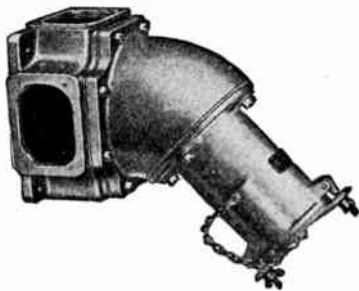


100-ampere				
Take YYP8 Series Hub Plate				
Cat. No.	Std. Pkg.	Wt., Lbs.		Price Each
		Std.	Std. Pkg.	
AJ88102	1	30	30	\$27.00
3-pole				
AJ88103	1	35	35	\$30.00
4-pole				
AJ88104	1	40	40	\$35.00
200-ampere				
Take YYP8 Series Hub Plate				
Cat. No.	Std. Pkg.	Wt., Lbs.		Price Each
		Std.	Std. Pkg.	
AJ88202	1	55	55	\$68.00
3-pole				
AJ88203	1	55	55	\$78.00
4-pole				
AJ88204	1	60	60	\$88.00

**Type AJX without Hub Plates**

Consists of receptacle, housing, angle plate, conduit, and gaskets.

100-ampere				
Take YYP8 Series Hub Plate				
Cat. No.	Std. Pkg.	Wt., Lbs.		Price Each
		Std.	Std. Pkg.	
AJX88102	1	45	45	\$35.50
3-pole				
AJX88103	1	50	50	\$38.50
4-pole				
AJX88104	1	55	55	\$43.50
200-ampere				
Take YYP9 Series Hub Plate				
Cat. No.	Std. Pkg.	Wt., Lbs.		Price Each
		Std.	Std. Pkg.	
AJX99202	1	80	80	\$87.00
3-pole				
AJX99203	1	85	85	\$97.00
4-pole				
AJX99204	1	90	90	\$107.00



**Grounding Rings**

For 3 or 4-pole Receptacles



Where it is required to use a ground wire having a current capacity equal to that of the circuit wires in ground-portable devices through Arktite receptacles, it is necessary to use a grounding ring which must be ordered separately.

To complete the grounding connection on the 10, 30 and 60-ampere receptacle, a grounding ring is clamped between the receptacle housing and the conduit. The flexible lead on the grounding ring is connected to the extra contact finger in the receptacle.

On the 100 and 200-ampere receptacle the extra contact finger must be permanently grounded by means of a flexible cable connected to the soldering lug on the inside of the conduit. No ring is used between housing and conduit.

**10-ampere**

Cat. No.	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
CR106	25	5	\$.50

**30 or 60-ampere**

Cat. No.	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
CR606	25	10	\$.65

**Conduit Hub Plates**

For Types AJ and AJX Condulets

Cast iron, galvanized finish. Furnished with screws.

Any assortment of 25 galvanized conduit hub plates for Types AJ and AJX Condulets will be considered an assorted standard package.

**YYP8 Series Conduit Hub Plates**

With One Hub Straight

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYP84	1 1/4	15	30	\$.85
YYP85	1 1/2	15	35	.95
YYP86	2	15	40	1.05
YYP87	2 1/2	15	45	1.15



With Two Hubs Straight

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYP844	1 1/4	15	35	\$1.00



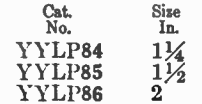
With One Hub, 90 Degrees Back or Front

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYAP84	1 1/4	15	35	\$.95
YYAP85	1 1/2	15	40	1.05
YYAP86	2	15	45	1.15



With One Hub, 90 Degrees Left or Right

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYLP84	1 1/4	15	35	\$.95
YYLP85	1 1/2	15	40	1.05
YYLP86	2	15	45	1.15



With Two Hubs, 90 Degrees Left and Right

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYSP84	1 1/4	15	35	\$1.00
YYSP85	1 1/2	15	45	1.10
YYSP86	2	15	50	1.20



Blank

Cat. No.	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
YYP800	15	25	\$.40



**YYP9 Series Conduit Hub Plates**

With One Hub, Straight

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYP95	1 1/2	10	95	\$3.25
YYP96	2	10	100	3.50
YYP97	2 1/2	10	110	3.75
YYP98	3	10	115	4.00
YYP99	3 1/2	10	125	4.25
YYP910	4	10	130	4.50



Blank

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YYP900	10	75	\$2.75



## Type QE Weatherproof Housings

For Condulets of the QE Series

Black enamel finish.  
Furnished with an adjustable bar for mounting the switch or attachment plug receptacle on the condulet.



### With Spring Door

When mounted on condulets of the QE series Nos. QE 1096 and QE2096 housings are for enclosing round base thumb knob snap switches and attachment plug receptacles.

Provided with a self-closing spring door. This door can be locked with a padlock.

Cat. No.	For Condulet, Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE1096	10	25	65	\$1.65
QE2096	20	25	100	2.05

### With Opening for Switch Key

When mounted on condulets of the QE series, Nos. QE108 and QE208 housings are for round base lock snap switches.

Cat. No.	For Condulet, Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE108	10	25	40	\$ .85
QE208	20	25	50	1.20



## Type QE Plug Receptacle Housings

For Condulets of the QE Series

For Type BP 30-Ampere, 250-Volt A.C. Plugs

Black enamel finish.

Type BP 30-ampere, 250-volt a.c. plugs are of the round prong type, each prong engaging a female contact in the receptacle. 2-pole housings are furnished with 30-ampere, 250-volt a.c. receptacle BR302, which takes 2-pole plugs; 3-pole housings are furnished with 30-ampere, 250-volt a.c. receptacle BR303, which takes 3-pole plugs.

When threaded housings are mounted on condulets and used with a watertight plug or the brass cap, condulets are vapor proof.

Plugs and receptacles are polarized. Housing is provided with a clip which makes contact with the shell of the plug, effectually grounding the plug through the conduit system.

The plug and receptacle contacts are self-aligning, and the receptacle contacts are completely enclosed in a body of molded insulating material. The prongs of the plug are protected by a steel sleeve.

Wires can be connected directly to the receptacle binding screws, avoiding soldered and taped joints.

### Plain

Furnished with receptacle and screws for form 10 condulets.

Cat. No.	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE302	2	25	75	\$3.00
QE303	3	25	80	3.50



### With Spring Door

Furnished with receptacle and screws for form 10 condulets.

Cat. No.	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE6302	2	25	90	\$4.60
QE6303	3	25	100	5.30



### Threaded

Furnished with receptacle, gaskets and screws for form 10 condulets.

Cat. No.	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE7302	2	25	75	\$3.20
QE7303	3	25	80	3.75



### Threaded, with Brass Cap

Furnished with receptacle, gaskets, and screws for form 10 condulets.

Cat. No.	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE8302	2	25	85	\$4.15
QE8303	3	25	95	5.10



## Type QE Plug Receptacle Housings

For Condulets of the QE Series

For Type RQ 30-Ampere, 250-Volt Plugs

Black enamel finish.

2-pole housings are furnished with 30-ampere, 250-volt receptacle RQH302, which takes plug RQ302; 3-pole housings are furnished with 30-ampere, 250-volt receptacle RQH303, which takes plug RQ303.

### With Spring Door

The receptacle is protected by a self-closing door, which can be padlocked.

Cat. No.	For Condulet, Form	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE1066	10	2	25	80	\$3.60
QE2066	20	3	25	130	5.10



### Plain

Cat. No.	For Condulet, Form	No. Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
QE106	10	2	25	55	\$2.80
QE206	20	3	25	90	4.10



For Type BP 50-Ampere Electric Vehicle Charging Plugs

Black enamel finish.

Furnished with 2-pole, 50-ampere, 125-volt receptacle BR50, which takes plugs BP50 or BP53, or any 50-ampere plug conforming to the American Electric Vehicle Association Standard.

These housings are intended for use in electric garages when mounted on condulets of QE series.

### With Spring Door

For form 10 condulets.  
Standard package, 10. Weight, standard package, 50 pounds.  
Price, No. QE1076.....each \$9.20

### Plain

For form 10 condulets.  
Standard package, 10.

Weight, standard package, 35 pounds.

Price, No. QE107.....each \$7.40



For Type BP 60-Ampere, 600-Volt Plugs

Furnished with 3-pole, 60-ampere, 600-volt receptacle BR6036, which takes BP plugs.

### Plain

Watershedding. For form 20 condulets.

Standard package, 10. Weight, standard package, 40 pounds.

Price, No. QE6036.....each \$6.45



### With Spring Door

Weatherproof. Protected by a self-closing spring door which can be padlocked.

For form 20 condulets.

Standard package, 10. Weight, standard package, 50 pounds.

Price, No. QE66036.....each \$7.95



### Threaded

Furnished with gasket so that when watertight gasketed plugs with brass clamping nut are used, the installation is watertight.

For form 20 condulets.

Standard package, 10. Weight, standard package, 40 pounds.

Price, No. QE76036.....Price \$6.70



### Threaded, with Brass Cap

Furnished with a gasket and gasketed brass cap which makes the housing watertight when the plug is removed and the cap is substituted.

For form 20 condulets.

Standard package, 10. Weight, standard package, 55 pounds.

Price, No. QE86036.....each \$8.95



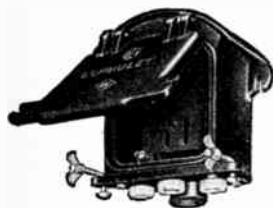
**Type FF Condulets**  
2 or 3-Wire, 250 Volts

These are service entrance Condulets, fusible and weather-proof. Wiring devices, pages 436 to 438, Condulet catalogue No. 2000. Take main line fuse cutouts.

The service wire enters the bottom of the fuse cutout compartment through a porcelain bushing, thus preventing grounding, even though the insulation becomes damaged.

Furnished with removable conduit hub plate, cutout fastening plate, porcelain bushings, screws and bolts, but without cutouts.

Any assortment of 50 black enameled and galvanized Condulets of the FF series will be considered a standard package.



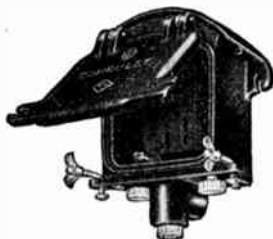
Cat. No.	Size In.	30 Amperes		Price Each
		Std. Pkg.	Wt., Lbs.	
FF1302	1/2	20	260	\$7.80
FF2302	3/4	20	270	7.90
FF3302	1	10	140	8.00
60 Amperes				
FF3602	1	10	150	\$10.00
FF4602	1 1/4	10	155	10.10
100 Amperes				
FF31002	1	10	225	\$19.00
FF51002	1 1/2	5	115	19.20
FF61002	2	5	120	19.30

**Type FFA Condulets**  
2 or 3-Wire, 250 Volts

Service entrance Condulets. Take main line fuse cutouts. Wiring devices, pages 436 to 438, Condulet catalogue No. 2000.

Threaded hub for Condulet enters from rear.

Furnished with removable conduit hub plate, cutout fastening plate, porcelain bushings, screws and bolts, but without cutout.



Cat. No.	Size In.	30 Amperes		Price Each
		Std. Pkg.	Wt., Lbs.	
FFA1302	1/2	20	270	\$7.80
FFA2302	3/4	20	280	7.90
FFA3302	1	10	145	8.00
60 Amperes				
FFA3602	1	10	155	\$10.00
FFA4602	1 1/4	10	165	10.10

**LA Series Aisle Light Condulets**

Take 10-watt S-14 Mazda B lamps or any lamp not exceeding 1 3/4 x 4 1/4 inches. Furnished with lamp receptacle.

These Condulets are shallow and when installed at the end of a row of seats do not obstruct the aisle. The front of the Condulet is easily removed, facilitating the renewal of lamps. No glass is used. If a more subdued light is desired colored bulbs (preferably green) can be used.

The light is so shielded that it is not objectionable to spectators or performers.

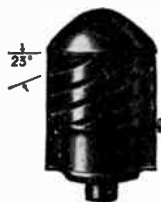


**Type LA—For Orchestra Floors**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LA1	1/2	25	140	\$2.75
LA2	3/4	25	140	2.85
LA3	1	25	140	2.95

**Type LAL—For Balconies**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LAL123	1/2	25	140	\$2.75
LAL223	3/4	25	140	2.85
LAL323	1	25	140	2.95



**Type LAR—For Balconies**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LAR123	1/2	25	140	\$2.75
LAR223	3/4	25	140	2.85
LAR323	1	25	140	2.95

**Y Series Condulets**

Galvanized or black enamel finish. Take fuse cutouts. Furnished with cutout fastening plate, screws and bolts. Hubs are cast solid with body.

These Condulets have sheet metal doors with spring catches, except types Y and YC, 30 or 60-ampere, 600-volt, 3-wire, which have cast iron doors with spring catches.

If specifically ordered, the Condulets and covers will be drilled for a seal wire, at a slight advance in the list price.

These Condulets are designed to take wires which will enter the grooves or terminals of the fuse cutout of the same rating as the Condulet. The additional space in the hubs is for the passage of extra wires.

Any assortment of 50 black enameled and galvanized Condulets of the Y series will be considered a standard package.

**Type Y Condulets**

Galvanized or black enamel finish.

Take main line fuse cutouts.

Furnished with cutout fastening plate, screws and bolts, but without cutouts.

Wiring devices, pages 436 to 438, Condulet catalogue No. 2000.



**2-wire, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
Y1302	1/2	15	90	\$2.35
Y2302	3/4	15	100	2.45
Y3302	1	10	70	2.55

**3-wire, 30-ampere, 250-volt**

Y1303	1/2	15	125	\$2.85
Y2303	3/4	15	135	2.95

**2-wire, 60-ampere, 250-volt**

Y2602	3/4	15	150	\$3.65
Y3602	1	10	100	3.75
Y4602	1 1/4	10	110	3.85

**Type YC Condulets**

Galvanized or black enamel finish.

Take main line fuse cutouts.

Furnished with cutout fastening plate, screws and bolts, but without cutouts.

Wiring devices, pages 436 to 438, Condulet catalogue No. 2000.



**2-wire, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YC1302	1/2	15	95	\$2.50
YC2302	3/4	15	105	2.60
YC3302	1	10	75	2.70
YC4302	1 1/4	10	80	2.80

**3-wire, 30-ampere, 250-volt**

YC1303	1/2	15	130	\$3.00
YC2303	3/4	15	140	3.10
YC3303	1	10	95	3.20
YC4303	1 1/4	10	100	3.30

**2-wire, 60-ampere, 250-volt**

YC2602	3/4	15	155	\$3.80
YC3602	1	10	105	3.90
YC5602	1 1/2	5	55	4.00

**3-wire, 60-ampere, 250-volt**

YC2603	3/4	15	180	\$4.20
YC3603	1	10	120	4.30
YC4603	1 1/4	10	125	4.40
YC5603	1 1/2	5	65	4.50

## YY Series Condulets

Take fuse cutouts. Furnished with cast iron door, cast iron hinges, and spring catches, removable conduit hub plates, cutout fastening plate, screws and bolts for cutout fastening plate.

The removable hub plates provide flexibility in installing, especially where the installation will not permit turning the conduit or Condulet.

The hubs are tangent to the back of the Condulet body; but by reversing the conduit hub plate, a projection frequently can be avoided without offsetting the conduit.

Wiring devices, pages 436 to 438, Condulet catalogue No. 2000. Plug receptacle housings, see end of ZP series.

Any assortment of 50 black enameled and galvanized Condulets and Condulet bodies of the YY series will be considered a standard package.

### Type YY Condulets

#### Without Hub Plates



For types YY, YYC and YYQ Condulets. Galvanized or black enamel finish. Take main line fuse cutouts. Furnished with cast iron doors, cutout fastening plate, and screws and bolts for cutout fastening plate.

If specified, a cabinet lock and key, in addition to the spring catch, will be furnished at an advance in list price.

Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt., Lbs.	Lbs. Std. Pkg.	Price Each
YY55302	2	30	YYP5	BR Y5	15	150		\$3.50
YY77303	2 or 3	30	YYP7	BR Y7	15	195		4.30
YY77602	2	60	YYP7	BR Y7	15	210		5.10
YY88603	3	60	YYP8	.....	15	285		6.40
YY881002	2	100	YYP8	.....	10	220		7.40
YY881003	3	100	YYP8	.....	10	290		9.40
YY776016	1	30-60	YYP7	.....	15	240		5.50
YY886036	3	30-60	YYP8	.....	15	420		8.40

### Type YYS Condulets

#### Without Hub Plates

For YYL, YYR and YYS Condulets.

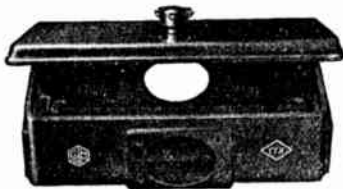
Galvanized or black enamel finish.

Take main line or single branch fuse cutouts.



Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt., Lbs.	Lbs. Std. Pkg.	Price Each
YYS55302	2	30	YYP5	BR Y5	15	195		\$4.30
YYS77303	2 or 3	30	YYP7	BR Y7	15	240		5.00
YYS77602	2	60	YYP7	BR Y7	15	240		5.80
YYS88603	3	60	YYP8	.....	15	300		7.00
YYS886036	3	30-60	YYP8	.....	15	430		9.60

### Type YYX Condulets



For types YYD and YYX Condulets.

Take double branch fuse cutouts.

Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt., Lbs.	Lbs. Std. Pkg.	Price Each
YYX77302	2 or 3 to 2-wire	30	YYP7	BR Y7	15	285		\$5.70
YYX77303	3-wire	30	YYP7	BR Y7	15	315		6.80
YYX77602	2 or 3 to 2-wire	60	YYP7	BR Y7	15	375		8.70
YYX88603	3-wire	60	YYP8	.....	15	420		9.80

## Conduit Hub Plates

### For Condulet Bodies of YY, YW and ZP Series

Cast iron, galvanized or black enamel finish. Furnished with screws.

Any assortment of 50 black enameled and galvanized conduit hub plates for Condulet bodies of the YY and YW series, will be considered a standard package.

### YYP5 Series Hub Plates

Dimensions, 2 3/4 x 3 3/8 Inches

Cast iron, galvanized or black enamel finish.

#### With One Hub, Straight

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs.	Lbs. Std. Pkg.	Price Each
YYP51	1/2	15	20		\$ .40
YYP52	3/4	15	20		.50
YYP53	1	15	25		.60
YYP54	1 1/4	15	25		.70
YYP55	1 1/2	15	30		.80
YYP500	Blank	15	15		.25



#### With One Hub, 90° Front or Back

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs.	Lbs. Std. Pkg.	Price Each
YYAP51	1/2	15	20		\$ .50
YYAP52	3/4	15	20		.60



### YYP7 and YYP8 Series Conduit Hub Plates

Cast iron, galvanized or black enamel finish.

Standard package quantity, all sizes and types, 15.

#### With One Hub, Straight

Size In.	YYP7 Series 2 3/4 x 4 1/2 Inches			YYP8 Series 3 1/4 x 4 5/8 Inches		
	Cat. No.	Wt., Lbs.	Price Std. Pkg. Each	Cat. No.	Wt., Lbs.	Price Std. Pkg. Each
1/2	YYP71	20	\$ .45	YYP81	25	\$ .55
3/4	YYP72	20	.55	YYP82	25	.65
1	YYP73	25	.65	YYP83	30	.75
1 1/4	YYP74	25	.75	YYP84	30	.85
1 1/2	YYP75	30	.85	YYP85	35	.95
2	YYP76	30	.95	YYP86	40	1.05



#### With Two Hubs, Straight

1/2	YYP711	25	\$ .60	YYP811	30	\$ .70
3/4	YYP722	25	.70	YYP822	30	.80
1	YYP733	30	.80	YYP833	35	.90
1 1/4	YYP744	30	.90	YYP844	35	1.00



#### With One Hub, 90° Back or Front

1/2	YYAP71	25	\$ .55	YYAP81	30	\$ .65
3/4	YYAP72	25	.65	YYAP82	30	.75
1	YYAP73	30	.75	YYAP83	35	.85
1 1/4	YYAP74	30	.85	YYAP84	35	.95
1 1/2	YYAP75	35	.95	YYAP85	40	1.05



#### With One Hub, 90° Left or Right

1/2	YYLP71	25	\$ .55	YYLP81	30	\$ .65
3/4	YYLP72	25	.65	YYLP82	30	.75
1	YYLP73	30	.75	YYLP83	35	.85
1 1/4	YYLP74	30	.85	YYLP84	35	.95
1 1/2	YYLP75	35	.95	YYLP85	40	1.05



#### With Two Hubs, 90° Left or Right

1/2	YYSP71	30	\$ .60	YYSP81	35	\$ .70
3/4	YYSP72	30	.70	YYSP82	35	.80
1	YYSP73	35	.80	YYSP83	40	.90
1 1/4	YYSP74	35	.90	YYSP84	40	1.00
1 1/2	YYSP75	40	1.00	YYSP85	45	1.10



#### Blank

Blank	YYP700	20	\$ .30	YYP800	25	\$ .40
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**YW Series Condulets**

Take fuse cutouts.

Watertight galvanized or black enamel finish. Furnished with cast iron door, gaskets, cutout fastening plate, screws and bolts.

Have gasketed cast iron doors with adjustable eye-bolt hinges. An eye-bolt with a wing nut clamps the door tight. The wing nut is constructed to permit the insertion of a padlock whereby the door can be locked.

Wiring devices, pages 436 to 438, Condulet catalogue No. 2000.

Conduit hub plates, see end of YY series. Plug receptacle housings, see end of ZP series.

These Condulets are designed to take wires which will enter the grooves or terminals of the fuse cutout of the same rating as the Condulet. The additional space in the hubs is for the passage of extra wires.

Any assortment of 25 black enameled and galvanized Condulets and Condulet bodies of the YW series will be considered a standard package.

**Type YW Condulets**

**Without Hub Plates**

Galvanized or black enamel finish. For types YW, YWC and YWQ Condulets. Take main line fuse cutouts. 250 and 600 volts.

Furnished with cast iron door, gaskets, cutout fastening plate and screws and bolts for cutout fastening plate.

\*YW886036 and 776016 are 600 volts.



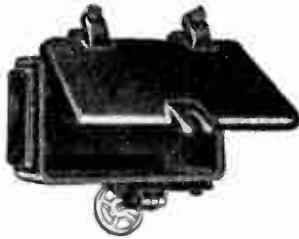
Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
YW55302	2	30	YYP5	BRY5	15	165		\$4.50
YW77303	2 or 3	30	YYP7	BRY7	15	210		5.45
YW77602	2	60	YYP7	BRY7	15	220		6.20
YW88603	3	60	YYP8	.....	15	295		7.50
YW881002	2	100	YYP8	.....	10	230		9.40
YW881003	3	100	YYP8	.....	10	300		11.30
YW776016	1	*30-60	YYP7	.....	15	250		7.40
YW886036	3	*30-60	YYP8	.....	15	430		10.40

**Type YWS Condulets**

**Without Hub Plates**

Galvanized or enamel. For types YWL, YWR and YWS Condulets. Take main line or single branch fuse cutouts. 250 and 600 volts. Furnished with cast iron door, gaskets, cutout fastening plate, and screws and bolts for cutout fastening plate.

\*YWS886036 is 600 volts.

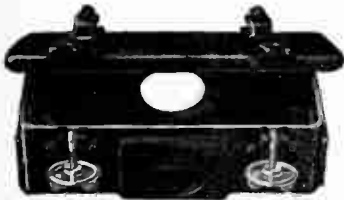


Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
YWS55302	2	30	YYP5	BRY5	15	200		\$5.50
YWS77303	2 or 3	30	YYP7	BRY7	15	245		6.40
YWS77602	2	60	YYP7	BRY7	15	245		7.95
YWS88603	3	60	YYP8	.....	15	305		9.00
YWS886036	3	*30-60	YYP8	.....	15	450		11.10

**Type YWX Condulets**

**Without Hub Plates**

Galvanized or enamel, for types YWD and YWX Condulets. Take double branch fuse cutouts. 250 V. Furnished with cast iron door, gaskets, cutout fastening plate, and screws and bolts for cutout fastening plate.



Cat. No.	For Cutouts Wire	Amp.	Take Hub Plates	Take Housings	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
YWX77302	2 or 3	to 2	30	YYP7	BRY7	15	290	\$7.80
YWX77303	3	30	YYP7	BRY7	15	320		8.95
YWX77602	2 or 3	to 2	60	YYP7	BRY7	15	380	10.85
YWX88603	3	60	YYP8	.....	15	430		12.05

**Type BRY Plug Receptacle Housings For Condulet Bodies of the YW and YY Series, and ZF 55302**

2-pole housings are furnished with 30-ampere, 250-volt receptacle BR302, which takes type BP 2-pole plugs. 3-pole housings are furnished with 30-ampere, 250-volt receptacle BR303, which takes type BP 3-pole plugs.

Galvanized or black enamel finish.

Plugs, see after type BRM.

Any assortment of 25 black enameled galvanized type BRY plug receptacle housings will be considered a standard package.

**Type BRY Plain Housings**

30 Amperes, 250 Volts, A.C.

Can be used on D. C. circuits of the same rating if circuit is broken before plug is withdrawn.

Furnished with receptacle and screws.



Cat. No.	Size	No. of Poles	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
BRY5302	BRY5	2	15	40		\$3.50
BRX7302	BRY7	2	15	50		3.60
BRY7303	BRY7	3	15	55		4.50

**Type BRY Threaded Housings**

Furnished with receptacle, gasket, and screws.



Cat. No.	Size	No. of Poles	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
BRY57302	BRY5	2	15	40		\$3.70
BRY77302	BRY7	2	15	50		3.80
BRY77303	BRY7	3	15	55		4.75

**Type BRY Threaded Housings—With Brass Cap**

Furnished with receptacle, gasket, and screws.



Cat. No.	Size	No. of Poles	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
BRY58302	BRY5	2	15	55		\$4.65
BRY78302	BRY7	2	15	65		4.75
BRY78303	BRY7	3	15	70		6.10

**Type BRY Spring Door Housings**

Furnished with receptacle and screws.



Cat. No.	Size	No. of Poles	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
BRY56302	BRY5	2	15	55		\$5.10
BRY76302	BRY7	2	15	65		5.20
BRY76303	BRY7	3	15	70		6.30

**Type BRY Clamping Devices**

For flexible conduit. Do not take plug or receptacle. Furnished with gasket and screws.



Cat. No.	Size	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
BRY791	BRY7	15	60		\$2.30
BRY792	BRY7	15	70		2.50
BRY793	BRY7	15	80		2.80

**Type Z Condulets**

Take round base wiring devices and main line cutouts.

Cat. No.	Size In.	No. of Wires	Cap. Amps.	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
Z1302	1/2	2	30	15	100		\$2.55
Z2302	3/4	2	30	15	105		2.65
Z3302	1	2	30	10	75		2.75
Z1303	1/2	3	30	15	130		3.00
Z2303	3/4	3	30	15	135		3.10
Z3303	1	3	30	10	95		3.20



**Type ZC Condulets**

Wiring devices, pages 414 to 417, Condulet catalogue No. 2000.



Cat. No.	Size In.	No. of Wires	Cap. Amps.	Std. Pkg.	Wt. Std.	Lbs. Std.	Price Each
ZC1302	1/2	2	30	15	110		\$2.80
ZC2302	3/4	2	30	15	115		2.90
ZC3302	1	2	30	10	80		3.00
ZC1303	1/2	3	30	15	140		3.25
ZC2303	3/4	3	30	15	145		3.35
ZC3303	1	3	30	10	100		3.45



## Type ZF Condulets—Single Without Covers and Hub Plates



Take waterproof gasketed switch covers, double push button switches, and main line fuse cutouts. Furnished with cast iron door, gaskets, cutout fastening plate, and screws and bolts for switches and cutout fastening plates. Take YYP5 hub plates at end of YY series, or BRY5 housings at end of ZP series, and 30-ampere, 250-volt, 2-wire cutouts.

Standard package, 15. Weight, standard package, 195 pounds.  
Price, No. ZF55302, 2-wire..... each \$5.60

## Type ZF Condulets—Two-gang Without Covers and Hub Plates

Take vaporproof gasketed switch covers, double push button switches, and main line fuse cutouts. Cutouts, pages 436 and 437; switches, page 414, Condulet catalogue No. 2000. Take MF hub plates and 30-ampere, 250-volt, 3 or 4-wire cutouts.

Std. pkg., 15. Wt., 360 lbs.  
Price, No. ZF304..... each \$8.50



## MF Series Conduit Hub Plates For ZF Series 2-gang Bodies

Cast iron, galvanized or black enamel finish. Furnished with screws.

Any assortment of 50 black enameled and galvanized hub plates of the MF series will be considered a standard package.

## MF Series Conduit Hub Plates With One Hub

For ZF Series 2-gang Bodies

Dimensions, 2 3/4 x 6 1/8 inches. Furnished with screws.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MF1	1/2	15	35	\$1.95
MF2	3/4	15	35	1.05
MF3	1	15	35	1.15
MF4	1 1/4	15	40	1.25
MF5	1 1/2	15	40	1.35



## MF Series Conduit Hub Plates With Two Hubs

For ZF Series 2-gang Bodies

Dimensions, 2 3/4 x 6 1/8 inches. Furnished with screws.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MF11	1/2	15	35	\$1.10
MF22	3/4	15	35	1.20
MF33	1	15	35	1.30
MF44	1 1/4	15	40	1.40
MF55	1 1/2	15	40	1.50



## MF Series Conduit Hub Plates With Three Hubs

For ZF Series 2-gang Bodies

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MF111	1/2-1/2-1/2	15	35	\$1.25
MF121	1/2-3/4-1/2	15	35	1.35
MF131	1/2-1-1/2	15	40	1.45
MF141	1/2-1 1/4-1/2	15	40	1.55
MF151	1/2-1 1/2-1/2	15	45	1.65



## Blank Hub Plates and DS Covers

For ZF Series 2-gang Bodies

Standard package, 15. Weight, standard package, 35 pounds.  
Price, No. MF00..... each \$8.85  
" " DS108 Cover..... " 1.75



## Type ZG Series Condulets

Condulets of the ZG series take mill type snap switches with protective covers, and cartridge or plug fuse cutouts. They are particularly suited for the control of small motors and electrically driven machines.

Take Bryant-Perkins No. 2597 or General Electric No. 151394 three-pole snap switch with cast iron protective cover and fuse cutouts.

25 assorted ZG series Condulets make a standard package.

## Type ZG Condulets

Cast iron, with sheet steel door. Galvanized or black enamel finish. Takes 3-wire, 600-volt main line cutouts.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ZG33036	1	10	225	\$8.00
ZG43036	1 1/4	10	230	8.15

## Type ZGC Condulets

250-Volt



Cutouts, pages 436, 437 and 439, Condulet catalogue No. 2000. Galvanized or black enamel finish. Takes 250-volt, 3-wire, main line cutouts.

Furnished with cutout fastening plate, screws and bolts.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ZGC1303	1/2	15	155	\$3.60
ZGC2303	3/4	15	160	3.70
ZGC3303	1	10	110	3.80

## Types FH and FHF Condulets

Covers, see end of FS and G-H series with adjustable bars.

Type FH is for use with heating devices requiring not more than 660 watts. Receptacle C337g, which can be used for a pilot lamp, is furnished with the Condulet. Type FHF is for use with heating devices requiring more than 660 watts; therefore provision is made for a cutout.

## Type FH Condulets



For control of heating devices. Galvanized or black enamel finish. Take round base wiring devices or covers, and flush rectangular wiring devices with surface style covers. Furnished with receptacle C337g, adjustable bar, and screws. Form 10 is also furnished with form 5 adapting ring.

nished with receptacle C337g, adjustable bar, and screws. Form 10 is also furnished with form 5 adapting ring.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FH110	10	1/2	15	95	\$2.50
FH210	10	3/4	15	100	2.60

## Type FHF Condulets

Round base wiring devices, pages 414 to 417; cutouts, page 436; flush rectangular wiring devices, pages 412 to 414; pilot lamp receptacle, page 412, Condulet catalogue No. 2000.



Furnished with form 5 and form 10 adapting rings, adjustable bars, cutout fastening plate, pilot lamp receptacle, ruby jewel, screws, and bolts.

Cat. No.	Form	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FHF120	20	1/2	15	130	\$4.65
FHF220	20	3/4	15	140	4.75

**Type YYP7 Series Conduit Hub Plates**

Cast iron, black enamel finish.



		With One Hub, Straight			
Size In.	Cat. No.	Wt., Lbs. Std. Pkg.	Std. Pkg.	Price Each	
1/2	YYP71	20	15		
3/4	YYP72	20	15		
1	YYP73	25	15		
1 1/4	YYP74	25	15		
1 1/2	YYP75	30	15		
2	YYP76	30	15		
		With Two Hubs, Straight			
1/2	YYP711	25	15		
3/4	YYP722	25	15		
1	YYP733	30	15		
1 1/4	YYP744	30	15		
		With One Hub, 90° Back or Front			
1/2	YYAP71	25	15		
3/4	YYAP72	25	15		
1	YYAP73	30	15		
1 1/4	YYAP74	30	15		
1 1/2	YYAP75	35	15		
		With One Hub, 90° Left or Right			
1/2	YYLP71	25	15		
3/4	YYLP72	25	15		
1	YYLP73	30	15		
1 1/4	YYLP74	30	15		
1 1/2	YYLP75	35	15		
		With Two Hubs, 90° Left or Right			
1/2	YYSP71	30	15		
3/4	YYSP72	30	15		
1	YYSP73	35	15		
1 1/4	YYSP74	35	15		
1 1/2	YYSP75	40	15		
Blank	YYP700	15	20		

Prices upon application.

**Type MK Condulets Without Hub Plates**

Safety switch Condulets. With fusible knife switch. Arranged for plug fuses.

30-Ampere, 125-Volt, for Plug Fuses				
Cat. No.	Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MK3028†	2	5	140	\$18.20
MK3038†	3	5	155	20.80

**Switch Arranged for Cartridge Fuses**

2-Pole, 250-Volt				
Cat. No.	Capacity Amps.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MK302†	30	5	140	\$18.20
MK602†	60	1	40	25.80
MK1002†	100	1	80	39.40
MK2002†	200	1	100	53.40
3-Pole, 250-Volt				
MK303†	30	5	155	\$20.80
MK603†	60	1	45	29.00
MK1003†	100	1	85	48.00
MK2003†	200	1	110	69.70
3-Pole, 500-Volt, A.C.				
MK3035†	30	1	65	\$35.00
MK6035†	60	1	70	35.00
MK10035†	100	1	100	51.60
MK20035†	200	1	130	75.20

†Take MF series hub plates.  
‡Take MK series hub plates.

**MK Series Conduit Hub Plates**

Cast iron. Galvanized or enamel. Furnished with screws. Dimensions, 2 5/16 x 5 inches. For 30-ampere, 125 and 250-volt type MK Condulets.



Size Inches	Standard Package	Wt., Lbs. Std. Pkg.	With 1 Hub		With 2 Hubs	
			Cat. No.	Price Each	Cat. No.	Price Each
1/2	15	25	MK1	\$.45	MK11	\$.60
3/4	15	25	MK2	.55	MK22	.70
1	15	30	MK3	.65	MK33	.80
1 1/4	15	30	MK4	.75	MK44	.90
1 1/2	15	35	MK5	.85	MK55	1.00
Blank	15	20	.....	...	MK00	.30

**TYPE MKS Interlocking Safety Switches and Plug Receptacle Condulets**



Without Hub Plates

Black enamel finish. Take conduit hub plates and interlocking plugs. With fusible knife switch and interlocking plug receptacle with spring door housing. Without spring door at the following reductions: 30-ampere, 125 or 250-volt, \$1.25; 30-ampere, 500-volt a.c., \$1.75; 60-ampere, \$1.75; 100-ampere, \$2.50; 200-ampere, \$3.50.

**With Switch Arranged for Cartridge Fuses**

Cat. No.	No. of Poles	Am-peres	Volts	Takes Plugs	Std. Wt., Lbs. Pkg.	Price Each
MKS1632	2	30	250	DP132, 332	5 200	\$35.00
MKS1633	3	30	250	DP133, 333	5 220	38.60
MKS1662	2	60	250	DP162, 362	1 55	43.00
MKS1663	3	60	250	DP163, 363	1 60	47.20
MKS16102	2	100	250	DP1102, 3102	1 95	78.00
MKS16103	3	100	250	DP1103, 3103	1 100	89.30
MKS16202	2	200	250	DP1202, 3202	1 120	103.60
MKS16203	3	200	250	DP1203, 3203	1 130	122.90
MKS16335	3	30	500 A.C.	DP1635, 3635	1 80	53.20
MKS16635	3	60	500 A.C.	DP1635, 3635	1 80	53.20
MKS161035	3	100	500 A.C.	DP11035, 31035	1 115	92.90
MKS162035	3	200	500 A.C.	DP12035, 32035	1 150	128.40
*2-Pole Switch with 3-Pole Receptacles						
MKS16323	2	30	250	DP133, 333	5 210	\$36.00
MKS16623	2	60	250	DP163, 363	1 60	44.00
MKS161023	2	100	250	DP1103, 3103	1 95	80.70
MKS162023	2	200	250	DP1203, 3203	1 125	106.60

**With Switch Arranged for Plug Fuses**

MKS16328	2	30	125	DP132, 332	5 200	\$35.00
MKS16338	3	30	125	DP133, 333	5 220	38.60

\*In some localities a ground wire must have a capacity equal to that of the circuit wires. This necessitates an extra conductor for grounding, and the plug and receptacle must have an extra pole to which the grounding conductor is connected. Where it is desired to ground the frame of a portable device in this manner, use a 2-pole switch with a 3-pole receptacle.

**Conduit Hub Plates**

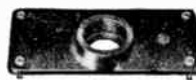
Cast iron; black enamel finish.

**MF Series—2 3/4 x 6 1/8 Inches**

For 60, 100 and 200-Ampere, 250-Volt, and All 500 Volt A.C. Condulets of the MKS Series

**One Hub**

**Two Hubs**



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MF1	1/2	15	35	\$ .95	MF11	1/2	15	35	\$1.10
MF2	3/4	15	35	1.05	MF22	3/4	15	35	1.20
MF3	1	15	35	1.15	MF33	1	15	35	1.30
MF4	1 1/4	15	40	1.25	MF44	1 1/4	15	40	1.40
MF5	1 1/2	15	40	1.35	MF55	1 1/2	15	40	1.50
MF6	2	15	45	1.45	MF66	2	15	45	1.60
MF7	2 1/2	15	100	3.10	MF77	2 1/2	15	110	3.35
MF8	3	15	105	3.20					
MF9	3 1/2	15	115	3.30					

**MK Series—2 5/16 x 5 Inches**

For 30-Ampere, 125 and 250-Volt Condulets of the MKS Series

**One Hub**

**Two Hubs**

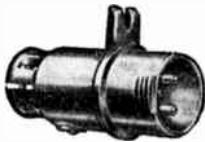
Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
MK1	1/2	15	25	\$.45	MK11	1/2	15	25	\$.60
MK2	3/4	15	25	.55	MK22	3/4	15	25	.70
MK3	1	15	30	.65	MK33	1	15	30	.80
MK4	1 1/4	15	30	.75	MK44	1 1/4	15	30	.90
MK5	1 1/2	15	35	.85	MK55	1 1/2	15	35	1.00

## Interlocking Plugs

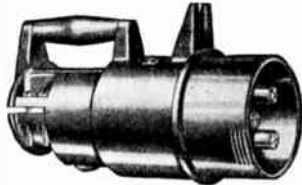
For Use with Condulets of the MKS Series

Aluminum handles; scratch brush finish.  
Furnished with clamp for cord, cable, flexible conduit or armored conductor.

For Round Flexible Cord or Cable; Also Takes Small Flexible Conduit or Armored Conductor



Cat. No.	No. of Poles	Amperes	Volts	*Outside Diameter Cable Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
DP132	2	30	250	1/2 to 7/8	10	20	\$6.50
DP133	3	30	250	1/2 to 7/8	10	20	7.00
DP1625	2	30	500 A.C.	3/4 to 1 1/16	10	20	7.50
DP1635	3	30	500 A.C.	3/4 to 1 1/16	10	20	8.00
DP162	2	60	250	3/4 to 1 1/16	10	20	7.50
DP163	3	60	250	3/4 to 1 1/16	10	20	8.00
DP1625	2	60	500 A.C.	3/4 to 1 1/16	10	20	7.50
DP1635	3	60	500 A.C.	3/4 to 1 1/16	10	20	8.00
DP1102	2	100	250	1 5/16 to 1 15/32	1	8	20.00
DP1103	3	100	250	1 5/16 to 1 15/32	1	8	22.00
DP11025	2	100	500 A.C.	1 5/16 to 1 15/32	1	8	20.00
DP11035	3	100	500 A.C.	1 5/16 to 1 15/32	1	8	22.00

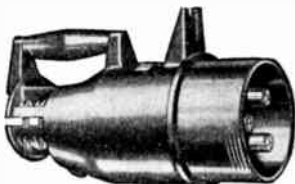


DP1202	2	200	250	1 13/16 to 1 13/16	1	15	\$45.00
DP1203	3	200	250	1 13/16 to 1 13/16	1	15	50.00
DP12025	2	200	500 A.C.	1 13/16 to 1 13/16	1	15	45.00
DP12035	3	200	500 A.C.	1 13/16 to 1 13/16	1	15	50.00

For Flexible Conduit or Armored Conductor; Also Takes Large Round Flexible Cable



Cat. No.	No. of Poles	Amperes	Volts	*Outside Diameter Cable Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
DP332	2	30	250	3/4 to 1 1/16	10	20	\$6.50
DP333	3	30	250	3/4 to 1 1/16	10	20	7.00
DP3625	2	30	500 A.C.	1 1/16 to 1 13/16	10	20	7.50
DP3635	3	30	500 A.C.	1 1/16 to 1 13/16	10	20	8.00
DP362	2	60	250	1 1/16 to 1 13/16	10	20	7.50
DP363	3	60	250	1 1/16 to 1 13/16	10	20	8.00
DP3625	2	60	500 A.C.	1 1/16 to 1 13/16	10	20	7.50
DP3635	3	60	500 A.C.	1 1/16 to 1 13/16	10	20	8.00
DP3102	2	100	250	1 5/16 to 2 1/16	1	8	20.00
DP3103	3	100	250	1 5/16 to 2 1/16	1	8	22.00
DP31025	2	100	500 A.C.	1 5/16 to 2 1/16	1	8	20.00
DP31035	3	100	500 A.C.	1 5/16 to 2 1/16	1	8	22.00



DP3202	2	200	250	1 3/4 to 2 9/16	1	15	\$45.00
DP3203	3	200	250	1 3/4 to 2 9/16	1	15	50.00
DP32025	2	200	500 A.C.	1 3/4 to 2 9/16	1	15	45.00
DP32035	3	200	500 A.C.	1 3/4 to 2 9/16	1	15	50.00

\*Cable, flexible conduit or armored conductor.

## Type MT Safety Switch Condulets

Without Hub Plates

Without Undervoltage Release



For use with all kinds of small motor-driven machinery particularly in textile mills. Protects the switch operator and the person renewing fuses; cannot be operated by accident. Non-watertight. Black enamel finish.

Furnished with tumbler switch and guard plate.

Operating handle and under-voltage release coil are on outside of conduit. Handle is so interlocked with door that door cannot be opened until switch is opened, nor can switch be closed until door is closed.

Standard package, 5.

Cat. No.	Maximum Amperes Non-Inductive	Maximum H.P. Motor	No. of Poles	Maximum Line Voltage	No. of Protective Devices	Wt. Lbs. Std. Pkg.	Price Each
MT 13	30	*3 D.C., 1 1/2 A.C.	**3	125	†3	125	\$19.00
MT 23	30	*5 D.C., 2 A.C.	**3	250	†3	125	19.00
MT235	30	2	3	500 A.C.	†3	200	25.00
MT237	20	2	3	600 A.C.	†3	200	25.00
MT236	5	2	**3	600 D.C.	†2	200	25.00
MT 33	30	5	**3	250	†2	125	19.00
MT335	30	5	3	500 A.C.	†2	125	19.00
MT337	20	5	3	600 A.C.	†2	125	19.00
MT336	5	2	**3	600 D.C.	†2	125	19.00
MT 43	30	5	**3	250	†2	125	19.00
MT435	30	5	3	500 A.C.	†2	125	19.00
MT437	20	5	3	600 A.C.	†2	125	19.00
MT436	5	2	**3	600 D.C.	†2	125	19.00

## Type ZT Safety Switch Condulets

Without Hub Plates

Without Interlock Release

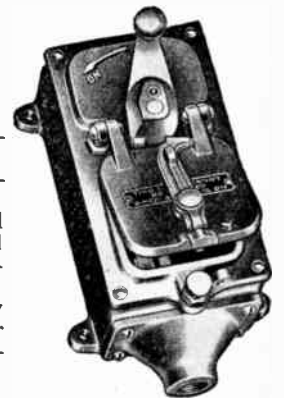
Type ZT Condulets are watertight; galvanized finish.

With tumbler switch and gasketed cover with fuse door.

Can be used to control small motors up to 2 h.p. With thermal cutouts they can be used to control motors up to 5 h.p.

The machine operator or any other person can change fuses or thermal cutouts in these condulets with safety.

Standard package 5.



Cat. No.	Maximum Amperes Non-Inductive	Maximum H.P. Motor	No. of Poles	Maximum Line Voltage	No. of Protective Devices	Wt. Lbs. Std. Pkg.	Price Each
ZT 12	30	*3 D.C., 3/4 A.C.	2	125	†2	100	\$20.00
ZT 13	30	1 1/2	3	125	†3	135	25.00
ZT 22	30	*5 D.C., 2 A.C.	2	250	†2	100	20.00
ZT 23	30	2	3	250	†3	135	25.00
ZT235	30	2	3	500 A.C.	†3	235	30.00
ZT237	20	2	3	600 A.C.	†3	235	30.00
ZT 32	30	5	**1	250	†1	100	20.00
ZT 33	30	5	3	250	†2	135	25.00
ZT325	30	5	2	500 A.C.	†1	100	20.00
ZT335	30	5	3	500 A.C.	†2	135	25.00
ZT327	20	5	2	600 A.C.	†1	100	20.00
ZT337	20	5	3	600 A.C.	†2	135	25.00
ZT326	5	2	**1	600 D.C.	†1	100	20.00
ZT 43	30	5	3	250	†2	135	25.00
ZT435	30	5	3	600 A.C.	†2	135	25.00
ZT437	20	5	3	600 A.C.	†2	135	25.00

\*Maximum h.p. when used with d.c. starting box.

\*\*Omit wiring to one pole when used for d.c.

†Plug fuses. ‡250-volt cartridge fuses. §600-volt cartridge fuses. ¶Westinghouse plug type thermal cutouts. ||General Electric thermal cutouts.

**YK Series Condulets**

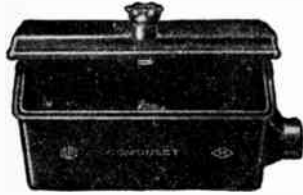
Take fusible knife switches. Furnished with switch fastening plate, screws and bolts.

Removable switch fastening plate permits mounting the switch and making connections before it is installed.

Door is furnished with a spring catch.

Hubs are cast solid with the body and have an integral bushing and tapered thread.

Any assortment of 25 black enameled and galvanized Condulets of the YK series will be considered a standard package.



**Type YK Condulets**

Galvanized or black enamel finish.

Take fusible knife switches.

Furnished with switch fastening plate, screws and bolts.

Hubs cast solid with body.

**2-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YK1302	1/2	10	130	\$4.00
YK2302	3/4	10	135	4.10
YK3302	1	10	140	4.20

**3-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YK2303	3/4	10	185	\$6.30
YK3303	1	10	190	6.40
YK4303	1 1/4	10	195	6.50

**2-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YK2602	3/4	10	230	\$11.40
YK3602	1	10	235	11.50
YK4602	1 1/4	10	240	11.60

**3-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YK3603	1	10	265	\$12.40
YK4603	1 1/4	10	270	12.50
YK5603	1 1/2	10	275	12.60

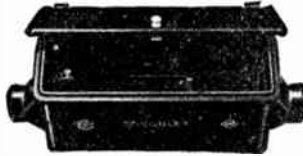
**Type YKC Condulets**

Galvanized or black enamel finish.

Take fusible knife switches.

Furnished with switch fastening plate, screws and bolts.

Hubs cast solid with body.



**2-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKC1302	1/2	10	140	\$4.15
YKC2302	3/4	10	145	4.30
YKC3302	1	10	150	4.45

**3-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKC2303	3/4	10	195	\$6.50
YKC3303	1	10	200	6.65
YKC4303	1 1/4	10	205	6.80

**2-pole, 60-ampere, 250-volt**

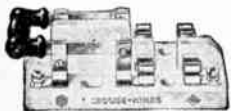
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKC2602	3/4	10	240	\$11.60
YKC3602	1	10	245	11.75
YKC4602	1 1/4	10	250	11.90

**3-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKC3603	1	10	275	\$12.65
YKC4603	1 1/4	10	280	12.80
YKC5603	1 1/2	10	285	12.95

**Type YKK Knife Switches**

For Condulets of the YK and YKW series. Arranged for 250-volt N. E. C. cartridge fuses.



Cat. No.	Capacity Amps.	No. of Poles	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKK302	30	2	10	40	\$2.25
YKK602	60	2	10	65	3.50
YKK303	30	3	10	50	3.75
YKK603	60	3	10	110	5.25

**Type YKW Condulets**



Watertight, galvanized or black enamel finish. Take fusible knife switches. Furnished with gasketed cast iron door, switch fastening plate, screws and bolts. Hub cast solid with body.

Any assortment of 25 black enameled and galvanized Condulets of the YKW series will be considered a standard package.

**2-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKW1302	1/2	10	160	\$9.60
YKW2302	3/4	10	165	9.70
YKW3302	1	10	170	9.80
YKW4302	1 1/4	10	175	9.90
YKW5302	1 1/2	10	180	10.00

**3-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKW2303	3/4	10	215	\$10.60
YKW3303	1	10	220	10.70
YKW4303	1 1/4	10	225	10.80
YKW5303	1 1/2	10	230	10.90

**2-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKW2602	3/4	10	230	\$12.50
YKW3602	1	10	235	12.60
YKW4602	1 1/4	10	240	12.70
YKW5602	1 1/2	10	245	12.80

**3-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKW3603	1	10	265	\$14.60
YKW4603	1 1/4	10	270	14.70
YKW5603	1 1/2	10	275	14.80
YKW6603	2	10	280	14.90

**Type YKWC Condulets**

Watertight, galvanized or enamel. Take fusible knife switches. Furnished with gasketed cast iron door, switch fastening plate, screws and bolts. Hubs cast solid with body.

Any assortment of 25 black enameled and galvanized Condulets of the YKW series will be considered a standard package.



**2-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKWC1302	1/2	10	170	\$9.75
YKWC2302	3/4	10	175	9.90
YKWC3302	1	10	180	10.05
YKWC4302	1 1/4	10	185	10.20
YKWC5302	1 1/2	10	190	10.35

**3-pole, 30-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKWC2303	3/4	10	225	\$10.80
YKWC3303	1	10	230	10.95
YKWC4303	1 1/4	10	235	11.10
YKWC5303	1 1/2	10	240	11.25

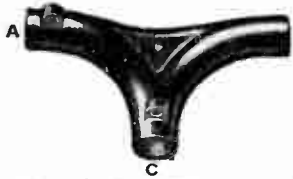
**2-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKWC2602	3/4	10	240	\$12.70
YKWC3602	1	10	245	12.85
YKWC4602	1 1/4	10	255	13.00
YKWC5602	1 1/2	10	265	13.15

**3-pole, 60-ampere, 250-volt**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YKWC3603	1	10	275	\$14.85
YKWC4603	1 1/4	10	280	15.00
YKWC5603	1 1/2	10	285	15.15
YKWC6603	2	10	290	15.30

## Type ET Condulets



In concealed conduit installations it is frequently possible to save conduit and labor by using this type, as junctions in the conduit system may be made at concealed or inaccessible points.

Where these Condulets are not used, all conduits must be run to an accessible junction box or outlet.

Single runs of conduit may be made from these junctions to the desired outlets, where the necessary taps and splices in the wires can be made.

The hubs have an integral bushing and tapered thread. Galvanized or black enamel finish.

Any assortment of 100 black enameled and galvanized types ET, EY, and ELB Condulets will be considered a standard package.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C			
ET 1	1/2	1/2	1/2	100	420	\$1.25
ET21	1/2	1/2	3/4	50	210	1.45
ET31	1/2	1/2	1	50	230	1.55
ET32	3/4	3/4	1	25	140	1.90
ET43	1	1	1 1/4	25	160	2.30
ET 4	1 1/4	1 1/4	1 1/4	10	80	2.65
ET54	1 1/4	1 1/4	1 1/2	10	90	2.95
ET64	1 1/4	1 1/4	2	5	50	3.30
ET65	1 1/2	1 1/2	2	5	55	3.75

## Type EY Condulets

In concealed conduit installations it is frequently possible to save conduit and labor by using this type, as junctions in the conduit system may be made at concealed or inaccessible points.

Where these Condulets are not used, all conduits must be run to an accessible junction box or outlet.

Single runs of conduit may be made from these junctions to the desired outlets, where the necessary taps and splices in the wires can be made.

The hubs have an integral bushing and tapered thread. Galvanized or black enamel finish.

Any assortment of 100 black enameled and galvanized types EY, ET, and ELB Condulets will be considered a standard package.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C			
EY 1	1/2	1/2	1/2	100	330	\$1.05
EY21	1/2	1/2	3/4	50	170	1.15
EY31	1/2	1/2	1	50	190	1.25
EY32	3/4	3/4	1	25	110	1.45
EY43	1	1	1 1/4	25	130	1.90
EY 4	1 1/4	1 1/4	1 1/4	10	75	2.30
EY54	1 1/4	1 1/4	1 1/2	10	85	2.50
EY64	1 1/4	1 1/4	2	5	50	2.70

## Type ELB Condulets

In concealed conduit installations it is frequently possible to save conduit and labor by using this type, as junctions in the conduit system may be made at concealed or inaccessible points.

Where these bodies are not used, all conduits must be run to an accessible junction box or outlet.

Galvanized or black enamel finish.

Any assortment of 100 black enameled and galvanized types ELB, ET, and EY Condulets will be considered a standard package.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ELB1	1/2	100	250	\$ .75
ELB2	3/4	50	155	1.00
ELB3	1	50	180	1.25
ELB4	1 1/4	25	115	1.60
ELB5	1 1/2	10	60	1.85

## Condulet Reducers



Used to reduce Condulets from larger to smaller sizes. Any assortment of 200 reducers will be considered a standard package.

Cat. No.	Size In.	Std. Wt., Lbs. Price		Cat. No.	Size In.	Std. Wt., Lbs. Price			
		Pkg.	Std. Pkg. Each			Pkg.	Std. Pkg. Each		
RE2818	1/4 - 1/8	50	5	\$ .15	RE76	2 1/2 - 2	25	15	\$1.00
RE3818	3/8 - 1/8	50	5	.15	RE81	3 - 1/2	25	30	1.35
RE3828	3/8 - 1/4	50	5	.15	RE82	3 - 3/4	25	30	1.35
RE1108	1/2 - 1/8	50	5	.15	RE83	3 - 1	25	30	1.35
RE1208	1/2 - 1/4	50	5	.15	RE84	3 - 1 1/4	25	40	1.35
RE1308	1/2 - 3/8	50	5	.15	RE85	3 - 1 1/2	25	40	1.35
RE21	3/4 - 1/2	50	5	.15	RE86	3 - 2	25	35	1.35
RE31	1 - 1/2	50	10	.20	RE87	3 - 2 1/2	25	25	1.35
RE32	1 - 3/4	50	10	.20	RE91	3 1/2 - 1 1/2	10	20	2.00
RE41	1 1/4 - 1/2	50	20	.30	RE92	3 1/2 - 3/4	10	20	2.00
RE42	1 1/4 - 3/4	50	20	.30	RE93	3 1/2 - 1	10	20	2.00
RE43	1 1/4 - 1	50	15	.30	RE94	3 1/2 - 1 1/4	10	25	2.00
RE51	1 1/2 - 1/2	50	25	.40	RE95	3 1/2 - 1 1/2	10	25	2.00
RE52	1 1/2 - 3/4	50	25	.40	RE96	3 1/2 - 2	10	30	2.00
RE53	1 1/2 - 1	50	20	.40	RE97	3 1/2 - 2 1/2	10	20	2.00
RE54	1 1/2 - 1 1/4	50	15	.40	RE98	3 1/2 - 3	10	20	2.00
RE61	2 - 1/2	25	20	.50	RE101	4 - 1/2	10	50	2.75
RE62	2 - 3/4	25	20	.50	RE102	4 - 3/4	10	30	2.75
RE63	2 - 1	25	20	.50	RE103	4 - 1	10	25	2.75
RE64	2 - 1 1/4	25	15	.50	RE104	4 - 1 1/4	10	25	2.75
RE65	2 - 1 1/2	25	10	.50	RE105	4 - 1 1/2	10	30	2.75
RE71	2 1/2 - 1/2	25	20	1.00	RE106	4 - 2	10	35	2.75
RE72	2 1/2 - 3/4	25	20	1.00	RE107	4 - 2 1/2	10	35	2.75
RE73	2 1/2 - 1	25	30	1.00	RE108	4 - 3	10	25	2.75
RE74	2 1/2 - 1 1/4	25	30	1.00	RE109	4 - 3 1/2	10	20	2.75
RE75	2 1/2 - 1 1/2	25	25	1.00					

## Condulet Unions

Any assortment of 100 Condulet unions will be considered a standard package.



Cat. No.	Size In.	Std. Wt., Lbs. Price		Cat. No.	Size In.	Std. Wt., Lbs. Price			
		Pkg.	Std. Pkg. Each			Pkg.	Std. Pkg. Each		
UN110	1/2	50	45	\$ .60	UN5	1 1/2	25	60	\$1.80
UN220	3/4	50	55	.90	UN6	2	10	40	2.75
UN3	1	25	40	.75	UN7	2 1/2	10	50	4.75
UN4	1 1/4	25	50	1.20	UN8	3	5	35	8.00

## Condulet Pedestals

### Three Inches High

Rigid support for Condulets mounted on conduit that projects through the floor. Furnished with set screws.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Price	
			Std. Pkg.	Each
PED13	1/2	35	85	\$ .95
PED23	3/4	35	100	1.20
PED33	1	25	85	1.45

## 45-Degree Condulet Elbows

### Female

Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Price	
			Std. Pkg.	Each
EL1	1/2	200	100	\$ .22
EL2	3/4	100	80	.30
EL3	1	50	70	.35
EL4	1 1/4	25	65	.65
EL5	1 1/2	10	65	.70
EL6	2	5	65	1.15



## 90-Degree Condulet Elbows

### Male

Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Price	
			Std. Pkg.	Each
EL195	1/2	200	100	\$ .30
EL295	3/4	100	80	.40
EL395	1	50	70	.50
EL495	1 1/4	25	65	.75



**Type UNJ Condulet Fixture Joints**

For Pendent Fixtures—Always Hang Plumb



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UNJ1308	*1 1/2 — 3/8	50	40	\$.65
UNJ1	1/2 — 1/2	50	40	.65
UNJ2308	*3/4 — 3/8	50	55	.75
UNJ21	*3/4 — 1/2	50	55	.75
UNJ2	3/4 — 3/4	50	60	.75
UNJ3308	*1 — 3/8	25	40	.90
UNJ31	*1 — 1/2	25	40	.90
UNJ32	*1 — 3/4	25	40	1.00
UNJ3	1 — 1	25	40	1.00

\*Male threads given first.

Any assortment of 100 galvanized type UNJ Condulet fixture joints will be considered a standard package.

**Cushion Fixture Hangers**

For Condulets of the Obround Series

For Fixtures with 3/8-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
18h	2 1/2 to 3 1/2	1/2	200	40	\$.55
28h	2 1/2 to 3 1/2	3/4	100	25	.60
18k	3 1/2 to 5	1/2	200	40	.55
28k	3 1/2 to 5	3/4	100	25	.60



For Fixtures with 1/2-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
116k	3 1/2 to 5	1/2	200	40	\$.65
216k	3 1/2 to 5	3/4	100	25	.70

**Type H Cushion Fixture Hangers**

Always Hang Plumb

For Form 10 Condulets of the G-H Series—Without Adjustable Bar

For Fixtures with 3/8-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H1086	2 1/2 to 8	25	35	\$.65
H1087	8 to 16	25	35	.65
H1088	16 to 30	25	40	.65



For Fixtures with 1/2-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H1066	2 1/2 to 8	25	35	\$.65
H1067	8 to 16	25	35	.65
H1068	16 to 30	25	40	.65

**Type GS Ball Fixture Hangers**

For Condulets of the GS Series—Always Hang Plumb

For Form 5 Condulets

For Fixtures with 1/2-Inch Stem

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS536	25	30	\$.55



**Type GS Cushion Fixture Hangers**

For Condulets of the GS Series—

Always Hang Plumb

For Form 5 Condulets

For Fixtures with 3/8-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS294	30 to 80	25	100	\$2.75



**Type ARB Ball Fixture Hangers**

For 4-Inch Outlet Boxes—Always Hang Plumb

For Fixtures with 3/8-Inch Stem

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ARB5	25	50	\$1.00



For Fixtures with 1/2-Inch Stem

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ARB6	25	50	\$1.00

**Type ARB Cushion Fixture Hangers**

For 4-Inch Outlet Boxes—Always Hang Plumb

For Fixtures with 3/8-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ARB 7	2 1/2 to 8	25	50	\$1.00
ARB 9	8 to 16	25	50	1.00
ARB11	16 to 30	25	60	1.00



For Fixtures With 1/2-Inch Stem

Cat. No.	Total Wt. of Fixture, Lbs.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ARB 8	2 1/2 to 8	25	50	\$1.00
ARB10	8 to 16	25	50	1.00
ARB12	16 to 30	25	60	1.00

**AL Series Fixture Hanger Condulets**

For Pendent Fixtures—Always Hang Plumb

For Pendent Fixtures with 1/2-Inch Stem

Galvanized finish. Any assortment of 25 galvanized ball or 25 cushion fixture hanger condulets of the AL series will be considered a standard package.



Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALA1	1/2	.....	25	65	\$.65
ALA21	3/4	.....	25	70	.75

**ALA Cushion Fixture Hangers**

Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALA12	1/2	1 to 3	25	75	\$1.40
ALA212	3/4	1 to 3	25	80	1.50
ALA14	1/2	3 to 6	25	75	1.40
ALA214	3/4	3 to 6	25	80	1.50
ALA18	1/2	6 to 12	25	75	1.40
ALA218	3/4	6 to 12	25	80	1.50
ALA116	1/2	12 to 24	25	75	1.40
ALA2116	3/4	12 to 24	25	80	1.50

**ALL Ball Fixture Hangers**

Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALL1	1/2	.....	25	65	\$.75
ALL21	3/4	.....	25	70	.85

**ALL Cushion Fixture Hangers**

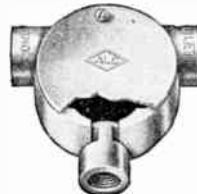
Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALL12	1/2	1 to 3	25	75	\$1.50
ALL212	3/4	1 to 3	25	80	1.60
ALL14	1/2	3 to 6	25	75	1.50
ALL214	3/4	3 to 6	25	80	1.60
ALL18	1/2	6 to 12	25	75	1.50
ALL218	3/4	6 to 12	25	80	1.60
ALL116	1/2	12 to 24	25	75	1.50
ALL2116	3/4	12 to 24	25	80	1.60



Type ALL Cushion Fixture Hanger

**ALC Ball Fixture Hangers**

Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALC1	1/2	.....	25	65	\$.75
ALC21	3/4	.....	25	70	.85
ALC31	1	.....	10	30	.95



Type ALC Ball Fixture Hanger

**ALC Cushion Fixture Hangers**

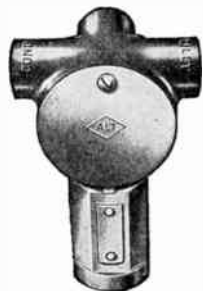
Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALC12	1/2	1 to 3	25	75	\$1.50
ALC212	3/4	1 to 3	25	80	1.60
ALC312	1	1 to 3	10	35	1.70
ALC14	1/2	3 to 6	25	75	1.50
ALC214	3/4	3 to 6	25	80	1.60
ALC314	1	3 to 6	10	35	1.70
ALC18	1/2	6 to 12	25	75	1.50
ALC218	3/4	6 to 12	25	80	1.60
ALC318	1	6 to 12	10	35	1.70
ALC116	1/2	12 to 24	25	75	1.50
ALC2116	3/4	12 to 24	25	80	1.60
ALC3116	1	12 to 24	10	35	1.70

**ALT Ball Fixture Hangers**

Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALT1	1/2	.....	25	70	\$.85
ALT21	3/4	.....	25	75	.95
ALT31	1	.....	10	35	1.05

**ALT Cushion Fixture Hangers**

Cat. No.	Size In.	Weight Fixture Pounds	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
ALT12	1/2	1 to 3	25	75	\$1.60
ALT212	3/4	1 to 3	25	80	1.70
ALT312	1	1 to 3	10	35	1.80
ALT14	1/2	3 to 6	25	75	1.60
ALT214	3/4	3 to 6	25	80	1.70
ALT314	1	3 to 6	10	35	1.80
ALT18	1/2	6 to 12	25	75	1.60
ALT218	3/4	6 to 12	25	80	1.70
ALT318	1	6 to 12	10	35	1.80
ALT116	1/2	12 to 24	25	75	1.60
ALT2116	3/4	12 to 24	25	80	1.70
ALT3116	1	12 to 24	10	35	1.80



Type ALT Cushion Fixture Hanger



## Type UNJC Cushion Fixture Hangers

For Pendent Fixtures



Type UNJC is provided with a spring which carries the weight of the fixture and absorbs any shocks due to vibration or other causes. This hanger is for supporting suspension type fixtures and can be used in conjunction with condulets. Has galvanized finish. Any assortment of 100 galvanized type UNJC Fixture hanger will be considered a standard package. \*Male threads given first.

Cat. No.	Size Inches	WEIGHT, POUNDS		Price Each	
		Std. Pkg.	Fixture		
UNJC1382	1/2-3/8*	50	70	1 1/2 to 3	\$1.00
UNJC12	1/2-1/2	50	70	1 1/2 to 3	1.00
UNJC2382	3/4-3/8*	50	70	1 1/2 to 3	1.10
UNJC212	3/4-1/2	50	70	1 1/2 to 3	1.10
UNJC1384	1/2-3/8*	50	70	3 to 6	1.00
UNJC14	1/2-1/2	50	70	3 to 6	1.00
UNJC2384	3/4-3/8*	50	70	3 to 6	1.10
UNJC214	3/4-1/2	50	70	3 to 7	1.10
UNJC18	1/2-1/2	50	70	6 to 12	1.00
UNJC218	3/4-1/2*	50	70	6 to 12	1.10
UNJC28	3/4-3/4	50	110	6 to 12	1.15
UNJC328	1-3/4*	25	55	12 to 24	1.35
UNJC216	3/4-3/4	50	110	12 to 24	1.15
UNJC3216	1-3/4*	25	55	12 to 24	1.35

## Type AOC Fixture Hanger Condulets

For Pendent Fixtures—Always Hang Plumb  
For Fixtures with 1/2-Inch Stem

Galvanized finish. Similar to Type ALC ball fixture hangers except the Condulet is of the Obround shape.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AOC1	1/2	25	40	\$.75
AOC21	3/4	25	40	.85

## Covers with Cord Clamps

Galvanized Finish

Drop cord fixtures, especially in industrial plants, are frequently subject to very hard usage. The condulet covers with cord clamps act as a safeguard for the upper end of such drop cords, and prevent any strain on the soldered connections of the conductors. The hole through the cover is provided with a bushing. When the lamp socket is provided with a similar cord clamp, the drop cord is effectually protected against hard usage.



Nos. 192 & 292

### For Condulets of the Obround Series

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
192	1/2	200	80	\$.25
292	3/4	100	50	.30

### For Condulets of the G-H Series

H1092	*10	100	45	\$ .30
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\*Form. Without adjustable bar.

## Condulet Finishes

Iron Condulets and Covers

Black enamel is the standard finish for Condulets, Condulet bodies and metal covers and will be furnished unless another finish is specified on the order.

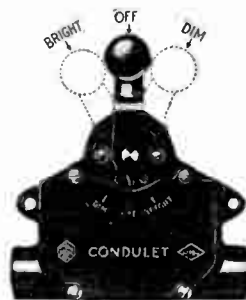
Galvanized finish on the exterior and black enamel finish on the interior of Condulets and Condulet bodies will be furnished at the same price as all black enamel finish, when the order specifies galvanized finish. Galvanized finish for metal covers will be furnished, if specifically ordered, at the same price as black enamel finish.

## Assortments

Black enameled and galvanized Condulets and Condulet bodies of the same type and size may be assorted to make a standard package. Black enameled and galvanized covers of the same type and size may be assorted to make a standard package. Black enameled and galvanized Condulet accessories of the same type and size may be assorted to make a standard package.

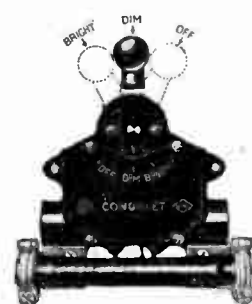
## Locomotive Headlight Switches

34 Volts, 24 Amperes—125 Volts, 6 Amperes  
250 Volts, 3 Amperes



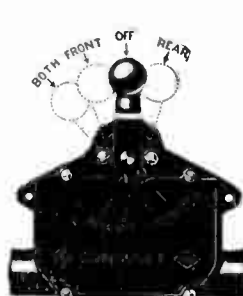
Type LHSJ without Resistance, Toggle Switch, and Fuse Receptacle

3 Positions: Dim—Off—Bright



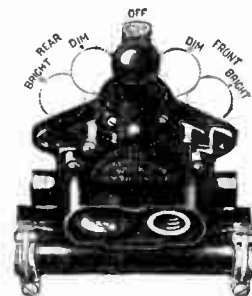
Type LHSJ with Resistance, But without Toggle Switch and Fuse Receptacle

3 Positions: Off—Dim—Bright



Type LHSJ without Resistance, Toggle Switch, and Fuse Receptacle

4 Positions: Rear Bright—Off—Front Bright—Both Bright



Type LHSJ with Resistance, Toggle Switch, and Fuse Receptacle

5 Positions: Front Bright—Front Dim—Off—Rear Dim—Rear Bright

Locomotive Headlight Switches are furnished in 3 styles: without resistance, toggle switch, and fuse receptacle; with resistance, but without toggle switch, and fuse receptacle; and with resistance, toggle switch, and fuse receptacle.

These switches are of substantial construction. The cover is gasketed, making it dustproof. The body is shallow, not exceeding 2 inches in depth and, therefore, it is especially suitable for mounting in the limited space available in an engine cab.

The switch blade is always in engagement with one of the switch contacts and, therefore, it cannot get out of alignment. The wires are connected to binding screws which make direct connection with the contacts.

The cover is marked to show the condition of the light as indicated by the pointer on the handle. The cover is marked on both sides so that it can be read correctly when the switch is installed with the handle pointing either up or down. The handle is held in position by a spring plunger which engages notches.

All parts are movable without disturbing the body or disconnecting any of the conduit.

**Locomotive Headlight Switches**

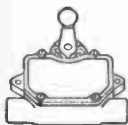
34 V., 24 Amp.—125 V., 6 Amp.—250 V., 3 Amp.

**3 Positions: Dim—Off—Bright**

**Type LHSJ**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSJ1	1/2	10	65	\$7.70
LHSJ2	3/4	10	70	7.80
LHSJ3	1	10	75	7.90



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSJ107	1/2	10	105	\$14.80
LHSJ207	3/4	10	110	14.90
LHSJ307	1	10	115	15.00

With Resistance, Toggle Switch and Fuse Receptacle

LHSJ209	3/4	10	130	\$22.20
LHSJ309	1	10	135	22.30

**Type LHSA**

Without Resistance, Toggle Switch and Fuse Receptacle

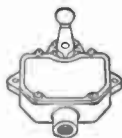
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSA1	1/2	10	60	\$7.60
LHSA2	3/4	10	65	7.70
LHSA3	1	10	70	7.80

With Resistance, but without Toggle Switch and Fuse Receptacle

LHSA107	1/2	10	100	\$14.70
LHSA207	3/4	10	105	14.80
LHSA307	1	10	110	14.90

With Resistance, Toggle Switch and Fuse Receptacle

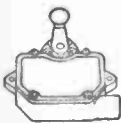
LHSA209	3/4	10	125	\$22.10
LHSA309	1	10	130	22.20



**Type LHSK**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSK1	1/2	10	60	\$7.60
LHSK2	3/4	10	65	7.70
LHSK3	1	10	70	7.80



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSK107	1/2	10	100	\$14.70
LHSK207	3/4	10	105	14.80
LHSK307	1	10	110	14.90

With Resistance, Toggle Switch and Fuse Receptacle

LHSK209	3/4	10	125	\$22.10
LHSK309	1	10	130	22.20

**Type LHSP**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSP1	1/2	10	60	\$7.60
LHSP2	3/4	10	65	7.70
LHSP3	1	10	70	7.80

With Resistance, but without Toggle Switch and Fuse Receptacle

LHSP107	1/2	10	100	\$14.70
LHSP207	3/4	10	105	14.80
LHSP307	1	10	110	14.90

With Resistance, Toggle Switch and Fuse Receptacle

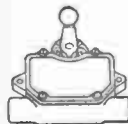
LHSP209	3/4	10	125	\$22.10
LHSP309	1	10	130	22.20

**3 Positions: Off—Dim—Bright**

**Type LHSJ**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSJ13	1/2	10	65	\$7.70
LHSJ23	3/4	10	70	7.80
LHSJ33	1	10	75	7.90



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSJ137	1/2	10	105	\$14.80
LHSJ237	3/4	10	110	14.90
LHSJ337	1	10	115	15.00

With Resistance, Toggle Switch and Fuse Receptacle

LHSJ239	3/4	10	130	\$22.20
LHSJ339	1	10	135	22.30

**Locomotive Headlight Switches**

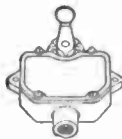
34 V., 24 Amp.—125 V., 6 Amp.—250 V., 3 Amp.

**3 Positions: Off—Dim—Bright**

**Type LHSA**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSA13	1/2	10	60	\$7.60
LHSA23	3/4	10	65	7.70
LHSA33	1	10	70	7.80



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSA137	1/2	10	100	\$14.70
LHSA237	3/4	10	105	14.80
LHSA337	1	10	110	14.90

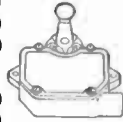
With Resistance, Toggle Switch and Fuse Receptacle

LHSA239	3/4	10	125	\$22.10
LHSA339	1	10	130	22.20

**Type LHSK**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSK13	1/2	10	60	\$7.60
LHSK23	3/4	10	65	7.70
LHSK33	1	10	70	7.80



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSK137	1/2	10	100	\$14.70
LHSK237	3/4	10	105	14.80
LHSK337	1	10	110	14.90

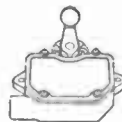
With Resistance, Toggle Switch and Fuse Receptacle

LHSK239	3/4	10	125	\$22.10
LHSK339	1	10	130	22.20

**Type LHSP**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSP13	1/2	10	60	\$7.60
LHSP23	3/4	10	65	7.70
LHSP33	1	10	70	7.80



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSP137	1/2	10	100	\$14.70
LHSP237	3/4	10	105	14.80
LHSP337	1	10	110	14.90

With Resistance, Toggle Switch and Fuse Receptacle

LHSP239	3/4	10	125	\$22.10
LHSP339	1	10	130	22.20

**3 Positions: Front Dim, Rear Bright—Off Rear Dim, Front Bright**

**Type LHSJ**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSJ17	1/2	10	65	\$7.70
LHSJ27	3/4	10	70	7.80
LHSJ37	1	10	75	7.90



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSJ177	1/2	10	105	\$14.70
LHSJ277	3/4	10	110	14.80
LHSJ377	1	10	115	14.90

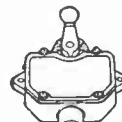
With Resistance, Toggle Switch and Fuse Receptacle

LHSJ279	3/4	10	135	\$22.20
LHSJ379	1	10	140	22.30

**Type LHSA**

Without Resistance, Toggle Switch and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSA17	1/2	10	60	\$7.60
LHSA27	3/4	10	65	7.70
LHSA37	1	10	70	7.80



With Resistance, but without Toggle Switch and Fuse Receptacle

LHSA177	1/2	10	100	\$14.70
LHSA277	3/4	10	105	14.80
LHSA377	1	10	110	14.90

With Resistance, Toggle Switch and Fuse Receptacle

LHSA279	3/4	10	130	\$22.10
LHSA379	1	10	135	22.20

## Locomotive Headlight Switches

34 V., 24 Amp.—125 V., 6 Amp.—250 V., 3 Amp.

### 3 Positions: Front Dim, Rear Bright—Off Rear Dim, Front Bright

#### Type LHSK

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSK17	1/2	10	60	\$7.60
LHSK27	3/4	10	65	7.70
LHSK37	1	10	70	7.80

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSK177	1/2	10	105	\$14.70
LHSK277	3/4	10	110	14.80
LHSK377	1	10	110	14.90

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSK279	3/4	10	130	\$22.10
LHSK379	1	10	135	22.20

#### Type LHSP

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSP17	1/2	10	60	\$7.60
LHSP27	3/4	10	65	7.70
LHSP37	1	10	70	7.80

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSP177	1/2	10	100	\$14.70
LHSP277	3/4	10	105	14.80
LHSP377	1	10	110	14.90

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSP279	3/4	10	130	\$22.10
LHSP379	1	10	135	22.20

### 4 Positions: Rear Bright—Off—Front Bright Both Bright

These headlight switches have no dim positions, and are therefore not listed with resistance.

#### Type LHSJ

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSJ18	1/2	10	65	\$9.00
LHSJ28	3/4	10	70	9.10
LHSJ38	1	10	75	9.20

#### Type LHSA

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSA18	1/2	10	60	\$8.90
LHSA28	3/4	10	65	9.00
LHSA38	1	10	70	9.10

#### Type LHSK

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSK18	1/2	10	60	\$8.90
LHSK28	3/4	10	65	9.00
LHSK38	1	10	70	9.10

#### Type LHSP

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSP18	1/2	10	60	\$8.90
LHSP28	3/4	10	65	9.00
LHSP38	1	10	70	9.10

Diagrams indicate position of conduit hub.  
Standard finish is galvanized or black enamel.  
Any assortment of 25 switches will be considered a standard package.

## Locomotive Headlight Switches

### 5 Positions: Front Bright—Front Dim—Off—Rear Dim—Rear Bright

34 V., 24 Amp.—125 V., 6 Amp.—250 V., 3 Amp.

#### Type LHSJ

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSJ19	1/2	10	65	\$9.00
LHSJ29	3/4	10	70	9.10
LHSJ39	1	10	75	9.20

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSJ197	1/2	10	100	\$16.10
LHSJ297	3/4	10	105	16.20
LHSJ397	1	10	110	16.30

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSJ299	3/4	10	125	\$23.40
LHSJ399	1	10	130	23.50

#### Type LHSA

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSA19	1/2	10	60	\$8.90
LHSA29	3/4	10	65	9.00
LHSA39	1	10	70	9.10

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSA197	1/2	10	100	\$16.00
LHSA297	3/4	10	105	16.10
LHSA397	1	10	110	16.20

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSA299	3/4	10	125	\$23.30
LHSA399	1	10	130	23.40

#### Type LHSK

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSK19	1/2	10	60	\$8.90
LHSK29	3/4	10	65	9.00
LHSK39	1	10	70	9.10

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSK197	1/2	10	100	\$16.00
LHSK297	3/4	10	105	16.10
LHSK397	1	10	110	16.20

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSK299	3/4	10	125	\$23.30
LHSK399	1	10	130	23.40

#### Type LHSP

Without Resistance, Toggle Switch  
and Fuse Receptacle

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LHSP19	1/2	10	60	\$8.90
LHSP29	3/4	10	65	9.00
LHSP39	1	10	70	9.10

With Resistance, but without Toggle  
Switch and Fuse Receptacle

LHSP197	1/2	10	100	\$16.00
LHSP297	3/4	10	105	16.10
LHSP397	1	10	110	16.20

With Resistance, Toggle Switch  
and Fuse Receptacle

LHSP299	3/4	10	125	\$23.30
LHSP399	1	10	130	23.40

Diagrams at left indicate position of conduit hub.  
Standard finish is galvanized or black enamel.  
Any assortment of 25 switches will be considered a standard package.

**Iron Clad Rosettes**

**Bayonet Type**

660-Watt, 250-Volt

For condulets of the GS Series and Type GSG. Furnished with screws. Marine finish is standard.

**Form 5**

Cat. No.	Diam. Cable, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*GS574	1/4 to 1/16	10	20	\$2.45
*GS577	1/16 to 23/32	10	20	2.45
**GS5615	1/4 to 11/32	10	20	2.75
**GS5616	11/32 to 7/16	10	20	2.75
**GS5617	7/16 to 5/8	10	20	2.75
**GS5618	1/2 to 5/8	10	20	3.00



**Form 10**

Cat. No.	Diam. Cable, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*GS176	1/4 to 7/16	10	50	\$2.70
*GS178	7/16 to 23/32	10	50	2.70
**GS1611	1/4 to 11/32	10	50	3.00
**GS1612	11/32 to 7/16	10	50	3.00
**GS1613	7/16 to 5/8	10	50	3.00
**GS1614	1/2 to 5/8	10	50	3.25



\*With clamp. \*\*With rubber bushing.

**Rosette Bases**

For condulets of the GS Series and Type GSG. Furnished with screws.

**Form 5**

For use with GS574, GS577, GS5615, GS5616, GS5617 and GS5618 Rosettes.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS534	10	10	\$1.35



**Form 10**

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GS154	10	15	\$1.60



**Rosette Caps**

For condulets of the GS Series and Type GSG.

**Form 5**

Cat. No.	Diam. Cable, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*GS544	1/4 to 7/16	10	10	\$1.10
*GS5604	1/16 to 23/32	10	10	1.10
**GS5605	1/4 to 11/32	10	10	1.40
**GS5606	11/32 to 7/16	10	10	1.45
**GS5607	7/16 to 5/8	10	10	1.40
**GS5608	1/2 to 5/8	10	10	1.60



**Form 10**

*GS544	1/4 to 7/16	10	..	\$1.10
*GS5604	7/16 to 23/32	10	..	1.10
**GS5605	1/4 to 11/32	10	..	1.40
**GS5606	11/32 to 7/16	10	..	1.40
**GS5607	7/16 to 5/8	10	..	1.40
**GS5608	1/4 to 5/8	10	..	1.65



\*With clamp. \*\*With rubber bushing.

**Connection Blocks**

20 Ampere, 125 Volts

For form 10 condulets of the GS Series and form 8 condulets of the GR Series.

**2-Wire**

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CB132	25	15	\$ .80



**3-Wire**

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CB133	25	15	\$1.10



**4-Wire**

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CB1124	25	15	\$ .85



**Screw Cover Junction Condulets**

These Condulets are of liberal dimensions, providing ample space for taps, and for the passage of additional circuits.

The cover is provided with 2 bosses which permit the use of a wrench, screw driver, or bar for turning the cover. If desired, a gasket can be furnished for use between the cover and body.

The over all dimensions of these bodies exclusive of hubs are: diameter, 1/2-inch size, 2 1/2 inches; 3/4-inch size, 2 1/2 inches; 1-inch size, 3 1/2 inches; depth, 1/2-inch, 1 3/8 inches; 3/4-inch size, 1 5/8 inches; 1-inch size, 1 7/8 inches.

The cover increases the depth 1 3/16 inch.

The hubs are tapered.

**Type GRC**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRC14	1/2	25	85	\$ .95
GRC24	3/4	25	90	1.00



**Type GRCA**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRCA14	1/2	25	90	\$1.00
GRCA24	3/4	25	90	1.05



**Type GRL**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRL14	1/2	25	85	\$ .95
GRL24	3/4	25	90	1.00



**Type GRT**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRT14	1/2	25	90	\$1.00
GRT24	3/4	25	90	1.05



**Type GRX**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRX14	1/2	25	95	\$1.05
GRX24	3/4	25	95	1.10



**Type GRB**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRB14	1/2	25	85	\$ .95
GRB24	3/4	25	90	1.00



**Type GRLA**

Cast Iron Body, Cast Brass Cover  
Galvanized or black enamel finish.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GRLA14	1/2	25	90	\$1.00
GRLA24	3/4	25	90	1.05



The 1/2 and 3/4-inch Condulets will not take connection blocks CB132 and CB133. The 1-inch size, of all types except GRCA, will take these blocks.

Any assortment of 25 Screw Cover Junction Condulets will be considered a standard package.

## Condulets with Wedgnut Cover

These Condulets are of liberal dimensions, providing ample space for taps, and for the passage of additional circuits.

The cover is provided with a wedge nut fastener which securely holds the cover or wiring device in place and it cannot become loosened by vibration. Gasket is furnished between the cover and body.

The overall dimensions of these bodies exclusive of hubs are: Diameter, Form 4, 2 1/4 inches; Form 7, 3 1/2 inches. Depth, Form 4, 1 3/8 inches; Form 7, 2 1/4 inches. The cover increases the depth, 1/2 inch.



**Type GRC**  
Cast Iron

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRC146	1/2	2 1/2	4	25	85	\$.75
GRC246	3/4	2 1/2	4	25	90	.80
GRC376	1	3 1/2	7	10	35	1.10

**Type GRCA**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRCA146	1/2	2 1/2	4	25	90	\$.80
GRCA246	3/4	2 1/2	4	25	90	.85
GRCA376	1	3 1/2	7	10	50	1.15



**Type GRL**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRL146	1/2	2 1/2	4	25	85	\$.75
GRL246	3/4	2 1/2	4	25	90	.80
GRL376	1	3 1/2	7	10	35	1.10

**Type GRT**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRT146	1/2	2 1/2	4	25	90	\$.80
GRT246	3/4	2 1/2	4	25	90	.85
GRT376	1	3 1/2	7	10	40	1.15



**Type GRX**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRX146	1/2	2 1/2	4	25	95	\$.85
GRX246	3/4	2 1/2	4	25	95	.90
GRX376	1	3 1/2	7	10	45	1.20

**Form GRB**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRB146	1/2	2 1/2	4	25	85	\$.75
GRB246	3/4	2 1/2	4	25	90	.80
GRB376	1	3 1/2	7	10	35	1.10



**Type GRLA**

Cat. No.	Size In.	Diam. In.	Form	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
GRLA146	1/2	2 1/2	4	25	90	\$.80
GRLA246	3/4	2 1/2	4	25	90	.85
GRLA376	1	3 1/2	7	10	40	1.15

Standard finish is black enamel.

Form 4 Condulets listed on this page will not take connection blocks CB114, CB132, CB133 or CB1124. The Form 7 Condulets, of all types except Types GRCA and GRU will take connection blocks.

SPECIAL ASSORTMENT.—Any assortment of 25 black enameled and galvanized condulets listed on this page will be considered a standard package.

## Type GRN Screw Cover Junction Box Condulets

Form 8 and Form 9

Take Connection Blocks

With Cast Brass Screw Cover

Type GRN is for use where durable, watertight junction boxes are required for locomotives, railroad yards and shops. It is provided with a screw cover and the body is provided with 4 bosses, any of which can be tapped for 1/2, 3/4, 1 or 1 1/4-inch conduit. The cover is provided with 2 bosses which permit the use of a wrench, screwdriver, or bar for turning the cover.

Type GRN is not arranged so that it can be tapped for rear hub.

DIMENSIONS—The depth of body is 2 5/16 inches outside and 2 1/8 inches inside. Depth of body and cover, 3 3/16 inches. Depth of body over mounting bosses for connection blocks, 1 3/4 inches. Total inside approximate depth over mounting bosses, 2 inches. Outside diameter: Form 8, 4 inches; Form 9, 4 5/8 inches. Inside diameter: Form 8, 3 5/8 inches; Form 9, 4 inches.

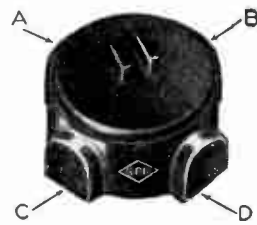
Positions of drilling and tapping should be specified according to letters, A, B, C, D, shown on cuts.

To order size by number: 1 is 1/2 inch, 2 is 3/4 inch, 3 is 1 inch, 4 is 1 1/4 inches. For example, GRN82-1234 (GRN8) is the catalogue number of the blank casting with screw.



The prices per hole for drilling and tapping are as follows: 1/2 or 3/4 inch, 15 cents; 1 or 1 1/4 inches, 20 cents.

If desired, a gasket can be furnished between the cover and body.



Form 8 and Form 9 take any connection block listed on page 48 of bulletin 2096 or page 141 of conduit catalogue No. 2000.

Form 9, also takes 2 porcelain RSA standard terminal blocks with No. 10561 base.

Body is cast iron, galvanized or black enamel finish.

Cover is cast brass, marine finish.

Style	Cat. No.	Outside Diameter Inches	Inside Diameter Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
Form 8	GRN8	4	3 5/8	10	80	\$2.60
Form 9	GRN9	4 5/8	4	10	100	3.00

## Type GRN Wedge Nut Cover Junction Box Condulets

Form 8 and Form 9

Take Connection Blocks

With Wedge Nut Cover

This condulet is similar to type GRN listed above except the cover is provided with a Wedge-nut fastener that securely holds it in place and it cannot become loosened by vibration. The dimensions are the same as above except the depth of body and cover is 2 1/8 inches, and total inside approximate depth over mounting bosses is 1 3/4 inches. The same connection blocks can be used.

Positions of drilling and tapping should be specified in same way as described above. A gasket is furnished for use between the cover and body.

Made of cast iron, galvanized or black enamel finish.



Style	Cat. No.	Outside Diameter Inches	Inside Diameter Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
Form 8	GRN86	4	3 5/8	10	80	\$1.60
Form 9	GRN96	4 5/8	4	10	100	2.00

**Type BRM Plug Receptacle Condulets**

\*30-Ampere, 250-Volt, A. C.

Galvanized finish.

These plug receptacle Condulets furnish a compact, convenient, and rigid receptacle device.

They are especially suitable for semi-permanent or temporary installation either for light or power, as in such installations it is desirable to include a device that will permit the conduit and wiring system to be easily broken and at the same time not sacrifice any of the protective features of rigid or flexible conduit.

These Condulets take plugs for rigid or flexible conduit or armored or other cable.

The threaded Condulets when used with a watertight plug or the brass cap, are vaporproof. These Condulets make excellent devices for installation on locomotives, as they provide means whereby the conduit system can be easily removed or replaced in sections, as is necessary when a locomotive is to receive a thorough overhauling.

The plugs and receptacles are polarized. The receptacle housing is provided with a clip which makes contact with the shell of the plug, effectually grounding the plug through the conduit system.

The plug and receptacle contacts are self-aligning, and the receptacle contacts are completely enclosed in a body of molded insulating material. The prongs of the plug are protected by a steel sleeve.

Made in two parts instead of one which facilitates making the wire connections to the receptacle.

2-pole condulets are furnished with 30-ampere, 250-volt receptacle BR2302; 3-pole condulets are furnished with 30-ampere, 250-volt receptacle BR2303.

**Plain**

Cat. No.	Size Inches	2-Pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRM1302	1/2	25	60	70	\$2.50
BRM2302	3/4	25	65		2.60
BRM3302	1	25	70		2.70
BRM2303	3/4	3-Pole		75	\$3.20
		Std. Pkg.	Std. Pkg.		
BRM3303	1	25	75		3.30

**Threaded**

Cat. No.	Size Inches	2-Pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRM71302	1/2	25	60	70	\$2.70
BRM72302	3/4	25	65		2.80
BRM73302	1	25	70		2.90
BRM72303	3/4	3-Pole		75	\$3.45
		Std. Pkg.	Std. Pkg.		
BRM73303	1	25	75		3.55

**Threaded with Brass Cap**

Cat. No.	Size Inches	2-Pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRM81302	1/2	25	75	85	\$3.65
BRM82302	3/4	25	80		3.75
BRM83302	1	25	85		3.85
BRM82303	3/4	3-Pole		95	\$4.80
		Std. Pkg.	Std. Pkg.		
BRM83303	1	25	95		4.90

**With Spring Door**

Cat. No.	Size Inches	2-Pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRM61302	1/2	25	80	90	\$3.75
BRM62302	3/4	25	85		3.85
BRM63302	1	25	90		3.95
BRM62303	3/4	3-Pole		100	\$4.45
		Std. Pkg.	Std. Pkg.		
BRM63303	1	25	100		4.55

\*Can be used on 25-ampere, 125-volt D. C. circuits.

Any assortment of 25 Types BRM Condulets will be considered a standard package.

**Type BRME Plug Receptacle Condulets**

30-Degree Angle

\*30-Ampere, 250 Volt A.C.

Galvanized finish.

Type BRME plug receptacle condulets are for mounting on the wall or on the frames of portable machines, by means of two heavy lugs. The condulet is mounted at such an angle with the surface to which it is attached, that there is no danger of the operator injuring his knuckles when inserting or removing the plug.

They are especially suitable for semi-permanent or temporary installation either for light or power, as in such installations it is desirable to include a device that will permit the conduit and wiring system to be easily broken and at the same time not sacrifice any of the protective features of rigid or flexible conduit.

These condulets take plugs for rigid or flexible conduit, or armored or other cable.

The plugs and receptacles are polarized. Plug and receptacle contacts are self-aligning.

2-pole condulets are furnished with 30-ampere, 250-volt receptacle BR2302; 3-pole condulets are furnished with 30-ampere, 250-volt receptacle BR2303.

**Plain**

Cat. No.	Size Inches	2-pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRME1302	1/2	25	60	75	\$2.50
BRME2302	3/4	25	65		2.60
BRME2303	3/4	3-pole		75	\$3.20
		Std. Pkg.	Std. Pkg.		
BRME3303	1	25	75		3.30

**Threaded**

Cat. No.	Size Inches	2 pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRME71302	1/2	25	60	75	\$2.70
BRME72302	3/4	25	65		2.80
BRME72303	3/4	3-pole		75	\$3.45
		Std. Pkg.	Std. Pkg.		
BRME73303	1	25	75		3.55

**Threaded with Brass Cap**

Cat. No.	Size Inches	2-pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRME81302	1/2	25	75	85	\$3.65
BRME82302	3/4	25	80		3.75
BRME82303	3/4	3-pole		95	\$4.80
		Std. Pkg.	Std. Pkg.		
BRME83303	1	25	95		4.90

**With Spring Door**

Cat. No.	Size Inches	2-pole		Wt., Lbs. Std. Pkg.	Price Each
		Std. Pkg.	Std. Pkg.		
BRME61302	1/2	25	80	90	\$3.75
BRME62302	3/4	25	85		3.85
BRME62303	3/4	3-pole		100	\$4.45
		Std. Pkg.	Std. Pkg.		
BRME63303	1	25	100		4.55

\*Can be used on 25-ampere, 125-volt D.C. circuits.



## Type BP Plugs

With Clamp for Flexible Conductor, Flexible Conduit or Armored Conductor

For Use with Types BRD, BRG, BRM, BRME and GE Plug Receptacle Housings

The 30-ampere plugs are arranged for soldered terminals. The 20-ampere plugs are equipped with binding screw terminals. Plugs so equipped with binding screw will not take wires larger than No. 12; consequently these plugs are rated at 20 amperes.

Provision is made on these plugs for a grounding wire in the cable to connect the frame of the portable device to the shell of the plug. The grounding or safety circuit is completed through the shell of the plug, the detent spring, the receptacle housing and the conduit system.

Galvanized is the standard finish. This is necessary in order to insure a perfect ground between all metal parts in the grounded or safety circuit.

### For Flexible Cable



Without Clamping Nut  
Non-Watertight

With composition handles.

Cat. No.	No. of Poles	Amperes	Volts	Diameter Opening in Cable Clamp Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP22	2	*20	250 A.C.	(a) 1/2 to 27/32	25	30	\$3.60
BP32	2	†30	250 A.C.	(a) 1/2 to 27/32	25	30	3.60

### For Flexible Conductor, Flexible Conduit or Armored Conductor



Without Clamping Nut  
With cast iron handles.



With Clamping Nut

#### Without Clamping Nut—Non-Watertight

Cat. No.	No. of Poles	Amperes	Volts	Diameter Opening in Cable Clamp Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP522	2	*20	250 A.C.	(b) 1/2 to 7/8	25	40	\$2.85
BP523	3	*20	250 A.C.	(c) 5/8 to 1 1/8	25	50	3.75
BP532	2	†30	250 A.C.	(b) 1/2 to 7/8	25	40	2.85
BP533	3	†30	250 A.C.	(c) 5/8 to 1 1/8	25	50	3.75

#### With Clamping Nut—Non-Watertight

BP722	2	*20	250 A.C.	(b) 1/2 to 7/8	25	50	\$3.35
BP723	3	*20	250 A.C.	(c) 5/8 to 1 1/8	25	60	4.50
BP732	2	†30	250 A.C.	(b) 1/2 to 7/8	25	50	3.35
BP733	3	†30	250 A.C.	(c) 5/8 to 1 1/8	25	60	4.50

### With Hub for Rigid Conduit

Cast iron handles, galvanized finish.



Without Clamping Nut



With Clamping Nut

#### Without Clamping Nut—Non-Watertight

Cat. No.	No. of Poles	Amperes	Volts	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP5122	2	*20	250 A.C.	1/2	25	40	\$2.75
BP5222	2	*20	250 A.C.	3/4	25	45	2.85
BP5322	2	*20	250 A.C.	1	25	50	2.95
BP5123	3	*20	250 A.C.	1/2	25	45	4.00
BP5223	3	*20	250 A.C.	3/4	25	50	4.10
BP5323	3	*20	250 A.C.	1	25	55	4.20
BP5132	2	†30	250 A.C.	1/2	25	40	2.75
BP5232	2	†30	250 A.C.	3/4	25	45	2.85
BP5332	2	†30	250 A.C.	1	25	50	2.95
BP5133	3	†30	250 A.C.	1/2	25	45	4.00
BP5233	3	†30	250 A.C.	3/4	25	50	4.10
BP5333	3	†30	250 A.C.	1	25	55	4.20

## Type BP Plugs

With Hub for Rigid Conduit

For Use with Types BRD, BRG, BRM, BRME and GE Plug Receptacle Housings

(Continued)

Cast iron handles galvanized finish.

### With Clamping Nut—Watertight

Cat. No.	No. of Poles	Amperes	Volts	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP7122	2	*20	250 A.C.	1/2	25	50	\$3.25
BP7222	2	*20	250 A.C.	3/4	25	55	3.35
BP7322	2	*20	250 A.C.	1	25	60	3.45
BP7123	3	*20	250 A.C.	1/2	25	55	4.75
BP7223	3	*20	250 A.C.	3/4	25	60	4.85
BP7323	3	*20	250 A.C.	1	25	65	4.95
BP7132	2	†30	250 A.C.	1/2	25	50	3.25
BP7232	2	†30	250 A.C.	3/4	25	55	3.35
BP7332	2	†30	250 A.C.	1	25	60	3.45
BP7133	3	†30	250 A.C.	1/2	25	55	4.75
BP7233	3	†30	250 A.C.	3/4	25	60	4.85
BP7333	3	†30	250 A.C.	1	25	65	4.95

### With Gland Nut and Tapered Rubber Bushing for Flexible Cable



Without Clamping Nut



With Clamping Nut

#### Without Clamping Nut—Non-Watertight

Cat. No.	No. of Poles	Amperes	Volts	Diameter Opening in Cable Clamp Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BP6522	2	*20	250 A.C.	1/2 to 3/4	25	45	\$3.60
BP6622	2	*20	250 A.C.	5/8 to 3/4	25	45	3.80
BP6722	2	*20	250 A.C.	3/4 to 7/8	25	50	4.00
BP6523	3	*20	250 A.C.	1/2 to 3/4	25	50	4.35
BP6623	3	*20	250 A.C.	5/8 to 3/4	25	55	4.55
BP6723	3	*20	250 A.C.	3/4 to 7/8	25	60	4.75
BP6823	3	*20	250 A.C.	7/8 to 1	25	65	4.95
BP6532	2	†30	250 A.C.	1/2 to 5/8	25	45	3.60
BP6632	2	†30	250 A.C.	5/8 to 3/4	25	45	3.80
BP6732	2	†30	250 A.C.	3/4 to 7/8	25	50	4.00
BP6533	3	†30	250 A.C.	1/2 to 5/8	25	50	4.35
BP6633	3	†30	250 A.C.	5/8 to 3/4	25	55	4.55
BP6733	3	†30	250 A.C.	3/4 to 7/8	25	60	4.75
BP6833	3	†30	250 A.C.	7/8 to 1	25	65	4.95

#### With Clamping Nut—Watertight

Also For Use with Types BRM and BR Receptacles for Extension Cable

BP8522	2	*20	250 A.C.	1/2 to 5/8	25	55	\$4.10
BP8622	2	*20	250 A.C.	5/8 to 3/4	25	55	4.30
BP8722	2	*20	250 A.C.	3/4 to 5/8	25	60	4.50
BP8523	3	*20	250 A.C.	1/2 to 5/8	25	60	5.10
BP8623	3	*20	250 A.C.	5/8 to 3/4	25	65	5.30
BP8723	3	*20	250 A.C.	3/4 to 7/8	25	70	5.50
BP8823	3	*20	250 A.C.	7/8 to 1	25	75	5.70
BP8532	2	†30	250 A.C.	1/2 to 5/8	25	55	4.10
BP8632	2	†30	250 A.C.	5/8 to 3/4	25	55	4.30
BP8732	2	†30	250 A.C.	3/4 to 7/8	25	60	4.50
BP8533	3	†30	250 A.C.	1/2 to 5/8	25	60	5.10
BP8633	3	†30	250 A.C.	5/8 to 3/4	25	65	5.30
BP8733	3	†30	250 A.C.	3/4 to 7/8	25	70	5.50
BP8833	3	†30	250 A.C.	7/8 to 1	25	75	5.70

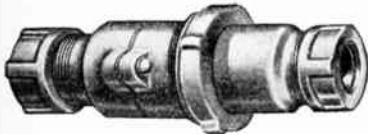
\*Can be used on 20-ampere, 125-volt d.c. circuits; or on 20-ampere, 250-volt d.c. circuits if circuit is broken before plug is withdrawn. †Can be used on 25-ampere, 125-volt d.c. circuits; or on 30-ampere, 250-volt d.c. circuits if circuit is broken before plug is withdrawn.

(a) Clamp opening 1/2 to 27/32 inch takes most 2-wire and 3-wire rubber sheathed, fabric sheathed and deck cables Nos. 14 to 8. (b) Clamp opening 1/2 to 7/8-inch takes 3/4 and 1/2-inch flexible conduit, Nos. 14 to 8, 2 or 3-conductor armored cable, and most 2 and 3-wire rubber sheathed, fabric sheathed and deck cables Nos. 14 to 8. (c) Clamp opening 5/8 to 1 1/8 inches takes 1/2 and 3/4-inch flexible conduit, Nos. 10 to 6, 3-conductor armored cable and most 3 and 4-wire rubber, sheathed, fabric sheathed and deck cables Nos. 12 to 6.

**Type BRM Receptacles for Extension Cable Connectors**

**2-Pole Connectors Furnished with 30-Ampere, 250-Volt Receptacle BR2302**

**3-Pole Connectors Furnished with 30-Ampere, 250-Volt Receptacle BR2303**



With Plug

Receptacle at the other end, can be used with portable apparatus having a plug mounted directly on the machine as well as for an extension cable. Provision is made for a safety circuit wire in the cable, which can be connected to the metal housing of the receptacle at one end and to the safety circuit terminal in the plug at the other end.

Threaded watertight when used with plugs with clamping nut. Galvanized finish.



Cat. No.	No. of Poles	Diameter Cable Inches	Standard Package	Wt., Lbs. Std. Pkg.	Price Each
BRM70532	2	1/2 to 5/8	25	45	\$3.55
BRM70632	2	5/8 to 3/4	25	50	3.75
BRM70732	2	3/4 to 7/8	25	50	3.95
BRM70533	3	1/2 to 5/8	25	55	4.00
BRM70633	3	5/8 to 3/4	25	60	4.20
BRM70733	3	3/4 to 7/8	25	60	4.40
BRM70833	3	7/8 to 1	25	65	4.60

**Type BR Double Receptacles for Extension Cable Connectors**

**2-Pole Connectors Furnished with Two 30-Ampere, 250-Volt Receptacles**

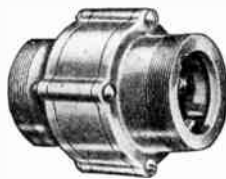
**3-Pole Connectors Furnished with Two 30-Ampere, 250-Volt Receptacles**



Type BR receptacles for cable connectors are for use with Type BP 20 and 30-ampere, 250-volt plugs when connecting cables are made up with a plug at each end and receptacles are mounted both at the source of supply and on the portable machine. The receptacle sleeve or contact is continuous from one

side of the connector to the other so that no wiring is required. When connecting cables are made up with 3-pole plugs at each end, the phase rotation at one end should be A-B-C, while that at the other end should be A-C-B. Otherwise, 3-phase motors will be reversed when an additional cable is connected in.

Threaded watertight when used with plugs with clamping nut. Galvanized finish.



Cat. No.	No. of Poles	Standard Package	Weight Pounds Standard Package	Price Each
BR2	2	10	12	\$5.00
BR3	3	10	50	8.50

**Type LG Gauge Lamp Condulets Cast Aluminum—Aluminum Finish**

Take Incandescent Lamps with S14 or S17 Bulb, Flexible Conduit, and Armored or other Round Cable

Furnished with Gland Nut, Lead Sleeve or Rubber Bushing and Lamp Receptacle with Lamp Grip

Type LG Gauge Lamp Condulets are for housing the lamps illuminating steam and air gauges (single and multiple), water glass and lubricators.

They are of simple construction with hinged doors held in place by a spring catch, giving access to the interior. The bottom is tapped for 5/8-inch bolt for attaching to a bracket on the boiler head or in the cab. The top is provided with a gland nut and lead sleeve for flexible conduit or armored cable or rubber bushing for round cord or cable; or an adaptor for rigid or flexible conduit, armored or other round cable. The lamp receptacle furnished is of composition and is equipped with a lamp grip.

**Single Steam and Air Gauge Lamp—Round Opening**

Cat. No.	Diameter Cable, Inches	Std. Wt., Lbs. Pkg.	Lbs. Std. Pkg.	Price Each
*LG12	1/4 to 1/2, Round	10	25	\$3.50
*LG13	1/2 to 3/4, Round	10	25	3.50
†LG129	1 1/2 to 2 1/4, Flexible	10	25	3.50
†LG132	2 1/4 to 1/2, Flexible	10	25	3.50
†LG135	1 1/2 to 3 5/8, Flexible	10	25	3.50
LG11	1/2 Rigid Conduit	10	25	3.50
*LG15	1/2 to 5/8, Round	10	25	4.15
†LG138	3 5/8 to 1 1/2, Flexible	10	25	4.15
†LG140	3 7/8 to 5/8, Flexible	10	25	4.15
†LG143	5/8 to 4 3/4, Flexible	10	25	4.15
†LG146	4 3/4 to 2 3/2, Flexible	10	25	4.15



**Water Glass Lamp—Vertical Slot**

Cat. No.	Diameter Cable, Inches	Std. Wt., Lbs. Pkg.	Lbs. Std. Pkg.	Price Each
*LG22	1/4 to 1/2, Round	10	25	\$3.50
*LG23	1 1/2 to 1/6, Round	10	25	3.50
†LG229	1 1/2 to 2 1/4, Flexible	10	25	3.50
†LG232	2 1/4 to 1/2, Flexible	10	25	3.50
†LG235	1 1/2 to 3 5/8, Flexible	10	25	3.50
LG21	1/2 Rigid Conduit	10	25	3.50
*LG25	1/2 to 5/8, Round	10	25	4.15
†LG238	3 5/8 to 1 1/2, Flexible	10	25	4.15
†LG240	3 7/8 to 5/8, Flexible	10	25	4.15
†LG243	5/8 to 4 3/4, Flexible	10	25	4.15
†LG246	4 3/4 to 2 3/2, Flexible	10	25	4.15



**Lubricator Lamp—13-Inch Slot**

Cat. No.	Diameter Cable, Inches	Std. Wt., Lbs. Pkg.	Lbs. Std. Pkg.	Price Each
*LG32	1/4 to 1/2, Round	10	25	\$5.00
*LG33	1 1/2 to 1/6, Round	10	35	5.00
†LG329	1 1/2 to 2 1/4, Flexible	10	35	5.00
†LG332	2 1/4 to 1/2, Flexible	10	35	5.00
†LG335	1 1/2 to 3 5/8, Flexible	10	35	5.00
LG31	1/2 Rigid Conduit	10	35	5.00
*LG35	1/2 to 5/8, Round	10	35	5.65
†LG338	3 5/8 to 1 1/2, Flexible	10	35	5.65
†LG340	3 7/8 to 5/8, Flexible	10	35	5.65
†LG343	5/8 to 4 3/4, Flexible	10	35	5.65
†LG346	4 3/4 to 2 3/2, Flexible	10	35	5.65



**Lubricator Lamp—3 1/2-Inch Slot**

Cat. No.	Diameter Cable, Inches	Std. Wt., Lbs. Pkg.	Lbs. Std. Pkg.	Price Each
*LG42	1/4 to 1/2, Round	10	25	\$4.20
*LG43	1 1/2 to 1/6, Round	10	30	4.20
†LG429	1 1/2 to 2 1/4, Flexible	10	30	4.20
†LG432	2 1/4 to 1/2, Flexible	10	30	4.20
†LG435	1 1/2 to 3 5/8, Flexible	10	30	4.20
LG41	1/2 Rigid Conduit	10	30	4.20
*LG45	1/2 to 5/8, Round	10	30	4.85
†LG438	3 5/8 to 1 1/2, Flexible	10	30	4.85
†LG440	3 7/8 to 5/8, Flexible	10	30	4.85
†LG443	5/8 to 4 3/4, Flexible	10	30	4.85
†LG446	4 3/4 to 2 3/2, Flexible	10	30	4.85



\*Round cord or cable.  
†Flexible conduit or armored cable.

## Type LG Gauge Lamp Condulets

Cast Aluminum—Aluminum Finish

Take Incandescent Lamps with S14 or S17 Bulb, Flexible Conduit, and Armored or Other Round Cable

Furnished with Gland Nut, Lead Sleeve, or Rubber Bushing and Lamp Receptacle with Lamp Grip

Continued

### Water Glass Lamp—Horizontal Slot

Cat. No.	Diameter Cable, Inches	Std. Pkg.	Wt., Lbs.		Price Each
			Std.	Pkg.	
*LG52	1/4 to 11/32, Round...	10	25		\$3.50
*LG53	11/32 to 7/16, Round...	10	30		3.50
††LG529	13/32 to 29/64, Flexible.	10	30		3.50
††LG532	29/64 to 1/2, Flexible.	10	30		3.50
††LG535	1/2 to 35/64, Flexible.	10	30		3.50
LG51	1/2 Rigid Conduit...	10	25		3.50
*LG55	1/2 to 5/8, Round...	10	25		4.15
†LG538	35/64 to 19/32, Flexible.	10	25		4.15
†LG540	37/64 to 5/8, Flexible.	10	25		4.15
†LG543	5/8 to 43/64, Flexible.	10	25		4.15
†LG546	43/64 to 23/32, Flexible.	10	25		4.15



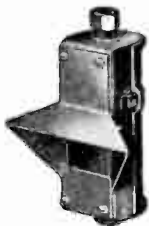
### Multiple Steam and Air Gauge Lamp—Rectangular Opening

Cat. No.	Diameter Cable, Inches	Std. Pkg.	Wt., Lbs.		Price Each
			Std.	Pkg.	
*LG62	1/4 to 11/32, Round...	10	25		\$4.25
*LG63	11/32 to 7/16, Round...	10	30		4.25
†LG629	13/32 to 29/64, Flexible.	10	30		4.25
†LG632	29/64 to 1/2, Flexible.	10	30		4.25
†LG635	1/2 to 35/64, Flexible.	10	30		4.25
LG61	1/2 Rigid Conduit...	10	30		4.25
*LG65	1/2 to 5/8, Round...	10	30		4.90
†LG638	35/64 to 19/32, Flexible.	10	30		4.90
†LG640	37/64 to 5/8, Flexible.	10	30		4.90
†LG643	5/8 to 43/64, Flexible.	10	30		4.90
†LG646	43/64 to 23/32, Flexible.	10	30		4.90



### Multiple Steam and Air Gauge Lamp—Rectangular Opening—Hooded

Cat. No.	Diameter Cable, Inches	Std. Pkg.	Wt., Lbs.		Price Each
			Std.	Pkg.	
*LG72	1/4 to 11/32, Round...	10	25		\$4.25
*LG73	11/32 to 7/16, Round...	10	30		4.25
†LG729	13/32 to 29/64, Flexible.	10	30		4.25
†LG732	29/64 to 1/2, Flexible.	10	30		4.25
†LG735	1/2 to 35/64, Flexible.	10	30		4.25
LG71	1/2 Rigid Conduit...	10	30		4.25
*LG75	1/2 to 5/8, Round...	10	30		4.90
†LG738	35/64 to 19/32, Flexible.	10	30		4.90
†LG740	37/64 to 5/8, Flexible.	10	30		4.90
†LG743	5/8 to 43/64, Flexible.	10	30		4.90
†LG746	43/64 to 23/32, Flexible.	10	30		4.90



\*Round cord or cable.

†Flexible conduit or armored cable.

††Flexible conduit or armored cable.

If specified on the order, Type LG Gauge Lamp Condulets can be furnished with rubber bushing No. 5, or lead sleeve Nos. 38, 40, 43 or 46, at the same prices as the standard gauge lamps.

Rubber bushing No. 5 takes flexible cord 7/16 to 5/8 inch in outside diameter. Lead sleeve No. 38 takes 35/64 to 19/32 inch; No. 40, 37/64 to 5/8-inch; No. 43, 5/8 to 43/64-inch; No. 46, 43/64 to 23/32-inch armored cord or flexible conduit, outside diameter.

Any assortment of 20 Type LG Gauge Lamp Condulets will be considered a standard package.

## Tender Lamp Condulets

Take any Medium Screw Base Lamp in S17, S21, G18 1/2, or P19 Bulb

These tender lamps are used as back up lamps on the rear of locomotive tenders. They are weatherproof and the front and side roundels are gasketed.

They are made in 3 styles: with rectangular opening in bottom; with 2 round openings in sides; and with front opening only. The style with 2 round openings in the sides provides ground illumination so that the engineer can see that the lamp is burning. The style with rectangular opening in the bottom not only provides ground illumination, but also throws a light directly downward for coupling.

These tender lamps are furnished with a clear Spreadlite lens, but can be furnished with red lens. The lamp receptacle furnished is provided with a lamp grip.

They are provided with a removable sliding door which is held in position by a cap screw.

### Type LDJ

With Rectangular Opening in Bottom Plain Glass



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LDJ17	1/2	10	170	\$8.40
LDJ27	3/4	10	175	8.50

With 2 Round Openings in Sides Semaphore Lens

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LDJ15	1/2	10	175	\$9.60
LDJ25	3/4	10	180	9.70



With Front Opening Only



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LDJ12	1/2	10	155	\$7.40
LDJ22	3/4	10	160	7.50

### Type LD

With Rectangular Opening in Bottom Plain Glass

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LD17	1/2	10	160	\$8.30
LD27	3/4	10	165	8.40



With 2 Round Openings in Sides Semaphore Lens



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LD15	1/2	10	170	\$9.50
LD25	3/4	10	175	9.60

With Front Opening Only

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LD12	1/2	10	150	\$7.30
LD22	3/4	10	155	7.40



Standard finish is galvanized or black enamel. The above tender lamps can be furnished in aluminum at an advance of \$3.50 in the price.

Any assortment of 20 tender lamps listed in this column will be considered a standard package.

**Tender Lamp Condulets**

Cast Iron

With 8-Inch Semaphore Lens

Take 30-34, 110, 115, or 120-volt, 100-watt, Medium Screw Base Lamp In G25 Bulb

Furnished with lamp receptacle with lamp grip, and a gasketed weatherproof cover hinged at the top and fastened with a heavy wing nut catch at the bottom.



**Type LDBJ for Through Feed Horizontal Conduit**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LDBJ1	1/2	5	150	\$12.50
LDBJ2	3/4	5	155	12.60



**Type LDBF for Vertical Conduit at Bottom**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LDBF1	1/2	5	150	\$12.40
LDBF2	3/4	5	155	12.50

**Type LEA 2-Color Tender Lamp Condulets**

The door is hinged at the top and held closed by a snap catch. Is so arranged that it must be opened in order to operate the key receptacle or color screen. Made in one style only, with rectangular opening in bottom. Furnished with clear Spreadlite lens, lamp receptacle C131 with lamp grip, and gaskets.

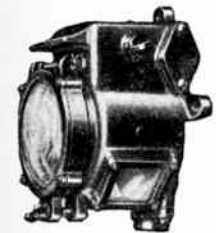


Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LEA18	1/2	10	165	\$10.00
LEA28	3/4	10	170	10.00

**2-Color Tender Condulet Lamps**

Provided with a 5-inch clear Spreadlite semaphore lens, key receptacle with externally operated key, and 2 rectangular plain glass openings in the bottom. They take any medium screw base lamp in S17 bulb. They are weatherproof, as the door, lens, and openings in the bottom are gasketed. A lever on the outside of the case operates a color screen throwing it between the lamp and the lens when a red light is desired.

Conduit hub plates can be arranged as desired.

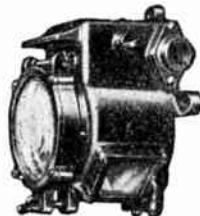


**Type LEBF for Vertical Conduit at Bottom Cast Iron**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LEBF18	1/2	5	100	\$14.20
LEBF28	3/4	5	105	14.25

**Type LEBJ for Through Feed Horizontal Conduit Cast Iron**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LEBJ18	1/2	5	105	\$14.25
LEBJ28	3/4	5	110	14.35



Standard finish is black enamel.

**Locomotive Filler Hole and Stack Lamps**

For 1/2-inch Rigid Conduit

Types LGUA and LGUB lamps are of substantial weather-proof construction. Each type consists of a cylindrical housing enclosing the receptacle for an incandescent lamp in S17 bulb, and is tapped for rigid conduit.

The lamps are provided with a 3-inch clear semaphore lens, which directs the light as desired.

Type LGUA is especially intended for oil burning locomotives to furnish light for taking on oil and water. It is provided with lugs for fastening bolts.

Type LGUB is similar to Type LGUA lamp except the hub comes out at an angle of about 30 degrees to the axis. No lugs are provided for fastening, the lamp is supported by the conduit. This is practical as the lamp is made of cast aluminum. The light from the lamp enables the engineer or fireman to see the color of the smoke issuing from the stack at night.

**Type LGUA Filler Hole Lamps**

Cast Iron

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LGUA1	1/2	10	50	\$4.25



**Type LGUB Stack Lamps**

Cast Aluminum

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LGUB1	1/2	10	35	\$5.50

Standard finish is black enamel for cast iron, and aluminum for cast aluminum.

Any assortment of 10 filler hole and stack lamps will be considered a standard package.

**Engineer's Reading Light Condulets**

Take Any 25-watt Lamp In S17 Bulb

These Condulets are provided with a shade and guard, in which the lamp bulb and receptacle are fully protected. The shade is cast as part of the Condulet, while the guard is hinged to the Condulet. The composition receptacle furnished, C131, is of the key type and is provided with a lamp grip and metal key.

These Condulets are especially recommended as engineer's reading lamps, and are also suitable for use in railroad shops, roundhouses, and railroad yards. The body and shade are cast iron, and the guard is cast aluminum.

**Type LMKB**

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LMKB225	3/4	10	35	\$3.40



**Type LMKK**

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LMKA225	3/4	10	35	\$3.40

Type LMKB

Type LMKK

**Type LMKJ**

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
LMKJ225	3/4	10	40	\$3.50



**Type LMKL**

Cat. No.	Size In.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
Type LMKJ LMKL225	3/4	10	40	\$3.50

Type LMKJ

Type LMKL

Standard finish is galvanized or black enamel.

Any assortment of 10 Engineer's Reading Light Condulets will be considered a standard package.

## No. C131 Lamp Receptacles

Furnished with Lamp Grip and Metal Key

For LMKB, LMKA, and LMKJ Condulets



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
C131	25	12	\$ .70

## Locomotive Deck Light Condulets

This Condulet is for locomotive gangways, providing illumination for coal passers. It consists of a Condulet for illuminating, and half shade cast in one piece, and a weather-proof composition lamp receptacle with lamp grip. The half shade is the correct length and size so that when used with a 25-watt lamp in an S17 bulb, the filament is not visible from any point over the rear end of the tender. The diameter of the half shade prevents the use of large headlight bulb in these receptacles.

### Type LMD

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LMD125	1/2	10	25	\$1.80
LMD225	3/4	10	25	1.90



### Type LMA

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LMA125	1/2	10	20	\$1.80
LMA225	3/4	10	20	1.90

### Type LMG

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LMG125	1/2	10	20	\$1.80
LMG225	3/4	10	20	1.90



### Type LMH

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LMH125	1/2	10	20	\$1.80
LMH225	3/4	10	20	1.90

Standard finish is galvanized or black enamel.

Any assortment of 20 Locomotive Deck Light Condulets will be considered a standard package.

## Type CL Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CL1	1/2	50	185	\$1.60
CL2	3/4	25	100	1.70
CL3	1	25	110	1.80
CL4	1 1/4	25	140	2.15

## Type CLA Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CLA1	1/2	50	185	\$1.60
CLA2	3/4	25	100	1.70
CLA3	1	25	110	1.80



## Type CLL Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

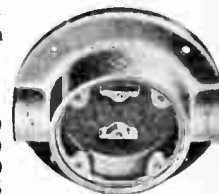


Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CLL1	1/2	50	190	\$1.70
CLL2	3/4	25	105	1.80
CLL3	1	25	115	1.90

## Type CLC Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CLC1	1/2	50	190	\$1.70
CLC2	3/4	25	105	1.80
CLC3	1	25	115	1.90
CLC4	1 1/4	25	145	2.25



## Type CLT Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CLT1	1/2	50	200	\$1.75
CLT2	3/4	25	110	1.85
CLT3	1	25	120	1.95
CLT42	*1 1/4-3/4	25	150	2.30

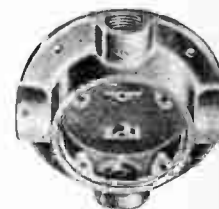
\*1 1/4-inch mains, 1/2 and 3/4-inch branches.

## Type CLX Condulet Bodies

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CLX1	1/2	50	210	\$1.85
CLX2	3/4	25	115	1.95
CLX3	1	25	125	2.05
CLX41	*1 1/4-1/2	25	155	2.30
CLX42	*1 1/4-3/4	25	160	2.35

\*1 1/4-inch mains, 1/2 and 3/4-inch branches.



**Type LOB Fixtures**

For Mounting on Condulets of CL and LO Series



No. LOB101

**For Storage Section Lighting**

Takes 50-watt, 32, 64 or 110-volt A21 or PS20 Train Lighting Lamps.

Price, No. LOB101, Complete with Holder, Lamp Receptacle GS1621 and RLM 12-Inch Reflector (SH50)..... each .....

Price, No. LOB104, Holder Only with Lamp Receptacle, Gasket and Screws..... each .....

**Reflectors**

Price, No. SH50 Reflector for No. LOB 101 Fixture..... each .....

**For Door and Lavatory Lights**

Consists of holder, lamp receptacle GS1621 and reflector.



No. SH50

Take train lighting lamps.

Price, No. LOB102, For 25-Watt, 32, 64 or 110-Volt, S-17, A19 or PS16 Lamps..... each .....

Price, No. LOB103, For 50-Watt, 32, 64 or 110-Volt, A21 or PS20 Lamps..... each .....



**Fixture Bases**

For Mounting on Condulets of CL and LO Series

**With Straight Hub**

Cat. No.....	LOB88	LOB812
Size.....inches	1	1½
Price.....each		



**With Hub at 6-Degree Angle**

Cat. No.....	LOB88-6	LOB812-6
Size.....inches	1	1½
Price.....each		



**With Hub at 12-Degree Angle**

Cat. No.....	LOB88-12	LOB812-12
Size.....inches	1	1½
Price.....each		



**With Hub at 18-Degree Angle**

Cat. No.....	LOB88-18	LOB812-18
Size.....inches	1	1½
Price.....each		



**Reflector Holders**

Furnished with receptacle and canopy.



Cat. No.....	DAH13	DAH15
Size.....inches	1	1½
Price.....each		



**Reflectors**

Opal glass, medium density for reflector holders.

Price, No. SH40..... each .....

**Type LP Condulet Bodies**

Galvanized or enamel. For ceiling outlets. Take covers, fixtures, attachments, housings, or wiring devices.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LP1	½	50	100	\$1.15
LP2	¾	25	55	1.25
LP3	1	25	60	1.35

**Type LPC Condulet Bodies**

Galvanized or enamel. For ceiling outlets. Take covers, fixtures, attachments, housings, or wiring devices.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LPC1	½	50	110	\$1.25
LPC2	¾	25	60	1.35
LPC3	1	25	65	1.45



**Type LO Condulet Bodies**

Galvanized finish. For ceiling outlets. Take fixtures and connection block.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LO1	½	50	105	\$1.15
LO2	¾	25	60	1.25
LO3	1	25	65	1.35

**Type LOA Condulet Bodies**

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOA1	½	50	105	\$1.15
LOA2	¾	25	60	1.25
LOA3	1	25	65	1.35



**Type LOC Condulet Bodies**

Galvanized finish. For ceiling outlets. Take fixtures and connection block.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOC1	½	50	110	\$1.25
LOC2	¾	25	65	1.35
LOC3	1	25	70	1.45

**Type LOL Condulet Bodies**

Galvanized finish. For ceiling outlets. Take fixtures and connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOL1	½	50	110	\$1.25
LOL2	¾	25	65	1.35
LOL3	1	25	70	1.45



**Type LOT Condulet Bodies**

Galvanized finish. For ceiling outlets. Take fixtures and connection block.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOT1	½	50	120	\$1.35
LOT2	¾	25	70	1.45
LOT3	1	25	75	1.55



## Type BLMC Condulet Bodies



For deck sill outlets. Galvanized or enamel. Take covers, fixtures, attachments, plug receptacle housings, or wiring device.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BLMC1	1/2	50	150	\$1.45
BLMC2	3/4	25	90	1.60
BLMC3	1	25	100	1.75

## Holders

Bronze, 2 1/4-inch. Take reflectors or shades, furnished with receptacle No. PE57. For Condulets of the BLM, CL, LO, and LP series. Distance top of reflector above center contact of lamp, 3/4 inch.



Standard package, 25. Weight, standard package, 60 pounds.

Price, No. CRSE1 .....each \$6.00

## Holders



Iron, galvanized or enamel. Takes Conduletto receptacle No. C337 and reflector No. SH25. For Condulets of the BLM, CL, LO, LP, and SO series.

Standard package, 50.

Weight, standard package, 45 pounds.

Price, No. SRH2 .....each \$5.50

## Deep Type Holders

Iron, galvanized or enamel. Takes Conduletto receptacle No. C337 and reflector No. SH25. For Condulets of the BLM, CL, LO, LP, and SO series.

Standard package, 50.

Weight, standard package, 75 pounds.

Price, No. SRH4 .....each \$8.50



## Composition Connection Blocks



Furnished with screws. For Condulets of CL, LO, and LP series.

Standard package, 50.

Weight, standard package, 15 pounds.

Price, No. CF101 .....each \$5.50

## Reflectors and Bezels



Reflector



Bezel

Reflector for holders Nos. SRH2, SRH3 and SRH4.

Bezel for reflectors Nos. SH3, SH6 and SH25.

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
SH25	Reflector, Porcelain Enamel	25	30	\$1.50
BLC1	Bezel, Brass	25	15	1.00

## BO Series Condulets for Ceiling Outlets

These Condulets are suitable for baggage car installation. They are provided with a wide lug on each side of the body in which holes for mounting screws are drilled. This lug matches in width and thickness the strip of molding used to cover the joints between adjacent sheets of headlining.

Connection block No. CF101 can be used in these Condulets with either covers or fixtures, eliminating soldered and taped joints.

### Type BO



Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BO1	1/2	50	105	\$1.50
BO2	3/4	25	60	1.60
BO3	1	25	70	1.70



### Type BOC

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
BOC1	1/2	50	125	\$1.65
BOC2	3/4	25	65	1.75
BOC3	1	25	75	1.85

## Covers

For Condulets of the BLM, BO, CL, LO, and LP Series

### Blank Cover



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOB00	100	155	\$5.50

### Sheet Steel

LOB000	100	40	\$3.00
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### Hub Cover

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
LOB83	3/8	100	160	\$.65
LOB84	1/2	100	160	.65



Standard finish is galvanized or black enamel.

Any assortment of 50 Condulets of the BO Series will be considered a standard package. Any assortment of 100 covers listed above will be considered a standard package.

## TJ Series Telephone Jack Condulets

These condulets are arranged with bracket to take Western Electric Telephone Jack No. 200. The support for the jack is mounted on the inside of a gasketed metal cover, from which it is properly insulated. When the plug is removed, a lid automatically closes the opening.

### Type TJ



Intended for use under the body of a railroad car.

Has a swivel base which allows the plug to pull out easily when the car is moved. An insulating bushing is provided, through which the wires pass to the interior of the car.

Furnished with insulating bushing and jack support attached to gasketed metal cover

Standard package, 25.

Price, No. TJ200 .....each \$4.50

### Type TJD

Intended for use on poles or buildings along the right-of-way of a railroad, transmission line or canal.

The line wires enter the condulet through a 2-wire porcelain cover.

Furnished with 2-wire porcelain cover and jack support attached to gasketed metal cover.

Standard package, 25.

Price, No. TJD200 .....each \$4.00



**JRY-KRY Series Condulet Bodies**

For Side Wall or Car Vestibule Fixtures

Take connection block CF101 and fixtures.

Wiring devices, page 421, Condulet catalogue No. 2000.

Any assortment of 75 black enameled and galvanized Condulet bodies of the JRY-KRY series will be considered a standard package.

**Type JRY Condulet Bodies**

For Side Wall or Car Vestibule Fixtures

Galvanized or black enamel finish. Take connection block No. CF101 and fixtures.

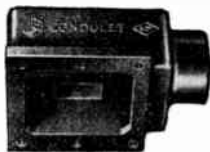


Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
JRY1	1/2	50	75	\$.70
JRY2	3/4	25	40	\$.80
JRY3	1	25	45	\$.90

**Type KRY Condulet Bodies**

For Side Wall or Car Vestibule Fixtures

Galvanized or black enamel finish. Take connection block No. CF101 and fixtures.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KRY1	1/2	50	70	\$.65
KRY2	3/4	25	35	\$.75
KRY3	1	25	40	\$.85

**Type KRYA Condulet Bodies**

For Side Wall or Car Vestibule Fixtures

Galvanized or black enamel finish. Take connection block No. CF101 and fixtures.



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
KRYA1	1/2	50	70	\$.65
KRYA2	3/4	25	35	\$.75
KRYA3	1	25	40	\$.85

**Type SRH Fixtures**

Consists of holder SRH3 reflector SH25, receptacle, C227, and BEZ1. Galvanized or black enamel finish. Furnished with screws.



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SRH357	50	140	\$3.50

**Type SRH Holder**

Galvanized or black enamel finish. Furnished with screws.



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SRH3	50	60	\$.75

**Type C Receptacle**

Furnished with screws.



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
C227	200	120	\$.25

**RF Series Car Vestibule Condulets**

All the requirements of a car vestibule lamp installation are fully met in the combination of a Condulet body of the RF series, reflector No. SH3, elliptical Conduletto receptacle No. RK527. A bezel should always be used to give a proper finish to the installation. When these Condulets are used, either the receptacle or the reflector can easily be removed.

The hubs are cast solid with the the body and have an integral bushing and tapered thread.

Any G1 1/2 or P19 bulb lamp can be used in reflector.

**Type RF**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RF153	1/2	50	140	\$2.50
RF253	3/4	25	75	2.60
RF353	1	10	40	2.90

**Type RFA**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RFA153	1/2	50	140	\$2.50
RFA253	3/4	25	75	2.60
RFA353	1	10	40	2.90



**Type RFC**



Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RFC153	1/2	50	150	\$2.60
RFC253	3/4	25	80	2.70
RFC353	1	10	45	3.00

**Type RFCA**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RFCA153	1/2	50	155	\$2.70
RFCA253	3/4	25	85	2.80
RFCA353	1	10	50	3.10



**No. SH3 Reflectors**

For Condulets of the RF Series



Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
SH3	50	65	\$1.50

**Brass Bezels**

For No. SH3 Reflectors

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
BEZ1	50	20	\$1.00



Standard finish is galvanized or black enamel.

**Type AF Mine Signal Switches**

A single-pole double make, quick break, mine signal pull switch. The normal position is open; operating switch closes the circuit.

Spring is packed in grease and supports weight indicated in column "Initial Pull" without starting to close switch. The weight indicated in column "Final Pull" is required to operate switch, but this includes weight of pull rope.

Standard package, 10. Black enamel finish.

Cat. No.	*Initial Pull Pounds	Final Pull Pounds	Total Weight of Pull Rope Including Moisture, Pounds	Additional Pull Required to Operate Switch Pounds	Price Each
AF- 7	7	10	7 to 0	3 to 10	\$10.00
AF-10	10	15	10 to 0	5 to 15	10.00
AF-15	15	25	15 to 0	10 to 25	10.00
AF-25	25	50	25 to 0	25 to 50	10.00
AF-50	50	75	50 to 0	25 to 75	10.00
AF-75	75	100	75 to 0	25 to 100	10.00
AF-100	100	150	100 to 0	50 to 150	10.00

## Type FSCA Cab Connection Condulets

For mounting in the roof of a locomotive cab.

Furnished with cast iron cover No. DS131, No. 12-24 fastening screws, lock washers and connection block No. CB9323, which has three 1/4-inch-20 binding screws on each

outside plate and two 1/4-inch-20 binding screws on center plate and is mounted on a pedestal.

Condulet has special drilling for using connection block.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FSCA2302S	3/4	10	40	\$2.50

## No. CB9323 Connection Blocks

For Type FSCA Condulets

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CB9323	25	15	\$1.00



## No. DS131 Cast Iron Covers

For Type FSCA Condulets

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
DS131	50	45	\$.25



## Toggle Switch Condulets

Condulets of the GJ Series take round base toggle switches. The switch is installed complete with its insulated cover, and is raised from the back of the Condulet to allow wires to enter the switch from the back.

Toggle switch is not included in prices below.



### Type GJ

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GJ1	1/2	25	60	\$1.10
GJ2	3/4	25	65	1.20

### Type GJC

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GJC1	1/2	25	65	\$1.20
GJC2	3/4	25	70	1.30



### Type GJL

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GJL1	1/2	25	65	\$1.20
GJL2	3/4	25	70	1.30

### Type GJT

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GJT1	1/2	25	70	\$1.40
GJT2	3/4	25	75	1.50



### Type GJX

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GJX1	1/2	25	75	\$1.50
GJX2	3/4	25	80	1.60
GJX3	1	10	45	1.70

Standard finish is galvanized or black enamel. Condulets of the GJ Series take Hubbell toggle switches Nos. 8171, 8181, 8191, 8201, 8241, and 8261.

## UG Series Condulets

Single receptacle battery charging Condulets, galvanized or black enamel finish.

Especially for storage battery charging outlets in railroad terminals and coach yards.

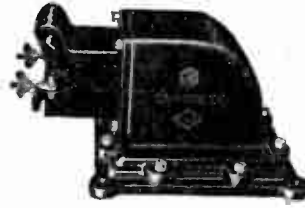
Furnished with 2-pole round receptacle, spring door, and gaskets. Round receptacle No. BRA100 is rated at 100 amperes, 125 volts, and takes plugs No. BPA100 or BPFA100.

### Type UGEL Condulets

Single receptacle battery charging Condulets. Galvanized or black enamel finish.

With round receptacle No. BRA100 and base plate.

Standard package, 5. Wt., std. pkg., 170 pounds. Price, No. UGEL1020 ea. \$27.25

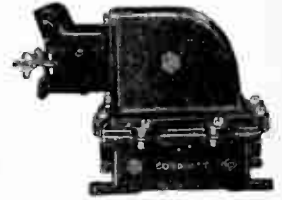


## Type UGEL Condulets

### Surface Style

Galvanized or enamel. For two conduits. With round receptacle No. BRA100.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UGEL422	1 1/4	5	230	\$31.50
UGEL522	1 1/2	5	240	31.90
UGEL622	2	5	250	32.30



## Type UGEL Condulets

### Underground Style

Single receptacle battery charging Condulets. Galvanized or black enamel finish. With round receptacle No. BRA100.

For two conduits.

Furnished with hub plate and hub cover for 2-inch conduit stem. Conduit stem not furnished.



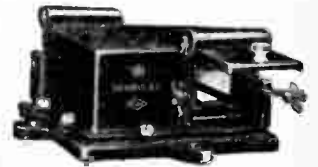
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UGEL4226	1 1/4	5	355	\$39.25
UGEL5226	1 1/2	5	365	39.65
UGEL6226	2	5	375	40.05

## Type UGEM Condulets

Double receptacle battery charging Condulets. Galvanized or enamel.

With round receptacle No. BRA100 and base plate.

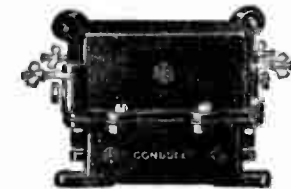
Standard package, 5. Wt., std. pkg., 205 pounds. Price, No. UGEM1020... each \$39.25



## Types UGCF and UGXF Condulets

Double receptacle battery charging Condulets. Galvanized or black enamel finish.

With round receptacle No. BRA100.

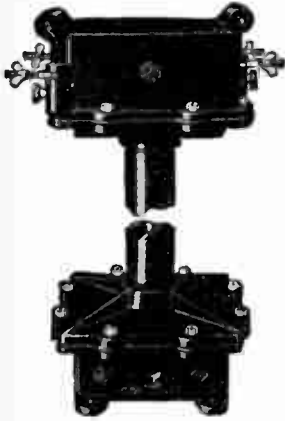


### Type UGCF, Surface Style For Two Conduits

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UGCF42	1 1/4	5	305	\$40.50
UGCF52	1 1/2	5	315	40.90
UGCF62	2	5	325	41.30

### Type UGXF, Surface Style For Four Conduits

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
UGXF42	1 1/4	5	315	\$40.70
UGXF52	1 1/2	5	325	41.10
UGXF62	2	5	335	41.50



**Type UGCD Condulents**

**Underground Style**

Galvanized or black enamel finish. Double receptacle battery charging Condulents. Furnished with hub plate and hub cover for 2-inch conduit stem. Conduit stem not furnished.

For two conduits.

With round receptacle No. BRA100.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs.	Price Each
UGCD42	1 1/4	5	405	\$47.50
UGCD52	1 1/2	5	415	47.90
UGCD62	2	5	425	48.30

**Type UGEN Condulents**

Single receptacle battery charging Condulents. With 2-pole rectangular or round receptacle, spring door and gasket. 200-amp. 65-volt receptacle No. BR200 takes plugs BPD200 or BPF200, and may be substituted at an advance of \$1.25.



**With Rectangular Receptacle No. BR100**

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs.	Price Each
UGEN5101	1 1/2	5	145	\$18.75
UGEN6101	2	5	155	19.00

**With Round Receptacle No. BRA100**

UGEN4102	1 1/4	5	145	\$21.25
UGEN5102	1 1/2	5	150	21.50



**Type BPF Plugs**

With aluminum handle. For battery charging Condulents of the UG series. Two-pole, rectangular for receptacles Nos. BR100 or BR200.

Cat. No.	Volts	Capacity Amperes	Std. Pkg.	Wt. Lbs.	Price Each
BPF 100	80	100	10	50	\$12.00
BPF200	65	200	10	60	13.00

**Type BPF A Plugs**

Aluminum handle. For Condulents of the UG series. Two-pole, for round receptacle No. BRA100. A spanner wrench furnished free with every shipment of plugs. If ordered separately or additionally, 35 cents.



Capacity: 100-ampere, 125-volt. Standard package, 5. Weight, standard package, 60 pounds.

Price, No. BPF A100.....each \$9.50

**BRH Series Condulents**

Galvanized or black enamel finish. For storage battery charging outlets, particularly on railroad cars and electric vehicles.

They are made for flexible cable and for conduit. They are furnished with rectangular or round receptacles, which are interchangeable in all the Condulents of the BRH series except BRHE, which takes the round receptacle only. Receptacles and plugs are polarized. The round receptacle and plug have been designed to eliminate the defects existing in similar receptacles and plugs.

Furnished with 2-pole rectangular or round receptacle and spring door. Rectangular receptacle BR100 is rated at 100 amperes, 80 volts, and takes plug BP100. Round receptacle BRA100 is rated at 100 amperes, 125 volts, and takes plug BPA100. Rectangular receptacle BR200 is rated at 200 amperes, 65 volts, and takes plug BPD200.



**Type BRHE Condulents**

Furnished with improved M.C.B. bracket and 2-pole, 100-ampere, 125-volt round receptacle No. BRA100. Std. pkg., 10. Weight, std. pkg., 260 pounds. Price, No.

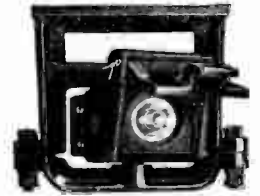
BRHE102...each \$22.50

**Type BRHA Condulents**

Furnished with improved M.C.B. bracket and 2-pole receptacle.

Cat. No.	Std. Pkg.	Wt. Lbs.	Price Each
*BRHA101	10	240	\$17.50
†BRHA102	10	250	20.25

\*Rectangular receptacle. †Round receptacle.



**Type BRH Condulents**



Housing for M.C.B. bracket. With 2-pole receptacle.

Cat. No.	Std. Pkg.	Wt. Lbs.	Price Each
*BRH101	10	130	\$12.50
†BRH102	10	140	15.25

\*Rectangular receptacle. †Round receptacle.

**Types BP and BPD Plugs**

With aluminum handle. For battery charging Condulents of BRH and UG series. Two-pole, rectangular, for receptacle No. BR100.



Standard package, 10. Weight, standard package, No. BP100, 55 pounds; No. BPD, 60 pounds. Price, No. BP100, 100-Ampere, 80-Volt.....each \$11.00 Price, No. BPD200, 200-Ampere, 65-Volt.....each 12.00

**Type BPA Plugs**

With aluminum handle. For battery charging Condulents of BRH and UG series. Two-pole, round, for receptacle No. BRA100.

Capacity, 100 amperes, 125 volts. Standard package, 10. Weight, standard package, 50 pounds. Price, No. BPA100.....each \$8.50



**Type MD Condulents**

Connector Condulents, galvanized or enamel. Three-pole, 200-ampere, 250-volt. Furnished with No. MD03 plug.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs.	Price Each
MD3	1	10	220	\$25.50
MD4	1 1/4	10	230	25.75
MD5	1 1/2	10	240	26.00



**Type MDA Condulents**

Connector Condulents, galvanized or black enamel finish. Furnished with connection block, wire hole cover, removable sliding cover, and screws. Three-pole, 100-ampere, 125-volt.

Cat. No.	Size Inches	Std. Pkg.	Wt. Lbs.	Price Each
MDA438	1 1/4	10	125	\$8.15
MDA538	1 1/2	10	130	8.35

**MDA Attachment for Type MDA Condulents**

This attachment provides for the use of flexible conduit with the type MDA Condulents. For three-pole receptacle. Size of flexible conduit, 1 1/4 inches.

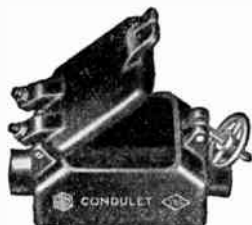
Standard package, 10. Weight, 50 pounds. Price, No. MDA39.....each \$1.50



## Condulets for Main Line Fuse Cutouts

Condulets listed below furnish a compact housing for cutouts and connection blocks. No cutout fastening plate is used, the wiring device being attached directly to the bottom of the Condulet.

All of these Condulets have cast iron doors and, with the exception of YAJ, are gasketed and have adjustable hinges.



### Type YAC

Watertight

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAC1302	1/2	15	100	\$4.00
YAC2302	3/4	15	105	4.10
YAC3302	1	10	110	4.20

### Type YAN

Watertight—Not Drilled or Tapped for Conduit

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAN302	...	15	90	\$4.00



### Type YAS

Watertight

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAS32302	1-3/4-1	15	100	\$4.50

### Type YAJ

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAJ1302	1/2	15	100	\$2.75



### Type YAL

Watertight

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAL2302	3/4-3/4	15	105	\$4.10

### Type YAR

Watertight

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YAR2302	3/4-3/4	15	105	\$4.10



## Connection Blocks

For Condulets Listed Above

30-ampere, 65-volt



Cat. No.	No. of Wires	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YA3	3	15	25	\$1.50
YA4	4	15	30	2.00

Standard finish is galvanized or black enamel.

Any assortment of 25 Condulets listed in this column will be considered a standard package.

Cutouts, page 436 Condulet Catalogue No. 2000

## Type YE Condulets

With Connection Block and Detachable Hub



For Flexible Conduit



For Rigid Conduit

Type YE Condulet is especially intended for use on locomotives. It provides an easy means for connecting the wiring system on the boiler to that on the cab. A detachable hub plate is provided, which slides into grooves in the Condulet and may be quickly removed when door is open. In addition to this removable plate, the Condulet is provided with 4 bosses, any of which can be tapped for 1/2, 3/4 or 1-inch rigid conduit, but there are no hubs cast solid with the body. The connection blocks provided with these Condulets are equipped with 14-24 R.S.A. binding nuts. Removable plates are made in 2 styles: one for rigid conduit and one for flexible conduit.

Positions of drilling and tapping should be specified according to letters, A, B, C, D, shown on cuts. To order size by number: 1 is 1/2 inch, 2 is 3/4 inch, 3 is 1 inch. For example: YE13-1233 (YE13 is the catalogue number of the Condulet with connection block). The prices per hole for drilling and tapping for rigid conduit are as follows: 1/2 or 3/4 inch, 15 cents; 1 inch, 20 cents.

### For Rigid Conduit

Cat. No.	Size, Inches Tapped Hole	No. of Wires	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YE1023	1/2	3	10	175	\$6.20
YE1024	1/2	4	10	180	6.80
YE1026	1/2	6	10	185	7.50
YE1028	1/2	8	10	190	8.60
YE2023	3/4	3	10	175	6.25
YE2024	3/4	4	10	180	6.85
YE2026	3/4	6	10	185	7.55
YE2028	3/4	8	10	190	8.65

### For Greenfield Double Strip Flexible Conduit

Cat. No.	Size, Inches Tapped Hole	No. of Wires	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
YE1223	1/2	3	10	175	\$6.35
YE1224	1/2	4	10	180	6.95
YE1226	1/2	6	10	185	7.65
YE1228	1/2	8	10	190	8.75
YE2223	3/4	3	10	175	6.40
YE2224	3/4	4	10	180	7.00
YE2226	3/4	6	10	185	7.70
YE2228	3/4	8	10	190	8.80
YE3223	1	3	10	180	6.45
YE3224	1	4	10	185	7.05
YE3226	1	6	10	190	7.75
YE3228	1	8	10	195	8.85
YE4223	1 1/4	3	10	180	6.50
YE4224	1 1/4	4	10	185	7.10
YE4226	1 1/4	6	10	190	7.80
YE4228	1 1/4	8	10	195	8.90

## Connecting Blocks

For Type YE Condulets



2-Wire

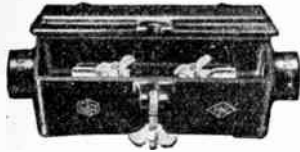


3-Wire

Cat. No.	No. of Wires	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
CB9222	2	25	10	\$1.10
CB9223	3	25	15	1.30

Standard galvanized finish.

Any assortment of 20 black enameled and galvanized Type YE Condulets will be considered a standard package.



**Type FBC Condulets**

Single-pole battery fuse. With 150-amp., 250-volt link fuse block. Fuse screw centers, 2 1/2 in. Where conduit is not required, composition bushing No. CF208 can be used.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FBC2	3/4	15	145	\$8.90

**Type FBL Condulets**

For single pole battery fuses. Furnished with fuse block, but without fuses. Takes 101 to 200-ampere 250-volt open link fuses.



Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FBL2n	3/4	15	180	\$8.80
FBL3n	1	15	190	9.00



**Type FBR Condulets**

For single pole battery fuses. Furnished with fuse block, but without fuses. Takes 101 to 200-ampere 250-volt open link fuses.

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FBR2n	3/4	15	180	\$8.80
FBR3n	1	15	190	9.00

**Type FBX Condulets**

Galvanized or enamel. For battery fuses. Furnished with 150-ampere, 250-volt open link fuse blocks.

The wire terminals are of the soldered lug type. Fuse screw centers are 2 1/2 inches.



Cat. No.	2-pole		Price Each
	Std. Pkg.	Wt., Lbs. Std. Pkg.	
FBX4322	5	185	\$23.85
FBX652	5	205	24.40
FBX4323	3-pole		Price Each
	Std. Pkg.	Wt., Lbs. Std. Pkg.	
FBX653	5	210	29.15

**Type GSG Junction Condulets**



These Condulets consist of a body and side plates which are listed below. A tight joint is secured between the body, side plates, and cover by use of a composition gasket which is furnished. The hub plate feature makes

it possible to put up a complicated network of conduits without the use of unions or right and left couplings. Hub plates not included in prices of Type GSG below.

This Condulet without cover will take ceiling rosette GS176 and connection block CB132 and CB133, keyless receptacle GS126 and spring door cover GS124, and Form 10, 2 and 3-pole plug receptacle housing.

With Cover and Gasket				Without Cover			
Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSG61903	10	60	\$2.00	GSG619	10	40	\$1.50

**Side Plates with Gaskets**

For Type GSG Condulets

**For Rigid Conduit**

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSG61	1/2	25	20	\$.25
GSG62	3/4	25	20	.30
GSG63	1	25	25	.35
GSG600	Blank	25	20	.20



1-hub

**For Flexible Conduit Greenfield Double Strip**

Cat. No.	Size In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
GSG6382	3/4	25	20	\$.35
GSG612	1/2	25	20	.35
GSG622	3/4	25	25	.40
GSG632	1	25	25	.45



Blank

Standard finish is black enamel.

SPECIAL ASSORTMENT.—Any assortment of 40 side plates listed above will be considered a standard package.

**Type PR Series Condulets**

For use where durable, watertight, junction Condulets of medium size are required, as in railroad yards and shops. They are also suitable for underneath or overhead car wiring installations.

**Type PRC Condulets**

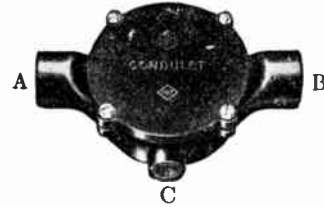


Galvanized or black enamel finish. Inside dimensions, diameter, 6 1/8 inches; depth, varies with sizes.

Furnished with cast iron cover, gasket, and cap screws.

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
PRC3	1	15	175	\$4.75
PRC4	1 1/4	15	180	4.95
PRC5	1 1/2	10	125	5.15
PRC6	2	5	65	5.55

**Type PRT Condulets**

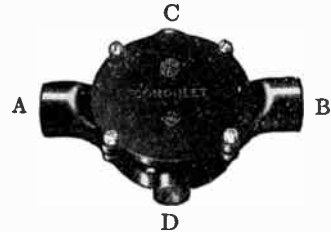


Galvanized or black enamel finish. Inside dimensions, diameter, 6 1/8 inches; depth, varies with sizes.

Furnished with cast iron cover, gasket and cap screws.

Cat. No.	SIZE, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C			
PRT3	1	1	1	15	185	\$4.90
PRT4	1 1/4	1 1/4	1 1/4	15	190	5.10

**Type PRX Condulets**



Galvanized or black enamel finish. Inside dimensions, diameter, 6 1/8 inches; depth, varies with sizes.

Furnished with cast iron cover, gasket, and cap screws.

Cat. No.	SIZE, INCHES				Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	A	B	C	D			
PRX3	1	1	1	1	15	200	\$5.10
PRX4	1 1/4	1 1/4	1 1/4	1 1/4	15	215	5.30

**Type FJC Condulets**



**For Floor Outlets**

Galvanized or black enamel finish. Over all dimensions of body exclusive of hubs: length, 6 3/8 inches; width, 4 3/8 inches; depth, 4 1/8 inches.

Furnished with cover, gasket, and screws. The cover may be cast brass, or cast iron, as desired.

**With Cast Brass Cover**

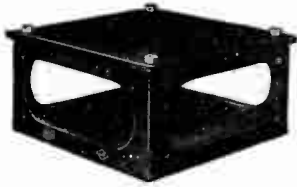
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FJC000	1 1/4	10	145	\$9.00
FJC5000	1 1/2	10	150	9.20

**With Cast Iron Cover**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
FJC000g	1 1/4	10	130	\$5.75
FJC500g	1 1/2	10	135	5.95



## RS Series Condulets



Galvanized or black enamel finish. Furnished with cast iron cover, gasket and screws. The use of these Condulets provides an easy method of tapping a conduit system, where a Condulet body of this series has been installed in the line, by removing the blank plates and

substituting plates with the desired sizes of hubs. Cover, hub plates, and blank side plates are gasketed, making the Condulet watertight.

Cat. No.	Type	Inside Dimen. Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RS 1	RS	8 1/2 x 8 1/2 x 4	10	190	\$6.00
RSM1	RSM	8 1/2 x 4 1/2 x 4	10	120	4.25
RSS 1	RSS	4 1/2 x 4 1/2 x 4	10	105	3.75

## Conduit Hub Plates

Cast iron, galvanized or black enamel finish. For Condulet bodies to the RS series. Furnished with gaskets and screws. May be assorted to make a standard package, regardless of style of plates.



## RSP Series, for 8 1/2 x 4-Inch Sides of Types RS and RSM Condulet Bodies

With One Hub					
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
RSP1	1/2	40	120	\$1.85	RSP5
RSP2	3/4	40	125	1.90	RSP6
RSP3	1	40	130	1.95	RSP7
RSP4	1 1/4	40	135	2.00	RSP8
With Two Hubs					
RSP11	1/2	40	125	\$1.95	RSP54
RSP22	3/4	40	130	2.05	RSP55
RSP31	1-1/2	40	135	2.15	RSP62
RSP33	1	40	140	2.15	RSP63
RSP42	1 1/4-3/4	40	145	2.25	RSP64
RSP44	1 1/4	40	150	2.25	RSP65
RSP52	1 1/2-3/4	40	155	2.40	RSP66
RSP53	1 1/2-1	40	160	2.40	RSP73
With Three Hubs					
RSP111	1/2	40	145	\$2.05	RSP442
RSP222	3/4	40	150	2.20	RSP444
RSP331	1-1-1/2	40	155	2.35	RSP553
RSP333	1	40	155	2.35	RSP555

## Cast Iron Blank Side Plates and Covers



RSMP series, for types RSM and RSS Condulet bodies.

## RSMP Series, for 4 1/2 x 4-Inch Sides of Types RSM and RSS Condulet Bodies

With One Hub					
Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	
RSMP1	1/2	40	60	\$1.25	RSMP5
RSMP2	3/4	40	65	1.30	RSMP6
RSMP3	1	40	70	1.35	RSMP7
RSMP4	1 1/4	40	75	1.40	

## Side Plates

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RSP0	8 1/2 x 4	40	140	\$1.80
RSMP0	4 1/2 x 4	40	70	1.20

## Cast Covers with Gaskets

Cat. No.	For Bodies	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
RS00	RS	10	70	\$2.00
RSM00	RSM	10	45	1.25
RSS00	RSS	10	30	.90

## CG Series Connectors



Type CGB with Rubber Bushing



Type CGD



Type CGB



Type CGK

Types CGB, CGD and CGE connectors have a male tapered thread for screwing into the hub of a Condulet. Types CGK, CGL and CGM connectors have a female tapered thread for screwing on to rigid conduit. Connectors with a tapered rubber bushing are for use with round flexible cord or cable. Connectors with a tapered split lead sleeve are for use with flexible conduit and armored or other round cable.

Marine is the standard finish for connectors of the CG series and will be furnished unless another finish is specified on the order. Galvanized finish will be furnished at the same price as marine finish, if specifically ordered.

Connectors of the CG series are listed on pages 127 to 145, Condulet catalogue No. 2096.



Type CGL



Type CGM



Type CGE



Type CGB with Lead Sleeve

**CC Series Flexible Conduit Couplings**

For requirements not met by these couplings, see CG series connectors.

**Male Thread—For Connecting Flexible Conduit to Condulets**

A—Size in inches of flexible conduit with which coupling can be used.

B—Size in inches of Condulet hub with which coupling can be used.

**Type CCB**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCB138	3/8	1/2	100	\$ .30
CCB11	1/2	1/2	100	.30
CCB22	3/4	3/4	50	.40

**Type CCD—45-degree**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCD138	3/8	1/2	100	\$ .35
CCD11	1/2	1/2	50	.40
CCD22	3/4	3/4	50	.50

**Type CCE—90-degree**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCE138	3/8	1/2	100	\$ .35
CCE11	1/2	1/2	50	.40
CCE22	3/4	3/4	50	.50

**Female Thread—For Connecting Flexible Conduit to Rigid Conduit**

A—Size in inches of flexible conduit with which coupling can be used.

B—Size in inches of rigid conduit with which coupling can be used.

**Type CCK**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCK138	3/8	1/2	100	\$ .30
CCK11	1/2	1/2	100	.30
CCK22	3/4	3/4	50	.40

**Type CCL—45-degree**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCL138	3/8	1/2	100	\$ .35
CCL11	1/2	1/2	50	.40
CCL22	3/4	3/4	50	.50

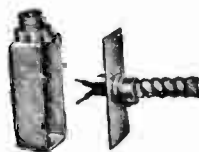
**Type CCM—90-degree**

Cat. No.	SIZE, INCHES		Std. Pkg.	Price Each
	A	B		
CCM138	3/8	1/2	100	\$ .35
CCM11	1/2	1/2	50	.40
CCM22	3/4	3/4	50	.50

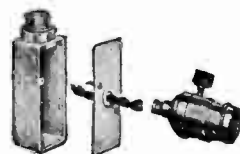
Standard finish is galvanized or black enamel.

Any assortment of 200 couplings of the CC Series will be considered a standard package.

**No. 48241 Pratt Branch Conduit Bodies**



Dead End Assembly Cover No. 48C6 with BX Connector



Dead End Assembly Cover No. 48C11 with Drop Cord and Key Socket



Back Entrance Assembly Cover No. 48C24 with Key Socket



Back Entrance Assembly Porcelain Cover No. 48C82 with Key Socket



Back Entrance Assembly Porcelain Cover No. 48C75 with Drop Cord and Key Socket

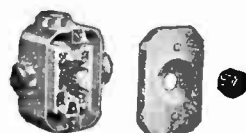


Straight Thru Assembly Porcelain Cover No. 48C77 for Three Wires

**No. 34461 Pratt Deep Conduit Bodies**



T Assembly—Plate No. 34R14 with G. E. Tumbler Switch



T Assembly—Plate No. 34R4 with Rotary Switch



T Assembly—Plate No. 34R7 with Standard Duplex Receptacle



T Assembly—Plate No. 34R3 with 2-button P. B. Switch



L Assembly—Plate No. 34R13 with G. E. 25-amp. Receptacle

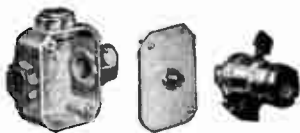


L Assembly—Plate No. 34R5 with Standard Plug Receptacle

## No. 14241 Pratt Shallow Conduit Bodies



T Assembly—Porcelain Cover No. 14C77 for Three Wires



T Assembly—Cover No. 14C24 with Key Socket and Nipple Outlet



L Assembly—Porcelain Cover No. 14C84 with Nipple Outlet



T Assembly—Cover No. 14C34 for Standard A. M. E. S. 2-screw Receptacles



T Assembly—Cover No. 14C35 for Screw Ring Receptacles

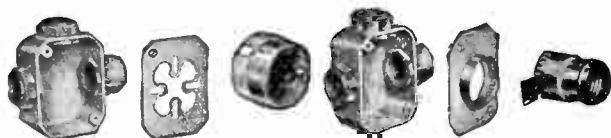
T Assembly—Cover No. 14C31 for Federal Receptacles

## No. 14241 Pratt Shallow Conduit Bodies



T Assembly—Cover No. 14C28 with Front Mounted G. E. Tumbler Switch

T Assembly—Cover No. 14C28 with Front Mounted Snap Switch



T Assembly—Cover No. 14C28 with Front Mounted H. & H. Tumbler Switch

T Assembly—Cover No. 14C39 with Fluted Device Key Socket

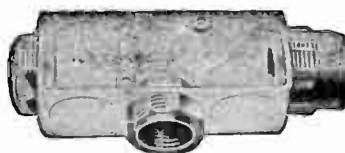


T Assembly—Cover No. 14C39 with Fluted Device Ceiling Pull Switch



T Assembly—Cover No. 14C39 with Fluted Device Plug Receptacle

## No. 48241 Pratt Branch Conduit Bodies



Designed primarily for junctions, taps, drop cord work, etc. The design does not readily accept a wiring device, except sockets, etc., that can be connected by means of nipples.

**OUTLET.**—Three in each side and bottom; one in each end.

For "Exposed wiring," for 1/2 in. Conduit use coupling Cat. No. 1410; for 3/4 in. Conduit use coupling Cat. No. 1420.

For "Concealed" wiring, for 1/2 in. Conduit use coupling Cat. No. 1410; for 3/4 in. Conduit use coupling Cat. No. 1420, or 3/4 in. locknut and bushing. Two 1/2 in. diameter security-screw knockouts are furnished, thus affording an independent support in concealed wiring.

**FINISH.**—Electro-galvanized only.

**NOTE.**—Screws for cover-security furnished with the covers.

The following package quantities cover all branch conduit covers and bodies: Unit package, 10; standard package, 100; cover unit packages may be combined to make a standard package.

Cat. No.	Inside Dimensions Inches	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
48241	3 3/4 x 1 1/4 x 1 3/8	10	100	50	\$23.00

### Covers for Pratt Branch Conduit Bodies



No. 48C1



No. 48C6

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C1	Flat, Closed	15	\$9.00
48C6	" with 1/2-inch Knockout	15	9.00

### Covers for Pratt Branch Conduit Bodies



No. 48C8



No. 48C11

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C8	Flat, Pendant, 1/8-in. Eyelet Bushing	16	\$10.00
48C11	" " 3/8 " " "	16	14.00

### Covers for Pratt Branch Conduit Bodies



No. 48C22



No. 48C23

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C22	Flat, with 1/8-inch Male Nipple	17	\$25.00
48C23	" " 1/8 " Female Nipple	20	25.00

### Covers for Pratt Branch Conduit Bodies



No. 48C24



No. 48C25

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C24	Flat, with 3/8-inch Male Nipple	20	\$35.00
48C25	" " 3/8 " Female Nipple	20	35.00

### Covers for Pratt Branch Conduit Bodies



No. 48C75



No. 48C76

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C75	Porcelain, with One Wire Hole	24	\$12.00
48C76	" " Two " Holes	24	12.00



**No. 48C77 Pratt Covers for Branch Conduit Bodies**

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C77	Porcelain, with Three Wire Holes.....	24	\$13.00

**No. 48C78 Pratt Covers for Branch Conduit Bodies**



Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C78	Porcelain, with Four Wire Holes.....	24	\$13.00



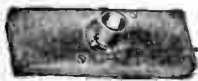
**No. 48C82 Pratt Covers for Branch Conduit Bodies**

Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C82	Porcelain, with 1/8-inch Male Nipple..	30	\$25.00

**No. 48C83 Pratt Covers for Branch Conduit Bodies**



Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C83	Porcelain, with 1/8-inch Female Nipple.	28	\$25.00



**No. 48C84 Pratt Covers for Branch Conduit Bodies**

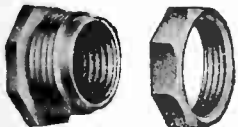
Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C84	Porcelain, with 3/8-inch Male Nipple..	28	\$35.00

**No. 48C85 Pratt Covers for Branch Conduit Bodies**



Cat. No.	Description	Wt., Lbs. Std. Pkg.	Price per 100
48C85	Porcelain, with 3/8-inch Female Nipple.	30	\$35.00

**No. 1410 Pratt Conduit Body Couplings**

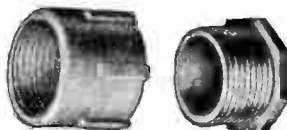


For 1/2-inch conduit. This coupling is so designed that, when assembled with the above bodies, they constitute a complete Pratt Conduit. Standard package, 100.

Price, No. 1410.....per 100 \$13.50

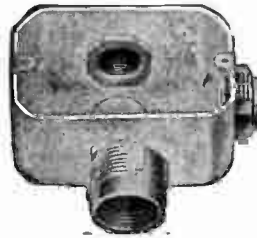
**No. 1420 Pratt Conduit Body Couplings**

For 3/4-inch Conduit. This coupling is so designed that, when assembled with the above bodies they constitute a complete Pratt Conduit. Standard package, 100.



Price, No. 1420.....per 100 \$20.00

**No. 34461 Pratt Deep Conduit Bodies**



Designed for the reception of all standard make of flush devices. These flush devices are mounted into this body in the same manner as is now standard practice in switch boxes, or wall cases.

**OUTLETS.**—One in each side and bottom.

For "Exposed" Wiring, for 1/2 in. Conduit use coupling Cat. No. 1410; for 3/4 in. Conduit use Coupling Cat. No. 1420.

For "Concealed" Wiring, for 1/2-inch conduit use coupling Catalogue No. 1410; for 3/4-inch conduit use Catalogue No. 1420, 3/4-inch locknut and bushing.

**FIXTURE STUDS.**—Four 1/4 in. diameter knockout holes for standard fixture studs (1 1/2 in centers) are furnished in this Conduit Body. Two of these holes can be used for screw security to independent support, when used in concealed wiring.

**FINISH.**—Electro-galvanized only.

**NOTE.**—Screws for device-security furnished with the devices.

Package quantities for all deep conduit bodies and covers are as follows: Unit package, 10; standard package, 100; cover unit packages may be combined to make standard packages.

Cat. No.	Inside Dimen. Inches	Unit Pkg.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
34461	3 1/2 x 2 1/4 x 1 1/8	10	100	52	\$40.00

**No. 34R1 Plates for Pratt Deep Conduit Bodies**

Blank, for deep conduit body when used without a wiring device.

Cat. No.	Wt., Lbs. Std. Pkg.	Price per 100
34R1	17	\$12.00



**No. 34R2 Plates for Pratt Deep Conduit Bodies**

For single push button switches with countersunk hole in center.

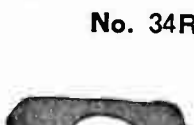
Cat. No.	Wt., Lbs. Std. Pkg.	Price per 100
34R2	17	\$12.00



**No. 34R3 Plates for Pratt Deep Conduit Bodies**

For double push button switches and 6-ampere polarity plugs of all standard makes.

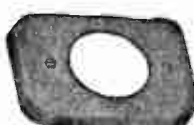
Cat. No.	Wt., Lbs. Std. Pkg.	Price per 100
34R3	17	\$12.00



**No. 34R5 Plates for Pratt Deep Conduit Bodies**

For receptacles, without door (all standard makes) 1 1/2 inches, diameter of hole.

Cat. No.	Wt., Lbs. Std. Pkg.	Price per 100
34R5	16	\$12.00



**No. 34R6 Plates for Pratt Deep Conduit Bodies**

For receptacles, with door (all standard makes) 1 1/2-in. hole. Can be used with any standard Edison lamp base scores or plug receptacle.

Cat. No.	Wt., Lbs. Std. Pkg.	Price per 100
34R6	17	\$65.00



## No. 34R7 Plates for Pratt Deep Conduit Bodies



For double plug receptacles (all standard makes).

Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R7	15	\$20.00

## No. 34R8 Plates for Pratt Deep Conduit Bodies

For Hubbell 6-ampere Polarized Plug Receptacle.



Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R8	13	\$20.00

## No. 34R9 Plates for Pratt Deep Conduit Bodies



For Chapman Type Receptacles, with doors.

Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R9	17	\$50.00

## Plates for Pratt Deep Conduit Bodies

For Hubbell 6-ampere and 20-ampere Polarized Plug Receptacles respectively.



Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R11	17	\$14.00
34R12	16	14.00

No. 34R11

## No. 34R13 Plates for Pratt Deep Conduit Bodies



For G. E. 20-ampere Polarized Plug Receptacle; 1 $\frac{3}{4}$  inches, diameter of opening.

Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R13	16	\$14.00

## No. 34R14 Plates for Pratt Deep Conduit Bodies

For G. E. Tumbler Switch, remote control work, etc.



Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R14	17	\$20.00

## No. 34R15 Plates for Pratt Deep Conduit Bodies



For H. & H. Tumbler Switch;  $\frac{3}{8}$ -inch, diameter of opening.

Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R15	17	\$16.00

## No. 34R16 Plates for Pratt Deep Conduit Bodies

For Hubbell Tumbler Switch; diameter of opening,  $\frac{29}{32}$  inch.



Cat. No.	Wt. Lbs. Std. Pkg.	Price per 100
34R16	17	\$16.00

## No. 14241 Pratt Shallow Conduit Bodies



OUTLETS.—One in each side and bottom.

For "Exposed" Wiring, for  $\frac{1}{2}$ -inch conduit use coupling Cat. No. 1410; for  $\frac{3}{4}$ -inch conduit use coupling Cat. No. 1420.

For "Concealed" Wiring, for  $\frac{1}{2}$ -inch conduit use coupling Cat. No. 1410; for  $\frac{3}{4}$ -inch conduit use coupling Cat. No. 1420, or  $\frac{3}{4}$ -inch locknut and bushing.

FIXTURE STUDS.—Four  $\frac{1}{4}$ -inch diameter knockout holes for standard fixture studs (1 $\frac{1}{2}$ -inch centers) are furnished in this conduit body. Two of these holes can be used for screw security to independent support, when used in concealed wiring.

FINISH.—Electro-galvanized only.

NOTE.—Screws for cover-security furnished with the covers.

Package quantities on all bodies and covers are as follows: Unit package, 10; standard package, 100; cover unit packages may be combined to make standard packages.

Cat. No.	Inside Dimensions Inches	Unit Pkg.	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price per 100
14241	2 $\frac{1}{8}$ x2 $\frac{1}{4}$ x1 $\frac{3}{8}$	10	100	45	\$30.00

## No. 14C1 Covers for Pratt Shallow Conduit Bodies

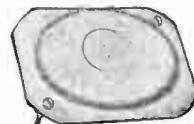
Flat, closed.

Weight standard package, 20 pounds.



Price, No. 14C1 ..... per 100 \$9.00

## No. 14C7 Covers for Pratt Shallow Conduit Bodies



Raised, with  $\frac{1}{2}$ -inch knockout, no opening, oval shaped.

Weight standard package, 20 pounds.

Price, No. 14C7 ..... per 100 \$9.00

## No. 14C8 Covers for Pratt Shallow Conduit Bodies

Flat, pendant type,  $\frac{1}{8}$ -inch eyelet bushing, for drop cord work.

Weight standard package, 17 pounds.



Price, No. 14C8 ..... per 100 \$10.00

## No. 14C11 Covers for Pratt Shallow Conduit Bodies



Flat, pendant type,  $\frac{3}{8}$ -inch eyelet bushing, for drop cord work.

Weight standard package, 17 pounds.

Price, No. 14C11 ..... per 100 \$14.00

## No. 14C22 Covers for Pratt Shallow Conduit Bodies

Flat, with  $\frac{1}{8}$ -inch male nipple, swedged into a notch opening.

Weight standard package, 20 pounds.



Price, No. 14C22 ..... per 100 \$25.00

**No. 14C23 Covers for Pratt Shallow Conduit Bodies**

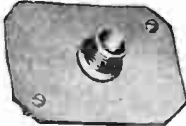


Flat, with 1/8-inch female nipple, swedged into a notch opening.  
Weight standard package, 20 pounds.

Price, No. 14C23..... per 100 \$25.00

**No. 14C24 Covers for Pratt Shallow Conduit Bodies**

Flat, with 3/8-inch male nipple, swedged into a notch opening.  
Weight standard package, 24 pounds.



Price, No. 14C24..... per 100 \$25.00

**No. 14C25 Covers for Pratt Shallow Conduit Bodies**



Flat, with 3/8-inch female nipple, swedged into a notch opening.  
Weight standard package, 26 pounds.

Price, No. 14C25..... per 100 \$25.00

**No. 14C28 Covers for Pratt Shallow Conduit Bodies**

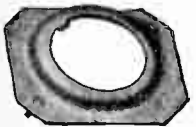
Flat, for all surface mounted type devices, with screw centers from 1/8 to 1 1/8 inches.



Weight standard package, 13 pounds.

Price, No. 14C28..... per 100 \$12.00

**No. 14C31 Covers for Pratt Shallow Conduit Bodies**

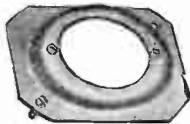


Raised, for Federal Sign Receptacles, intruding tongue, center opening 1 1/2 inches in diameter.  
Weight standard package, 16 pounds.

Price, No. 14C31..... per 100 \$10.00

**Covers for Pratt Shallow Conduit Bodies**

Raised. No. 14C32 is for Benjamin Sign Receptacles, 2-screw center opening 1 1/2 inches in diameter. No. 14C34 is for standard A. M. E. S. Sign Receptacles, 2-screw 1 1/8 inches on centers. Weight standard package, 17 pounds.



No. 14C32

Price, No. 14C32..... per 100 \$10.00  
" " 14C34..... " 100 10.00

**Covers for Pratt Shallow Conduit Bodies**

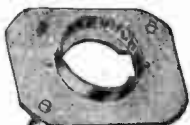


No. 14C35

Price, No. 14C35..... per 100 \$10.00  
" " 14C36..... " 100 10.00

**No. 14C39 Covers for Pratt Shallow Conduit Bodies**

Flat, for all standard fluted catch devices, only shell and device movement to make up complete lamp receptacle, etc.



Weight standard package, 18 pounds.  
Price, No. 14C39..... per 100 \$30.00

**No. 14C47 Covers for Pratt Shallow Conduit Bodies**



Raised angle adapter, for reception of Nos. 14C35, 14C36, 14C39 covers.

Weight standard package, 25 pounds.

Price, No. 14C47..... per 100 \$22.00

**No. 14C75 Covers for Pratt Shallow Conduit Bodies**

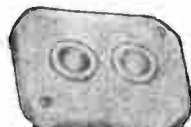
Porcelain, with one wire hole, to be used in drop cord work, or construction requiring one lead.



Weight standard package, 20 pounds.

Price, No. 14C75..... per 100 \$12.00

**No. 14C76 Covers for Pratt Shallow Conduit Bodies**



Porcelain, with two wire-holes, for leads coming from conduit system.

Weight standard package, 20 pounds.

Price, No. 14C76..... per 100 \$12.00

**Covers for Pratt Shallow Conduit Bodies**

No. 14C77 is porcelain, with 3 wire holes, for leads brought out of conduit system to a 3-phase motor. No. 14C78, with 4 wire holes, where 2 sets of leads are brought out of conduit system. Weight standard package, 20 pounds.



No. 14C77

Price, No. 14C77..... per 100 \$13.00  
" " 14C78..... " 100 13.00

**No. 14C82 Covers for Pratt Shallow Conduit Bodies**



Porcelain, with 1/8-inch male nipple, fastened by a locknut.

Weight standard package, 34 pounds.

Price, No. 14C82..... per 100 \$25.00

**No. 14C83 Covers for Pratt Shallow Conduit Bodies**

Porcelain, with 1/8-inch female nipple, fastened by a locknut.



Weight standard package, 32 pounds.

Price, No. 14C83..... per 100 \$25.00

**No. 14C84 Covers for Pratt Shallow Conduit Bodies**



Porcelain, with 3/8-inch male nipple, fastened by a locknut.

Weight standard package, 32 pounds.

Price, No. 14C84..... per 100 \$35.00

**No. 14C85 Covers for Pratt Shallow Conduit Bodies**

Porcelain, with 3/8-inch female nipple, fastened by a locknut.



Weight standard package, 32 pounds.

Price, No. 14C85..... per 100 \$35.00

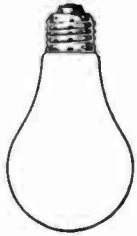


## Sunbeam Inside Frosted Mazda Lamps

Standard Line  
General Lighting Service  
110, 115 and 120 Volts

Frosting is on the inside. Bulb does not gather dirt. Diffusion is obtained with small loss of light. Used in place of all clear as well as frosted lamps. Pearl-gray bulb harmonizes with any background color.

Fitted with medium screw base.



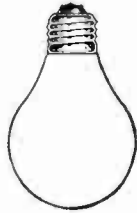
Watts	Bulb	Over All Length Inches	Std. Pkg.	Price Each
25	A19	3 <sup>5</sup> / <sub>16</sub>	120	\$.20
40	A21	4 <sup>7</sup> / <sub>16</sub>	120	.20
50	A21	4 <sup>15</sup> / <sub>16</sub>	120	.22
60	A21	5 <sup>1</sup> / <sub>4</sub>	120	.22
100	A23	6 <sup>1</sup> / <sub>16</sub>	60	.35

## Sunbeam Inside Frosted Mazda Lamps

Standard Line  
High Voltage Lighting Service  
220, 230, 240, 250 and 260 Volts

The Standard Line Lamps represent the latest developments in incandescent lamp manufacture. They are easily cleaned and produce better illumination.

Fitted with medium screw base.



Watts	Bulb	Over All Length Inches	Standard Package	Price Each
25	A19	3 <sup>5</sup> / <sub>16</sub>	120	\$.26
*50	A21	4 <sup>7</sup> / <sub>16</sub>	120	.26
100	A23	6 <sup>1</sup> / <sub>16</sub>	60	.43

\*This lamp in 275 and 300 volts for mine lighting service can be obtained at a price of 40 cents each.

## Sunbeam Inside Frosted Mazda Lamps

Standard Line  
Country Home Lighting Service  
28-32 Volts

Fitted with medium screw base. Orders should specify 28-32 volts and Country Home Lighting to distinguish from Train Lighting Lamps.

Prices apply only to Lamps which are designed for an average voltage, as determined by the manufacturer, suitable for operation on 28-32-volt circuits, and do not apply to lamps ordered for individual voltages within this range.



Watts	Bulb	Length Inches	Std. Pkg.	Price Each
15	A17	3 <sup>5</sup> / <sub>8</sub>	120	\$.25
25	A19	3 <sup>15</sup> / <sub>16</sub>	120	.25
50	A21	4 <sup>15</sup> / <sub>16</sub>	120	.27
100	A23	6 <sup>1</sup> / <sub>16</sub>	60	.40

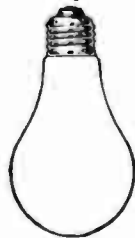
## Sunbeam Inside Frosted Mazda Lamps

Standard Line  
Train Lighting Service  
32 and 64 Volts

Frosting is on the outside. Bulb does not gather dirt. Diffusion is obtained with small loss of light. Used in place of all clear as well as frosted lamps.

Fitted with medium screw base.

Orders should specify the individual voltage required and Train Lighting to distinguish from Country Home Lighting Lamps.



Watts	Bulb	Over All Length, In.	Std. Pkg.	Price Each
15	A17	3 <sup>5</sup> / <sub>8</sub>	120	\$.25
25	A19	3 <sup>15</sup> / <sub>16</sub>	120	.25
50	A21	4 <sup>15</sup> / <sub>16</sub>	120	.27
100	A23	6 <sup>1</sup> / <sub>16</sub>	60	.40

## Sunbeam Mazda C Lamps

General Lighting Service  
110, 115 and 120 Volts

These lamps constitute a great percentage of the ordinary lamp demand for store and office lighting.

Proper reflector should be provided to protect the eyes from the extremely bright filaments of a Mazda C lamp, especially whenever the lamp is hung low in the usual line of vision.



### Clear—Medium Screw Base

Watts	Style Bulb	Over All Length Inches	Lumens	Std. Pkg.	Price Each
150	PS25 Clear	6 <sup>15</sup> / <sub>16</sub>	2300	24	\$.60
200	PS30 Clear	8 <sup>1</sup> / <sub>8</sub>	3300	24	.80

### Clear—Mogul Screw Base

300	PS35 Clear	9 <sup>7</sup> / <sub>16</sub>	5300	24	\$1.25
500	PS40 Clear	9 <sup>9</sup> / <sub>16</sub>	9500	12	2.00
*750	PS52 Clear	13 <sup>1</sup> / <sub>8</sub>	14500	8	3.75
*1000	PS52 Clear	13 <sup>1</sup> / <sub>8</sub>	20000	8	4.00

### White Bowl—Medium Screw Base

150	PS25 White Bowl	6 <sup>15</sup> / <sub>16</sub>	.....	24	\$.65
200	PS30 White Bowl	8 <sup>1</sup> / <sub>8</sub>	.....	24	.85

### White Bowl—Mogul Screw Base

300	PS35 White Bowl	9 <sup>7</sup> / <sub>16</sub>	.....	24	\$1.35
500	PS40 White Bowl	9 <sup>9</sup> / <sub>16</sub>	.....	12	2.15
*750	PS52 White Bowl	13 <sup>1</sup> / <sub>8</sub>	.....	8	3.95
*1000	PS52 White Bowl	13 <sup>1</sup> / <sub>8</sub>	.....	8	4.25

\*Not recommended for base down burning.

## Sunbeam Mazda C Daylight Lamps

General Lighting Service

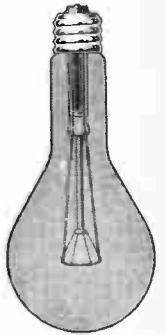
110, 115 and 120 Volts

The Mazda C Daylight Lamp has a bulb made of special blue glass to produce light approximating average daylight quality.

Recommended for stores, offices, display windows and factories whenever it is desired to show colors more nearly in their true daylight appearance than is possible by means of customary artificial light.

To get this effect no other illuminants should be burned in the same room or enclosure.

Not recommended for accurate color matching. Special color units are available for this purpose.



### Daylight—Clear—Medium Screw Base

Watts	Style Bulb	Over All Length Inches	Standard Package	Price Each
150	PS25 Daylight	6 <sup>15</sup> / <sub>16</sub>	24	\$1.00
200	PS30 Daylight	8 <sup>1</sup> / <sub>8</sub>	24	1.30

### Daylight—Clear—Mogul Screw Base

300	PS35 Daylight	9 <sup>7</sup> / <sub>16</sub>	24	\$1.85
500	PS40 Daylight	9 <sup>9</sup> / <sub>16</sub>	12	2.85

### Daylight—Inside Frosted—Medium Screw Base

60	A21 Daylight	5 <sup>1</sup> / <sub>4</sub>	120	\$.38
100	A23 Daylight	6 <sup>1</sup> / <sub>16</sub>	60	.60

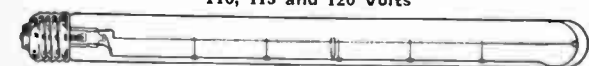
**Sunbeam Mazda B Lamps**  
Decorative Lighting Service  
110, 115 and 120 Volts



Watts	Bulb	Screw Base	Over All Lgth., In.	Std. Pkg.	Price Each
15	A17	Medium	3 5/8	120	\$.20
*15	F10 Flametint	‡Candelabra	3 1/4	60	.40
‡25	F15 Flametint	Medium	4 1/2	60	.40

\*This lamp with either candelabra screw or intermediate screw base can be supplied white at 40 cents.  
‡This lamp can be supplied white at 40 cents.  
‡Intermediate screw base can be supplied at 40 cents.

**Sunbeam Mazda B Lamps**  
Limited Lighting Service  
110, 115 and 120 Volts



T8

Tubular lamps are designed for show-cases, display signs and cornice lighting.

Fitted with medium screw base.



T10

Watts	Bulb	Over All Length Inches	Std. Pkg.	Price Each
25	T10 Clear	5 5/8	60	\$.45
40	T8 Clear	11 7/8	24	1.00

**Sunbeam White Mazda B Lamps**

Decorative Lighting Service

110, 115 and 120 Volts

**G-Bulb**

Fitted with medium screw base.

These lamps may be supplied in flametint at 5 cents additional to the list price of the white lamp.



Watts	Bulbs	Over All Length Inches	Std. Pkg.	Price Each
25	G18 1/2 White	3 9/16	120	\$.30
25	G25 White	4 7/16	60	.35
40	G25 White	4 7/16	60	.35

**Sunbeam Rough Service Mazda Lamps**

110, 115 and 120 Volts



A19

In some classes of lighting service it is necessary to use lamps which are strong mechanically—lamps which will stand a great deal of rough handling. In the Rough Service Lamp, the filament is supported in such a way that it is capable of resisting severe bumps. The superior strength of the filament enables it to give satisfactory service.



P19

Fitted with medium screw base.

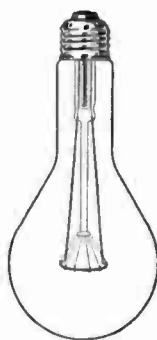
Watts	Bulb	Length, Over All, Inches	Std. Pkg.	Price Each
50	A19 Inside Frosted	3 15/16	120	\$.37
*50	P19 Clear	3 7/8	120	.25

\*This lamp is recommended where vibration prevails, such as is produced by heavy or high speed machinery.

**Sunbeam Mazda C Lamps**

High Voltage Lighting Service

220, 230, 240, 250 and 260 Volts



These lamps are higher in price and less efficient than 110, 115 and 120-volt lamps of same wattage and should not be used where it is possible to change their service from 220, 230, 240, 250 and 260 volts to 110, 115 and 120 volts.

**Clear—Medium Screw Base**

Watts	Style Bulb	Over All Length Inches	Lumens	Standard Package	Price Each
200	PS30 Clear	8 1/8	2600	24	\$1.00

**Clear—Mogul Screw Base**

Watts	Style Bulb	Over All Length Inches	Lumens	Standard Package	Price Each
300	PS35 Clear	9 7/16	4200	24	\$1.50
500	PS40 Clear	9 9/16	7600	12	2.40
750	PS52 Clear	13 1/8	12500	8	4.25
1000	PS52 Clear	13 1/8	18000	8	4.75

**White Bowl—Medium Screw Base**

Watts	Style Bulb	Over All Length Inches	Lumens	Standard Package	Price Each
200	PS30 White Bowl	8 1/8	.....	24	\$1.10

**White Bowl—Mogul Screw Base**

Watts	Style Bulb	Over All Length Inches	Lumens	Standard Package	Price Each
300	PS35 White Bowl	9 7/16	.....	24	\$1.60
500	PS40 White Bowl	9 9/16	.....	12	2.55
750	PS52 White Bowl	13 1/8	.....	8	4.50
1000	PS52 White Bowl	13 1/8	.....	8	5.00

**Sunbeam Mazda B Lamps**

Sign Lighting Service

110, 115 and 120 Volts

Fitted with medium screw base.

\*Formerly designated as blue sign. The bulb is of special blue glass to give a whiter light than the ordinary clear bulb lamp. If coated blue lamps are desired, orders should so specify.



S-Bulb



A-Bulb

Watts	Bulb	Over All Length Inches	Standard Package	Price Each
10	S14 Clear	3 1/2	120	\$.20
15	*S14 Daylight	3 1/2	120	.34
25	*A19 Clear Daylight	3 5/8	120	.40
50	*A19 Clear Daylight	3 5/8	120	.40

**Sunbeam Mazda B Lamps**

Sign or Decorative Lighting Service

110, 115 and 120 Volts

This lamp will be supplied in red, yellow, green, blue, amber-orange coated colors, flametint, white or clear at the same price.

Watts	Bulb	Base	Overall Lgth., In.	Std. Pkg.	Price Each
10	S-11	Intermediate	2 3/8	120	\$.25

**Sunbeam Mazda B Lamps**

Locomotive Cab Lighting Service

34 Volts

Fitted with medium screw base.

Specify for Locomotive Cab Lighting; 34 volts only.



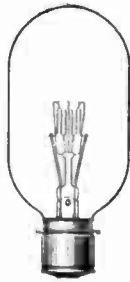
Watts	Bulb	Over All Length, In.	Std. Pkg.	Price Each
15	S14 Clear	3 1/2	120	\$.22

## Sunbeam Mazda C Lamps

### Projection Lighting Service



T8  
100 Watts



T20  
500 Watts

These lamps must burn base down.

#### 50 Volts

Watts	Bulb	Screw Base	LENGTH, INCHES Over Light Center	Over All	Std. Pkg.	Price Each
a200	T10	Med. Prefocus	$f2\frac{3}{16}$	$5\frac{3}{4}$	24	\$2.00

#### 110, 115 and 120 Volts

50	T8	D.C. Bay. Cand.	$g1\frac{3}{8}$	$3\frac{1}{8}$	24	\$2.00
b100	T8½	Med. Prefocus	$f2\frac{3}{16}$	$5\frac{3}{4}$	24	2.25
c200	T10	Med. Prefocus	$f2\frac{3}{16}$	$5\frac{3}{4}$	24	2.60
d500	T20	Med. Prefocus	$f2\frac{3}{16}$	$5\frac{3}{4}$	6	3.25
e1000	T20	Mog. Prefocus	$f3\frac{1}{16}$	$9\frac{3}{8}$	6	6.90

aMedium screw base can be supplied at \$1.75 with a light center length of 3 inches and maximum over-all length of 5½ inches.

bMedium screw base can be supplied at \$2.00 with a light center length of 3 inches and a maximum over-all length of 5½ inches.

cMedium screw base can be supplied at \$2.35 with a light center length of 3 inches and a maximum over-all length of 5½ inches.

dMedium screw base can be supplied at \$3.00 with a light center length of 3 inches and a maximum over-all length of 5½ inches.

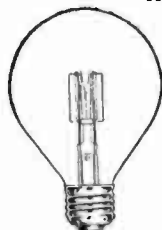
eMogul screw base can be supplied at \$6.50 with a light center length of 4¾ inches and maximum over-all length of 9½ inches.

fThe light center length of this lamp is the distance from center of light source to top of base fin.

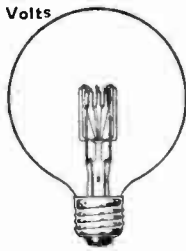
gThe light center length of this lamp is the distance from center of light source to top of base pins.

## Sunbeam Mazda C Lamps

### Spotlight Service 110, 115 and 120 Volts



P-Bulb



G-Bulb

These lamps can be burned in any position except within 45 degrees of vertically, base up.

Orders for these lamps must specify for spotlight purposes.

#### Medium Screw Base

Watts	Bulb	LENGTH, INCHES Over Light Center	Std. Pkg.	Price Each
100	P25	$4\frac{3}{4}$	3	\$1.00
†250	G30	$5\frac{1}{8}$	3	1.75
†400	G30	$5\frac{1}{8}$	3	3.00

†Mogul screw base can be supplied at same price with a light center length of 3¾ inches and a maximum overall length of 5¾ inches.

‡Medium screw skirted base can be supplied at the same price with a light center length of 3¾ inches and a maximum overall length of 5¾ inches.

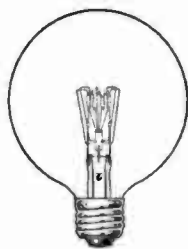
## Sunbeam Mazda C Lamps

### Flood Lighting Service

110, 115 and 120 Volts

These lamps can be burned in any position except within 45 degrees of vertically, base up.

Orders for these lamps must specify for flood lighting purposes.



#### Medium Screw Base

Watts	Bulb	LENGTH, INCHES Over All Light Center	Std. Pkg.	Price Each
*250	G30	$5\frac{1}{8}$	3	\$1.75

#### Mogul Screw Base

500	G40	$7\frac{1}{16}$	$4\frac{1}{4}$	12	\$3.25
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\*Mogul screw base can be supplied at same price with a light center length of 3¾ inches and a maximum overall length of 5¾ inches.

## Sunbeam Mazda B Lamps

### Street Railway Service

105, 110, 115, 120, 125 and 130 Volts

For use 5 in series on the 525, 550, 575, 600, 625 and 650-volt circuits.

Fitted with medium screw base.

Prices apply only for lamps of the voltages given.



Watts	Bulb	Over All Length Inches	Std. Pkg.	Price Each
23	S17 Clear	$4\frac{5}{16}$	120	\$0.25
94	S24½ Clear	$6\frac{5}{16}$	60	.80

## Sunbeam Mazda B Lamps

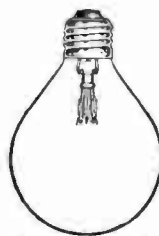
### Street Railway Headlight Service

105, 110, 115, 120, 125 and 130 Volts

For use 5 in series on the 525, 550, 575, 600, 625 and 650-volt circuits.

Fitted with medium screw base.

Prices apply only for lamps of the voltages given.



Watts	Bulb	Over All Length Inches	Light Center	Std. Pkg.	Price Each
*23	A19 Clear	$3\frac{5}{16}$	$2\frac{3}{16}$	120	\$0.60
*36	A19 Clear	$3\frac{5}{16}$	$2\frac{3}{16}$	120	.60
56	P25 Clear	$4\frac{3}{4}$	$2\frac{1}{16}$	60	.85
94	P25 Clear	$4\frac{3}{4}$	$2\frac{1}{16}$	60	1.10

\*Will satisfactorily replace G18½ bulb lamps of 2¼, 2¾ and 2½-inch light center length.

## Sunbeam Inside Frosted Mazda Lamps

### Street Railway Service

Fitted with medium screw base.

105, 110, 115, 120, 125 and 130 Volts

Watts	Bulb	Ampere	Over All Lgth., In.	Std. Pkg.	Price Each
*36	A21	...	$4\frac{1}{16}$	120	\$0.22
*56	A21	...	$4\frac{1}{16}$	120	.27



#### 30 Volts

†	A19	1.0	$3\frac{5}{16}$	120	\$0.45
†	A21	1.6	$4\frac{1}{16}$	120	.55

\*These lamps are for use 5 in series on 525, 550, 575, 600, 625, and 650 volts.

†Mazda C street railway cut-out lamps. These are for use approximately 20 lamps in series on 600-volt circuits. Where the circuit voltage is greater or less than 600 volts, sufficient lamps may be installed or omitted in order to make the total lamp voltage equal to that of the circuit.

**Sunbeam Mazda C Lamps**

**Locomotive Headlight Service**



32 Volts

These lamps can be burned in any position except within 45 degrees of vertically, base up.

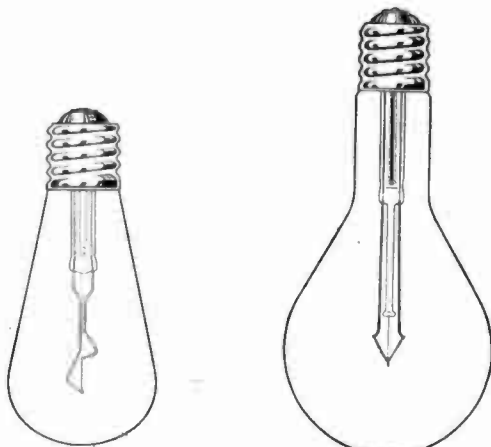
Fitted with medium screw base.

Watts	Style Bulb	LENGTH, INCHES Over All Light Center	Std. Pkg.	Price Each
100	P25 Clear	4 3/4 3	60	\$1.00
250	P25 Clear	4 3/4 3	60	1.60

**Sunbeam Mazda C Lamps**

**Street Lighting Service**

6.6 Amperes



S Bulb

PS Bulb

Nominal candle power of these lamps is 1/10 of their lumen rating.

There are but few conditions of street lighting now prevailing which justify the use of lamps smaller than 1000 lumens.

Fitted with mogul screw base.

Lumens	Average Volts	Style Bulb	Over All Length Inches	Std. Pkg.	Price Each
600	6.6	S24 1/2 Clear	7 1/8	60	\$.85
800	8.1	S24 1/2 Clear	7 1/8	60	.85
1000	9.7	S24 1/2 Clear	7 1/8	60	.85
2500	22.3	PS35 Clear	9 7/8	24	1.60
4000	34.2	PS35 Clear	9 7/8	24	1.90
6000	50.0	PS40 Clear	9 7/8	12	2.50

15 and 20 Amperes

Designed for base up burning position. Lamps ordered for base down burning position may be supplied at same price.

The 25000-lumen lamp is not recommended for base down burning.

The nominal candle power of these lamps is 1/10 of their lumen rating.

Fitted with mogul screw base.

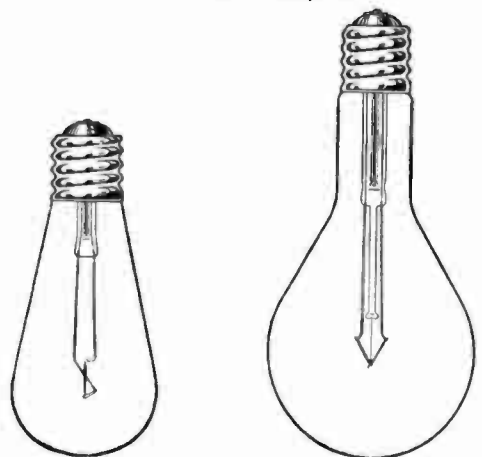
Lumens	Average Volts	Style Bulb	Over All Length Inches	Std. Pkg.	Price Each
<b>15 Amperes</b>					
4000	15.1	*PS35 Clear	9 7/8	24	\$1.90
<b>20 Amperes</b>					
6000	16.0	*PS40 Clear	9 7/8	12	\$2.50
10000	26.0	*PS40 Clear	9 7/8	12	3.10
15000	38.1	PS40 Clear	12 3/8	12	4.50
25000	61.3	PS52 Clear	13 1/8	8	7.00

\*Light center length 7 inches.

**Sunbeam Mazda C Lamps**

**Street Lighting Service**

4, 5.5 and 7.5 Amperes



S-Bulb

PS-Bulb

The nominal candle power of these lamps is 1/10 of their lumen rating.

There are but few conditions of street lighting now prevailing which justify the use of lamps smaller than 1000 lumens.

Fitted with mogul screw base.

Lumens	Style Bulb	AVERAGE VOLTS			Over All Length Inches	Std. Pkg.	Price Each
		4.0 Amp.	5.5 Amp.	7.5 Amp.			
600	S24 1/2 Clear	10.5	7.7	5.7	7 1/8	60	\$.85
800	S24 1/2 Clear	13.7	10.0	7.2	7 1/8	60	.85
1000	S24 1/2 Clear	16.5	11.9	8.5	7 1/8	60	.85
2500	PS35 Clear	41.1	28.1	19.6	9 7/8	24	1.60
4000	PS35 Clear	63.7	43.3	30.3	9 7/8	24	1.90
6000	PS40 Clear	...	...	43.7	9 7/8	12	2.50

**Sunbeam Inside Coated Colored Mazda Lamps**

110, 115 and 120 Volts



A-Bulb

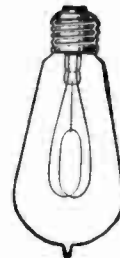
Flametint lamps give a soft tinted lighting effect. Substantially all the color effects required for display and decorative lighting in theatres, restaurants, signs, etc., can be produced by the colored and tinted lamps listed below.

Fitted with medium screw base.

Watts	Bulb	Over All Length Inches	PRICE, EACH			
			Std. Pkg.	Red, Blue Green, Yellow Amber-Orange	Flametint	Ivory and Old Rose
10	S14	3 1/2	120	\$.30	...	...
25	A19	3 5/8	120	.30	\$.25	\$.30
40	A21	4 1/8	120	...	.25	.30

**Carbon Series Lamps**

**For Electric Street Railway Service**



S19 Bulb  
50 and 60 Watts  
110-125 Volts  
64-Watt  
(5 in series)

These lamps are selected for amperes and are labeled for use, five in series on 523, 550, 575, 600, 625 and 650 volts.

Made in S19 bulb, over all length, 5 1/4 inches.

Fitted with medium screw base.

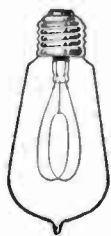
Watts	Efficiency W. P. C.	Package Quantity	PRICE, EACH	
			Clear	Frosted
64	4	250	\$.22	\$.25

## Carbon Lamps

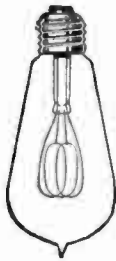
For Standard Lighting Service



S-14 Bulb  
10 Watts  
110 Volts



S-17 Bulb  
20 and 30 Watts  
110 Volts



S-19 Bulb  
60 Watts  
220 Volts

Carbon lamps are all in straight side bulbs fitted with medium screw base.

### 110 to 125 Volts

Watts	Efficiency W. P. C.	Style Bulb	Over All Length Inches	Std. Pkg.	PRICE, EACH	
					Clear	Frosted
10	5	S14	3½	250	\$.24	\$.29
20	4.15	S17	5¼	250	.24	.29
30	3.23	S17	5¼	250	.24	.29
50	2.97	S19	5¾	250	.24	.29
60	2.97	S19	5¾	250	.24	.29
120	3	S24½	6	100	.30	.35

### 220 to 250 Volts

35	4.4	S17	4⅝	250	\$.26	\$.31
60	3.69	S19	5¾	250	.26	.31
120	3.7	S24½	6⅛	100	.35	.40

Standard package discounts and allowances on above lamps can be given on orders for not less than a standard package quantity of one type and size of bulb. For any one type and size of bulb, lamps of different voltages, wattages, efficiencies and finish of bulb may be combined in one package.

## Sunbeam Mazda Lamps

### Intermediate Schedule

The lamps listed on the following schedule, with the exception of the 75-watt lamp in A-23 bulb, are no longer regularly manufactured and will not be shipped to Agents. These prices are given Agents for use in disposing of present stocks.

In the few cases which may arise after present stocks are exhausted, where Purchasers may have bona fide need for the old lamps, Agents may place orders for direct shipment only to Purchasers.

The 75-watt lamp in the A-23 bulb is listed on this schedule to supply the demand for the 75-watt lamp previously manufactured in PS-22 bulb. However, the 100-watt A-23 bulb Standard Line Lamp is recommended for such service.

### General Lighting Service

#### 110, 115 and 120 Volts

Watts	MAZDA B or C	Bulb	Std. Pkg.	Price Each
25	B	S-17 Clear	120	\$.25
75	..	A-23	60	.35

### Decorative Lighting Service

#### 110, 115 and 120 Volts

15	B	G-18¼ White	120	\$.30
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### High Voltage Lighting Service

#### 220, 230, 240, 250 and 260 Volts

50	B	P-19 Clear	120	\$.30
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### †Locomotive Cab Lighting Service

#### 34 Volts

15	B	S-17 Clear	120	\$.27
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The above lamps are fitted with medium screw base.

†Orders should specify "Locomotive Cab."

## Sunbeam Mazda Lamps

Extra Charges for Special Features

WHITE, ALL FROSTED AND WHITE BOWL LAMPS.—The following list additional charges shall be added to the list price of clear or inside frosted lamps for either white, all frosted or white bowl finish on such clear or inside frosted lamps. These prices apply only for the manufacturer's standard spray coatings defined below.

WHITE.—The term white refers to an all-over coating of the manufacturer's standard heavy density and the extra charges shown apply only to those lamps for which this coating is standard with the manufacturer.

This coating is standard for all Mazda B lamps, also all Mazda C lamps in A-23 and smaller bulbs. Exception—For daylight and natural colored lamps the light density coating (all frosted) is used.

ALL FROSTED.—The term all frosted refers to an all-over coating of the manufacturer's standard light density and extra charges shown apply only to those lamps for which this coating is standard with the manufacturer.

This coating is standard for all Mazda C lamps in S-24½ and larger bulbs and all Mazda B and Mazda C lamps in daylight and natural colored bulbs.

WHITE BOWL.—The term white bowl refers to a bowl coating of a density which varies according to the type of lamp on which it is supplied. The extra charges shown apply only to those lamps which are furnished in accordance with the manufacturer's standard density as follows:

Heavy density (white)—All Mazda B lamps and all Mazda C lamps in S-24½ and smaller bulbs (except \*\*).

Extra heavy density (bowl enamel)—All Mazda C lamps in PS-25 and larger bulbs (except \*\*).

\*\*Light density (all frosted)—All Mazda B and all Mazda C lamps in daylight and natural colored bulbs.

List Price of Clear or I side Frosted Lamps	List Additional Charge for White, All Frosted or White Bowl	List Price of Clear or Inside Frosted Lamps	List Additional Charge for White, All Frosted or White Bowl
Less than \$1.00	\$.05	\$6.00 to \$6.99	\$.35
\$1.00 to 1.99	.10	7.00 to 7.99	.40
2.00 to 2.99	.15	8.00 to 8.99	.45
3.00 to 3.99	.20	9.00 to 9.99	.50
4.00 to 4.99	.25	10.00 to 10.99	.55
5.00 to 5.99	.30	11.00 to 11.99	.60

Unless otherwise specifically listed in the standard or intermediate schedules, lamps which are listed at the same price clear (or inside frosted) and all frosted or white, will take the usual extra charge when furnished in white bowl.

ETCHING.—Additional charges for etching letters or designs may be obtained upon application to the manufacturer. Style of lettering or design should accompany application.

Orders for large lamps with customer's etching may be filled either short or in excess, within the limits of 5%; except that on orders for less than 40 lamps the shortage or excess may equal but not exceed 2 lamps.

Etched lamps are not rejectable by the purchaser under the provisions of the standard specifications.

VOLTAGE.—Lamps of 105, 125 and 130 volts can be supplied at the same prices as lamps of 110, 115 and 120 volts. For prices of voltages other than 105, 110, 115, 120, 125 and 130 volts apply to the manufacturer.

For prices of lamps in the 220-260-volt range other than 220, 230, 250 and 260, apply to the manufacturer.

SPECIAL BASING.—Prices listed cover only lamps fitted with unskirted bases unless otherwise indicated. Prices of lamps fitted with bases other than listed upon application.

SPECIAL LAMPS.—Any lamp requiring a change in construction from the standard, such as shape or color of bulb, tipped bulb, number of loops in filament, number of anchors, wattage, voltage, amperage, etc., will take a special price.

As it is impossible to always produce an exact quantity of any special lamps ordered, or of any lamps to be made tipped (when listed tipless), or of any lamps to be furnished with natural colored, coated colored or tinted bulbs, all such orders may be filled either short or in excess, within the limits of 10 per cent, except that on orders for 20 lamps or less, the shortage or excess will not exceed 2 lamps.

Miniature Mazda Automobile Lamps

Excluding Ford Cars



Mazda 61  
Mazda 63

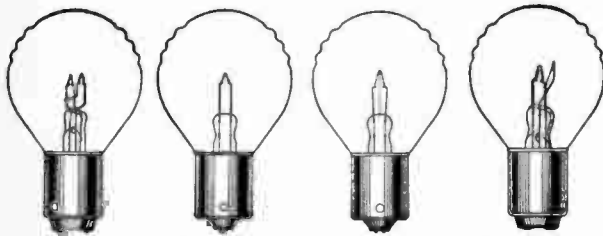


Mazda 67  
Mazda 71



Mazda 81

Mazda S.C.	No. D.C.	(†) Position	Mazda B or C	Bulb	Volts	Candle-Power	Unit Pkg.	Price Each
61	62	g	B	G-6	3-4	2	10	\$.20
63	64	h	C	G-6	6-8	3	10	.12
67	68	h	B	G-6	12-16	3	10	.22
81	82	f	C	G-6	6-8	6	10	.16
87	88	c	C	S-8	6-8	15	10	.22
89	90	f	B	G-8	12-16	6	10	.30
93	94	e	C	S-8	12-16	15	10	.30



Mazda 1110 Mazda 1129 Mazda 1141 Mazda 1158

....	1110	c	C	S-10	6-8	21	10	\$.29
1129	1130	a-d	C	S-10	6-8	21	10	.25
1133	1134	a	C	S-10	6-8	32	10	.50
1141	....	a-d	C	S-10	12-16	21	10	.40
1143	1144	a	C	S-10	12-16	32	10	.60

For Ford Cars

63	64	*h	C	G-6	6-8	3	10	\$.12
71	72	†h	B	G-6	18-24	3	10	.30
81	82	*f	C	G-6	6-8	6	10	.16
87	88	*e	C	S-8	6-8	15	10	.22
1129	....	*a-d	C	S-10	6-8	21	10	.25
....	1130	§a-d	C	S-10	6-8	21	10	.25
....	1138	a=	C	S-10	9	27	10	.40
....	1146	†d	C	S-10	18-24	27	10	.60
....	1158	*b	C	S-10	6-8	21	10	.28
....	1160	a=	C	S-10	9	21	10	.35

(†) a - Head lamps (single beam).  
 b - Head lamps (2-filament, 21-2 candlepower).  
 c - Head lamps (2-filament, 21-21 candlepower, de-pressible beam).

d - Spot, signal, backing, auxiliary driving.  
 e - Signal, backing, inspection.  
 f - Dome, panel.  
 g - Rear, instrument (series connected).  
 h - Rear, instrument, step, side, auxiliary head, parking, signal indicator.

\*For cars equipped with 3-cell (lead type) storage battery generator lighting system.

†For use on magneto lighting system.

§To insure satisfactory service, Mazda 1130 should be operated two in series on magneto lighting system equipped with reactance coil.

||For head lamps to be burned two in series on magneto lighting system not equipped with reactance coil.

= Mazda 1130 is preferable for Ford magneto service.

Miniature Mazda Lamps



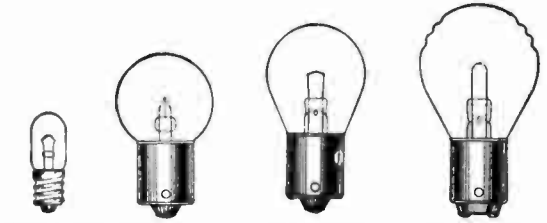
Mazda Lamp No.	Cell	Mazda B or C	Bulb	Volts	Amps.	Price Each
1	2	B	FE-3¾	2.2	.25	\$.10
11	2	B	G-3½	2.3	.27	.10
*13	3	B	G-3½	3.8	.30	.11
*14	2	B	G-3½	2.5	.30	.11
16	2	B	G-4½	2.5	.30	.09
17	3	B	G-4½	3.8	.30	.09
*31	5	B	G-4½	6.2	.30	.12

Flashlight Service

Standard Dry Battery Service

19	1	B	G-4½	1.25	.60	\$.10
35	2	B	G-5½	2.4	.80	.11

\*Concentrated filament for focusing flashlights only.



Mazda-40 Mazda-41 Mazda-89 Mazda-93 Mazda-1142

Radio Panel and Miscellaneous Service

40	..	B	T-3	6.0	.15	\$.14
41	..	B	T-3	2.5	.45	.14

Motorcoach Service

Mazda Lamp No.	† Position	Mazda B or C	Bulb	Volts	Candle-power	Price Each
67	j	B	G-6	12-16	3	\$.22
89	k	B	G-8	12-16	6	.30
93	m	C	S-8	12-16	15	.30
1142	l	C	S-10	12-16	21	.40



Mazda-1130 Mazda-110 Mazda-1150

Motorcycle Service

63	o	C	G-6	6-8	3	\$.12
64	o	C	G-6	6-8	3	.12
1129	p	C	S-10	6-8	21	.25
1130	p	C	S-10	6-8	21	.25

Electric Vehicle Service

110	r	B	S-8	40-44	6	\$.70
1150	s	C	S-10	40-44	21	.70

†j-Tail, instrument, side, running or marker, fare-box, signal indicator.

k-Auxiliary head, sign.

l-Interior, spot.

m-Signal, sign, interior.

o-Rear, side-car, speedometer, auxiliary head.

p-Head, spot.

r-Rear, instrument.

s-Head, side.



## No. 2000 P & S Outdoor Decorative Outfits



Designed for decorating large trees, festooning, or for use with large objects generally.

The sockets, 10 in number, spaced 20 inches apart, with an attachment plug on one end and a connecting socket on the other, are of cold molded material. They are for regular house-sized lamps and are National Electric Code Standard—Lamps are not

wired with No. 14 rubber-covered wire. supplied with this set.

Cat. No.	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2000	2	10	42	\$6.10

## P & S Electric Decorative Sets Intermediate Base—Multiple Type



These sets are of the new intermediate base size and are equipped with Mazda lamps. There are 7 sockets on each set, spaced on 20-inch centers with an attachment plug on one end and a special P & S connector on the other, allowing several sets to be connected together. Sockets are red and green Durez

and the wire has an outer red and green braid.

Sets are approved for outdoor and indoor use.

No. 2002 is equipped with a lead 10 inches long from the attachment plug to the first socket, for use when several sets are connected together and uniform spacing of lights is desired. No. 2003 is equipped with a lead 6 feet long from the attachment plug to the first socket, for use when a long lead is necessary to reach the outlet.

These two catalog numbers may be assorted in quantities of 25 to make up a standard package.

Cat. No.	Description	Car- ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
2002	10-Inch Lead.	10	50	55	\$4.50
2003	6-Foot Lead.	10	50	60	4.50

### Type C-9 1/4 Lamps Furnished Separately

Type C-9 1/4 intermediate base lamps for 110-115-volt multiple service can be supplied separate from sets Nos. 2002 and 2003. Lamps are packed 10 in a carton, only one color in each carton. They cannot be furnished except in multiples of 10 in any one color and will not be shipped in less than carton quantities.

Colors: Red, green, blue, orange and white.

Price.....each \$2.25

## No. 603 Betts Wynk-A-Lyte Flashing Plugs

For window display advertising, counter and show case display. In 100-watt size.

Compensated for temperature changes. Rating based on 110-120 volts. For 6, 8, 32, 220 or 250 volts add 30 per cent.

Dimensions, 1 1/8 x 2 inches. Weight, 1 ounce.

Price, No. 603.....each \$5.50



## No. 100 Noma 8-Light Christmas Tree Lighting Outfits

A Noma extension type outfit. Made of twisted wire throughout.

Equipped with 15-volt Mazda lamps in assorted colors.

For 110-120 volts.

Packed 50 outfits to the carton. Weight per carton, 42 pounds.

Size of standard carton, 16 1/2 x 11 1/8 x 30 inches.

Price, No. 100.....each \$2.50



## No. 3000 Noma 7-Light Multiple Christmas Tree Lighting Outfits

An extension outfit equipped with 120-volt colored new type Mazda lamps. This set lends itself for brighter decorative illumination. No burnt-out lamp can affect the light of the others.

Water-proof construction of rubber wire makes it possible to use set outdoors.

Sockets are of bakelite.

For 110-120 volts.

Packed 50 outfits to a carton, weighing 67 1/2 pounds.

Size of standard carton, 16 1/2 x 12 1/2 x 34 inches.

Price, No. 3000.....each \$4.50



## Betts Thermo-Wynk Flashers

Made with compensated thermostats, thus not affected in the slightest by temperature changes. The contacts are platinum iridium.

No. 670 is the Baby type only, without the receptacle.

Nos. 612 and 613 are furnished with the receptacle as shown. This arrangement saves labor in connecting. Adapted to small window transparencies.

For 6, 8, 32, 220 or 250 volts add 30 per cent to prices.

Cat. No.	Volts	Watts	Price Each
670	110-125	60	\$ .60
612	110-125	60	.60
613	110-125	100	.90



Nos. 612-613

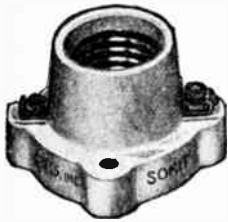
## Betts Thermo-Wynk Flashers



With compensated thermostats. Platinum iridium contacts. Flashers of 220 watts and over equipped with condensers to minimize ringing. For 6, 8, 32, 220 or 250 volts add 30 per cent to prices. Wattage capacity on 220 to 250 volts is reduced 50 per cent, and on voltages less than 100 the capacity is reduced proportionately to decrease in voltage.

Cat. No.	Volts	Watts	Price Each	Cat. No.	Volts	Watts	Price Each
671	110-125	100	\$ .90	674	110-125	440	\$5.00
672	110-125	220	2.50	676	110-125	660	6.50

**Flash-O-Lite Sokit Flashers**



This is a labor saving flashing socket designed for small window sign transparencies, etc. Finished in dull porcelain and also colored glaze. Three standard timings: slow, medium and fast.

Prices are based on 110-120 volts. For other voltages add 30 per cent.

Wattage capacity on 220 to 250 volt is reduced 50 per cent, and on voltage below 110, capacities are reduced proportionately.

- Price, No. 1012, 60 Watts ..... each \$1.20
- Price, No. 1013, 110 Watts ..... each 1.65
- Price, No. 1014, 200 Watts ..... each 2.75

**No. 1019 Jimbetts Flash-O-Lite Flashers**

This type operates on the same principle as the Sokit and connects into any circuit like an electric bell.

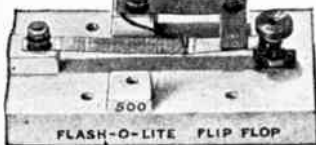
Prices based on 110-120 volts. Prices for other voltages upon request.



Cat. No.	Watts	Price Each
1019	60	\$1.00

**Flash-O-Lite Flip-Flop Flashers**

Flasher with instantaneous make and break. Dependable for its rated load.

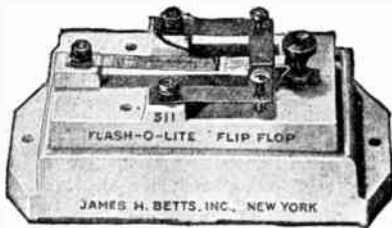


Prices based on 110-120 volts. Prices for other voltages upon request.

Cat. No.	Watts	Price Each
501	220	\$3.75

**Flash-O-Lite Flip-Flop Flashers**

The contacts are equipped with extra large platinum — iridium contacts and an arc eliminating condenser. Prices based on 110-120 volts. Prices for other voltages upon request.



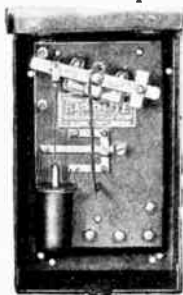
Cat. No.	Watts Each Side	Price, Ea.	Cat. No.	Watts Each Side	Price, Ea.
502	440	\$7.50	503	660	\$8.00

In the larger capacities, a number of special thermo units have been designed. For capacities above 440, complete information should be forthcoming, giving wattage, number of circuits, location of flasher (whether indoors or out of doors), and the usual current characteristics.

**Mercury Flip-Flop Flashers**

For 110-120 Volts A.C. or D.C.

For wall mounting. In this type the arc is broken in a vacuum tube which will work satisfactorily under rated load of 1000 watts per circuit. Size, 4x6 1/4x11 inches.



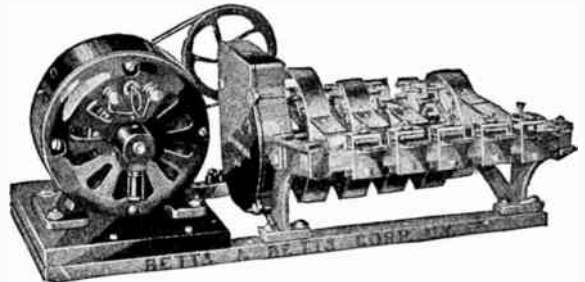
Shipping weight, 15 pounds.

Cat. No.	Action	No of Circuits	No. of Wires	Price Each
900	On and Off	1	2	\$22.00
901	Alternate	2	2	23.00
902	On and Off	2	2	28.00
903	On and Off	2	3	29.00
904	Alternate	4	2	30.00
905	Alternate	4	3	31.00

Sign circuits must be divided to correspond with number of flasher circuits. Specify whether a.c. or d.c.

For 220 volts, add \$2.50; price for other voltages upon application.

**Betts Spelling or On-And-Off Type Sign Flashers**



Used in flashing a whole word or display on and off, in spelling one letter at a time, in traffic controls, call systems, etc.

Spelling flashers are built for 2 actions: Action No. 1 spells out the letters one at a time until all are on, then all off with a brief out period, with operation then repeating. Action No. 2 spells out the letters until all are on, then all off, then all on together, last all off together with the operation then repeating.

**1/2-Inch Brushes Carry—440 Watts D.C. 660 Watts A.C.**

Cat. No.	No. of Brushes	Size Inches	Shipping Weight Pounds	Price Each with Motor	Price Steel Cabinets Extra
5-1	1	16x13x11	67	\$30.00	\$7.00
5-2	2	17x13x11	68	33.00	7.00
5-3	3	18x13x11	69	36.00	7.00
5-4	4	20x13x11	70	39.00	7.00
5-5	5	21x13x11	71	42.00	8.00

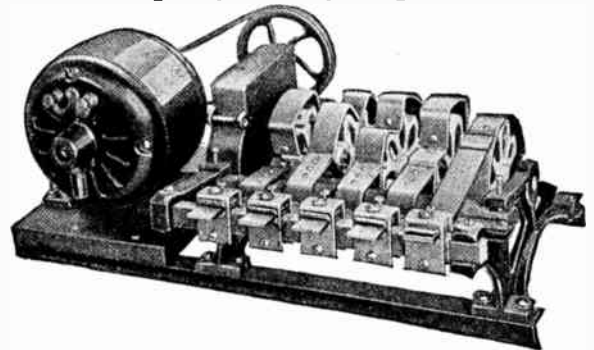
For each additional switch or feeder add \$3.00 to price.

**1-Inch Brushes Carry—880 Watts D.C. 1320 Watts A.C.**

15-1	1	16x13x11	71	\$35.00	\$8.00
15-2	2	18x13x11	72	39.00	8.00
15-3	3	20x13x11	73	43.00	8.00
15-4	4	22x13x11	74	47.00	9.00
15-5	5	23x13x11	76	51.00	10.00

For each additional switch or feeder add \$5.00 to price.

**Betts High Speed Type Sign Flashers**



A standard mechanism usually assembled in multiples of 4 brushes depending upon load to be flashed. Used to produce flowing or moving effects. Chaser type reproduces crawling snakes, chasing rats, etc., runs at the same shaft speed but is assembled in varying multiples of brushes.

**With 1/2-Inch Brushes—Capacity per Brush on D.C., 250 Watts, on A.C., 330 Watts**

Cat. No.	No. of Brushes	TOTAL CAPACITY, WATTS	Size Inches	Shipping Weight Pounds	Price Each with Motor	Price Steel Cabinet Extra
HS-4	4	1320 1000	20x13x11	72	\$38.00	\$7.00
HS-8	8	2640 2000	27x13x11	73	53.00	10.00

For each additional switch or feeder add \$3.00 to price.

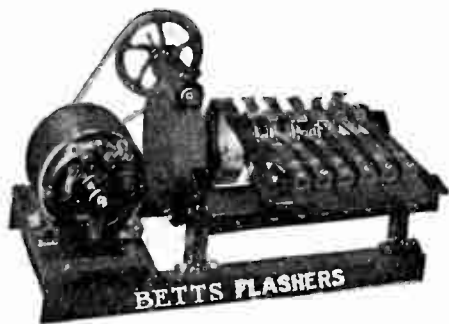
**With 1-Inch Brushes—Capacity per Brush on D.C., 550 Watts, on A.C., 660 Watts**

HHS-4	4	2610 2000	22x13x11	77	\$48.00	\$8.00
HHS-8	8	5280 4000	31x13x11	85	63.00	11.00
HHS-12	12	7920 6000	42x13x11	100	83.00	14.00
HHS-16	16	10560 8000	51x13x11	110	103.00	16.50

For each additional switch or feeder add \$5.00 to price.

## No. 6C Chaser Sign Flashers

D.C., 200 Watts per Switch—A.C., 300 Watts per Switch



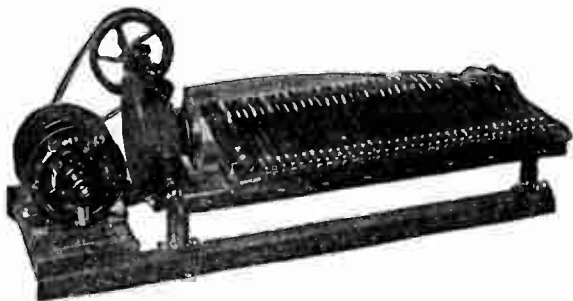
Used for producing crawling snakes, chasing rats, etc. Number of circuits should be a multiple of the number of snakes.

Cat. No.	No. of Switches	Size Inches	Shipping Wt., Lbs.	Price, Each with Motor	Steel Cabinets Extra
6C	6	8 1/4 x 13 1/4 x 22	80	\$46.00	\$9.00

For each additional switch, add \$3.00.

## No. 10S Script Sign Flashers

Capacity, 110 Watts per Switch at 110 Volts



Designed for writing a word one or more lamps at a time; also skyrockets, shooting stars, fireworks, etc.

Cat. No.	No. of Switches	Size Inches	Shipping Wt., Lbs.	Price, Each with Motor	Steel Cabinets Extra
10S	10	8 1/2 x 13 1/2 x 22	80	\$44.00	\$7.00

For each additional switch up to 50, add \$1.25 each; above 50, \$2.50 each.

### Instructions for Ordering

Specify number and wattage of lamps to be controlled by each switch or circuit. Kind of current, whether d.c. or a.c. If a.c., give number of cycles. Whether 2 or 3-wire system. Voltage.

If design is complicated, give complete description of the sign, and preferably a sketch showing number of lamps per circuit and how they are to be flashed.

NOTE.—Carrying capacity of 220-volt flashers is 50 per cent less.

Prices based on 110-120-volt d.c. or 60-cycle motors.

## Spelling Type Sign Flashers



These machines are used to flash 2 or more circuits such as spelling out a word, or series of words or a sentence, letter-by-letter or word-by-word or line-by-line. When all are on, they hold for an instant, then

all off, then all on, then off, and repeat.

This type of flasher can also be used by increasing and diminishing effects, such as skyrockets, sunsets and sunrises, growing vines and flowers, winding discs and the like.

Capacity per Switch, D.C., 440 Watts;  
A.C., 550 Watts

Cat. No.	No. of Switches	Approximate Size Inches	Shipping Weight Pounds	Price, Each With Motor	Steel Cabinets Extra
1-5	1	8 1/2 x 13 1/2 x 18	70	\$31.00	\$7.00
2-5	2	8 1/2 x 13 1/2 x 18	70	34.00	7.00

Capacity per Switch, D.C., 880 Watts;  
A.C., 1100 Watts

1-10	1	8 1/2 x 13 1/2 x 18	70	\$35.00	\$8.00
2-10	2	8 1/2 x 13 1/2 x 18	70	40.00	10.00

For each additional switch or feeder, add \$5.00 to price.

### Alternate and On-And-Off Flashers

ALTERNATE FLASHERS.—Used for flashing alternate sides of a sign, or 2 or more signs alternately; for signal lights, traffic devices and the like.

ON-AND-OFF FLASHERS.—For flashing one or more signs on and off, for window displays, color changers, call systems, controls, sirens, bell ringers and the like.

Prices are the same as shown above. Prices are based on 110-120-volt d.c. or 60-cycle motors.

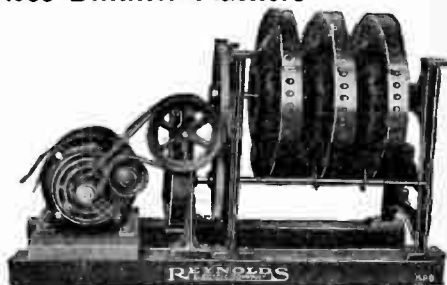
### Reco Dimmer Flashers

For sign work, electric fountains, show window, or other decorative lighting effects.

Gradually dimming lights in 50 steps from full bright to dark and back to bright can be furnished.

State complete flashing specifications, number of lamps, size, wattage on each circuit, kind of current, etc.

Single dimmer plates can be supplied in capacity from 1000 to 1700 watts. Any number of dimmer plates may be combined to form a single unit. Prices on request.



### Reco Speed Type Flashers

For spectacular and motion effects; traveling borders, flames, fountains, flags, revolving wheels, lightning, rays, sparks, smoke, waterfalls, twinkling, moving ground, waves, fireworks, dropping coins, rain, juggling balls, etc.

Reco Flashers are used wherever predetermined opening and closing of circuits is required.

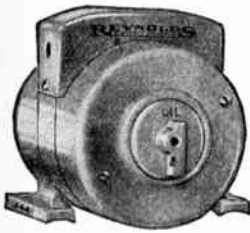
Capacity 200 Watts per Brush

Cat. No.	No. of Brushes	Size Inches	Wt. Lbs. Boxed	PRICE, EACH		
				Including Motor	16-Gauge Steel Cabinet	Additional Brushes
S-4-4	4	18x13x11	55	\$40.00	\$9.00	\$3.00
S-8-4	8	25x13x11	67	52.00	12.00	3.00

Capacity 400 Watts per Brush

S-4-8	4	21x13x11	68	\$48.00	\$10.00	\$5.00
S-8-8	8	32x13x11	80	68.00	12.00	5.00

**Reco Unit Flashers**



Made single-pole only, for 2-wire service.

The number of brushes governs the flashing effect. Specify clearly number of brushes, circuits, speed, a.c. or d.c., voltage and cycles.

Furnished for 110 volts, 60 cycles a.c. For 110 volts d.c. and odd voltages or cycles, add \$4.00 to prices.

**Capacity 400 Watts per Brush or Circuit**

Cat. No.	No. of Brushes	Speed	Weight Pounds	Price Each
H-1161	1	Fast (60 R.P.M.'s)	25	\$33.00
H-2161	2	Fast (60 R.P.M.'s)	25	35.00

**Capacity 800 Watts per Brush or Circuit**

Cat. No.	No. of Brushes	Speed	Weight Pounds	Price Each
H-1361	1	Slow (15 R.P.M.'s)	25	\$35.00
H-2361	2	Slow (15 R.P.M.'s)	25	37.00

**Reco Laco Color Hoods**



Laco Color Hoods are used for lighting store windows in color, floodlights, spotlights, reflectors, etc.

They fit all standard store window reflectors and lamps, billboard reflectors, footlights, exit lights and wherever color light is wanted.

Furnished in six colors: Flame red, royal blue, tree green, golden amber, daylight, moonlight and blue.

Standard packages of 24 Colorlites, weight 26 pounds, consist of 4 unit packages of 6 each, weighing 5½ pounds.

**Laco Color Hoods—Open Reflector Types**

Size No.	Description	Price, Each	
		Complete	Glass Only
1	For Use on 50-Watt Lamp to 150-Watt Mazda Lamps	\$2.20	\$1.55
2	For 200 and 300-Watt Mazda C Lamps	2.40	1.70
3	For 500-Watt Mazda Lamps	4.00	3.00

**Spot and Floodlights—Interior and Exterior**

2-A	For 200 to 300-Watt Mazda C Lamp, Also 200 to 300-Watt G Lamp	\$2.40	\$1.70
3-A	For 300 to 400-Watt Mazda G Lamp and 500-Watt Mazda C Lamp	4.00	3.00

**Reco Laco Inner Color Plates for Floodlights**

Used principally for color floodlighting buildings, fountains, waterfalls, etc. Color plate consists of metal ring holder and special heat-resisting Laco glass, made from 12 to 36 inches in diameter. For use in all standard floodlights, both for C-2 lamps and G lamps.

Furnished in all colors.



**Reco Combination Holders and Color Hoods**



For exit lights, elevator signals, directional lights, danger lights, back stage lighting, grain elevators, coal or iron mines, canopies, marquees, decorative color effects, electric signs, etc.

Holders made for either ring or flush type of receptacle and fit Standard outlet boxes.

It is dust tight and water proof. A quarter turn of the thread secures the hood.

Supplied in all standard colors—ruby, green, blue, amber, canary, opal and clear glass.

Cat. No.	SF-14	AF-19	AF-21
Outside Diameter	2½ inches	3½	3¾
Price, Hood with Holder	\$ .40	.60	.80
Price, Extra for Wire Guard	.24	.26	.28

**Benjamin Laco Colorlites**

Benjamin Reflectors with Laco Colorlites are effective for color lighting. The Colorlites are glass lamp caps and are fitted with an attaching spring holder to clamp over the lamp. They can be furnished in amber, red, green, blue and true daylight. Glass is undoubtedly superior to any other medium for transmitting color values. It is not subject to distortion or warping and does not wear out. Specify color when ordering.



**Colorlites Complete without Lamp**

Cat. No.	Size Lamp Watts	Std. Pkg.	Wt., Lbs. Std.	Price Each
16117	100, 150	12	14	\$2.20
16118	200	12	18	2.40

**Glass Caps Only**

16119	100, 150	12	11	\$1.55
16120	200	12	13	1.70

**Types HS and HA (Half) Col-O-Caps**

Type HS-14 fits standard S-14 lamp.

Type HA-17 fits the standard A-17 lamp.

Types HA-19 and the HA-21 fit, respectively the A-19 and A-21.

In ordering, specify size of bulb and color of cap desired.

Prices given below apply on standard packages of 50 and 100 caps only, one color, one size. Broken lots, extra.



Color	Price, Each			
	HS-14	HA-17	HA-19	HA-21
Blue	\$.20	\$.35	\$.39	\$.45
Green	.20	.35	.39	.45
Amber	.20	.35	.39	.45
Canary	.20	.35	.39	.45
Purple	.20	.35	.39	.45
Ruby	.20	.35	.39	.45

**Types FS and FA (Full) Col-O-Caps**

Type FS-14 fits standard S-14 lamp.

Type FA-17 fits the standard A-17 lamp.

Types FA-19 and the FA-21 fit, respectively, the A-19 and A-21.

In ordering, specify size bulb and color of cap desired.



Color	Price, Each			
	FS-14	FA-17	FA-19	FA-21
Blue	\$.22	\$.41	\$.45	\$.55
Green	.22	.41	.45	.55
Amber	.22	.41	.45	.55
Purple	.22	.41	.45	.55
Opal	.22	.41	.45	.55
Ruby	.22	.41	.45	.55
Canary	.22	.41	.45	.55

Above prices apply on standard packages of 50 and 100 caps only, one color, one size. Broken lots extra.

**Matthews Holdfast Lamp Changers**



Price, No. 2 for 15-60-Watt Mazda Lamps.....each \$13.00

Price, No. 3 for 60-150-Watt Mazda Lamps, Up to 5 Inches in Diameter.....each 15.00

**Adaptable Lamp Changers**



Fits any style of incandescent lamp from 8 C.P. to 100 watts. Furnished without steel poles in 5½-foot sections as desired. In ordering poles, specify length.

Price, Changer Only.....each \$6.50

“ Steel Pole.....per section 4.50

## Hubbell Non-Locking Type Lamp Guards

Schedule E



No. 5573  
No. 5578



No. 5485  
No. 5487



No. 5691

Cat. No.	Size Lamps Watts	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
5573	15-25-40-60	Brass	10	100	40	\$35.40
5578	75	Brass	10	100	55	40.10
5485	15-25-40-60	Brass	10	100	30	28.30
5487	75	Brass	10	100	35	33.25
5691	15-25-40-60	Brass	10	100	28	22.40
5692	75	Brass	10	100	32	27.40
5693	15-25-40-60	W. P.	10	100	27	23.90
5694	75	W. P.	10	100	32	27.40

Separate basket for No. 5573, 18 cents list. Top with collar, 17 cents list.

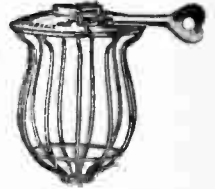
Separate basket for No. 5578, 20 cents list. Top with collar, 20 cents list.

## Hubbell Locking Type Lamp Guards

Schedule E



For Brass Sockets



One key is furnished with each carton of locking guards. Extra keys 5 cents each list.

For Weatherproof Sockets

Cat. No.	Size Lamps Watts	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
5685	15-25-40-60	Brass	10	100	35	\$42.20
5635	75	Brass	10	100	40	56.25
5762	100-200	Brass	10	50	38	70.65
5730	15-25-40-60	W. P.	10	100	35	43.00
5731	75	W. P.	10	100	40	56.30
5820	100-200	W. P.	10	50	38	75.25
6410	150-250	Brass	10	50	45	111.00
6411	150-250	W. P.	10	50	45	116.05

Separate baskets for Nos. 5685, 5730 guards, 18 cents list. Tops only, 25 cents list.

Separate baskets for Nos. 5635, 5731 guards, 24 cents list. Tops only, 32 cents list.

Separate baskets for Nos. 5762, 5820 guards, 32 cents list. Tops only for No. 5762, 38 cents list. Tops only for No. 5820, 43 cents list.

## Hubbell Non-Locking Type Lamp Guards

With Half Reflector

Schedule E



Cat. No.	Size Lamps Watts	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
5766	15-25-40-60	Brass	10	100	44	\$47.70

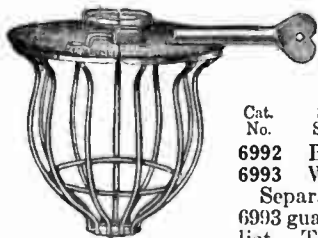
Separate basket, 30c list; top with collar, 18c list; separate reflector, 13c list.

## Hubbell Lamp Guards

For 25-50-Watt Mill Type Lamps

Schedule E

Locking Type



Cat. No.	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
6992	Brass	10	100	30	\$47.05
6993	W. P.	10	100	30	46.75

Separate baskets for Nos. 6992, 6993 guards, 20 cents list. Tops only, 27 cents list.



Non-Locking Type

Cat. No.	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
6995	Brass	10	100	20	\$26.20
6996	W. P.	10	100	25	26.25

## Hubbell Locking Type Lamp Guards

With Half Reflector

Schedule E



One key is furnished with each carton of locking guards. Extra keys 5 cents each list.

No. 5764

Cat. No.	Size Lamps Watts	Style Socket	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
5764	15-25-40-60	Brass	10	100	40	\$63.40
5765	15-25-40-60	W. P.	10	100	45	63.00

Separate reflectors for above guards, 13 cents list. Separate baskets with reflectors, 34 cents list. Separate tops only, 29 cents list.

## Hubbell Locking Type Lamp Guards

For Bottom of Reflectors

Schedule E



†No. 6655

Cat. No.	Size Reflectors Inches	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
6650	6½	10	50	40	\$52.35
6652	8	10	50	50	58.70
7197	9	10	50	52	65.20
6653	10	10	50	55	79.80
*6655	12	10	50	58	100.85
*6657	14	1	20	60	122.70
*6659	16	1	20	63	161.15
*6660	18	1	20	65	163.00

\*Packed in bulk.

†Reflector shown for illustration only.

One key is furnished with each carton of locking guards. Extra keys 5 cents each list.

Extra long locking screws may be furnished with guards to adapt them for oversize reflectors.

Lamp guards are packed 10 to the carton.

## Benjamin Locking Ceiling Guards



Has hinge and fastening plate opposite hinge; attached by screws. For brass padlock, 2 keys, add 65 cents. Heavy steel wire, tinned. Fittings are galvanized.

Cat. No.	Size, INCHES		Std. Pkg.	Price Each
	Diam.	Depth		
1350	10	7	10	\$1.60
1352	12	8	10	2.00
1354	14	9	10	2.50
1356	16	6¾	10	2.80
1358	18	8¾	10	3.50
1360	20	11	10	4.00



**Loxon Type Lamp Guards**



No. 1425

Tinned wire; closed bottom; two steel hinged plates at top that snugly fit over socket bead and have locking device operated by key, which is furnished with each dozen guards. Can be furnished to fit conduit receptacles, V.V. receptacles, Unilets, Taplets and aluminum sockets, when so specified.

Approved by Underwriters' Laboratories.

Cat. No.	FOR MAZDA LAMPS WATTS		Price per Dozen	Cat. No.	FOR MAZDA LAMPS WATTS		Price per Dozen
	Old Style	New Style			Old Style	New Style	
*1425	25-60	50-60C	\$6.00	*2444	100	200	\$10.00
*1426	50-75	100C	6.30	†2446A	100	200	10.00
†1427A	25-60	50-60C	6.00	†2446B	100	200	10.00
†1427B	25-60	50-60C	6.00	*2447	200	...	12.50
†1428A	50-75	100C	6.30	†2447A	200	...	12.50
†1428B	50-75	100C	6.30	†2447B	200	...	12.50
*2443	75	150	9.00	.....	.....	.....	.....

\*Fits brass sockets. †Fits W. P. sockets.

**Loxon Type Reflector Guards**

Same as the above, but with tinned, pressed steel half reflector.

Cat. No.	FOR MAZDA LAMPS WATTS		Fits Socket	Price per Dozen
	Old Style	New Style		
1400	25-50	15-40B	Brass	\$9.00
1401A	25-50	15-40B	W.P.	9.00
1401B	25-50	15-40B	W.P.	9.00
1443	25-50	50-60C	Brass	9.00
1444A	25-50	50-60C	W.P.	9.00
1444B	25-50	50-60C	W.P.	9.00



No. 1443

**Gripion Type Lamp Guards**



No. 1600

The Gripion Type Lamp Guard is fastened to the socket by means of plain screws.

Made to fit conduit receptacles, V. V. receptacles, Unilets, Taplets and aluminum sockets, when so specified.

All numbers followed by A fit any W.P. socket with the bottom bead measuring 1 7/8 to 1 11/16 inches in extreme diameter. All numbers followed by B fit any W.P. socket with the bottom bead measuring 1 3/4 inches in extreme diameter.

For W.P. sockets or receptacles with bottom bead measuring 1 1/2 inches in diameter specify regular A number only leaving off the A and substituting the letter N—for example, 1427-N, W. P.

Cat. No.	FOR MAZDA LAMPS WATTS		Price per Dozen	Cat. No.	FOR MAZDA LAMPS WATTS		Price per Dozen
	Old Style	New Style			Old Style	New Style	
*1600	25-50	50-60C	\$4.00	*1608	25-50MT	15-25B	\$4.00
*1601	50-75	100C	4.30	†1608A	25-50MT	15-25B	4.30
†1602A	25-50	50-60C	4.30	†1608B	25-50MT	15-25B	4.30
†1602B	25-50	50-60	4.30	.....	.....	.....	.....

**Gripion Type Reflector Guards**

*1620	25-50	50-60C	\$7.00	*1610	25-50MT	15-25B	\$7.00
†1621A	25-50	50-60C	7.00	†1611A	25-50MT	15-25B	7.00
†1621B	25-50	50-60C	7.00	†1611B	25-50MT	15-25B	7.00

\*Fits brass sockets. †Fits W.P. sockets.

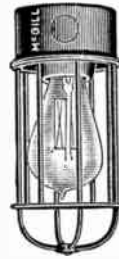
**Protector O Lamp Guards**

An open bottom guard enabling quick and easy removal or insertion of lamp and fully protects against breakage. Heavily tinned.

Cat. No.	MAZDA LAMPS WATTS		Fits Socket	Price per Dozen
	Old Style	New Style		
1429	50	25-60B	Brass	\$4.00
1430	50	25-60C	W.P.	4.00



**Crescent Wall Guards**



No. 1436A

Style A fits any standard 3-inch outlet box. Style A1 is same style as A but fits 4-inch outlet box. Style B has removable ring which is attached to wall for 25 and 40 watt lamps only.

Style C wall guard and outlet box cover combined, No. 1439C. No. 1439C is made of bessemer steel wire ribs, stamped rings and plate over cover which will fit a 3-inch or 4-inch outlet box and will take standard outlet box cover receptacles.

Style D wall guard No. 1440 is the same as Style C except that it is fitted with a trap or cover which is equipped with a key locking arrangement. Heavy tinned finish.

Style E wall guard No. 1580 is made for use with Crouse Hinds Company's Types J and K condulets. Heavy tinned finish.

Style F No. 1581, same as No. 1580 except furnished with locking attachment.

Cat. No.	Style	DIMENS., IN.		Wt., Lbs. per Dos.	Price Each
		Diam.	Depth		
1436	A	2 7/8	5 3/4	9	\$1.20
1438	A1	3 1/8	6 1/2	9	1.40
1437	B	3 1/8	6 1/2	9	1.80
1439	C	3 1/8	5 5/8	12	1.20
1440	D	3 1/8	5 5/8	13	1.60
1580	E	3 1/8	6	9	1.40
1581	F	3 1/8	6	10	1.80
1590	100-150 Watt	3 1/2	6 7/8	10	2.50
1591	200 Watt	4 1/8	8 3/4	12	3.00

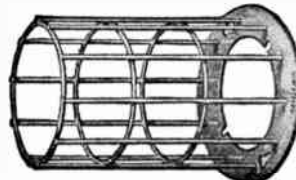
**Benjamin Locking Ceiling Guards**



The two-piece locking ceiling guards Nos. 1362-1375 have strong cylindrical upper guard adapted for attaching to the ceiling by three or more screws, and a shallower portion hinged to it at the bottom. They are particularly designed for single unit ceiling fixtures. Heavily tinned after parts are welded. For brass padlock with two keys add 65 cents.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Price Each
	Outside Diam., Top	Opening Diam., Bottom	Height Over All		
1362	13 1/4	10 1/2	9 3/4	10	\$3.00
1366	13 1/2	10 1/2	13 3/4	10	3.50
1370	16 1/2	13 1/2	16	10	4.50
1371	18 3/4	15 1/2	19 1/2	10	4.75
1372	20 1/2	17 1/2	18 1/2	10	5.00
1374	20 7/8	17 1/2	22 1/2	10	6.00
1375	24 3/4	21 1/2	22 1/2	10	7.00

**Benjamin Outlet Box Lamp Guards**



Adapted for low ceilings, side walls, foot lights, etc. Base is slotted to fit 3 1/4 or 4-inch boxes; will take 60 and 100-watt lamps. Heavily tinned after parts are welded.

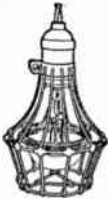
Cat. No.	Diam. In.	Depth In.	Std. Pkg.	Wt., Lbs. Each	Price Each
1400	4	5 3/4	10	1/2	\$9.00



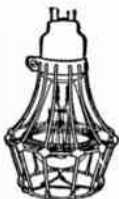
## Matthews Holdfast Lamp Guards



For New Type A Mazda Lamps



For Brass Sockets



For Weatherproof Sockets

The rigid construction of these guards; the fact that they are permanently clamped to the socket; and the spiral spring cushion in the center make it a protection against breakage of incandescent lamps. The trap which is clamped across bottom opening prevents unauthorized removal of lamps. Guard is locked to socket by bending set screw.

The hot lamp cannot get closer than one inch to any inflammable material and the guard does not have to be removed from the socket to replace the lamp.

Approved by all insurance companies and underwriters. Guaranteed 10 years. Collars of guards for brass shell sockets are 1 1/4 inches, for weather-proof sockets, 1 1/2 inches.

### Type A for 25 and 50-Watt Type A Mazda Lamps

For Brass Shell Sockets			For Weatherproof Sockets		
Cat. No.	Size Wire B. W. G.	Price per 100	Cat. No.	Size Wire B. W. G.	Price per 100
1440	14	\$50.00	1441	14	\$50.00

### Type A for 60-Watt Type A Mazda Lamps

1460	14	\$60.00	1461	14	\$60.00
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### Type A for 100-Watt Type A Mazda Lamps

14100	14	\$70.00	14101	14	\$70.00
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### For New 25 and 50-Watt Mill Type Mazda Lamps

MT14B	14	\$84.00	MT14WP	14	\$84.00
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### For 6, 8, 10, 16 and 32-C.P. Carbon and 15,

### 25, 40, 50 and 60-Watt Type B Mazda Lamps

114B	14	\$80.00	114WP	14	\$80.00
112B	12	100.00	112WP	12	100.00

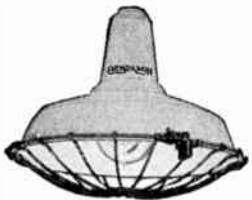
### For 50-C.P. Carbon and 75 and 100-Watt Type C Pear Shape Mazda Lamps

514B	14	\$110.00	514WP	14	\$110.00
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### For 200-Watt Type C Pear Shape Mazda Lamps and 100-Watt Old Style Straight Side Mazda Lamps

714B	14	\$200.00	714WP	14	\$200.00
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## Benjamin Locking Pendent Guards



This guard has grooved band and eye bolt for attaching to bead of reflector. A lock-nut for fastening ground wire protects lamp against static currents. Diameter given is that of the reflector or which the guard fits. For padlock with two keys add 65 cents to price.

Heavy steel wire is tinned; fittings, galvanized. Std. pkg. 10.

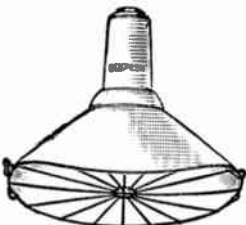
Cat. No.	SIZE, INCHES		Price Each	Cat. No.	SIZE, INCHES		Price Each
	Diam.	Depth			Diam.	Depth	
1378	7	1 1/4	\$1.75	1386	12	2 3/4	\$2.00
1380	8	1 1/2	1.80	1388	14	4	2.15
1381	8 1/4	1 1/2	1.80	1390	15	6 3/4	2.50
1382	9	1 3/4	1.85	1392	16	5	2.70
1383	10	2 3/4	1.90	1394	18	5 3/4	3.00
1385	11 3/8	2	2.00	1396	20	7	3.50

## Benjamin Wire Guards

### For Elliptical Angle Reflectors

Heavy steel wire, tinned. Fittings are galvanized.

Cat. No.	For Reflectors Nos.	Std. Pkg.	Price Each
1320	5522, 5525	10	\$1.25
1321	5526	10	1.50
1322	5537, 5538	10	2.00



## Morse Open Bottom Lamp Guards

Cat. No.	Watts	Style	Price Each
1	40	Light	\$.25
2	60	"	.30
3	40	Heavy	.35
4	60	"	.40



## Morse Weatherproof Socket Guards



Type	Watts	Cat. No.	Price Each
Light	40	5	\$2.25
Light	60	6	.30
Heavy	40	7	.35
Heavy	60	8	.40

## Morse Never Break Locking Lamp Guards

### For Mill Type Lamp Bulbs

Watts	For Brass Sockets		For Weatherproof Sockets	
	Cat. No.	Price Each	Cat. No.	Price Each
25 to 50	346	\$.35	348	\$.35

Half reflector, \$1.00 per dozen extra.



## Morse New Never-Break Lamp Guards



Cat. No.	Watts	Wire	Price Each
107	40	Light	\$.25
109	60	Light	.30
111	40	Heavy	.35
113	60	Heavy	.40

## Morse New Open Bottom Lamp Guards

### With Cushion Ring For Brass Sockets

Cat. No.	Style	Watts	Price Each
161	Light	40	\$.30
162	"	60	.35
163	Heavy	40	.40
164	"	60	.45



## Morse New Open Bottom Lamp Guards

### With Cushion Ring For Weatherproof Sockets

Cat. No.	Style	Watts	No. of Wire	Price Each
165	Light	40	15	\$.30
166	"	60	15	.35
167	Heavy	40	12	.40
168	"	60	12	.45



## Morse Eureka Lamp Guards

### For Mill Type Lamps

### With Cushion

Cat. No.	Watts	Wire Gauge	Price Each
171	40	15	\$.30
175	40	15	.30




## Morse Eureka Lamp Guards

### With Lock




Watts	Wire Gauge	For Brass Sockets		For Weatherproof Sockets	
		Cat. No.	Price Each	Cat. No.	Price Each
50	16	340	\$.35	344	\$.35
60	16	341	.40	345	.40

**Morse High Efficiency Lamp Guards**

Brass			Price Each	
Cat. No.	Watts			
198	75		\$ .50	
200	100		.65	
204	200		1.00	
Mogul Brass			Price Each	
Cat. No.	Watts			
206	300		\$1.50	
208	500		2.50	
211	1000		4.00	

Weatherproof			Mogul Weatherproof		
Cat. No.	Watts	Price Each	Cat. No.	Watts	Price Each
198WP	75	\$ .50	206WP	300	\$1.50
200WP	100	.65	208WP	500	2.50
204WP	200	1.00	211WP	1000	4.00

**Morse High Efficiency Locked Lamp Guards**

Brass			Price Each	
Cat. No.	Watts			
350	50		\$ .50	
353	75		.65	
354	100		.80	
356	200		1.50	
Mogul			Price Each	
Cat. No.	Watts			
357	300		\$2.00	
359	500		3.50	
361	1000		5.00	

Weatherproof			Mogul Weatherproof		
Cat. No.	Watts	Price Each	Cat. No.	Watts	Price Each
350WP	50	\$ .50	357WP	300	\$2.00
353WP	75	.65	359WP	500	3.50
354WP	100	.80	361WP	1000	5.00
356WP	200	1.50			

**Morse No Steel Guards**

Style	Watts	For Brass Sockets		For Weatherproof Sockets	
		Cat. No.	Price Each	Cat. No.	Price Each
Light	40	240	\$ .30	244	\$ .30
Light	60	241	.35	245	.35
Heavy	40	242	.40	246	.40
Heavy	60	243	.45	247	.45

**Morse Lamp Guards**

**No Steel Closed Bottom**

**For Mill Type Lamps**

Cat. No.	Description	Lamp Watts	Price Each	
248	For Brass Socket	50	\$ .30	
249	For W. P. Socket	50	.30	

**Morse Heavy Ceiling Lamp Guards**



These guards are fastened to flat iron rings with lugs.

A very strong and substantial guard, built with an eye to service.

If wanted with hinge and hasps, add 20 per cent to price.


Cat. No.	Diam. Inches	Price Each	Cat. No.	Diam. Inches	Price Each
49	3 x5 or 6	\$ .75	55	12x11	\$2.50
50	4 x7	.90	57	14x12	3.00
52	4 1/2 x8	1.25	58	16x13	3.50
52A	6 x8	1.50	59	18x14	4.00
51	8 x8	1.75	60	20x15	4.50
53	10 x9	2.00	61	22x16	5.25

**No. 24H Morse Eureka Lamp Guards For Hubbell Style**



No. ....	24H
Wire .....	gauge 16
Price .....	each 5.30

**Morse Tubular Guards**

Cat. No.	Diam. In.	Price Each	
99	6 1/2 x 2	\$ .45	
99A	6 1/2 x 2 1/2	.55	

**Bunghole Guards**

Cat. No.	Diam. In.	Price Each
100	6 1/2 x 1 3/4	\$ .45

**Cluster Guards**

**Light**

Made to attach to reflector. Depth 1/2 diameter.



Cat. No.	Diam. In.	Price Each	Cat. No.	Diam. In.	Price Each
180	10	\$1.25	188	18	\$2.25
182	12	1.50	190	20	2.50
184	14	1.75	192	22	2.75
186	16	2.00	194	24	3.00

**Heavy**

Made to attach to ceiling with hinge and hasp. Depth 3/4 diameter.

Cat. No.	Diameter Inches	Price Each	Cat. No.	Diameter Inches	Price Each
181	10	\$1.85	189	18	\$3.40
183	12	2.25	191	20	3.75
185	14	2.60	193	22	4.00
187	16	3.00	195	24	4.50

**Morse Eureka Portable Hand Guards With Cushion**



Tinned finish.

Cat. No.	Description	Size Bulb	Watts	Wire Gauge	Price Each
30	Without Reflector	A19	40	12	\$1.00
31	With Reflector	A19	40	12	1.20

**Morse Eureka Portable Hand Guards Without Cushion**



Without Cushion

Copper finish.

Cat. No.	Size Bulb	Watts	Wire Gauge	Price Each
46A	S21	50	8	\$1.25
48A	S23	60	8	1.50

**Morse Eureka Portable Hand Guards With Cushion**

With Cushion  
Copper finish.



Cat. No.	Description	Size Bulb	Watts	Wire Gauge	Price Each
36	Without Reflector	A19	50	8	\$1.50
37	With Reflector	A19	50	8	1.75

## Morse Eureka Portable Hand Guards

With Cushion



No.	Watts	Each	No.	Watts	Each
46	40	\$1.50	48	60	\$1.75
36	40	1.50	47 Reflector	40	1.75
46A	40	\$1.25	36A	40	\$1.25

Without Cushion

## Morse Eureka Heavy Portable Lamp Guards



With Cushion

No. 30 for Style A Bulbs

Cat. No.	Watts	Price Each	Cat. No.	Watts	Price Each
69	100	\$1.50	72	60	\$1.20
70	50	1.00	30	40	1.00

## Never Break Handy Lamp Guards



Cat. No.	Watts	Price Each
75	40	\$1.20
77	60	1.50
73	100	1.80

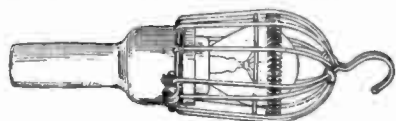
## No. 74 Morse Combination Portables with Reflector



Price, No. 74, 40 Watts ..... each \$1.20

## Morse Garage Portable Lamp Guards

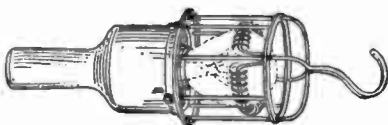
For Mill Type Lamps, Only



Cat. No.	Description	Price Each
32	50-watt Mill Type, 11 Inches Long	\$1.60
33	50 " " " 11 " " with Half Reflector.	1.80

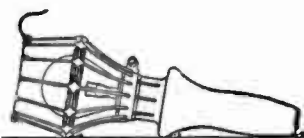
## Morse Champion Portable Lamp Guards

For Mill Type Lamps, Only  
Copper finish.



Cat. No.	Description	With Socket Price Each
34	50-watt Mill Type	\$2.00
35	50 " " " with Half Reflector	2.25

## Matthews Handy Holdfast Portables



This device is a combination of a specially designed No. MT14 Holdfast Guard with a hook. It is equipped with an extra strong hardwood handle which completely covers and protects

the socket. All contacts can be reached by loosening the set screw on the collar of the No. MT14 Holdfast Lamp Guard. Note that when Matthews Handy Holdfast Portable is lying on the floor that it touches at three points, and for that reason no excessive strain will be put on the guard or handle if it were accidentally stepped on.

Price, No. 1, Including Lamp Guard, Keyless Socket and Handle Only ..... per 100 \$420.00

Price, No. 2, Including Lamp Guard, Push Button Socket and Handle Only ..... per 100 480.00

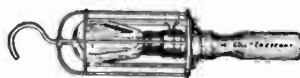
## Thumb Switch Type Portable Lamp Guards



One of the best all around guards for the private and public garage, basements, etc. It has a non-breakable lever socket for one hand operation.

Price, No. 2003, to Fit 25 or 50-Watt Lamps... each \$2.80

## Crescent Portable Lamp Guards



Bessemer steel rods; stamped metal ring, copper-plated. Takes 3/8-inch standard brass socket.

For O.S. regular or 25-60-watt N.S. Mazda B and C lamps.  
Price, No. 4645, For 50-Watt Lamps..... each \$2.50  
Price, No. 4676, For 60-Watt Lamps..... each 2.50

## Bulldog Portable Lamp Guards



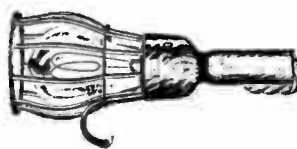
Furnished with key or keyless socket, securely embedded in handle, giving a firm, rigid base.  
Price, No. 4675, Key Socket to Fit 60-Watt Lamps...ea. \$3.50  
Price, No. 2593, Keyless Socket to Fit 60-Watt Lamps...ea. 3.50

## No. 4000 Dreadnaught Portable Lamp Guards

Has porcelain keyless socket fitted with spring contact embedded in handle. Steel wire guard with hook, copper plated. For 50-watt old style regular or 25-40-50-60-watt new style Mazda B or C lamps. Length, 9 3/4 inches. Price, No. 4000, Weight 1 1/16 Pounds..... each \$3.50



## National Portable Lamp Guards



Made of steel, heavily tinned, with porcelain keyless weatherproof socket. Length, 11 1/2 inches.

Cat. No.	LAMP, WATTS	Wt. Lbs.	Price Each
1451	50 25-60	1 1/16	\$2.50
1452	60 40-100	1 1/16	2.50

## No. 3001 Safety Vapor-Proof Portable Lamp Guards

For the garage or wherever gases or inflammable materials may be used.

Has heavy steel frame, strong handle, handy grip hook and vapor-proof receptacle. Heavily tinned finish.  
Price, No. 3001, To Fit 25-Watt Lamps..... each \$5.00



## Cable Rack Portable Lamp Guards



Key or keyless socket embedded in the handle.

Take 50-watt old style Mazda lamps; new style, 15-60 watts.

Price, No. 2000, with Key Socket..... each \$2.80  
Price, No. 2001, with Keyless Socket..... each 2.80

## Monitor Portable Lamp Guards

A low priced guard furnished without socket.

Prevents breakage and helps to reduce danger from hot and broken lamps.

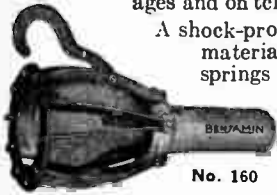
Price, No. 1453, to Fit 40-Watt Lamps..... each \$1.70  
Price, No. 1454, to Fit 60-Watt Lamps..... each 1.80



**Benjamin Fibre Hand Portable Lights**

Used by repair men in homes, factories, garages and on telephone and power switchboards.

A shock-proof light made of non-conductive materials. Socket is so mounted that springs which protect lamp from breakage are effective.



No. 160

Has varnished maple handle, fibre guard and hook.

Will not roll when placed on a flat surface.

Fibre half shade keeps glare out of user's eyes. 25 to 60-watt lamps should be used. No. 165 is especially convenient around switchboards and distributing frames.

Cat. No.	Description	Std. Pkg.	Wt. Lbs.	Price Each
158	Keyless Type, with 1 Hook.....	5	1/2	\$2.30
160	Key Type, with 1 Hook.....	5	1/2	2.40
165	With 2 Adjustable Hooks.....	10	1/2	3.50

**Benjamin Vapor Proof Hand Portables**



This portable light is handy for use in cramped places and also a safe light in the presence of dangerous gases and vapors. The A T-10 tubular lamp is protected by a removable, galvanized metal guard with hinged hook, and vapor proof globe. Wooden handle is black and is furnished with stuffing gland. Vapor proof globe only lists at 50 cents each. Prices do not include lamps.

Cat. No.	Description	Std. Pkg.	Wt. Lbs.	Price Each
259VP	With Stuffing Gland in Handle..	5	9	\$3.80
261VP	Less " " " " " "	5	8 1/2	3.40

**Benjamin Heavy Duty Hand Portable Lights**



No. 274

A watertight, gas and vaporproof portable that will operate under severe conditions. A safe and handy light to use around gasoline tanks,

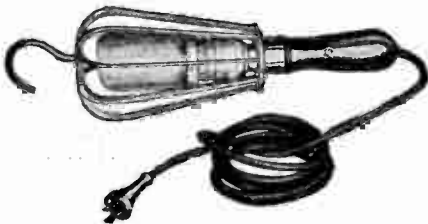
garages and places where explosive vapors are present. Body is cast brass with clear screw globe and brass guard with detachable hook. Finished hardwood handle encloses watertight stuffing gland for cable. Metal parts are finished in black.

A Type A 25 to 60-watt lamp may be used.

Prices do not include lamps or portable cords.

Cat. No.	Description	Standard Package	Net Weight Pounds	Price Each
273	Keyless.....	5	3 3/4	\$7.10
274	Key.....	5	3 3/4	8.50

**No. 9X282 G-E Portable Hand Lamp Cord Sets**



Set consists of 20-foot No. 16 type SJ G-E-Flex all-rubber cord, G-E-Flex all-rubber cap and portable hand lamp with reflector and guard.

Carton, 1.

Standard package, 25.

Price, No. 9X282..... each \$10.00

**Reelite Extension Portables**

**Drop Cord Type**

250 Watts, 250 Volts



The drop cord type consists of a reel-unit 5 1/2 inches in diameter, carrying 12 feet of rubber covered portable cord. The cord winder is of plural spring type.

Equipped with or without key socket. The base may be attached to any 3/4 or 4-inch outlet box or direct to ceiling. Finished in black enamel.

To operate, simply raise or lower like an ordinary window curtain. Bare lamps should never be used on any lighting unit; standard shades or reflectors can be attached to the socket. For lighting horizontal surfaces, cone or deep bowl reflectors are satisfactory.

These drop cord lights are especially effective over work benches, tables and machines.

Cat. No.	Description	Length of Cord, Ft.	Price Each
1532	Without Socket.....	12	\$9.50
1533	Brass Shell Key Socket.....	12	10.00
1534	Composition Key Socket.....	12	10.00

**Portable Type**

250 Watts, 250 Volts

A portable lamp for use around garages and machine shops. Cord winds just like a curtain roller, allowing just the length of extension required for the job; no cord to lie on the floor and be ruined. When the job is finished, the portable is reeled up out of the way.

Black enameled reel is 7 1/4 inches in diameter. Base will fit 3/4 or 4-inch outlet box or direct to ceiling; 25 feet of rubber covered cord; with or without brass or composition key socket, heavy wire open guard, Loxon guard or vaporproof globe and guard. Will take lamps up to and including 60 watt, except vaporproof which will take 25 or 40 watt lamps only.



No. 1528

Cat. No.	Description	Lgh. Cord Ft.	Price Each
1521	Cloth Cutting Machine Type, with Swivel Cover, Light Weight Cord and Light Spring Tension without Ratchet Stop.....	25	\$12.50
1522	Heavy Wire Guard Keyless Socket.....	25	15.00
1524	Without Wiring Devices.....	25	12.00
1524 1/2	Keyless Socket (Cord Grip) 660 Watts, 600 Volts.....	25	13.00
1525	Brass Key Socket (Less Guard).....	25	12.50
1526	Composition Key Socket (Less Guard).....	25	12.50
1527	Loxon Guard Key Socket.....	25	13.50
1528	Heavy Wire Guard Key Socket (Guard Will Accommodate Lamps Up to 60 Watt Incl.).....	25	15.00
1529	Vaporproof-Globe will Accommodate 25 or 40 Watt Lamps.....	25	16.50
1530	Without Wiring Devices, with No. 18 Ga., 3 Conductor Cord (2 Conductors are Connected to the Brushes of the Reelite and the Third Conductor is Grounded to the Frame).....	25	13.00

**Machine Tool Type**

660 Watts, 250 Volts



CONSTRUCTION.—Black enameled reel unit, 7 1/4 inches in diameter, with base for attaching to 3/4 or 4-inch outlet box; 20 feet of extra heavy approved reinforced rubber covered cord and attachment plug connector body. Plural-spring reel insuring long life.

Workmen like to reel up the cord on a Reelite when through using same—it is just like raising or lowering a window shade.

Cat. No.	Type	Length of Cord Feet	Price Each
1523	Connector Body.....	20	\$12.50

## No. 445 R & S Bunghole Lamps



Made entirely of brass and fitted with special 16 c.p. waterproof lamp and stuffing gland for cable.

Price No. 445, with Special Lamp..... each \$7.70  
 " " 391, Ex. Lamp, 110 Volt..... " 1.10

## R & S Non-Watertight Hand Portables

Extra strong, galvanized steel, with hardwood handle and No. 180 weatherproof keyless socket.  
 Price, No. 473..... each \$3.30



## No. 422 R & S Watertight Hand Portables



Cast brass body, flat brass wire guard, hardwood handle with stuffing gland for cable and screw type globe No. 806.

Price, No. 422, 60-Watt..... each \$4.40

## No. 528 R & S Watertight Hand Portables



Cast brass body, round brass wire guard, hardwood handle, with stuffing gland for cable and flared type globe No. 870, absolutely vapor proof. Suitable for Edison base ball lamp.

Price, No. 528, 25-Watt..... each \$5.50

## No. 517 R & S Watertight Hand Portables



Strong, all brass body and round wire guard with hardwood handle stuffing gland for cable and flared type globe No. 882.

Price, No. 517, 60-Watt..... each \$8.00

## Macallen Malleable Iron Hickeys



Cat. No.	Size In.	Price per 100	Cat. No.	Size In.	Price per 100
1450	1/8x1/8	\$6.00	1463	1/2x3/8	\$12.00
1451	1/4x1/8	6.00	1456	1/2x1/2	14.00
1452	1/4x1/4	6.00	1597	3/4x3/8	28.00
1453	3/8x1/8	8.00	1464	3/4x1/2	30.00
1454	3/8x1/4	8.00	1457	3/4x3/4	35.00
1455	3/8x3/8	9.00	1465	1 x 3/4	40.00
1461	1/2x1/8	12.00	1458	1 x 1	45.00
1462	1/2x1/4	12.00	.....	.....	.....

## Macallen Electrolier or Separable Joints

With Malleable Iron Male Thread Hickeys



Cat. No.	Size Inches	Price Each	Cat. No.	Size Inches	Price Each
7681	3/8x1/8	.80	7685	1/2x1/4	\$1.08
7682	3/8x1/4	.80	7686	1/2x3/8	1.09
7683	3/8x3/8	.81	7687	1/2x1/2	1.14
7684	1/2x1/8	1.08	.....	.....	.....

## Macallen Blank Joints For Externally Wired Fixtures

Cat. No.	Size In.	Price Each
7701	3/8x1/8	\$.72
7702	3/8x1/4	.72
7703	3/8x3/8	.72
7704	1/2x1/8	1.00
7705	1/2x1/4	1.00
7706	1/2x3/8	1.00
7707	1/2x1/2	1.00
7708	3/4x3/8	2.50
7709	3/4x1/2	2.50
7710	3/4x3/4	2.50
7711	1 x 1/2	3.50
7712	1 x 3/4	3.50
7713	1 x 1	3.50
7714	1 1/4x1 1/4	7.50
7715	1 1/2x1 1/2	12.00
7716	2 x 2	18.00



Plain Joint

## Male and Female

Cat. No.	Size In.	Price Each
7721	3/8 F x 1/8 M	\$.72
7722	3/8 F x 1/4 M	.72
7723	3/8 F x 3/8 M	.72
7724	1/2 F x 1/8 M	1.00
7725	1/2 F x 1/4 M	1.00
7726	1/2 F x 3/8 M	1.00
7727	1/2 F x 1/2 M	1.00
7734	3/8 M x 1/8 F	.72
7735	3/8 M x 1/4 F	.72
7728	3/4 F x 3/8 M	2.90
7729	3/4 F x 1/2 M	2.90
7730	3/4 F x 3/4 M	2.90
7731	1 F x 1/2 M	4.00
7732	1 F x 3/4 M	4.00
7733	1 F x 1 M	4.00
7736	1/2 M x 1/8 F	1.00
7737	1/2 M x 1/4 F	1.00
7738	1/2 M x 3/8 F	1.00



## Macallen Insulating Joints



No. 7521



No. 7751

Cat. No.	Size In.	Price Each	Cat. No.	Size In.	Price Each
7521	3/8 F x 1/8 M	\$.72	7528	3/4 F x 3/8 M	\$2.90
7522	3/8 F x 1/4 M	.72	7529	3/4 F x 1/2 M	2.90
7523	3/8 F x 3/8 M	.72	7530	3/4 F x 3/4 M	2.90
7524	1/2 F x 1/8 M	1.00	7531	1 F x 1/2 M	4.00
7525	1/2 F x 1/4 M	1.00	7532	1 F x 3/4 M	4.00
7526	1/2 F x 3/8 M	1.00	7533	1 F x 1 M	4.00
7527	1/2 F x 1/2 M	1.00	.....	.....	.....

Cat. No.	Size In.	Price Each	Cat. No.	Size In.	Price Each
7534	3/8 M x 1/8 F	\$.72	7537	1/2 M x 1/4 F	\$1.00
7535	3/8 M x 1/4 F	.72	7538	1/2 M x 3/8 F	1.00
7536	1/2 M x 1/8 F	1.00	.....	.....	.....

Cat. No.	Size In.	Price Each	Cat. No.	Size In.	Price Each
7751	3/8x1/8	\$1.00	7755	1/2x1/4	\$1.30
7752	3/8x1/4	1.00	7756	1/2x3/8	1.30
7753	3/8x3/8	1.00	7757	1/2x1/2	1.30
7754	1/2x1/8	1.30	.....	.....	.....

## Macallen Insulated Crowfeet



Cat. No.	Size In.	Price Each
1401	1/8	\$.90
1402	1/4	.90
1403	3/8	.90
1404	1/2	1.20
1405	3/4	2.50

**Illumination Design**

**Location of Outlets—Adequate Wiring**

The wiring plan is the foundation of the lighting system. Because the cost of relighting is made up so largely of wiring costs, it is more economical to provide wiring adequate for future as well as present needs.

When once outlets are properly installed, a change in type of reflector or in size of lamp, may be made without undue complication; but where spacing of outlets is too great or wiring inadequate, satisfactory results can never be obtained without extensive alteration.

The number of outlets to provide for any given area is determined by maximum allowable spacing between lighting units and is in turn regulated by their height above floor.

**Spacing of Outlets**

The relation between height and spacing is based on distribution of light to procure a reasonably uniform level of illumination on working plane.

The spacing for uniform illumination on work depends upon height of light source above surface to be illuminated, but since most work surfaces are from 2½ to 3½ feet above the floor, the spacing may for practical purposes be considered a function of mounting height of lamps above floor.

When lighting units are mounted as high as the ceiling or roof trusses permit, large and more efficient lamps may be used, while fewer units—to buy, install and maintain—will be necessary. The ceiling height dictates the maximum permissible spacing.



**Layout of Outlets for Large Industrial Building**

Location of outlets is determined by structural features of interior; in many cases, wiring is installed before type of lighting unit is decided upon. Ceiling height automatically regulates maximum permissible spacing, assuming units are mounted as high as possible.

Illustration shows layout of lighting outlets for a large industrial building, indicating the application of data in table below. The 13-foot clearance allows a spacing of 13 feet. For a symmetrical layout in the bays a 10-foot spacing is adopted.

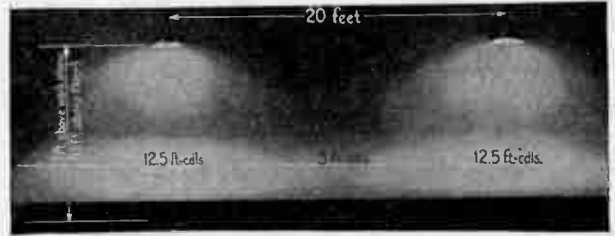
**Table No. 1**

Ceiling Height (Or Height in the Clear) (C) (Feet)	SPACING BETWEEN OUTLETS—FEET		SPACING BETWEEN OUTSIDE OUTLETS AND WALL FEET		Approximate Area per Outlet (At Usual Spacings) (Square Feet)
	Usual (D)	*Maximum (For Units at Ceiling) (E)	Aisles or Storage Next to Wall (A)	*Desks, Workbenches, etc., Against Wall (B)	
8	7	7 ½		3	50-60
9	8	8	Usually	3	60-70
10	9	9		3 ½	70-85
11	10	10 ½	one-	3 ½	85-100
12	10-12	12		3 ½-4	100-150
13	10-12	13	half	3 ½-4 ½	100-150
14	10-13	15		4-5	100-170
15	10-13	17	actual	4-5	100-170
16	10-13	19		4-6	100-170
18	10-20	21	spacing	4-6	100-400
20	18-24	24		5-7	300-500
22	20-25	27	between	5-7	400-600
24	20-30	30		6-8	400-900
26	25-30	33	units	8-9	600-900
30 and up	25-30	40		8-10	600-900

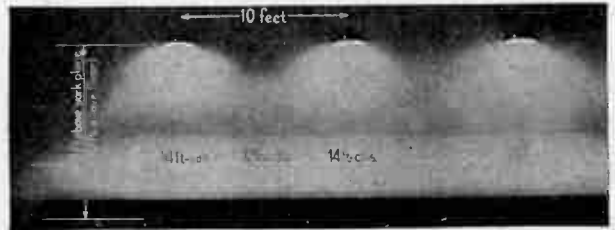
\*Where it is definitely known that some form of indirect lighting will be used, the maximum spacing between outlets may be increased about 2 feet, and the distance from the outside outlets to the wall may be increased by 1 foot.

**Illumination Design**

**Location of Outlets—Adequate Wiring**



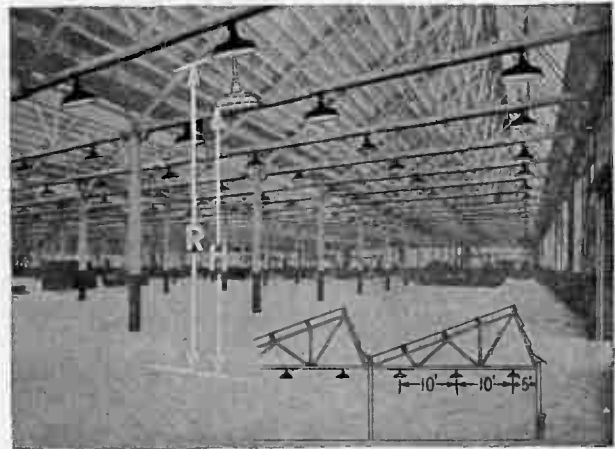
**Fig. 1.—Units spaced too far apart for their height furnish uneven illumination. The remedy is to mount the units higher or to space them closer as shown in Fig. 2.**



**Fig. 2.—If the permissible ratio between spacing and mounting height is not exceeded, uniform illumination will be produced. Overlapping of light eliminates shadows.**

With a light source only 8 feet above the floor one unit would be required for each 55 square feet to give uniform coverage; for a 10-foot height a unit for each 125 square feet; 15-foot, 325 square feet; 20-foot, 650 square feet, etc.

**Mounting Height of Lighting Units**



For a 10-foot spacing, units might be dropped to 10 feet above floor as shown by dotted outline of reflector at height H. They are mounted on trusses 12 feet to minimize glare.

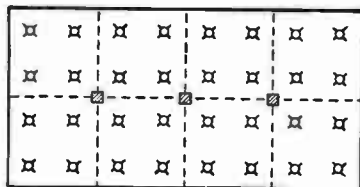
**Table No. 2**

Distance Spacing from Between Floor Units (D) (Feet)	Not Less Than (H) (Feet)	Desirable Mounting Height in Industrial Interiors (R)	Desirable Mounting Height in Commercial Interiors (R)	Semi-Indirect and Indirect Lighting	
				Actual Spacing Between Units (D) (Feet)	Recommended Suspension Length of Bowl to Ceiling (S) (Feet)
7	8	12 feet above floor if possible—to avoid glare, and still be within reach from stepladder for cleaning.	The actual hanging height should be governed largely by general appearance, but particularly in offices and drafting rooms, the minimum values shown in Column H should not be violated.	7	1-3
8	8 ½			8	1-3
9	9			9	1-3
10	10			10	1 ½-3
11	10 ½			11	2-3
12	11			12	2-3
14	12 ½			14	2 ½-4
16	14			16	3-4
18	15			18	3-4
20	16			20	4-5
22	18	22	4-5		
24	20	24	4-6		
26	21	26	4-6		
28	22	28	5-7		
30	24	30	5-7		



## Layout Suggested for Symmetrical Spacing

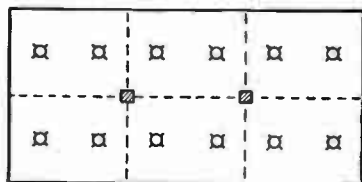
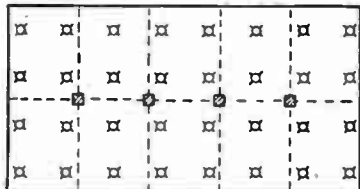
Where interiors are divided by columns or ceiling beams into bays, it is usually desirable because of appearance, to locate outlets symmetrically with respect to these structural sections.



**Layout A**  
4 Units per Bay

The most common system for the square bay of usual dimensions.

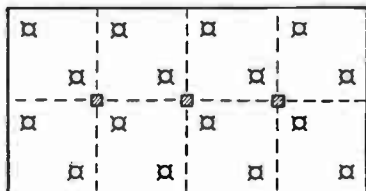
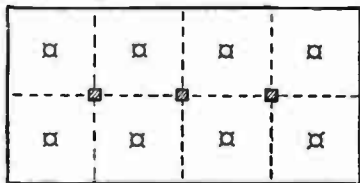
**Layout B**  
4-2 System  
Equivalent to 3 units per bay; an alternative to 4 per bay where permissible spacing allows.



**Layout C**  
2 Units per Bay

Usually applicable only in narrow bays where width is less than two-thirds the length.

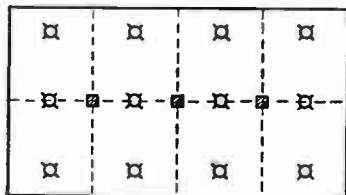
**Layout D**  
1 Unit per Bay  
Satisfactory only where bay size is not greater than the maximum permissible spacing.



**Layout E**  
Staggered System

Where one unit per bay is unsatisfactory and where 4 per bay is unnecessary. Less favorable appearance, certain areas near walls may be inadequately lighted.

**Layout F**  
Interspaced System  
Used in rectangular bays where one unit per bay would exceed permissible spacing in one direction, and where center row will not interfere with future structural arrangements.



## Adequate Wiring Data

The Underwriters' code specifies wiring conditions with regard to fire hazard without giving consideration to the economy of operation. The size of wire for a lighting installation may conform strictly to the code and at the same time the circuits be of such length to cause excessive voltage drop.

### Wattage Capacity per Outlet—Number of Outlets per Circuit

In order that a higher wattage lamp may be used in each outlet at any future date without necessitating a rearrangement of circuits, it is recommended that the capacity per outlet as given in the table be allowed, and in general, the number of outlets per circuit as follows: where capacity is 300 watts or less, not more than 8 per circuit; 300 to 750 watts per outlet, not more than 4 per circuit; where more than 800 watts, not over 2 should be on each circuit.

## Architects' and Electrical Contractors' Wiring Guide

Table No. 3

Floor Area per Outlet Square Feet	Wattage Capacity per Outlet			
	Class A	*Class B	Class C	Class D
65-75	200	200	150	100
75-85	300	250	150	100
85-95	350	250	200	100
95-110	400	300	200	100
110-125	450	350	250	150
125-140	500	400	250	150
140-160	600	450	300	150
160-190	700	500	350	200
190-220	800	600	400	200
220-260	950	700	450	250
260-300	1100	800	550	300
300-340	1250	950	650	300
340-390	1450	1100	750	350
390-440	1650	1250	850	400
440-500	.....	1400	950	450
500-560	.....	1600	1050	500
560-630	.....	1800	1200	550
630-710	.....	.....	1350	650
710-800	.....	.....	1500	750
800-900	.....	.....	1700	850

\*In factories it is often desirable to convert storage areas into work places to meet immediate production needs. Therefore storage areas should be wired according to Class B.

†Class A, for offices, drafting rooms, factories, etc. Class B, for stores and school rooms. Class C, for neighborhood stores, storage areas in factories and basements. Class D, for storage areas in garages and unimportant basements.

## Present Standards of Illumination

The desirable illumination value varies widely, depending on the conditions in any particular installation, such as the accuracy required in the operation, fineness of detail to be observed, and color of goods worked on or handled.

Foot Candles—Table No. 4

	FOOT CANDLES RECOMMENDED	
	Good Practice	Minimum
Auditorium, Church	5	3
Armory, Public Hall	12	8
School, Classroom, Study Room, Library	12	8
<b>Store</b>		
Show Window	100	50
First Floor Department, Shop on Bright Street or Corner	15	10
Other Clothing, Dry Goods, Haberdashery, Millinery, Jewelry, Etc	15	10
Other Drug, Grocery, Meat, Bakery, Book, Florist, Furniture, Etc	12	8
<b>Office</b>		
Private, General	15	10
Drafting Room	25	15
<b>*Industrial</b>		
For Intermediate and Auxiliary Space in Interiors: Aisles, Passageways, Stairways, Etc		
For Handling Coarse Material and Work Involving no Discrimination of Detail	3	2
For Rough Manufacturing Operations, such as: Rough Assembling, Rough Forging, Rough Woodworking, Rough Benchwork, Ice Making, Etc	5	3
For Medium Manufacturing Operations, such as: Machine Work, Meat Packing, Tobacco Manufacturing, Laundries, Etc	8	5
For Fine Manufacturing Operations, such as: Assembling, Pattern Making, Machining on Metals Knitting, Office Work, Etc	12	8
For Extra Fine Manufacturing Operations, such as: Watch and Jewelry Making, Engraving, Typesetting, Machine Stitching on Shoes, Cutting and Sewing Dark Garments, Etc	20	12
Building Exteriors	50-100	25

\*It must be remembered that work on dark goods requires a higher illumination than work on light goods.

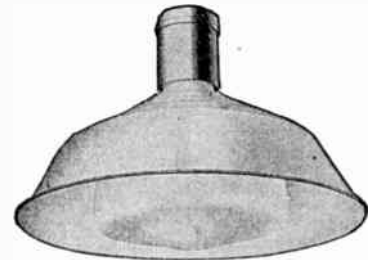
Reflectors for Industrial Lighting

R.L.M. Dome with White Bowl Lamp

Glassteel Diffuser with Clear Lamp Manufactured in 200, 300 and 500 Watts



For average industrial conditions.



For high quality industrial lighting. Moderate intrinsic and reflected glare. Seven per cent of total output directed towards ceiling makes for cheerful working conditions, reduced ceiling contrast and reduced glare effect.

Table No. 6

Showing the lamp size required to provide the foot-candle standard of illumination indicated in Table 4.

Calculations take into account the actual spacing per outlet, the type of reflecting equipment and conditions of interior as determined from Table 5.

Figures in first column of table show the area per outlet adequately lighted.

Area per Outlet Square Feet	Spacing Feet	Conditions	Average Foot-Candles for Lamp Sizes as Follows					Average Foot-Candles for Lamp Sizes as Follows			
			WATTS					WATTS			
			100	150	200	300	500	150	200	300	500
55-65	7½x7¾	Favorable	8-10	15-18	21-26	.....	.....	13-16	18-23	.....	.....
		Average	6-8	11-15	16-21	.....	.....	10-13	14-18	.....	.....
		Unfavorable	5.5-6.5	9-11	13-16	.....	.....	8-10	11-14	.....	.....
65-75	8½x8½	Favorable	7-9	13-16	18-22	.....	.....	11-14	15-19	.....	.....
		Average	6-7	10-13	13-18	.....	.....	8-11	11-15	.....	.....
		Unfavorable	5-6	8-10	11-13	.....	.....	7-8	9-11	.....	.....
75-85	9 x9	Favorable	6-8	11-14	15-19	.....	.....	10-12	13-17	.....	.....
		Average	5-6	8-11	12-15	.....	.....	8-10	10-13	.....	.....
		Unfavorable	4-5	7-8	10-12	.....	.....	6-8	8-10	.....	.....
85-95	9½x9½	Favorable	5-7	10-12	14-17	.....	.....	8-10	12-15	.....	.....
		Average	4-5	8-10	11-14	.....	.....	6-8	9-12	.....	.....
		Unfavorable	3.5-4.0	6-8	9-11	.....	.....	5-6	7-9	.....	.....
95-110	10 x10	Favorable	4-6	8-10	12-15	21-26	.....	7-9	11-13	18-23	.....
		Average	3.5-4.0	6-8	10-12	16-21	.....	5-7	8-11	13-18	.....
		Unfavorable	3.0-3.5	5-6	8-10	13-16	.....	4-5	6-8	11-13	.....
110-125	11 x11	Favorable	4-5	7-9	10-13	18-22	.....	6-8	9-11	15-19	.....
		Average	3.5-4.0	6-7	8-10	14-18	.....	5-6	7-9	11-15	.....
		Unfavorable	2.5-3.5	5-5.5	7-8	12-14	.....	4-5	5-6	9-11	.....
125-145	11½x11½	Favorable	3.5-4.0	6-8	9-11	15-19	.....	5-7	8-10	13-17	.....
		Average	3.0-3.5	5-6	7-9	12-15	.....	4-5	6-8	10-13	.....
		Unfavorable	2.5-3.0	4-5	6-7	10-12	.....	3-4	4.5-5.5	8-10	.....
145-170	13 x13	Favorable	3.0-3.5	5-7	7-9	13-17	.....	4-6	6.5-8	12-15	21-26
		Average	2.5-3.0	4-5	6-7	10-13	.....	3-4	5-6	9-12	16-21
		Unfavorable	2.0-2.5	3.5-4.0	5-6	8-10	.....	2.5-3.5	4-5	7-9	13-16
170-200	13½x13½	Favorable	2.5-3.5	4-6	6-8	11-14	20-25	3.5-5.0	6-7	10-12	18-23
		Average	2.0-3.0	3.5-4.0	5-6	8-11	16-20	3.0-3.8	4-5	7-10	13-18
		Unfavorable	1.5-2.0	3.0-3.5	4-5	7-8	13-16	2.5-3.0	3.5-4.0	6.5-7.5	10-13
200-230	14¾x14¾	Favorable	2.5-3.0	3.5-4.0	5-7	10-12	17-22	3.5-4.0	5-6	8-10	15-19
		Average	2.0-2.5	3.0-3.5	4.5-5.5	7-10	13-17	2.8-3.5	3.5-4.0	6.5-8	11-15
		Unfavorable	1.0-1.5	2.5-3.0	3.5-4.0	6-7	11-13	2.0-2.5	3.0-3.5	5.5-6.5	9-11
230-260	15½x15½	Favorable	.....	3.0-3.5	4-6	8-10	15-19	3.0-3.5	4-5	7.5-9	13-17
		Average	.....	2.5-3.0	4-4.5	6-8	12-15	2.5-3.0	3-4	6-7	10-13
		Unfavorable	.....	2.0-2.5	3.5-4.0	5.5-6.5	10-12	1.5-2.0	2.5-3.0	4.5-5.5	8-10
260-300	16¾x16¾	Favorable	.....	2.5-3.0	4-5	7-9	13-17	2.5-3.0	3.5-4.0	7-8	12-15
		Average	.....	2.0-2.5	3.5-4.0	6-7	10-13	2.0-2.6	3.0-3.5	5-6	9-12
		Unfavorable	.....	1.5-2.0	3.0-3.5	5-6	9-10	.....	2.0-2.5	4-4.5	7-9

NOTE.—The data for spacing and mounting height of units for a given condition as given in Tables 1 and 2 should not be violated.

Table 5—Interior Conditions Observed

A simple "watts per square foot" specification is unreliable unless applied with the benefit of experienced judgment of various factors which affect the result. Interior finish, size and proportions of the room, type of reflector, and maintenance conditions are variables which must be taken into account. Unless due allowance is made for each of these the results vary, in many cases 5 to 1; the same wattage per square foot might produce 15 foot-candles under certain conditions and only 3 foot-candles under a combination of unfavorable conditions.

FAVORABLE CONDITIONS REQUIRE.—(1) Relatively broad room, that is one in which the width approximates 4 times the ceiling height. (2) Light colored walls and ceilings. (3) Reflector kept clean.

AVERAGE CONDITIONS INVOLVE.—(1) Average room (width about twice height). (2) Medium colored walls and ceilings (3) Ordinary maintenance of equipment.

UNFAVORABLE CONDITIONS INVOLVE.—Relatively narrow room (width about equal to ceiling height). (2) Dark walls and ceilings. (3) Poor maintenance of reflectors.

NOTE I.—Item 1 is substantially equal in importance to 2 and 3 taken together. If 1 is unfavorable and 2 and 3 are favorable, the resultant conditions will be average.

NOTE II.—It will be observed in each case that for a given size of lamp and area per outlet—in other words for a given watts per square foot, the illumination may vary as much as 3 to 1 depending upon whether the conditions are favorable or unfavorable.

## Reflectors for Commercial Lighting

White Glass Enclosing      Dust-Tight Semi-Direct (Clear Top)

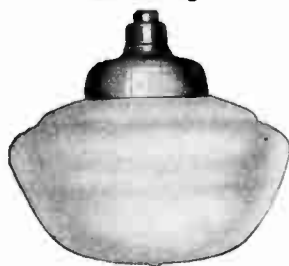
## Totally Indirect

Table No. 6

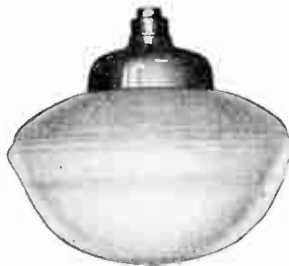
Showing the lamp size required to provide the foot-candle standard illumination indicated in Table 4.

Calculations take into account the actual spacing per outlet, the type of reflecting equipment and conditions of interior as determined from Table 5.

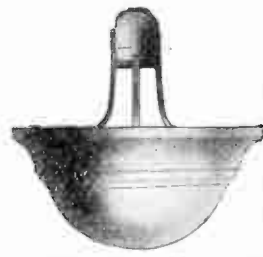
Figures in first column of table show the area per outlet adequately lighted.



For general commercial uses. Recommended diameters not less than: 100-150-watt, 12-inch; 200-watt, 14-inch; 300-watt, 16-inch; 500-watt, 18"



For offices, banking rooms, etc. Moderate glare, good ceiling contrast, moderate shadows. Requires a light toned ceiling.



Suitable where almost entire absence of shadows and glare is demanded as in drafting rooms, art rooms, public interiors, etc.

Area per Outlet Square Feet	Spacing Feet	Conditions	Average Foot-Candles for Lamp Sizes					Average Foot-Candles for Lamp Sizes					Average Foot-Candles for Lamp Sizes				
			100	150	200	300	500	150	200	300	500	150	200	300	500		
55-65	7½x7½	Fav.	7-9	10-14	15-22	.....	9-12	13-18	22-30	.....	6-10	9-14	15-24	.....			
		Aver.	5-6	7-10	11-15	.....	6-9	8-13	14-22	.....	4-6	5-9	9-15	.....			
		Unfav.	3-4	4-6	7-9	.....	4-6	5-8	10-14	.....	3-4	4-5	7-9	.....			
65-75	8½x8½	Fav.	6-7	9-13	13-19	.....	8-11	11-15	19-25	.....	5-8	7-12	13-20	.....			
		Aver.	4.5-5	6-9	9-13	.....	5-8	7-11	12-19	.....	3-5	5-7	8-13	.....			
		Unfav.	2.5-3	4-6	6.5-8	.....	3.5-5	5-7	8-12	.....	2.5-3	3.0-5	6-8	.....			
75-85	9 x 9	Fav.	5-6	8-11	11-17	.....	7-9	8-12	16-22	.....	5-7	7-11	11-18	.....			
		Aver.	4.0-4.5	5-8	8-11	.....	4-7	6-8	10-16	.....	3-5	4-7	7-11	.....			
		Unfav.	2.5-3	3.5-5	6-7	.....	3-4	4-6	7-10	.....	2-3	3-4	5-7	.....			
75-85	9½x9½	Fav.	4.0-5.5	7-10	10-14	17-24	.....	6-8	8-11	14-19	.....	4-6	5-9	10-14			
		Aver.	3.5-4	5-7	7-9	11-17	.....	4-6	5-8	9-14	.....	2.5-4	3.5-5	7-10			
		Unfav.	2.0-2.5	3-4	5-6	7-11	.....	2.5-4	4-5	6-9	.....	2.0-2.5	3.0-3.5	5-6			
95-100	10 x 10	Fav.	3.5-5	6-9	9-12	15-21	.....	5-7	7-10	12-17	23-31	3.5-5	5-8	9-14	16-25		
		Aver.	3.0-3.5	4-6	6-8	9-15	.....	3-5	5-7	8-12	15-23	2.0-3.5	3-5	5-9	10-16		
		Unfav.	1.5-2	2.5-4	4.5-5	6-9	.....	2.5-3	3.5-5	5-8	10-15	1.5-2.5	2.5-3	4-5	7-10		
110-125	11 x 11	Fav.	3-4	5-7	8-11	13-19	.....	4-6	6-9	11-15	20-27	3-5	4-7	7-12	14-22		
		Aver.	2.5-3	4-5	5.5-7	8-13	.....	3-4	4-6	7-11	13-20	2-3	2.5-4	4-7	8-14		
		Unfav.	1.5-2	2.5-3	4.0-4.5	6-8	.....	2-3	3-4	5-7	9-13	1.5-2	2.0-2.5	3.5-4	6-8		
125-145	11½x11½	Fav.	2.5-3.5	5-6	7-9	11-16	.....	3.5-5	5-7	9-13	17-23	2.5-4	3.5-5	6-10	11-18		
		Aver.	2.0-2.5	3.5-4.5	5-6	7-11	.....	2.5-3.5	3.5-5	6-9	11-17	1.5-2.5	2.0-3.5	4-6	7-11		
		Unfav.	1.0-1.5	2-3	3.5-4	5-7	.....	1.5-2.5	2.5-3.5	4-6	8-11	1.0-1.5	1.5-2.5	3-4	5-7		
145-170	13 x 13	Fav.	2-3	3.5-5	6-8	9-14	17-25	3.5-4	4-6	8-11	15-20	2.5-3.5	3-5	5-9	10-16		
		Aver.	1.5-2	3.0-3.5	4.5-5	6-9	11-17	2.0-3.5	3-4	5-8	9-15	1.5-2	2-3	3-5	6-10		
		Unfav.	0.5-1	1.5-2.5	3.0-3.5	4-6	7-11	1.5-2	2-3	3.5-5.0	6-9	.....	1.5-2	2.5-3	5-6		
170-200	13½x13½	Fav.	1.5-2.5	4-5	5-6	8-11	14-21	3-4	3.5-5	7-9	12-17	.....	2.5-4	5-7	8-13		
		Aver.	1.0-1.5	2.5-3	4.0-4.5	5-8	9-14	1.5-3	2.0-3.5	4-7	8-12	.....	1.5-2.5	3-4	5-8		
		Unfav.	.....	1.5-2	2.5-3	3.5-5	6-9	1.0-1.5	1.5-2	3-4	5-8	.....	1.0-1.5	2-3	4-5		
200-230	14½x14½	Fav.	.....	3-4	4-5	7-10	12-18	2.5-3.5	3.5-4	6-8	10-14	.....	2.5-3	4-6	7-11		
		Aver.	.....	2.0-2.5	3.5-4	4-7	8-12	1.5-2.5	2-3	4-6	7-10	.....	.....	2.5-4	4-7		
		Unfav.	.....	1.0-1.5	2.0-2.5	3-4	5-8	.....	1.5-2	2.5-4	5-7	.....	.....	2.0-2.5	3.5-4		
230-260	15½x15½	Fav.	.....	2.5-3.5	3.5-4	6-9	10-14	2-3	3-4	5-7	9-12	.....	2-3	3.5-5	6-10		
		Aver.	.....	1.5-2	3.0-3.5	3.5-6	7-10	1.5-2	2.0-2.5	3-5	6-9	.....	.....	2.0-3.5	4-6		
		Unfav.	.....	1.0-1.5	1.5-2	2.0-3.5	5-7	.....	1.5-2	2.5-3	4-6	.....	.....	1.5-2	3-4		
260-300	16½x16½	Fav.	.....	2-3	3-4	5-7	9-13	.....	2.5-3	4-6	8-11	.....	1.5-2.5	3-5	5-9		
		Aver.	.....	1.0-1.5	2.5-3	3-5	6-9	.....	1.5-2	3-4	6-8	.....	.....	2-3	3-5		
		Unfav.	.....	1.0-1.5	2.5-3	4-6	.....	1-2	2-3	3-4	.....	.....	.....	2.5-3	.....		

Table No. 7—High Bay Equipment and Installation

The most effective distribution of light in high bays differs slightly from that given by the R. L. M. Dome and Glassteel Diffuser. Because of the relatively greater height of the building in proportion to its width, a concentrated distribution is more effective, since it avoids undue waste of light on the sidewalls. For this reason, units which direct light in a narrow zone are used, with greater overall efficiency than if units with a wider distribution were used.

Foot-Candles in Service with Lamp Size as Indicated



Mount- ing Height Feet	Approx. Spac- ing per Feet	Approx. Sq. Ft. per Outlet	LAMP WATTS				Mount- ing Height Feet	Approx. Spac- ing per Feet	Approx. Sq. Ft. per Outlet	LAMP WATTS			
			300	500	750	1000 1500				500	750	1000	1500
31-36	20x20	400	4.5	8.5	13	18 29	31-36	40x40	1600	3	4.5	7	.....
31-36	20x30	600	3	5.5	8.5	12 19	37-50	30x30	900	3.5	5	7.5	11.5
31-36	30x30	900	2	3.5	6	8 13	37-50	30x40	1200	2.5	4	5.5	8.5
31-36	30x40	1200	.....	3	4.5	6 10	37-50	40x40	1600	.....	3	4	6.5

It is true that as the mounting height of units is increased, the farther apart they may be spaced and still furnish a uniform level of illumination, but it will be observed that where the area per outlet greatly exceeds 1000 square feet, even the 1500-watt lamps are inadequate to provide the foot-candles of illumination recommended for modern practice.

**Shelcrest Lighting Units**

Shelcrest Fixtures are made of genuine bakelite. Holders are screwless safety saddle type. They fit securely under inside neck of glass. Hanging Types have special brass slotted hicky adaptable to various outlet box conditions. Bronze chain 300 pounds tensile strength carries weight of the unit. Have shallow slip canopy with knockout for canopy switch. Canopy held in place by spherical-shaped bushing threaded to top section of stem, forms a ball joint. Stem in 3 sections, each 3/4 inches in diameter 6 inches long, held in perfect alignment, permits lengthening or shortening. The socket is held rigidly in place. The ceiling and suspension types are similar except in Ceiling Type, canopy and socket cover are moulded in one piece and mounting is accomplished by slotted strap.

Finish is permanent, smooth, and Japanese bronze in color.

Shelcrest Fixture parts are numbered and interchangeable; fixtures are supplied wired with asbestos-covered stranded .No. 14 wire, ground leg white, live leg brown.

All fixtures packed in individual cartons 8x8x6 inches clearly labeled, 12 in standard package.

Like the other Graybar fixtures they can be furnished with 99, 66 or reflex glass, plain or decorated, which allows a wide range of effects.

Shelcrest units are available for use in any location where the many advantages in appearance, uniqueness and serviceability are important features.

99 Globes regularly supplied in Cora cased glass can be furnished in Nuite at same prices as corresponding sizes of 66 globes.

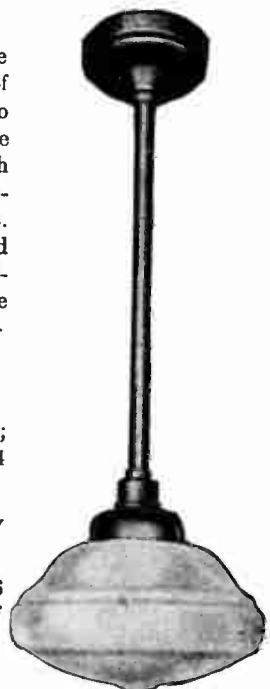
Extra length Shelcrest, add 75 cents per 6-inch section or fraction.

666 Bryant canopy switches for Shelcrest unit, add 90 cents each to list.

Shelcrest Fixtures regularly supplied with wires attached. No allowance in price made if ordered with wires unattached.



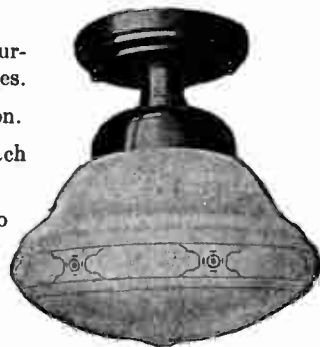
M6H-3320D5



M4H-6610



M6C-9920D2



M6C-6620D4

**Graybar Standard Units Complete with Glass**

**With 99 Globe**

Hanging Type					Ceiling Type						
Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each	Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each
M4H-9975	75	9	30	4	\$8.40	M4C-9975	75	9	11	4	\$6.80
M4H-9980	75-100	10	30	4	8.70	M4C-9980	75-100	10	11	4	7.10
M4H-9910	100-150	12	32	4	10.50	M4C-9910	100-150	12	13	4	8.90
M6H-9920	200	14	33	6	13.10	M6C-9920	200	14	15	6	12.10

**With 66 Globe**

M4H-6675	75	9	29	4	\$7.30	M4C-6675	75	9	10	4	\$5.70
M4H-6680	75-100	10	30	4	7.90	M4C-6680	75-100	10	11	4	6.30
M4H-6610	100-150	12	31	4	9.10	M4C-6610	100-150	12	12	4	7.50
M6H-6620	200	14	33	6	11.10	M6C-6620	200	14	15	6	10.10

**With Reflex Globe**

M4H-3375	75	9	30	4	\$8.55	M4C-3375	75	9	11	4	\$6.95
M4H-3380	75-100	10	30	4	8.90	M4C-3380	75-100	10	11	4	7.30
M4H-3310	100-150	12	32	4	10.70	M4C-3310	100-150	12	13	4	9.10
M6H-3320	200	14	33	6	12.90	M6C-3320	200	14	15	6	11.90

## Lincrest Lighting Units

Lincrest Fixtures have screwless holder made of 3 metal segments actuated by single operating pin protruding through a safety slot. One easy movement contracts the segments on camera shutter principle, automatically centers the globe without strain on the glass and locks in position.

Fixtures have canopy No. 22 B & S gauge, brass rolled edges, knockout, solid brass slip collar securely fastened and 2 set screws in slip collar.

Suspension type has a cast brass hicky 1/2 and 3/4-inch female thread, stem 3/4-inch heavy brass tubing over iron nipple.

With cast brass loops, brass chain, porcelain socket rigidly mounted in correct position, smooth roomy wire channels.

Overall length suspension fixtures, 26 inches.

Supplied with No. 16 asbestos-covered stranded wire (unattached) with tracer in art silk braid. Finished in heavy plated statuary bronze buffed to a high polish and uniform color.

Like all Graybar fixtures, they can be provided with 99, 66 or reflex globes, plain or decorated. This choice allows a range of effects to meet any condition.

Lincrest Units are available for use in locations which require the best possible type of metal fixtures, where design and appearance are to be emphasized, such as schools, stores, offices, etc., or any other location where the quantity of units to be installed is large and the easy maintenance, due to the patented mechanism, will result in considerable saving.

Special finish can be supplied in white enamel, old ivory, Bauer Barff, or old Brass. Add 10 percent to list.

Packed 1 to a carton, 12 to standard package.

Tube and loop suspension, add 30 cents to prices.

Chain and spindle suspension, add 30 cents to prices.

Extra length chain, add 40 cents per foot or fraction to prices.

Extra length tube, add 70 cents per foot or fraction to prices.

Slip canopy with collet can be supplied on order, add 30 cents each to prices.

For Levolver canopy switch, add 90 cents each to prices.

Flexible joints can be supplied on tube suspension fixtures without additional cost if desired instead of cast loops.

99 Globes regularly supplied in Cora cased glass can be furnished in nuite at same price as corresponding sizes of 66 globes.

Wires supplied unattached.



L6H-9920



L6H-6620



L6C-9920



L6C-6620

### Graybar Standard Units Complete with Glass

With 99 Globe

Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each	Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each
L4H-9975	75	9	32	4	\$7.85	L4C-9975	75	9	11	4	\$6.30
L4H-9980	75-100	10	32	4	8.15	L4C-9980	75-100	10	11	4	6.60
L4H-9910	100-150	12	34	4	9.95	L4C-9910	100-150	12	13	4	8.40
L6H-9920	200	14	35	6	12.60	L6C-9920	200	14	16	6	11.40
L7H-9930	300	16	36	6	14.90	L7C-9930	300	16	17	6	13.70

With 66 Globe

L4H-6675	75	9	31	4	\$6.75	L4C-6675	75	9	10	4	\$5.20
L4H-6680	75-100	10	32	4	7.35	L4C-6680	75-100	10	11	4	5.80
L4H-6610	100-150	12	33	4	8.55	L4C-6610	100-150	12	12	4	7.00
L6H-6620	200	14	35	6	10.60	L6C-6620	200	14	15	6	9.40
L7H-6630	300	16	36	6	12.50	L7C-6630	300	16	16	6	11.30

With Reflex Globe

L4H-3375	75	9	32	4	\$8.00	L4C-3375	75	9	11	4	\$6.45
L4H-3380	75-100	10	32	4	8.35	L4C-3380	75-100	10	11	4	6.80
L4H-3310	100-150	12	34	4	10.15	L4C-3310	100-150	12	13	4	8.60
L6H-3320	200	14	35	6	12.40	L6C-3320	200	14	16	6	11.20
L7H-3330	300	16	36	6	14.50	L7C-3330	300	16	17	6	13.35

Stancrest Lighting Units



S6H9920



S6C9920



S5H6620



S6C6620

Stancrest Fixtures are similar in every respect to the Lincrest except the globe holder. It consists of 3/8 inch brass screws threaded through heavy brass lugs securely held in place. Lugs have 5 threads. screws are bevel-pointed to prevent loosening and upset to prevent removal, 4 screws supplied on 6 inch and 3 screws on 4-inch fitters.

Ceiling type supplied with slotted strap and screws to take slotted barrel nuts.

These fixtures are made in both hanging and ceiling types to accommodate all sizes of lamps up to and including 300 watts.

Like all other Graybar Fixtures, they can be furnished with 99, 66 or reflex globes, plain or decorated.

Stancrest Units are available for locations where high class fixtures are required, but where speed in attaching or removing the globe is considered of lesser importance. They have been used with splendid results in offices, schools, hotels, banks, stores, etc.

Finish is heavy plated statuary bronze.

Special finish can be supplied in white enamel, old ivory, Bauer Barff, or old brass, add 10 per cent to list.

Fixtures supplied with wire unattached.

Packed 1 in a carton, 12 in a standard package.

99 globes regularly supplied in Cora cased glass can be furnished in Nuite at same prices as corresponding sizes of 66 globes.

For tube and loop suspension, add 30 cents to list.

For chain and spindle suspension, add 30 cents to prices.

Extra length chain, add 40 cents per foot list or fraction.

Extra length chain, add 70 cents per foot list or fraction.

Flexible joints can be supplied on tube suspension fixtures without additional cost if desired instead of cast loops.

Slip canopy with collet can be supplied on order, add 30 cents each to list.

Levolier canopy switch, add 90 cents each to list.

666 Bryant switch, add 90 cents each to list.

Graybar Standard Units Complete with Glass

Hanging Type				With 99 Globe				Ceiling Type			
Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each	Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each
S4H-9975	75	9	32	4	\$5.40	S4C-9975	75	9	11	4	\$4.60
S4H-9980	75-100	10	32	4	5.70	S4C-9980	75-100	10	11	4	4.90
S4H-9910	100-150	12	34	4	7.50	S4C-9910	100-150	12	13	4	6.70
S6H-9920	200	14	35	6	10.00	S6C-9920	200	14	16	6	9.40
S7H-9930	300	16	36	6	12.10	S7C-9930	300	16	17	6	11.90
With 66 Globe											
S4H-6675	75	9	31	4	\$4.30	S4C-6675	75	9	10	4	\$3.50
S4H-6680	75-100	10	32	4	4.90	S4C-6680	75-100	10	11	4	4.10
S4H-6610	100-150	12	33	4	6.10	S4C-6610	100-150	12	12	4	5.30
S6H-6620	200	14	35	6	8.00	S6C-6620	200	14	15	6	7.50
S7H-6630	300	16	36	6	9.70	S7C-6630	300	16	16	6	9.50
With Reflex Globe											
S4H-3375	75	9	32	4	\$5.55	S4C-3375	75	9	11	4	\$4.75
S4H-3380	75-100	10	32	4	5.90	S4C-3380	75-100	10	11	4	5.10
S4H-3310	100-150	12	34	4	7.70	S4C-3310	100-150	12	12	4	6.90
S6H-3320	200	14	35	6	9.80	S6C-3320	200	14	15	6	9.20
S7H-3330	300	16	36	6	11.90	S7C-3330	300	16	16	6	11.30



## Faircrest Lighting Units

Faircrest Fixtures have screw type holder consisting of  $\frac{3}{32}$  inch brass screws threaded through heavy brass lugs securely held in place. Lugs have 5 threads. Screws are bevel-pointed to prevent loosening and upset to prevent removal. There are 4 screws supplied on 6-inch holder and 3 screws on 4-inch holder.

Canopy and socket covers No. 22 B & S brass gauge with rolled edges. With knockout in canopy flange, brass chain and loops.

Finished in plated statuary bronze on eggshell surface.

Supplied with No. 16 asbestos-covered stranded wire, tracer in art silk braid. Ceiling types are supplied with slotted strap and screws to take slotted barrel nuts for mounting.

These fixtures are made in both the hanging and ceiling types to accommodate all sizes of lamps up to and including 300 watts.

Like all other Graybar fixtures, they can be provided with 99, 66 or reflex glass, plain or decorated.

The Faircrest Units offer a selection for installation where the fixture allowance is limited but where correct design and lighting results are just as important as in locations that require the types of fixtures, described on the preceding pages.

Packed 1 in a carton, 12 to a standard package.

99 globes regularly supplied in Cora cased glass can be furnished in Nuite at same prices as corresponding sizes of 66 globes.

Tube and loop suspension, add 30 cents to list.

Chain and spindle suspension, add 30 cents to list.

For extra length chain, add 40 cents per foot or fraction to prices.

For extra length tube, add 70 cents per foot or fraction to prices.

Flexible joints can be supplied on tube suspension fixtures without additional cost if desired instead of cast loops.

Slip canopy with collet can be supplied on order, add 30 cents each to list.

Levolier canopy switch, add 90 cents each to list.

666 Bryant switch add 90 cents each to list.



F6H-9920



F6C-9920



F6H-6620



F6C-6620

### Graybar Standard Units Complete with Chains

Hanging Type					With 99 Globe			Ceiling Type				
Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each	Cat. No.	Watts	Globe Diameter Inches	Length Inches with Glass	Size Fitter Inches	Price Each	
F4H-9975	75	9	32	4	\$5.00	F4C-9975	75	9	11	4	\$3.60	
F4H-9980	75-100	10	32	4	5.30	F4C-9980	75-100	10	11	4	3.90	
F4H-9910	100-150	12	34	4	7.10	F4C-9910	100-150	12	13	4	5.70	
F6H-9920	200	14	35	6	9.30	F6C-9920	200	14	16	6	8.40	
F7H-9930	300	16	36	6	11.30	F7C-9930	300	16	17	6	10.30	
					With 66 Globe							
F4H-6675	75	9	31	4	\$3.90	F4C-6675	75	9	10	4	\$2.50	
F4H-6680	75-100	10	32	4	4.50	F4C-6680	75-100	10	11	4	3.10	
F4H-6610	100-150	12	33	4	5.70	F4C-6610	100-150	12	12	4	4.30	
F6H-6620	200	14	35	6	7.30	F6C-6620	200	14	15	6	6.40	
F7H-6630	300	16	36	6	8.90	F7C-6630	300	16	16	6	7.90	
					With Reflex Globe							
F4H-3375	75	9	32	4	\$5.15	F4C-3375	75	9	11	4	\$3.75	
F4H-3380	75-100	10	32	4	5.50	F4C-3380	75-100	10	11	4	4.10	
F4H-3310	100-150	12	34	4	7.30	F4C-3310	100-150	12	13	4	5.90	
F6H-3320	200	14	35	6	9.10	F6C-3320	200	14	16	6	8.20	
F7H-3330	300	16	36	6	11.10	F7C-3330	300	16	17	6	10.10	

Special Lighting Units



L6CA  
6620 Glass



JM14  
3320 D-5 Glass



LM6H  
3320 Glass



F6H1  
6620 Glass



L6H4  
9920 Glass

A wide range of types can be had by simple substitution of glass, plain or decorated, or by slight modification in the standard hangers as illustrated on this page.

Figure 4 after standard numbers of Lincrest, Stancrest or Faircrest indicates Tube and Loop suspension is desired in place of chain, as S6H4. Add 30 cents list to prices on these numbers.

Figure 1 after standard numbers of Lincrest, Stancrest or Faircrest indicates Chain and Spindle is desired in place of chain, as L6H1. Add 30 cents list to standard prices on these numbers.

Letter A after Lincrest or Stancrest standard numbers indicates long neck.

Special Fixtures (without Glass)

Cat. No.	Description	Fitter Inches	Socket	Length Fixture Inches	Finish	Price Each
JM14	Ornamented 3 Chain for 9920 or 3320 Glass.....	6	Med	48	BKB	\$24.00
JM16	Ornamented 3 Chain for 9930 or 3330 Glass.....	6	Med	48	BKB	26.50
JM17	Ornamented 3 Chain for 9930 or 3330 Glass.....	6	Mog	48	BKB	27.80
JM18	Ornamented 3 Chain for 9950 or 3350 Glass.....	8	Mog	48	BKB	32.80
S4CA	Long Neck Ceiling Type Screw.....	4	Med	8	PSB	4.70
S6CA	Long Neck Ceiling Type Screw.....	6	Med	8 1/2	PSB	5.80
S7CA	Long Neck Ceiling Type Screw.....	6	Mog	8 1/2	PSB	6.50
L4CA	Long Neck Ceiling Type Safety.....	4	Med	8	PSB	6.40
L6CA	Long Neck Ceiling Type Safety.....	6	Med	8 1/2	PSB	7.80
L7CA	Long Neck Ceiling Type Safety.....	6	Mog	8 1/2	PSB	8.50
LM4H	Screwless Holder Magic.....	4	Med	26	PSB	5.00
LM7H	Screwless Holder Magic.....	6	Med	26	PSB	5.40
LM7H	Screwless Holder Magic.....	6	Mog	26	PSB	6.10

## Kitchen and Bathroom Fixtures



585 Fixture  
2519 Glass  
Switch and Receptacle



530 Fixture  
2519 Glass  
With Pull Chain



531 Fixture  
2519 Glass  
Keyless



4085 Fixture  
2519 Glass  
Service Receptacle and Switch



3030 Fixture  
2519 Glass  
With Pull Chain



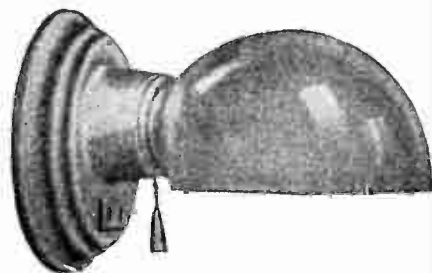
3131 Fixture  
2519 Glass  
Keyless



99 Glass  
K-1164—4-Inch Flange, K-1166—6-Inch  
Flange, K-1167—6-Inch Flange



A-1064—Keyless  
A-1065—Pull



A-1072—Keyless, A-1073—Pull,  
A-1074—Keyless with Receptacle,  
A-1075—Pull with Receptacle

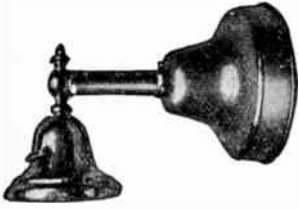
### Fixture Only, Exceptions Indicated

Cat. No.	Description	Fitter Inches	Socket	Leth. In. Fixture Only	Finish	Price Each
585	Switch and Receptacle.....	4	Medium	...	WE	\$4.45
530	Pull Chain.....	4	Medium	...	WE	2.40
531	Keyless.....	4	Medium	...	WE	1.60
4085	Switch and Receptacle.....	4	Medium	...	WVE	6.85
3030	Pull Chain.....	4	Medium	...	WVE	4.45
3131	Keyless.....	4	Medium	...	WVE	3.66
K-1164	Ceiling Flange Only.....	4	Medium	...	WVE	2.40
K-1166	Ceiling Flange Only.....	6	Medium	...	WVE	3.00
K-1167	Ceiling Flange Only.....	6	Mogul	...	WVE	3.45
A-1064	Keyless with Glass.....	2 1/4	Medium	7 1/2	WVE	2.75
A-1065	Pull with Glass.....	2 1/4	Medium	7 1/2	WVE	3.60
A-1072	Keyless Bracket with Glass.....	2 1/4	Medium	8 1/2	WVE	2.75
A-1073	Pull Bracket with Glass.....	2 1/4	Medium	8 1/2	WVE	3.60
A-1074	Keyless Bracket with Glass and Receptacle.....	2 1/4	Medium	8 1/2	WVE	3.15
A-1075	Pull Bracket with Glass and Receptacle.....	2 1/2	Medium	8 1/2	WVE	4.00

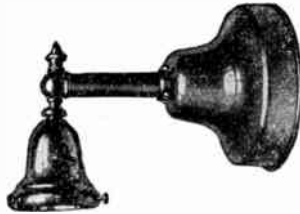
WE—white enamel, WVE—white vitreous enamel.

Lighting Accessories

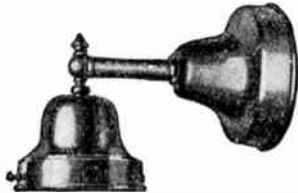
Miscellaneous Glass



3003—3¼-Inch Fitter



3002—2¼-Inch Fitter



300.—4-Inch Fitter



2002—2¼-Inch Fitter  
2003—3¼-Inch Fitter



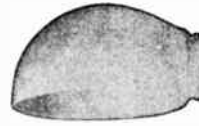
X-4 (4-Inch)  
X-6 (6-Inch)



Shelcrest MC



4002—2¼-Inch Fitter  
4003—3¼-Inch Fitter



2209



1320



2219



2220



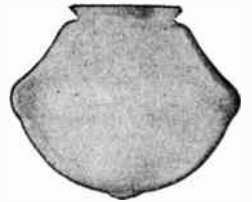
8-Inch Opal Ball



8-Inch Ruby Ball



8-Inch Exit Globe



2519

Cat. No.	Description	Fitter Inches	Socket	Length Inches Fixture Only	Finish	Price Each
3002	Bracket.....	2¼	Medium	7	PSB	\$2.75
3003	Bracket.....	3¼	Medium	7	PSB	3.05
3004	Bracket.....	4	Medium	7	PSB	3.10
X4	Ceiling Ring.....	4	Medium	..	PSB	1.10
X6	Ceiling Ring.....	6	Medium	..	PSB	1.40
MC	Bakelite Receptacle . . .	..	Medium	..	JB	2.50
4002	Ceiling Shade Holder	2¼	Medium	..	PSB	2.35
4003	Ceiling Shade Holder	3¼	Medium	..	PSB	2.50
2002	Pendant.....	2¼	Medium	26	ESB	2.90
2003	Pendant.....	3¼	Medium	26	ESB	3.10

Cat. No.	Diameter Inches	Depth Inches	Fitter Inches	Type of Shade	Price Each
2209	5⅞	3¼	2¼	Nuite Half Shade	\$ .60
1320	6	4½	2¼	Nuite Bell	.50
1320	8	6	2¼	Nuite Bell	.80
2219	7⅞	3½	2¼	Nuite Shallow	.70
2220	7⅞	4⅝	2¼	Nuite Deep	.80
6" Ball	6	6	3¼	Nuite Ball	.45
8" Ball	8	8	4	Nuite Ball	1.00
6" Ball	6	6	3¼	Ruby Ball	1.60
8" Ball	8	8	4	Ruby Ball	2.26
6" Ball	6	6	3¼	Ruby Ball Exit (1 Word)	2.45
6" Ball	6	6	3¼	Ruby Ball Exit (2 Words)	2.70
8" Ball	8	8	4	Ruby Ball Exit (1 Word)	3.30
8" Ball	8	8	4	Ruby Ball Exit (2 Words)	4.00
2519	8⅝	6⅝	4	Nuite Globe	.95

PSB—Polished statuary bronze.

JB—Japanese bronze.

ESB—Eggshell bronze.

Specify if globe with word exit is to be mounted horizontally, pendant or inverted position; also whether 1 or 2 imprints are desired.

## Graybar Standard Globes



9920 Plain



9920, D-1



9920, D-2



6620, Plain



6620, D-3



6620, D-4



3320, Plain



3320, D-5



9920, D-6

Cora Cased glass is glass in which the opal is confined to approximately  $\frac{1}{3}$  of the total thickness, the other  $\frac{2}{3}$  being clear crystal glass. Cased glass is acknowledged by authorities to be the best obtainable glass for illumination purposes. The clear crystal section is on the outside and gives the globe a smooth, hard, highly polished surface on which it is almost impossible for dust to adhere.

Unless otherwise specified, all 99 globes will be supplied in Cora cased glass.

Nuite glass is a high grade homogeneous opal glass. It differs from the cora cased glass in that the clear crystal section is omitted. It has an exceptionally high efficiency and gives excellent diffusion.

The Reflex Globe is blown in a modified 99 shape, and so treated that the distribution of light is semi-indirect.

The globe is blown in clear crystal glass and carefully annealed. The lower half outside is coated with a special silicate enamel which is fired into the glass. The entire inside surface of the globe is acid etched to eliminate filament images.

The silicate enamel used is a special enamel which has all the properties of opal glass. It is hard and tough, and will not discolor under any conditions.

The standard decorated designs shown are in light tan. Other colors can be furnished on order.

99 globes regularly supplied in Cora cased glass can be furnished in plain Nuite at same prices as corresponding sizes of plain 66 globes.

Other shapes of glass can be furnished if the above does not meet the requirements.

### Graybar Standard Globes Only

Cat. No.	Diam. In.	Depth In.	Fitter In.	Type of Glass	PRICE, EACH		Cat. No.	Diam. In.	Depth In.	Fitter In.	Type of Glass	PRICE, EACH	
					Plain	Decorated						Plain	Decorated
9975	9	6 $\frac{1}{4}$	4	Cora	\$2.00	\$3.30	6610	12	7	4	Nuite	\$2.70	\$4.20
9980	10	6 $\frac{1}{2}$	4	Cased	2.30	4.00	6620	14	8 $\frac{1}{2}$	6	Opal	3.70	5.70
9910	12	7 $\frac{3}{4}$	4	or	4.10	6.20	6630	16	9 $\frac{1}{4}$	6	Only	4.70	7.00
9920	14	9	6	Nuite	5.70	8.50	3310	12	7 $\frac{3}{4}$	4	Reflex	4.30	5.40
9930	16	10	6	Opal	7.10	10.00	3320	14	9	6	Glass	5.50	7.40
6675	9	5	4	Nuite	.90	2.60	3330	16	10	6		6.90	9.00
6680	10	6	4	Opal Only	1.50	3.10	....	..	....	..	.....	.....	.....

**The Alabax Line**

REG. U.S. PAT. OFF.

**Colors and Decorations**

*"Those Who Know the Facts Insist on Alabax"*



P & S Alabax Porcelain Lighting Fixtures will not stain, rust, mar or peel. They retain their beautiful "fired in" lustre indefinitely. They are not affected by heat, moisture or bright sunlight. They are clean and sanitary and may be easily washed. Soap or lye products will not injure them.

Alabax Porcelain Lighting Fixtures are successfully used everywhere for residential, commercial, institutional and industrial lighting, either in new work or renovation.

All Alabax Lighting Fixtures are manufactured in accordance with the National Electrical Code and are approved by the Underwriters' Laboratories.



Of special interest to the electrical contractor and wireman is the fact that all Alabax Devices are so constructed that an exceptionally small amount of labor is necessary to install them.

Write for the attractive catalogue displaying this line in all of the colors mentioned, and the



useful folder featuring many ideal Alabax installations.

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For the purpose of condensing, we have indicated in this catalogue the numbers by an abbreviation of the word "Alabax" and the abbreviation is "AL", which letters precede each of the Alabax catalogue numbers.

**Colors and stripe decorations can be supplied on the Alabax Line.**

White glaze is the standard finish on the Alabax line. In addition to the white glazed finish, Alabax devices are available in the following all-over colors and stripe decorations. The colors and stripe decorations are represented by symbols as shown below. In ordering Alabax devices with all-over colors or stripe decorations on them, add the symbol to the catalogue number.

**The plain white glazed device does not need the addition of the symbol.**

Sym- bol	All-Over Colors	Sym- bol	All-Over Colors	Sym- bol	Stripe Decoration
B	Pompeian Green	H	Old Rose	A-1	Blue Stripe
D	Black	J	Olive Green	A-2	Green Stripe
E	Ivory	K	Light Green	A-4	Black Stripe
F	Royal Blue	L	Bronze Brown		
G	Light Blue	M	Orchid		

Example: AL-846 is the device when supplied in standard white glaze. AL-846-A-4 is the device when supplied with the black stripe. AL-846-B is the device when supplied in the Pompeian green all-over finish.

**Assortment of Colors and Stripe Decorations**

Colors and stripe decorations may be assorted to make up a standard package of any one catalogue number.

**P & S Alabax Porcelain Brackets**

For 3/4-Inch, Surface, Plaster Ring and Stud Boxes

*Lamps and Glassware are Not Supplied with Alabax Brackets*

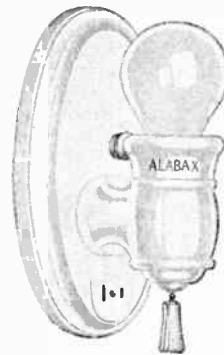
Brackets are regularly supplied completely wired, but can be supplied without leads if so specified. They are furnished regularly with stud adapter, threaded stem and finishing knob.

Length of back, 7 1/2 inches. Width of back, 4 inches. Distance from wall to lamp center, 3 1/8 inches.

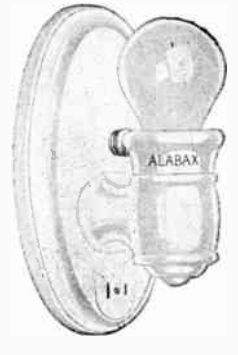
**Pull, with Porcelain Ring      Keyless, with Porcelain Ring**

**250 Watts, 250 Volts**  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts

**660 Watts, 250 Volts**  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts



No. AL-2846



No. AL-2852

**With Convenience Outlet**  
Cat. Car- Std. Wt., Lbs. Price  
No. ton Pkg. Std. Pkg. Each  
AL-2846 2 10 33 \$5.25  
**Without Convenience Outlet**  
AL-2872 2 10 33 \$4.60

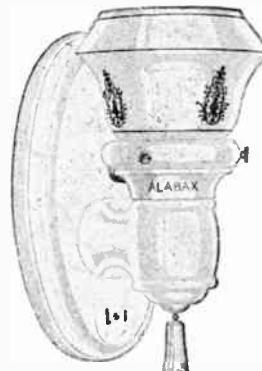
**With Convenience Outlet**  
Cat. Car- Std. Wt., Lbs. Price  
No. ton Pkg. Std. Pkg. Each  
AL-2852 2 10 33 \$4.60  
**Without Convenience Outlet**  
AL-2864 2 10 33 \$4.00

**Pull, with 2 1/4-Inch Porcelain Shade Holder**

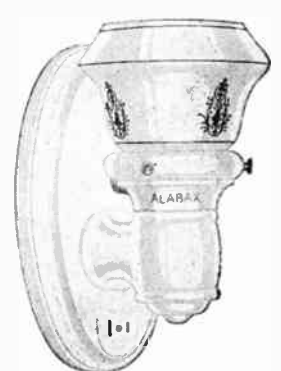
**250 Watts, 250 Volts**  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts

**Keyless, with 2 1/4-Inch Porcelain Shade Holder**

**660 Watts, 250 Volts**  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts



No. AL-2847



No. AL-2853

**With Convenience Outlet**  
Cat. Car- Std. Wt., Lbs. Price  
No. ton Pkg. Std. Pkg. Each  
AL-2847 2 10 33 \$5.65  
**Without Convenience Outlet**  
AL-2873 2 10 33 \$5.00

**With Convenience Outlet**  
Cat. Car- Std. Wt., Lbs. Price  
No. ton Pkg. Std. Pkg. Each  
AL-2853 2 10 33 \$5.00  
**Without Convenience Outlet**  
AL-2865 2 10 33 \$4.40



## P & S Alabax Porcelain Brackets

For 3/4-Inch, Surface, Plaster Ring and Stud Boxes

Lamps and Glassware are Not Supplied with Alabax Brackets

Brackets are regularly supplied completely wired, but can be supplied without leads if so specified. They are furnished regularly with stud adapter, threaded stem and finishing knob.

Length of back, 7 1/2 inches. Width of back, 4 inches.  
Distance from wall to lamp center, 3 3/8 inches.

**Pull, with Porcelain Ring**      **Keyless, with Porcelain Ring**

250 Watts, 250 Volts  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts

660 Watts, 250 Volts  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts



No. AL-846



No. AL-852

**With Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-846	2	10	33	\$5.25
AL-872	2	10	33	\$4.60

**With Convenience Outlet**

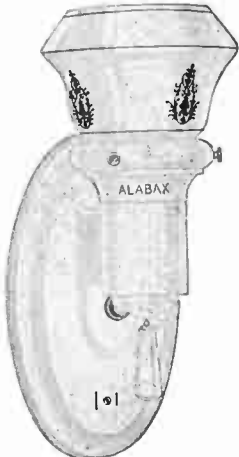
Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-852	2	10	33	\$4.60
AL-864	2	10	33	\$4.00

**Pull, with 2 1/4-Inch Porcelain Shade Holder**

250 Watts, 250 Volts  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts

**Keyless, with 2 1/4-Inch Porcelain Shade Holder**

660 Watts, 250 Volts  
Outlet—10 Amperes, 250 Volts  
15 Amperes, 125 Volts



No. AL-847



No. AL-853

**With Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-847	2	10	33	\$5.65
AL-873	2	10	33	\$5.00

**With Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-853	2	10	33	\$5.00
AL-865	2	10	33	\$4.40

## P & S Alabax Porcelain Brackets

Without Convenience Outlet

For 3/4-Inch, Surface, Plaster Ring and Stud Boxes

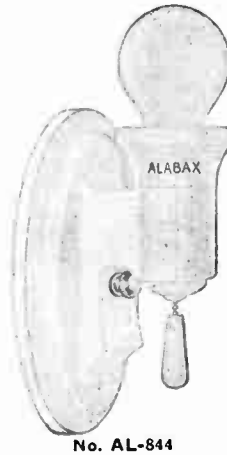
Lamps are Not Supplied with Alabax Brackets

Pull—250 Watts, 250 Volts  
Keyless—660 Watts, 250 Volts

Brackets are completely wired and furnished regularly with stud adapter, threaded stem and finishing knob.

Length of back, 7 1/2 inches. Width of back, 3 3/4 inches. Distance from wall to lamp center, 3 1/2 inches.

Cannot be furnished with stripe decorations.



No. AL-844

**Pull, with Porcelain Ring**

Cat. No.	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-844	2	10	33	\$4.60

**Keyless, with Porcelain Ring**

AL-866	2	10	33	\$4.00
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**Pull, with 2 1/4-Inch Porcelain Shade Holder**

AL-845	2	10	33	\$5.00
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**Keyless, with 2 1/4-Inch Porcelain Shade Holder**

AL-867	2	10	33	\$4.40
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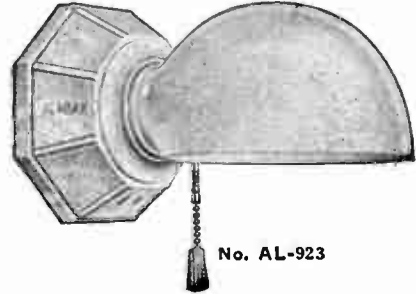
## P & S Alabax Porcelain Receptacles

With Convenience Outlet

For 3/4 and 4-Inch Outlet Boxes and Plates with Studs

Lamps and Glassware are Not Supplied with Alabax Devices

Pull—250 Watts, 250 Volts  
Keyless—660 Watts, 250 Volts  
Outlet—10 Amperes, 250 Volts; 15 Amperes, 125 Volts



No. AL-923

Outside diameter of base, 4 3/8 inches  
Glassware is held in position by an inside clamping ring.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-923	Pull, Insulated Chain and Pendant	10	24	63	\$3.00
AL-924	Keyless	10	24	62	2.00

## P & S Alabax Porcelain Shade Holders and Rings

White glaze is the standard finish. They can be supplied in colors and stripe decorations which apply to the Alabax line at an advance in price. This price information will be furnished upon application. Colors and decorations are not guaranteed to match perfectly when these devices are supplied separately.



No. AL-1273

Cat. No.	Description	Car-ton	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
AL-1273	2 1/4-Inch Shade Holder	10	20	5	\$3.30
AL-1274	3 1/4-Inch Shade Holder	10	20	12	.50
AL-1275	4-Inch Shade Holder	10	20	12	.55
AL-1276	Porcelain Ring	10	20	5	.10

**P & S Alabax Porcelain Receptacles**

**With Recessed Back**

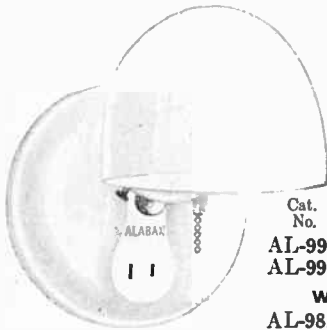
For 3/4 and 4-Inch Outlet Boxes and Outlet Plates

*Glassware and Lamps are Not Supplied with Alabax Devices*

**Pull Receptacles—250 Watts, 250 Volts; 660 Watts, 250 Volts**  
**Keyless Receptacles—660 Watts, 250 Volts**  
**Outlet—10 Amperes, 250 Volts; 15 Amperes, 125 Volts**

Receptacles are regularly supplied completely wired, but can be supplied without leads if so specified. They are furnished regularly with stud adapter, threaded stem and finishing knob.

Outside diameter of base, 5 3/8 inches.



No. AL-990

**Pull, with 2 1/4-Inch Porcelain Shade Holder**

Pull devices have short insulated chain and porcelain pendant.

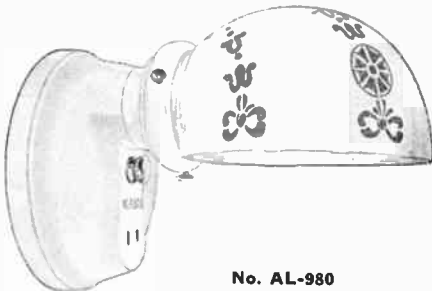
**With Convenience Outlet**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-990	250	2	12	25	\$2.35
AL-9906	660	2	12	25	2.53

**Without Convenience Outlet**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-982	250	2	12	24	\$2.05
AL-9826	660	2	12	24	2.23

**Keyless, with 2 1/4-Inch Porcelain Shade Holder**



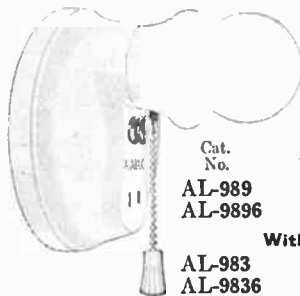
No. AL-980

**With Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-980	2	12	27	\$2.05

**Without Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-984	2	12	24	\$1.95



No. AL-989

**Pull, with Porcelain Ring**

Pull devices have short insulated chain and porcelain pendant.

**With Convenience Outlet**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-989	250	2	12	25	\$2.29
AL-9896	660	2	12	25	2.47

**Without Convenience Outlet**

Cat. No.	Watts	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-983	250	2	12	24	\$1.99
AL-9836	660	2	12	24	2.17

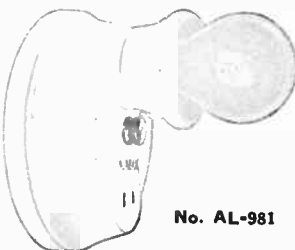
**Keyless, with Porcelain Ring**

**With Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-981	2	12	24	\$1.99

**Without Convenience Outlet**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-985	2	12	24	\$1.89



No. AL-981

**P & S Alabax Porcelain Receptacles**

**With Recessed Back**

For 3/4 and 4-Inch Outlet Boxes

*Glassware and Lamps are Not Supplied with Alabax Devices*

**Pull Receptacles—250 Watts, 250 Volts**  
**Keyless Receptacles—660 Watts, 250 Volts**



No. AL-849

P & S Recessed Back Receptacles are used when the box is flush, tilted at one end, or when it extends 1/4 inch from the wall surface.

When the strap ends are on a line with the wall surface, the porcelain cover will be snug against the plaster and the lamp will seat properly.

Outside diameter of base, 4 1/2 inches.

**With 2 1/4-Inch Porcelain Shade Holder**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-849	Pull, Short Chain and Cord...	10	24	40	\$2.45
AL-850	Pull, Short Insulated Chain...	10	24	40	2.45
AL-875	Pull, Close Porcelain Pendant.	10	24	38	2.45
AL-851	Keyless.....	10	24	35	1.45

**With 3/4-Inch Porcelain Shade Holder**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-1349	Pull, Short Chain and Cord...	5	20	38	\$2.65
AL-1350	Pull, Short Insulated Chain...	5	20	38	2.65
AL-1351	Keyless.....	5	20	35	1.65



No. AL-1449

**With 4-Inch Porcelain Shade Holder**

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-1449	Pull, Short Chain and Cord...	5	20	44	\$2.70
AL-1450	Pull, Short Insulated Chain...	5	20	44	2.70
AL-1451	Keyless.....	5	20	44	1.70

**With Porcelain Ring**

**Pull, Short Chain and Cord**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-949	10	24	37	\$2.25

**Pull, Short Insulated Chain**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-950	10	24	36	\$2.25

**Pull, Close Porcelain Pendant**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-962	10	24	36	\$2.25

**Keyless**

Cat. No.	Car-ton	Std. Pkg.	Wt. Lbs. Std. Pkg.	Price Each
AL-951	10	24	29	\$1.25



No. AL-951

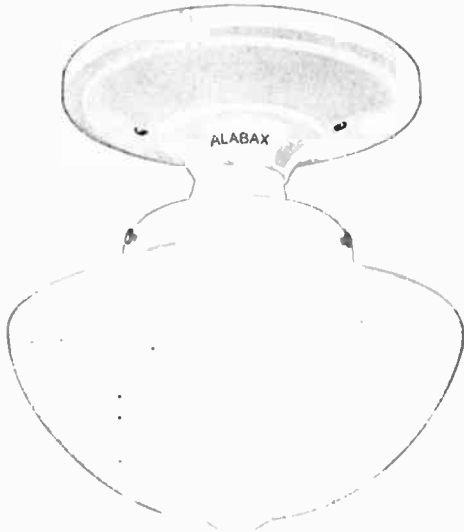
## P & S Alabax Porcelain Ceiling Units Without Switching Mechanism

For 3/4 and 4-Inch and Stud Outlet Boxes

Glassware is Not Supplied with Alabax Ceiling Units

660 Watts, 250 Volts

Units are regularly supplied completely wired.  
Outside diameter of base, 7 1/2 inches.



No. AL-1475

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Pkg.	Lbs. Pkg.	Price Each
AL-1200	With Porcelain Ring.....	4	12	40		\$2.45
AL-1201	With 2 1/4-Inch Shade Holder...	4	12	42		2.75
AL-1309	With 3 1/4-Inch Shade Holder...	4	12	44		3.00
AL-1475	With 4-Inch Shade Holder.....	4	12	50		3.25

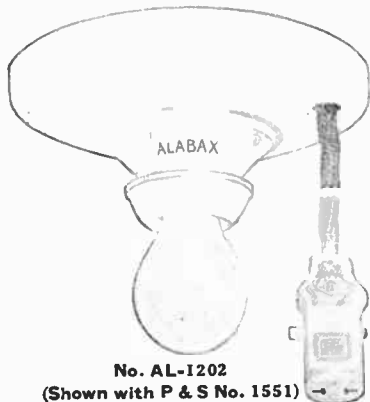
## P & S Alabax Porcelain Ceiling Units Without Switching Mechanism

For 3/4 and 4-Inch and Stud Outlet Boxes

Glassware is Not Supplied with Alabax Ceiling Units

660 Watts, 250 Volts

For use with pendent switch and convenience outlet.  
Units are regularly supplied completely wired.  
Outside diameter of base, 7 1/2 inches.



No. AL-1202  
(Shown with P & S No. 1551)

These Alabax Ceiling Units accommodate 3-conductor cord. P & S 1551 switch plug combination and cord shown in the illustration is not supplied as a part of catalogue number AL-1202, etc. but must be ordered separately.

Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Pkg.	Lbs. Pkg.	Price Each
AL-1202	With Porcelain Ring.....	4	12	40		\$2.45
AL-1203	With 2 1/4-Inch Shade Holder...	4	12	42		2.75
AL-1301	With 3 1/4-Inch Shade Holder...	4	12	44		3.00
AL-1476	With 4-Inch Shade Holder.....	4	12	50		3.25

## P & S Alabax Porcelain Ceiling Units With Deep Recessed Back

For All Types of Outlet Boxes

Glassware and Lamps are Not Supplied with Alabax Devices

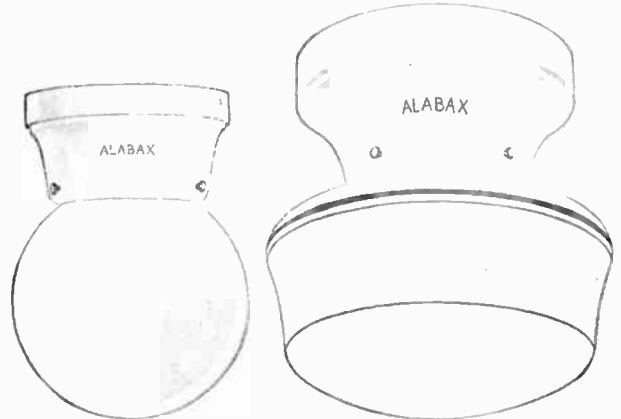
Pull Receptacles: 250 Watts, 250 Volts

Keyless Receptacles: 660 Watts, 250 Volts

These ceiling units are one piece—a modern design and very attractive. They can be used for all types of residential, commercial, institutional and industrial lighting.

They are fastened by means of a strap to box ears or studs. Supporting screws are concealed.

All of these devices are supplied regularly equipped with 6-inch leads of No. 16 wire. No. AL-2371 cannot be supplied with leads unattached. The other catalogue numbers are regularly supplied with leads attached, but can be supplied with leads unattached, if so specified.



No. AL-2371

No. AL-2471

### With 3/4-Inch Fitter

Diameter of base, 5 1/4 inches.

Distance from ceiling to bottom of unit, 5 3/4 inches.

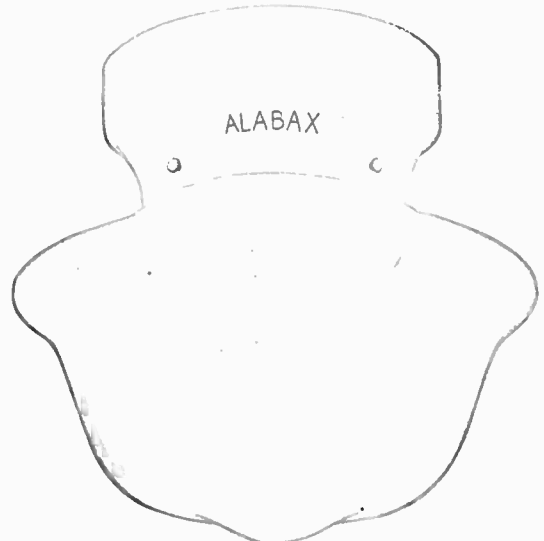
Cat. No.	Description	Car-ton	Std. Pkg.	Wt. Pkg.	Lbs. Pkg.	Price Each
AL-2371	Keyless.....	4	21	58		\$3.00

### With 4-Inch Fitter

Diameter of base, 7 1/4 inches.

Distance from ceiling to bottom of unit, 3 3/4 inches.

AL-2469	Pull, Short Chain and Cord	4	20	63		\$3.75
AL-2471	Keyless.....	4	20	64		3.25



No. AL-2671

### With 6-Inch Fitter

Diameter of base, 8 3/8 inches.

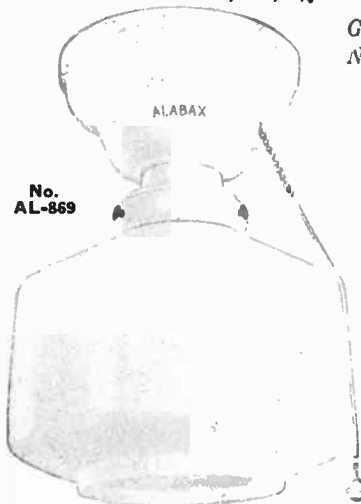
Distance from ceiling to bottom of unit, 3 3/4 inches.

AL-2669	Pull, Short Chain and Cord	2	10	44		\$4.75
AL-2671	Keyless.....	2	10	42		4.25

**P & S Alabax Porcelain Receptacles**

**With Deep Recessed Back**  
For Loom, BX, 3/4 and 4-Inch Boxes

*Glassware and Lamps are Not Supplied with Alabax Devices*



No. AL-869

**Pull Receptacles:**  
250 Watts, 250 Volts

**Keyless Receptacles:**  
660 Watts, 250 Volts

P & S Receptacles with deep recessed back are for use where boxes project from the wall or are tilted.

Recess is 1 1/4 inches deep, 4 inches wide at base and 3 inches wide at top.

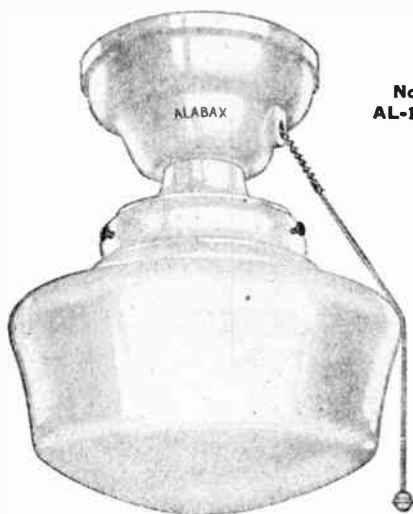
Diameter of base, 5 3/8 inches.

**With 2 1/4-Inch Porcelain Shade Holder**

Cat. No.	Description	Car- ton	Std. 1 kg.	Wt. S.d.	Lbs. Pkg.	Price Each
AL-869	Pull, Short Chain and Cord....	5	20	46		\$2.65
AL-870	Pull, Short Insulated Chain....	5	20	46		2.65
AL-871	Keyless.....	5	20	44		1.65

**With 3/4-Inch Porcelain Shade Holder**

AL-1369	Pull, Short Chain and Cord....	5	20	52		\$2.85
AL-1370	Pull, Short Insulated Chain....	5	20	52		2.85
AL-1371	Keyless.....	5	20	50		1.85



No. AL-1469

**With 4-Inch Porcelain Shade Holder**

AL-1469	Pull, Short Chain and Cord....	5	20	65		\$2.90
AL-1470	Pull, Short Insulated Chain....	5	20	65		2.90
AL-1471	Keyless.....	5	20	63		1.90

**With Porcelain Ring**

**Pull, Short Chain and Cord**

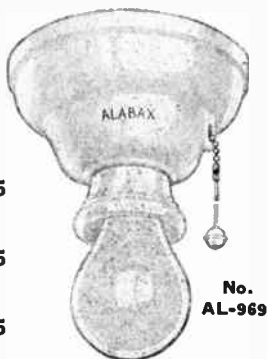
Cat. No.	Car- ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
AL-969	5	20	44		\$2.45

**Pull, Short Insulated Chain**

AL-970	5	20	44		\$2.45
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**Keyless**

AL-971	5	20	42		\$1.45
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No. AL-969

**P & S Alabax Porcelain Receptacles**

**For 3/4-Inch Boxes Only**

*Glassware and Lamps are Not Supplied with Alabax Devices*

**Pull Receptacles—250 Watts, 250 Volts**  
**Keyless Receptacles—660 Watts, 250 Volts**

Diameter of base, 3 3/4 inches.

**With 2 1/4-Inch Porcelain Shade Holder**



No. AL-929

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
AL-929	Pull, Short Chain and Cord....	10	24	30		\$2.30
AL-930	Pull, Short Insulated Chain....	10	24	30		2.30
AL-952	Pull, Close Porcelain Pendant..	10	24	30		2.30
AL-960	Keyless.....	10	24	29		1.30

**With Porcelain Ring**



No. AL-921

AL-919	Pull, Short Chain and Cord....	10	24	28		\$2.10
AL-920	Pull, Short Insulated Chain....	10	24	28		2.10
AL-922	Pull, Close Porcelain Pendant..	10	24	30		2.10
AL-921	Keyless.....	10	24	28		1.10

**P & S Alabax Porcelain Receptacles**

**With Recessed Back and Standard Shade Holder Groove for Shade Holders**

**For 3/4 and 4-Inch Outlet Boxes**

*Lamps are Not Supplied with Alabax Devices*

**Pull—250 Watts, 250 Volts**  
**Keyless—660 Watts, 250 Volts**

P & S Recessed Back Receptacles are used when the box is flush, tilted at one end, or when it extends 1/4 inch from the wall surface. When the strap ends are on a line with the wall surface, the porcelain cover will be snug against the plaster and the lamp will seat properly.

Outside diameter of base, 4 1/2 inches.



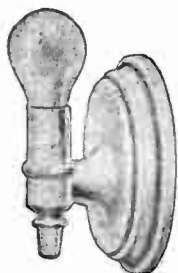
No. AL-859

Cat. No.	Description	Car- ton	Std. Pkg.	Wt., Lbs. Std.	Lbs. Pkg.	Price Each
AL-859	Pull, Short Chain and Cord....	10	24	32		\$2.10
AL-848	Pull, Short Insulated Chain....	10	24	31		2.10
AL-863	Pull, Close Porcelain Pendant..	10	24	33		2.10
AL-898	Keyless.....	10	24	30		1.10

**With Flush Back**

Cat. No.	Description	Cat. No.	Description
AL-829	Substitute AL-859	AL-855	Substitute AL-863
AL-830	Substitute AL-848	AL-860	Substitute AL-898

## Aglite Porcelain Enamel Brackets



No. A1069

2½x1¼ inches. Lamps are not included.

For bedrooms, bathrooms, dressing rooms, etc.

Standard finish is white, ivory or gray. Furnished in any color of porcelain enamel at an extra charge. Made of brass metal in any standard sprayed or plated finish without extra charge.

Pearlite scone No. P498, 4x4½ inches, trimmed with silver braid at \$1.25. Resembles Mother of Pearl.

Convenience receptacles furnished with two 6-inch flexible wire leads.

Oval canopy, 6x4¾ inches. Extends 3½ inches over all. White finish candle, 2½x1¼ inches. Lamps are not included.

Price, No. A1068, Keyless without Plug.....each \$2.50  
Price, No. A1069, Toggle without Plug.....each 3.60

## Aglite Porcelain Enamel Brackets

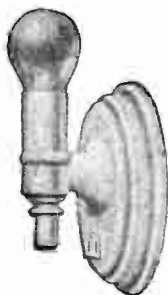
Standard finish is white, ivory or gray. Furnished in any color of porcelain enamel at an extra charge. Made of brass metal in any standard sprayed or plated finish without extra charge.

Pearlite scone No. P498, 4x4½ inches, trimmed with silver braid at \$1.25. Resembles Mother of Pearl.

Convenience receptacles furnished with two 6-inch flexible wire leads.

Oval canopy, 6x4¾ inches. Extends 3½ inches over all. White finish candle, 2½x1¼ inches.

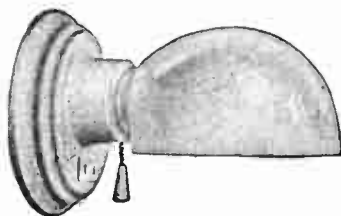
Each unit complete, ready for installation. Lamps are not included. Standard package, 4.



No. A1071

Price, No. A1070, Keyless with Plug.....each \$2.90  
Price, No. A1071, Toggle with Plug.....each 4.00

## Aglite Porcelain Enamel Receptacles



No. A1075

These receptacles are easily cleaned. Cannot tarnish, discolor or peel. Fits any standard outlet.

Standard finish is white, ivory or gray; any color porcelain enamel furnished at an extra charge. Made of brass metal in any standard sprayed or plated finish

without extra charge. Convenience receptacles with two 6-inch flexible wire leads. Lamps are not included.

Price, No. A1072, Keyless without Plug.....each \$2.75  
Price, No. A1073, Pull Chain without Plug.....each 3.60  
Price, No. A1074, Keyless without Plug.....each 3.15  
Price, No. A1075, Pull Chain with Plug.....each 4.00

## Aglite Porcelain Enamel Ceiling Units

Canopies are of Armco iron with 3 coats of permanent porcelain enamel fused on at 1600 degrees. White, ivory or gray finish.

Convenience outlet plugs have two 6-inch wire leads. Lamp not included.

Price, No. A1066, Keyless.....each \$1.70  
Price, No. A1067, Pull Chain.....each 2.30

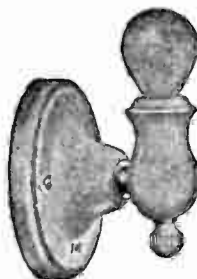


## Aglite Fixtures

Aglite canopies are stamped from a single piece of heavy gauge Armco Iron and 3 coats of permanent porcelain enamel are then fused on at 1600 degrees Fahrenheit in electric porcelain enameling furnaces. No metal parts visible; pure white glass shade is attached by means of a concealed metal screw collar which holds glass firmly in place. Installation made direct to house wires in 5 minutes with only screw-driver and pliers. Three colors, white, old ivory and gray.

## Dim-A-Lite Porcelain Bathroom Brackets

### With or Without Convenience Outlet



These oval brackets are made of pure white glazed porcelain and nickel plated brass.

Brackets have 4 changes of light from bright to dark. By merely a quarter turn of the knob, the light is reduced to the desired intensity and results in a corresponding saving in current.

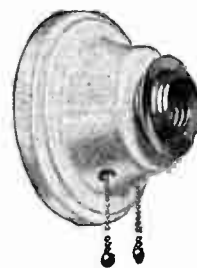
Wired ready for connecting. Can be furnished not wired.

Designed for standard boxes. Will cover a 4-inch outlet box.

Carton, 1. Standard package, 12; weight, 45 pounds.

Price, No. 100, without Convenience Outlet.....each \$4.50  
Price, No. 101, with Convenience Outlet.....each 5.00

## No. 102 Dim-A-Lite Porcelain Bathroom Brackets



This bracket is especially designed for use over a mirror in the bathroom, or in the bedroom, hall and kitchen.

Made of pure white glazed porcelain. Gives 5 changes of light. Will cover a 4-inch outlet box. Designed for standard boxes.

Carton, 1. Standard package, 12; weight, 19 pounds.

Price, No. 102, without Glass Shade.....each \$3.00

## No. 33 X-Ray Flood-Ray Show Window Floodlight



The No. 33 window flood light lights the entire window with a flood of direct light from the 200-watt Mazda lamp, and concentrates a powerful beam of light in the center of this flood. The

purpose of this concentrated beam is to high-light one article in the display without making a sharp ring or cut-off of light, but rather causes the beam to fade away gradually.

It is an inexpensive method of lighting small windows where no other reflector equipment is used.

In windows already wired with reflector equipment it raises the light intensity at one point as compared to the balance of the window.

Regularly furnished with a color frame and four pieces of colored gelatin—red, blue, green and amber. The frame clips on the reflector when color flood lighting is used. Frame and color mediums can be omitted when orders so specify.

Height over all, 11 inches. Diameter of color frame, 11½ inches.

Furnished complete as shown, with swivel supporting base, socket holder, No. 802 reflector, color frame and four pieces of colored gelatin—red, blue, green, and amber.

Standard package, 1. Weight, 7 pounds.  
Price, No. 33, Complete.....each \$12.00  
Price, No. 33, without Color Frame and Gelatins.....each 10.00

## No. 303 Portable Flood-Ray Lights

No. 303 consists of the regular No. 33 Flood Light mounted on a portable stand.

Price, No. 303, Complete.....each \$22.00  
Price, No. 303, without Color Frame and Gelatins.....each 20.00

**No. 88 Hippo X-Ray Show Window Flood Lights**

With Center Spot Beam  
For 300-500-Watt Lamps



The Hippo Show Window Flood Light with Center Spot Beam has been designed to concentrate a powerful center spot beam over a small area, which fades away into the light given out over the greater area. It is a powerful light using either the 300 or 500-watt P. S. bulb, mogul base lamp.

It is designed for use in large windows where it is desirable to throw a light of a high intensity, on some one center display.

This floodlight is for use with or without color equipment.

Cat. No.....	88
Base.....inches	5½
Depth.....inches	14
Diameter.....inches	13¼
Height.....inches	11¼
Std. Pkg.....	1
Weight of Std. Pkg.....pounds	11
Price, with Color Frame and Gelatin.....each	\$25.00
Price, without Color Equipment.....each	21.00

**No. 808 Portable Flood Lights**

No. 808 consists of the regular No. 88 Flood Light mounted on a portable stand.

This style furnished with or without color equipment.  
Price, No. 808, with Color Frame and Gelatin.....each \$34.00  
Price, No. 808, without Color Equipment.....each 30.00

**No. 44 Pup X-Ray Show Window Floodlights**

For 100-Watt A-23 Lamp

This floodlight is used with the 100-watt A-23 Mazda lamp to throw a narrow, concentrated beam on featured articles in the window.

Height over all, 7 inches.

Diameter of reflector, 8½ inches.

Furnished complete with swivel supporting base, socket holder and No. 844 reflector. No color equipment.

Standard package of 1 unit weighs 5 pounds.

Price, No. 44, Complete.....each \$9.00



**X-Ray Direct Lighting Reflectors**

These reflectors are of one-piece blown corrugated glass, with a pure silver reflecting surface; green finish outside.

No. 696 gives a concentrated light for billiard tables, etc. No. 700 is a semi-distributing reflector, suited for use over type cases, desks, etc. No. 710 gives an intense light for small areas. No. 844 has a narrow beam spread, for shallow show windows, etc.



Cat. No.	DIMENSIONS INCHES		Size Holder Inches	Mazda C Lamp Watts	Std. Pkg.	Weight Pounds	Price Each
	Diam.	Height					
515	.....	1¾	1½S	25-Tube	36	16	\$2.00
696	8	5	2¼II	100A-23	24	30	3.00
700	10	5½	2¼H	150PS-25	18	35	3.50
710	11½	6¾	3¼A	200PS-30	6	19	8.00
844	8½	4¾	3¼A	100A-23	12	..	5.00

**No. 731 X-Ray Hood Reflectors**  
For 100 Watt Mazda Lamp



Designed to light small shallow windows up to eight feet high and approximately ½ to ¾ as deep.

This reflector should be used in windows with no background, or with low background, the upper part of which is mirrored or transparent glass.

The Hood is often recessed in the ceiling of the window, using X-Ray ceiling flange No. 10349.

Width, 8¾ inches; depth, 9 inches; height, 6½ inches. Holder 2¼H. Standard package, 16.

Price, No. 731.....each \$4.00

**No. 7 Scoop Junior Reflectors**

For 60-25-Watt Mazda Lamps

The No. 7 Scoop Junior Reflector is designed for use with 60-25-watt Mazda lamps. It fills a long need for a small reflector to light deep windows less than 5 feet high and for large display cases used inside many stores.



Width, 5 inches; height, 3¾ inches; depth, 4¾ inches. Size holder, 2¼ inches.

Standard package, 20. Weight per standard package, 11 pounds.

Price, No. 7.....each \$2.50

**No. 11 Hood Junior Reflectors**

For 60-25-Watt Mazda Lamps

The No. 11 Hood Junior Reflector is designed for use with the 60-25-watt mill type Mazda lamp, and will light shallow windows less than 5 feet high.

Used for high shallow display cases.

Width, 5½ inches; height, 3¾ inches; depth, 5¾ inches. Size 0 Holder, 2¼ inches.

Standard package, 20. Weight per standard package, 15 pounds.

Price, No. 11.....each \$3.00



**No. 844 Comet Reflectors**

For 100-Watt A-23 Mazda Lamps  
For 3¼-Inch Form A Holder



This is a concentrating reflector with a narrow beam spread of 20 degrees. It has a large number of applications in very shallow show windows, such as drug store windows, in art museums and in handball courts.

Diameter of reflector only 8½ inches; height of reflector only, 4¾ inches.

Standard package, 12. Weight, standard package, 19 pounds.

Price, No. 844.....each \$5.00



## No. 400 X-Ray Jack Show Window Reflectors

\*For 150-Watt Mazda Lamp



The X-Ray Jack No. 400 is used in medium sized deep windows. Its design is such that it gives an even distribution of light from top to bottom of displays with a comparatively high line of trim.

For color-lighting, use X-Ray Color-Ray No. 440.

For recessing this unit in ceiling of window use X-Ray Ceiling Flange No. 11400.

Form X holder included.

\*If a 100-watt A-23 Mazda lamp is used a short, 7/8-inch, socket extension is required.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Width	Height	Depth			
400	8 1/2	5 3/8	8	10	21	\$4.50

## No. 500 King X-Ray Show Window Reflectors

For 200-Watt Mazda Lamps



Used in large, deep windows with high trim. Gives an even distribution of light from top to bottom of the display.

Form X holder is included.

Width, 10 inches; height, 7 inches; depth, 10 1/2 inches.

Standard package, 10. Weight, standard package, 32 pounds.

Price, No. 500.....each \$6.00

## No. 900 Giant X-Ray Show Window Reflectors

For 300 or 500-Watt Mazda Lamps



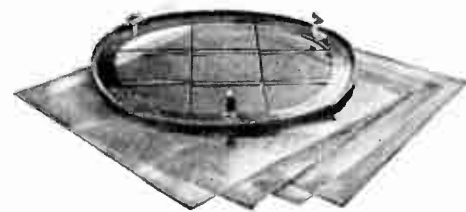
A distributing reflector for super-lighting large, deep windows where trim is high. X-ray Mogul socket for 1/2-inch pipe and X-ray holder included. Socket is bushed for 3/8-inch pipe.

Width, 13 inches; height, 9 inches; depth, 12 7/8 inches.

Standard package, 4. Weight, standard package, 28 pounds.

Price, No. 900.ea. \$12.50

## X-Ray Color-Rays



Attached to the X-ray reflector to color-light show windows.

Each consists of a light metal frame with spring clips for fastening

to reflector, and one sheet each of red, blue, green and amber gelatin.

Cat. No.	Reflector No.	Std. Pkg.	Price Each	Cat. No.	Reflector No.	Std. Pkg.	Price Each
440	400	10	\$2.25	55	500-510	10	\$2.50
441	410	10	2.25	99	900-910	10	4.00

## No. 410 X-Ray Jill Show Window Reflectors

\*For 150-Watt Mazda Lamp



The X-Ray Jill No. 410 is for medium size shallow windows. It is best adapted for displays where the trim is low or for windows of the island type.

For color-lighting, use X-Ray Color-Ray No. 441.

For recessing this unit in ceiling of window, use Ray Ceiling Flange No. 11410.

Form X Holder included.

\*If 100-watt A-23 Mazda lamp is used a short, 7/8-inch, socket extension is required.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Width	Height	Depth			
410	9 3/8	5 1/2	9 1/2	10	28	\$4.50

## No. 510 Queen X-Ray Show Window Reflectors

For 200-Watt Mazda Lamps

Used in large, shallow windows. Its design is such that it gives a semi-concentrating distribution of light which is especially suitable for low trim displays.

Width, 10 1/2 inches; height, 7 1/4 inches; depth, 10 3/4 inches.

Standard package, 10. Weight, standard package, 35 pounds.

Price, No. 510.....each \$6.00

## No. 910 Leviathan X-Ray Show Window Reflectors

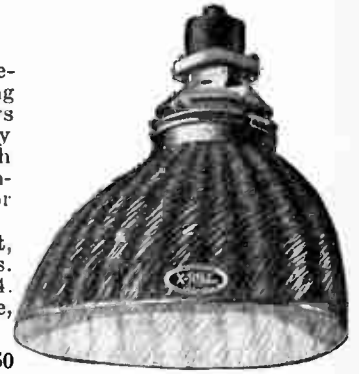
For 300 or 500-Watt Mazda Lamps

A semi-concentrating reflector for super-lighting large, shallow windows where trim is low. X-ray Mogul socket for 1/2-inch pipe and X-ray holder included. Socket bushed for 3/8-inch pipe.

Width, 13 inches; height, 9 3/8 inches; depth, 13 inches.

Standard package, 4. Weight, standard package, 28 pounds.

Price, No. 910.each \$12.50



## X-Ray Beehive Reflectors

Gives wide spread of light and hides lamp. Adapted for illuminating factories, etc. One-piece blown corrugated glass with reflecting surface of pure silver.

No. 535 may be used with 40 and 50-watt Mazda B lamps.

Nos. 580 and 54 are furnished with special holder.

Cat. No.	Diam., In.	Ht., In.	Holder, In.	Mazda Lamp, Watts	Std. Wt., Lbs.		Price Each
					Pkg.	Std. Pkg.	
3	4 1/2	3 1/4	2 1/4 O or H	25-60	20	19 1/2	\$1.50
535	5 3/4	5 1/8	2 1/4 H or O	100	24	25	2.00
570	7 1/8	6 7/8	3 1/4 A	150	16	32	3.50
575	9 3/8	8	3 1/4 A	200	8	25	4.25
580	11 7/8	9 3/8	Special	300-500	4	23	9.50
54	16 1/2	13 3/8	Special	750 or 1000	1	..	25.00



**No. 54 X-Ray Jumbo Reflectors**

For 750 and 1000-watt Mazda C Lamps



The No. 54 unit is complete with No. 770 reflector, special holder and mogul socket. It is designed for the illumination of large interiors.

Made of corrugated blown glass with reflecting surface of pure silver, green protective finish outside.

Diameter of reflector only 16 1/2 inches; height reflector only 13 3/8 inches.

Standard package, 1; package weight, 48 lbs.

Price, No. 54, with Holder ..... each \$25.00

**No. 590 X-Ray Big Boy Reflectors**

For 1500-1000-Watt Lamps



This reflector is designed for 1500-1000-watt lamps and lights large interiors such as gymnasiums, foundries, erecting shops, etc.

This unit includes a powerful, concentrating X-ray Reflector and special holder.

Diameter, 20 inches.  
Height reflector, 10 1/2 inches; height over all, 24 inches.

Standard package, 2.  
Weight package, 45 lbs.

Price, No. 590, with Socket and Holder ..... each \$25.00

**No. H-199 X-Ray Hoodette Reflectors**

For 50-Watt A-19, 25-Watt A-19 or 15-Watt A-17 Lamps



Designed for lighting low, shallow windows, outside display cases, wall cases, etc. The light is so controlled that while sufficient light is directed toward the back of the case, the greater part is directed downward and brilliantly illuminates the lower part. No. H-199 includes reflector, socket with cover, and reflector holder attached to socket shell. Black finish.

When installing, the wires are brought up back of the case and enter an outlet box at the top. The switch for controlling the lamps is concealed at one end.

Cat. No.	DIMENSIONS, INCHES			Holders Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Width	Depth	Height				
H-199	3 1/16	5 3/8	4 1/2	Special 10	14		\$4.75

**No. 5000 Indirect Luminaries**

Equipped with X-Ray reflectors. Adapted for lighting homes, clubs, hotels, stores, etc.

Silvertone finish. Special holders for the X-Ray reflectors permit an adjustment to accommodate two or three 100 or 150-watt lamps. Instructions for methods of wiring are contained in each package. Separate control of each lamp if desired. One lamp can be controlled at pull switch while other lamp can be controlled from wall switch.

Furnished complete with wire and pull switch but unwired and unassembled.

Diameter of bowl, 15 1/2 inches; depth, 4 1/16 inches.

Cat. No.	Size of Lamp	Std. Pkg.	Shp. Wt., Lbs.	Price Each
5000	Two 100, 150	1	11 1/2	\$29.50
5003	Three 100, 150	1	11 1/2	35.50



**No. 6101 Opaque Metal Bowl**



This steel bowl unit, containing a powerful X-Ray reflector, is finished in washable ivory tone enamel.

Furnished with a 36-inch chain hanger and No. 14 wire.

Luminaire comes unwired and unassembled.

Diameter of bowl is 14 inches; depth is 6 inches.

Packed one in a carton.

Shipping weight of No. 6101W is 10 pounds; No. 6101M, 12 pounds.

Cat. No.	Size of Lamp	Price Each
6101W	200	\$19.50
6101M	300, 500	24.50

**No. S-200 X-Ray Scoopette Reflectors**

For 50-Watt A-19 Rough Service or 25-Watt A-19 or 15-Watt A-17 Mazda Lamps

For show case lighting; any can be lighted with it. This unit offers the least possible obstruction to a clear view of the interior of the case, gives even and efficient illumination with complete concealment of the lamp, low current consumption and maintenance, smallest amount of heat and absolute safety from fire risks. No. S-200 includes reflector, socket and cover, housing for reflector, and special clip to hold reflector in place. Black nickel finish.



Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
	Height Inc. Socket	Depth Front to Back			
S-200	4 1/2	3 5/8	10	7	\$4.75

**Complete Outfits**

Complete assortments of finished material necessary for equipping square-end show cases of various sizes with any number of Scoopettes specified are regularly supplied. Material includes a special insulating joint, a push button switch, a special switch box, which is easily installed, all tubing, elbows, T-fittings, Scoopettes, straps or brackets for supporting tubing, cap for end of tubing and sufficient special flexible No. 18 stranded wire to wire entire case. Prices do not include assembling, wiring, installing or lamps.

No. Scoopettes per Case	LENGTH OF CASE, FEET			
	3 to 5	5 to 7	7 to 9	9 to 11
2	\$24.85	\$25.85	.....	.....
3	30.75	*31.70	\$32.65	.....
4	36.70	37.60	*38.55	\$39.50
5	.....	43.50	44.55	45.40
6	.....	.....	50.45	51.30
7	.....	.....	56.35	57.20
8	.....	.....	.....	63.10
9	.....	.....	.....	69.00
10	.....	.....	.....	74.90

The charge for bending tubing for a case with a single curved end is \$2.50, and for a case with two curved ends is \$3.25.

\*Standard package outfits.

**Method of Installing**

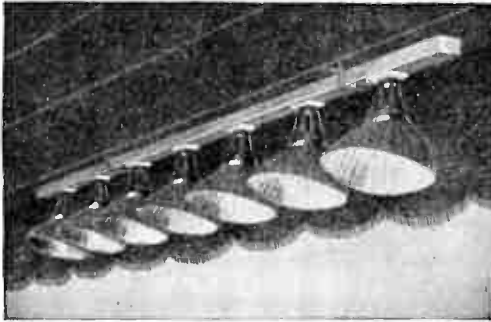
**Floor Entrance, for Wood Frame Cases**

The feed wires enter from underneath the floor of case extending up through the flexible conduit, which is concealed back of one of the front corner posts. Floor entrance outfits can be supplied for same prices as back entrance outfits.

**Back Entrance, for All Glass Cases**

Feed wires are brought up one of the back posts; tubing extends across the case inside at the top at one end, being connected to the front tube with an elbow. This is a most satisfactory method, as it is not necessary to disturb the trim, move the ease or tip it over.

## CurtiStrip and X-Raylets



**X-Ray Reflectors Installed in the Show Window on CurtiStrip**

CurtiStrip is a wiring device designed originally for show window and cove lighting, but by no means limited to these fields. It is listed as standard by Underwriters' Laboratories. Ease of installation combined with a minimum number of parts, sturdiness of construction and good electrical conductivity are the characteristics of CurtiStrip and X-Raylets, its standardized fittings.

Time and material costs are reduced to a minimum and a neat, rigid, perfectly aligned installation is assured. All metal parts coated with udylite, a rust-resisting cadmium finish.

### No. 1 CurtiStrip



CurtiStrip is supplied in standard lengths of 10 feet and is easily cut to any desired length with a hack saw. Its cover can be cut into sections (with a pair of tinners' shears) to act as spacers between receptacles, etc. The cover is flat and easily snapped into place in the spring-like groove provided in the channel. Where local inspection permits, 30 No. 14 single braid, rubber-covered wires can be placed in CurtiStrip.

A standard package contains 100 feet.  
Price, No. 1.....per foot \$.60

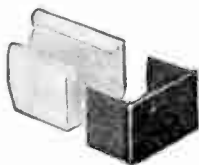
### No. 5 X-Raylets



The No. 5 is a porcelain receptacle and consists of 2 parts: body and cap. This receptacle is for use with X-ray form X holder and all other types of standard holders.

Packed 10 in a carton. Standard package, 100.  
No. 5-A may be used with other types of X-ray holders.  
Price, No. 5, with Medium Screw Base.....each \$.60  
Price, No. 5A, with Medium Screw Base.....each .60

### No. 6 X-Raylets



An end cap for closing the end of CurtiStrip. Provided with a 1/2-inch knockout for use in leading-in circuits.

Standard package, 10.  
Price, No. 6.....each \$.40

## CurtiStrip and X-Raylets

### No. 9 X-Raylets



This is a strap for holding CurtiStrip on the ceiling.

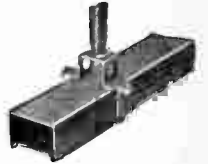
Standard package, 10.

Price, No. 9.....each \$.15

### No. 10 X-Raylets

A bracket for hanging CurtiStrip in any of 3 positions: Vertical, or left and right horizontal.

Standard package, 10.



Price, No. 10.....each \$.35

### No. 14 X-Raylets

An adjustable elbow for adapting CurtiStrip to any desired angle.

Fishing of wires is entirely eliminated.

Standard package, 1.



Price, No. 14.....each \$1.50

### No. 16 X-Raylets

A coupling for connecting 2 pieces of CurtiStrip together.

It does not reduce the capacity of the wireway.

Standard package, 10.



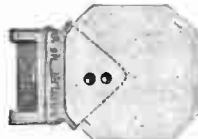
Price, No. 16.....each \$.40

### No. 18 X-Raylets

A box adapter for connecting CurtiStrip to a standard 4-inch outlet box.

Either 1, 2, 3 or 4 adapters may be used with the box so that CurtiStrip may be run in any or all 4 ways.

Standard package, 10.



Price, No. 18.....each \$.75

### No. 19 X-Raylets

This is a nipple attachment for connecting wiring devices to CurtiStrip.

It can be substituted for the socket in window and cove lighting installations.

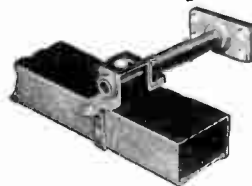
This attachment fits a 3/8-inch pipe nipple and can be used with drop cords and other wiring.

Standard package, 10.



Price, No. 19.....each \$.45

### No. 24 X-Raylets



A bracket assembly consisting of a strap, No. 9; bracket, No. 10; a 3/8 x 6 1/4-inch nipple, locknuts and flange. Supplied knocked down.

Standard package, 10 sets.

Price, No. 24.....per set \$1.40

**Benjamin Show Case Lighting Fixtures**

**Lamp Sections**

Lamp sections are completely wired for "through" connection and take T-10 tubular lamps.

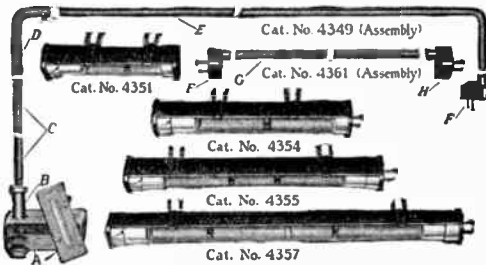
Standard finish for parts listed below is dark bronze outside—lamp sections are aluminized inside.

Cat. No.	Description	No. of Lights	†Std. Pkg.	Wt. Lbs. Each	Price Each
4354	12-Inch Lamp Section	1	5	1 1/8	\$4.00
4355	16-Inch Lamp Section	2	5	1 1/4	4.50
4357	22-Inch Lamp Section	2	5	1 1/2	4.70
4338	30-Inch Lamp Section	4	5	2 1/2	7.75
4339	34-Inch Lamp Section	4	5	2 3/4	8.00

**For Curved Part of Case**

4351	8 1/2-Inch Lamp Section	1	5	3/4	\$3.75
*4361	18-Inch Link	5	5	1/2	2.00

\*This unit consists of a section of soft brass tubing (G) which can be cut and bent to fit show case curve, and two end blocks (F and H) for linking lamp sections together.



**Entrance Stem Assembly For Rear Entrance**

Cat. No.	Description	†Std. Pkg.	Wt. Lbs. Each	Price Each
4349	§Complete	5	1 1/16	\$3.50

**For Front Entrance**

§No. 4349 consists of connecting block (F), 33 inches of horizontal tubing of soft brass with 90° bend (E), elbow (D), 33 inches of vertical tubing of soft brass (C), with one end threaded for screwing into floor fitting (B) and outlet box (A).

†No. 4350 consists of outlet box (A), floor fitting (B), 33 inches of soft brass tubing with 90° bend (E), and connecting block (F). After tubing is cut to the required length the straight end must be threaded for screwing into floor fitting.

‡A standard package also consists of any assortment of 5 of the above numbers.

**For Rectangular Cases from 48 to 124 Inches (Inside Length)**

To determine the catalogue numbers of the reflector sections and fittings required for a show case, measure the inside length of the show case and then refer to the first column of the chart. Opposite the nearest length and under the heading "Catalogue Number of Units Required for Show Case" the quantity and catalogue numbers of the reflector section and fittings will be found.

Actual Inside Length of Case, Inches	Catalogue Number of Units Required for Show Case		Net Overall Length of Combination, Inches	No. of Lamps
	Reflector Sections	Entrance Fitting		
48 to 52	1-4355, 1-4338	1-4349	48	6
52 to 56	1-4355, 1-4339	1-4349	52	6
56 to 60	1-4355, 1-4339	1-4349	52	6
60 to 64	1-4357, 1-4339	1-4349	58	6
64 to 68	2-4338	1-4349	62	8
68 to 72	2-4355, 1-4339	1-4349	68	8
72 to 76	2-4339	1-4349	70	8
76 to 80	2-4357, 1-4338	1-4349	76	8
80 to 84	1-4355, 1-4338	1-4349	78	10
84 to 88	1-4357, 2-4338	1-4349	84	10
88 to 92	1-4357, 1-4338, 1-4339	1-4349	88	10
92 to 96	3-4338	1-4349	92	12
96 to 100	2-4338, 1-4339	1-4349	96	12
100 to 104	2-4339, 1-4338	1-4349	100	12
104 to 108	3-4339	1-4349	104	12
108 to 112	1-4355, 3-4338	1-4349	108	14
112 to 116	1-4355, 2-4338, 1-4349	1-4349	112	14
116 to 120	1-4355, 1-4338, 2-4339	1-4349	116	14
120 to 124	1-4355, 2-4339	1-4349	120	14

**Benjamin Show Case Lighting Fixtures**

**For Curved Show Cases and Wall Cases**

These show case fixtures have many advantageous features:

Even illumination of the entire display as fixture extends the whole length of the case.

Inconspicuous in either all glass or wood frame case, as fixture is of very small dimensions and is finished in dark bronze to harmonize with most store surroundings.

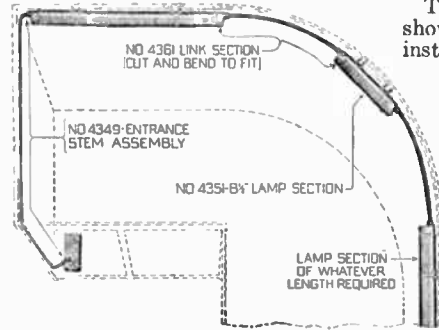
Easily and quickly installed without muss or fuss, due to special sectional construction.

Easy replacement of burned out lamps. Old lamps with socket can be removed from fixture with the ease of separating a standard attachment plug—see illustration below at left. New lamp can then be inserted outside of the case and socket replaced.

Designed to take Standard T-10 tubular lamps, which are obtainable at any electrical store.

Standard combinations fit any style or length of case, assuring quick delivery from your contractor and a decided saving in cost as compared with specially built units.

**Method of Installation**

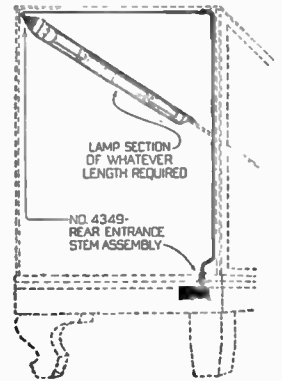


The illustration shows the method of installing Benjamin Show Case Lighting fixtures in the curved section of a case. The Link Sections shown are of soft brass tubing, easily cut and bent to fit the case.

The illustration at the right shows the method of installing Entrance Fittings. Tubing is of soft brass and easily cut and bent.

No special tools are required for installing fixtures.

The method of fastening reflector sections to wood or glass cases is shown below.



At the left is shown the socket which separates like a standard attachment plug, so that lamps can be changed outside of case.

At the right is shown the method of joining sections both mechanically and electrically by tightening up two screws.



At left is shown method of attaching supporting bracket on all glass case.

At right is shown method of attaching the supporting brackets to wood frame case.



## Benjamin Pear Shaped Half Shades



For use with desk lamps, bracket lamps, oil gauge lamps, etc.

Fits standard brass shell sockets and takes Mazda B lamps up to 40 watts.

Reflector has hinged collar which allows it to swing out and give free access to lamp when making renewals.

The inside is aluminized; outside as indicated in the listing.

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Std.	Price Each
362	Brushed Brass	10	2	\$ .80
364	Brass, Polished Nickel	10	2	.95
365	For Brass Shell Socket; Steel, Green Enameled	10	1 3/4	.45
365P	For Porcelain Sockets; Steel, Green Enameled	10	1 3/4	.80

## Benjamin Tubular Half Shades



For use with desk lamps, bracket lamps, oil gauge lamps, etc.

Fits standard brass shell sockets and takes T-10 Tubular lamp.

Reflector has hinged collar which allows it to swing out and give free access to the lamp when making replacement.

Aluminized inside; outside as indicated in listing.

Cat. No.	Description	Std. Pkg.	Wt. Lbs. Std.	Price Each
277	Polished Nickel	10	2 1/4	\$ .80
278	Steel, Green Enameled	10	2	.50

## Benjamin Tubular Reflectors For Two T-10 Tubular Lamps



For use in illuminating display cases, pictures, library shelves, office files, etc.

Reflector only, Cat. No. 282, has 2 metal straps by which it may be attached to any brass shell twin socket. It is slotted on one side to allow adjustment half-way around the lamp. The mounting bracket may be set at any one of three positions.

Reflector with socket, Cat. No. 281, consists of Reflector No. 282 and Benjamin Twin Socket No. 432, which is tapped 3/8-inch iron pipe size.

Both reflector and socket are polished nickel.

Cat. No.	Description	Lgth. In.	Std. Pkg.	Wt. Lbs. Std.	Price Each
282	Reflector Only	14	10	5	\$2.00
281	Reflector with Socket	14	10	6 1/2	3.10

## Benjamin Tubular Reflectors For One T-8 Tubular Lamp



For use in illuminating display cases, pictures, library shelves, office files, etc.

Reflector only, Cat. No. 31, has a metal strap by which it may be attached to any straight or angle type of brass shell socket. It is usually used in an upright position, employing an angle socket. The reflector may be adjusted around the lamp within an angle of 90 degrees.

Reflector with socket, Cat. No. 30, consists of Reflector No. 31 and Benjamin Angle Socket No. 431, which is tapped 3/8-inch iron pipe size.

Both reflector and socket are polished nickel.

Cat. No.	Description	Lgth. In.	Std. Pkg.	Wt. Lbs. Std.	Price Each
31	Reflector Only	14	10	3 3/4	\$2.00
30	" with Socket	14	10	5 1/4	2.75

## Greist Portable Lamps



The base of this lamp is heavily weighted, insuring stability when used as a desk, table or piano lamp.

A rubber covered ring set into the base and a felt lined hook fastener protect any surface on which the lamp is placed.

Has separable plug.

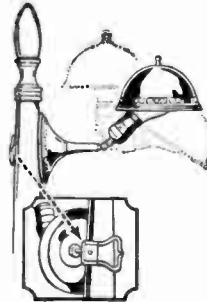
Furnished with 8-foot cord.

Lamp is finished in brush brass.

Price.....each \$5.00

## Greist Super Adjustable Lamps

This lamp is completely adjustable to any angle and any position. The clamping mechanism is easy to use and affords a positive grip. Lamp is furnished complete with 8 feet of parallel cord, socket and 2-piece attachment plug.



Cat. No.	Finish	Price Each
LS3	Brushed Brass	\$2.50
LS8	Mahogany Bronze	2.50
LS9	Ivory Enamel	2.50
LS15	Jade	2.50
LS7	Statuary Bronze	3.00
LS3D	Decorated Brass	3.00
LS8D	Decorated Mahogany Bronze	3.00
LS16D	Decorated Grey	3.00
LS9D	Decorated Old Ivory	3.00
LS7D	Decorated Statuary Bronze	3.00
LS15D	Decorated Jade	3.00

## Wallace Portable Adjustable Lamps



This lamp stands, hangs, clamps anywhere it is put. It may be tilted at any angle, twisted in any direction, and the shade adjusted to reflect the light where it is wanted.

A handy lamp for traveling, as it may be folded up. It weighs only a pound and takes up but little room.

Has separable plug. Furnished with 8-foot cord.

Price, Brushed Brass and Mahogany Bronze... each \$2.50

## Greist Clamplite Adjustable Lamps



An adjustable lamp that has all the practical features of the higher priced models.

A good-looking utility lamp.

When hung on the wall it looks like a built-in fixture.

Height, 12 inches.

Price, Brass or Mahogany Bronze ..... each \$2.00

**Buss Lights**



This light can be used for every purpose. It may be clamped or hung anywhere and is an artistic stand lamp that is neat and attractive. Not just a clamp lamp contraption.

Base plate screws in and out to clamp anywhere. Works like a vise. Slotted hole permits light to be hung on hook or nail. A touch of the hand adjusts the bulb or shade to any position.

Light is 11 inches high. Complete with extra long 9-foot cord and combination plug.

Price, No. 2002, Plain Bronze (without Bulb).....each \$2.00

**Adjusto-Lites**

Made of solid brass in four finishes: Brass, bronze, nickel and white enamel.

Durable and handsome.

The Adjusto-Lite stands 12½ inches high with 5-inch by 3-inch base.

Shade is 5¼ inches in diameter.

An eight-foot cord with push button socket and two-piece plug is attached to every lamp.

Sold with a five-year guarantee.

The lamp clamps, stands or hangs anywhere. Clamp is felt lined.

Price, Brass Finish.....each \$3.95  
 " Bronze or Nickel Finish..... " 4.45



**No. 45 Dim-A-Lamp Portables**

This lamp is simple in operation. Pushing the stem down will open a clamp, pushing the stem up will clamp the lamp securely on round, square or flat surfaces. Will also hang or stand anywhere. The adjustable shade and socket provide for light at any angle. Standard finishes are brush brass, bronze and ivory. It is furnished with separable plug, Dim-a-lite Socket and 8-foot cord.

Gives five changes of light and saves 30 to 80 per cent current.



Finish	Std. Pkg.	Wt., Lbs.	Price Each
Brush Brass.....	12	23	\$3.75
Ivory.....	12	23	4.25
Bronze.....	12	23	4.25

Add 10 cents to list price for 32-volt and 220-volt Dim-a-lamps.

**No. 46 Dim-A-Lamp Portables**

220, 110, or 32 Volts

For bedroom, sickroom, desk or nursery. Gives 5 changes of light.

Lamp is made of brass throughout. Has an old ivory or bronze finish.

Furnished with separable plug, Dim-a-lite socket and 8 feet of silk cord.

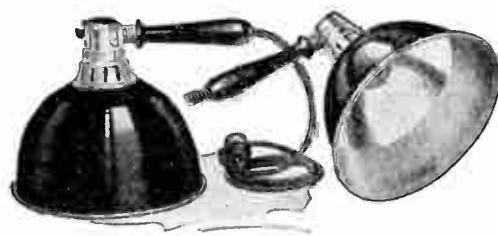
Maximum height, 17½ inches; base, 5½ inches; reflector, 5½ inches.

Standard package, 12.  
 Weight each, 2½ pounds.



Price, No. 46, 110 Volts.....each \$4.75  
 Price, No. 46, 220 or 32 Volts.....each 4.85

**Thermolite Heat and Light Applicators**



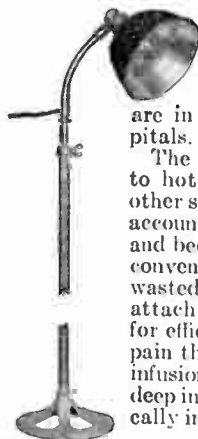
No. 0645 Hand Applicator

The Thermolite is a simple, convenient, but scientific device for duplicating the effect of the sun's rays. It is a well recognized fact that heat and light both relieve and cure. In the Thermolite, light and heat are generated in a special patented electric lamp contained in a reflector so constructed that these soothing agents when applied to the aching parts not only act on the surface of the skin, but penetrate the actual tissue, relaxing the congestion and relieving the pain.

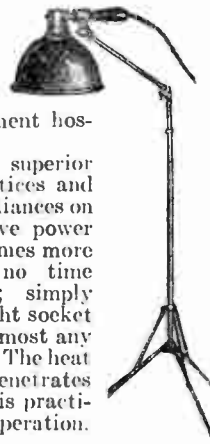
It may be applied with perfect safety for the relief of almost any pain and has been found efficient in the treatment of sprains, bruises, muscular soreness, neuralgia, lumbago, rheumatism, neuritis, stiff neck, stomach and abdominal pains, backache, constipation, headache, head colds, pulmonary effects; also for use in massage and treatments by manipulation, drying hair and many other purposes that require a convenient application of heat.

Thermolites are used and recommended by physicians and patients, and are in use in all government hospitals.

The Thermolite is far superior to hot water bags, poultices and other surface heating appliances on account of its penetrative power and because it is many times more convenient. There is no time wasted in preparation; simply attach to any electric light socket for efficient relief from almost any pain that flesh is heir to. The heat infusion is constant, penetrates deep into the tissues and is practically instantaneous in its operation.



No. 0696 Floor Stand



No. 0645 Folding Stand

**No. 0645 Folding Stand**  
 A convenient stand weighing but 34 ounces. Fits easily in hand case or traveling bag. Telescopic stem can be set at any height from 27 to 68 inches. Length of stand when folded 20 inches.

**No. 0696 Floor Stand**

Ideal for home or office use where portability is not essential. Adjustable from 30 to 62 inches.

Applicator is permanently attached to flexible arm. Finished in white enamel and nickel.

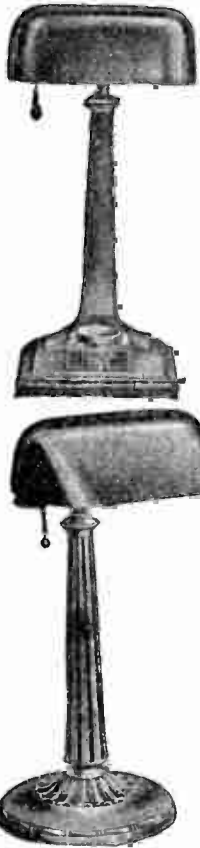
No.	Description	Price Each
0645	Hand Model, 8-Inch Reflector.....	\$10.00
0645	Floor Stand for Hand Model, Vertical Extension, 30 to 60 Inches.....	6.00
0696	Stand with No. 0645 Applicator.....	17.50
0696	Stand Only with Clamp on End of Arm.....	9.00

**Extra Bulbs**

115-120 Volt, 200 Watts.....	\$1.80
32 Volt, 128 Watts.....	2.00
220, 230 or 250 Volt, 200 Watts.....	2.40
115-120 Volt, 375 Watts, for 0670 Model.....	3.60
220, 230 or 250 Volt, 375 Watts, for No. 0670.....	4.80
110 Volt, 500 Watts, for 0695 Model.....	9.00



## No. 8734 1/2 Emeralite Portable Lamps



### No. 8734 1/2 E

Inkwell in base. Height to top of shade, 18 inches. Base, 7x7 1/2 inches. Price, Brushed Brass... each \$15.00 Price, Statuary Bronze each 16.00

### No. 8734 1/2 EC

With perpetual calendar on column. Price, Brushed Brass... each \$17.00 Price, Statuary Bronze each 18.00

### No. 8734 1/2 ES

With Sengbusch inkwell. Price, Brushed Brass... each \$17.50 Price, Statuary Bronze each 18.50

### No. 8734 1/2 ECS

With calendar and Sengbusch inkwell. Price, Brushed Brass... each \$19.50 Price, Statuary Bronze each 20.50

## No. 8734K Emeralite Portable Lamps

For flat top desks.

Base is 8 inches in diameter. Height to top of shade, 18 inches; shade is adjustable.

Finish, brush brass with black relief or statuary bronze.

Price, No. 8734K, Brush Brass Finish... each \$12.00 Price, No. 8734K, Bronze Finish... each 13.00

## No. 8734 Emeralite Portable Lamps

### No. 8734E

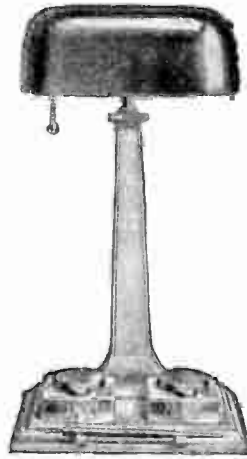
A lamp for flat top desks. Has 2 inkwells in the base. Size base, 7x9 inches. Height over all, 18 inches. Price, No. 8734E, Brushed Brass... each \$16.50 Price, No. 8734E, Statuary Bronze... each 17.50

### No. 8734EC

Furnished with perpetual calendar. Price, No. 8734EC, Brushed Brass... each \$18.50 Price, No. 8734EC, Statuary Bronze... each 19.50

### No. 8734E 2-Light

With 2 shades. Price, No. 8734E, Brushed Brass... each \$25.00 Price, No. 8734E, Statuary Bronze... each 26.00



## No. 8734ECS Emeralite Portable Lamps



Fitted with perpetual calendar and Sengbusch self-closing inkwells of special pattern cut glass.

The Sengbusch well is dust-proof, non-evaporating and economical in ink consumption.

Base of lamp is 7x9 inches. Height, 18 inches.

Finish is brushed brass.

Furnished complete with pull socket, six-foot silk cord and plug.

Price, No. 8734ECS... each \$23.50

## No. 8734B Emeralite Portable Lamps

Square pattern, 7-inch base, for flat top desk or table.

Height to top of shade, 18 inches. Illumination area 48 inches wide by 30 inches in front of base.

With white porcelain lined green glass shade and fitted with Day-light screen.

Furnished complete with shade, pull socket, plug and six-foot cord.

Finish is brushed brass, black relief.

Price, No. 8734B... each \$12.00



## Emeralite Junior Adjustable Lamps



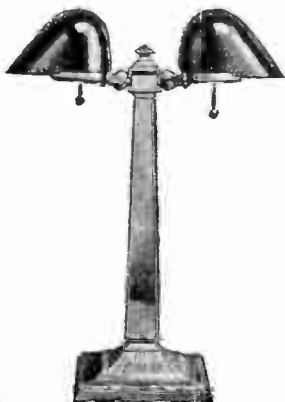
This practical little lamp will clamp, stand or hang any place, and will be found exceedingly useful in any home. It is desirable as a study or reading lamp for children; for the boudoir, or for use on side shelf of grand piano, dressing table or nursery.

The shade can be tilted to any position and, no matter how adjusted, the eyes are always protected from the direct glare of the lamp. Any standard electric lamp can be used.

Base is heavily weighted and felted, and contains an efficient clamp.

Total height of lamp, 12 inches; glass shade, 6 inches diameter.

## No. 8734C Emeralite Portable Lamps



For double desk or table; height to top of shades, 19 inches. Efficient illumination area, 48 inches wide by 36 inches in front of each shade. Both shades are adjustable to any angle.

Complete with shades, pull sockets, six-foot silk cable and plug.

Finish, brushed brass with black relief.

Price, No. 8734C... each \$20.00

Description	PRICE, EACH	
	Brass	Bronze
Green Shade	\$6.50	\$7.50
Buff " "	7.00	8.00
" Decorated Shade	7.00	8.00
Old Ivory Green "	6.50	.....
" " Buff Decorated Shade	7.00	.....

**No. 8734AC Emeralite Portable Lamps**



For roll top desks. Arm is adjustable. Size of base, eight inches. Heavily weighted and felted.  
 Equipped with Daylight screen which modifies the glare so that natural daylight is closely approximated.  
 Finish, brushed brass with black relief.  
 Price, No. 8734AC..... each \$12.00

**No. 8734G Emeralite Portable Lamps**

With adjustable arm. For use on roll top desk. Size of base, 7 inches square.

The Emeralite shade is made of rich emerald green glass, white porcelain lined. Fitted with Daylight screen.

Furnished complete with shade, pull socket, plug and 6 feet of cord.

Price, No. 8734G, Brushed Brass with Black Relief .ea. \$12.00



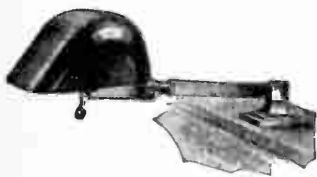
**No. 8734TW Emeralite Portable Lamps**



A most efficient and practical fixture for stenographer's and flat-top desks. The base is covered with felt and held securely in place by means of special adjustable clamp at rear, clamping against underside of desk top. The arm and shade can be adjusted to any angle; and arm has extension adjustment to accommodate various widths of desks. Base, 4 inches square. Arm does not interfere with opening and closing of desk.

Price, No. 8734TW..... each \$14.00

**No. 8734T Emeralite Desk Lamps**



A neat, practical fixture for writing tables, roll top desks, telephone switchboards, stock quotation boards, filing cabinets and many other uses.

Can be attached to back of desk; can also be used horizontally attached to top of desk.

Cast base is 2½ inches square and is attached by 4 wood screws. Wired through rear of base. Total length, 12 inches to front of shade; special lengths to order.

Price, No. 8734T, Brush Brass..... each \$11.00  
 Price, No. 8734T, Statuary Bronze..... each 12.00

**Emeralite Desk Lamps**

An attractive combination of Emeralite with Wahl desk set. Furnished complete with Wahl pen and onyx or black marble base. Standard finish is statuary bronze.

No. 8734 is the same as the No. 8734½ but with 2 Wahl pens and 2 onyx or black marble bases.

Cat. No.	Base	Price Each
8734½M6	Marble	\$25.00
8734½NX6	Onyx	25.00
8734M6	Marble	35.00
8734NX6	Onyx	35.00



**Midget Emeralite Lamps**

This lamp clamps, hangs or stands anywhere.

Has a genuine Emeralite Zebra shade, white lined. Efficient reflection and no glare.

Height over all, 10 inches.

Furnished with 6-foot cord and 2-piece plug.

Packed in attractive 4-color individual cartons, 12 lamps to container, complete.

Finished in bronze.  
 Price..... each \$4.00



**No. 0717 Emeralite Study Lamps**

This is an ideal lamp for small desks, baby grand pianos, or small tables alongside of the bed.

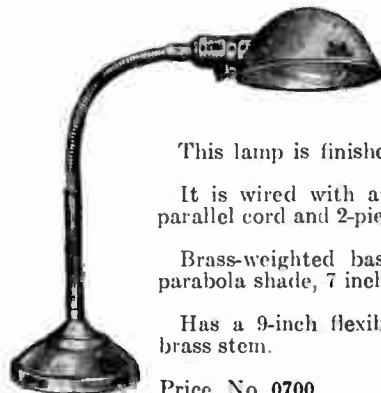
Furnished with a daylight screen.

Finished in statuary bronze.

Price, No. 0717, Emeralite Zebra Shade.....each \$9.50  
 Price, No. 0717, Bellova Decorated Shade...each 12.00



**No. 0700 Mefcolite Portable Lamps**



This lamp is finished in old brass.

It is wired with approved push socket, parallel cord and 2-piece plug.

Brass-weighted base, 5½ inches; brass parabola shade, 7 inches.

Has a 9-inch flexible arm and a 6-inch brass stem.

Price, No. 0700..... each \$4.25

## No. 0714 Mefcolite Portable Lamps



This lamp has a carefully casted base of iron; full felted.

Has a selected flexible arm and a 7-inch parabola shade.

Wired with approved push socket, parallel cord and 2-piece plug.

Flexible arm, 12 inches.

Finished in statuary bronze.

Price, No. 0714...each \$3.00

## No. 0715 Mefcolite Portable Lamps

Finished in old brass.

Brass-weighted base, 5½ inches. Shade is green-cased glass with white lining, 6x4¼ inches.

The flexible arm extends from base to socket.

Wired with approved push socket, parallel cord and 2-piece plug.

Price, No. 0715...each \$4.00



## No. 1469 Esrobert Greenalite Portable Lamps

BASE.—7-inch diameter, weighs 6 pounds,

COLUMN.—Base to brackets, 12½ inches.

SHADE.—Oblong green glass, 8⅝x5¼x3¼ inches.

WIRING.—Approved pull chain socket, 10 feet new code parallel mercerized cord, 2-piece approved attachment plug.

MAXIMUM HEIGHT.—18 inches.

WEIGHT.—12 pounds.

FINISH.—Brushed brass, statuary bronze.

PACKING.—Every lamp is individually packed in corrugated carton.

Price, No. 1469...each \$9.50



## No. 490 Esrobert Greenalite Portable Lamps



BASE.—Brass canopy 4½ inches in diameter, clamp to support lamp, non-drop friction joint.

SHADE.—Green glass, 8⅝x5¼x3¼ inches.

WIRING.—Pull-chain socket, 10 feet new code parallel mercerized cord, 2-piece plug.

MAXIMUM HEIGHT.—35 inches.

MAXIMUM EXTENSION.—29-inch telescopic arm, swings up,

down and sideways and is adjustable.

FINISH.—Brushed brass and statuary bronze.

WEIGHT.—Packed, 8 pounds.

Price, No. 490...each \$14.00

## No. 1459 Esrobert Greenalite Portable Lamps



BASE.—7-inch diameter, weighs 6 pounds.

STEM.—Jointed arm and shadebracket, 9½ in. long.

SHADE.—Oblong green glass, 8⅝x5¼x3¼ inches.

WIRING.—Approved pull chain socket, 10 feet new code parallel mercerized cord, 2-piece approved attachment plug.

MAXIMUM HEIGHT.—17½ inches.

WEIGHT.—12 pounds.

FINISH.—Brushed brass, statuary bronze.

PACKING.—Every lamp is

individually packed in a strong corrugated carton.  
Price, No. 1459...each \$9.50

## No. 468 Esrobert Greenalite Portable Lamps

BASE AND COLUMN.—Solid cast metal base and column; base, 7 inches square.

SHADE.—Oblong green glass, 8⅝x5¼x3¼ inches.

WIRING.—Approved pull chain socket, 10 feet new code parallel mercerized cord, 2-piece approved attachment plug.

MAXIMUM HEIGHT.—18 inches.

WEIGHT.—13 pounds.

FINISH.—Flemish brass, antique bronze, verde green.

Price, No. 468...each \$12.00



## No. 493 Esrobert Greenalite Portable Lamps

BASE.—Special clamp for adding machine stands.

SHADE.—Green glass, 8⅝x5¼x3¼ inches.

WIRING.—Pull-chain socket, 10 feet new code parallel mercerized cord, 2-piece plug.

MAXIMUM HEIGHT.—35½ inches.

MAXIMUM EXTENSION.—17½ inches.

FINISH.—Statuary bronze.

WEIGHT.—Packed, 6 lbs.

Price, No. 493 Each...\$13.00



## No. 310 Esrobert Portable Lamps



BASE.—Cast iron, 8 inches long and 5½ inches wide, felted on bottom.

STEM.—12-inch Phlex-arm.

WIRING.—Approved push socket, 10 feet new code parallel mercerized cord, 2-piece approved attachment plug.

MAXIMUM HEIGHT.—24½ inches.

WEIGHT.—Packed in carton, 5¼ pounds.

FINISH.—Antique bronze, verde green.

PACKING.—Every lamp

is individually packed in a strong corrugated carton.  
Price, No. 310...each \$3.00

Bulb is not included

**No. 352 Esrobert Portable Lamps**



This lamp is finished in antique bronze.

Has a cast iron telted base; 5¼x6¾ inches.

Seven-inch parabola shade, 12-inch phlexarm.

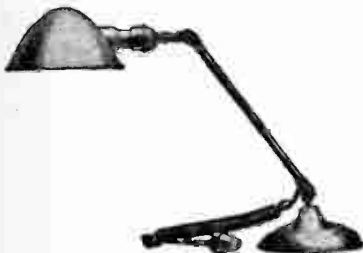
Wired with push socket, 7 feet of parallel cord and a 2-piece attachment plug.

Maximum height, 23 inches.

Weight in carton, 5 pounds.

Price, No. 352 ..... each \$2.25

**No. 1519 Esrobert Portable Lamps**



BASE.—6¼ inches in diameter, felted on bottom.

STEM.—Double-jointed arm, 13½ inches long, with special corrugated joint.

WIRING.—Approved push socket, 10 ft. new code parallel mercerized cord, 2-piece approved attachment plug.

MAXIMUM HEIGHT.—24½ inches. Weight, packed in carton, 9¾ pounds.

FINISH.—Brushed brass.

PACKING.—Every lamp is individually packed in a strong corrugated carton.

Price, No. 1519 ..... each \$4.50

**No. 1574 Esrobert Bed Lamps**



BRACKETS.—Spaced about 8½ inches apart. Can be clamped to top of headpiece of bed. Adjustable to 2½ inches.

SHADE.—Oblong, 7½x3x2¼ inches.

WIRING.—Pull-chain socket, 2-piece plug and 10 feet new code parallel mercerized cord.

FINISH.—English bronze, statuary bronze, antique bronze.

WEIGHT.—Packed, 2½ pounds.

Price, No. 1574 ..... each \$4.25

**No. 1508 Esrobert Desk Lamps**



SHADE.—Oval green glass. 4x6 inches.

BASE.—Metal, 6¼ inches in diameter, felted on bottom.

STEM.—7½-inch rigid stem surmounted by small joint.

WIRING.—Push socket, 10 feet new code parallel mercerized cord, 2-piece attachment plug.

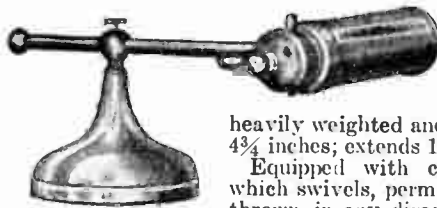
MAXIMUM HEIGHT.—20½ inches.

FINISH.—Statuary bronze.

WEIGHT.—Packed, 7 lbs.

Price, No. 1508 ..... each \$4.25

**No. 3884 Faries Radio Lamps**



A radio lamp that can also be used on pianos.

Base is heavily weighted and felted. Height, 4¾ inches; extends 10½ inches.

Equipped with cylindrical shade which swivels, permitting light to be thrown in any direction. Shade attached with clamp lock holder. Easily attached by snapping over socket shell. For 25-watt tubular lamp.

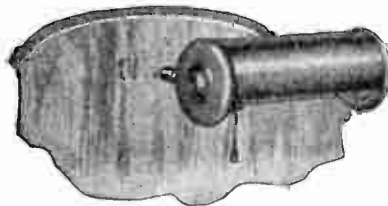
Wired with 6-foot cord, push socket and plug. Packed complete, without lamp, in single cartons, ready to install.

Made in two finishes: stained brass and statuary bronze.

Price, No. 3884, Stained Brass ..... each \$6.75

Price, No. 3884, Statuary Bronze ..... each 6.75

**No. 3153 Faries Adjustable Bed Lamps**



This lamp extends 4 inches from head of bed. The shade is frosted inside for standard 25-watt lamp. Length center to center of posts, 6¾ inches.

Can be attached to beds up to 1¾ inches thick.

Wired with 6-foot cord, pull socket and plug.

Finished in statuary bronze.

Standard package, 6.

Price, No. 3153, Statuary Bronze ..... each \$6.75

**No. 3154 Faries Adjustable Bed Lamps**

Bracket is attached by safety socket screw making it practically a part of the bed.

With ball joint so shade can be adjusted to any angle.

For 25 to 40-watt lamps. Extends 5 inches.

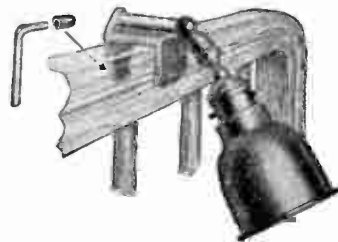
Clamp fits rails 1 to 1¾ inches diameter or thickness.

Wired with 6-foot cord, push socket and plug.

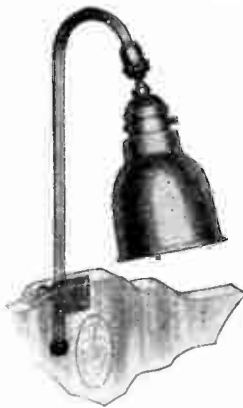
Finished in statuary bronze.

Standard package, 6.

Price, No. 3154, Statuary Bronze ..... each \$8.00



**No. 3151 Faries Adjustable Bed Lamps**



The height of this bed lamp is adjustable from 2 to 10 inches.

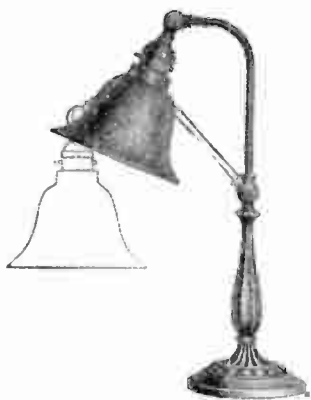
Extension to socket nipple, 4 inches. Attaches with screws to back of bed head.

Wired with 6 feet of cord, push socket and metal shade.

Finished in statuary bronze.

Standard package, 6.

Price, No. 3151, Statuary Bronze ..... each \$6.00



### No. 3687 Faries Adjustable Portables

A double adjustable portable; for bedside table or desk use.

Height to center of first joint, 9 inches; to center of second joint, 18 inches. Horizontal extension center to center of joints, 9 inches. Diameter shade, 6¾ inches.

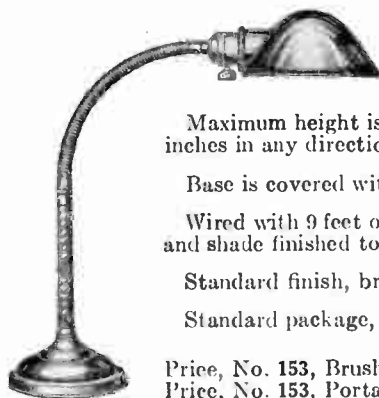
Wired with 9-foot cord, push socket and plug.

Standard package, 12.

Finished in Pompeian and vermillion.

Price, No. 3687 each \$7.00

### No. 153 Faries Adjustable Portables



This portable has a flexible arm which can be turned in any direction.

Maximum height is 26 inches. Extends 16 inches in any direction.

Base is covered with felt.

Wired with 9 feet of cord, key socket plug and shade finished to match portable.

Standard finish, brushed brass.

Standard package, one dozen.

Price, No. 153, Brushed Brass... each \$5.00

Price, No. 153, Portable Only... each 2.75

### No. 3174 Faries Adjustable Portables



Has 7-inch brass shade, frosted inside. For 25 to 60-watt lamps.

For dresser, writing desk or bed.

Height, 15 inches. Standard package, 6.

Wired with 9 feet of cord, pull chain socket and plug.

Bases are covered with felt and will not mar or scratch polished surfaces.

Price, No. 3174, Brushed Brass

..... each \$6.00

Price, No. 3174, Statuary

Bronze..... each 6.60

### No. 3144 Faries Flexible Portables



This portable has a heavy cast fancy base with a flexible arm.

Wired with 9 feet of cord, push through socket, plug and No. 27 shade finished to match portable.

Maximum height is 23 inches. Extends 17 inches.

Standard package, 12.

Finish	Price, Each
Statuary Bronze.....	\$3.00
Early English.....	3.00
Pompeian Polychrome.....	3.50
Etruscan Polychrome.....	3.50

### No. 3593 Faries Adjustable Portables

A convenient, adjustable desk lamp adjustable to any position. Well adapted for tables and flat top desks.

Wired with 6 feet of cord, key socket and No. 27 parabola shade finished to match the portable.

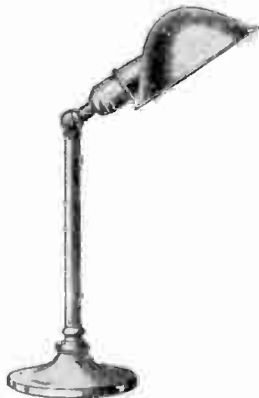
Height, 20 inches; diameter of base, 6 inches.

Standard package, 6.

Price, No. 3593, Brushed Brass..... each \$6.00

Price, No. 3593, Statuary Bronze..... each 6.50

Specify finish desired.



### No. 1012 Faries Adjustable Portables

With large tubing. Adjustable to any position. Maximum height 25 inches. Extends 24 inches.

For piano, office desk, library table or any place where an adjustable portable lamp is used.

Wired with 9 feet of cord, key socket, and No. 27 shade finished to match portable.

Standard finish is brushed brass.

Standard package, one dozen.

Price, No. 1012..... each \$5.00

Price, Portable Only... each 2.50



### No. 3574 Faries Adjustable Portables

Made of brass.

Height over all, 18 inches; diameter of shade, 8 inches; base diameter, 6 inches.

Shade is frosted inside and is adjustable to any angle by means of a ball joint inside of the top. Adjustment does not disturb position of lamp holder or socket.

Wired with 9 feet of cord, pull socket and plug.

Standard package, 12.

Finished in weathered old brass.

Price, No. 3574, Weathered Old Brass..... each \$11.25



### No. 40 Faries Adjustable Portables



For dressers, tables or desks.

Made of brass. Wired with 9-foot cord, push socket, plug and No. 24 shade finished to match portable.

Maximum height, 16½ inches; diameter of base, 5¼ inches.

Standard package, 6.

Price, No. 40, Statuary Bronze and Green..... each \$4.50

Price, No. 40, Old Ivory..... each 4.50

**No. 154 Faries Flexible Arms**

Male thread each end, 1/8-iron.  
Finish, brush brass.

Length Inches	Std. Pkg.	Price Each
9	100	\$1.00
12	100	1.20
15	100	1.45
18	100	1.80
24	100	2.40

Longer lengths, \$1.30 per foot.



**No. 540 Faries Flexible Arms**



For factory lighting. Male thread each end, 3/8-inch iron. Finish, brushed brass.

Price, 12-Inch.....each \$1.50  
Price, 15-Inch.....each 1.85  
Price, 18-Inch.....each 2.25  
Longer lengths, per foot, \$1.45.

**No. 155 Faries Flexible Portable Bases**

Height, 8 inches. Standard package, 12.

Finish, brushed brass.

Price, No. 155.....each \$1.70

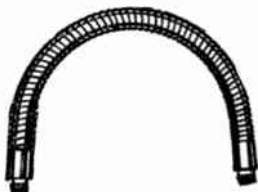


**Esrobert Phlexarms**

Designed for use with electric portable lamps and wall brackets in factory, home and office. The Phlexarm is made in two sizes:

STYLE A.—1/8-inch iron pipe, thread at each end, and 1/4-inch hole all the way through.

STYLE B.—3/8-inch iron pipe, thread at each end, and 3/8-inch hole all the way through. This style is standard for factory use.



STYLE A			STYLE B		
Size, In.	Std. Pkg.	Price Each	Size, In.	Std. Pkg.	Price Each
6	50	\$ .65	6	50	\$ .78
9	50	.75	9	50	.90
12	50	.90	12	50	1.08
15	50	1.10	15	50	1.32
18	50	1.35	18	50	1.62

Price, 24-inch and longer, per foot: Style A, 90 cents, Style B, \$1.08.

**Esrobert Metal Shades**

Reflector and arm, tapped for 1/16-inch brass tubing.

Brushed brass finish.

Standard package, 50.

Price, No. 31, with Bracket

.....each \$4.00

Price, No. 30, without Bracket

.....each 2.50



**Benjamin Stand Lamp Vase Adapters**

With the Benjamin Adapter all that is necessary to make a vase or urn into a beautiful lamp is to fasten the adapter into the vase, screw in a Benjamin cluster, and attach a shade. No drilling of the vase is required and no special tools are needed.

Packed complete in individual cartons with suitable covers; each carton contains full instructions for attaching adapter and also for drilling holes in pottery.



Cat. No.	With Cover for Vases O.D., In.	Std. Pkg.	Wt. Lbs. Each	Price Each
831	Up to 3	1	3/4	\$1.75
832	Up to 3 3/4	1	7/8	1.75
833	Up to 4 3/4	1	1	1.75

**Benjamin Wireless Stand Lamp Clusters**

For use in making floor and table lamps, converting oil and gas lamps and making over pottery, wooden and wickerware vases. Suitable for narrow shades.

Standard finish is Roman gold. All other finishes are special.



**Clusters Complete**

Consists of body, stem with casing and 1/4-inch coupling. Length, 7 3/8 inches from shade support to bottom of coupling. Coupling for 1/8-inch pipe connection or flange for attaching to wood supplied at small additional cost.

Cat. No.	No. of Lights	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
842	2	5	3 1/2	\$1.30

**Bodies Only**

Without stem and top ornament. Top stud has 1/2-inch pipe thread; cluster body has bottom bushing tapped for 1/4-inch pipe.



Cat. No.	No. of Lights	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
841	2	5	2 3/16	\$1.00

Regularly packed assembled in individual cartons.

**Additional Parts for Benjamin Stand Lamp Clusters**

**Couplings for 1/8-Inch Stem Connections**

Cat. No.	Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5099	1/4 x 1/8	5	1/8	\$ .10



**Flanges for Attaching to Wood**

Cat. No.	Size	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
5094	1 13/16 Diam.	5	1/4	\$ .10

No. 5094

**Benjamin Adjustable Stand Lamp Clusters**

For fine stand lamps using silk or parchment shades. Sockets are adjustable to any angle from horizontal to vertical. Finish is Roman gold. All other finishes are special.



**Clusters Complete**

Consists of body, angle sockets, top ornament, stem with casing and 1/4-inch coupling. Length, 7 3/4 inches from shade support to bottom of coupling. Coupling for 1/8-inch pipe connection, or flange for attaching to wood supplied at small additional cost.

Cat. No.	No. of Lights	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
890	2	5	4 3/8	\$1.95
891	3	5	5	2.70

**Bodies Only with Top Stud Assembly**

Furnished without stem. Top stud has 1/4 x 27 thread. Cluster body has bottom bushing tapped for 1/4-inch pipe.

Cat. No.	No. of Lights	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
880	2	5	2 3/4	\$1.50
881	3	5	3 3/8	2.25



**Bodies Only Less Top Stud Assembly**

Hickey in cluster body tapped 1/8 inch top with bottom bushing tapped for 1/4-inch pipe.

Cat. No.	No. of Lights	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
877	2	10	6	\$1.50
878	3	10	7	2.25



Regularly packed assembled in individual cartons.



## Ben-ox Interchangeable Devices

A Benjamin Product



The Old Way  
Soldered and Taped Joints

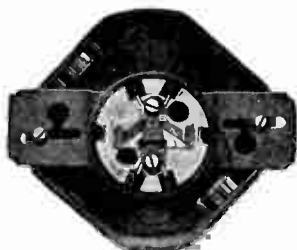
Ben-ox is an improved line of equipment designed to meet present-day requirements for use in the lighting of industrial plants, hotels, office buildings, stores, public buildings and hospitals.

In addition to serving the purpose of ordinary lighting equipment, Ben-ox has the following advantages:

**EASY TO INSTALL.**—The old material and time wasting taped and soldered joints are no longer necessary. Simply attach Ben-ox mounting element to outlet box by tightening two screws. Then loop the wires around terminal screws and slip the Ben-ox Canopy into place. The equipment thus installed is called a Ben-ox Basic Unit. See illustrations below.



The New Way  
Side View of Ben-ox Mounting Element in Place



Bottom View of Ben-ox Mounting Element in Place

The Mounting Element Plus Canopy Plus Canopy Supporting Ring Makes Up the Ben-ox Basic Unit



Mounting Element



Canopy



Supporting Ring

To this Ben-ox Basic Unit may be attached any style of lighting equipment. See illustrations on following pages.



Ben-ox Basic Unit

**INSPECTION AND APPROVAL.**—When the Ben-ox Basic Unit is in place, immediate inspection and final approval can be secured before the tenant arrives or before the use of the space is determined.

Later when the use is known, any style of equipment can be put in place with the ease of attaching a lamp bulb.

**LIGHTING EFFICIENCY EASILY MAINTAINED.**—Dirt accumulations diminish the available light output. Without the use of tools, Ben-ox equipment may be taken down, thoroughly cleaned and replaced just as easily.

**OUT OF THE WAY FOR THE DECORATORS.**—During periods of redecorating and cleaning, injury to brass work (splashing of painters' material) or glassware breakage is avoided by removing the Ben-ox equipment.

**LIGHTING EQUIPMENT EASILY TRANSFERRED.**—Ben-ox equipment in one room or part of plant can be taken down and reconnected in another location without disturbing the wiring in any way and with the ease and same manner as that of removing and replacing a lamp bulb. Expansion of the business and future tenants' needs, present lighting equipment problems best solved by Ben-ox.

**FUTURE CONVENIENCE.**—At some future date, if the lighting equipment should become out of style, a speedy substitution can be made without requiring tools.

## Ben-Ox Keyless Ceiling Units

660 Watts, 600 Volts—Medium Base

Ben-Ox Keyless Units are for use in offices, stores, hospitals, restaurants, etc. They have definite advantages of greater usefulness and economy. Holders are of standard sizes to take all forms of modern glassware. Units may be attached to the ears of standard 3/4 and 4-inch outlet boxes. Standard package, 10.

### 6-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4805	With 2 1/4-In. Holder	8	\$1.85
4806	With 3 1/4-In. Holder	9	2.05
4957	With 4-In. Holder	10	2.35
4958	With 5-In. Holder	11	2.65
4959	With 6-In. Holder	12	3.05
*4804	Less Holder	7	1.70



### 8-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4808	With 2 1/4-In. Holder	10	\$2.20
4809	With 3 1/4-In. Holder	11	2.40
4960	With 4-In. Holder	12	2.70
4961	With 5-In. Holder	13	3.00
4962	With 6-In. Holder	14	3.40
*4807	Less Holder	9	2.05



### 8-Inch Unit, White Porcelain Enameled

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4921	With 2 1/4-In. Holder	10	\$2.75
4922	With 3 1/4-In. Holder	11	3.00
4963	With 4-In. Holder	13	4.05
4964	With 6-In. Holder	14	4.25



## Ben-Ox Pull Chain Ceiling Units

660 Watts, 250 Volts—Medium Base

Ben-Ox Pull Ceiling Units are used in offices, stores, hospitals, etc. Holders are of standard sizes to take all forms of modern glassware. Sockets have Benjamin Lamp Grip. Units may be attached to the ears of standard 3/4 and 4-inch outlet boxes.

Standard package, 10.

### 6-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4823	With 2 1/4-Inch Holder	11	\$3.05
4824	With 3 1/4-Inch Holder	12	3.25
*4822	Less Holder	10	2.75

### 8-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4826	With 2 1/4-In. Holder	13	\$3.30
4827	With 3 1/4-In. Holder	14	3.50
*4825	Less Holder	12	3.00



### 8-Inch Unit, White Porcelain Enameled

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4931	With 2 1/4-In. Holder	13	\$4.05
4932	With 3 1/4-In. Holder	14	4.30



## Ben-Ox Basic Units

660 Watts, 600 Volts

Takes Ben-Ox Connectors and socket elements. Units may be attached to ears of standard 3/4 and 4-inch outlet boxes. Standard package, 10.

### 6-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4952	Basic Unit Only	8	\$1.35

### 8-Inch Unit, Acid Bronze

Cat. No.	Description	Wt. Lbs. Std. Pkg.	Price Each
4954	Basic Unit Only	10	\$1.70



\*Benjamin Porcelain Enameled Steel Reflectors, with Ben-Ox threaded neck, may be attached if desired.

## Benjamin Sturdox Fixtures

### 2-Piece Easy-to-Wire Lighting Line

A new line of sturdy industrial lighting fixtures which offer durability and economy in maintenance with low original costs.

**Sturdy Construction:** Made to withstand service conditions that would quickly deteriorate ordinary lighting equipment.

**Easy-to-Wire:** 2-piece socket of heavy porcelain is unusually well constructed and exceptionally easy to wire.

**Low Maintenance:** Reflectors may be kept at original lighting efficiency at a very low cost as the Sturdox thread permits the taking down of reflectors for quick and thorough cleaning.

Keyless, Easy-to-wire, 2-piece sockets are standard.

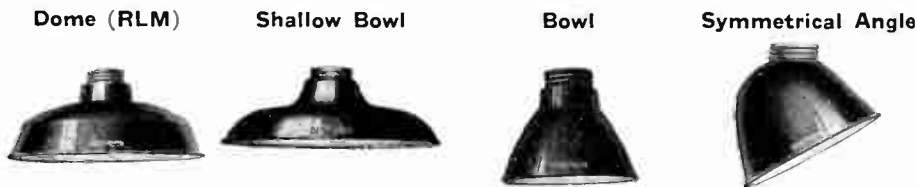
Sockets illustrated below, furnished when specified at an advance in list price:

**16 Combinations of Lighting Fixtures:** Every shape of reflector and style of hood necessary to efficiently meet all ordinary lighting requirements.

**Interchangeable Reflector:** Every Sturdox reflector fits every Sturdox hood. Reflectors may be interchanged without disturbing the wiring.

**Special Benjamin Features:** Sturdox fixtures can be furnished with Shock Absorbing Sockets, Self-Locking Sockets or Pull Chain Sockets.

Complete units consist of combinations of the hoods shown below and the reflectors illustrated at the right.



**Pendent Steel Hood**



Lamp Watts	Mfrs. No.	Diam. In.	Std. Pkg.	Price Each	Mfrs. No.	Diam. In.	Std. Pkg.	Price Each	Mfrs. No.	Diam. In.	Std. Pkg.	Price Each	Mfrs. No.	Diam. In.	Std. Pkg.	Price Each
100	9306	12	10	\$3.05	9324	14	10	\$3.25	9337	8 1/4	10	\$2.75	.....	.....	.....	.....
150	9307	14	10	3.35	9324	14	10	3.25	9338	9	10	2.95	9352	10	10	\$3.85
200	9308	16	5	3.75	9325	16	5	3.85	9339	10	10	3.35	9352	10	10	3.85
300-500	9309	18	5	5.40	9326	18	5	5.40	9340	12	5	5.40	9353	12	5	6.15
750-1000	9310	20	5	7.40	.....	.....	.....	.....	.....	.....	.....	.....	9354	14	5	7.85

**Pendent Cast Hood**



100	9301	12	10	3.40	9321	14	10	3.45	9333	8 1/4	10	3.10	.....	.....	.....	.....
150	9302	14	10	3.70	9321	14	10	3.45	9334	9	10	3.30	9349	10	10	4.05
200	9303	16	5	4.10	9322	16	5	4.05	9335	10	10	3.70	9349	10	10	4.05
300-500	9304	18	5	5.60	9323	18	5	5.60	9336	12	5	5.60	9350	12	5	6.35
750-1000	9305	20	5	7.60	.....	.....	.....	.....	.....	.....	.....	.....	9351	14	5	8.05

**Outlet Box Steel Hood**



100	9316	12	10	3.20	9330	14	10	3.25	9345	8 1/4	10	2.90	.....	.....	.....	.....
150	9317	14	10	3.50	9330	14	10	3.25	9346	9	10	3.10	9358	10	10	3.85
200	9318	16	5	3.90	9331	16	5	3.85	9347	10	10	3.50	9358	10	10	3.85
300-500	9319	18	5	5.40	9332	18	5	5.40	9348	12	5	5.40	9359	12	5	6.15
750-1000	9320	20	5	7.40	.....	.....	.....	.....	.....	.....	.....	.....	9360	14	5	7.85

**Outlet Box Cast Hood**



100	9311	12	10	3.60	9327	14	10	3.65	9341	8 1/4	10	3.30	.....	.....	.....	.....
150	9312	14	10	3.90	9327	14	10	3.65	9342	9	10	3.50	9355	10	10	4.25
200	9313	16	5	4.30	9328	16	5	4.25	9343	10	10	3.90	9355	10	10	4.25
300-500	9314	18	5	5.80	9329	18	5	5.80	9344	12	5	5.80	9356	12	5	6.55
750-1000	9315	20	5	7.80	.....	.....	.....	.....	.....	.....	.....	.....	9357	14	5	8.25



Shock Absorbing Socket, keyless, medium or mogul base, add \$0.25 to list. Medium base shock absorbing, self-locking socket, add \$0.65 to list. Key for self-locking socket, \$1.00 additional.



Self-locking Socket, medium base only, add \$0.40 to list. Key for releasing lamp, add \$1.00.



Pull-Chain Sockets, medium base only, add \$0.80 to list.

## Ben-ox Pendent Unit Connectors



Pendent Unit Connector



3-chain Fixture Hook



Single Chain Loop

Ben-ox pendent unit connectors provide means for connecting various types of pendants to Ben-ox Basic Units.

### For Chain or Drop Cord Pendants

Connectors Nos. 4845 and 4850 may be attached to Ben-ox Basic Units. Electrical contact is made against the wiring terminal base and mechanical connection with the Ben-ox Thread. They are tapped  $\frac{3}{8}$  inch or bushed for drop cord, as indicated. No. 4845 will take three chain hook, No. 4847, or Single Chain Loop, No. 4849. With this type of connector the pendant is grounded to the conduit system. Where insulating joint is required a fibre disc insulator will be supplied for this purpose at no extra charge. Finish, acid bronze.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
*4845	Pendent Unit Connector, Tapped $\frac{3}{8}$ -inch	10	3	\$.70
*4850	Connector for Drop Cord	10	3	.75
4847	3-chain Fixture Hook, $\frac{3}{8}$ -inch Thread	10	1	.30
4849	Single Chain Loop, $\frac{3}{8}$ -inch Thread	10	$\frac{5}{8}$	.20

## Ben-ox Chain Supporting Rings



3-chain Supporting Ring

Chain supporting ring No. 4818 is used as a support for a bowl with three chains. Electrical connection is made through a drop cord and socket connected to the ceiling unit by a Benjamin No. 904 swivel attachment plug. This arrangement may be applied to either Ben-ox pull chain or keyless ceiling units such as No. 4825 and No. 4807.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4848	3-chain Supporting Ring	10	$\frac{5}{8}$	\$.35

## No. 3622 Outlet Box Covers

This outlet box cover is made of galvanized steel.

Designed for use with X Type fittings, for attaching Benjamin Reflector Sockets direct to the conduit box.

The cover is placed between reflector and top flange, and is provided with four bayonet slots which slip over screws on box.

No other fittings are necessary.

Fits 4-inch outlet box.

Cat. No.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
3622	10	$2\frac{3}{4}$	\$.25



## No. 3380 Benjamin 45-Degree Ball Fixture Aligners

### Outlet Box Cover Type



Consists of a cast iron ball which is mounted between 2 riveted steel plates. Ball is tapped for  $\frac{1}{2}$ -inch iron pipe size. Has hexagon neck for gripping and holding ball when iron pipe is screwed in. Aligner tapped  $\frac{1}{2}$  inch. For standard  $\frac{3}{4}$  and 4-inch boxes.

Permits fixture to hang plumb and protects fixture against mechanical jars and shocks.

Attaches to standard box by means of 2 screws. Slot in cover of aligner eliminates necessity of removing more than one screw. Just remove one screw, back up other, slip aligner in place and replace screw. Tighten both screws to hold aligner in position. Finish, electro galvanized.

Standard package, 10; weight, 6 $\frac{1}{2}$  pounds. Price, No. 3380..... each \$ .30

## Ben-ox Threaded Shade Holders

Any Ben-ox Holder will fit any Ben-ox Socket or ceiling unit. All Ben-ox one-piece holders are equipped with one or more neck screws with locking spring so that vibration cannot loosen screws and allow glassware to drop. Fitter positions with respect to the lamp filament accord with modern standards.

### Acid Bronze Holders

Cat. No.	For Neck, Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4744	$2\frac{1}{4}$	10	$\frac{5}{8}$	\$.30
4745	$3\frac{1}{4}$	10	$1\frac{1}{4}$	.50
4746	4	10	$1\frac{5}{8}$	.80
4747	5	10	3	1.10
4748	6	10	5	1.50



No. 4745

### Natural Copper Holders

Cat. No.	For Neck, Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4751	$2\frac{1}{4}$	10	$\frac{5}{8}$	\$.30
4752	$3\frac{1}{4}$	10	$1\frac{1}{4}$	.50
4753	4	10	$1\frac{5}{8}$	.80
4754	5	10	3	1.10
4755	6	10	5	1.50



No. 4753

### White Enameled Holders

Cat. No.	For Neck, Size Inches	Kind of Enamel	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4862	$2\frac{1}{4}$	Baked	10	$\frac{5}{8}$	\$.50
4863	$3\frac{1}{4}$	"	10	$1\frac{1}{4}$	.75
4739	4	Porcelain	10	3	1.80
4741	6	"	10	5	2.00



No. 4862

## Ben-ox Accessories

### Socket Elements

For use in converting Ben-ox Basic Units from one form of lighting device to another. Socket elements are equipped with Benjamin Lamp Grip.

### Keyless Type—660 Watts, 600 Volts

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4727	Medium Base	10	1	\$.20



No. 4727

### Pull Socket Type—660 Watts, 250 Volts

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4788	Medium Base, Natural Copper Finish	10	$2\frac{1}{2}$	\$1.00
4790	Medium Base, Acid Bronze Finish	10	$2\frac{1}{2}$	1.00



No. 4788

### Canopy Extensions

Used to cover the pull socket element on canopy type Ben-ox Ceiling Units.

Cat. No.	Finish	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4839	Acid Bronze	10	$\frac{3}{4}$	\$.40



No. 4839

### Mounting Stirrups

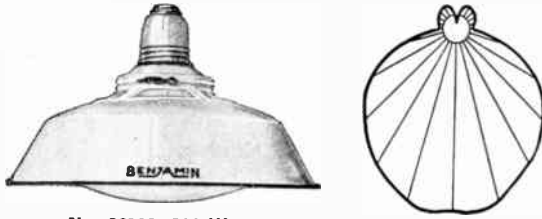


No. 4855 Attached to Outlet Box—Box Not Included

For mounting Ben-ox or other wiring devices on outlet boxes, condulets, etc. May be attached to fixture stud, with locknut or by screws threaded to box. Inside bolt holes are on  $1\frac{1}{2}$ -inch centers; outside pair, tapped, on  $2\frac{3}{4}$ -inch centers. For 4-screw support, two stirrups are used in a crossed position. On  $3\frac{1}{4}$ -inch boxes with only two supporting ears, adding the proper stirrup, see listing, gives the other 2-screw supports.

Cat. No.	For Stud Size, In.	For Approx. Box Depth, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Lbs. Price Each
4855	$\frac{3}{8}$	$\frac{3}{4}$	10	$\frac{3}{8}$	\$.08
4856	$\frac{3}{8}$	$1\frac{5}{8}$	10	$\frac{1}{2}$	.12
4853	$\frac{1}{2}$	$\frac{3}{4}$	10	$\frac{1}{2}$	.08
4854	$\frac{1}{2}$	$1\frac{5}{8}$	10	$\frac{5}{8}$	.12

**Benjamin Glassteel Diffusers**  
With Type R R Threaded Hood



No. 26300, 200-Watt

In addition to the accepted merits of the porcelain enameled steel reflector this combination offers the following advantages:—

1. Light is permitted to reach the ceiling which softens the contrast between the working plane and the space above the reflector. This increases eye comfort and enhances the cheerfulness of the room.
2. The brightness of the unit is reduced to about 3 or 5 candlepower per square inch which further reduces eye effort resulting from both direct and reflected glare.
3. Protection of the glass from excess breakage because surrounded by the steel reflector.
4. Exceptionally good appearance of the lighted unit.
5. Reflection and diffusion favorable to the needs of the daylight lamp.

**General Features**

The total light output of the Glassteel Diffuser with a clear lamp is equal to that of an R L M reflector and bowl-enameled lamp of corresponding size.

The Glassteel Diffuser directs light on the ceiling (about 7 per cent) and also more light on higher angles than the other equipment mentioned.

Comparison of corresponding brightness favors the Glassteel equipment, which is 3 or 5 against 15 candlepower per square inch of the R L M reflector and bowl-enameled lamp.

The most notable results of the Glassteel Diffuser are softening of shadows and the reduction of direct and reflected glare.

**Construction**

**HOOD.**—Hood is of porcelain enameled steel with Benjamin R R Thread.

**SUPPORTING FITTING.**—XR Type, tapped for 1/2-in. conduit.

**SOCKET.**—Porcelain, two-piece, easy-to-wire type.

**REFLECTOR.**—Reflector is porcelain enameled steel in two sizes with Benjamin Type R R Threaded Neck permitting easy removal of the reflector for cleaning. The reflector has six apertures at the top for the passage of light to the ceiling. It also embodies a spring globe holder facilitating easy removal of globe for cleaning.

**FINISH.**—White porcelain enamel with small neat dark blue bead at bottom edge of both hood and reflector.

**Pendent Hood Type**  
With Opal Glass Globe

Cat. No.	Size of Lamp Watts	DIMENSIONS INCHES		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Diameter	Height			
26300	150, 200	18	11 3/4	4	23	\$9.00
26302	300, 500	20	13 3/8	4	30	12.50
<b>With Daylite Glass Globe</b>						
26310	150, 200	18	11 3/4	4	23	\$9.50
26312	300, 500	20	13 3/8	4	30	13.25

**Ceiling Hood Type**

This fixture is the same as shown in the above illustration, excepting that the hood is for mounting direct to a standard 4-inch outlet box.

**With Opal Glass Globe**

Cat. No.	Size of Lamp Watts	DIMENSIONS INCHES		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
		Diameter	Height			
26304	150, 200	18	11 3/4	4	23	\$9.00
26306	300, 500	20	13 3/8	4	30	12.50
<b>With Daylite Glass Globe</b>						
26314	150, 200	18	11 3/4	4	23	\$9.50
26316	300, 500	20	13 3/8	4	30	13.25

Prices do not include wires or lamps.

**Benjamin Reflector Sockets**  
Porcelain Enameled Steel

**USES.**—Each type of reflector performs a definite service. See individual description immediately above each listing.

**REFLECTORS.**—Seamless Crysteel porcelain enameled steel. They are weather-proof and may be used for indoor and outdoor service.

**SOCKETS.**—National Electrical Code Standard. Sockets are two-piece porcelain, keyless, easy-to-wire type with Benjamin Lamp Grip which prevents loosening and falling of lamps under vibration.

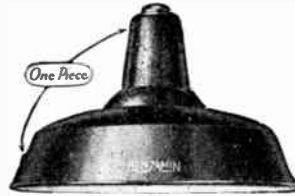
Locking Type Socket will be supplied with reflectors up to and including 200 watt sizes at an advance of 40 cents each. Key, No. 1399, at \$1.00 each. Pull chain socket with lamp grip will be supplied with reflectors up to and including 200 watt sizes at an advance of 80 cents.

**FITTINGS.**—Reflector are supported by heavy cast fitting, independent of socket, making the whole fixture uniformly strong.

**TAPPING.**—Fitting tapped for 1/2-inch iron pipe regularly furnished; 3/4-inch tapping or 1/2-inch insulating bushing, No. 1265 for drop cord use, furnished if specified at no advance in price.

**FINISH.**—Reflector are Benjamin green porcelain enamel outside; white inside.

**Benjamin Dome Reflector Sockets**  
R L M Standard



No. 5642, 150-watt



Characteristic Distribution Curve

For general illumination where it is desired to light both upright and flat surfaces and to eliminate sharp shadows by good diffusion.

Cat. No.	Size of Lamp Watts	DIMENS. IN.		Std. Pkg.	Wt. Lbs. Each	Price Each
		Diam.	Height			
5640	50, 60	12	7 1/4	10	2 1/4	\$3.20
5641	100	12	8 1/8	10	2 3/8	3.30
5642	150	14	9 1/4	10	3 1/4	3.50
5643	200	16	10 1/2	10	3 5/8	4.30
5644	300, 500	18	12 1/8	5	4 1/4	5.30
5645	750, 1000	20	15 3/8	5	5 5/8	7.20

**Benjamin Bowl Reflector Sockets**



No. 6189, 150-watt



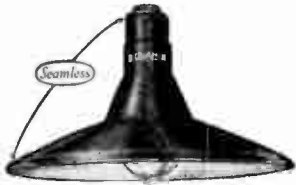
Characteristic Distribution Curve

For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area.

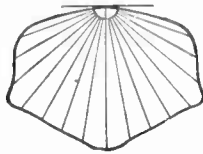
Cat. No.	Size of Lamp Watts	DIMENS., IN.		Std. Pkg.	Wt. Lbs. Each	Price Each
		Diam.	Height			
6166	50, 60	7	7 1/2	10	1 5/8	\$2.90
6161	100	8 1/4	8 3/4	10	1 7/8	3.10
6189	150	9	9 1/2	10	2	3.30
6169	200	10	10 5/8	10	2 1/2	3.80
6173	300, 500	12	12	10	3 1/4	4.70

Prices do not include wires or lamps.

## Benjamin Shallow Bowl Reflector Sockets Porcelain Enameled Steel



No. 5423  
150-Watt

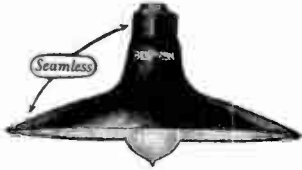


Characteristic  
Distribution Curve

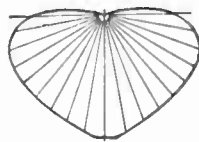
For general illumination where the lighting requirement is of an extensive character and where eye shielding is not considered of first importance.

Cat. No.	Size of Lamps Watts	DIMENS., In. Diam.	In. Height	Std. Pkg.	Wt. Lbs.	Price Each
5437	50, 60	12	6 $\frac{3}{8}$	10	2 $\frac{1}{4}$	\$3.30
5421	100	12	7 $\frac{1}{2}$	10	2 $\frac{1}{4}$	3.50
5423	150	14	8 $\frac{1}{2}$	10	2 $\frac{3}{4}$	3.80
5425	200	16	9 $\frac{3}{4}$	10	3 $\frac{1}{4}$	4.60
5509	300, 500	18	11	10	3 $\frac{3}{8}$	5.70

## Benjamin Flat Cone Reflector Sockets Porcelain Enameled Steel



No. 5402  
150-Watt



Characteristic  
Distribution Curve

For broad extensive light distribution—for such places as lumber yards, railroad terminal yards and street lighting.

Cat. No.	Size of Lamps Watts	DIMENS., In. Diam.	In. Height	Std. Pkg.	Wt. Lbs.	Price Each
5431	50, 60	14	5	10	2 $\frac{3}{8}$	\$3.30
5401	100	14	5 $\frac{7}{8}$	10	2 $\frac{1}{2}$	3.50
5402	150	16	6 $\frac{5}{8}$	10	3 $\frac{1}{8}$	3.80
5403	200	18	7 $\frac{3}{4}$	10	3 $\frac{3}{4}$	4.60

## Benjamin Parabolites Porcelain Enameled Steel



No. 1235, 150-Watt

Characteristic Distribution of Curve



Plane Through Major Axis



Plane Through  
Minor Axis

The Benjamin Parabolite is a specially designed fixture for the illumination of aisles, platforms, and other long narrow areas indoors or outdoors.

The reflector is porcelain enameled steel, white inside, and green outside. The socket is porcelain, keyless two-piece, easy-to-wire type with lamp grip. The separable X fitting is regularly tapped  $\frac{1}{2}$ -inch and will be tapped  $\frac{3}{4}$ -inch if specified, at no advance in price. The light is projected in a narrow stream with a low cut-off on each side.

Cat. No.	Size of Lamp Watts	DIMENSIONS, INCHES Length	Inches Height	Std. Pkg.	Wt. Lbs.	Price Each
1234	60, 100	21	8 $\frac{1}{2}$	10	3 $\frac{3}{4}$	\$8.00
1235	150	21	9 $\frac{1}{4}$	10	3 $\frac{7}{8}$	8.80
1236	200	21	10 $\frac{1}{8}$	10	4 $\frac{1}{8}$	9.30

Prices do not include wires or lamps.

## Benjamin Elliptical Angle Reflector Sockets Porcelain Enameled Steel



No. 5525  
Side View



No. 5525  
Front View

There are many places in industrial plants where lighting requirements cannot be satisfied with overhead illumination alone. Traveling cranes sometimes preclude the use of pendant fixtures. Vertical surfaces and deep recesses, such as shelving, must be better lighted.

The Benjamin Elliptical Angle Reflector Socket satisfies perfectly these, as well as many similar cases, requiring illumination from the side.

### Used Indoors for

- Craneways in Machine and Erecting Shops
- Round Houses, Ash Pits, Turn Tables
- Foundries with Uni-rail Systems
- Power Rooms
- Switch Boards
- Loading Platforms
- Tool Rooms
- Stock Rooms
- Rows of Shelving
- Time Clocks
- Bulletin Boards
- Rooms with Movable Roofs
- Paper Making Machines
- Bowling Alleys
- Hand Ball Courts

### Used Outdoors for

- Alleys and Runways
- Docks and Yards
- Building Fronts
- Tower Clocks
- Loading Platforms
- Construction Work: Bridges, Viaducts, Tunnels
- Safety Islands at Street Crossings
- Tennis Courts
- Hand Ball Courts
- Bathing Beaches
- Athletic Fields

Reflectors are of porcelain enameled steel and are weather resisting. Socket is N. E. C. Standard, keyless two-piece porcelain easy-to-wire type with lamp grip which prevents lamps from becoming loosened by wind or vibration. Nos. 5522, 5525 and 5526 are regularly tapped for  $\frac{1}{2}$ -inch pipe;  $\frac{3}{4}$ -inch, if specified. Nos. 5537 and 5538 are regularly tapped for  $\frac{3}{4}$ -inch iron pipe.

Cat. No.	Size of Lamp Watts	DIMENSIONS, INCHES Diam.	Inches Height	Net Weight Pounds	Standard Package	Price Each
5522	60, 100	8 $\frac{7}{8}$ x13 $\frac{1}{4}$	12 $\frac{1}{4}$	2 $\frac{3}{4}$	10	\$4.20
5525	150	8 $\frac{7}{8}$ x13 $\frac{1}{4}$	13 $\frac{1}{8}$	3	10	4.20
5526	200	11 $\frac{1}{8}$ x16 $\frac{3}{8}$	15 $\frac{7}{8}$	3 $\frac{5}{8}$	10	5.40
5537	300, 500	13 $\frac{7}{8}$ x19 $\frac{3}{8}$	19 $\frac{5}{8}$	3 $\frac{3}{4}$	5	8.70
5538	750, 1000	13 $\frac{7}{8}$ x19 $\frac{3}{8}$	20 $\frac{7}{8}$	4 $\frac{1}{8}$	5	9.00

Prices do not include wires or lamps. A self-locking socket, to prevent lamp theft, is supplied with Nos. 5522, 5525 and 5526 at an advance of 40 cents list. For coupling to increase to 1 or  $\frac{1}{4}$ -inch, add 20 cents to list price.

**Benjamin Type R R Threaded Fixtures**

Where dirty or smoky atmospheric conditions make the frequent and thorough cleaning of reflectors necessary, Type R R Fixtures make the work less difficult and hazardous. Without the use of tools, reflectors may be removed and given a thorough washing. They are replaced just as easily. Every threaded reflector will fit any threaded hood in the Benjamin Type R R Line.

**CONSTRUCTION.**—Hoods are pressed steel, porcelain enameled or cast as indicated in listing. All are threaded to take Type R R Reflectors listed in opposite column. Sockets supplied with hoods are described in the next paragraph.

**SOCKETS.**—National Electrical Code Standard; keyless and pull chain types have lamp grip.

Keyless medium base socket is arranged so that it may be converted to Mogul base without disturbing the wiring.

To prevent theft or unauthorized exchange of lamps, the locking socket is effective; locking socket key No. 1399, lists at \$1.00—listings below do not include key.

**REFLECTORS.**—Reflectors are porcelain enameled steel with screw thread to accommodate all hoods listed below.

**FINISH.**—Pressed steel hoods are green porcelain enameled; cast hoods are green paint enameled. Reflectors are green porcelain enameled outside; white inside.

**IMPORTANT.**—All Type R R Reflectors and Hoods are interchangeable; for this reason, they are listed separately. When ordering complete fixtures, specify the catalogue number of both the reflector and hood desired.



No. 26003 Showing Key for Lamp Lock Inserted

**Pendent Cast Hood with Socket**

Tapped for 1/2-inch iron pipe stem; 3/4-inch, if specified.

Cat. No.	Includes Hood with	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26001	Medium Base, Keyless Socket	10	2 1/4	\$2.30
26003	“ “ Locking “	10	2 1/4	2.70
26005	Mogul “ Keyless “	5	2 1/2	2.70
26007	Medium “ Pull Chain “	10	2	3.10

**Pendent Steel Hood with Socket**

Tapped for 1/2-inch iron pipe stem; 3/4-inch, if specified.

26030	Medium Base, Keyless Socket	10	1 1/4	\$1.95
26033	“ “ Locking “	10	1 1/4	2.35
26035	Mogul “ Keyless “	5	1 1/2	2.35
26037	Medium “ Pull Chain “	10	1	2.75

**Outlet Box Cast Hood with Socket**

Fits 4-inch standard outlet box.

26002	Medium Base, Keyless Socket	10	2 1/8	\$2.40
26004	“ “ Locking “	10	2 1/8	2.80
26008	Mogul “ Keyless “	5	2 1/4	2.80
26010	Medium “ Pull Chain “	10	1 7/8	3.20

**Outlet Box Steel Hood with Socket**

Fits 4-inch standard outlet box.

26025	Medium Base, Keyless Socket	10	1	\$1.95
26027	“ “ Locking “	10	1	2.35
26029	Mogul “ Keyless “	5	1 1/4	2.35
26031	Medium “ Pull Chain “	10	7/8	2.75

Prices are for hoods and sockets only.

**Benjamin Type R R Threaded Fixtures  
R L M Dome Reflectors**



No. 26014, 150-watt

Finish, outside of reflector is Benjamin green, inside is white porcelain enamel.

Without the use of tools, reflectors may be removed and given a thorough washing. They are replaced just as easily.

Every threaded reflector will fit any threaded hood in the Benjamin Type RR Line.

Cat. No.	Size of Lamp Watts	DIMENS., INCHES Diam. Height		Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26012	100	12	4 3/8	10	1 3/8	\$2.10
26014	150	14	5 9/16	10	2 1/8	2.40
26016	200	16	6 1/8	10	2 5/8	2.80
26018	300, 500	18	8 7/16	5	3 1/4	3.80
26020	750, 1000	20	11	5	4 1/4	5.80

**Shallow Bowl Reflectors**

Best adapted to the lighting of yards, warehouses and platforms, or where it is desired that one unit light a large area.



No. 26416

Cat. No.	Size of Lamp Watts	DIMENS., IN. Diam. Height		Std. Pkg.	Price Each
26414	60, 100	14	3 3/8	10	\$2.15
26416	150, 200	16	4 3/8	10	2.75
26418	300, 500	18	5 3/4	5	3.80

**Bowl Reflectors**

For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area.



No. 26109, 150-watt

Cat. No.	Size of Lamp Watts	DIMENS., INCHES Diam. Height		Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26108	100	8 1/4	5	10	3/8	\$1.80
26109	150	9	5 13/16	10	1/8	2.00
26110	200	10	6 15/16	10	1 1/4	2.40
26112	300, 500	12	7 3/4	5	1 3/4	3.80

**Fluted Bowl Reflectors**

The only type of porcelain enameled steel reflector having an intensive distribution. It is used therefore for high mounting, i. e., 16 feet and upward.



No. 26114, 300-500-watt

Cat. No.	Size of Lamp Watts	DIMENS., INCHES Diam. Height		Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26114	300, 500	14	8 5/16	5	2 3/4	\$4.00
26117	750, 1000	17	12	5	4	5.30



No. 26212, 300-500-watt

**Symmetrical Angle Reflectors**

For illuminating places where the light must come from the side.

Prices are for reflectors only.

Cat. No.	Size of Lamp Watts	DIMENS., INCHES Diam. Height		Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
26210	150, 200	10	8 1/4	10	1	\$2.75
26212	300, 500	12	12	5	1 3/4	4.55
26214	750, 1000	14	15 3/8	5	2 3/4	6.25



## Benjamin Symmetrical Angle Reflector-Sockets



No. 5542

For illuminating places where the light must come from the side.

**REFLECTORS.**—Seamless Crysteel porcelain enameled steel. They are weather-proof and may be used for indoor and outdoor service.

**SOCKETS.**—Two-piece, porcelain, keyless with Benjamin lamp grip which prevents loosening and falling of lamps under vibration.

**TAPPING.**—Fitting tapped for 1/2-inch iron pipe regularly furnished; 3/4-inch tapping furnished if specified at no advance in price.

**FINISH.**—Reflectors are Benjamin green porcelain enamel outside; white inside.

Cat. No.	Size of Lamp Watts	DIMENSIONS, IN.		Std. Pkg.	Wt., Lbs. Each	Price Each
		Diam.	Height			
5541	50, 60, 100	8	10	10	1 1/2	\$2.95
5542	150, 200	10	11 7/8	10	2	3.45
5543	300, 500	12	14 3/4	5	4	4.95

Locking type sockets can be supplied with reflectors at an advance of 40 cents each. Key No. 1399 at \$1.00 each. Pull chain sockets can be furnished for 80 cents extra.

## Benjamin Reflector Fittings



No. 4651

Used with Benjamin Reflector Sockets and Hooded Type Fixtures; and, listed here as replacement parts. Sockets are equipped with Benjamin Lamp Grip, which prevents loosening and falling of lamps under vibration. When ordering, give Cat. No. or description of fixture, so that proper fitting is supplied.



No. 4661

### Keyless Socket—Medium Base—Porcelain 660 Watts, 600 Volts

Cat. No.	Size Tapped In.	Description	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4651	1/2	Socket with X Type Fitting	10	8 1/2	\$1.05
4650	3/8	" " X " "	10	8 1/2	1.05
4665	3/4	" " X " "	10	8 1/2	1.05
88		" Only (No Fittings)	10	3 1/2	.60

### Keyless Socket—Mogul Base—Porcelain 1500 Watts, 600 Volts

Cat. No.	Size Tapped In.	Description	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4657	1/2	Socket with X Type Fitting	10	10 1/2	\$1.50
4656	3/8	" " X " "	10	10 1/2	1.50
4666	3/4	" " X " "	10	10 1/2	1.50
698		" Only (No Fittings)	10	6	1.13

### Pull Chain Socket—Medium Base

#### Molded Composition

660 Watts, 250 Volts

Cat. No.	Size Tapped In.	Description	Std. Pkg.	Wt., Lbs. Pkg.	Price Each
4661	1/2	Socket with Stirrup, X Type Fitting	10	6 1/2	\$1.85
4660	3/8	Socket with Stirrup, X Type Fitting	10	6 1/2	1.85
4667	3/4	Socket with Stirrup, X Type Fitting	10	6 1/2	1.85
4664		Socket with Stirrup Only	10	2 1/2	1.40
<b>For Type RR Equipment</b>					
4534	1/2	Socket Stirrup, XR Fitting	10	6 1/2	\$1.85
4535	3/4	" " XR " "	10	6 1/2	1.85
4669		" Less XR Type Fitting	10	3	1.40

## Benjamin Shock Absorber Suspension Fittings

Made of galvanized iron.



Cat. No.	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6030	1/2	10	9	\$ .80

## Benjamin Porcelain Enamel Steel Sign Reflectors



Side View

Recommended for use on standard poster panel, standard city or suburban bulletin, 3-sheet poster panel, standard store bulletin and other types of signs; also standard highway bulletin, railroad metropolitan or highway bulletin.

A sign reflector combining many new special easy installation features to the well known lighting efficiency of the Benjamin Elliptical Angle Shape.

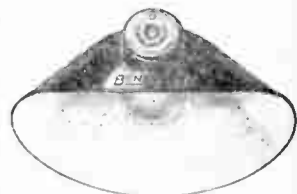
The elliptical shape has been improved to produce a long straight line cut-off. The result is a higher intensity of uniform illumination over the entire board than is obtainable with any other sign lighting equipment.

The advantages are: easy installation without conduit bending; reflector may be raised or lowered without affecting cut-off; uniform lighting coverage of entire board; accessible socket, simple to wire; inconspicuous on board; each reflector takes 2 sizes of lamps; easy positioning on conduit, large set screw for guy wire attachment.

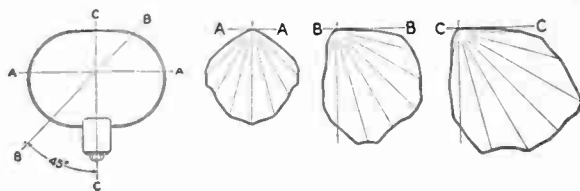
Elliptical shape reflector; crysteel porcelain enameled steel, green outside and white inside.

Two-piece porcelain socket. Heavy brass fitting, with set screw, tapped 1/2 inch.

Standard package, 9.



Front View



**Distribution: Projects Light to Front as Well as in a Long Lateral Plane. Suited for Uniform Sign Lighting**

Cat. No.	Size of Lamp Watts	DIMENSIONS, INCHES		Weight Pounds	Price Each
		Diameter	Width		
5570	100, 150	13 1/4 x 9 1/8	9 1/4	2 1/2	\$4.20
5571	150, 200	13 1/4 x 9 1/8	10	2 1/2	4.80

### Table of Spacing Distances

For Standard Poster and Bulletin Boards

Kind of Board	Size of Board	Dist. Out	Dist. from End	Dist. Apart	LAMP SIZE WATTS FOR LOCATIONS		
					Bright	Ordinary	Dark
Poster	11'10" x 25'	5'	4'2"	8'4"	200	150	100
3-Sheet							
Poster	8' x 5'10"	4'			200	150	100
	11'6" x 11'6"	5'	2'9"	5'10"	150	100	...
Store Bull.	11'6" x 16'5"	5'	4'1"	8'3"	200	150	100
	11'6" x 21'4"	5'	3'7"	7'1"	200	150	100
	11'6" x 26'3"	5'	3'4"	6'7"	200	150	100
Highway Bull.	12'6" x 42'	5'3"	4'4"	8'4"	200	150	100
City or Sub.							
Bull.	12'6" x 17'	5'3"	3'11"	7'10"	200	150	100
R.R. Bull.	18' x 72'	8'6"	6'	12'	*500	*300	200

\*Takes reflector No. 5537.

For Standard Roof and Wall Signs

Height Board	Dist. Out Minimum	Dist. from End	Dist. Apart Minimum	LAMP SIZE WATTS FOR LOCATIONS		
				Bright	Ordinary	Dark
2' to 4'	2'6"	2'6"	5'	100	...	...
5' to 6'	3'6"	3'	6'	150	100	...
7' to 8'	4'	3'3"	6'6"	200	150	100
9' to 12'	5'	4'	8'	...	200	150
13' to 15'	6'6"	5'	10'	...	...	200
16' to 18'	8'6"	6'6"	13'	...	...	200

**Benjamin Canopy Type Aligners**  
With or Less Shock Absorbers



No. 3355

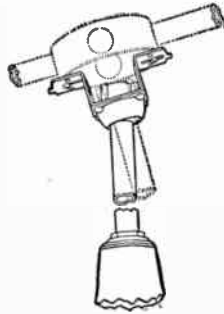
The reasons for the use of flexible suspension fittings are two:

1.—It is practically impossible to set every outlet box straight, yet correct industrial lighting depends greatly upon the lighting equipment hanging plumb. Therefore, a fixture aligner is essential to good illumination as well as good appearance.

2.—Most industrial or manufacturing buildings are subject to the vibrations induced by moving machinery. Under these conditions, the shock absorbing feature in Benjamin Fixture Aligners protects the lamps and tends to prolong their life.

No. 3355 has flexible knuckle and shock absorber. Supported by a strap with slots to slip over the screws on the ears of standard 3/4-inch and 4-inch outlet boxes. No. 3359 is the same as No. 3355, less shock absorber. These aligners may also be mounted on fixture stud by use of stirrups. Canopy attaches to outer edge of straps by a thread. Finish is galvanized.

Furnished with either a light, medium or heavy shock absorber. Light springs are for fixtures weighing 1 to 3 pounds, medium for 3 to 8 pounds, and heavy for those weighing 8 to 16 pounds. Specify the spring desired otherwise medium weight will be supplied.



Showing How Fixture Assumes a Vertical Position when Outlet Box is not Set Level

Cat. No.	Description	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3355	Aligner with Shock Absorber and Canopy..	1/2	10	6 1/4	\$ .75
3359	Less Shock Absorbers, with Canopy.....	1/2	10	5 5/8	.65

**Benjamin Aligners with Shock Absorber**  
Outlet Box Cover Type

Nos. 3366 to 3369, inclusive, have shock absorbing feature and flexible knuckle, permitting fixture to hang plumb. Fitting is supported by a cover of cast iron or steel which fastens to standard 4-inch outlet boxes and Benjamin Marine Junction Boxes as listed. Finish is galvanized.



No. 3366

Cat. No.	Cover	For Box	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
3366	Steel	Std. 4-inch	1/2	10	5	\$ .65
3367	"	Benjamin Marine	1/2	10	5	.65
3368	Cast	Std. 4-inch	1/2	10	12 1/4	1.00
3369	"	Benjamin Marine	1/2	10	12 1/4	1.00

**Benjamin 2-piece Locking Sockets**  
Medium Base—660 Watts, 600 Volts

Locks lamp in place automatically without use of key. Key is needed only when a lamp must be withdrawn. No. 586 may be substituted for body of No. 88 sockets now in use without interference with wiring. Locking arrangement grips lamp on attempt to remove.

**For Reflector-Socket Equipment**

Cat. No.	Tapped In.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4528	1/2	With X Fitting	10	8 3/4	\$ 1.45
4529	3/8	With X Fitting	10	8 3/4	1.45
4530	3/4	With X Fitting	10	8 3/4	1.45

**For Type RREquipment**

Cat. No.	Tapped In.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4532	1/2	With XR Fitting	10	8 3/4	\$ 1.45
4533	3/4	With XR Fitting	10	8 3/4	1.45
86		Less X Fitting, No Key	10	4 1/2	1.00
586		Locking Body.	10	3	.80
1399		Key.....	1	1/8	1.00



SELF-ACTING LAMP LOCK  
INSERT KEY HERE TO RELEASE LAMP  
Nos. 4528 and 1399

**Benjamin Shock Absorbing Sockets**

For Reflector Fixtures

Keyless—Medium Base

660 Watts, 600 Volts



Cat. No. 4676

This socket is equipped with the Benjamin shock absorber and is designed for replacement on Benjamin lighting equipment. The styles of equipment on which the various sockets are to be used are shown by the group headings.

**For Reflector-Socket Equipment**

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4676	1/2	Socket and X Type Fitting.....	10	8 1/2	\$ 1.30
4678	3/8	Socket and X Type Fitting.....	10	8 1/2	1.30
4677	3/4	Socket and X Type Fitting.....	10	8 1/2	1.30
*4674	..	Terminal Base and Shock Absorbing Spring, Only.....	10	2 1/4	.55
4675	..	Socket Only, with Spring.....	10	3 3/4	.85

**For Type RR Porcelain Enameled Pendant Hood**

4680 1/2 Socket and XR Type Fitting.... 10 9 \$ 1.30  
4681 3/4 Socket and XR Type Fitting.... 10 9 1.30  
\*Cat. No. 4674 terminal base and shock absorbing spring may be substituted for the terminal base of regular medium base socket, Cat. No. 88, and locking socket, Cat. No. 86, in present insulations.

**Benjamin Shock Absorbing Sockets**  
For Reflector Fixtures

Self-Locking—Medium Base  
660 Watts, 600 Volts

Equipped with the Benjamin shock absorber and designed for replacement on Benjamin lighting equipment.

This socket locks automatically when a lamp is screwed in. The key must be used to remove lamp.

Key, Cat. No. 1399, is furnished only with an original installation of Benjamin Self-Locking Sockets.

Additional keys may be purchased only on order of an executive officer or member of a firm having such an installation.



SELF-ACTING LAMP LOCK  
INSERT KEY HERE TO RELEASE LAMP

No. 4548

**For Reflector-Socket Equipment**

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4548	1/2	Socket and X Type Fitting.....	10	8 3/4	\$ 1.70
4549	3/8	Socket and X Type Fitting.....	10	8 3/4	1.70
4550	3/4	Socket and X Type Fitting.....	10	8 3/4	1.70
4551	..	Socket Only, with Spring.....	10	4 1/2	1.25
1399	..	Key Only.....	1	1/8	1.00

**For Type RR Porcelain Enameled Pendant Hood**

4552	1/2	Socket and XR Type Fitting....	10	9 1/4	\$ 1.70
4553	3/4	Socket and XR Type Fitting....	10	9 1/4	1.70
1399	..	Key Only.....	1	1/8	1.00

**Benjamin Shock Absorbing Sockets**

For Reflector Fixtures

Keyless—Mogul Base

1500 Watts, 600 Volts

Equipped with the Benjamin shock absorber and designed for replacement on Benjamin lighting equipment.

**For Reflector Socket Equipment**

Cat. No.	Tapped In.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4670	1/2	Socket and X Type Fitting	10	10 1/2	\$ 1.75
4671	3/8	Socket and X Type Fitting	10	10 1/2	1.75
4672	3/4	Socket and X Type Fitting	10	10 1/2	1.75
4578	..	Socket Only, with Spring	10	6 3/8	1.30

**For Type RR Porcelain Enameled Pendant Hood**

4670	1/2	Socket and X Type Fitting	10	10 1/2	\$ 1.75
4672	3/4	Socket and X Type Fitting	10	10 1/2	1.75



No. 4670

## Benjamin Sockets for Type RR and Glassteel Equipment

1500 Watts, 600 Volts



This socket has a universal form of terminal base which takes either medium or mogul socket element and conversion from one to the other can be made without disturbing existing wiring. The mogul socket element referred to is No. 4524 and the medium is No. 4520. Sockets with XR fittings are for use in porcelain enameled steel pendent hoods. Sockets without XR

fitting are for use on all other Type RR hoods.

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4506	1/2	Socket, XR Fitting	10	11	\$1.50
4510	3/4	Socket, XR Fitting	10	11	1.50
4515	..	Socket, Less XR Fitting	10	6 3/4	1.05
4518	..	Socket Terminal Base Only	10	1 1/4	.30
4524	..	Socket Body Element Only	10	5 1/2	.75

## Benjamin Sockets for Type RR and Glassteel Equipment

660 Watts, 600 Volts—Medium Base

This socket has a universal form of terminal base which takes either medium or mogul socket element, and conversion from one to the other can be made without disturbing wiring connections.

The medium base socket element referred to is Cat. No. 4520, below, and the Mogul base socket element is Cat. No. 4524.



No. 4511

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4505	1/2	With XR Fitting	10	9	\$1.05
4509	3/4	" XR "	10	9	1.05
4511	..	Less XR "	10	4 3/4	.60
4518	..	Terminal Base Only	10	1 1/4	.30
4520	..	Body Element "	10	4	.30

## Benjamin Dust Tight Glass Covers



A light weight, economical device that will give the reflecting surfaces of Benjamin Industrial Lighting Equipment protection against dust and dirt.

It will give satisfactory service in the average industrial locations where fixtures are exposed only to the dust and dirt of

manufacturing operations. It is not recommended for installation where it will be subjected to acid or alkali fumes, excessive heat or continuous exposure to steam, etc.

Designed for Benjamin Reflector Equipment only. No assurance is given that it will fit other reflectors.

The cover consists of a circular felt gasket, clear glass disc and a one-piece steel retaining band, cadmium finished, having a locking lever with a compression spring.

It is easily attached—the locking lever is first released, which expands the band to its greatest diameter. Then the band is hooked over the reflector bead and the cover pushed up until the band engages the entire edge, after which locking lever is snapped into closed position.

The locking lever with compression spring gives positive tension on the band of the cover at all times. It is virtually impossible for the cover to work itself loose.

The cover in most cases weighs less than the reflector and is easily handled.

Cat. No.	Description	Std. Pkg.	Net Wt., Lbs., Each	Price Each
6408	Cover for 8-Inch Reflector	5	1	\$3.10
6409	Cover for 9-Inch Reflector	5	1 1/4	3.20
6410	Cover for 10-Inch Reflector	5	1 1/2	3.30
6412	Cover for 12-Inch Reflector	5	2	3.75
6414	Cover for 14-Inch Reflector	5	2 1/4	4.25
6416	Cover for 16-Inch Reflector	5	3	5.00
6418	Cover for 18-Inch Reflector	5	4 1/4	5.75

## Benjamin Shade Holder Reflectors



Type N



Type B



Type P

Benjamin Shade Holder Reflectors are made of porcelain enameled steel and are for use where it is desired to attach reflectors to existing fixture equipment already installed.

The strong rigidly attached Benjamin holders, furnished with these reflectors, have 2 principal advantages:—They place the reflector in the proper position with relation to the lamp, giving correct light distribution, and impart that strength and permanency to the reflector, necessary for a satisfactory and lasting job.

Type B Shade Holder Reflector is designed for attaching to any standard brass shell socket. This socket is the one commonly found in existing interior lighting installations.

Type N Shade Holder Reflector is fitted with a neck so shaped, as to fit any standard 2 1/4 or 3 1/4-inch shade holder.

Type P Shade Holder Reflector is equipped with a holder which will fit any standard porcelain socket.

Type S Shade Holder Reflector has a screw threaded holder to fit Benco Sockets and Type S Outlet Box Fittings.

FINISH.—Benjamin green porcelain enamel outside; white inside.

## Benjamin Dome Shade Holder Reflectors

Reflector and Lamp Manufacturers' (RLM) Standard



No. 14100N



Characteristic Distribution Curve

For general illumination when it is desired to avoid reflected glare from the surfaces lighted and to avoid direct glare by having the angle of light cut-off agree with all state lighting codes. Angle of cut-off, 17 1/2 degrees.

### With Type N Neck for Standard Shade Holder

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs. Each	Price Each
14025N	25, 40	10	3 3/8	10	1	\$1.25
14050N	50, 60	12	4 7/8	10	1 3/8	1.80
14075N	* 100	12	5 1/2	10	1 3/8	1.90
14100N	** 150	14	6 3/4	10	2 1/8	2.20
14200N	200	16	7 3/4	10	2 1/2	2.60
†14300N	300, 500	18	7 3/4	5	3 1/8	3.60
†14750N	750, 1000	20	10 3/4	5	4	5.30

### With Type B Holder for Brass Shell Sockets

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs. Each	Price Each
14025B	25, 40	10	3 3/8	10	1	\$1.40
14050B	50, 60	12	4 7/8	10	1 3/8	1.95
14075B	* 100	12	5 1/2	10	1 3/8	2.05
14100B	** 150	14	6 3/4	10	2 1/8	2.35
14200B	200	16	7 3/4	10	2 1/2	2.75

### With Type P Holder for Porcelain Sockets

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs. Each	Price Each
14025P	25, 40	10	3 3/8	10	1	\$1.45
14050P	50, 60	12	4 7/8	10	1 3/8	2.00
14075P	* 100	12	5 1/2	10	1 3/8	2.10
14100P	** 150	14	6 3/4	10	2 1/8	2.40
14200P	200	16	7 3/4	10	2 1/2	2.80

### With Type S Holder for Benco Sockets and Type S Outlet Box Fittings

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs. Each	Price Each
14025S	25, 40	10	3 3/8	10	1	\$1.40
14050S	50, 60	12	4 7/8	10	1 3/8	1.95
14075S	* 100	12	5 1/2	10	1 3/8	2.05
14100S	** 150	14	6 3/4	10	2 1/8	2.35
14200S	200	16	7 3/4	10	2 1/2	2.75

†With 3 1/4-inch fitter.

\*Also takes 75-watt lamps.

\*\*Also takes old 100-watt PS lamps and if socket extension No. 91 is used takes 100-watt A lamps.

**Benjamin Bowl Shade Holder Reflectors**



No. 12100N



Characteristic Distribution Curve

For general illumination where the lighting of flat surfaces is of first importance and where a high intensity is required in a relatively small area.

**With Type N Neck for Standard 2 1/4-Inch Shade Holders**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
12025N	25, 40	5	3 3/8	10	3/8	\$1.10
12060N	50, 60	7	4 3/4	10	3/4	1.50
12075N	*100	8 1/4	6 1/8	10	7/8	1.60
12100N	**150	9	7	10	7/8	1.80
12200N	200	10	8	10	1	2.20

**With Type B Holder for Brass Shell Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
12025B	25, 40	5	3 3/8	10	3/4	\$1.25
12060B	50, 60	7	4 3/4	10	3/4	1.65
12075B	*100	8 1/4	6 1/8	10	7/8	1.75
12100B	**150	9	7	10	7/8	1.95
12200B	200	10	8	10	1	2.35

**With Type P Holder for Porcelain Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
12025P	25, 40	5	3 3/8	10	3/8	\$1.30
12060P	50, 60	7	4 3/4	10	3/4	1.70
12075P	*100	8 1/4	6 1/8	10	3/4	1.80
12100P	**150	9	7	10	7/8	2.00
12200P	200	10	8	10	1	2.40

**With Type S Holder for Benco Sockets and Outlet Box Fittings**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
12025S	25, 40	5	3 3/8	10	3/4	\$1.25
12060S	50, 60	7	4 3/4	10	3/4	1.65
12075S	*100	8 1/4	6 1/8	10	7/8	1.75
12100S	**150	9	7	10	7/8	1.95
12200S	200	10	8	10	1	2.35

**Benjamin Shallow Bowl Shade Holder Reflectors**



No. 11100N



Characteristic Distribution Curve

For general illumination where the lighting requirement is of an extensive character.

**With Type N Neck for Standard 2 1/4-Inch Shade Holders**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
11050N	25, 40	10	3 1/8	10	3/8	\$1.25
11060N	50, 60	12	4 1/4	10	1 1/8	1.45
11075N	*100	12	5	10	1 1/4	1.70
11100N	**150	15	6 1/4	10	1 1/2	2.50

**With Type B Holder for Brass Shell Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
11050B	25, 40	10	3 1/8	10	3/8	\$1.40
11060B	50, 60	12	4 1/4	10	1 1/8	1.60
11075B	*100	12	5	10	1 1/4	1.85
11100B	**150	15	6 1/4	10	1 1/2	2.65

**With Type P Holder for Porcelain Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
11050P	25, 40	10	3 1/8	10	3/8	\$1.45
11060P	50, 60	12	4 1/4	10	1 1/8	1.65
11075P	*100	12	5	10	1 1/4	1.90
11100P	**150	15	6 1/4	10	1 1/2	2.70

**With Type S Holder for Benco Sockets and Outlet Box Fittings**

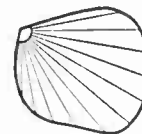
Cat. No.	Size of Lamp Watts	Diam. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
11050S	25, 40	10	3 1/8	10	3/8	\$1.40
11060S	50, 60	12	4 1/4	10	1 1/8	1.60
11075S	*100	12	5	10	1 1/4	1.85
11100S	**150	15	6 1/4	10	1 1/2	2.65

\*Also takes 75-watt lamps.  
\*\*Also takes old 100-watt PS lamps and if socket extension No. 91 is used, takes 100-watt A lamps.

**Benjamin Angle Shade Holder Reflectors**



No. 15075N



Characteristic Distribution Curve

For illuminating places where the light must come from the side.

See Benjamin Elliptical Angle Reflectors.

**With Type N Neck for Standard 2 1/2-Inch Shade Holders**

Cat. No.	Size of Lamp Watts	Diam. In.	Wdth. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
15040N	25, 40	7	6	5 1/2	10	7/16	\$1.15
15060N	50, 60	8	7	6 1/2	10	1/2	1.45
15075N	*100	8	7	7 3/8	10	5/8	1.45
15100N	**150, 200	10	8 5/8	9 1/2	10	1	1.95

**With Type B Holder for Brass Shell Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Wdth. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
15040B	25, 40	7	6	5 1/2	10	7/16	\$1.30
15060B	50, 60	8	7	6 1/2	10	1/2	1.60
15075B	*100	8	7	7 3/8	10	5/8	1.60
15100B	**150, 200	10	8 5/8	9 1/2	10	1	2.10

**With Type P Holder for Porcelain Sockets**

Cat. No.	Size of Lamp Watts	Diam. In.	Wdth. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
15040P	25, 40	7	6	5 1/2	10	7/16	\$1.35
15060P	50, 60	8	7	6 1/2	10	1/2	1.65
15075P	*100	8	7	7 3/8	10	5/8	1.65
15100P	**150, 200	10	8 5/8	9 1/2	10	1	2.15

**With Type S Holder for Benco Sockets and Outlet Box Fittings**

Cat. No.	Size of Lamp Watts	Diam. In.	Wdth. In.	Ht. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
15040S	25, 40	7	6	5 1/2	10	7/16	\$1.30
15060S	50, 60	8	7	6 1/2	10	1/2	1.60
15075S	*100	8	7	7 3/8	10	5/8	1.60
15100S	**150, 200	10	8 5/8	9 1/2	10	1	2.10

\*Also takes 75-watt lamps.  
\*\*Also takes old 100-watt PS lamps and if socket extension No. 91 is used, takes 100-watt A lamps.

**Benjamin Viaduct and Crossing Fixtures Heavy Duty Cast Iron Reflectors**



Complete fixture includes cast iron reflector, special X type fitting, tapped 1/2-inch and socket with lamp grip. Reflector only less fitting and socket, \$3.60. Price does not include wires or lamps. Finish is green porcelain enamel outside, white inside.

Cat. No.	Size of Lamp Watts	Diameter Inches	Height Inches	Standard Package	Net Weight Pounds	Price Each
5602	25-100	12	7 1/2	10	6 1/4	\$4.65

**No. 5560 Benjamin Viaduct Fixtures**

Designed particularly for side installation and by reason of its wide angle of light distribution is used extensively for the lighting of railroad subways, viaducts, trestles, etc., where overhead lighting is not feasible.

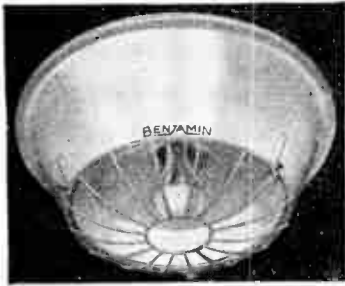
Symmetrical angle reflector of porcelain enameled steel, X type separable fitting and two-piece easy-to-wire porcelain socket with Benjamin Lamp Grip. Fitting tapped 1/2-inch regularly furnished. For tinned wire guard No. 1385 add \$2.00.

Cat. No.	Size of Lamp Watts	Diameter Inches	Height Inches	Standard Package	Net Weight Pounds	Price Each
5560	60, 100, 150	11 3/8	10 3/8	10	3 1/4	\$4.70

Price does not include wires or lamps.

## Benjamin Gymnasium Fixtures

With RLM Dome Reflector



A completely guarded RLM fixture of good appearance, for locations where the lighting fixtures are subjected to frequent jars and hard knocks. Suitable for gymnasiums, indoor baseball courts, volley ball courts, indoor sport arenas, etc.

Special features of this fixture are: longer life; good illumination over horizontal and vertical surfaces; easy lamp removal—large opening in bottom of guard permits passage of lamp; easy cleaning; and attractive appearance.

Each unit consists of heavy gauge steel canopy and wire guard, medium or mogul base keyless socket, Reflector and Lamp Manufacturers' standard dome reflector, and four steel straps for attaching to ceiling. Canopy attaches to straps by means of four large machine screws which are furnished.

Steel canopy and wire guard are white paint enameled. Reflector is white porcelain enameled steel.

### For 200-Watt Lamps

Cat. No.	Description	OVER-ALL DIMEN. INCHES		Reflector Diam. Inches	Std. Pkg.	Net Wt. Lbs.	Price Each
		Diam.	Depth				
6300	With Medium Base Receptacle	24	9 <sup>1</sup> / <sub>16</sub>	16	4	10	\$13.00
6302	Less Medium Base Receptacle	24	9 <sup>1</sup> / <sub>16</sub>	16	4	10	12.50

### For 300-500-Watt Lamps

6301	With Mogul Base Receptacle	24	13 <sup>1</sup> / <sub>2</sub>	18	2	11	\$19.00
6303	Less Mogul Base Receptacle	24	13 <sup>1</sup> / <sub>2</sub>	18	2	11	17.50

## No. 5566 Benjamin Symmetrical Angle Reflectors

With Bull's Eye

A combination warning signal and lighting unit. It has a red light for a warning signal and a white light to show the way. The light shining through a 3<sup>1</sup>/<sub>2</sub>-inch corrugated ruby glass lens in back of reflector, warns drivers to approach cautiously.



Finish, green porcelain enamel outside, white inside.

Porcelain enameled steel reflector; X type fitting tapped <sup>3</sup>/<sub>4</sub>-inch and socket with lamp grip.

Cat. No.	Size Lamp Watts	DIMENS. INCHES		Std. Pkg.	Price Each
		Diam.	Ht.		
5566	60 to 100	12	13 <sup>3</sup> / <sub>4</sub>	5	\$6.25

## No. 32613 Benjamin Elliptical Angle Reflectors

With Bull's Eye

A combination warning signal and lighting unit.

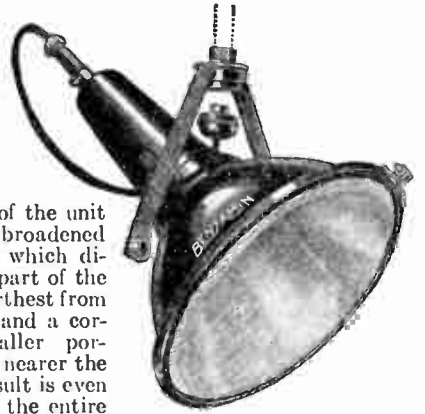
It has a red light for a warning signal and a white light to show the way. Finish, green porcelain enamel outside, white inside. Porcelain enameled steel reflector with 3<sup>1</sup>/<sub>2</sub>-inch corrugated ruby lens in back; X type fitting tapped <sup>3</sup>/<sub>4</sub>-inch, and socket with lamp grip.



Cat. No.	Size Lamp Watts	DIMENS., INCHES		Std. Pkg.	Price Each
		Diam.	Height		
32613	25, 40	9x13 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub>	5	\$5.50

## No. 5613 Benjamin Projectolites

An especially designed lighting unit for use wherever light must strike the surface to be illuminated at an acute or grazing angle. The powerful flood light beam of the unit is flattened and broadened by a special lens which directs the greater part of the light to a point farthest from the light source, and a correspondingly smaller portion to the points nearer the reflector. The result is even illumination over the entire surface.



The outside finish of fixture is green paint enamel. Inside reflecting surface is highly polished and is not affected by heat, dampness or even chemical action, except in the case of certain chlorine compounds which attack all metals.

Cat. No.	Lamp Watts	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. Std.	Price Each
		Diameter	Height			
5613	300, 500	12 <sup>3</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>8</sub>	2	21	\$20.00

## Benjamin Weatherproof Flood Lights

For illuminating wire mesh signs or signs whose depth or position makes flood lighting preferable. Can also be used to flood light small sections of a building.



Reflector is porcelain enameled cast iron with hinged holder containing glass bottom. Removal of winged nut allows holder to swing clear of reflector.

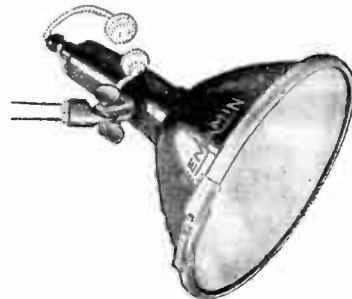
FINISH.—Green porcelain enamel outside, white inside.

Standard tapping, <sup>3</sup>/<sub>4</sub>-inch iron pipe; 1-inch if specified.

Cat. No.	Lamp Size Watts	Diameter Inches	Std. Pkg.	Wt., Lbs. Each	Price Each
5600	150	9	5	13 <sup>1</sup> / <sub>4</sub>	\$15.00
5601	200	9	5	13 <sup>1</sup> / <sub>4</sub>	15.00

\*Also old 100-watt PS lamps, and with socket extension No. 91, 100-watt A Lamps.

## Benjamin Intensifiers



The reflector bowl is of heavy gauge metal with a steel neck which contains focusing apparatus and socket.

A Benjamin Dust-Tight Cover, consisting of glass disc, felt gasket and a steel retaining band, seals the interior of intensifier.

Tapping is <sup>1</sup>/<sub>2</sub>-inch iron pipe size.

All outside metal parts are green paint lacquer finished. The small fixture No. 5603, taking an inside frosted 60 or 100-watt lamp, is equipped with a clear glass cover.

The larger fixture No. 5604, taking a clear 150 or 200-watt lamp, is furnished with an inside frosted glass cover.

The design in both cases is to eliminate glare and give good diffusive properties to the unit. Glass cover is smooth on outside for easy cleaning.

For high intensity illumination of small areas for both commercial and industrial use.

Cat. No.	Lamp Size Watts	Glass Cover	DIMENS., IN.		Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
			Diam.	Ht.			
5603	60-100	Clear	9	11 <sup>3</sup> / <sub>4</sub>	1	3 <sup>1</sup> / <sub>2</sub>	\$11.75
5604	150-200	Frosted	12	15 <sup>3</sup> / <sub>4</sub>	1	4 <sup>3</sup> / <sub>4</sub>	15.00

**Benjamin Flat Cone Reflectors**

With Heel to Fit Standard Shade Holders



No. H515, 15-inch

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside.

Cat. No.	Size, Inches Reflector	Size, Inches Fitter	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H510	10	2 1/4	10	6	\$ .90
H512	12	2 1/4	10	10	1.15
H515	15	3 1/4	10	12	1.65

**Benjamin Shallow Bowl Reflectors**



No. H416, 16-inch

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside, with heel to fit standard shade holders.

Cat. No.	Size, Inches Reflector	Size, Inches Fitter	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H410	10	2 1/4	10	7	\$ .95
H412	12	2 1/4	10	13	1.15
H414	14	2 1/4	10	15	1.50
H416	16	3 1/4	10	19	1.90

**Benjamin Flat Cone Reflectors**



No. H15, 15-inch

Benjamin standard finished, porcelain enameled steel reflectors, green outside, white inside.

Fixture includes fitting tapped for 1/2-inch iron pipe stem.

Cat. No.	Size, Inches Reflector	Size, Tapped Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
H10	10	1/2	10	7	\$1.00
H12	12	1/2	10	12	1.25
H15	15	1/2	10	16	1.65

**Benjamin Sewing Machine Reflectors**



No. 31002B

The Benjamin Sewing Machine Reflector is for localized lighting in connection with power sewing machines. Light is directed right where it is needed. Usually it is best to attach the reflector to a Benjamin Angle Socket, which in turn is supported by whatever supporting fixture the particular conditions necessitate. No. 31002B is paint enameled steel, finished green outside and aluminized inside.

No. 31012B is porcelain enameled, white inside, green outside.

Cat. No.	Size, Lamp Watts	DIMENSIONS, INCHES Diameter Height	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
31002B	15 to 25	3 5/8 4	10	2 1/2	\$ .60
31012B	15 to 25	3 5/8 4	10	2 1/2	.90

**No. 15103N Benjamin Show Window Reflectors**

Porcelain Enameled Steel



No. 15103N



No. 15106N

No. 15103N is for windows of usual proportions and for deep windows. It is an elliptical angle reflector and, owing to the broad character of distribution, may be mounted on wide spacings when there is to be a limited number of reflectors in each window.

No. 15106N, because of its narrow shape, may be mounted on close centers and is recommended for shallow windows. It is also especially suitable for flush mounting with false ceilings.

Either of these reflectors may be used in windows of ordinary depth and usual proportions. Lamps ranging from 100 watts to 200 watts may be used. Both of these reflectors have Type N neck for standard 2 1/4-inch shade holders.

Finish: Benjamin green outside, white porcelain enamel inside.

Cat. No.	*Size of Lamp Watts	Diameter Size Inches	Reflector Height Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
15103N	150	8 1/2 x 13 1/2	11	10	16 1/4	\$3.50
15106N	150	12 1/4 x 8 3/4	7 5/8	10	15	3.50

\*100-watt may be used by inserting No. 91 socket extension. 200-watt lamp may be used by inserting No. 4387 shade holder extension.

**Benjamin Gas and Vapor Proof Fixtures**

Ceiling or Outlet Box Type

With Dome Reflector and Enclosing Globe



Cat. No. 6541

Designed for use where atmospheric conditions are severe and where mounting must be on the ceiling.

The reflector is dome type and has an angle of cut-off 17 1/2 degrees. Porcelain enameled steel, green outside, white inside.

The base is either a cast iron or brass outlet box which will be tapped, when specified, for 1/2-inch conduit on 1 to 4 sides or top, as required.

Where certain chemicals are used, such as sulphur, the brass outlet box is recommended.

Guard is of tinned wire, with brass threaded supporting ring.

The enclosing globe used is Cat. No. 6867.

Specify tapping when ordering. Supplied not tapped for conduit entrance unless specified.

**With Guard**

Cat. No.	Size of Lamp Watts	Kind of Box	DIMENS., INCHES		Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
			Reflector Diameter	Globe Height			
6541	150	Iron	14	4 3/8	11	10 95	\$8.60
6542	200	"	16	4 3/8	11	10 100	10.10
6543	150	Brass	14	4 3/8	11	10 95	9.90
6544	200	"	16	4 3/8	11	10 100	13.40

**Without Guard**

Cat. No.	Size of Lamp Watts	Kind of Box	Reflector Diameter	Globe Height	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6546	150	Iron	14	4 3/8	11	10 85	\$7.00
6547	200	"	16	4 3/8	11	10 90	8.50
6548	150	Brass	14	4 3/8	11	10 85	8.30
6549	200	"	16	4 3/8	11	10 90	9.80

\*Height taken as from top of box to bottom of globe.



## Benjamin Gas and Vapor Proof Fixtures

### Without Reflector



Cast iron hood tapped for 1/2-inch stem, two-piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe and aluminum globe holder.

Iron parts are green paint enameled.

No. 1565

Cat. No.	Size of Lamp Watts	Height Inches	Diameter Inches	Standard Package	Weight Pounds	Price Each
1563	25 to 60	8 1/4	3 1/2	10	3	\$3.25
1565	100, 150	9 7/8	5 1/8	10	4	3.90
1568	200	13 7/16	8	5	4 1/2	5.25
1570	300, 500	13 7/16	8	5	4 1/2	6.30

### With Dome Reflector

Cast iron hood tapped for 1/2-inch stem, porcelain enameled steel reflector, two-piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe and aluminum globe holder.

Iron parts are green paint enameled; reflector is porcelain enameled; white inside and green outside.



No. 1545

Cat. No.	Size of Lamp Watts	Diameter Reflector Inches	Standard Package	Weight Pounds	Price Each
1543	60, 100	12	10	4	\$6.25
1544	150	14	10	5	7.00
1545	200	16	5	6 1/4	8.50
1546	300, 500	18	5	7 3/4	10.35

### With Bowl Reflector



No. 1538

Includes cast iron hood tapped for 1/2-inch stem, porcelain enameled steel reflector, two-piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe and aluminum globe holder.

Iron parts are green paint enameled; reflector is porcelain enameled, white inside and green outside.

Cat. No.	Size of Lamp Watts	Diameter Reflector Inches	Standard Package	Weight Pounds	Price Each
1538	150 to 200	10	5	5	\$7.75

### With Flat Cone Reflector

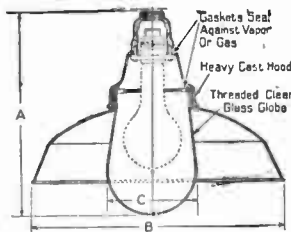
Includes cast iron hood tapped for 1/2-inch stem, porcelain enameled steel reflector, two-piece, easy-to-wire porcelain receptacle with Benjamin Lamp Grip, screw threaded enclosing globe, gaskets and aluminum globe holder. Iron parts are green paint enameled; reflector is white porcelain enameled inside and green outside.



No. 1555

Cat. No.	Size of Lamp Watts	Diameter Reflector Inches	Standard Package	Weight Pounds	Price Each
1553	25 to 100	15	10	4	\$5.50
1555	150	16	10	5 1/4	6.95
1558	200	18	5	6 1/4	9.50

## Benjamin Heavy Duty Gas and Vapor Proof Fixtures



Heavy cast hood, porcelain enameled steel threaded reflector, socket and heavy screw globe of clear glass, together with the necessary gaskets for sealing the fixture. Hood is regularly tapped 1/2 inch but may be ordered 3/4 inch at no advance in price. Hood is threaded to take reflector and neck

of reflector in turn has an inside thread which receives the enclosing globe. Finish: hood, green enameled; reflector, green porcelain enamel outside, white inside.

### With Dome Reflector

For general illumination where it is desired to light both upright and flat surfaces; to avoid reflected glare from the surfaces lighted and to avoid glare by having the angle of light cut-off agree with all state lighting codes. Angle of cut-off, 17 1/2 degrees. Prices do not include wires or lamps.



Cat. No.	Size, Lamp Watts	DIMENS., IN.			Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
		A	B	C			
6500	100	11 1/8	12	5 1/8	10	4 3/4	\$8.00
6501	150	11 1/8	14	5 1/8	10	5 5/8	8.25
6502	200	11 1/8	16	5 1/8	5	6 3/4	9.00
6503	300, 500	14 3/4	18	8 1/8	5	9 1/2	13.00

### With Bowl Reflector

For general illumination where the lighting of horizontal surfaces is of first importance and where a high intensity is required in a relatively small area.



No. 6506

Cat. No.	Size, Lamp Watts	DIMENS., IN.			Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
		A	B	C			
6506	150	11 1/8	9	5 1/8	10	4 7/8	\$7.90
6507	200	11 1/8	10	5 1/8	5	5 1/8	8.80
6508	300, 500	14 3/4	12	8 1/8	5	8 3/4	12.60

### With Symmetrical Angle Reflector

For lighting vertical surfaces, deep recesses, shelving, bays etc., where the light must come from the side. Prices do not include wires or lamps.



No. 6510

Cat. No.	Size, Lamp Watts	DIMENS., IN.			Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
		A	B	C			
6510	150, 200	13 1/2	10	5 1/8	10	7 1/8	\$1.20
6512	300, 500	15 1/4	12	8 1/8	8	2 5/8	2.20

### Replacement Parts

Cat. No.	Description	Diam. In.	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
1062	Globe for 100, 200-Watt Lamps	5 1/8	10	1 1/8	\$1.20
1063	Globe for 300, 500-Watt Lamps	8	10	2 5/8	2.20
6535	Rubber Gasket for No. 1062	4 1/4	10	1 1/8	.20
6537	Rubber Gasket for No. 1063	5 1/2	10	1 1/8	.60

### Cast Iron Cover and Gasket

Used for suspending Benjamin Gas and Vapor Proof Units from standard outlet boxes. Tapped for 1/2-inch pipe; screw holes on 3 1/2-inch centers. Has a gasket to seal the outlet box.



No. 5020

Cat. No.	Description	Std. Pkg.	Net Wt. Lbs., Ea.	Price Each
5020	Flange and Gasket	10	1	\$6.65
5021	Gasket Only	10	1/8	.10

**Benjamin Moisture Proof and Dust Proof Fixtures**

These fixtures are for use in refrigerating plants, engine rooms, plating rooms, mills, etc., where it is desirable to protect the lamp and live electrical parts from the deposit of moisture, dust and dirt.

**Fixtures without Guard**

Weatherproof hood of copper regularly tapped for 1/2-inch stem, easy-to-wire porcelain socket with Benjamin Lamp Grip and screw globe of heavy clear glass.

Gasket between globe and hood makes the fixture tight.

Finish, natural copper.



No. 665

Cat. No.	Lamp Size Watts	DIMENS., IN. Diam.	Ht.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
663	25 to 60	3 1/2	7 3/8	10	11 1/4	\$2.10
665	100	5 1/8	9 1/2	10	17 1/2	2.65

**Fixtures with Guard**



Guarded type fixture No. 657 has strong tinned wire guard, 4 3/4 inches in diameter, which screws on outside of hood and globe. In other respects, this unit is like No. 663 above. Standard package, 10.

Cat. No.	Lamp Size Watts	DIMENS., IN. Diam.	Ht.	Fitter	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
657	25 to 60	3 1/2	7 3/8	3	10	15	\$3.40

**Globes Only for Replacements**

Cat. No.	Lamp Size Watts	DIMENSIONS, INCHES Diam.	Ht.	Fitter	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1059	25, 40	3 3/8	4 1/4	3	10	5	\$ .60
1060	25 to 100	3 1/2	5	4	10	8 3/4	.75
1062	100, 150, 200	5 1/8	6 5/8	4 1/4	10	8 3/4	1.20

**Benjamin Dust-tight Drop Cord Fixtures**



No. 659

No. 659 is a dust tight fixture, especially for drop cord work in mills, elevators, granaries, etc. It affords a high degree of protection by reason of the substantial construction and heavy screw globe which encloses the lamp.

Hood is of copper. Porcelain bushing for drop cord has 3/8-inch cord opening. Ample space is provided for cord knotting. Finish of hood is natural copper.

Cat. No.	Size Lamp Watts	Description	Std. Pkg.	Price Each
659	*25, 40	Copper hood	10	\$1.80

Prices do not include wires or lamps.

**Benjamin Outdoor Fixtures With Gooseneck Support**

Includes steel hood with fitting tapped for 1/2-inch iron pipe stem; 3/4-inch if specified; 1 or 1 1/4-inch at an advance of \$ .20. Ball globe, two-piece porcelain socket with Benjamin Lamp Grip, and 40x3/4-inch gooseneck with No. 5031 pole fitting. Hoods are finished black porcelain enamel; iron parts are galvanized.

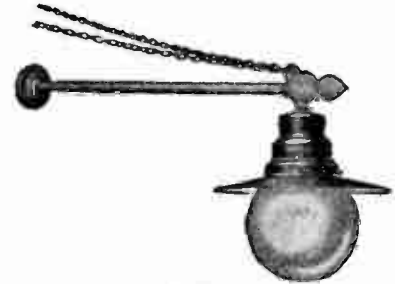


No. 5112

Cat. No.	Lamp Watts	Size of Globe, In.	Std. Pkg.	Price Each
5112	300, 500	10x6	5	\$8.80
6102	750, 1000	12x8	5	11.30

**Benjamin Outdoor Fixtures**

**With Reflector and Mast Arm**



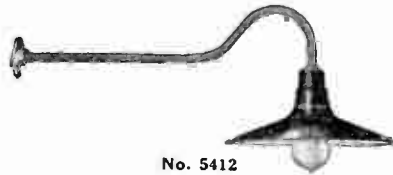
No. 5118

Has steel hood and ball globe as above, easy-to-wire two-piece porcelain socket with Benjamin Lamp Grip, porcelain enameled steel reflector and three-foot mast arm with head, chains and pole fittings. For fixture less mast arm, and fittings deduct \$3.50 list.

Reflector and hood are finished black outside. Iron parts are galvanized.

Cat. No.	Size of Lamp Watts	Steel Hood Kind of Finish	Size Reflector Inches	Std. Pkg.	Price Each
5118	300, 500	Porcelain Enamel	15	5	\$12.65
6120	750, 1000	"	20	5	16.50

**Benjamin Flat Cone Reflectors With Gooseneck Support**



No. 5412

Has extra heavy separable fitting two-piece porcelain socket with Benjamin Lamp Grip, porcelain enameled steel reflector, 1/2x30 in.

gooseneck and wall or pole fitting as specified. Iron parts are galvanized. Reflector is Benjamin green outside; white inside.

Cat. No.	Lamp Watts	Reflector Inches	Standard Package	Price Each
5443	25, 40, 50, 60	14	10	\$4.40
5410	100	14	10	4.60
5412	150	16	10	4.90
5413	200	18	10	5.70

**Benjamin Radial Wave Reflectors**

**With Ornamental Bracket**



No. 1208

One-piece radial wave reflector fixture with ornamental bracket and fitting. For fixtures less bracket, deduct \$4.00.

Iron parts are galvanized. Fixtures are green enamel outside, white inside.

Cat. No.	Size of Lamp Watts	Size Reflector Inches	Std. Pkg.	Price Each
1208	150, 200	18	5	\$10.65
1209 (Mogul)	300, 500	18	5	11.35

## Benjamin Flat Cone Reflectors

### With Cross Arm Suspension

Has Benjamin Flat Cone Reflector socket, metal cross arm with porcelain knobs, separable connection and weatherproof outlet for line wires. For fixture with shock absorber, add 10 cents.

Two-piece socket with Benjamin Lamp Grip.

Iron parts galvanized. Reflector, Benjamin green porcelain enamel outside, white inside.



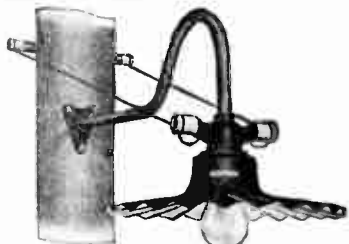
No. 802

Cat. No.	Lamp Watts	Reflector Inches	Standard Package	Price Each
802	25, 40, 50, 60	14	10	\$4.60
801	100	14	10	4.80
803	150	16	10	5.10
804	200	18	10	5.90

## Benjamin Radial Wave Reflectors

### With Cross Arm and Gooseneck

Fixture has one-piece radial wave reflector of porcelain enameled steel, cast iron hood, tapped for 3/4-inch pipe, porcelain socket with Benjamin Lamp Grip together with gooseneck support and pole fitting. For fixture less gooseneck and fitting, deduct \$1.80.



Cat. No.	Lamp Watts	Kind of Wiring	Reflector Inches	Standard Package	Price Each
1204	150, 200	Concealed	18	5	\$8.45
1205	300, 500	"	18	5	9.15
1206	150, 200	Open	18	5	9.35
1207	300, 500	"	18	5	10.00

## Benjamin Shallow Bowl Reflectors

### With Stem and Suspension Fitting

Has Benjamin Shallow Bowl Reflector socket, 8-inch stem of 1/2-inch iron pipe and suspension fitting. For shock absorber fitting Cat. No. 6030 add 10 cents to price. Two-piece easy-to-wire socket with Benjamin Lamp Grip. Iron parts are galvanized. Reflector is Benjamin green porcelain enamel outside and white inside.



No. 6073

Cat. No.	Size of Lamp Watts	Size Reflector Inches	Std. Pkg.	Price Each
6070	25, 40, 60	12	10	\$4.45
6071	100	12	10	4.65
6072	150	14	10	4.95
6073	200	16	10	5.75
6074	300, 500	18	10	6.85

Prices do not include wires or lamps.

## Benjamin Radial Wave Reflector Fixtures

### Without Gooseneck or Ornamental Brackets



Fixture has a 1-piece radial wave reflector 18 inches in diameter, of porcelain enameled steel, green outside, white inside; cast iron hood, tapped for 3/4-inch iron pipe, and easy-to-wire porcelain socket with Benjamin lamp grip.

Cat. Nos. 1212 and 1213 are the same as Cat. No. 1206 less the gooseneck and pole fitting.

Cat. Nos. 1214 and 1218 are the same as Cat. No. 1208 less the bracket and wall fitting.

Cat. No.	Lamp Size Watts	Kind of Wiring	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
1212	150, 200	Open	5	31 1/4	\$7.55
1213	300, 500	Open	5	31 5/8	8.20
1214	150, 200	Concealed	5	27 1/2	6.65
1218	300, 500	Concealed	5	28 3/8	7.35

## No. 6180 Benjamin Iron Mast Arms



Furnished with chains. Mast arms furnished up to 10 feet in length.

Cat. No.	Std. Lgth. Inches	Fitting Inches	Size Pipe Inches	Std. Pkg.	Price Each	Price Extra Length per Ft.
6180	36	3/4 x 1/2	3/4	10	\$3.50	\$.80

## Benjamin Iron Brackets



No. 5040

With 3/4 x 1/2-inch fittings.

Cat. No.	Std. Length Inches	Description	Size Pipe Inches	Std. Pkg.	Price Each
5038	40	Less Brace . . . . .	3/4	10	\$2.50
5040	40	Complete . . . . .	3/4	10	4.00
6186	..	Ball Fitting Only	3/4 x 1/2	10	.55

## Benjamin Iron Goosenecks

### With Wall Fitting

Gooseneck, No. 5066 is regularly furnished with wall fitting No. 5026, but may be furnished if specified, with pole fitting No. 5025. Cat. No. 5067 includes wall fitting No. 5027.



No. 5066

Cat. No.	Standard Length Inches	Size Pipe Inches	Std. Pkg.	Price Each
5066	30	1/2	10	\$1.10
5067	40	3/4	10	1.80

### Without Fitting

5036	30	1/2	10	\$ .75
5037	40	3/4	10	1.15

All iron parts are galvanized finish.

## Benjamin Type X and Type XR Fittings

These fittings are made separable for easy wiring. The fitting consists of 2 flanges and 2 washers, 1 for either side of the reflector. By this method of construction, the socket and lamp are supported directly by the fixture stem, and the reflector is supported independently between the upper and lower flanges. This makes a weatherproof and rigid connection.



No. 4653

### For Reflector-Socket Equipment

Cat. No.	Tapped Inches	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
4653	1/2	X Type Fitting . . . . .	10	4 1/4	\$ .45
4652	3/8	X Type Fitting . . . . .	10	4 1/4	.45
4668	3/4	X Type Fitting . . . . .	10	4 1/4	.45

### For Type RR and Glassteel Equipment

4536	1/2	XR Type Fitting . . . . .	10	4 1/2	\$ .45
4537	3/4	XR Type Fitting . . . . .	10	4 1/2	.45



**No. 5045 Benjamin Brass Chain Suspensions**  
 With Canopy, 3/8-Inch Hickey and 1/2-Inch Loop

Finish, brushed brass.

Cat. No.	Length Inches	Canopy Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Extra Chain Price per Ft.
5045	14	5x4	10	....	\$2.30	\$.35

**Benjamin Iron Pipe Stems**



No. 6008



No. 5063



No. 5064

All iron parts are galvanized.

**Without Fittings**

Cat. No.	Length Inches	Pipe Size Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each	Extra Length Price per Ft.
6008	8	1/2	10	....	\$.35	\$.35
6009	12	3/8	10	....	.30	.30
<b>*With No. 6029 Fitting</b>						
*5063	8	1/2	10	12 1/2	\$1.15	\$.35
<b>With No. 6031 Fitting</b>						
5064	8	1/2	10	13 3/4	\$1.30	\$.35

For stem with shock absorber fitting, No. 6030, add 10 cents.

**Benjamin Shock Absorber Cross Arms**



No. 6202

Cat. No.	Description	Size Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6202	With Shock Absorber.....	1/2	10	14	\$1.40
6200	Without Shock Absorber...	1/2	10	13	1.30

**Benjamin Cross Arms**

**With Porcelain Wire Openings**

Cat. No.	Bottom Thread In.	Top Tapped In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6203	3/4	3/4	10	16	\$1.75
6205	1/2	3/4	10	16	1.75



No. 6203

**No. 6029 Benjamin Suspension Fittings**

These fittings are made of galvanized iron.

Cat. No.	Size Tapped Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6029	1/2	10	8	\$.80



**Benjamin Suspension Fittings**

Made of galvanized iron.



No. 6028

Cat. No.	Size Tapped Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6028	1/2 Female	10	3	\$.35
6028-M	1/2 Male	10	3	.40

**Benjamin Galvanized Iron Suspension Fittings**

**With Porcelain Wire Openings**



No. 6031-M

Cat. No.	Size Tapped Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6031	1/2	10	5	\$.95
6031-M	1/2 Male	10	5	1.05

**Benjamin Galvanized Iron Suspension Fittings**

**With Porcelain Wire Openings**

Cat. No.	Size Tapped Inches	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
6049	1/2	10	11 1/2	\$1.15
6049-M	1/2 Male	10	11 1/2	1.20
6049-V	3/4	10	11 1/2	1.20



No. 6049-V

**Benjamin Pole and Wall Fittings**



No. 5025



No. 5026



No. 5027



No. 5031

Cat. No.	Description	Size Tapped, In.	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
*5025	With Wire Openings.....	1/2	10	8	\$.35
5026	" " " ".....	1/2	10	4	.35
5027	Less " " " ".....	3/4	10	13 1/2	.65
5028	" " " ".....	1/2	10	13 1/2	.65
5031	With Insulated Wire Openings	3/4	10	15 1/2	1.15
5032	" " " ".....	1/2	10	15 1/2	1.15

\*With curved back, for pole use only. Iron parts are galvanized.

**Benjamin Wireless Cluster Bodies**

**Series Type**



No. 15 1/2



No. 34 1/2 T

Series Wireless Clusters are used largely on street railway circuits, or wherever it is desired to use 110-volt lamps or other 110-volt devices in series, on higher voltages, either for indoor or outdoor service.

They are regularly furnished with 3/8-inch steel flange No. 3100.

Series connections are standard. Series-multiple and other special connections can be furnished either 3 or 4-wire. Diagram of possible connections will be sent upon application.

Standard finish is brushed brass.

**Type 1 1/2—Diameter of Base, 4 Inches**

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
12 1/2	2 Light	10	13	\$1.60
13 1/2	3 "	10	13	1.85
14 1/2	4 "	10	13	2.10
15 1/2	5 "	10	13	2.35

**Type 3 1/2 T—Diameter of Base, 4 1/2 Inches**

Cat. No.	Description	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price Each
32 1/2 T	2 Light	10	12	\$1.75
33 1/2 T	3 "	10	13	2.00
34 1/2 T	4 "	10	14	2.25
35 1/2 T	5 "	10	14	2.50

Three supporting screw holes are equally spaced on a 3 3/4-inch circle.

## Hubbell Reflectors

Half Reflectors and Parabola Reflectors with Holders at Top, Side or 30° Angle

Schedule C

For brass reflectors in polished nickel or in oxidized copper finish, add 50 per cent to price. All other special finishes, prices upon application.

White interior furnished without extra charge. Aluminum or steel reflectors cannot be furnished in a plated finish.

The reflectors are all fitted with holders for brass shell sockets.

If desired for weatherproof sockets, place the letter P after the catalogue number and add 12 cents to price.

The Nos. 6151 and 6152 Half Reflectors cannot be supplied with P holder.

### Hubbell Flat Tin Reflectors

Schedule C



No. 5431

Green and white finish. These reflectors can be furnished frosted aluminum finish inside, instead of white, at the same price.

Carton, 10. Standard package, 100.

#### For Brass Shell Sockets

Cat. No.	Size Lamp Watts	Reflector Inches	Metal	Wt., Lbs. Std. Pkg.	Price per 100
5431	15-25	8	Tin	35	\$30.70
5432	25-40	10	Tin	45	40.40
5433	40-60	12	Tin	55	47.60

#### For Weatherproof Sockets

Cat. No.	Size Lamp Watts	Reflector Inches	Metal	Wt., Lbs. Std. Pkg.	Price per 100
6751	15-25	8	Tin	35	\$41.60
6752	25-40	10	Tin	45	49.90
6753	40-60	12	Tin	55	57.20

### Hubbell Parabola Reflectors

With Holder at 30° Angle—Size 6½ Inches

Schedule C



Carton, 1. Standard package, 30.

Cat. No.	Size Lamp Watts	Metal	Finish	Wt., Lbs. Std. Pkg.	Price per 100
6550	25-40-60	Steel	Green and Frosted	28	\$66.35
6551	25-40-60	Brass	Brush Brass and Frosted	28	100.40
6552	25-40-60	Alum.	Green and Frosted	24	76.00

### Hubbell Cone Tin Reflectors

Schedule C

Green and white finish. Can be furnished frosted aluminum finish inside, instead of white, at same price.

Carton, 10. Standard package, 100.



No. 5440

#### For Brass Shell Sockets

Cat. No.	Size Lamp Watts	Reflector Inches	Metal	Wt., Lbs. Std. Pkg.	Price per 100
5440	15-25	8	Tin	55	\$32.10
5441	25-40	10	Tin	70	36.80
5442	40-60	12	Tin	80	47.60

#### For Weatherproof Sockets

Cat. No.	Size Lamp Watts	Reflector Inches	Metal	Wt., Lbs. Std. Pkg.	Price per 100
6760	15-25	8	Tin	55	\$45.45
6761	25-40	10	Tin	70	50.80
6762	40-60	12	Tin	80	63.65

## Hubbell Parabola Reflectors

With Holder at Top—Size 6½ Inches

Schedule C



Carton, 1. Standard package, 30.

Cat. No.	Size Lamp Watts	Metal	Finish	Wt., Lbs. Std. Pkg.	Price per 100
6094	25-40-60	Steel	Green and Frosted	28	\$64.50
6548	25-40-60	Brass	Brush Brass and Frosted	28	100.40
6549	25-40-60	Alum.	Green and Frosted	24	75.80

### Hubbell Half Reflectors

Schedule C



Carton, 1. Standard package, 50.

Cat. No.	Size Lamp Watts	Metal	Finish	Wt., Lbs. Std. Pkg.	Price per 100
6151	15	Steel	Green and White	11	\$30.35
6152	15	Brass	Brush Brass and Frosted	11	60.75
5429	25-40-60	Steel	Green and White	14	31.85
5532	25-40-60	Brass	Brush Brass and Frosted	14	71.70
6789	25-40-60	Steel	Lacco Brass and Frosted	14	42.80

### Hubbell Parabola Reflectors

With Holder at Side—Size 6½ Inches

Schedule C



Carton, 1. Standard package, 50.

Cat. No.	Size Lamp Watts	Metal	Finish	Wt., Lbs. Std. Pkg.	Price per 100
5564	25-40-60	Steel	Green and Frosted	40	\$64.00
5571	25-40-60	Brass	Brush Brass and Frosted	40	99.00
5461	25-40-60	Alum.	Green and Frosted	35	76.50
6788	25-40-60	Steel	Lacco Brass and Frosted	40	70.30

### Faries Metal Half Shades



Equipped with one-piece snap-on holder.

Fits any standard threaded or beaded brass shell socket. Will not pull off until released. Swivels easily on the socket, permitting light to be thrown at any angle.

Shades are frosted inside.

Cat. No.	Finish	Size Lamp Watts	Std. Pkg.	Price Each
34	Frosted Steel	15 to 40	24	\$.50
34	Brushed Brass	15 to 40	24	.65
34	Statuary Bronze	15 to 40	24	.70
36A	Frosted Steel	50 to 60	24	.50
36B	Brushed Brass	50 to 60	24	.65
36D	Statuary Bronze	50 to 60	24	.70

**Faries Metal Parabola Shades**

Swivels easily on the socket permitting light to be thrown in any direction. Fitted with one-piece snap-on holder. Fits any standard threaded or beaded brass shell socket.



Frosted finish inside.

**No. 27**

Depth 3 Inches—For 25 to 60-Watt Lamps

Cat. No.	Diam. In.	Finish	Std. Pkg.	Price Each
27A	7	Frosted Steel	24	\$ .65
27C	7	Brush Brass	24	.75
27J	7	Statuary Bronze	24	.80

Depth 3 3/8 Inches—For 50 to 150-Watt Lamps

27E	8	Frosted Steel	24	\$1.00
27H	8	Brush Brass	24	1.25
27I	8	Statuary Bronze	24	1.35

**No. 24**

Depth 3 Inches—For 25 to 50-Watt Lamps

24	5 1/2	Frosted Inside, Green Outside	24	\$ .60
24A	5 1/2	Brush Brass	24	.75
24B	5 1/2	Statuary Bronze	24	.80
24C	5 1/2	Nickel Plate	24	.80

**No. 32**

Depth 3 1/2 Inches—For 25 to 60-Watt Lamps

32A	7	Frosted Steel	24	\$ .75
32C	7	Brush Brass	24	.90
32E	7	Statuary Bronze	24	.95

**No. 26 Faries Metal Cone Shades**



Fitted with one-piece snap-on holder.

Fits any standard threaded or beaded brass shell socket. Will not pull off until released.

Frosted finish inside.

Furnished in steel and aluminum.

Depth 5 1/4 Inches—For 25 to 60-Watt Lamps

Cat. No.	Diam. In.	Finish	Std. Pkg.	Price Each
26A	7	Frosted Steel	24	\$ .65
26	7	Frosted Aluminum	24	.75

Depth 5 7/8 Inches—For 25 to 100-Watt Lamps

26F	8	Frosted Steel	24	\$ .85
26G	8	Frosted Aluminum	24	.95

Depth 6 1/4 Inches—For 60 to 150-Watt Lamps

26I	10	Frosted Steel	12	\$1.10
26J	10	Frosted Aluminum	12	1.20

**Faries Ceiling and Porch Bands**



Nos. 8298 and 8299

Used with ceiling receptacle. Furnished with 2 screw holes and without receptacle.

**No. 8298—For Inside Work—Brass**

Cat. No.	Diameter Inches	Depth Inches	Holder Inches	Finish	Price per 100
8298G	9 1/4	2	6	Brushed Brass	\$115.00
8298H	9 1/4	2	6	Black	115.00
8298I	9 1/4	2	6	Unfinished	95.00

**No. 8299—For Outside Work—Sheet Copper**

8299D	9 1/4	2	6	Polished Copper	\$130.00
8299E	9 1/4	2	6	Black	130.00
8299F	9 1/4	2	6	Unfinished	110.00

**No. 8328 Faries Ceiling Lights For Ball Lamps**



Used with separable sign receptacle.

Diameter, 5 5/8 inches; depth, 3 inches.

Furnished with 2 screw holes and without receptacle.

No.	Finish	8328A	8328B	8328C
		Brushed Brass	White Enamel	Ivory
Price per 100		\$45.00	50.00	50.00

**No. 8117 Faries Ceiling Lights**

Used with separable sign receptacle.

Diameter, 5 5/8 inches; depth, 2 3/4 inches.

With 2 screw holes and without receptacle.



For 2 1/4-Inch Glass

Cat. No.	Finish	Price per 100
8117D	Brushed Brass	\$40.00
8117N	White Enamel	43.00

For 3 1/4-Inch Glass

8117F	Brushed Brass	\$47.50
8117P	White Enamel	50.00

For 4-Inch Glass

8117H	Brushed Brass	\$55.00
8117R	White Enamel	58.00

**No. 8318 Faries Commercial or Kitchen Ceiling Units**



For use with separable sign receptacle.

Diameter, 6 1/2 inches; depth, 4 1/4 inches.

Furnished with 2 knockouts, 2 screw holes and without receptacle.

Cat. No.	Holder Inches	Finish	Price per 100
8318A	4	White Enamel	\$95.00
8318B	4	Unit Bronze	95.00
8318D	6	White Enamel	110.00
8318E	6	Unit Bronze	110.00

**No. 3011 Faries Ceiling Lights**

Used with separable sign receptacles. Diameter, 6 3/4 inches; depth, 3 7/8 inches. Furnished with 2 screw holes and without receptacle. Can be screwed to ceiling or wall.

For 2 1/4-Inch Glass

Cat. No.	Finish	Price per 100
3011J	Brushed Brass	\$65.00
3011U	Unit Bronze	72.50

For 3 1/4-Inch Glass

3011H	Brushed Brass	\$75.00
3011V	Unit Bronze	82.50

For 4-Inch Glass

3011L	Brushed Brass	\$85.00
3011Y	Unit Bronze	95.00

For 6-Inch Glass

3011P	Brushed Brass	\$100.00
3011Z	Unit Bronze	110.00





## Faries Ceiling and Porch Bands



Designed for use with receptacle.

Furnished with 2 screw holes.

Receptacle is not included; if desired, add 35 cents to price.

### No. 635—For Inside Work

Cat. No.	Diam. In.	Depth In.	Holder In.	Finish	Price per 100
635H	6 1/4	2	3 1/4	Brush Brass	\$32.50
635I	6 1/4	2	3 1/4	Black	32.50
635J	6 1/4	2	3 1/4	Unfinished	27.50

### No. 636—For Inside Work

Cat. No.	Diam. In.	Depth In.	Holder In.	Finish	Price per 100
636H	6 1/4	2	4	Brush Brass	\$35.00
636I	6 1/4	2	4	Black	35.00
636J	6 1/4	2	4	Unfinished	30.00

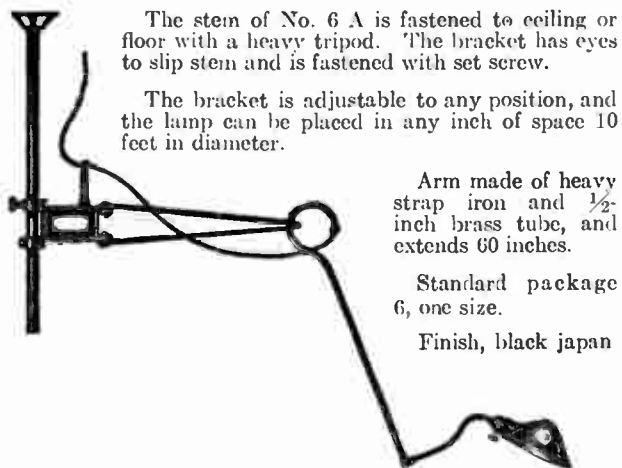
### No. 635—For Outside Work—Sheet Copper

Cat. No.	Diam. In.	Depth In.	Holder In.	Finish	Price per 100
635K	6 1/4	2	3 1/4	Polished Copper	\$38.50
635L	6 1/4	2	3 1/4	Black	38.50
635M	6 1/4	2	3 1/4	Unfinished	32.50

### No. 636—For Outside Work—Sheet Copper

Cat. No.	Diam. In.	Depth In.	Holder In.	Finish	Price per 100
636K	6 1/4	2	4	Polished Copper	\$42.50
636L	6 1/4	2	4	Black	42.50
636M	6 1/4	2	4	Unfinished	36.50

## No. 6A Faries Adjustable Brackets



The stem of No. 6 A is fastened to ceiling or floor with a heavy tripod. The bracket has eyes to slip stem and is fastened with set screw.

The bracket is adjustable to any position, and the lamp can be placed in any inch of space 10 feet in diameter.

Arm made of heavy strap iron and 1/2-inch brass tube, and extends 60 inches.

Standard package 6, one size.

Finish, black japan

Cat. No.	Length Over All Inches	Price Each	Cat. No.	Length Over All Inches	Price Each
6A	48	\$5.60	6C	72	\$6.20
6B	60	5.90	6D	84	6.50

## No. 78 Faries Adjustable Brackets



Adjustable bracket with flexible arm for factory bench work. This bracket is adjustable

to any angle. Base, 4 1/2 inches diameter.

Stem, 3/8-inch iron pipe. Arm, 3/8-inch flexible tube, 18 inches long. Standard package, 6, one size.

Cat. No.	Finish	Length Over All Inches	Std. Pkg.	Price Each
78A	Black Japan	36	6	\$6.00
78B	" "	48	6	6.35

## Tafco Adjustable Lighting Brackets

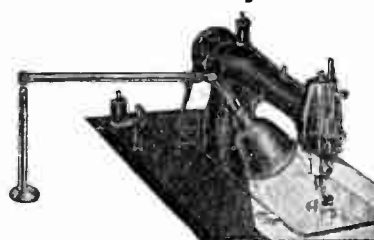


Three sets of universal joints for adjustment. Standard package, 12. Can be assorted if desired.

No.	Description	Length to ——— PRICE, EACH ———			
		Socket Inches	Black Finish	Brush Brass	Nickel-Plated Statuary Bronze
262	Bracket Only	24	\$4.00	\$5.50	\$5.50 \$6.00
263	Bracket Only	36	4.40	6.00	6.00 6.50
264	Bracket Only	48	4.80	6.50	6.50 7.00
For Socket Shade and Wiring, add		1.60	1.80	2.00	2.00
With Clamp Instead of Flange, add		.60	1.00	1.00	1.00

Special sizes to order. Prices in proportion.

## No. 250 Tafco Adjustable Lighting Brackets



Flange base attaches to table. Base nipple extends through table into outlet box below. Two sets universal joints for adjustment. Black finish. Standard pkg., 12. No. 16, steel shade, \$.70. No. 18, porcelain shade, \$1.00. 3/8

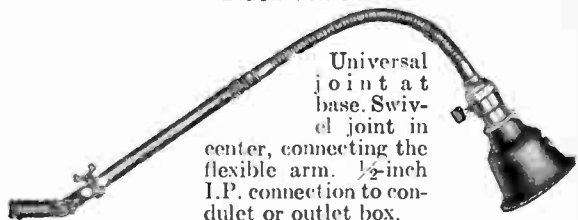
factory type socket, \$.60. Wiring, 16-inch lead out, \$.40.

Furnished in any combination of the following sizes.

Length in.	6	9	12	15	18	21	24
Standard, ea.	\$1.20	\$1.30	\$1.40	\$1.50	\$1.60	\$1.70	\$1.70
Arm, ea.	\$1.20	1.30	1.40	1.50	1.60	1.70	1.80

Base Nipple (furnished when ordered) each \$.20  
No. 250, add prices of standard and arm in sizes ordered.

## No. 244 Tafco Adjustable Lighting Brackets Black Finish



Universal joint at base. Swivel joint in center, connecting the flexible arm. 1/2-inch I.P. connection to conulet or outlet box.

Standard package 12; assorted, if desired.

No. 244E, Bracket Only, Length 18 ins. to Socket, ea.	\$2.70
No. 244G, Bracket Only, Length 21 ins. to Socket, ea.	2.90
No. 244H, Bracket Only, Length 30 ins. to Socket, ea.	3.10
Price, No. 16, Steel Shade, ea.	.70
Price, No. 18, Porcelain Shade, ea.	1.00
Price, 3/8 Factory Type Socket, ea.	.60
Price, Approved Wiring, 16-Inch Lead, ea.	.40

## No. 272 Tafco Adjustable Lighting Brackets



Universal joint at base with swivel joint in center connecting flexible arm for adjustment.

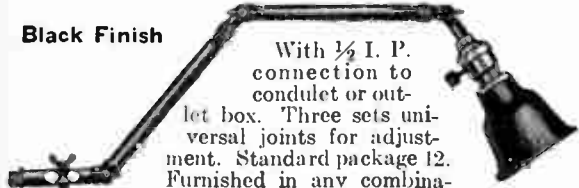
Standard package 12; assorted, if desired.

No.	Description	Lth. to ——— PRICE, EACH ———			
		Socket Inches	Black Finish	Brush Brass	Nickel-Plated Statuary Bronze
272E	Bracket Only	18	\$3.20	\$4.70	\$4.70 \$5.20
272G	Bracket Only	24	3.40	4.90	4.90 5.40
272H	Bracket Only	30	3.60	5.20	5.20 5.70
272K	Bracket Only	36	3.80	5.40	5.40 5.90
Socket, Shade and Wiring, add		1.60	1.80	2.00	2.00
With Clamp Instead of Flange, add		.60	1.00	1.00	1.00

Special sizes to order. Prices in proportion.

**No. 242 Tafco Adjustable Lighting Brackets**

**Black Finish**



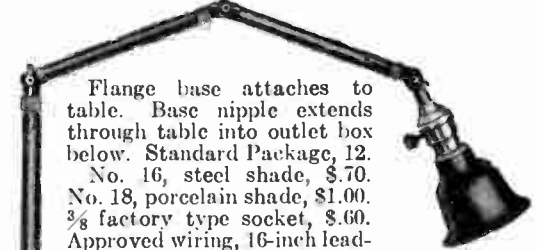
With 1/2 I. P. connection to conduit or outlet box. Three sets universal joints for adjustment. Standard package 12. Furnished in any combination of following sizes.

Length . . . . . in.	6	9	12	15	18	21	24
Center Arm ea.	\$ .90	\$1.00	\$1.10	\$1.20	\$1.30	\$1.40	\$1.50
End Arm . . . . . ea.	1.20	1.30	1.40	1.50	1.60	1.70	1.80

Price, Base End, 3 Inches Long, Used with Any Combination of Arms. . . . . each \$1.10

For the price of No. 242, add the base end and 2 arms in the sizes ordered. No. 16, steel shade, \$.70. No. 18, porcelain shade, \$1.00. 3/8 factory type socket, \$.60. Approved wiring, 16-inch lead, \$.40.

**No. 252 Tafco Adjustable Lighting Brackets**




Flange base attaches to table. Base nipple extends through table into outlet box below. Standard Package, 12. No. 16, steel shade, \$.70. No. 18, porcelain shade, \$1.00. 3/8 factory type socket, \$.60. Approved wiring, 16-inch lead-out, \$.40. In any combination of following sizes.

Length . . . . . in.	6	9	12	15	18	21	24
Standard. ea.	\$1.20	\$1.30	\$1.40	\$1.50	\$1.60	\$1.70	\$1.80
Center Arm. ea.	\$ .90	1.00	1.10	1.20	1.30	1.40	1.50
End Arm. . . . . ea.	1.20	1.30	1.40	1.50	1.60	1.70	1.80

No. 252, add price of standard and 2 arms. Base Nipple (Furnished Only when Ordered) . . . each \$.20

**Adjustable Ceiling Fixtures**  
**Black Enamel**



Universal joint at top allows fixture to be moved easily into any position, where it will remain without use of a thumb screw. By use of the 20-inch telescope tube, it can be lengthened or shortened to suit requirements. Wiring concealed in tube. Made in various lengths as needed.


Sizes specified indicate length when telescope tube is extended, or drawn out.

Standard package, 12; sizes can be assorted.

Price, No. 105, 5-Foot . . . . . each	\$8.00
Price, No. 106, 6-Foot . . . . . each	8.00
Price, No. 107, 7-Foot . . . . . each	8.00
Price, No. 108, 8-Foot . . . . . each	8.50
Price, No. 109, 9-Foot . . . . . each	9.00
Price, No. 110, 10-Foot . . . . . each	9.50

For brush brass, nickel, or statuary bronze finishes, add \$2.50.

**No. 40304 Type RRU Crouse-Hinds Floodlight Projectors**

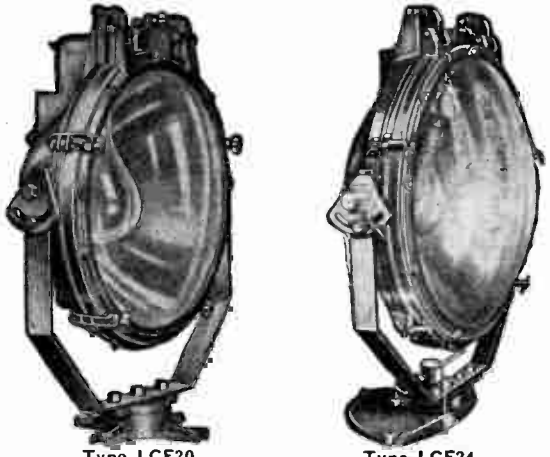


**Medium Range**

Used for lighting roundhouses, turntables, etc., and as a portable unit around railroad shops and yards. Furnished with 11 3/8-inch hammered glass reflector; smooth glass furnished if desired. Cast iron, weatherproof housing; adjustable mounting, with malleable iron base. Composition medium screw base is mounted on a hinged bracket. Door frame is cast iron, hinged at bottom. Lens is clear, convex and heat-resisting.

Height, 20 inches; width, 12 3/4 inches. Takes 200-watt, PS-30 bulb lamp. Galvanized finish. Shipping weight, 50 pounds. Prices upon application.

**Type LCE Crouse-Hinds Floodlight Projectors**  
**Medium and Long Range**



**Type LCE20**  
Simple Trunnion Mounting

**Type LCE24**  
Standard Mounting

The increased efficiency of these projectors allows large areas to be lighted with a smaller number of projectors, with a corresponding decrease in installation cost, lighting load and maintenance costs. When projectors are used for lighting railroad or factory yards, the area immediately beneath the projector between the tower and the place where the main beam strikes is often quite dark. These projectors can be supplied with a large cast-aluminum hood which reflects part of the stray light above the beam to the ground. Hood also prevents dust and soot from falling on the lens.

**HOUSING.**—Cast aluminum alloy; dust-tight; weatherproof. **REFLECTOR.**—Crystal glass with smooth or hammered surface. Type LCE20, 19 1/2-in. diameter; Type LCE24, 24-in.

**MOUNTINGS.**—Steel trunnion on cast iron base. Standard mounting has horizontal and vertical adjustable stops and the floodlight is locked in position by means of hand screws. Simple trunnion mounting has only the vertical adjustable stop and locking adjustments are made by means of a wrench.

**FOCUSING MECHANISM.**—One-way, hand operated by wing nut on outside of case.

**LAMP RECEPTACLE.**—Porcelain Mogul.

**WIRING CONNECTIONS.**—A connection box with cover having threaded hub, and with binding posts for convenient connection is provided on the head of the case. A CGB25 connector or stuffing box is provided for making a watertight connection to the lead wire. This connector has a rubber bushing which will clamp flexible cord from 1/2 to 3/8-inch diameter. CGB240 connector with lead sleeve for connecting to armored cable from 3/8 to 5/8-inch diameter will be supplied without additional charge, if specified on the order.

**DOOR FRAME.**—Cast aluminum alloy, with 2 hinges having loose center section, at top. Door and case are ground to a dust-tight fit.

**DOOR CATCHES.**—Special C clamps.

**LENS.**—Clear, convex, heat-resisting. Spread or diffusing, convex, heat-resisting lens furnished at extra cost.

**LAMPS.**—Type LCE20, 750 or 1000-watt, PS-52 bulb; 1000-watt, G-40 bulb. Type LCE24, 750 to 1500-watt, PS-52 bulbs; 1000 or 1500-watt, G-40 bulbs.

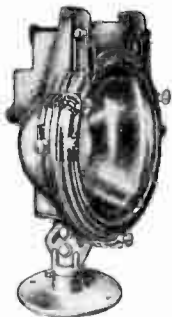
**FINISH.**—Case, natural aluminum; base and trunnion, galvanized.

Cat. No.	Type	Reflector	Watts	Standard Mounting	
				Lamp	Bulb
40353	LCE20	Smooth	750 or 1000		PS-52
40354	LCE20	Smooth	1000		G-40
40355	LCE20	Hammered	750 or 1000		PS-52
40008	LCE24	Smooth	750 to 1500		PS-52
40297	LCE24	Smooth	1000 or 1500		G-40
40356	LCE24	Hammered	750 to 1500		PS-52
Simple Trunnion Mounting					
40463	LCE20	Smooth	750 or 1000		PS-52
40465	LCE20	Smooth	1000		G-40
40464	LCE20	Hammered	750 or 1000		PS-52
40466	LCE24	Smooth	750 to 1500		PS-52
40468	LCE24	Smooth	1000 or 1500		G-40
40467	LCE24	Hammered	750 to 1500		PS-52

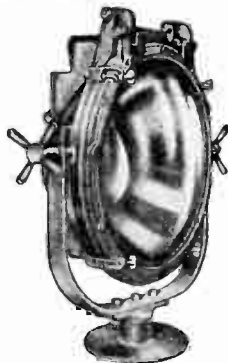
Prices upon application.

## Types LCA and LCE Crouse-Hinds Floodlight Projectors

Medium and Long Range



Type LCA12  
Quadrant Mounting



Type LCE16  
Trunnion Mounting

The standard lighting service lamps should be used wherever possible. When a small area must be lighted from a distance, a narrow beam spread is necessary, and for this purpose these projectors are listed with the lamp receptacle arranged for G bulb concentrated filament floodlighting lamps. Cast iron or cast aluminum alloy hoods for reflecting the stray light above the beam down to the ground can be supplied with these projectors.

**HOUSING.**—Cast iron or cast aluminum alloy; dust-tight.

**REFLECTOR.**—12 and 16-inch crystal glass with hammered surface when used with standard lamp, and smooth surface when used with concentrated filament lamp.

**FOCUSING MECHANISM.**—One-way, hand operated by wing nut on rear of case.

**LAMP RECEPTACLE.**—Porcelain medium screw base for 12-inch; Mogul for 16-inch.

**WIRING CONNECTIONS.**—A connection box with cover having threaded hub, and with binding posts for convenient connection is provided on rear of case. A CGB25 connector or stuffing box is provided for making a watertight connection to the lead wire. This connector has a rubber bushing which will clamp flexible cord from 1/2 to 5/8-inch diameter. CGB210 connector with lead sleeve for connecting to armored cable from 3/4 to 5/8-inch diameter supplied without extra charge.

**DOOR FRAME.**—Cast iron or cast aluminum alloy, with 2 hinges having loose center sections, at top. Door and case ground to a dust-tight fit.

**DOOR CATCHES.**—Special C clamps.

**ADJUSTABLE STOPS.**—Floodlights can be supplied with a special trunnion mounting which is provided with 2 adjustable stops. These floodlights can be tipped completely over or turned around, or both, for convenience in relamping and cleaning, and then returned to the exact original setting. Prices upon application.

**LENS.**—Clear, convex, heat-resisting. Spread or diffusing, convex, heat-resisting lens furnished without extra cost if specified on order.

**LAMPS.**—12-inch projector, 200-watt, PS-30 bulb; 250-watt, G-30 bulb. 16-inch projector, 300 or 500-watt, PS bulb; 500-watt, G-40 bulb.

**FINISH.**—Cast aluminum alloy floodlights—case, natural aluminum; base and trunnion, galvanized. Cast iron floodlights, galvanized.

### Quadrant Mounting

Type	Reflector	Lamps		CAST IRON CASE		CAST ALUMINUM ALLOY CASE	
		Watts	Bulb	Cat. No.	Shp. Wt., Lbs.	Cat. No.	Shp. Wt., Lbs.
LCA12	Hammered	200	PS-30	40392	94	40395	76
LCA12	Smooth	250	G-30	40391	94	40394	76
LCA16	Hammered	300 or 500	PS	40398	128	40401	101
LCA16	Smooth	500	G-40	40397	128	40400	101

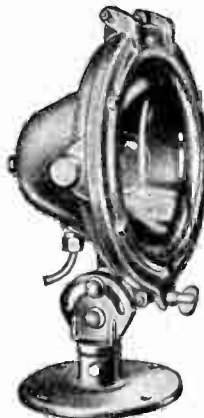
### Trunnion Mounting

LCE12	Hammered	200	PS-30	40383	96	40380	78
LCE12	Smooth	250	G-30	40382	96	40379	78
LCE16	Hammered	300 or 500	PS	40389	130	40386	103
LCE16	Smooth	500	G-40	40388	130	40385	103

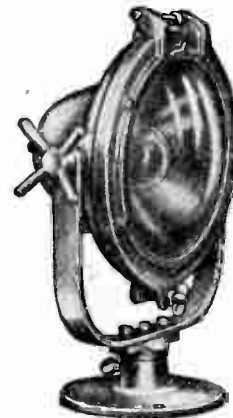
Prices upon application.

## Types LDA and LDE Crouse-Hinds Floodlight Projectors

Long Range



Type LDA10  
Quadrant Mounting



Type LDE10  
Trunnion Mounting

Designed for long range, narrow beam work. Types LDA10 and LDE10 can be supplied with either ground and polished or blown reflector. The blown reflector is not as accurate and gives a wider beam of lower candle power. Where the narrowest beam is not required, it will be found to be satisfactory.

On account of the construction of the incandescent lamps, these projectors must not be tipped down more than 45° below the horizontal.

**HOUSING.**—Cast iron or cast aluminum alloy, dust-tight, and weatherproof.

**REFLECTOR.**—Crystal glass, 9 5/8, 12 or 16-inch.

**FOCUSING MECHANISM.**—One-way, hand operated by a knurled thumb wheel on the back of the case.

**LAMP RECEPTACLE.**—Porcelain, medium screw base for 9 5/8 and 12-inch; Mogul for 16-inch.

**WIRING CONNECTIONS.**—2 feet of weatherproof cable which enters housing through a watertight stuffing box.

**DOOR FRAME.**—Cast iron or cast aluminum alloy, clamped to case with capped wing nuts. A heavy gasket makes a weatherproof joint.

**LENS.**—Clear, convex, heat-resisting. Spread or diffusing convex, heat-resisting lens can be furnished without additional charge, if specified on the order.

**LAMPS.**—94, 100, 150-watt, P-25 for 9 5/8-inch projector; 250-watt, G-30 for 12-inch projector; 500-watt, G-40 for 16-inch projector.

**FINISH.**—Cast aluminum alloy floodlights—case, natural aluminum; base and trunnion, galvanized. Cast iron floodlights, galvanized.

### Quadrant Mounting

Type	*Reflector	DIMENSIONS, INCHES			CAST IRON CASE		CAST ALUMINUM ALLOY CASE	
		Width	Ht.	Depth	Cat. No.	Shp. Wt., Lbs.	Cat. No.	Shp. Wt., Lbs.
LDA10	Molded	13	18 1/2	8 3/8	40375	56	40372	46
LDA10	Blown	13	18 1/2	8 3/8	40376	56	40373	46
LDA12	Molded	15 3/8	20 1/2	13 3/4	40509	75	40510	55
LDA16	Molded	19 3/8	23 1/8	15 1/2	40511	104	40512	68

### Trunnion Mounting

LDE10	Molded	15 3/4	19	8 3/8	40371	57	40370	47
LDE10	Blown	15 3/4	19	8 3/8	40359	57	40345	47
LDE12	Molded	19 3/8	21 1/4	13 3/4	40218	77	40222	58
LDE16	Molded	23 3/4	24 3/4	15 1/2	40210	112	40214	76

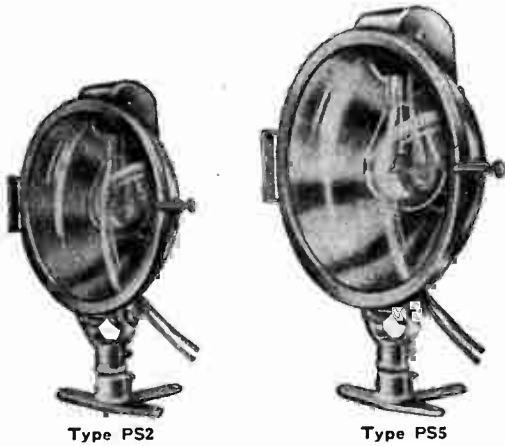
\*Molded reflectors are ground and polished. Blown reflectors are not.

Prices upon application.

**Crouse-Hinds Floodlight Projectors**

Types PS2 and PS5

Medium Range



Type PS2

Type PS5

Types PS2 and PS5 projectors differ only in size. They are used for lighting areas which are located comparatively close to the projector, such as factory yards, building fronts, amusement parks, swimming pools, trapshooting ranges, etc. Reflectors are designed to intercept and direct into the beam the maximum possible amount of light of the lamp. Hammered surface eliminates the filament images and the uneven appearance of the beam which are generally produced by the large filament of a standard lighting service lamp, and leaves a beam which is wider but much more uniform.

**HOUSING.**—Cast aluminum, weatherproof.

**REFLECTOR.**—Crystal glass, hammered surface, 11 $\frac{1}{8}$  inches for PS2 (catalogue number HIL8745) and 13 $\frac{1}{8}$  inches PS5 (catalogue number HIL8747).

**MOUNTING.**—Adjustable, with malleable iron base that can be bent to fit any surface.

**FOCUSING MECHANISM.**—Hand operated from outside of case.

**LAMP RECEPTACLE.**—Medium screw base for PS2 (catalogue number HL7532); composition mogul for PS5 (catalogue number HL 8755).

**WIRE.**—Two leads No. 14 gauge stranded, weatherproof.

**DOOR FRAME.**—Hinged to case (Cat. Nos. PS2 HIL8779; PS5, HIL8778).

**LENS.**—Clear, convex, heat-resisting.

**LAMPS.**—For PS2, 200-watt PS; for PS5, 300 or 500-watt PS.

**FINISH.**—Case, natural aluminum; base, galvanized.

**Type PS2—200-Watt—11 $\frac{1}{8}$ -Inch Reflector**

Cat. No.	DIMENSIONS, INCHES			Ship. Wt., Lbs.
	Width	Depth	Height	
40302	14	8	19 $\frac{1}{4}$	33

**Type PS5—500-Watt—13 $\frac{1}{8}$ -Inch Reflector**

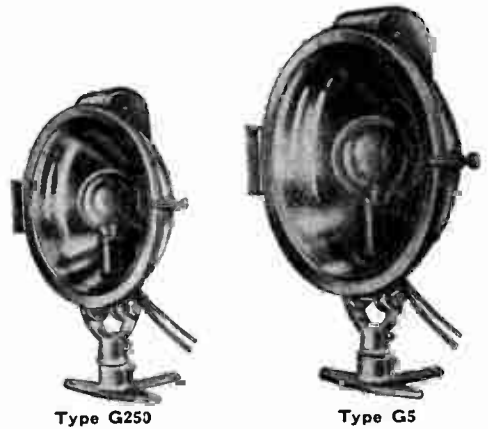
40301	16 $\frac{1}{2}$	8	21 $\frac{3}{4}$	50
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Prices upon application.

**Crouse-Hinds Floodlight Projectors**

Types G250 and G5

Long Range



Type G250

Type G5

Types G250 and G5 floodlight projectors differ only in size. They use concentrated filament lamps and have fairly narrow beams. Useful and efficient for lighting small areas and are used extensively for lighting statues and signs.

**HOUSING.**—Cast aluminum, weatherproof.

**REFLECTOR.**—Crystal glass, 11 $\frac{1}{8}$  inches for G250 (catalogue number HIL8740) and 13 $\frac{1}{8}$  inches for G5 (catalogue number HL8743).

**MOUNTING.**—Adjustable, with malleable iron base that can be bent to fit any surface.

**FOCUSING MECHANISM.**—Hand operated from outside of case.

**LAMP RECEPTACLE.**—Medium screw base for G250 (catalogue number HL 7592) and composition mogul for G5 (catalogue number HL8755).

**WIRE.**—Two leads No. 14 gauge stranded, weatherproof.

**DOOR FRAME.**—Hinged to case (Cat. Nos. G250, HIL8779; G5, HIL8778).

**LENS.**—Clear, convex, heat-resisting.

**LAMPS.**—For G250, 250-watt G30; for G5, 500-watt G40.

**FINISH.**—Case, natural aluminum; base, galvanized.

**Type G250—250-Watt—11 $\frac{1}{8}$ -Inch Reflector**

Cat. No.	DIMENSIONS, INCHES			Ship. Wt., Lbs.
	Width	Depth	Height	
40300	14	8	16 $\frac{1}{2}$	38

**Type G5—500-Watt—13 $\frac{1}{8}$ -Inch Reflector**

40299	16 $\frac{1}{2}$	8	21 $\frac{3}{4}$	50
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Prices upon application.

## Crouse-Hinds Floodlight Projectors

Types SDA10, SDE10, SDA12, SDE12, SDA16 and SDE16—Long Range



Type SDA  
Quadrant  
Mounting

**HOUSING.**—Lead coated Armco iron or Keystone copper steel, weatherproof.

**FOCUSING MECHANISM.**—One-way, operated by thumb wheel on back of case.

**LAMP RECEPTACLE.**—Porcelain medium screw base for 9 $\frac{5}{8}$  and 12-inch (Cat. No. HL6019), mogul for 16-inch (Cat. No. HL7136).



Type SDE  
Trunnion  
Mounting

**WIRE.**—Two 3-foot leads No. 14 gauge stranded, weatherproof.

**DOOR FRAME.**—Lead coated Armco iron or Keystone copper steel, hinged at top.

**LENS.**—Clear, convex, heat-resisting. Spread, convex, heat-resisting lens can be furnished.

**FINISH.**—Baked black enamel.

### Types SDA10, SDE10—94-150-Watt—9 $\frac{5}{8}$ -Inch Reflector

Cat. No.	Type	Reflector	Bulb	Mounting	DIMEN. IN.			Wt. Lbs.
					Width	Dpth.	Ht.	
28685	SDA10	*Molded	P25	Quad.	11 $\frac{1}{4}$	8 $\frac{3}{4}$	18 $\frac{1}{4}$	22
29069	SDE10	*Molded	P25	Trun.	14 $\frac{1}{8}$	8 $\frac{3}{4}$	15 $\frac{5}{8}$	24
40335	SDA10	Blown	P25	Quad.	11 $\frac{1}{4}$	8 $\frac{3}{4}$	18 $\frac{1}{4}$	22
40336	SDE10	Blown	P25	Trun.	14 $\frac{1}{8}$	8 $\frac{3}{4}$	15 $\frac{5}{8}$	24

### Types SDA12, SDE12—250-Watt—12-Inch Reflector

28621	SDA12	*Molded	G30	Quad.	13 $\frac{5}{8}$	9 $\frac{1}{4}$	20 $\frac{3}{4}$	28
28688	SDE12	*Molded	G30	Trun.	17	9 $\frac{1}{4}$	21 $\frac{5}{8}$	30

### Types SDA16, SDE16—500-Watt—16-Inch Reflector

28714	SDA16	*Molded	G40	Quad.	18	12 $\frac{1}{8}$	25	44
28715	SDE16	*Molded	G40	Trun.	21 $\frac{1}{4}$	12 $\frac{1}{8}$	25 $\frac{7}{8}$	46

\*Ground and polished. Prices upon application.

## Crouse-Hinds Wide Angle Floodlights

Types BCA16, BCE16, ECA16 and ECE16

### Short Range

**HOUSING.**—Lead coated Armco iron or Keystone copper steel, weatherproof.

**REFLECTOR.**—16-inch, diffusing aluminized metal (catalogue numbers: for BCA and BCE, HL8540; for ECA and ECE, HL8595).

**MOUNTING.**—BCA and ECA, quadrant; BCE and ECE, trunnion.



Type BCE  
Trunnion  
Mounting



Type ECA  
Quadrant  
Mounting

**FOCUSING MECHANISM.**—For BCA and BCE, 2-way, hand operated from top of housing. For ECA and ECE, none.

**LAMP RECEPTACLE.**—Porcelain mogul (catalogue number HL7136).

**WIRE.**—Two 3-foot leads No. 14 gauge stranded weatherproof.

**DOOR FRAME.**—Armco iron or Keystone copper steel, hinged (catalogue number HL1704).

**LENS.**—Clear, convex, heat-resisting. Diffusing, convex, heat-resisting lens can be furnished.

**LAMPS.**—For BCA and BCE, 300 to 1000-watt PS. For ECA and ECE, 300 to 500-watt PS.

**FINISH.**—Baked black enamel.

Cat. No.	Type	Mounting	DIMEN. IN.			Net Wt., Lbs.
			Width	Depth	Height	
30318	BCA16	Quadrant	18	10 $\frac{7}{8}$	31 $\frac{1}{8}$	48 $\frac{1}{2}$
30319	BCE16	Trunnion	21 $\frac{1}{4}$	13	34 $\frac{1}{8}$	50
30320	ECA16	Quadrant	18	11 $\frac{1}{4}$	25	34
30321	ECE16	Trunnion.	21 $\frac{1}{4}$	11 $\frac{1}{4}$	25 $\frac{7}{8}$	36

Prices upon application.

## Crouse-Hinds Incandescent Searchlights

Types SDX12 and SDX16—Long Range



**HOUSING.**—Lead coated armco iron or Keystone copper steel, weatherproof.

**REFLECTOR.**—Crystal glass (catalogue numbers: 12-inch, HL6325; 16-inch, HL6858).

**MOUNTING.**—Pedestal, cast iron.

**FOCUSING MECHANISM.**—One-way, operated by thumb wheel on back of case.

**LAMP RECEPTACLE.**—Porcelain, medium screw base for 12-inch (catalogue number HL6019), mogul for 16-inch (catalogue number HL7136).

**WIRE.**—2 feet No. 14 gauge stranded, weatherproof wire.

**DOOR FRAME.**—Lead coated Armco iron or Keystone copper steel, hinged at top with one spring catch for 12-inch (Cat. No. HL8770) and 2 spring catches for 16-inch (Cat. No. HL7886).

**LENS.**—Clear, convex, heat-resisting. Spread convex, heat-resisting lens can be furnished.

**LAMPS.**—For 12-inch, 250-watt G-30. For 16-inch, 500-watt G-40.

**CONTROL.**—Lever. Control lever, quadrant and stem are brass.

**FINISH.**—Baked black enamel.

### Type SDX12—250-Watt—12-Inch Reflector

Cat. No.	Description	DIMEN. IN.			Net Wt. Lbs.
		Width	Depth	Height	
23779	With Crvstal Glass Mirror Reflector.....	15	9 $\frac{1}{8}$	44 $\frac{1}{16}$	72

### Type SDX16—500-Watt—16-Inch Reflector

29830	With Crvstal Glass Mirror Reflector.....	20 $\frac{3}{4}$	12 $\frac{1}{2}$	47 $\frac{1}{4}$	88
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Prices upon application.

## No. 40515 Type FDV12 Crouse-Hinds Floodlights

For Fountain Use

Designed especially for lighting fountains. Floodlight can be immersed in water, providing the lens is not covered by more than a few inches of water.

Cast aluminum alloy housing, watertight. Has 12-inch crystal glass reflector and porcelain Mogul lamp receptacle. Focused one way, operated from inside of unit.

The door frame is cast aluminum alloy, held against housing by 6 clamps. Lens is clear, convex and heat-resisting; colored, heat-resisting lens can be furnished.

A  $\frac{1}{2}$ -inch tapped hole is provided in the bottom of the case for connection to flexible drain hose and a watertight stuffing box is provided with rubber bushing to clamp cable from  $\frac{1}{2}$  to  $\frac{5}{8}$ -inch in diameter.

Pedestal mounting, which can be raised for reclamping; quadrant or trunnion mounting can be furnished if desired.

Lamp used is 500-watt, G-40, 115-volt. Projector can be arranged for use with 250-watt, G-30, 115-volt lamp if desired.

Height, 31 inches; height raised for reclamping, 37 inches. Case is natural aluminum finished; base and pedestal, galvanized.

Shipping weight, 65 pounds.

Prices upon application.



**Crouse-Hinds Floodlights**

Types RM10, RM12, RME10, RME12, RMU10 and RMU12—Short and Medium Range



Type RM                      Type RME                      Type RMU with Hood

Types RM and RMU floodlights meet lighting requirements in roundhouses, steel mills, on construction work or wherever stationary, strong, gas and moisture-proof illuminating units are desired. When mounted in roundhouses or other buildings where corroding vapors circulate, they offer full protection against the damage to which exposed lights and wiring systems in such locations are subjected.

Type RM floodlights are designed for fastening to a flat surface and projecting light at right angles to the plane of the surface.

Type RMU floodlights have a universal wall bracket, which allows the beam of light to be directed where desired.

Type RME is a rugged, cast-iron floodlight for portable use. Used where it is desired to transport the light to the job. Used when working under cars and locomotives.

**HOUSING.**—Cast iron. Gas and moisture-proof.

**REFLECTOR.**—White enameled steel (catalogue numbers: 10-inch, HL806; 12-inch, HL5322).

Use white enameled reflector for wide spread beam and short range. Hammered glass reflector concentrates light for projection to a greater distance.

**MOUNTING.**—Type RM fastens to a flat surface by four lugs on back. Type RMU has a universal wall bracket. Type RME is trunnion mounting.

**FOCUSING MECHANISM.**—Lamp receptacle mounted on bracket adjustable with screwdriver.

**LAMP RECEPTACLE.**—Porcelain, medium screw base (catalogue number HL674).

**WIRING CONNECTIONS.**—For RM and RMU, 3/4-inch threaded hubs at top and bottom. A pipe plug is furnished to close the unused hub.

**WIRE.**—For Types RM and RME, two 3-foot leads No. 14 gauge stranded. Weatherproof. For RMU, 30 inches steel armored cable with two CGB238 connectors.

**DOOR FRAME.**—Cast iron, gasketed to exclude gas, moisture and dust from interior. Held in place by three swivel bolts with capped wing nuts. (Catalogue numbers: 10-inch, HL5305; 12-inch, HL5317).

**LENS.**—Clear, convex, heat-resisting. Spread or diffusing convex, heat-resisting lens can be furnished.

**LAMPS.**—For 10-inch floodlight, 60 or 100-watt A bulb. For 12-inch floodlight, 150 or 200-watt PS bulb.

**FINISH.**—Baked black enamel.

Type RM10—60 or 100-Watt—10-Inch Reflector				
Cat. No.	Reflector	DIMENSIONS, INCHES		Wt. Lbs.
		Width	Height	
29788	Porcelain Enameled	14	5 7/8	20
40407	Hammered Glass	14	5 7/8	20
Type RM12—150 or 200-Watt—12-Inch Reflector				
26067	Porcelain Enameled	16 3/8	6 1/16	30
40408	Hammered Glass	16 3/8	6 1/16	30
Type RME10—60 to 100-Watt—10-Inch Reflector				
29803	Porcelain Enameled	14	20 1/4	35
40411	Hammered Glass	14	20 1/4	35
Type RME12—150 or 200-Watt 12-Inch Reflector				
29480	Porcelain Enameled	16 3/4	22 3/4	45
40412	Hammered Glass	16 3/4	22 3/4	45
Type RMU10—60 or 100-Watt—10-Inch Reflector				
29793	Porcelain Enameled	12 5/8	14 13/16	27
40409	Hammered Glass	12 5/8	14 13/16	27
Type RMU12—150 or 200-Watt—12-Inch Reflector				
29657	Porcelain Enameled	15	17 1/4	37 1/2
40410	Hammered Glass	15	17 1/4	37 1/2

Prices upon application.

**Crouse-Hinds Industrial Lighting Units**



Type RAS                      Type RLS

Types RLS and RLU Industrial Lighting Units meet lighting requirements in roundhouses, steel mills or wherever a strong, stationary, gas and moistureproof illuminating unit is desired. When mounted in roundhouses or other buildings where corroding vapors circulate, they offer full protection against the damage to which exposed lights and wiring systems in such locations are subjected.

**HOUSING.**—Type RAS, standard RLM reflectors, enameled on inner and outer surfaces, with rigid cast frame clamped with gaskets to bead of reflector, with sealing compound around top gasket. Type RAS16 has special casting on top which allows 300 or 500-watt lamps to be used. Types RLS and RLU, cast iron or cast aluminum, gas and moistureproof.

**REFLECTOR.**—Porcelain enameled steel. Type RAS, 12, 14 or 16-inch; Types RLS and RLU, 12 or 16 inch.

**MOUNTING.**—Types RAS and RLS, suspension. Type RLU, universal wall bracket.

**LAMP RECEPTACLE.**—Medium screw base for RAS12, RAS14, RLS12 and RLU12 (Cat. No. HL8079); mogul screw base for RAS16; skeleton mogul for RLU16 and RLS16 (Cat. No. HL7012).

**WIRING CONNECTION.**—Type RLS, direct to conduit by 3/4-inch pipe. Type RLU connects to conduit by a flexible, steel armored cable and two CGB238 connectors, making a gas and vaporproof connection.

**DOOR FRAME.**—Cast iron for RAS12; cast aluminum alloy for RAS14 and RAS16. Clamped against a heavy gasket by 3 clamps on RAS12 and RAS14, and 4 clamps on RAS16. Types RLS and RLU, cast iron or cast aluminum, held against an asbestos gasket by 3 swivel bolts and capped wing nuts. Door is hinged on one side (Cat. Nos.: cast iron, 12-inch, HL8070; 16-inch, HL7740; cast aluminum, 12-inch, HL8071; 16-inch, HL7959).

**LENS.**—Clear, convex, heat-resisting. Diffusing, convex, heat-resisting lens can be furnished.

**FINISH.**—RAS12, door and frame, galvanized; RAS14 and RAS16, door and frame, natural aluminum. Types RLS and RLU, cast aluminum, natural aluminum; cast iron, black enamel.

Type RAS12—100-Watt—12-Inch Reflector						
Diameter	Height	Size of Pipe	Lamp Watts	Bulb	Cast	
					Iron Cat. No.	Aluminum Wt. Lbs.
15 1/4	11	1/2	75 or 150	PS or A	29808	15
Type RAS14—200-Watt—14-Inch Reflector						
18 3/4	15 1/2	3/4	200	PS	40402	17
Type RAS16—500-Watt—16-Inch Reflector						
20 1/4	15	3/4	300 or 500	PS	40405	21
Type RLS12—75 to 200-Watt—12-Inch Reflector						
15 3/8	16 1/2	3/4	75 or 100	PS	29769	40
15 3/8	16 1/2	3/4	150	PS25	29768	40
15 3/8	16 1/2	3/4	200	PS30	29767	40
Type RLS16—300 to 500-Watt—16-Inch Reflector						
19 3/8	18 1/4	3/4	300 to 500	PS40	29726	64
Type RLU12—75 to 200-Watt—12-Inch Reflector						
Diameter	Width	Height	Lamp Watts	Bulb	Cast	
					Iron Cat. No.	Aluminum Wt. Lbs.
15 3/8	18 3/4	17 5/8	75 or 100	PS or A	29772	47
15 3/8	18 3/4	17 5/8	150	PS25	29771	47
15 3/8	18 3/4	17 5/8	200	PS30	29770	47
Type RLU16—300 to 500-Watt—16-Inch Reflector						
19 3/8	23	19 3/8	300 to 500	PS40	29729	73
Doors and Frames for Type RAS Units						
Cat. No.	29809	40403	40406			
For Type	RAS12	RAS14	RAS16			
Weight	pounds 13	15	16			

Prices upon application.



## Type DCB24 Crouse-Hinds Airport Revolving Beacons

Constructed in accordance with the latest Department of Commerce requirements. The housing, trunnion arm and base are cast of aluminum alloy.

The beacon revolves approximately 6 times a minute.

This beacon can be furnished either with or without automatic lamp changer and for 1000-watt, 115-volt T-20 lamp or 1000-watt, 32-volt T-20 lamp.

The standard lens is a 1-piece, heat-resisting lens with deflecting prisms which throw about 15 per cent of the light at an angle of 25° above the horizontal.

Catalogue numbers do not include the flashing mechanism for flashing auxiliary course lights. If this mechanism is desired, the order should so state. The standard motor supplied with this beacon is for 115-volt, 60-cycle, a.c. Motor can be furnished to operate on 115 volts for d.c.

Can be furnished with or without zenith lights in barrel. Catalogue numbers do not include zenith lights.

Cat. No.	Lamp Changer	Watt	LAMP Volt	Bulb
40523	Yes	1000	115	T-20
40527	Yes	1000	32	T-20
40524	No	1000	115	T-20
40526	No	1000	32	T-20
40525	No	1500	32	T-24

Prices upon application.



## Crouse-Hinds Airport Boundary, Obstacle and Approach Lights

### Boundary Lights

An airport must be outlined with boundary lights to show the shape and extent of the field to the pilot of an incoming ship. The boundary lights are placed 200 to 250 feet apart and 2 to 3 feet above the surface of the field, unless the field is enclosed by a fence, in which case they should be at least as high as the fence.

Made in 2 sizes, one for 15 to 60-watt A bulb lamps and the other for 60 to 100-watt A bulb lamps or series lamps. The globes are of the clamp type.



60 to 100 Watt Multiple

### Obstacle Lights

All obstructions which come within a range of the 7 to 1 gliding angle to the edge of the field must be marked with obstacle lights. These lights are the same as boundary lights except that a red globe is used in place of a white globe.

50 or 60-watt A bulb lamps should be used.



### Approach Lights

The best approaches to the landing area should be marked with lights with green globes placed in the boundary light circuit. These units are called approach lights, and are similar to the boundary light units except that a green globe is used in place of the white globe. These approach or marker lights indicate to the pilot in the air the best portions of the field upon which to land and it is customary for him to land directly over one set of these lights, depending upon wind direction.

50 or 60-watt A bulb lamps should be used.

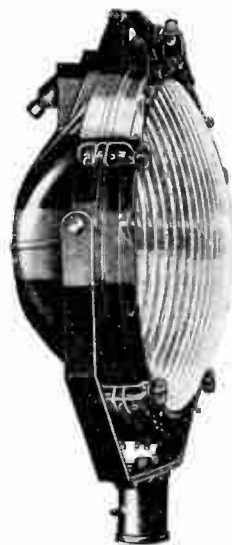


## No. 40469 Type LCE24 Crouse-Hinds Airport Floodlight Projectors

This projector is provided with a set of vanes or louvers, which cuts off all stray light above the horizontal, thus eliminating glare due to direct rays of lamp. Light from the projector is usually thrown across the runway so that the pilot lands his ship parallel to a row of these lights.

The advantage of lighting a field with these units is that the failure of a single lamp does not materially affect the efficiency of the system. Furthermore, the units may be grouped and spaced so that a pilot never has to land into any of the lights. A few such lighting units may be installed on a small field and more added when the volume of air traffic makes it necessary.

The projector is equipped with a socket to fit a 2½-inch pipe and is designed so that it may be tilted a few degrees above or below the horizontal. It is customary to turn the projector slightly downward so that all of the light is thrown on the landing field and none above the horizontal.



Equipped with 40° spread lens to spread the light in a horizontal plane without changing the natural beam spread of the vertical plane. Spread lenses giving 50° spread or 80° spread will be furnished without additional charge if so specified.

LAMP.—1500 watts, 32-volt, T-24 bulb.

Prices upon application.

### Boundary, Obstacle and Approach Lights

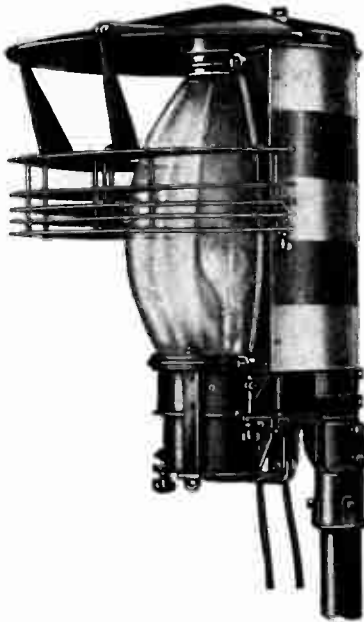
Cat. No.	Globe	Guard	110-VOLT LAMP ACCOMMODATED Watts	Bulb
VAP-3170	Clear	No	15 to 60	A-17 to A-21
VAP-3172	Green	No	15 to 60	A-17 to A-21
VAP-3175	Ruby	No	15 to 60	A-17 to A-21
VAP-3190	Clear	Yes	15 to 60	A-17 to A-21
VAP-3192	Green	Yes	15 to 60	A-17 to A-21
VAP-3195	Ruby	Yes	15 to 60	A-17 to A-21
VAP-3370	Clear	No	100	A-23
VAP-3372	Green	No	100	A-23
VAP-3375	Ruby	No	100	A-23
VAP-3390	Clear	Yes	100	A-23
VAP-3392	Green	Yes	100	A-23
VAP-3395	Ruby	Yes	100	A-23

The units listed are for use on either a multiple distribution system or a series system, using a series multiple transformer at each boundary light. All units will take lamps having medium screw base receptacles. Boundary lights for 600-1000-lumens series lamps in S-24½ bulb with mogul screw base receptacles can be furnished if desired.

Prices upon application.

**No. 40528 Type AKP Crouse-Hinds Airport Floodlight Projectors**

This projector consists of a glass reflector of such design that the vertical spread is limited to a few degrees but it has a horizontal spread of 180°. Designed to take lamps up to and including 1500-watt with either the Mogul screw or the 2-prong base.



Optically the reflector has the same characteristics as a 180° fresnel lens but is much more efficient since the angle of light utilization is much greater. The projector is equipped with a 3-way focusing mechanism and target setter for accurately focusing the lamps.

Provided with a system of vanes or louvers for cutting off the direct rays of the lamp above the horizontal. The casing is made of cast aluminum and is arranged for mounting on top of 2½-inch pipe and it may be tipped a few degrees up or down for levelling on the field.

LAMP.—1500 watts, 32-volt, T-24 bulb.

Prices upon application.

**No. 40513 Type DCE14 Crouse-Hinds Airway Course Lights**



Consists of a 14-inch diameter parabolic reflector mounted in a cast aluminum casing. It has a standard Mogul screw base receptacle which is mounted on a 2-way focusing mechanism and the barrel of the projector is equipped with peep sights for accurately focusing the lamp.

The front lens is a 40° spreadlite lens made of special red glass.

These course lights are mounted on the same tower with the revolving beacon along the airways and flashed intermittently by means of a code wheel attached to the revolving beacon. They give

the pilot his location and direction to the next beacon. The 2-course lights are flashed alternately.

The casings in which they are mounted are not ventilated and are entirely weatherproof and of such a size that they will readily radiate the heat of a 1000-watt lamp, which under some conditions may be required, although ordinarily a 500-watt lamp is used.

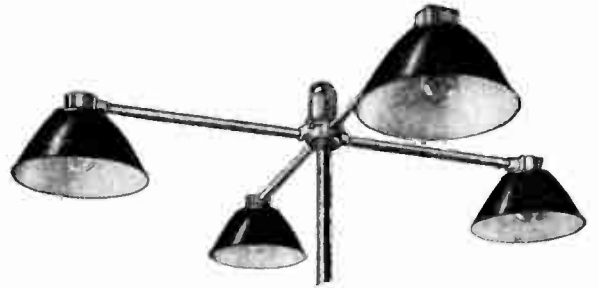
The barrel of the course light is mounted in a trunnion arm so that it may be set at the desired elevation and permanently locked in place.

On the side of the course light, there is a quadrant and pointer for setting it to whatever elevation may be desired.

Bulb T-20 is used.

Prices upon application.

**No. APW-3 Crouse-Hinds Airport Wind Sock Light Fixtures**



The wind sock is a cone of cloth approximately 8 feet long and about 18 inches in diameter at the throat and 6 to 8 inches in diameter at the tail end. This is suspended from a mast so that it revolves freely with the wind. The fixture for lighting the wind sock consists of 4 deep bowl reflectors attached to V condulets arranged in the form of a cross. The arms are 2 feet in length.

Usually 100-watt Mazda lamps in A-23 bulbs are used in each of the reflectors, thus providing adequate illumination for the sock no matter what the direction of the wind.

In the middle of the cross, there is a type VAPX obstacle light with a red globe. This obstacle light is of the small size to take either the 50 or 60-watt Mazda lamp.

The wind sock fixture is designed for attaching to a 1-inch conduit and there is sufficient room in the body of the obstacle light and in the body of the V conduit to splice and pull wires.

The conduit forming the arms of the fixture is ¾-inch.

Prices upon application.

**Crouse-Hinds Airport Ceiling Projectors**



Type DCE14



Type DCE11

For determining the height of the ceiling, 2 projectors are made; one having a 14-inch diameter reflector and a smaller one having an 11-inch diameter reflector. Both of these units are equipped with vanes or louvers to cut off the spill light. Projectors are equipped with 2-way focusing mechanism and peep sights for adjusting the lamp at the focal point of the reflector. They are weatherproof and on the side of each there is a quadrant and pointer for raising the projectors to the desired angle of elevation and computing the ceiling height.

Cat. No.	Type	Kind of Case	LAMP		Bulb
			Watts	Volts	
40777	DCE14	Cast Aluminum Alloy	500	110	T-20
			1000	110	T-20
			900	32	T-20
40776	DCE11	Sheet Metal	500	110	T-20
			1000	110	T-20
40482	"	"	900	32	T-20

Prices upon application.

## Form L-23 Novalux Floodlighting Projectors Submersible Fountain Type



This projector is constructed of non-ferrous material. The door frame, casing and trunnion bracket are of special aluminum alloy. Equipped with a servicing device which consists of a large brass tube that screws into a brass base plate; and a smaller tube, assembled to the trunnion bracket, which slides inside of the larger tube. The smaller tube is slotted and fitted with 3 bayonet joints. These engage a stop screw which is assembled into the larger tube and projects inside it. The projector may be raised or lowered so that it can be lifted above the surface of the water in the fountain in order that the front door may be removed and the device serviced or relamped.

The projector has a 3/4-inch pipe tapped hole midway of the casing for a 3/4-inch pipe nipple through which the lead cable passes. The device is also provided with 2 other 3/4-inch tapped holes to which a drain pipe, which may be a rubber hose or a flexible lead cable, can be attached. A sliding screw focusing mechanism is provided which allows the lamp to be moved along the axis of the reflector either up or down by pulling or pushing the bulb. The 16-inch glass reflector is silver plated and coated with electrolytically deposited copper. Method of mounting, is Fig. 20, swivel and pipe stand, clear front door glass. Lamp rating is G-40 lamp, 500-watt; G-40 lamp, 1000-watt; floodlight; mogul base. Shipping weight, 85 pounds.

Price, Cat. No. 304914.....each \$33.00

Plain red, amber, blue or green front door glass can be supplied on special order at an increase in price.

## Form L-9 Novalux Floodlighting Projectors



No. 289487  
Hinged Base

This projector consists of 16-inch medium angle glass coated on the outside with silver. The silvered surface is hermetically sealed with a thick copper coating which obviates the necessity for an outer casing. Glass is secured to cast iron frame which also



No. 195863, Swivel and Trunnion Base

supports lens door. The door is fastened in a closed position. A sponge-rubber gasket between the lens and door frame renders the unit weatherproof. The cast iron socket is adjustable. Two coats of black japan finish are given to all extra parts. Best results are obtained with the 500-watt floodlighting lamp.

There are 3 methods of mounting projector: Fig. 9, hinged to a flat base; Fig. 10, on trunnion fastened to swivel base, wing nuts furnished for adjusting; Fig. 11, on trunnion fastened to pipe stand which is fastened to cast iron base, wing nuts furnished.

LAMP RATING Lamp	Rating Watts	Fig. No.	Front Door Glass	Cat. No.	Shp. Wt. Lbs.
G-40	500	9	Clear	289487	79
			Heavily Stippled	3019430	
			40 Deg. Spreddite	3019431	
Flood-lighting		10	Clear	195863	86
			Heavily Stippled	2x102	
			40 Deg. Spreddite	3019432	
Mogul Base		11	Clear	195864	92
			Heavily Stippled	2x103	
			40 Deg. Spreddite	3019433	

Plain red, amber, blue or green front door glass can be supplied on special order at an increased price.

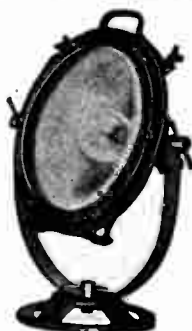
Prices upon application.

## Form L-1 Novalux Floodlighting Projectors



Hinged Base

The Form L-1 projector consists essentially of a 16-inch highly polished aluminum parabolic reflector. This is secured to cast iron frame which also supports the lens door. The door is fastened in a closed



No. 189932, Swivel and Trunnion Base

position. A sponge-rubber gasket between the lens and door frame renders the unit weatherproof. The cast-iron socket is adjustable.

There are 3 methods of mounting projector: Fig. 1, hinged to a flat base; Fig. 2, on trunnion fastened to swivel base, wing nuts furnished for adjusting; Fig. 3, on trunnion fastened to pipe stand which is fastened to cast iron base, wing nuts furnished.

Two coats of black japan finish are given to all extra parts. Best results are obtained with the 500-watt floodlighting lamp.

LAMP RATING Lamp	Rating Watts	Fig. No.	Front Door Glass	Cat. No.	Shp. Wt. Lbs.
G-40	500	1	Clear	3019393	75
			Heavily Stippled	2x390	
			40 Deg. Spreddite	3019118	
Flood-lighting		2	Clear	3019567	82
			Heavily Stippled	2x392	
			40 Deg. Spreddite	3019117	
Mogul Base		3	Clear	3019591	89
			Heavily Stippled	2x391	
			40 Deg. Spreddite	3019425	

Plain red, amber, blue or green front door, glass can be supplied on special order at an increased price.

Prices upon application.

## Form L-20 Novalux Floodlighting Projectors



Cat. No. 257660  
Swivel and Rocker Base

This projector may be operated with a 200-watt, PS-30 general service lamp or 250-watt, G030 floodlighting lamp. A patented 10 1/2-inch parabolic glass reflector, silvered and coppered, is mounted within a sheet-metal casing. A sheet-metal door frame is hinged to the casing and fastened by a hinged bolt and wing nut.

The projector has 1 method of mounting, Fig. 19, rocker fastened to swivel base.

Best results are obtained with the 200-watt service general lamp. If the 200-watt general service lamp is used,

remove the spacer which is placed between the socket and the inside of the socket holder. This change will compensate for the difference in light centers between the two lamps.

Two coats of black japan finish are applied to all external parts.

LAMP RATING Lamp	Rating Watts	Fig. No.	Front-Door Glass	Cat. No.	Shipping Wt., Lbs.
PS-30 General Service	200	19	Clear	257660	70
			Heavily Stippled	2X407	
G-30 Flood-lighting Medium Base	250		40 Deg. Spreddite	304939	

Plain red, amber, blue or green front-door glass can be supplied on special order at an increased price.

# KING ORNAMENTAL STANDARDS

*"The World's Standard of Comparison"*

While ornamental lighting standards are primarily intended to give better lighting at night to streets, parks, and highways, yet another and as important a function is that they beautify both in the daytime and during the hours of darkness.

King designers have long studied street lighting in its relation to every type of location where ornamental standards may be used effectively. Design has been applied to King lighting standards from a practical as well as æsthetic standpoint. There is a purpose for design in lighting standards, and that purpose has been the fount of King creations.

It is important here, that we emphasize the scientific aspect of the design problem as applied to ornamental standards. It is not sufficient that a standard be merely ornamental, it must be a thing of beauty without sacrificing strength or economy of installation and upkeep. Beyond that it must be designed for permanency. It is upon these rocks of experience that so frequently the ordinary foundry wrecks the best of intentions.

There is a series of King designs for each type of location. These designs harmonize with every possible environment. From the extensive range of King designs, any city or town, any association of business men, or any park board contemplating an ornamental lighting system can select the particular design to harmonize with the architectural surroundings.

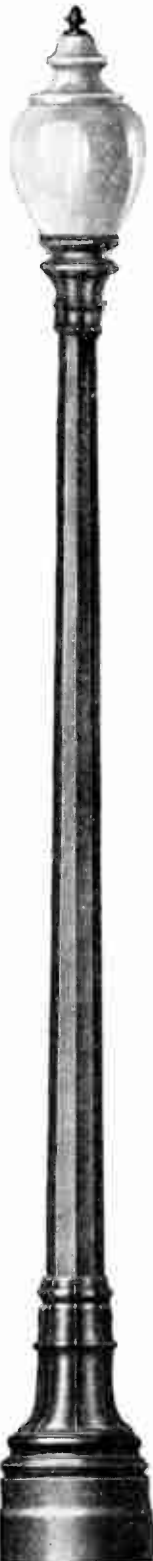
King ornamental lighting equipment is made in every known type; the single unit, 2-light cluster, combination pole and bracket, bracket and traffic and building newels. Whatever type is required, it may be had in the particular design preferred.

## King Ornamental Standards

## King Ornamental Standards

### Flemish Design with Novalux Tops

### Community Design with Novalux Tops



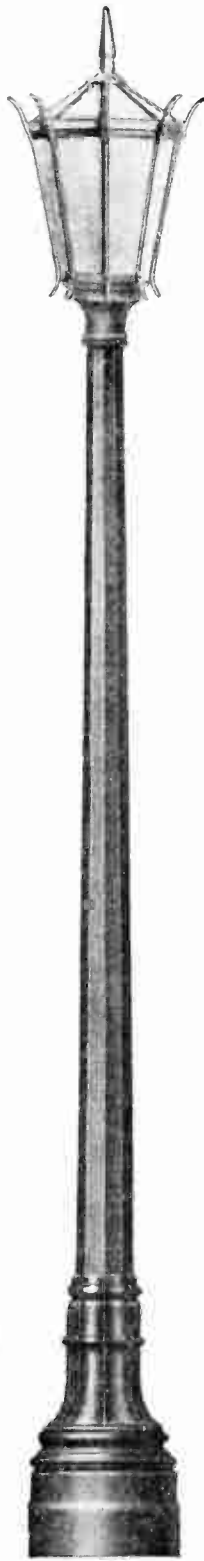
The Flemish design introduces an element of extreme simplicity in combination with an accepted form of decorative style. This style was largely used during the Colonial days for metal objects such as andirons, chandeliers, candlesticks and similar articles and is quite appropriate for the decorative treatment of modern street lighting in American cities.

Graceful lines have been combined with sharpness of detail and smoothness of surface. It has a touch of simple elegance.

The success of the first small standards was so pronounced and the unanimous approval of the critical so emphatic that this design has been made available in 2 sizes, thereby enabling one to select a size which would harmonize with the buildings and a height which would give proper distribution of light on the streets.

Factory finish; 2 coats of black mineral paint.

No. 45B



No. 45E



No. 16A



No. 16B

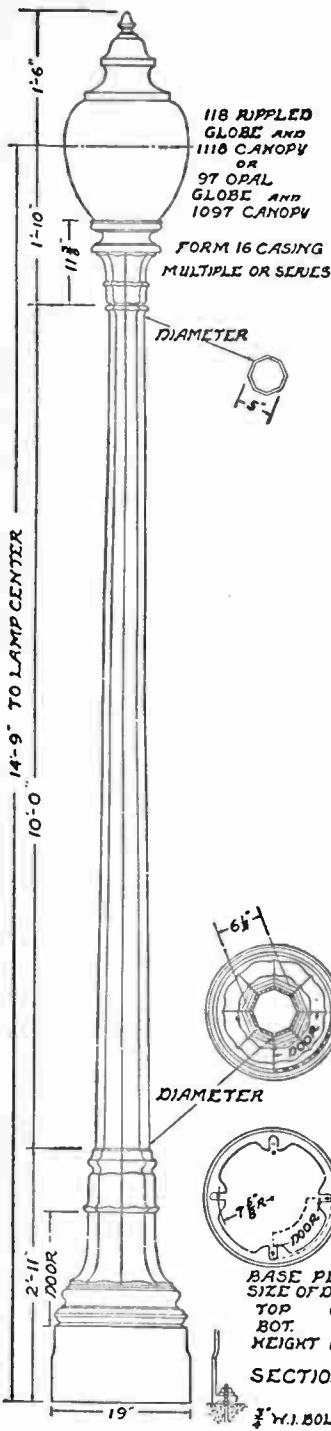
This King Community design was created for those who prefer a relatively plain standard, emphasizing graceful lines and well proportioned plain surfaces, instead of fluted columns and ornamental bases.

This design has a large octagonal base which sweeps gracefully into a well proportioned tapered octagonal column. Surmounting the column is an attractive modelled member which blends the column into a suitable round support for the glassware.

Taken as a whole, the base, column, holder, glassware and top ornament, produce an artistic and pleasing effect which would be impossible had the design not been most carefully worked out in every detail.

Factory finish; 2 coats of black mineral paint.

King Ornamental Standards  
Flemish Design



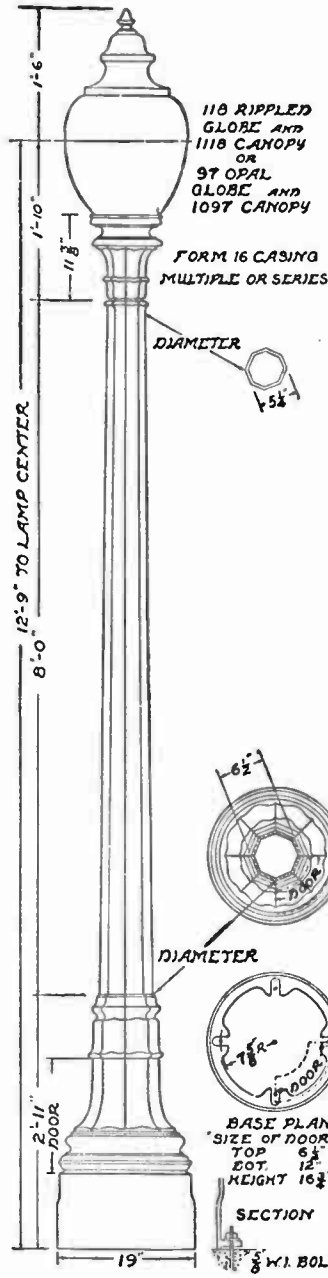
**DESIGN-45b** WT. COMPLETE #510

**King Flemish No. 45**

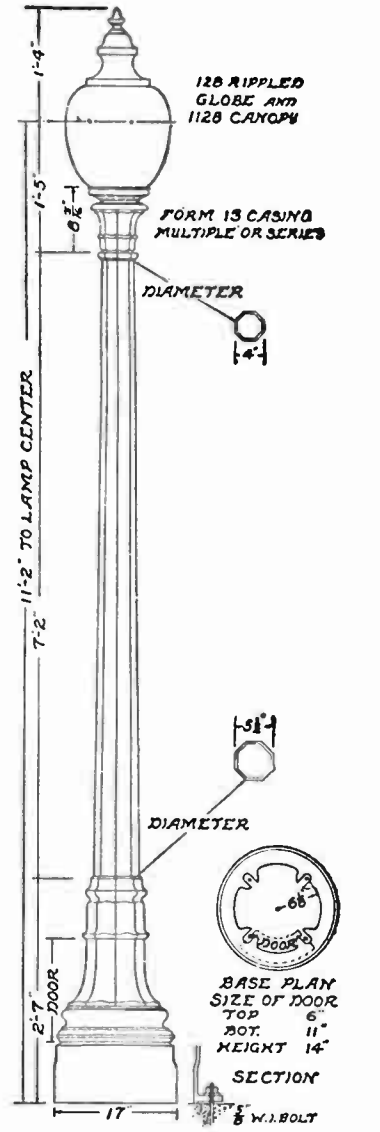
This standard is especially recommended for installation on wide streets with high buildings and along parkways and boulevards where the posts will be spaced a considerable distance apart. The lamp center height is correct to give an even distribution of light when the larger size lamps are used.

**King Flemish No. 59**

This is the ideal size standard for the average city which does not have unusually wide streets or extremely high buildings. It is of such proportions as to present an artistic effect, which can be obtained only when each member harmonizes



**DESIGN-59b** WT. COMPLETE #470



**DESIGN-44b** WT. COMPLETE #350

**King Flemish No. 44**

The distinctiveness and beauty of the Flemish design is carried out in every respect in this standard. It is especially suitable for installation in smaller cities and towns where wide streets and high buildings do not predominate. It, however, has sufficient size to be in keeping with its general surroundings and is of ample height to properly and efficiently illuminate average streets and building fronts.

Design No. 44 can also be furnished as designated below: Design No. 106-B, 12-foot light center, weight, 285 pounds; Design No. 107-B, 13-foot light center, weight, 300 pounds.

and blends with the other and with the surroundings on the thoroughfare.



## King Ornamental Standards

## French Design with Novalux Tops

This French design was evolved with the express purpose of producing an ornamental standard possessing those characteristics which will appeal to persons whose artistic taste is not confined to the conventional classic post with a fluted column surmounted by the usual foliated capitol and plain ball globe. The glass canopy, ornamental globe band, urn shape globe, ornate holder, panelled column and well proportioned base, all bear a characteristic relation to each other and produce a complete unit harmonizing in every respect.

When illuminated, the silhouette of this French design is particularly graceful and attractive. All dark spots and objectionable shadows are entirely eliminated and from an artistic standpoint the existing beauty of the thoroughfare is greatly enhanced.

For blending into the changing background of a street and harmonizing with all types of architecture, for lending dignity and beauty to boulevards and elegance to parkways, this French design is recommended.

Factory finish; 2 coats black mineral paint.

## King French No. 62

This design is offered to those cities planning a beautiful and intensive system of whiteway illumination. When large capacity illuminants are installed, it was found necessary to provide larger glassware than is ordinarily used, so that all the light produced may be utilized.

It is also necessary to increase the mounting height of the glassware so as to give the desired intensity and lighting effect with good distribution. Increasing the size and height of the glassware means an increase in the dimension of the supporting standard.

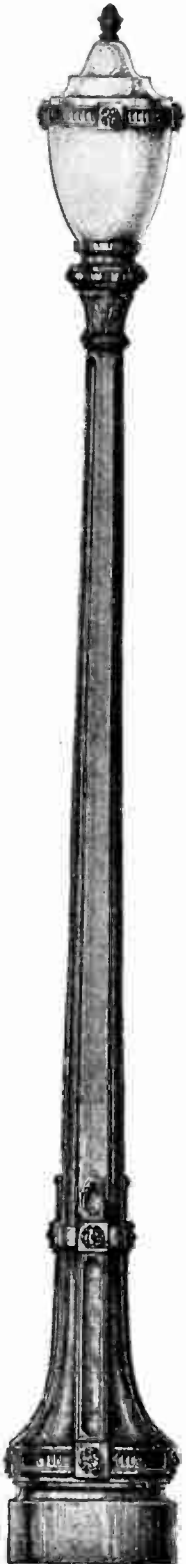
Most careful attention has been given to the increased dimensions of the design in order to insure a symmetrical lighting unit with proportions perfect in every respect.

## King French No. 61

Both from an artistic and engineering standpoint, King French No. 61 will meet every requirement of an ideal lighting standard unless the conditions encountered in planning the system are unusual. Cities with streets and boulevards of average width and towns with buildings of average height are best served by an ornamental lighting standard of this size and design. Many cities throughout the country whose system of street lighting has attracted attention are using this standard because of its artistic value and general adaptability.

## King French No. 63

Under certain conditions a lower lamp center than that of No. 61 will be recommended by illumination engineers, and for this reason this height of standard is offered to those who prefer this beautiful French design. This standard has ample height to properly distribute the light in a most efficient and pleasing manner when lamps of smaller capacity are used on streets where the buildings are of average height.



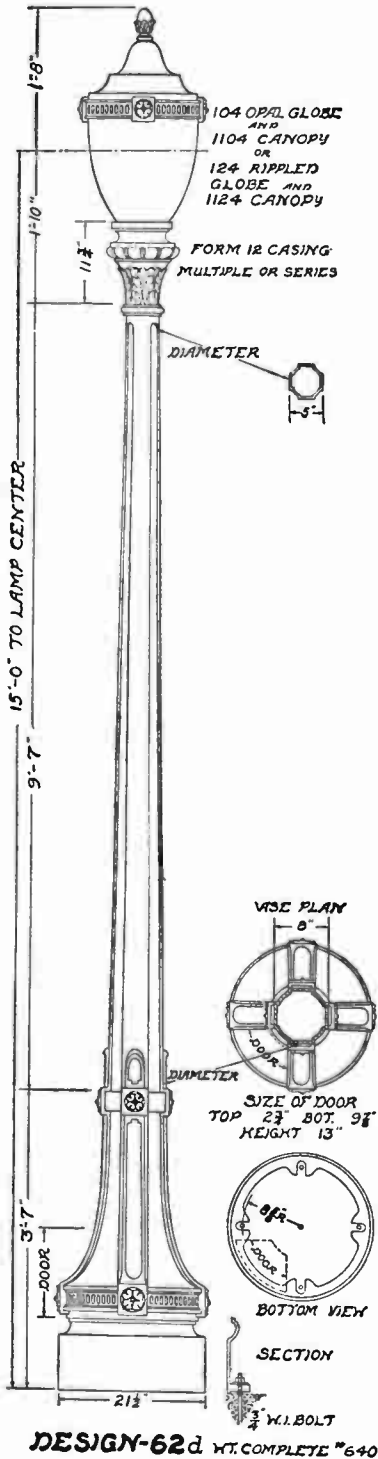
No. 62D



No. 62E

King Ornamental Standards

French Design

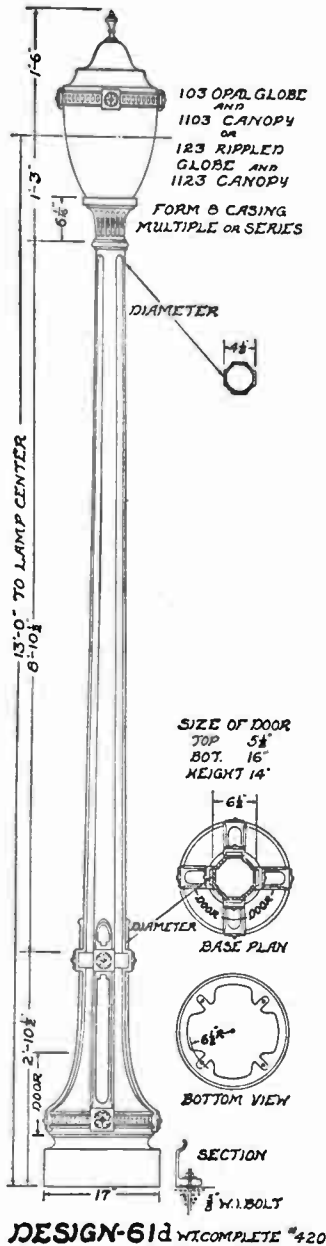


King French No. 62

This design is offered to those cities planning a beautiful and intensive system of whiteway illumination. When large capacity illuminants are installed, it was found necessary to provide larger glassware than is ordinarily used, so that all the light produced may be utilized.

It is also necessary to increase the mounting height of the glassware so as to give the desired intensity and lighting effect with good distribution. Increasing the size and height of the glassware means an increase in the dimension of the supporting standard.

Factory finish; 2 coats black mineral paint.

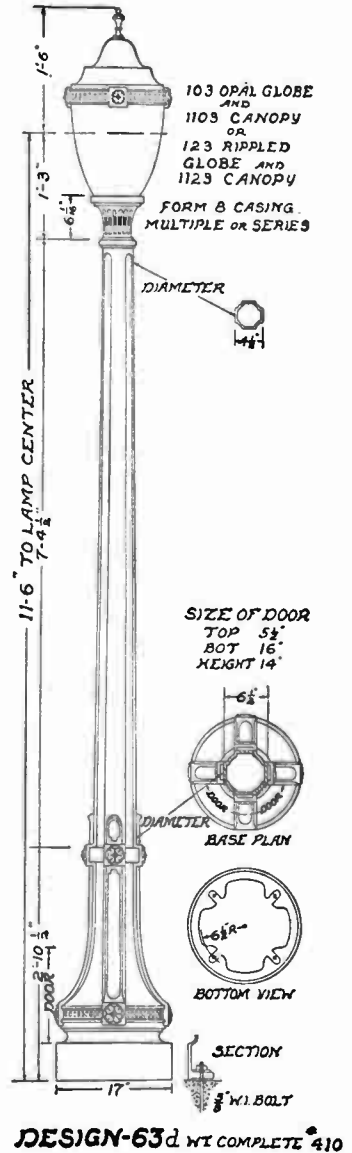


King French No. 61

Both from an artistic and engineering standpoint, King French No. 61 will meet every requirement of an ideal lighting standard unless the conditions encountered in planning the system are unusual.

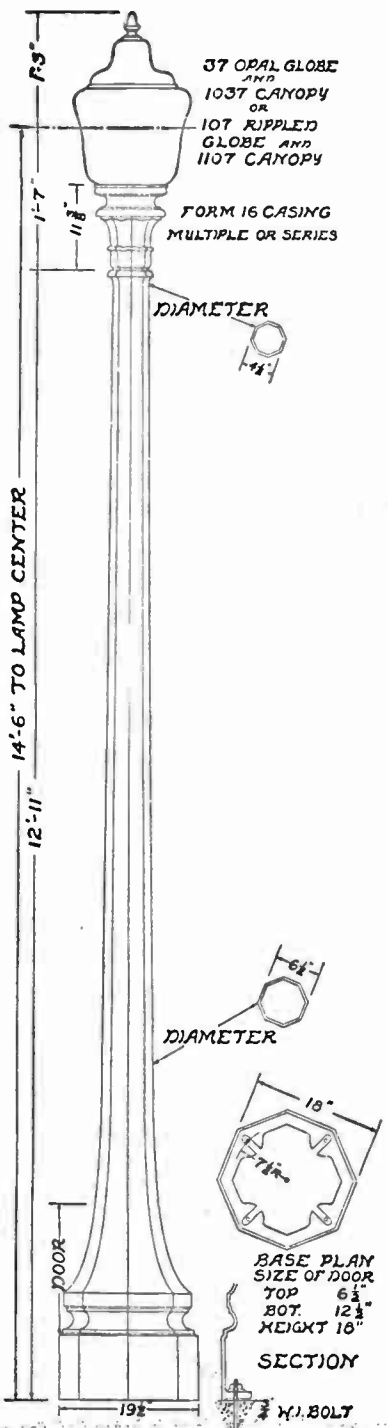
King French No. 63

Under certain conditions a lower lamp center than that of No. 61 will be recommended by illumination engineers and for this reason this height of standard is offered to those who prefer this beautiful French design. This standard has ample height to properly distribute the light in a most efficient and pleasing manner when lamps of smaller capacity are used on streets where the buildings are of average height.



## King Ornamental Standards

### Community Design



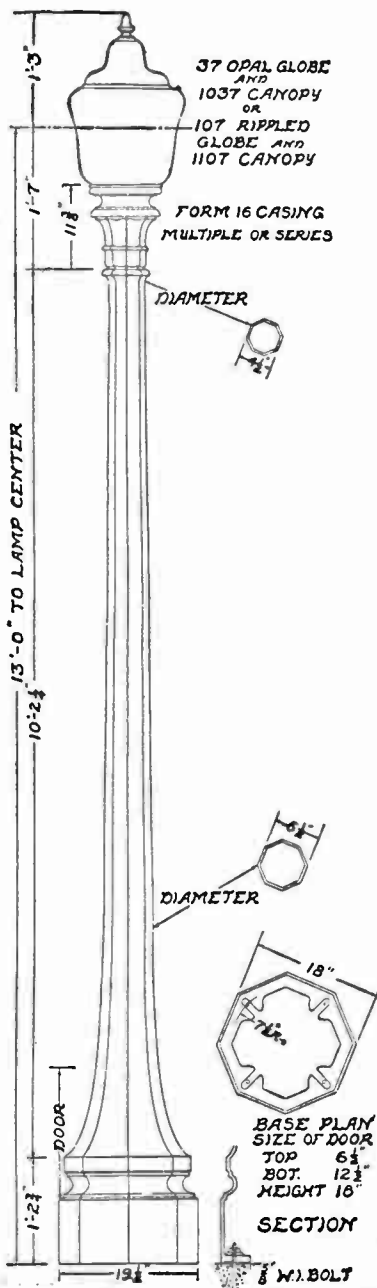
**DESIGN-17a** WT. COMPLETE #483

#### King Community No. 17

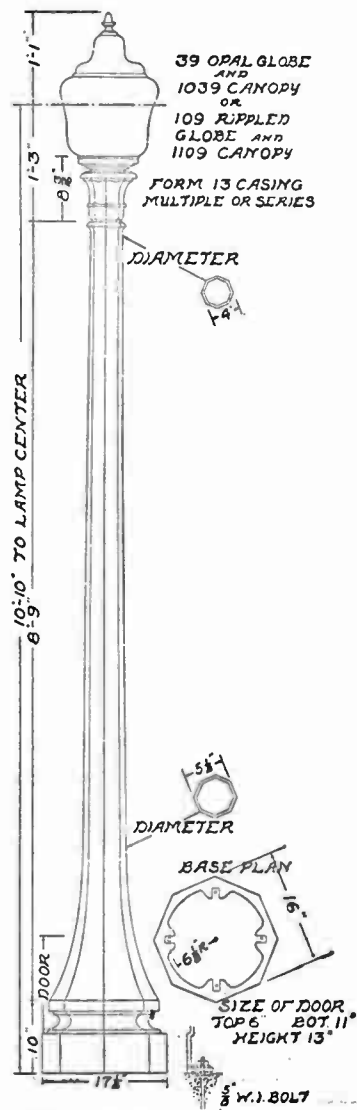
This standard has ample dimensions for installation in front of large buildings and sufficient height to the lamp center for large capacity lamps. It is a massive, gracefully, well proportioned standard and will add dignity and attractiveness to a thoroughfare.

#### King Community No. 16

This standard is suitable for white way lighting in the smaller cities and villages, and for residence sections of large cities. It makes an attractive installation because it is



**DESIGN-16a** WT. COMPLETE #430



**DESIGN-53a** WT. COMPLETE #339

#### King Community No. 53

This size standard is particularly in demand where a beautiful small, plain post is desired. Especially suitable for lighting residence sections or the white way illumination of smaller cities and villages.

Design No. 53-A can also be furnished as designated below: Design No. 77-A, 12-foot light center, weight, 260 pounds; Design No. 79-A, 13-foot light center, weight, 275 pounds.

pleasing in appearance, has ample dimensions and is well proportioned.

**King Ornamental Trolley Pole Brackets****King Bracket No. 1002**

This bracket was designed especially for trolley pole use. It is known to the trade as King's State Street Bracket. The bracket is gracefully built up and out from the side of the steel trolley pole, producing a neat and finished appearance. Enough ornamentation has been used to break up the plain surfaces. The bracket arm has ample dimensions to give massiveness and elegance. The pole plate is 48 inches long; the lamp center is 18 inches from the steel pole and the arm extends 24 inches overall. Can furnish this bracket with wall plate for mounting on building fronts, concrete posts or pillars at a slight additional cost.

This bracket is equipped with Form 12 Novalux Unit; consisting of an ornamental globe holder, 124 alabaster rippled globe, 1124 alabaster rippled canopy with ornate holder band and top ornament; either series film or mogul multiple socket, and all necessary screws for assembling.

**King Bracket No. 1227**

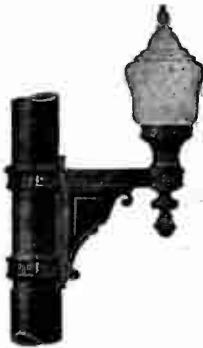
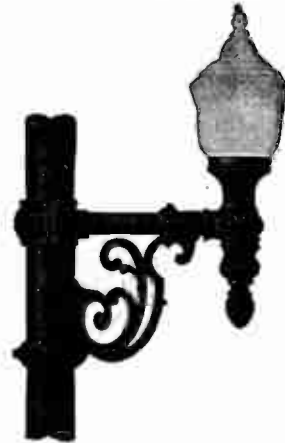
The design of this bracket harmonizes well with the varying styles of building architecture found along the streets. The ornamentation, while not elaborate, gives the bracket a most pleasing appearance and favorable mention has been accorded it's graceful lines and attractive appearance when illuminated at night.

This bracket can be made individual for a city by casting a monogram on it. A panel suitable for such a monogram or emblem is provided on each side of the arm, and on an order of fifty or more, this design with a raised, gold letter monogram cast on both sides without additional charges will be furnished.

This bracket is equipped with a Form 8 Novalux Unit, which consists of a globe holder of ornate design which harmonizes with the bracket arm, 109 alabaster rippled globe, 1109 alabaster rippled canopy with holder and top ornament; either series film or mogul multiple socket, and all necessary bolts and screws for assembling.

**NOTE.**—Brackets painted black, furnished complete with necessary bolts and clamps for installation, lamps and wiring not included. When ordering give exact outside diameter of the trolley pole section at point where pole plate and clamps attach.

A 6-inch (6 $\frac{3}{8}$ -inch outside diameter) tubular pole section is generally standard size.

**King Ornamental Trolley Pole Brackets****King Bracket No. 1231**

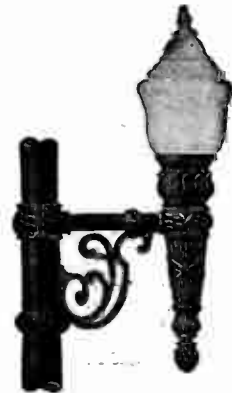
This design will exactly answer all requirements where a scroll type bracket is desired. It makes an excellent looking installation and has been adopted in several cities with entire satisfaction.

All ornamental parts are well defined and the leaf design has been carried throughout the different parts. The bracket clamps to the pole with two sets of ornamental clamp members. The top clamp is threaded to receive a 2 $\frac{1}{2}$ -inch tube arm section and the bottom one serves as a support for the handsome one-piece cast scroll.

On the outer end of the tube section, an appropriate torch effect globe holder is provided for the support of the diffusing glassware. The bracket is waterproof in construction and designed for enclosed wiring.

Equipped with a Form 8 Novalux Unit, 109 alabaster rippled globe, 1109 alabaster rippled canopy, with holder and top ornament; either series film or mogul multiple socket and all necessary bolts and screws for assembling.

Where Bates Expanded trolley poles are being used, attaching clamps can be furnished at a slight additional cost.

**King Bracket No. 1005**

This bracket is similar to No. 1231 but is intended for use where larger size lamps will be adopted, and where a more intense illumination is desired. A Form 9 Novalux Unit, including an ornamental casing for holding the glassware, 107 alabaster rippled globe, 1107 alabaster rippled canopy with holder and top ornament is furnished with this bracket. Either series film or mogul multiple socket and all necessary bolts and screws for assembling.

**NOTE.**—Brackets painted black, furnished complete with necessary bolts and clamps for installation lamps and wiring not included. When ordering, give exact outside diameter of the trolley pole section at point where pole plate and clamps attach. A 6-inch (6 $\frac{3}{8}$ -inch outside diameter) tubular pole section is generally standard size.

## Ornamental Concrete Standards

Standards are made of fine, strong grades of selected granite aggregates with tested cement of the best quality. Four 3/8-inch round deformed reinforcing bars extending the entire length of the standard, accurately spaced between pipe and outer surface of concrete, give great strength.

A 2-inch pipe is cast directly in center entire length of post, resulting in greater strength.

The hard dense mixture is secured by the tremendous vibrations of special joggling and vibrating machine, combining two of the best methods for mechanically tamping concrete.

All standards can be equipped with the latest type of foundation, the malleable iron spider. Due to its many advantages it is rapidly replacing the butt foundation.

The principal features of the spider foundation are: lower freight cost, lower first cost, lower installation charge, lower maintenance charge, over 30000 standards are now in service with this latest development in concrete standards. The 3-point suspension in this spider provides for the setting of one point toward the direction from which the travel on the street is coming. In case of collision, the foundation bolt threads at this point only strip and the standard assumes a leaning position supported by the other 2 points, the one foundation bolt is rethreaded to a smaller size and standard pushed back in place with slight damage, if any.

### Railway Signal Posts

Concrete posts for signal systems, crossing sign posts and other special posts are made according to the requirements of the purchaser. Prices quoted on receipt of blue prints.

### Special Designs and Products

At times special designs are required by committees and engineers. We will quote on special work and assist in designing lighting standards and other pre-cast concrete work.

### Safety Islands

A safety island of strong design made to withstand heavy shocks. On account of the natural light gray color of the post the attention of the motorist is attracted to it both day and night.

**City of Chicago Type**



A small concrete post, for residential districts. Height, 11 feet; to center of light, 12 1/2 feet.

**Chicago City Beautiful Type**



Octagonal or round head furnished. For commercial and residential street lighting. Height, 11 feet.

**Chicago 10-Foot Octagonal Type**



An attractive and popular concrete standard. Height, 10 feet; to center of light, 11 1/2 feet.

**Chicago Type X Octagonal**



In 4 heights: 10-foot, to center of light, 11 1/2 feet; 12-foot, to center of light, 13 1/2 feet; 13-foot, to center of light, 14 1/2 feet; 15-foot, to center of light, 16 1/2 feet.

**Chicago Grant Park Type**



A standard of rare beauty which is enhanced by age. Height, 14 feet 2 1/2 inches; to center of light, 15 feet 7 1/4 inches.

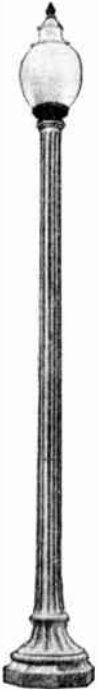
**Chicago Type X 10-Foot Octagonal**



This shows the Chicago Type X 10-foot Octagonal Standard with Form No. 8 G-E Novalux unit and special adapter with No. 37 Genco globe and canopy.

**Ornamental Concrete Standards**

**Chicago Garfield Type**



Used by the South Park System, Chicago, for Garfield Boulevard.  
Height, 13 feet; to center of light, 14½ feet.

**Chicago Grand Type**



Used by the South Park System, Chicago, for Grand Boulevard.  
Height, 14 feet; to center of light, 15½ feet.

**Chicago Type G**



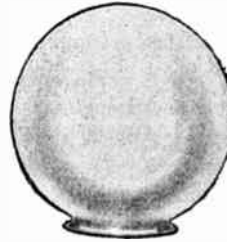
A star shaped post in use extensively by parks and estates where a post a bit out of the ordinary is required.  
Height, 11 feet; to center of light, 12½ feet.

**Chicago Bridge Type**



For bridge and viaduct railings of every description. Adopted by many states as regular equipment.  
Height, 5 feet.

**Ball Globes**



Snow-white is a pure white diffusing glass. It does not show any lamp filament nor bright spot on the globe surface. Inlite is a fine semi-translucent glass and very white for this character of glass.

Inland C.R.I. (crystal roughed inside) is a clear glass sand-blasted inside. Inland ruby and green are solid and true colored.

Std. pkg., large size globes, 1 per carton.

**Large Sizes**

For street lighting or illumination of large areas.

Cat. No.	Size In.	PRICE, PER DOZEN		Cat. No.	Size In.	PRICE, PER DOZEN	
		Ship. Wt. Lbs.	Inlite or Snow-White			Ship. Wt. Lbs.	C.R.I. For Drilling or Snow-White
2432	6x9	5	\$32.40	2464	6 x14	11	\$93.36
2436	4x10	19	38.88	2468	7 x14	11	93.36
2438	5x10	19	38.88	2470	8 x14	11	93.36
2440	6x10	19	38.88	2474	6 x16	12	133.32
2442	7x10	19	38.88	2476	7 x16	12	133.32
2448	5x12	8	61.08	2478	8 x16	12	133.32
2450	6x12	8	61.08	2480	9 x16	12	133.32
2452	7x12	8	61.08	2482	6 x18	14	213.36
2454	8x12	8	61.08	2486	8 x18	14	213.36
2460	8x13	10	80.04	2492	8½x20	16	373.32

**Small Sizes**

For use on porches, exits, garages and filling stations.

Cat. No.	Size Inches	Ship. Wt.		C.R.I.	*Ruby	PRICE, PER DOZEN		For Drilling ¼-Inch Holes
		Std. Pkg.	Snow-White			*Ruby Exit 2 Sides	*Ruby Exit 2 Sides	
2412	3¼x6	27	45	\$7.08	\$27.96	\$48.00	\$50	
2416	3¼x7	18	38	9.84	34.08	60.00	.50	
2420	3¼x8	12	27	18.04	15.00	40.08	70.00	
2422	4 x8	12	27	18.04	15.00	40.08	70.08	

\*Standard package, 12; shipping weight, 20 pounds.

**Holophane Refractors for G-E Novalux Brackets and Center Span Highway Units**



No. 259402 Wide Beam Refractor



No. 260509 Narrow Beam Refractor

To meet the requirements for highway lighting, the Novalux Highway Units with Holophane Refractors have been developed, for use with Mazda series lamps.

The illustrations show the 2 types of Holophane refractors. Each refractor comprises 2 pieces. The inside piece carries horizontal refracting prisms on its outer surface which turn the upward light rays downward and the downward light rays upward, to obtain the correct distribution of light in a vertical plane. The outside piece of the refractor carries vertical refracting prisms on its inside surface redirecting the light laterally or sideways to obtain the correct lateral distribution of light. These 2 pieces of refracting glass are nested and clamped together, enclosing the prisms within a dust-tight chamber. When the refractor is mounted in the fixture, the complete lighting unit is essentially dust-tight and the outer surfaces smooth and nearly vertical.

It is important that the refractor always be oriented properly with reference to the road so that the beams of light will be directed onto the roadway and not out into the fields.

The refractors are plainly marked so that the lineman can set them in the correct position with relation to pole and road service.

Prices upon application.



## Summary of G-E Units and Equipment

The sketches of the units are drawn to scale in order to indicate size. In general the large units for intensive lighting are on the right, while the left-hand column contains the units for less powerful Mazda lamps.

### Form 8



Form 8-39 or 109  
Globe

- Straight Series—1000 to 6000 Lumens.  
Straight Multiple—200 to 500 Watts.  
IL Transformer—4000 to 10,000 Lumens.
1. No. 39 Genco globe with metal or No. 1039 Genco canopy.
  2. No. 109 alabaster rippled globe with metal or No. 1109 alabaster rippled canopy.
  3. No. 109 alabaster rippled globe with metal or No. 1109 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  4. No. 127 alabaster rippled globe with No. 1127 alabaster rippled canopy.
  5. No. 127 alabaster rippled globe with No. 1127 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  6. No. 103 polycase globe with No. 1103 polycase canopy.
  7. No. 123 alabaster rippled globe with No. 1123 alabaster rippled canopy.
  8. No. 123 alabaster rippled globe with No. 1123 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.



Form 8-103 or 123  
Globe



Form 12-118 Globe



Form 13-127 Globe

- Straight Series—2500 to 6000 Lumens.  
Straight Multiple—500 to 1000 Watts.

1. No. 103 polycase globe with No. 1103 polycase canopy.
2. No. 104 polycase globe with No. 1104 polycase canopy.
3. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy.
4. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
5. No. 123 alabaster rippled globe with No. 1123 alabaster rippled canopy.
6. No. 123 alabaster rippled globe with No. 1123 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
7. No. 124 alabaster rippled globe with No. 1124 alabaster rippled canopy.
8. No. 124 alabaster rippled globe with No. 1124 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
9. No. 126 alabaster rippled globe, with No. 1126 alabaster rippled canopy.

### Form 13

- Straight Series—2500 to 6000 Lumens.  
Straight Multiple—300 to 500 Watts.  
IL Transformer—4000 to 10,000 Lumens.
1. No. 92 Genco globe with metal or No. 1092 Genco canopy.
  2. No. 39 Genco globe with metal or No. 1039 Genco canopy.
  3. No. 109 alabaster rippled globe with metal or No. 1109 alabaster rippled canopy.
  4. No. 109 alabaster rippled globe with metal or No. 1109 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  5. No. 127 alabaster rippled globe with No. 1127 alabaster rippled canopy.
  6. No. 127 alabaster rippled globe with No. 1127 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.

### Form 9

- Straight Series—4000 to 6000 Lumens.  
Straight Multiple—500 to 1000 Watts.  
IL Transformer—4000 to 15,000 Lumens.  
Auto-transformer—4000 to 10,000 Lumens.
1. No. 37 Genco globe with metal or No. 1037 Genco canopy.
  2. No. 107 alabaster rippled globe with metal or No. 1107 alabaster rippled canopy.
  3. No. 107 alabaster rippled globe with metal or No. 1107 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  4. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy.
  5. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  6. With No. 153—eight-panel diffusing globe. (1-piece).
  7. With No. 153—eight-panel stippled globe, No. 1118 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.



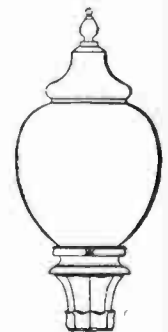
Form 9-37 or 107  
Globe



Form 9-Eight  
Panel Globe



Form 12-104 or  
124 Globe



Form 16-97 Globe

### Form 12

- IL Transformer—4000 to 15,000 Lumens.  
Auto-transformer—4000 to 10,000 Lumens.

### Form 16

- Straight Series—2500 to 6000 Lumens.  
Straight Multiple—300 to 1000 Watts.  
IL Transformer—4000 to 15,000 Lumens.  
Auto-transformer—4000 to 10,000 Lumens.
1. No. 37 Genco globe with metal or No. 1037 Genco canopy.
  2. No. 97 Genco globe with metal or No. 1097 Genco canopy.
  3. No. 107 alabaster rippled globe with metal or No. 1107 alabaster rippled canopy.
  4. No. 107 alabaster rippled globe with metal or No. 1107 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.
  5. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy.
  6. No. 118 alabaster rippled globe with metal or No. 1118 alabaster rippled canopy and dome, A-sym-etric or B-sym-etric dome refractor.

**G-E Form 8 Novalux Ornamental Units**  
 †With Form F and Form K Casings  
 Casing With Green Finish

Equipped with	Straight Series Type For Series Circuits			Straight Multiple Type For Multiple Circuits			†IL Series Trans- former Type For Series Circuits			Ap- prox. Ship. Wt. Lbs.
	Lamp Rating in Lumens	*CAT. No. OF COMPLETE UNIT ‡Form F Casing	§Form K Casing	Lamp Rating in Watts	*CAT. No. OF COMPLETE UNIT ‡Form F Casing	§Form K Casing	Lamp Rating in Lumens	‡Form F Casing	§Form K Casing	
No. 39 Genco Globe and Metal Canopy.....	{ 1000 2500, 4000 or 6000	176023	199575	{ 200 300 or 500	176026	199578	{ 4000, 6000 or 10,000	176025	199577	41
No. 39 Genco Globe and No. 1039 Genco Glass Canopy.....	{ 1000 2500, 4000 or 6000	205913	205914	{ 200 300 or 500	205931	205932	{ 4000, 6000 or 10,000	205925	205926	43
No. 109 Medium Alabaster Rippled Globe and Metal Canopy.....	{ 1000 2500, 4000 or 6000	205915	205916	{ 200 300 or 500	205933	205934	{ 4000, 6000 or 10,000	205927	205928	39
No. 109 Light Alabaster Rippled Globe and Metal Canopy										
With Dome Refractor, Cat. No. 1340223.....	{ 1000 2500, 4000 or 6000	205917	205918	{ 200 300 or 500	205935	205936	{ 4000, 6000 or 10,000	205929	205930	43
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.	{ 2500, 4000 or 6000	205923	205924	{ 300 or 500	280352	280353	{ 4000, 6000 or 10,000	280358	280359	43
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.	{ 2500, 4000 or 6000	4X52	4X53	{ 300 or 500	4X72	4X73	{ 4000, 6000 or 10,000	4X82	4X83	43
No. 109 Medium Alabaster Rippled Globe and No. 1109 Medium Alabaster Rippled Canopy.....	{ 1000 2500, 4000 or 6000	246429	246430	{ 200 300 or 500	246441	246442	{ 4000, 6000 or 10,000	246437	246438	43
No. 109 Light Alabaster Rippled Globe and No. 1109 Light Ala- baster Rippled Canopy.....										
With Dome Refractor, Cat. No. 1340223.....	{ 1000 2500, 4000 or 6000	246431	246432	{ 200 300 or 500	246443	246444	{ 4000, 6000 or 10,000	246439	246440	47
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.	{ 2500, 4000 or 6000	280344	280345	{ 200 or 500	280350	280351	{ 4000, 6000 or 10,000	280356	280357	47
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.	{ 2500, 4000 or 6000	4X50	4X51	{ 300 or 500	4X70	4X71	{ 4000, 6000 or 10,000	4X80	4X81	47
No. 127 Medium Alabaster Rippled Globe and No. 1127 Medium Ala- baster Rippled Canopy.....	{ 2500, 4000 or 6000	290083	290084	{ 200 300 or 500	290131	290132	{ 4000, 6000 or 10,000	290123	290124	52
No. 127 Light Alabaster Rippled Globe and No. 1127 Light Ala- baster Rippled Canopy										
With Dome Refractor, Cat. No. 1340223.....	{ 2500, 4000 or 6000	290071	290072	{ 300 or 500	290093	290094	{ 4000, 6000 or 10,000	290117	290118	55
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.	{ 2500, 5000 or 6000	290073	290074	{ 300 or 500	290095	290096	{ 4000, 6000 or 10,000	290119	290120	55
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.	{ 2500, 4000 or 6000	4X56	4X57	{ 300 or 500	4X78	4X79	{ 4000, 6000 or 10,000	4X88	4X89	55

\*Catalogue numbers do not include Mazda lamp or pole.

†For use with, but not including a Type IL series transformer which should be mounted in the base of the pole or in a manhole.

‡Form F casings (for Union Metal Poles) rest on top of the pole and are bolted in place.

§Form K casings (for King Poles) slip over the shaft of the pole and are fastened by set screws. For Chicago Concrete Post Company standards the Form K casing is used and whenever such unit is specified to them, in an order for standards, they include without additional charge a special adapter.

## G-E Form 9 Novalux Ornamental Units

\*With Form E Casing

Casing with Green Finish

Equipped with	Straight Series Type		Straight Multiple Type		†IL Series Transformer Type		Approx. Ship. Wt. Lbs.
	Lamp Rating in Lumens	†Cat. No. of Complete Unit	Lamp Rating in Watts	†Cat. No. of Complete Unit	Lamp Rating in Lumens	†Cat. No. of Complete Unit	
No. 37 Genco Globe and Metal Canopy.....	4000 or 6000	176031	{500 750 or 1000	176039 176040	{4000, 6000, 10,000 or 15,000	202253	65
No. 37 Genco Globe and No. 1037 Genco Glass Canopy.....	4000 or 6000	205947	{500 750 or 1000	205955 205959	{4000, 6000, 10,000 or 15,000	205951	70
No. 107 Medium Alabaster Rippled Globe and Metal Canopy.....	4000 or 6000	205948	500	205957	{4000, 6000, 10,000 or 15,000	205953	65
No. 107 Light Alabaster Rippled Globe and Metal Canopy.					{4000, 6000, 10,000 or 15,000	205954	72
With Dome Refractor, Cat. No. 1340228.	4000 or 6000	205950	500	205958	{4000, 6000, 10,000 or 15,000	280369	72
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	4000 or 6000	280363	500	280366	{4000, 6000, 10,000 or 15,000	4X234	72
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	4000 or 6000	4X224	500	4X299	{4000, 6000, 10,000 or 15,000		72
No. 107 Medium Alabaster Rippled Globe and No. 1107 Medium Alabaster Rippled Canopy.....	4000 or 6000	246451	{500 750 or 1000	246455 246457	{4000, 6000, 10,000 or 15,000	246453	70
No. 107 Light Alabaster Rippled Globe and No. 1107 Light Alabaster Rippled Canopy.					{4000, 6000, 10,000 or 15,000	246454	76
With Dome Refractor, Cat. No. 1340228.	4000 or 6000	246452	500	246456	{4000, 6000, 10,000 or 15,000	280368	76
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	4000 or 6000	280362	500	280365	{4000, 6000, 10,000 or 15,000	4X233	76
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	4000 or 6000	4X223	500	4X228	{4000, 6000, 10,000 or 15,000		76
No. 118 Medium Alabaster Rippled Globe and Metal Canopy.....	4000 or 6000	270292	{500 750 or 1000	270924 270296	{4000, 6000, 10,000 or 15,000	270298	73
No. 118 Light Alabaster Rippled Globe and Metal Canopy.					{3000, 6000, 10,000 or 15,000	290707	81
With Dome Refractor, Cat. No. 1340228.	4000 or 6000	290703	500	290711	{4000, 6000, 10,000 or 15,000	290708	81
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	4000 or 6000	290704	500	290712	{4000, 6000, 10,000 or 15,000	4X236	81
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	4000 or 6000	4X226	500	4X231	{4000, 6000, 10,000 or 15,000		81
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy.....	4000 or 6000	270293	{500 750 or 1000	270295 270297	{4000, 6000, 10,000 or 15,000	270299	78
No. 118 Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy.					{4000, 6000, 10,000 or 15,000	290709	85
With Dome Refractor, Cat. No. 1340228.	4000 or 6000	290705	500	290713	{4000, 6000, 10,000 or 15,000	290710	85
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	4000 or 6000	290706	500	290714	{4000, 6000, 10,000 or 15,000	4X237	85
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	4000 or 6000	4X227	500	4X232	{4000, 6000, 10,000 or 15,000		85
8-Panel Globe Frame, No. 153 (1 Piece) Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy.....	4000 or 6000	2X558	{500 750 or 1000	2X564 2X567	{4000, 6000, 10,000 or 15,000	2X561	120
8-Panel Globe Frame, No. 153 (1 Piece) Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy.					{4000, 6000, 10,000 or 15,000	2X562	130
With Dome Refractor, Cat. No. 1340228.	4000 or 6000	2X559	500	2X565	{4000, 6000, 10,000 or 15,000	2X563	130
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	4000 or 6000	2X560	500	2X566	{4000, 6000, 10,000 or 15,000	4X475	130
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	4000 or 6000	4X474	500	4X476	{4000, 6000, 10,000 or 15,000		130

\*The Form E casing can be used on Union Metal Co., King Mfg. Co., Electric Railway Equipment Co. and Chicago Concrete Pole Co. poles with top drilling. The Form E casing rests on the top of the pole and is bolted in place. It is of sufficient size to hold an auto-transformer inside of it.

†Catalogue numbers do not include Mazda lamp or pole.

‡For use with, but not including, a Type IL series transformer which should be mounted in the base of the pole or in a manhole.

G-E Form 9 Novalux Ornamental Units

\*With Form E Casing

Casing with Green Finish

†Auto-Transformer Types

Equipped with	4000 Lumens			6000 Lumens			10,000 Lumens			Ap- prox. Shp. Wt. Lbs.
	Lamp Rating in Amp.	†Cat. No. of Unit COMPLETE WITH ‡AUTO-TRANS- FORMER		Lamp Rating in Amp.	†Cat. No. of Unit COMPLETE WITH ‡AUTO-TRANS- FORMER		Lamp Rating in Amp.	†Cat. No. of Unit COMPLETE WITH ‡AUTO-TRANS- FORMER		
		For 6.6- Amp. Circuits	For 7.5- Amp. Circuits		For 6.6- Amp. Circuits	For 7.5- Amp. Circuits		For 6.6- Amp. Circuits	For 7.5- Amp. Circuits	
No. 37 Genco Globe and Metal Canopy.....	15	176029	176030	20	176033	176034	20	176036	176037	85
No. 37 Genco Globe and No. 1037 Genco Glass Canopy.....	15	205961	205962	20	205963	205964	20	205965	205966	90
No. 107 Medium Alabaster Rippled Globe and Metal Canopy.....	15	205973	205974	20	205975	205976	20	205977	205978	85
No. 107 Light Alabaster Rippled Globe and Metal Canopy.....	15	205979	205980	20	205981	205982	20	205983	205984	92
With Dome Refractor, Cat. No. 1340228.....	15	286226	286227	20	286228	286229	20	286230	286231	92
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	15	4X244	4X245	20	4X246	4X247	20	4X248	4X249	92
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	15	246458	246459	20	246460	246461	20	246462	246463	90
No. 107 Medium Alabaster Rippled Globe and No. 1107 Medium Alabaster Rippled Canopy.....	15	246464	246465	20	246466	246467	20	246468	246469	96
No. 107 Light Alabaster Rippled Globe and No. 1107 Light Alabaster Rippled Canopy.....	15	286220	286221	20	286222	286223	20	286224	286225	96
With Dome Refractor, Cat. No. 1340228.....	15	4X238	4X239	20	4X240	4X241	20	4X242	4X243	96
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	15	270300	270301	20	270302	270303	20	270304	270305	93
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	15	290717	290718	20	290719	290720	20	290721	290722	98
No. 118 Medium Alabaster Rippled Globe and Metal Canopy.....	15	290723	290724	20	290725	290726	20	290727	290728	101
With Dome Refractor, Cat. No. 1340228.....	15	4X256	4X257	20	4X258	4X259	20	4X260	4X261	101
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	15	270306	270307	20	270308	270309	20	270310	270311	...
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	15	290729	290730	20	290731	290732	20	290733	290734	105
No. 118 Medium Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy.....	15	290735	290736	20	290737	290738	20	290739	290740	105
With Dome Refractor, Cat. No. 1340228.....	15	4X262	4X263	20	4X264	4X265	20	4X266	4X267	105
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	15	2X581	2X582	20	2X583	2X584	20	2X585	2X586	140
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	15	2X569	2X570	20	2X571	2X572	20	2X573	2X574	150
8-Panel Globe Frame, No. 153 (1 Piece) Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy.....	15	2X575	2X576	20	2X577	2X578	20	2X579	2X580	150
With Dome Refractor, Cat. No. 1340228.....	15	4X477	4X478	20	4X479	4X480	20	4X481	4X482	150
With A-SYM-ETRIC Dome Refractor, Cat. No. 2346021.....	15									
With B-SYM-ETRIC Dome Refractor, Cat. No. 2346129.....	15									

\*The Form E casing can be used on Union Metal Co., King Mfg. Co., Electric Railway Equipment Co. and Chicago Concrete Pole Co. poles with top drilling. The Form E casing rests on the top of the pole and is bolted in place. It is of sufficient size to hold an auto-transformer inside of it.

†Catalogue numbers do not include Mazda lamp or pole.

‡Special auto-transformers can be furnished at an increased price for any a.c. series circuit from 3 to 10 amperes, 25 to 133 cycles.

## G-E Form 12 Novalux Ornamental Units

For Poles and Brackets with 5-Inch Tops

Casing with Green Finish

Equipped with	† Form of Casing	Straight Series Type		Straight Multiple Type		†IL Series Transformer Type		*Cat. No. of Complete Unit	Approx. Ship. Wt. Lbs.
		Lamp Rating in Lumens	*Cat. No. of Complete Unit	Lamp Rating in Watts	*Cat. No. of Complete Unit	Lamp Rating in Lumens	*Cat. No. of Complete Unit		
No. 103 Polycase Globe and Polycase Canopy, No. 1103	O	4,000 or 6,000	221590	500	221610	4,000, 6,000 or 10,000	221600		91
No. 104 Polycase Globe and Polycase Canopy, No. 1104	M	4,000 or 6,000	221591	{500 750 or 1,000	{221611 221618	4,000, 6,000 10,000 or 15,000	221601		98
No. 118 Medium Alabaster Rippled Globe and Metal Canopy	N	2,500, 4,000 or 6,000	258979	{500 750 or 1,000	{258987 258991	4,000, 6,000, 10,000 or 15,000	258983		86
No. 118 Light Alabaster Rippled Globe and Metal Canopy.		2,500, 4,000 or 6,000				4,000, 6,000, 10,000 or 15,000			
With Dome Refractor, Cat. No. 1340228	N	2,500, 4,000 or 6,000	258980	500	258988	10,000 or 15,000	258984		89
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	N	2,500, 4,000 or 6,000	280371	500	280375	10,000 or 15,000	280379		89
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	N	2,500, 4,000 or 6,000	4X270	500	4X274	4,000, 6,000 10,000 or 15,000	4X278		89
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy	N	2,500, 4,000 or 6,000	258981	{500 750 or 1,000	{258989 258992	4,000, 6,000, 10,000 or 15,000	258985		87
No. 118 Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy.		2,500, 4,000 or 6,000				4,000, 6,000, 10,000 or 15,000			
With Dome Refractor, Cat. No. 1340228	N	2,500, 4,000 or 6,000	258982	500	258990	10,000 or 15,000	258986		90
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	N	2,500, 4,000 or 6,000	280372	500	280376	4,000, 6,000 10,000 or 15,000	280380		90
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	N	2,500, 4,000 or 6,000	4X271	500	4X275	4,000, 6,000 10,000 or 15,000	4X279		90
No. 123 Medium Alabaster Rippled Globe and No. 1123 Medium Alabaster Rippled Canopy	O	4,000 or 6,000	257689	500	257697	4,000, 6,000 or 10,000	257693		91
No. 123 Light Alabaster Rippled Globe and No. 1123 Light Alabaster Rippled Canopy.		4,000 or 6,000				4,000, 6,000, 10,000 or 15,000			
With Dome Refractor, Cat. No. 1340228	O	4,000 or 6,000	257690	500	257698	10,000 or 15,000	257694		94
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	O	4,000 or 6,000	280373	500	280377	4,000, 6,000, 10,000 or 15,000	280381		94
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	O	4,000 or 6,000	4X268	500	4X272	4,000, 6,000, 10,000 or 15,000	4X276		94
No. 124 Medium Alabaster Rippled Globe and No. 1124 Medium Alabaster Rippled Canopy	M	4,000 or 6,000	257691	{500 750 or 1,000	{257699 257702	4,000, 6,000, 10,000 or 15,000	257695		98
No. 124 Light Alabaster Rippled Globe and No. 1124 Light Alabaster Rippled Canopy.		4,000 or 6,000				4,000, 6,000, 10,000 or 15,000			
With Dome Refractor, Cat. No. 1340228	M	4,000 or 6,000	257692	500	257700	10,000 or 15,000	257696		101
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	M	4,000 or 6,000	280374	500	280378	4,000, 6,000, 10,000 or 15,000	280382		101
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	M	4,000 or 6,000	4X269	500	4X273	4,000, 6,000, 10,000 or 15,000	4X277		101
No. 126 Medium Alabaster Rippled Globe and No. 1126 Medium Alabaster Rippled Canopy	19			1,500 or 2,000	295307	With series socket	2X 2E2		11

\*Catalogue numbers do not include MAZDA lamp or pole.

†For use with, but not including a Type IL series transformer which should be mounted in the base of the pole or in a man-hole.

‡These casings rest upon the top of the pole and are bolted in place. They can be used on Union Metal Mfg. Co., King Mfg. Co., Electric Rwy. Equipment Co., and Chicago Concrete Posts Co. poles with 5-inch tops. A globe seat or adapter is used between top of casing and bottom of globe. The form letters of the casing are based on the size of the adapter: 7-inch—Form O; 8-inch—Form M; 9-inch—Form N; 10-inch—Form 19.

G-E Form 12 Novalux Ornamental Units

For Poles and Brackets with 5-Inch Tops

Casing with Green Finish

†Auto-Transformer Types

Equipped with	Form	Lamp Rating in Amp.	4000 Lumens		6000 Lumens		10,000 Lumens		Ap- prox. Ship. Wt. Lbs.		
			*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS-FORMER		*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS-FORMER		*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS-FORMER				
			For 6.6- Amp. Circuits	For 7.5- Amp. Circuits	Lamp Rating in Amp.	For 6.6- Amp. Circuits	For 7.5- Amp. Circuits	Lamp Rating in Amp.		For 6.6- Amp. Circuits	For 7.5- Amp. Circuits
No. 104 Polycase Globe and Polycase Canopy No. 1104	M	15	221628	221638	20	221648	221658	20	221668	221678	121
No. 118 Medium Alabaster Rippled Globe and Metal Canopy	N	15	258993	258994	20	258995	258996	20	258997	258998	111
No. 118 Light Alabaster Rippled Globe and Metal Canopy	N	15	258999	259000	20	259001	259002	20	259003	259004	109
With Dome Refractor, Cat. No. 1340228	N	15	286238	286239	20	286240	286241	20	286242	286243	109
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	N	15	4X280	4X281	20	4X282	4X283	20	4X284	4X285	109
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	N	15	259005	259006	20	259007	259008	20	259009	259010	112
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy	N	15	259011	259012	20	259013	259014	20	259015	259016	115
No. 118 Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy	N	15	286244	286245	20	286246	286247	20	286248	286249	115
With Dome Refractor, Cat. No. 1340228	N	15	4X286	4X287	20	4X288	4X289	20	4X290	4X291	115
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	N	15	257703	257704	20	257705	257706	20	257707	257708	121
With B-Sym-Etric Dome Refractor, Cat. No. 2346128	M	15	257709	257710	20	257711	257712	20	257713	257714	124
No. 124 Medium Alabaster Rippled Globe and No. 1124 Medium Alabaster Rippled Canopy	M	15	286250	286251	20	286252	286253	20	286254	286255	124
No. 124 Light Alabaster Rippled Globe and No. 1124 Light Alabaster Rippled Canopy	M	15	4X292	4X293	20	4X294	4X295	20	4X296	4X297	124
With Dome Refractor, Cat. No. 1340228	M	15									
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	M	15									
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	M	15									

\*Catalogue numbers do not include Mazda lamp or pole.

†Special auto-transformers can be furnished at an increased price for any a.c. series circuit from 3 to 10 amperes, 25 to 133 cycles.



†These casings rest upon the top of the pole and are bolted in place. They can be used on Union Metal Mfg. Co., King Mfg. Co., Electric Rwy. Equipment Co., and Chicago Concrete Post Co. poles with 5-inch top. A globe seat or adapter is used between top of casing and bottom of globe. The form letters of the casing are based on the size of the adapter: 7-inch—Form O; 8-inch—Form M; 9-inch—Form N; 10-inch—Form 19.

The Form 12 Ornamental Novalux Unit is the latest idea in decorative street lighting. The first ornamental units were ponderous and inefficient, with massive standards. Poles are now slender and unobtrusive and the globes and units are of more graceful and efficient designs.

The Form 12 Ornamental Novalux Unit is recommended for lighting white ways, main thoroughfares and secondary business streets.

This unit has been designed for use with 4000 and 6000-lumen, 6.6-ampere series; 4000, 6000, 10,000, 15,000 and 25,000-lumen high current lamps or 300 to 2000-watt multiple Mazda C lamps. The high current series lamps, except the 25,000-lumen size, can be operated from self-contained auto-transformers or Type IL transformers.

The Form 12 Unit is listed with several different types of glassware. Their selection depends upon preference and the size of lamp to be used. The 1500 or 2000-watt and 25,000-lumen sizes can only be used with the 126 globe and 1126 canopy.



## G-E Form 13 Novalux Ornamental Units

For Poles and Brackets with 4-Inch Tops

For Use with Forms J, 13, JK or 12K Casings (Green Finish)



The Form 13 Novalux Ornamental Unit has graceful lines and is made for use on octagonal poles with 4-inch tops. This unit is recommended for lighting white ways in the smaller towns and villages or secondary business streets and residential streets of larger cities.

The 2500, 4000, 6000 or 10,000-lumen series and 300 or 500-watt multiple Mazda C lamps can be used in this fixture. The high-current series lamps can be used in this unit only with a Type IL transformer at the base of the standard. The Form 13 casing is not large enough to permit the use of a self-contained auto-transformer.

Several designs of rippled globes and several types of refractors can be used in this unit. Their selection depends on preference and the type of distribution necessary to meet requirements.

NOTE.—The Form J and No. 13 casings (for Union Metal Poles) rest upon the top of the pole and are bolted in place. The Form JK and No. 12K casings (for King Poles) slip over the shaft of the pole and are fastened by set screws.

	Straight Series Type		Straight Multiple Type		†IL Series Transformer Type		Lamp Rating in Lumens	Form J Casing	Form JK Casing	Ap-prox. Ship. Wt. Lbs.
	*Cat. No. OF COMPLETE UNIT		*Cat. No. OF COMPLETE UNIT		*Cat. No. OF COMPLETE UNIT					
Equipped with	Lamp Rating in Lumens	Form J Casing	Form JK Casing	Lamp Rating in Watts	Form J Casing	Form JK Casing	Lamp Rating in Lumens	Form J Casing	Form JK Casing	
No. 92 Genco Globe and Metal Canopy	2,500, 4,000 or 6,000	221679	221681	300 or 500	221687	221689	4,000, 6,000 or 10,000	221683	221685	42
No. 92 Genco Globe and No. 1092 Genco Canopy	2,500, 4,000 or 6,000	221680	221682	300 or 500	221688	221690	4,000, 6,000 or 10,000	221684	221686	46
		No. 13 Casing	No. 12K Casing		No. 13 Casing	No. 12K Casing		No. 13 Casing	No. 12K Casing	
No. 39 Genco Globe and Metal Canopy	2,500, 4,000 or 6,000	269510	269504	300 or 500	269546	269540	4,000, 6,000 or 10,000	269528	269522	42
No. 39 Genco Globe and No. 1039 Genco Canopy	2,500, 4,000 or 6,000	269511	269505	300 or 500	269547	269541	4,000, 6,000 or 10,000	269529	269523	41
No. 109 Medium Alabaster Rippled Globe and Metal Canopy	2,500, 4,000 or 6,000	269506	269500	300 or 500	269542	269536	4,000, 6,000 or 10,000	269524	269518	38
No. 109 Light Alabaster Rippled Globe and Metal Canopy										
With Dome Refractor, Cat. No. 1310228	2,500, 4,000 or 6,000	269508	269502	300 or 500	269544	269538	4,000, 6,000 or 10,000	269526	269520	42
With A-Sym-Etric Dome Refractor, Cat. No. 2316021	2,500, 4,000 or 6,000	280383	280385	300 or 500	280387	280389	4,000, 6,000 or 10,000	280391	280393	42
With B-Sym-Etric Dome Refractor, Cat. No. 2316129	2,500, 4,000 or 6,000	4x158	4x160	300 or 500	4x166	4x168	4,000, 6,000 or 10,000	4x174	4x176	42
No. 109 Medium Alabaster Rippled Globe and No. 1109 Medium Alabaster Rippled Canopy	2,500, 4,000 or 6,000	269507	269501	300 or 500	269543	269537	4,000, 6,000 or 10,000	269525	269519	41
No. 109 Light Alabaster Rippled Globe and No. 1109 Light Alabaster Rippled Canopy										
With Dome Refractor, Cat. No. 1310228	2,500, 4,000 or 6,000	269509	269503	300 or 500	269545	269539	4,000, 6,000 or 10,000	269527	269521	45
With A-Sym-Etric Dome Refractor, Cat. No. 2316021	2,500, 4,000 or 6,000	280384	280386	300 or 500	280388	280390	4,000, 6,000 or 10,000	280392	280394	45
With B-Sym-Etric Dome Refractor, Cat. No. 2316129	2,500, 4,000 or 6,000	4x159	4x161	300 or 500	4x167	4x169	4,000, 6,000 or 10,000	4x175	4x177	45
No. 127 Medium Alabaster Rippled Globe, and No. 1127 Medium Alabaster Rippled Canopy	2,500, 4,000 or 6,000	290656	290648	300 or 500	290690	290684	4,000, 6,000 or 10,000	290674	290668	50
No. 127 Light Alabaster Rippled Globe and No. 1127 Light Alabaster Rippled Canopy										
With Dome Refractor, Cat. No. 1310228	2,500, 4,000 or 6,000	290659	290651	300 or 500	290693	290687	4,000, 6,000 or 10,000	290677	290671	54
With A-Sym-Etric Dome Refractor, Cat. No. 2316021	2,500, 4,000 or 6,000	290660	290552	300 or 500	290694	290688	4,000, 6,000 or 10,000	290678	290672	54
With B-Sym-Etric Dome Refractor, Cat. No. 2316129	2,500, 4,000 or 6,000	4x163	4x165	300 or 500	4x173	4x171	4,000, 6,000 or 10,000	4x181	4x179	54

\*Catalogue Number does not include Mazda lamp or pole.

†For use with, but not including a Type IL series transformer which should be mounted on the base of the pole or in a man-hole.

G-E Form 16 Novalux Ornamental Units

†With Form Q Casing—For Poles and Brackets with 5-Inch Tops

Casing with Green Finish

Equipped with	Straight Series Type		Straight Multiple Type		†IL Series Transformer Type		*Cat. No. of Complete Unit	Ap-prox. Ship. Wt. Lbs.
	Lamp Rating In Lumens	*Cat. No. of Complete Unit	Lamp Rating In Watts	*Cat. No. of Complete Unit	Lamp Rating In Lumens			
No. 37 Genco Globe and Metal Canopy.....	4,000 or 6,000	245984	{500 750 or 1,000	{245988 246111}	4,000, 6,000, 10,000 or 15,000	245992	74	
No. 37 Genco Globe and No. 1037 Genco Canopy...	4,000 or 6,000	245985	{500 750 or 1,000	{245989 246112}	4,000, 6,000, 10,000 or 15,000	245993	77	
No. 97 Genco Globe and Metal Canopy.....	4,000 or 6,000	245982	{500 750 or 1,000	{245986 246109}	4,000, 6,000, 10,000 or 15,000	245990	83	
No. 97 Genco Globe and No. 1097 Genco Canopy....	4,000 or 6,000	245983	{500 750 or 1,000	{245987 246110}	4,000, 6,000, 10,000 or 15,000	245991	86	
No. 107 Medium Alabaster Rippled Globe and Metal Canopy.....	2,500, 4,000 or 6,000	246723	300 or 500	246725	4,000, 6,000 or 10,000	246727	74	
No. 107 Light Alabaster Rippled Globe and Metal Canopy.	2,500, 4,000 or 6,000	246722	300 or 500	246724	4,000, 6,000 or 10,000	246726	77	
With Dome Refractor, Cat. No. 1340228.....	2,500, 4,000 or 6,000	280396	300 or 500	280424	4,000, 6,000 or 10,000	280428	77	
With A-Sym-Etric Dome Refractor, Cat. No. 2316021.....	2,500, 4,000 or 6,000	4x332	300 or 500	4x360	4,000, 6,000 or 10,000	4x364	77	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129.....	4,000 or 6,000	246361	{300 or 500 750 or 1,000	{246363 246365}	4,000, 6,000, 10,000 or 15,000	246367	76	
No. 107 Medium Alabaster Rippled Globe and No. 1107 Medium Alabaster Rippled Canopy.....	4,000 or 6,000	246360	300 or 500	246362	4,000, 6,000, 10,000 or 15,000	246366	76	
No. 107 Light Alabaster Rippled Globe and No. 1107 Light Alabaster Rippled Canopy.	4,000 or 6,000	280395	300 or 500	280423	4,000, 6,000, 10,000 or 15,000	280427	76	
With Dome Refractor, Cat. No. 1340228.....	4,000 or 6,000	4x331	300 or 500	4x359	4,000, 6,000 or 10,000	4x363	..	
With A-Sym-Etric Dome Refractor, Cat. No. 2316021.....	2,500, 4,000 or 6,000	258893	{300 or 500 750 or 1000	{258897 258901}	4,000, 6,000 or 10,000	258903	83	
With B-Sym-Etric Dome Refractor, Cat. No. 2316129.....	2,500, 4,000 or 6,000	258895	300 or 500	258899	4,000, 6,000 or 10,000	258905	83	
No. 118 Medium Alabaster Rippled Globe and Metal Canopy.....	2,500, 4,000 or 6,000	280397	300 or 500	280425	4,000, 6,000 or 10,000	280429	83	
No. 118 Light Alabaster Rippled Globe and Metal Canopy.	2,500, 4,000 or 6,000	4x333	300 or 500	4x361	4,000, 6,000 or 10,000	4x365	83	
With Dome Refractor, Cat. No. 1340228.....	2,500, 4,000 or 6,000	258894	{300 or 500 750 or 1,000	{258898 258902}	4,000, 6,000 or 10,000	258904	86	
With A-Sym-Etric Dome Refractor, Cat. No. 2346021.....	2,500, 4,000 or 6,000	258896	300 or 500	258900	4,000, 6,000 or 10,000	258906	89	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129.....	2,500, 4,000 or 6,000	280398	300 or 500	280426	4,000, 6,000 or 10,000	280430	89	
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy.....	2,500, 4,000 or 6,000	4x334	300 or 500	4x362	4,000, 6,000 or 10,000	4x366	89	

\*Catalogue Number does not include Mazda lamp or pole.

†For use with, but not including, a Type IL series transformer which should be mounted in the base of the pole or in a man-hole, or buried directly in the ground.

‡The Form Q casing rests on the top of the pole and is bolted in place. It is of sufficient size to hold an auto-transformer inside of it. It can be used on Union Metal Mfg. Co., King Mfg. Co., Electric Rwy. Equipment Co., and Chicago Concrete Post Co. poles with 5-inch top.

## G-E Form 16 Novalux Ornamental Units

†With Form Q Casing—For Poles and Brackets with 5-Inch Tops

Casing with Green Finish

### †Auto-Transformer Types

Equipped with	4000 Lumens			6000 Lumens			10,000 Lumens			Ap- prox. Ship Wt. Lbs.	
	Lamp Rating in Amp.	*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS- FORMER	For 6.6-Amp. Circuits	For 7.5-Amp. Circuits	Lamp Rating in Amp.	*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS- FORMER	For 6.6-Amp. Circuits	For 7.5-Amp. Circuits	Lamp Rating in Amp.		*CAT. NO. OF UNIT COMPLETE WITH †AUTO-TRANS- FORMER
No. 37 Genco Globe and Metal Canopy.....	15	246006	246007	20	246008	246009	20	246010	246011	90	
No. 37 Genco Globe and No. 1037 Genco Canopy.....	15	246012	246013	20	246014	246015	20	246016	246017	93	
No. 97 Genco Globe and Metal Canopy.....	15	245994	245995	20	245996	245997	20	245998	245999	99	
No. 97 Genco Globe and No. 1097 Genco Canopy.....	15	246000	246001	20	246002	246003	20	246004	246005	102	
No. 107 Medium Alabaster Rippled Globe and Metal Canopy.....	15	246734	246735	20	246736	246737	20	246738	246739	90	
No. 107 Light Alabaster Rippled Globe and Metal Canopy. With Dome Refractor, Cat. No. 1340228.....	15	246728	246729	20	246730	246731	20	246732	246733	93	
With A-Sym-Etric Dome Refractor, Cat. No. 2346021..	15	280405	280408	20	280406	280409	20	280407	280410	93	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129..	15	4X341	4X344	20	4X432	4X345	20	4X343	4X346	93	
No. 107 Medium Alabaster Rippled Globe and No. 1107 Medium Alabaster Rippled Canopy.....	15	246374	246375	20	246376	246377	20	246378	246379	92	
No. 107 Light Alabaster Rippled Globe and No. 1107 Light Alabaster Rippled Canopy. With Dome Refractor, Cat. No. 1340228.....	15	246368	246369	20	246370	246371	20	246372	246373	95	
With A-Sym-Etric Dome Refractor, Cat. No. 2346021..	15	280399	280402	20	280400	280403	20	280401	280404	95	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129..	15	4X335	4X338	20	4X336	4X339	20	4X337	4X340	95	
No. 118 Medium Alabaster Rippled Globe and Metal Canopy.....	15	258907	258908	20	258909	258910	20	258911	258912	99	
No. 118 Light Alabaster Rippled Globe and Metal Canopy. With Dome Refractor, Cat. No. 1340228.....	15	258919	258920	20	258921	258922	20	258923	258924	102	
With A-Sym-Etric Dome Refractor, Cat. No. 2346021..	15	280411	280414	20	280412	280415	20	280413	280416	102	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129..	15	4X347	4X350	20	4X348	4X351	20	4X349	4X352	102	
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy.....	15	258913	258914	20	258915	258916	20	258917	258918	102	
No. 118 Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy. With Dome Refractor, Cat. No. 1340228.....	15	258925	258926	20	258927	258928	20	258929	258930	105	
With A-Sym-Etric Dome Refractor, Cat. No. 2346021..	15	230417	280420	20	280418	280421	20	280419	280422	105	
With B-Sym-Etric Dome Refractor, Cat. No. 2346129..	15	4X353	4X356	20	4X354	4X357	20	4X355	4X358	105	

\*Catalogue numbers do not include Mazda lamp or pole.

†Special auto-transformers can be furnished at an increased price for any a.c. series circuit from 3 to 10 amperes, 25 to 133 cycles.

‡The Form Q casing rests upon the top of the pole and is bolted in place. It can be used on Union Metal Mfg. Co., King Mfg. Co., Electric Rwy. Equipment Co., and Chicago Concrete Post Co. poles with 5-inch top.

The Form 16 Ornamental Novalux Unit is a replica of the Form 13 Unit on a larger scale. The same severe and simple Flemish character appears in the casing design and makes it a desirable unit for use on octagonal standards.

The Form 16 Unit is for use with 6000 to 10,000-lumen, 6.6-ampere series; 6000 to 15,000-lumen, 20-ampere series or 300 to 1000-watt multiple Mazda C lamps. The high current series lamps can be operated from self-contained auto-transformers or Type IL transformers at the base of the pole.

The unit is listed with several shapes of globes and several types of refractors. The selection is based on preference and the type of light distribution required. A combination of the Form 16 and Form 13 Units makes it possible to cover a wide range in lamp capacities without sacrificing uniformity of appearance.



G-E Form 18 Novalux Ornamental Lantern Units

Primer Coat of Black Japan



Form 18 Ornamental Lantern

The two sizes in which the Form 18 Novalux lanterns are available meet every requirement of ornamental street lighting besides being useful for the ornamental lighting of certain types of buildings.

The Form 18A small size is made for use with 300 and 500-watt, 2500, 4000 and 6000-lumen, 6.6-ampere series or 4000, 6000 and 10000-lumen high-current series lamps. The Form 18B large size is made for use with 300, 500, 750 and 1000-watt, 4000 or 6000-lumen, 6.6-ampere series or 4000, 6000, 10000 and 15000-lumen high-current series lamps. These high-current series lamps can be operated from IL transformers in the small lantern and auto-transformers or IL transformers in the larger lantern.

On the 18A lantern 8 Cat. No. 1392617 side, and 8 Cat. No. 1392618 canopy, granite opalescent pressed-glass panels should be ordered. On the 18B lantern 8 Cat. No. 1392559 side, and 8 Cat. No. 1392557 canopy, granite opalescent pressed-glass panels should be ordered.

Fixtures of Form 18 units are all cast iron. Non-corrosive fixtures with galvanized casing and other castings of aluminum are furnished at an extra cost. Standard cast iron lantern with all galvanized finish, at extra cost. Standard cast iron lantern with all galvanized finish, at extra cost.

Blown alabaster rippled panels furnished at an extra cost. Cat. Nos. do not include Mazda lamp or pole.

Form 18A Small Ornamental Lantern

	Straight Series Type			Straight Multiple Type		†IL Series Transformer Type		Approx. Ship. Wt. Lbs. (Assem.)
	Form of Casing	Lamp Rating in Lumens	Cat. No. Complete Unit	Lamp Rating in Watts	Cat. No. Complete Unit	Lamp Rating in Lumens	Cat. No. Complete Unit	
Equipped with								
For 4-In. Poles with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	§S		246132	300 or 500	246140		246136	100
With Dome Refractor, Cat. No. 1340228	§S		246133	300 or 500	246141		246137	103
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	§S		280431	300 or 500	280433		280435	103
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	§S	2500, 4000	4X367	300 or 500	4X369	4000, 6000	4X371	103
For "King" Poles—4-In. with Granite Opalescent Pressed-Glass Panels:		or 6000				or 10,000		
Without Refractor	§SK		246134	300 or 500	246142		246138	100
With Dome Refractor, Cat. No. 1340228	§SK		246135	300 or 500	246143		246139	103
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	§SK		280432	300 or 500	280434		280436	103
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	§SK		4X368	300 or 500	4X370		4X372	103

Form 18B Large Ornamental Lantern

For 4-In. Poles with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	¶R		246146	500	246158		246152	130
With Dome Refractor, Cat. No. 1340228	¶R		246147	750 or 1000	246164		246153	133
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	¶R		280437	500	280440		280443	133
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	¶R		4X373	500	4X376		4X379	133
For "King" Poles—4-In. with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	§RK		246150	500	246162	4000, 6000	246156	
With Dome Refractor, Cat. No. 1340228	§RK	4000	246151	500	246163	10,000	246157	133
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	§RK	or 6000	280438	500	280441	or 15,000	280444	133
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	RK		4X374	500	4X377		4X380	133
For 5-In Poles with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	¶RW		246148	500	246160		246154	130
With Dome Refractor, Cat. No. 1340228	¶RW		246149	400 or 500	246161		246155	133
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	¶RW		280439	500	280442		280445	133
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	RW		4X375	500	4X378		4X381	133

†For use with, but not including, a Type IL series transformer which should be mounted in the base of the pole or in a manhole, or buried directly in ground.

¶Forms "S", "R" (for 4-in. Union Metal Poles), and "RW" (for 5-in. poles) casings rest upon the top of the pole and are bolted in place.

§Form "SK" and "RK" (for 4-in. King Poles) casings slip over the shaft of the pole and are fastened by set screws.

## G-E Form 18 Novalux Ornamental Lantern Units

Primer Coat of Black Japan

### Form 18B Large Ornamental Lantern—Series Auto-Transformer Types

Equipped with	Casing	4000 Lumens		6000 Lumens (With Tap for 4000 Lumens)		10,000 Lumens (With Tap for 6000 Lumens)		Approx. Ship. Wt. Lbs.
		Lamp Rating in Amp.	Cat. No. of Unit Complete with Auto-Transformer 6.6-Ampere Primary	Lamp Rating in Amp.	Cat. No. of Unit Complete with Auto-Transformer 6.6-Ampere Primary	Lamp Rating in Amp.	Cat. No. of Unit Complete with Auto-Transformer 6.6-Ampere Primary	
For 4-In. Poles with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	¶R	15	246167	20	246170	20	246173	135
With Dome Refractor Cat. No. 1340228	¶R	15	246176	20	246179	20	246182	138
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	¶R	15	280446	20	280449	20	280452	138
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	¶R	15	4X382	20	4X385	20	4X388	138
For "King" Poles—4 In. with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	§RK	15	246169	20	246172	20	246175	135
With Dome Refractor, Cat. No. 1340228	§RK	15	246178	20	246181	20	246184	138
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	§RK	15	280448	20	280451	20	280454	138
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	§RK	15	4X384	20	4X387	20	4X390	138
For 5-In. Poles with Granite Opalescent Pressed-Glass Panels:								
Without Refractor	¶RW	15	246168	20	246171	20	246174	135
With Dome Refractor, Cat. No. 1340228	¶RW	15	246177	20	246180	20	246183	138
With A-Svm-Etric Dome Refractor, Cat. No. 2346021	¶RW	15	280447	20	280450	20	280453	138
With B-Svm-Etric Dome Refractor, Cat. No. 2346129	¶RW	15	4X383	20	4X386	20	4X389	138

On the 18A lantern, 8 Cat. No. 1392559 side, and 8 Cat. No. 1392557 canopy granite opalescent pressed-glass panels should be ordered.

Fixtures are cast iron. Non-corrosive fixtures with galvanized casing and other castings of aluminum at an extra cost. Standard cast iron lantern at an extra cost.

Blown alabaster rippled panels furnished at an extra cost.

Cat. Nos. do not include Mazda lamp or pole.

Special auto-transformers can be furnished at an increased price for any A.C. series circuit from 3 to 10 amperes, 25 to 133 cycles.

¶Form R (for 4-inch Union Metal Poles) and RW (for 5-inch poles) casings rest upon the top of the pole and are bolted in place.

§Form RK (for 4-inch King Poles) casings slip over the shaft of the pole and are fastened by set screws.

## G-E Form 19 Novalux Suspension Lantern Units

### Straight Multiple Type

Novalux lanterns retain the ornamental projections which are a fundamental part of lantern design. The ribs are extended in a graceful fashion.

The Form L19 unit is designed for suspension from ornamental bracket arms. It is particularly useful for parkways, boulevards and residential streets in cities where the Form 18 ornamental lantern is used for whiteway lighting.

The Form 19A small size is made for use with a 300 or 500-watt and the Form 19B large size is made for use with a 750 or 1000-watt Mazda C lamp.

Castings are given one coat of black baking japan at the factory, which is ample protection against the elements until the units are installed when the complete installation is given a final coat of paint. After the inspection of all the parts, shipments are made with the lantern disassembled, thus reducing the cubical contents of the container and the cost of boxing.

On the 19A lantern 8 Cat. No. 1392617 side, 8 Cat. No. 1392618 canopy and 1 Cat. No. 1392615 lower panels should be ordered.

On the 19B lantern 8 Cat. No. 1392559 side, 8 Cat. No. 1392557 canopy and 1 Cat. No. 1392558 lower granite opalescent pressed-glass panels should be ordered.

Fixtures are cast iron. Non-corrosive fixtures with galvanized casing and other castings of aluminum at an extra cost. Standard cast iron lantern at an extra cost.

Cat. Nos. do not include Mazda lamp or pole.



Form 19 Pendant Lantern

Equipped with	For 300, 400 or 500-Watt Lamps		For 750 or 1000-Watt Lamps	
	Small A Lantern (With 7-In. Light Center)	Large B Lantern (With 9 1/4-In. Light Center)	Small A Lantern (With 7-In. Light Center)	Large B Lantern (With 9 1/4-In. Light Center)
	Cat. No.	Cat. No.	Cat. No.	Approx. Ship. Wt., Lbs.
With Granite Opalescent Pressed-Glass Panels	246185	246187	246189	140
With Granite Opalescent Pressed-Glass Panels and Cat. No. 1340228 Prismatic Dome Refractor	246186	246188	.....	140

G-E Forms 23A and 27 Novalux Ornamental Units



Form 23A Unit with Stippled Glass Panels and Casing

The Form 23A unit is equipped with an all-metal copper top which is hinged for relamping. A glass paneled top can be furnished at extra cost.

Waist castings are of cast-copper alloy; ribs are of galvanized steel. Copper and bronze surfaces are non-corrosive.

On the Form 23A lantern, 8 Cat. No. 2303561 granite opalescent pressed-glass panels should be ordered.

Cat. Nos. do not include Mazda lamp or pole.



Unit with No. 118 Alabaster Rippled Globe and No. 1118 Alabaster Rippled Canopy

The Form 27 unit is adapted for use with 1000-6000-lumen, 6.6-ampere series, or 200-1000-watt multiple Mazda C lamp, and, since the slender design of the casing does not permit the use of an auto-transformer, a Type IL series transformer is mounted in base of standard.

This unit consists of a cast iron casing, a porcelain receptacle, a globe and canopy.

Casing slips over the shaft of the pole and is fastened by set screws.

Cat. Nos. do not include Mazda lamp or pole.

Form 23A Novalux Lantern Units

With Metal Top—Natural Finish

Form of Casing	Lamp Rating in Lumens	Cat. No. Complete Unit	Straight Multiple Type		†IL Series Transformer Type		Approx. Ship. Wt., Lbs.
			Lamp Rating in Watts	Cat. No. Complete Unit	Lamp Rating in Lumens	Cat. No. Complete Unit	
Equipped with							
For 4-Inch Poles with Granite Opalescent Pressed-Glass Panels							
Without Refractor	†R	258167	{ 300 or 500 750 or 1000	258173 258179		258182 258185	115 122
With Dome Refractor, Cat. No. 1340228	†R	258170	300 or 500	258176			
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	†R	280455	300 or 500	280458		280461	122
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	R	4X182	300 or 500	4X185		4X188	122
For King Poles—4-In. with Granite Opalescent Pressed-Glass Panels							
Without Refractor	§RK	2500, 4000 or 6000	{ 300 or 500 750 or 1000 300 or 500	258175 258181 258178	4000, 6000 or 10,000	258184 258187	115 122
With Dome Refractor, Cat. No. 1340228	§RK	280456	300 or 500	280459		280462	122
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	RK	4X183	300 or 500	4X186		4X189	122
With B-Sym-Etric Dome Refractor, Cat. No. 2346129							
For 5-In. Poles with Granite Opalescent Pressed-Glass Panels							
Without Refractor	†RW	258168	{ 300 or 500 750 or 1000	258174 258180		258183 258186	115 122
With Dome Refractor, Cat. No. 1340228	†RW	258171	300 or 500	258177			
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	†RW	280457	300 or 500	280460		280463	122
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	RW	4X184	300 or 500	4X187		4X190	122

†For use with, but not including, a Type IL series transformer which should be mounted in the base of the pole or in a manhole.

†Forms "R" and "RW" casings (for Union Metal Poles) rest upon the top of the pole and are bolted in place; Form "R" is for 4-in., and Form "RW" is for 5-in., poles.

§Form "RK" casing (for King Poles) slips over the shaft of the pole and is fastened by set screws.

Form 27 Novalux Ornamental Units

With Form 21 Casing (Green Finish)

Form of Casing	Straight Series		Straight Multiple		†IL Transformer Type		Approx. Ship. Wt., Lbs.
	Lamp Rating in Lumens	Cat. No. Complete Unit	Lamp Rating in Watts	Cat. No. Complete Unit	Lamp Rating in Watts	Cat. No. Complete Unit	
Equipped with							
No. 118 Medium Alabaster Rippled Globe and No. 1118 Medium Alabaster Rippled Canopy							
	4000 or 6000	289989	300 or 500	289995	4000, 6000 or 10,000	289992	83
No. 118 Light Alabaster Rippled Globe and No. 1118 Light Alabaster Rippled Canopy							
Without Refractor	4000 or 6000	289990	300 or 500	289996	4000, 6000 or 10,000	289993	90
With Dome Refractor, Cat. No. 1340228	4000 or 6000	289991	300 or 500	289997	4000, 6000 or 10,000	289994	90
With A-Sym-Etric Dome Refractor, Cat. No. 2346021	4000 or 6000	4X211	300 or 500	4X213	4000, 6000 or 10,000	4X215	90
With B-Sym-Etric Dome Refractor, Cat. No. 2346129	4000 or 6000						

†For use with, but not including, a Type IL series transformer which should be mounted in the base of the pole or in a manhole.



## G-E Form 32 Novalux Bracket Suspension Units Black Japan Finish



Unit with No. 146  
Medium Alabaster  
Rippled Globe

The Form 32 Novalux suspension is of ornamental character and designed for bracket mounting.

Designed for use with Mazda C incandescent lamps. The straight series lamp of 2500, 4000 or 6000 lumens, for operation on 6.6-ampere circuit is most commonly used. Multiple lamps of 300 or 500 watts can also be used with the glassware listed; however, the 750 or 1000-watt lamp is best suited for use with the large number of 146 globe.

Since the 4000, 6000 and 10000-lumen lamps operate more efficiently on 15 or 20 amperes than on the 6.6-ampere circuit, the use of an auto-transformer or a Type IL transformer for the purpose of stepping up the current is recommended in these instances. Provision is made for mounting an auto-transformer within the casing of this unit. When Type IL transformer is used, it is mounted to pole adjacent to bracket or buried in the ground.

Selection of globes and refractors is determined by the type of unit and the preferred light distribution. All G-E Holophane refractors are applicable to this unit when used in combination with the proper globe.

Unit consists of a collar, tapped for 1/4-inch pipe thread, 2 wet-process insulators, cast iron cover, casing and globe holder.

Cat. Nos. do not include Mazda lamps.



Unit with No. 120 Light  
Alabaster Rippled Globe  
and Reflector, Cat. No. 170556

	Straight Series Type			Straight Multiple Type			†IL Series Transformer Type		
	2500, 4000, 6000 Lumens	Lamp Rating In Amp.	Cat. No. Complete Unit	Lamp Rating in Watts	Cat. No. Complete Unit	4000, 6000, 10,000 Lumens	Lamp Rating in Amp.	Cat. No. Complete Unit	Approx. Ship. Wt., Lbs.
Equipped with									
No. 146 Light Alabaster Rippled Globe without Reflector	5.5, 6.6 or 7.5	3X707	{ 300 or 500 } { 750 or 1000 }	3X745 3X765	15 or 20	3X727	63		
With Dome Reflector, Cat. No. 1340228	5.5, 6.6 or 7.5	3X708	300 or 500	3X746	15 or 20	3X728	70		
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	5.5, 6.6 or 7.5	3X709	300 or 500	3X747	15 or 20	3X729	70		
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	5.5, 6.6 or 7.5	3X710	{ 300 or 500 } { 300 or 500 }	3X748 3X749	15 or 20	3X730	70		
No. 116 Light Alabaster Rippled Globe without Reflector	5.5, 6.6 or 7.5	3X711	{ 750 or 1000 }	3X766	15 or 20	3X949	50		
With Dome Reflector, Cat. No. 1340228	5.5, 6.6 or 7.5	3X712	300 or 500	3X750	15 or 20	3X950	57		
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	5.5, 6.6 or 7.5	3X713	300 or 500	3X751	15 or 20	3X731	57		
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	5.5, 6.6 or 7.5	3X714	300 or 500	3X752	15 or 20	3X732	57		
No. 120 Light Alabaster Rippled Globe and Reflector, Cat. No. 170556 without Reflector	5.5, 6.6 or 7.5	3X716	{ 300 or 500 } { 750 or 1000 }	3X754 3X768	15 or 20	3X734	43		
With Dome Reflector, Cat. No. 1340228	5.5, 6.6 or 7.5	3X718	300 or 500	3X756	15 or 20	3X736	50		
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	5.5, 6.6 or 7.5	3X720	300 or 500	3X758	15 or 20	3X738	50		
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	5.5, 6.6 or 7.5	3X722	300 or 500	3X760	15 or 20	3X740	50		
Bowl Reflector, Cat. No. 1340382 and Reflector, Cat. No. 170556	5.5, 6.6 or 7.5	3X724	300 or 500	3X762	15 or 20	3X742	43		
Band Reflector, Cat. No. 174274 and Reflector, Cat. No. 170556	5.5, 6.6 or 7.5	3X726	300 or 500	3X764	15 or 20	3X744	40		

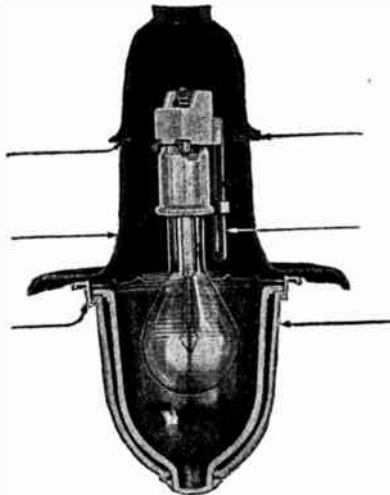
†For use with, but not including, a Type IL series transformer, aerial type, which may be mounted on the cross of the nearest pole.

### Auto-Transformer Types for \$60-Cycle Series Circuits

	Lamp Rating in Amp.	4000 Lumens		Lamp Rating in Amp.	6000 Lumens		Lamp Rating in Amp.	10,000 Lumens		Approx. Ship. Wt. Lbs.
		Cat. No. of Unit Complete For 6.6-Amp. Circuit	Cat. No. of Unit Complete For 7.5-Amp. Circuit		Cat. No. of Unit Complete For 6.6-Amp. Circuit	Cat. No. of Unit Complete For 7.5-Amp. Circuit		Cat. No. of Unit Complete For 6.6-Amp. Circuit	Cat. No. of Unit Complete For 7.5-Amp. Circuit	
Equipped with										
No. 146 Light Alabaster Rippled Globe without Reflector	15	3X769	3X773	20	3X770	3X774	20	3X771	3X775	73
With Dome Reflector, Cat. No. 1340228	15	3X777	3X781	20	3X778	3X782	20	3X779	3X783	80
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	15	3X785	3X789	20	3X786	3X790	20	3X787	3X791	80
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	15	3X793	3X797	20	3X794	3X798	20	3X795	3X799	80
No. 116 Light Alabaster Rippled Globe without Reflector	15	3X801	3X805	20	3X802	3X806	20	3X803	3X807	60
With Dome Reflector, Cat. No. 1340228	15	3X809	3X813	20	3X810	3X814	20	3X811	3X815	67
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	15	3X817	3X821	20	3X818	3X822	20	3X819	3X823	67
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	15	3X825	3X829	20	3X826	3X830	20	3X827	3X831	67
No. 120 Light Alabaster Rippled Reflector, Cat. No. 170556, without Reflector	15	3X839	3X842	20	3X840	3X843	20	3X841	3X844	53
With Dome Reflector, Cat. No. 1340228	15	3X851	3X854	20	3X852	3X855	20	3X853	3X856	60
With A-Sym-Etric Dome Reflector, Cat. No. 2346021	15	3X863	3X866	20	3X864	3X867	20	3X865	3X868	60
With B-Sym-Etric Dome Reflector, Cat. No. 2346129	15	3X875	3X878	20	3X876	3X879	20	3X877	3X880	60
Bowl Reflector, Cat. No. 1340382 and Reflector, Cat. No. 170556	15	3X887	3X890	20	3X888	3X891	20	3X889	3X892	53
Band Reflector, Cat. No. 174274 and Reflector, Cat. No. 170556	15	3X899	3X902	20	3X900	3X903	20	3X901	3X904	50

§Special auto-transformers can be furnished for any A.C. series circuit from 3 to 10 amperes, 25 to 133 cycles at an increased price.

## Form 45L G-E Novalux Suspension Units



Sectional View

Recommended for installation in residential sections, on main thoroughfares and on secondary business streets or highways. Suitable for use on any overhead lighting circuit of less than 3500 volts and are readily adapted for series, straight-multiple or IL transformer connection.

Aside from several other important features of design, these units have one outstanding advantage in that all parts are interchangeable. Changes in lamps and glassware combinations are readily made and the requirements of illumination in any district are met with economy of installation and maintenance.

The cast-iron hood is made in 3 interchangeable types: one with a straight pipe tap, one with right-angle pipe tap and one with straight pipe tap and bushings for external wiring and center span installation. The cast-iron hood supports the various types of reflectors—the dome-radial wave (both the 18 and 20-inch), the shallow cast-iron reflector and the deep cast-iron reflector. A hinge and latch may be added to the 2 cast-iron reflectors. This permits the use of a globe or a refractor.

The holder for the globes and refractors consists of a cast-aluminum ring with a phosphor-bronze wire spring attachment, so that the glassware is held at all times under pressure against the reflector surface. This unit is made insect-proof by a felt gasket which is fastened directly to the globe or refractor holder itself.

When the unit is used on a series circuit, a receptacle is required to provide the necessary insulation. This supports the series socket. When it is used in the unit with the dome-radial wave reflector, it is attached directly to the hood by a small bracket. When it is used in the deep cast-iron casing, an adjustable support is used which permits the adjustment for the various sizes of lamps. The multiple type of unit has a small adjustable support for use in the hood when the dome-radial wave reflectors or shallow cast-iron reflectors are used. When installed in the unit with the deep cast-iron reflector, the multiple socket is supported by the same adjustable support that holds the series receptacle.

Cast-iron hood with 1¼-inch pipe tap.

Has adjustable socket support to accommodate lamps of various lengths.

This unit has the following advantages:

Interchangeability and simplicity of parts.

Units adjustable for various sizes of lamps.

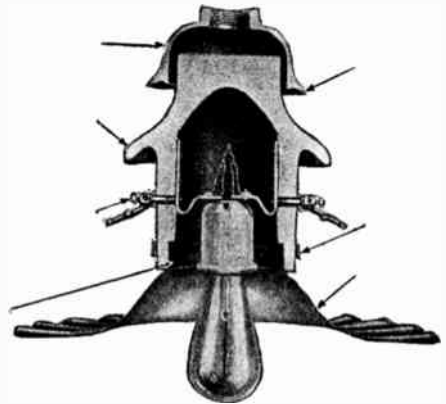
Spun-copper fitter on sheet-metal reflector prevents screws from chipping the enamel.

Contour of sheet-metal reflector provides maximum strength with minimum thickness of metal.

New globe and reflector holder of improved construction with felt for seating against reflector and making unit insect-proof.

## Form 45H G-E Novalux Suspension Units

For Use on All Series Circuits



Sectional View—With Sheet-Metal Reflector

Suitable for installation in residential sections, on secondary business streets, or in outlying communities. Wherever overhead series circuits are in operation, these units are applicable both as to appearance and economy of maintenance. They are of simplified design and have, in addition to several other important features, one outstanding advantage in that all parts are interchangeable. Changes in lamps and glassware combinations are readily accomplished.

This unit is equipped with a wet-process porcelain insulator especially designed for use on high-voltage series circuits. Wet-process porcelain has high mechanical and dielectric strength. It will not absorb moisture and its characteristics are permanent. The size, design and construction of the insulator are such as to give complete freedom from breakdown and most economical operation.

Unit consists of a cast-iron hood which supports the wet-process porcelain insulator by 3 screws. The insulator is of sufficient size to permit adjustments for either the 5¾ or 7-inch light center lamps. The receptacle for the socket consists of 2 sets of contacts and reinforcing springs. Each set is fastened to a brass bracket which is in turn held to the side of the porcelain wall by a combination screw and binding post. This passes through a tie lug on the outside of the porcelain and threads into the brass support of the contact and reinforcing spring. The brass brackets are drilled and threaded in 2 places so that when the combination screw and binding posts are tightened in one position, the adjustment is for the 5¾-inch light center lamp, and in the other position is for the 7-inch light center lamp. The binding post and tie lug are on the outside of the porcelain. This facilitates inspection and testing for open circuits.

Both the sheet-metal and the cast-iron reflectors are fastened to the insulator by a unique arrangement which consists of a bronze clamping ring on the outside of the insulator. This is split and so arranged that the ends overlap. It has 3 set screws spaced unequally on its circumference. They pass through the insulator and press against lugs similarly spaced on the reflector. Two of the screws are forced to the end of their threads and are thus held tightly in place. They need never be loosened. The third set screw passes through the lap joint of the ring. This is tightened after the reflector is in place and it tends to spread the ring, an effect which holds this set screw securely at all times. This clamping arrangement not only forms a firm support for the reflectors but also acts as a protection for the insulator as there is practically no strain on the insulator itself.

The sheet-metal reflectors with fire-enamelled finish are of such a contour that maximum strength is obtained without using heavy metal. The fitter, or the part which is held into the insulator, is a copper ring spun on the sheet-metal reflector itself. The screws for holding the reflectors impinge against this spun-copper ring so that there is no chance of the screws chipping the enamel.

## Form 45L G-E Novalux Suspension Units

For Series Circuits Under 3500 Volts

### 18-Inch Dome-Radial-Wave Reflector

Hood	FINISH	Reflector	CAT. No.		APPROXIMATE WEIGHT POUNDS		Price Each
			1000-Lumen Lamp	2500-Lumen Lamp	Net	Shipping	
Paint		Fire Enamel	15x 46	.....	10	12	\$5.25
Galvanized		Fire Enamel	15x 47	.....	10	12	5.25
Fire Enamel		Fire Enamel	15x 48	.....	10	12	5.85

### 20-Inch Dome-Radial-Wave Reflector

Paint		Fire Enamel	15x 49	.....	11	13	\$5.50
Galvanized		Fire Enamel	15x 50	.....	11	13	5.50
Fire Enamel		Fire Enamel	15x 51	.....	11	13	6.10

### 14-Inch Deep Cast-Iron Reflector

Paint	Paint	16x291	.....	19	21	\$8.35
Galvanized	Galvanized	16x292	.....	19	21	8.35
Fire Enamel	Fire Enamel	14x560	.....	19	21	11.35

### 14-Inch Deep Cast-Iron Reflector and Bowl Refractor

Paint	Paint	.....	16x295	27	32	\$15.75
Galvanized	Galvanized	.....	16x296	27	32	15.75
Fire Enamel	Fire Enamel	.....	14x562	27	32	18.75

### 14-Inch Deep Cast-Iron Reflector and 8½-Inch Band Refractor

Paint	Paint	.....	16x297	24	29	\$14.80
Galvanized	Galvanized	.....	16x298	24	29	14.80
Fire Enamel	Fire Enamel	.....	14x563	24	29	17.80

### 14-Inch Deep Cast-Iron Reflector and B-Sym-Etric Rippled Bowl Refractor

Paint	Paint	.....	16x293	29	36	\$19.65
Galvanized	Galvanized	.....	16x294	29	36	18.65
Fire Enamel	Fire Enamel	.....	14x561	29	36	21.65

### 14-Inch Deep Cast-Iron Reflector and 2-Way Bowl Refractor

Paint	Paint	.....	16x299	27	32	\$15.90
Galvanized	Galvanized	.....	16x300	27	32	15.90
Fire Enamel	Fire Enamel	.....	14x564	27	32	18.90

### 14-Inch Deep Cast-Iron Reflector and 4-Way Bowl Refractor

Paint	Paint	.....	16x301	27	32	\$15.90
Galvanized	Galvanized	.....	16x302	27	32	15.90
Fire Enamel	Fire Enamel	.....	14x565	27	32	18.90

### 14-Inch Deep Cast-Iron Reflector and No. 166 Light Alabaster Rippled Globe

Paint	Paint	.....	16x303	24	28	\$12.30
Galvanized	Galvanized	.....	16x304	24	28	12.30
Fire Enamel	Fire Enamel	.....	14x566	24	28	15.30

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe, and Dome Refractor

Paint	Paint	.....	16x305	28	36	\$17.40
Galvanized	Galvanized	.....	16x306	28	36	17.40
Fire Enamel	Fire Enamel	.....	14x567	28	36	20.40

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe and A-Sym-Etric Dome Refractor

Paint	Paint	.....	16x307	28	36	\$20.15
Galvanized	Galvanized	.....	16x308	28	36	20.15
Fire Enamel	Fire Enamel	.....	14x568	28	36	23.15

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe and B-Sym-Etric Dome Refractor

Paint	Paint	.....	16x309	28	36	\$20.15
Galvanized	Galvanized	.....	16x310	28	36	20.15
Fire Enamel	Fire Enamel	.....	15x569	28	36	23.15

Catalog numbers do not include Mazda Lamps.

When ordering units for straight-pipe bracket, specify right-angle hood and use same list price as for straight hood.

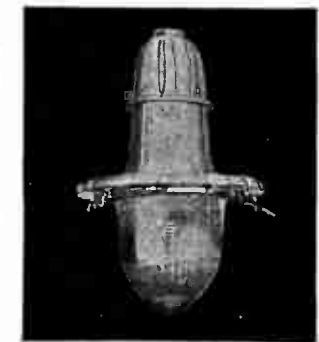
When ordering units for external wiring, specify hood with external bushings and add 30 cents to list price.



Radial-Wave Reflector



Cast-Iron Reflector



Bowl Refractor



No. 166 Globe

## Form 45-L G-E Novalux Suspension Units

For Straight Multiple Circuits

## 18-Inch Dome Radial-Wave Reflector

Hood	FINISH	Reflector	Cat. No. 100, 150 or 200 Watt	APPROXIMATE		Price Each
				Net	WEIGHT POUNDS Shipping	
Paint		Fire Enamel	15x64	9	11	\$4.65
Galvanized		Fire Enamel	15x65	9	11	4.65
Fire Enamel		Fire Enamel	15x66	9	11	5.25

## 20-Inch Dome-Radial-Wave Reflector

Paint		Fire Enamel	15x67	10	12	\$4.90
Galvanized		Fire Enamel	15x68	10	12	4.90
Fire Enamel		Fire Enamel	15x69	10	12	5.50

## 14-Inch Cast-Iron Reflector

Paint		Paint	15x70	14	16	\$5.45
Galvanized		Galvanized	15x71	14	16	5.45
Fire Enamel		Fire Enamel	15x72	14	16	7.45

## 14-Inch Cast-Iron Reflector and Bowl Refractor

Paint		Paint	15x76	22	27	\$12.85
Galvanized		Galvanized	15x77	22	27	12.85
Fire Enamel		Fire Enamel	15x78	22	27	14.85

## 14-Inch Cast-Iron Reflector and 8½-Inch Band Refractor

Paint		Paint	15x79	19	24	\$11.90
Galvanized		Galvanized	15x80	19	24	11.90
Fire Enamel		Fire Enamel	15x81	19	24	13.90

## 14-Inch Cast-Iron Reflector and B-Sym-Etric Rippled Bowl Refractor

Paint		Paint	15x73	24	31	\$15.75
Galvanized		Galvanized	15x74	24	31	15.75
Fire Enamel		Fire Enamel	15x75	24	31	17.75

## 14-Inch Cast-Iron Reflector and 2-Way Bowl Refractor

Paint		Paint	15x82	22	27	\$13.00
Galvanized		Galvanized	15x83	22	27	13.00
Fire Enamel		Fire Enamel	15x84	22	27	15.00

## 14-Inch Cast-Iron Reflector and 4-Way Bowl Refractor

Paint		Paint	15x85	22	27	\$13.00
Galvanized		Galvanized	15x86	22	27	13.00
Fire Enamel		Fire Enamel	15x87	22	27	15.00

## 14-Inch Cast-Iron Reflector and No. 166 Light Alabaster Rippled Globe

Paint		Paint	15x88	19	23	\$9.40
Galvanized		Galvanized	15x89	19	23	9.40
Fire Enamel		Fire Enamel	15x90	19	23	11.40

14-Inch Cast-Iron Reflector, No. 166 Light Alabaster Rippled  
Globe and Dome Refractor

Paint		Paint	15x91	23	29	\$14.50
Galvanized		Galvanized	15x92	23	29	14.50
Fire Enamel		Fire Enamel	15x93	23	29	16.50

14-Inch Cast-Iron Reflector, No. 166 Light Alabaster Rippled  
Globe and A-Sym-Etric Dome Refractor

Paint		Paint	15x94	23	29	\$17.25
Galvanized		Galvanized	15x95	23	29	17.25
Fire Enamel		Fire Enamel	15x96	23	29	19.25

14-Inch Cast-Iron Reflector, No. 166 Light Alabaster Rippled  
Globe and By-Sym-Etric Dome Refractor

Paint		Paint	15x97	23	29	\$17.25
Galvanized		Galvanized	15x98	23	29	17.25
Fire Enamel		Fire Enamel	15x99	23	29	19.25

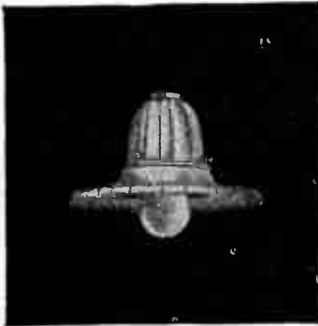
Catalog numbers do not include Mazda Lamps.

When ordering units for straight-pipe bracket, specify right-angle hood and use same list price as for straight hood.

When ordering units for external wiring, specify hood with external bushings and add 30 cents to list price.



Radial-Wave Reflector



Cast-Iron Reflector



Bowl Refractor



No. 166 Globe

## Form 45L G-E Novalux Suspension Units

For Straight Multiple or IL Transformer Circuits

### 14-Inch Deep Cast-Iron Reflector

FINISH	Hood	Reflector	Cat. No. 300 or 500-Watt or 4000, 6000 or 10,000-Lumen 9½-In. Light Center	APPROXIMATE WEIGHT, POUNDS		Price Each
				Net	Shipping	
Paint	Paint	Paint	16x351	18	20	\$7.55
Galvanized	Galvanized	Galvanized	16x352	18	20	7.55
Fire Enamel	Fire Enamel	Fire Enamel	14x590	18	20	10.55

### 14-Inch Deep Cast-Iron Reflector and Bowl Refractor

Paint	Paint	Paint	16x355	26	31	\$14.95
Galvanized	Galvanized	Galvanized	16x356	26	31	14.95
Fire Enamel	Fire Enamel	Fire Enamel	14x592	26	31	17.95

### 14-Inch Deep Cast-Iron Reflector and 8½-Inch Band Refractor

Paint	Paint	Paint	16x357	23	28	\$14.00
Galvanized	Galvanized	Galvanized	16x358	23	28	14.00
Fire Enamel	Fire Enamel	Fire Enamel	14x593	23	28	17.00

### 14-Inch Deep Cast-Iron Reflector and B-Sym-Etric Rippled Bowl Refractor

Paint	Paint	Paint	16x353	28	35	\$17.85
Galvanized	Galvanized	Galvanized	16x354	28	35	17.85
Fire Enamel	Fire Enamel	Fire Enamel	14x591	28	35	20.85

### 14-Inch Deep Cast-Iron Reflector and 2-Way Bowl Refractor

Paint	Paint	Paint	16x359	26	31	\$15.10
Galvanized	Galvanized	Galvanized	16x360	26	31	15.10
Fire Enamel	Fire Enamel	Fire Enamel	14x594	26	31	18.10

### 14-Inch Deep Cast-Iron Reflector and 4-Way Bowl Refractor

Paint	Paint	Paint	16x361	26	31	\$15.10
Galvanized	Galvanized	Galvanized	16x362	26	31	15.10
Fire Enamel	Fire Enamel	Fire Enamel	14x595	26	31	18.10

### 14-Inch Deep Cast-Iron Reflector and No. 166 Light Alabaster Rippled Globe

Paint	Paint	Paint	16x363	23	27	\$11.50
Galvanized	Galvanized	Galvanized	16x364	23	27	11.50
Fire Enamel	Fire Enamel	Fire Enamel	14x596	23	27	14.50

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe and Standard Dome Refractor

Paint	Paint	Paint	16x365	27	35	\$16.60
Galvanized	Galvanized	Galvanized	16x366	27	35	16.60
Fire Enamel	Fire Enamel	Fire Enamel	14x597	27	35	19.60

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe and A-Sym-Etric Dome Refractor

Paint	Paint	Paint	16x367	27	35	\$19.35
Galvanized	Galvanized	Galvanized	16x368	27	35	19.35
Fire Enamel	Fire Enamel	Fire Enamel	14x598	27	35	22.35

### 14-Inch Deep Cast-Iron Reflector, No. 166 Light Alabaster Rippled Globe and B-Sym-Etric Dome Refractor

Paint	Paint	Paint	16x369	27	35	\$19.35
Galvanized	Galvanized	Galvanized	16x370	27	35	19.35
Fire Enamel	Fire Enamel	Fire Enamel	14x599	27	35	22.35

Catalogue numbers do not include MAZDA Lamps.

When ordering nuts for straight-pipe bracket, specify right-angle hood and use same list price as for straight hood.

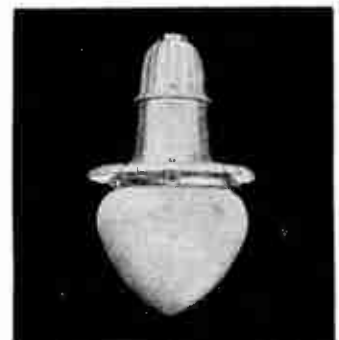
When ordering units for external wiring, specify hood with external bushings and add 30 cents to list price.



Deep Cast-Iron Reflector



With Bowl Refractor



With No. 166 Globe

**Form 45H G-E Novalux Suspension Units**

For Use on All Series Circuits



Radial-Wave Reflector



Cast-Iron Reflector



Bowl Refractor



No. 166 Globe

**18-Inch Dome Radial-Wave Reflector**

Hood	FINISH	Reflector	CAT. No.		APPROXIMATE		Price
			1000-Lumen Lamp	2500-Lumen Lamp	WEIGHT POUNDS	Shipping	
Paint		Fire Enamel	14x438	14x444	22	30	\$8.50
Galvanized		Fire Enamel	14x439	14x445	22	30	8.50
Fire Enamel		Fire Enamel	14x440	14x446	22	30	8.75

**20-Inch Dome Radial-Wave Reflector**

Paint		Fire Enamel	14x441	14x447	23	31	\$8.75
Galvanized		Fire Enamel	14x442	14x448	23	31	8.75
Fire Enamel		Fire Enamel	14x443	14x449	23	31	9.00

**14-Inch Cast-Iron Reflector**

Paint	Paint		14x450	14x453	27	35	\$9.30
Galvanized	Paint		14x451	14x454	27	35	9.30
Fire Enamel	Fire Enamel		14x452	14x455	27	35	10.95

**14-Inch Cast-Iron Reflector and Standard Bowl Refractor**

Paint	Paint			14x459	35	46	\$16.70
Galvanized	Paint			14x460	35	46	16.70
Fire Enamel	Fire Enamel			14x461	35	46	18.35

**14-Inch Cast-Iron Reflector and 8½-Inch Band Refractor**

Paint	Paint			14x462	32	43	\$15.75
Galvanized	Paint			14x463	32	43	15.75
Fire Enamel	Fire Enamel			14x464	32	43	17.40

**14-Inch Cast-Iron Reflector and B-Symmetric Rippled Bowl Refractor**

Paint	Paint			14x456	37	50	\$19.60
Galvanized	Paint			14x457	37	50	19.60
Fire Enamel	Fire Enamel			14x458	37	50	21.25

**14-Inch Cast-Iron Reflector and 2-Way Bowl Refractor**

Paint	Paint			14x465	35	48	\$16.85
Galvanized	Paint			14x466	35	48	16.85
Fire Enamel	Fire Enamel			14x467	..	..	18.50

**14-Inch Cast-Iron Reflector and 4-Way Bowl Refractor**

Paint	Paint			14x468	35	48	\$16.85
Galvanized	Paint			14x469	35	48	16.85
Fire Enamel	Fire Enamel			14x470	35	48	18.50

**14-Inch Cast-Iron Reflector and No. 166 Light Alabaster-Rippled Globe**

Paint	Paint			14x471	32	42	\$13.25
Galvanized	Paint			14x472	32	42	13.25
Fire Enamel	Fire Enamel			14x473	32	42	14.90

**14-Inch Cast-Iron Reflector, No. 166 Light Alabaster-Rippled Globe and Dome Refractor**

Paint	Paint			14x474	36	50	\$18.35
Galvanized	Paint			14x475	36	50	18.35
Fire Enamel	Fire Enamel			14x476	36	50	20.00

**14-Inch Cast-Iron Reflector, No. 166 Light Alabaster-Rippled Globe and A-Symmetric Dome Refractor**

Paint	Paint			14x477	36	50	\$21.10
Galvanized	Paint			14x478	36	50	21.10
Fire Enamel	Fire Enamel			14x479	36	50	22.75

**14-Inch Cast-Iron Reflector, No. 166 Light Alabaster-Rippled Globe and B-Symmetric Dome Refractor**

Paint	Paint			14x480	36	50	\$21.10
Galvanized	Paint			14x481	36	50	21.10
Fire Enamel	Fire Enamel			14x482	36	50	22.75

Catalog numbers and prices do not include Mazda Lamps.

Units for use with straight-pipe bracket must include right-angle hood for which the following amounts must be added to list price: 75 cents for painted or galvanized hood and \$1.25 for fire-enameled hood.



## G-E Novalux Brackets and Hangers

For Novalux Suspension Units

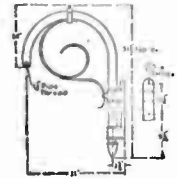
### Brackets

#### Bishop's Crook Bracket

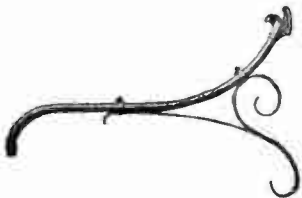


Bishop's Crook Bracket

Cat. No.	GREEN PAINT	Price, Each	Cat. No.	GALVANIZED	Price Each	APPROXIMATE WEIGHT, POUNDS	
	1229475G7			\$5.10		1229475G8	\$5.90
						...	...

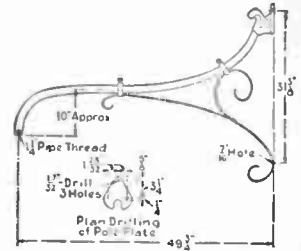


#### Double-Bend Bracket

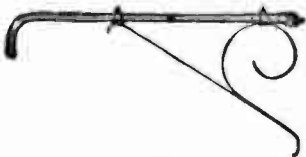


Double-Bend Bracket

1229475G9	\$5.40	1229475G10	\$6.00	...	...
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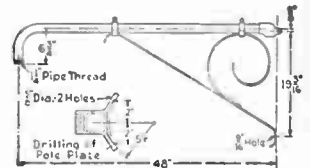


#### Right-Angle-Bend Bracket

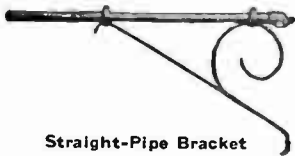


Right-Angle-Bend Bracket

1229475G3	\$4.50	1229475G4	\$5.05	...	...
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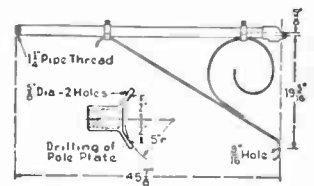


#### Straight-Pipe Bracket



Straight-Pipe Bracket

1229475G1	\$4.10	1229475G2	\$4.60	...	...
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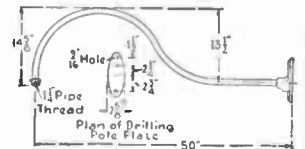


#### 3/4-Inch Goose-Neck Bracket



3/4-Inch Goose-Neck Bracket

1229475G11	\$1.70	1229475G12	\$2.05	...	...
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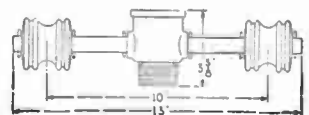
### Cross-Arm Hangers

#### Cross-Arm for 1 1/4-Inch Pipe and Hood



Cross-Arm

Cat. No.	Price Each	APPROXIMATE WEIGHT, POUNDS	
		Net	Shipping
3717173G11	\$.90	...	...

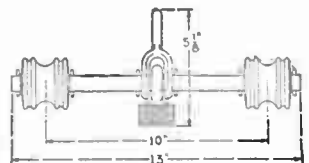


#### Eye-Suspension Type for 1 1/4-Inch Hood

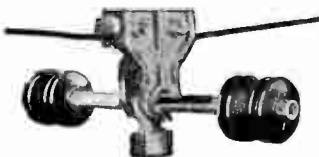


Eye-Suspension Type

3717173G1	\$1.45	...	...
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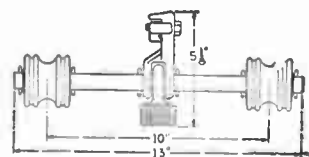


#### Clamp-Type for 1 1/4-Inch Hood

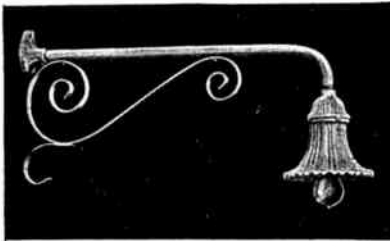


Clamp-Type

3717173G3	\$2.10	...	...
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**G-E Novalux Eternalite Brackets and Center Span Fixtures**  
Straight Series



Right Angle Bend for Internal Wiring

insulator and reflector which also serves as a receptacle for the socket.

Bracket unit consists of a pole plate, pipe and scroll. Several types of center-span hangers may also be used. These screw into a hood with 1/4-inch pipe thread. To this hood is secured the Eternalite porcelain, a combined

**External Wiring**

**For 1000 or 2500-Lumen Lamp without Refractor**

Cat. No.	Diameter Pipe Inches	Description	Ship. Wt. Lbs.
289478	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	45
246622	1/4	Double Bend Bracket.....	65
246624	1/4	Right Angle Bend Bracket.....	60
246626	1/4	Right Angle Joint Bracket (48-In. Ext.).....	65
260514	1/4	Right Angle Joint Bracket (20-In. Ext.).....	60
260515	1/4	Bishop's Crook Bracket.....	65
260516	...	Center Span Eye Suspension Fixture.....	55
260517	...	Center Span Clamp Suspension Fixture...	60

**For 2500-Lumen Lamp with 8 1/2-Inch Band Refractor**

289482	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	50
258830	1/4	Double Bend Bracket.....	70
258831	1/4	Right Angle Bend Bracket.....	65
258832	1/4	Right Angle Joint Bracket (48-In. Ext.).....	70
258833	1/4	Right Angle Joint Bracket (20-In. Ext.).....	65
258834	1/4	Bishop's Crook Bracket.....	70
258835	...	Center Span Eye Suspension.....	60
258836	...	Center Span Clamp Suspension.....	65

**For 2500, 4000 or 6000-Lumen Lamp with No. 120 Light Alabaster Rippled Globe**

293676	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	55
293724	1/4	Double Bend Bracket.....	75
293725	1/4	Right Angle Bend Bracket.....	70
293726	1/4	Right Angle Joint Bracket (48-In. Ext.).....	75
293727	1/4	Right Angle Joint Bracket (20-In. Ext.).....	70
293723	1/4	Bishop's Crook Bracket.....	75
293729	...	Center Span Eye Suspension.....	65
293728	...	Center Span Clamp Suspension.....	70

**Internal Wiring**

**For 1000 or 2500-Lumen Lamp without Refractor**

289477	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	45
246621	1/4	Double Bend Bracket.....	65
246623	1/4	Right Angle Bend Bracket.....	60
246625	1/4	Right Angle Joint Bracket (48-In. Ext.).....	65
260518	1/4	Right Angle Joint Bracket (20-In. Ext.).....	60
260519	1/4	Bishop's Crook Bracket.....	65

**For 2500-Lumen Lamp with 8 1/2-Inch Band Refractor**

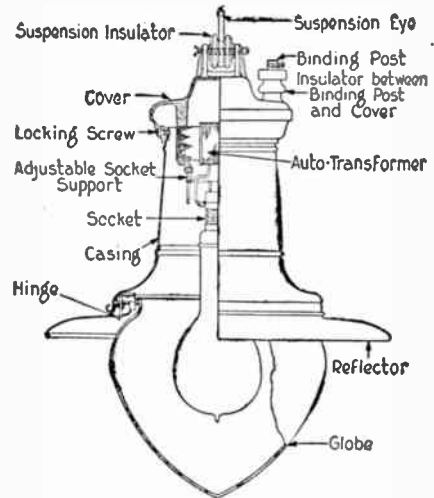
289481	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	..
258822	1/4	Double Bend Bracket.....	70
258823	1/4	Right Angle Bend Bracket.....	65
258824	1/4	Right Angle Joint Bracket (48-In. Ext.).....	70
258825	1/4	Right Angle Joint Bracket (20-In. Ext.).....	65
258826	1/4	Bishop's Crook Bracket.....	70

**For 2500, 4000 or 6000-Lumen Lamp with No. 120 Light Alabaster Rippled Globe**

293674	1/4	Unit (without Bracket) with Hood, Cat. No. 246627 for 1/4-Inch Pipe.....	55
293718	1/4	Double Bend Bracket.....	75
293719	1/4	Right Angle Bend Bracket.....	70
293720	1/4	Right Angle Joint Bracket (48-In. Ext.).....	75
293721	1/4	Right Angle Joint Bracket (20-In. Ext.).....	70
293717	1/4	Bishop's Crook Bracket.....	75

Cat. Nos. do not include Mazda lamps.  
Prices upon application.

**G-E Form 6 Novalux Pendant Units**



Section of Unit with 120 Globe

Pendant units find their widest application in the utilitarian class of lighting. The principal requirements for equipment for this class of lighting are that the best lighting must be obtained at the lowest cost. Lighting units for this service are selected because they give dependable service with low upkeep over a long period of time.

The Form 6 Novalux Pendant Unit is recommended for lighting secondary business streets, residential streets and main thoroughfares where high intensity illumination is required, and overhead wiring is necessary due to economic conditions or in order to line up with existing overhead lines.

This unit was designed for use with Mazda C incandescent lamps. The straight series type lamps in 2500, 4000 and 6000 lumen sizes, for operation on 6.6 amp. constant current circuits, are most commonly used. Multiple lamps of 300, 400, 500, 750 or 1000 watts may also be used. High current series lamps in 4000, 6000 and 10,000 lumen sizes operate much more efficiently at currents of 15 or 20 amperes than at the lower current of standard series circuit. In order to operate these high current lamps from standard series circuits of lower current, an auto-transformer which is concealed in a casing may be used, or a Type IL series transformer mounted on a pole may be used.

Several different kinds of globes and refractors may be furnished with this unit and various types of light distribution are obtained by their use. Any of the combinations listed for this unit are applicable to the classes of lighting for which the Form 6 unit is recommended. Their selection depends on the particular type of unit and light distribution preferred, also the requirements to be met.

**Construction**

The cover is of cast iron and has binding posts in the top for external wiring. The unit is suspended by an insulated eye and this eye is held by two lugs fastened as part of the cover. On the under side of the cover are secured the auto-transformer (if one is used), the receptacle and the lamp. A spun copper casing which conceals and protects the auto transformer and receptacle, fastens to the cover by means of a concealed bayonet joint. The lower end of the casing has a proper concealed support for the reflector, refractor and globe. Felt globe seats are used to make the unit bug-proof and dustproof. The globes and refractors are hinged to allow easy removal of the lamp.

The Form 6 Novalux Unit is completely enclosed when equipped with a globe, yet the internal temperatures are so low that the life of a lamp is in no way lessened by the enclosure. The advantages of a closed unit are obvious; no dust can collect on the lamp bulb or the inner surface of the globe and so reduce the light. Such a fixture is absolutely weatherproof and bugproof.

## G-E Form 6 Novalux Pendent Units

Straight Series, Straight Multiple and †IL Series Transformer Types

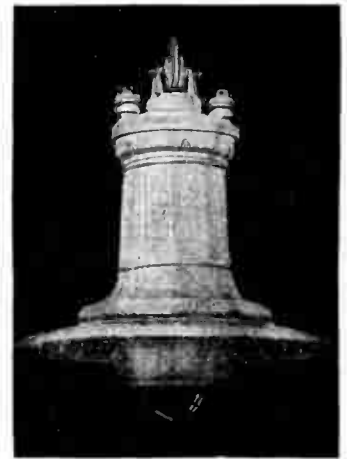
Black Japan Finish



Unit with No. 120 Light Alabaster Rippled Globe and Reflector No. 170556



Unit with No. 116 Clear Rippled Globe and Holophane Dome Refractor No. 1340228



Unit with Holophane Band Refractor, No. 174274 and Reflector No. 170556

Equipped with	Straight Series Type 2500, 4000 and 6000 Lumens		Straight Multiple Type		†IL Series Transformer Type 4000, 6000 and 10,000 Lu.		Approx. Ship. Wt. Lbs.
	Lamp Rating in Amp.	*Cat. No. (Unit Comp.)	Lamp Rating in Watts	*Cat. No. (Unit Comp.)	Lamp Rating in Amp.	*Cat. No. (Unit Comp.)	
No. 116 Clear Rippled Globe and Dome Refractor, Cat. No. 1340223	5.5, 6.6 or 7.5	248246	300 or 500	248248	15 or 20	248247	65
No. 120 Light Alabaster Rippled Globe and Reflector, Cat. No. 170556	5.5, 6.6 or 7.5	260419	{ 300 or 500 750 or 1000	{ 260429 260427	15 or 20	260423	40
No. 120 Light Alabaster Rippled Globe, Reflector, Cat. No. 170556 and Dome Refractor Cat. No. 1340223	5.5, 6.6 or 7.5	260421	300 or 500	260431	15 or 20	260425	50
Bowl Refractor, Cat. No. 1340382 and Reflector, Cat. No. 170556	5.5, 6.6 or 7.5	170522	300 or 500	202203	15 or 20	202212	35
Band Refractor, Cat. No. 174274 and Reflector, Cat. No. 170556	5.5, 6.6 or 7.5	202208	300 or 500	202204	15 or 20	202213	30

### Auto-Transformer Types—§For 60-Cycle Series Circuits

Equipped with	4000 Lumens *CAT. NO. OF UNIT COMPLETE WITH §AUTO-TRANSFORMER		6000 Lumens (WITH TAP FOR 4000 LUMENS) *CAT. NO. OF UNIT COMPLETE WITH §AUTO-TRANSFORMER		10,000 Lumens (WITH TAP FOR 6000 LUMENS) *CAT. NO. OF UNIT COMPLETE WITH §AUTO-TRANSFORMER		Approx. Ship. Wt. Lbs.
	Lamp Rating in Amp.	For 6.6-Amp. Circuits	For 7.5-Amp. Circuits	Lamp Rating in Amp.	For 6.6-Amp. Circuits	For 7.5-Amp. Circuits	
No. 116 Clear Rippled Globe and Dome Refractor, Cat. No. 1340223	15	248249	248252	20	248250	248253	75
No. 120 Light Alabaster Rippled Globe and Reflector, Cat. No. 170556	15	260438	260441	20	260439	260442	50
No. 120 Light Alabaster Rippled Globe, Reflector, Cat. No. 170556 and Dome Refractor, Cat. No. 1340223	15	260450	260453	20	260451	260454	60
Bowl Refractor, Cat. No. 1340382 and Reflector, Cat. No. 170556	15	170534	170561	20	170546	171864	45
Band Refractor, Cat. No. 174274 and Reflector, Cat. No. 170556	15	202215	202217	20	202219	202221	40

\*Catalogue numbers do not include Mazda lamps.

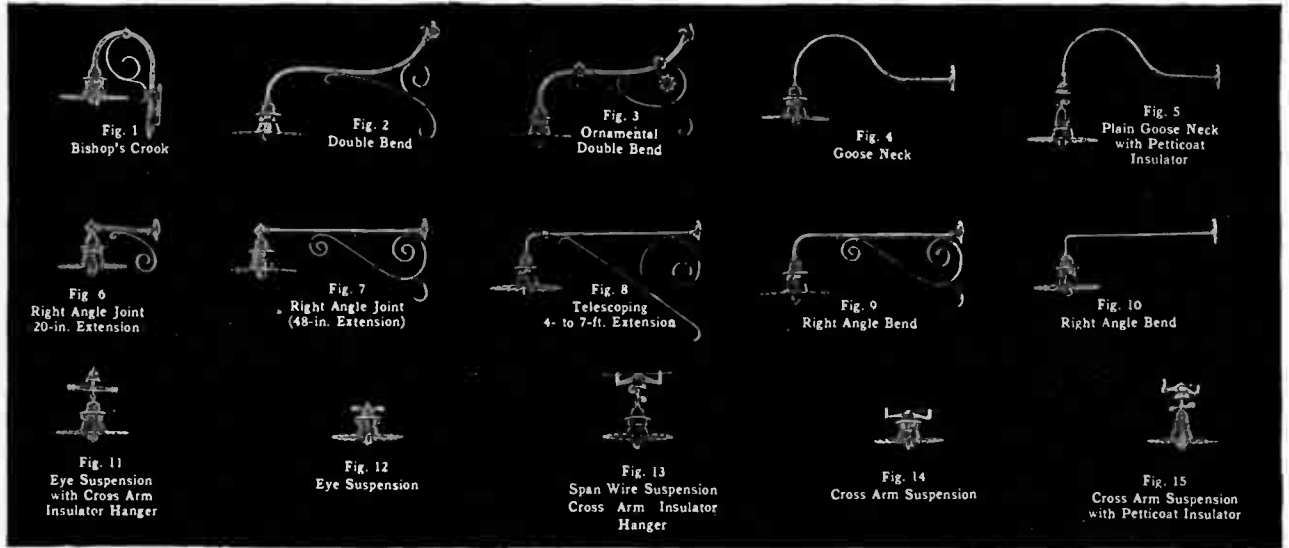
†For use with, but not including a Type IL series transformer, aerial type, which may be mounted on the cross of the nearest pole.

§Special auto-transformers can be furnished for any a. c. series circuit from 3 to 10 amperes, 25 to 133 cycles at an increased price.





For Straight Series or Auto-Transformer Bracket Type Units order similar to the above except with high-voltage insulator and hood for 1¼ or 2-inch pipe. For Straight Multiple or IL Transformer Bracket Type Units order similar to the above except with hood for 1¼ or 2-inch pipe.

For the Cat. No. 202231 Bishop's Crook Bracket with pipe pole plate scroll and clamp, an extra charge is made over the price of the bracket unit.

G-E Novalux Brackets and Center Span Fixtures  
Complete without Lamps



The illustrations above are correct only for units having dome radial wave reflectors.  
The values given in the table are for average mounting heights of 15 to 20 feet.

Bracket or Fixture Equipped With	Recom- mended Spacing Ft.	Diam. Bracket Pipe In.	Brackets						Center Span Fixtures							
			For Series Circuits			For Multiple Circuits			For Series Circuits			For Multiple Circuits				
			Cat. No.	Fig. No.	Ship. Wt. of Lamps per 20	Cat. No.	Fig. No.	Ship. Wt. of Lamps per 20	Cat. No.	Fig. No.	Ship. Wt. Lbs. per 20 Fixtures	Cat. No.	Fig. No.	Ship. Wt. Lbs. per 20 Fixtures		
 Cat. No. 46219 20-In. Radial Wave Reflector	50-100	1 1/4	114979	1	795	161339	1	625								
		1 1/4	103156	2	885	152822	2	800								
		1 1/4	224304	3	885	224308	3	800	74810	11	510	161383	11	560		
		3/4	114768	4	530	152833	4	440	103159	12	400	161395	12	415		
		3/4	*46213	5	100	565	†125323	5	60	565	260854	13	425	161389	14	440
		1 1/4	111556	6	655	161362	6	530	103158	14	430	125324	15	465		
		1 1/4	103157	7	855	161356	7	730	49055	15	465					
		3/4, 1 1/4	174311	8	935	174368	8	800								
		1 1/4	105691	9	815	161350	9	730								
		3/4	219322	10	530	219326	10	440								
 Cat. No. 174270 20-In. Dome Radial Wave Reflector	100-150	1 1/4	174280	1	785	174337	1	615								
		1 1/4	174284	2	875	174341	2	785								
		1 1/4	224305	3	875	224309	3	785								
		3/4	174304	4	100	530	174365	4	100	430	174317	11	500	174374	11	550
		3/4	*174308	5	250	555	†174361	5	150	555	174333	12	390	174378	12	405
		1 1/4	174300	6	400	645	174357	6	200	520	260855	13	415	174386	14	430
		1 1/4	174292	7	845	174349	7	720	174325	14	420	174382	15	455		
		3/4, 1 1/4	174313	8	925	174370	8	790	174329	15	455					
		1 1/4	174288	9	805	174345	9	720								
		3/4	219323	10	530	219327	10	430								
 Cat. No. 1257965P1 20-In. Asy Radial Wave Reflector	100-150	1 1/4	298357	1	785	298371	1	615								
		1 1/4	298358	2	875	298372	2	785								
		1 1/4	293472	3	875	290860	3	785								
		3/4	298362	4	530	298376	4	430								
		1 1/4	298361	6	100	645	298375	6	100	520	Center Span Not Furnished					
		1 1/4	298360	7	845	298374	7	720								
		1 1/4, 3/4	298364	8	925	298378	8	790								
		1 1/4	298359	9	805	298373	9	720								
		3/4	298365	10	530	298379	10	430								
		 Cat. No. 174276 8 1/2-In. Holophane Prismatic Band Refractor with Holder	200-300	1 1/4	174282	1	845	174339	1	695						
1 1/4	174286			2	935	174343	2	865								
1 1/4	224307			3	935	224311	3	865	174319	11	540	174376	11	635		
3/4	174306			4	590	174367	4	300	520	174335	12	475	174380	12	490	
3/4	*174310			5	100	645	†174363	5	400	645	260857	13	500	174388	14	515
1 1/4	174302			6	695	174359	6	500	600	174327	14	495	174384	15	540	
1 1/4	174294			7	905	174351	7	800	174331	15	520					
3/4, 1 1/4	174315			8	980	174372	8	820								
1 1/4	174290			9	870	174347	9	795								
3/4	219325			10	490	219329	10	520								

\*For external wiring only. All other brackets for series circuits are for external or concealed wiring.  
†For external wiring only. All other brackets for multiple circuits are for concealed wiring.

### No. 159377 G-E Porcelain Multiple Sockets For Mogul Screw Base Lamps With 1/2-Inch Pipe Tap



Has plunger spring center contact.  
Standard package, 50.  
Shipping weight per 100 is 330 pounds.

Price, No. 159377.....each \$2.50

### G-E No. 25712 Porcelain Receptacles With Clip and Iron Yoke



Shipping weight, 103 pounds per hundred.  
With each shipment of 12 or less of the series sockets, a package of 15 disk film cutouts, Cat. No. 65951, is included.  
Price, No. 25712 Porcelain Receptacle with Clip and Iron Yoke.....each \$1.25

### No. 156722 G-E Novalux Skeleton Multiple Sockets



With each shipment of 12 or less of the series sockets, a package of 15 disk film cutouts, Cat. No. 65951, is included.

Shipping weight per 100 is 52 pounds.

Price, No. 156722, Multiple Socket for Mogul Screw Base Lamps.....each .....

### G-E No. 257649 Form 15 Novalux Traffic Lighting Units

Straight Multiple—100-125 Volts



View of Unit with Door

The Form 15 Novalux Unit is a type of light especially designed to illuminate the traffic officer.

Suspended on a guy wire stretched between 2 poles at a street crossing, this unit hangs directly above the officer and throws him into strong relief to approaching traffic at a distance up to 1500 feet. In this flood of illumination, which is a concentrated beam of light equivalent to 5500 c-p., he effectively guides approaching car drivers and forestalls accidents at night as he forestalls accidents in the daytime, efficiently. Thus the Novalux Unit is a practical aid to automobile drivers and traffic policemen alike, by affording an

essential means of protection to life and limb and property at difficult street crossings after dark.

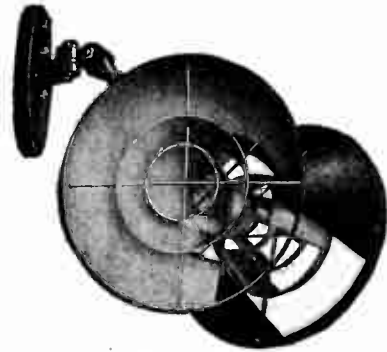
This is a straight multiple type unit equipped with Type L-20 parabolic silvered and coppered glass reflector and clear glass door. The unit complete includes the hanger for span wire suspension to which it is rigidly fastened.

Cat. No.	Wattage of Lamp	Ship. Wt., Lbs.
*257649	100, 150 or 200	50

\*Catalogue number does not include Mazda lamp.

Prices upon application.

### G-E Novalux Bracket and Center Span Highway Units



Bracket Type

beyond the outer edge of the outside reflector and directs it toward the road surface. There are openings in the lower part of all reflectors so that proper illumination will be given below the fixture.

For best results, these openings should be parallel with the road. It is for this reason that the unit is supported by a universal bracket instead of a long rigid pipe. This bracket permits adjustment for space between the post and the side of the road and also for curves and hills.

A 2500-lumen lamp is recommended for the straight series type, and a 200-watt lamp for the straight multiple type. Catalogue numbers and prices do not include lamp or pole.

The Novalux Highway Unit is a double searchlight. It consists of two sets of parabolic reflectors with the Mazda lamp mounted in the center and the filament at the focal point of both sets. Each set has three white-enamelled steel reflectors. The inside reflector intercepts the light rays that would ordinarily go



Center Span Type

#### Bracket Type

Description	Ship. Wt. Lbs.	Straight Series Type		Straight Multiple Type	
		Cat. No.	Price Each	Cat. No.	Price Each
With Universal Bracket	75	246478	\$27.50	246675	\$26.50
With Universal Bracket, 6-Ft. 7-In. Pole Extension.....	85	*289611	38.00	*289613	37.00
With Universal Bracket, 11-Ft. 7-In. Pole Extension.....	85	*289612	47.50	*289614	46.50

#### Center Span Type

With Adjustable Hanger	70	246479	\$29.00	246676	\$28.00
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\*Steps for these extensions: No. 248643, price \$2.50 each.

### No. 129804 G-E Novalux Porcelain Multiple Sockets

For Mogul Screw Base Lamps

Standard package, 500.

Shipping weight per 100 is 112 pounds.

Price, No. 129804.....each \$1.00



### No. 129803 G-E Novalux Porcelain Multiple Sockets

For Medium Screw Base Lamps



Standard package, 500.

Shipping weight per 100 is 112 pounds.

Price, No. 129803.....each \$1.00

**G-E Novalux Bracket and Center Span Highway Units**



The extended use of the automobile has brought with it a serious and irritating problem. Each car must provide sufficient road illumination to permit stopping or changing the direction of travel. The unrestricted light beams, however, are a serious menace to the safety of other drivers or pedestrians. The severity of the effects of glare is greatly increased in the case of headlights because of the extreme contrast with the dark surroundings. First, local ordinances and finally, state laws have been passed to regulate not only the size of the head lamp but the direction of its rays. It is impossible however, strictly to enforce these conditions, and as a result the danger from glaring headlights is still a menace.

**The Requirements**

The failure of other methods induced a study of the problem from another viewpoint. Highway lighting must be uniform and general. The road must furnish the light and not the automobile. On that basis a lighting system would embody many of the characteristics of an ordinary street lighting system with certain modifications to meet the new conditions imposed.

1. The intensity of light on the road surface must be fairly uniform.
2. The rays of light must be confined to the road surface and not spread out equally in all directions.
3. The height of the lamp must be sufficient to remove the light source from the normal line of vision.
4. The fixture must accommodate a fairly small lamp and yield a high degree of illumination. It must apply the utmost efficiency in distributing this illumination by bending all upward and outward rays.

**The Fixture**

The Novalux Highway Unit is a double searchlight. It consists of two sets of parabolic reflectors with the Mazda lamp mounted in the center and filament at the focal point of both sets. Each set has three white-enameled steel reflectors. The inside reflector intercepts the light rays that would ordinarily go beyond the outer edge of the outside reflector and directs it toward the road surface. There are openings in the lower part of all reflectors so that proper illumination will be given below the fixture.

For best results, these openings should be parallel with the road. It is for this reason that the unit is supported by a universal bracket instead of a long rigid pipe. This bracket permits adjustment for space between the post and the side of the road and also for curves and hills.

**Recommended Spacing**

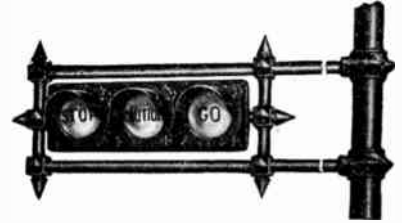
State Highway with Dense Traffic	200 to 300 Feet Spacing
"    "    "    Less    "	300 " 400 "    "
Improved Road.....	400 " 500 "    "
Country Road.....	500 " 600 "    "
Mounting Height.....	30 Feet or More above the Road Surface
Size of Lamp.....	250 Candlepower

**Crouse-Hinds 1-Way Traffic Signals**

4 per Intersection

**Horizontal Bracket Mounted Signals**

The horizontal bracket signal must of necessity overhang the roadway, and therefore it is necessary to have the correct road clearance, usually 14½ feet. A horizontally mounted signal at this height gives a good angle of visibility, and is being used generally throughout the country.



Cat. No. 29940—Type TSH11

**Post Mounted Signals**

The tendency toward the use of one-way signals on the four far right corners of the intersection is marked, because such signals are more efficient, and because a more ornamental installation may be obtained with them.



Cat. No. 40000  
Type TSP11  
Underground Feed

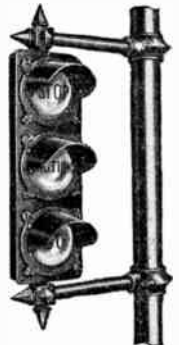
There will be no span wire or mast arm projecting over the intersection, and in place of the tubular steel poles used for the overhead signal, the one-way signals are usually mounted on ornamental poles, the design of which harmonizes with the design of the signal and gives an attractive appearance to the installation.

This type of construction is used when a complete new traffic signal installation is made; that is, when it is desired to install the signals on new ornamental poles.

**Vertical Bracket Mounted Signals**

The popularity of the one-way vertically mounted signal on the far right corner has led to the development of a signal which may be mounted on existing poles.

In some cases these are mounted close to the pole so that none of the signal overhangs the roadway, and under these conditions the signal may be mounted at the correct height for visibility, namely 11 feet to the center of the amber lens. If, however, long bracket arms are used, so that the signal overhangs the roadway, it is necessary to have a clearance of 14½ feet, and this requires a pole 19 feet high.



Cat. No. 29932  
Type TSV11

**Cat. No. 45652**

**Automatic Control Cabinets  
Steel Pole Mounting**



Complete with Type D-2 automatic variable timing switch, main line switch, plug fuse cutouts, steady amber switch and flashing amber switch for steel pole mounting.

One-way signals can also be furnished in span-wire and mast-arm mountings.

Prices of all signals upon application.



## Type RM-11 Crouse-Hinds Individual Traffic Signal Units



With Prismatic Diffusing Lenses—Green, Amber and Red



With Diffusing Semaphore Lenses—Green, Amber and Red

When a one-way, one-section signal unit is required, the Type RM-11 may be advantageously used. This unit can be used for railroad signals, traffic towers, bridge approach signals and for scoreboards and many similar uses.

The casings are equipped with 3/4-inch conduit hubs on top and bottom for convenience in wiring and, when so specified on the order, the casings may be tapped on either or both sides for a 1/2-inch conduit.

Signal units with prismatic diffusing lenses are equipped with glass parabolic reflectors, and those with diffusing semaphore lenses are equipped with white porcelain enameled reflectors. The units are designed to take 50-watt, 110 or 220-volt mill type Mazda B lamps in P-19 bulb.

### With Diffusing Semaphore Lenses

Cat. No.	Description	Net Wt., Lbs.
29740	Type RM-11 with Green Lens	20.5
29742	Type RM-11 with Amber Lens	20.5
29741	Type RM-11 with Red Lens	20.5

### With Prismatic Diffusing Lenses

29743	Type RM-11 with Green Lens	19
29745	Type RM-11 with Amber Lens	19
29744	Type RM-11 with Red Lens	19

## Crouse-Hinds Automatic Variable Control Cabinets

550 Watts, 110 Volts, 60 Cycles, A.C.



Pedestal Mounting



Steel Pole Mounting

These cabinets are furnished with automatic variable timing switch Type D-2, Cat. No. 45628 (without base light switch) or Cat. No. 45629 (with base light switch). Wired complete.

### Type D-2—Automatic Operation Only

In cast aluminum weatherproof size 11 cabinet with lock.

Description	CATALOGUE NOS.	
	With Cat. No. 45628 Switch	With Cat. No. 45629 Switch
Pedestal Mounting	45644	45645
Steel Pole Mounting	45652	45653
Wood Pole Mounting	45660	45661

### Type D-2—Combined Automatic and Manual Operation

In cast iron weatherproof size 17 cabinet with lock.

Pedestal Mounting	45648	45649
Steel Pole Mounting	45656	45657
Wood Pole Mounting	45664	45665

Prices upon application.

## Crouse-Hinds Electric Flashing Beacons Prismatic Diffusing Lenses For Multiple Circuits—Arranged for 5 Lamps



Type TFA-44 Underground Feed Pedestal Mounting



Type TFA-44 Overhead Feed Pedestal Mounting

Cat. Nos.	Description	Cat. No.
30004	For 110-Volt, 60-Cycle A.C.	30008
30005	For 220-Volt, 60-Cycle A.C.	30009
30006	For 110-Volt, 25-Cycle A.C.	30010
30007	For 220-Volt, 25-Cycle A.C.	30011



Type TFM-44 Mast-Arm Mounting



Type TFW-44 Span-Wire Mounting

Cat. Nos.	Description	Cat. No.
30028	For 110-Volt, 60-Cycle A.C.	30020
30029	For 220-Volt, 60-Cycle A.C.	30021
30030	For 110-Volt, 25-Cycle A.C.	30022
30031	For 220-Volt, 25-Cycle A.C.	30023

Electric flashing beacons are to be used only at those places which are dangerous from a physical point of view, such as blind corners, unexpected dead-end streets, curves, hills, etc., and are to serve as warnings of such dangerous places.

All flashing beacons are regularly furnished with four amber prismatic diffusing lenses and one clear prismatic diffusing lens in bottom. Any combination of colored lenses will be furnished without extra charge.

Type TSS-15 motor flashing switch is furnished with the above beacons.

## Type TSS-15 Motor Flashing Switches



External View



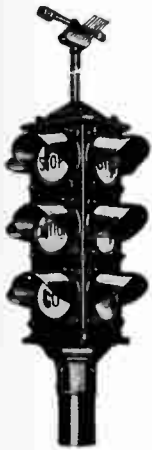
With Housing Removed

For 110-Volt, 60-Cycle A.C.—Cat. No. 30050.  
For 220-Volt, 60-Cycle A.C.—Cat. No. 30051.

Prices on all beacons upon application.

**Crouse-Hinds 4-Way Traffic Signals**

One per Intersection  
Post Mounted Signals



Type TSP44

Overhead Feed—Cat. No. 40140  
Underground Feed—Cat. No. 30297

The Type TSP-44 isolated signal is used when it is desired to have an ornamental installation. It is for use on wide thoroughfares carrying a heavy volume of traffic, and is usually installed in the center of the intersection, thus dividing the roadway.

It may be used either as an isolated signal or as a part of an electrically interlocked traffic system.

The foundation which is recommended is one which has a 36-inch diameter bottom, 24-inch diameter top, and 30 inches above ground, and extending approximately 18 inches below the surface of the roadway.

The signal may be arranged for either overhead or underground feed, but the latter is preferable.

**Span-Wire Mounted Signals**

One of the most popular types of isolated signals is the one which is to be suspended on a span wire. It can usually be mounted on existing poles, and, if no two poles approximately diagonally opposite are available, other conveniently located poles may be used and a pull-off installed to put the signal over the approximate center of the intersection.

This span-wire type of construction is advisable on narrow roadways or where there are car tracks, when it is desired to use the 4-way center type of signal. The signal should be suspended to give the road clearance required by law, usually 14½ feet.



Cat. No. 30293  
Type TSW44

**Mast-Arm Mounted Signals**



Cat. No. 30289  
Type TSM44

The mast-arm type of signal is usually used at street intersections where there is only one suitable pole available and where it is inadvisable to erect another pole.

It is, of course, not possible with mast-arm construction to put the signal in the center of the intersection because the mast arm would be too long, but if the signal is mounted on a 10-foot mast arm it is visible along both streets and makes a satisfactory installation.

The installation cost of this signal is usually less than the cost of a span-wire signal.

Cat. No. 45652

**Automatic Control Cabinets  
Steel Pole Mounting**

Complete with Type D-2 automatic variable timing switch, main line switch, plug fuse cutouts, steady amber switch, and flashing amber switch for steel pole mounting.

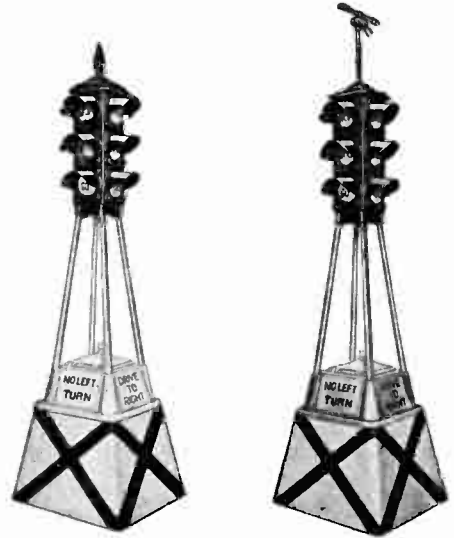
The above types of signals can also be furnished in 2 and 3 ways, and with lights or bells in the bottom. Multi-faced signals with adjustable faces can be furnished in from 2 to 6 ways.

Prices of all signals upon application.



**Crouse-Hinds 4-Way Pedestal Mounted Traffic Signals**

One per Intersection



Type TIA-44 with Base Light Underground Feed      Type TIA-44 with Base Light Overhead Feed

Cat. Nos.	Description	Cat. Nos.
40497	For 110-Volt, 60-Cycle A. C.	40501
40498	For 220-Volt, 60-Cycle A. C.	40502
40499	For 110-Volt D.C.	40503
40500	For 220-Volt D.C.	40504

The Type TIA-44 Isolated Signal is designed for use in wide thoroughfares, carrying a heavy volume of traffic, when it is particularly desired to separate the two halves of the roadway. The signal is usually installed in the center of the intersection, but may be installed in the throat of one street.

The pedestal type signal complete is mounted on top of a permanent concrete foundation, which is approximately 40 inches square at the bottom, 30 inches square at the top, and 30 inches high, and the foundation should extend approximately 18 inches below the surface of the roadway.

The above signal is furnished complete with Type D-2 automatic variable timing switch, main line switch and cutout, flashing amber switch, steady amber switch, and base light switch—within the base casting.

**Foundation Forms**

For All Pedestal Type Signals and Beacons



No. HL8469—Side View



No. HL8469—Top View

Made of No. 10 B & S gauge iron, formed up and butt welded into solid form. It not only serves as a form in which concrete foundation is molded, but also as a permanent protecting shield to the concrete. The top edge is turned over and accurately drilled for setting the foundation bolts, which are furnished with form. It has the correct slope to the sides to insure its illumination by the base light.

Cat. No.	Description	Net Wt., Lbs.
HL8469	Form, 40 Inches Square at Bottom, 30 Inches Square at Top, 30 Inches High	190
HL9172	Form Similar to Above, Except Round, 24 Inches in Diameter at Top and 36 Inches in Diameter at Bottom	190

Prices upon application.

## Crouse-Hinds Automatic Variable Timing Switches

### Cast Aluminum

550 Watts, 110 or 220 Volts, 60 Cycles A.C.



Type D-2

Inclosed in a housing suitable for indoor use.

Each switch is furnished with plug fuse cutouts for motor and signal circuits, main switch, steady amber, and flashing amber,

with or without base light switch. These are mounted on and are part of the timing switch.

Traffic cycle required should be specified on all orders.



Type D-2  
Housing Removed

### Type D-2

Cat. No.	Without Base Light Switch	With Base Light Switch	Range in Seconds	Voltage	Frequency	Net Weight Pounds
45628	45629		*40-120	110	60 Cycles	24
45630	45631		40-120	220	60 Cycles	24
45632	45633		30- 90	110	60 Cycles	24
45634	45635		30- 90	220	60 Cycles	24

### Type DSB-2—Synchronous—Automatic Brake

45636	45637	†60	110	60 Cycles	25
45638	45639	†60	220	60 Cycles	25

### Type DSR-2—Synchronous—Resynchronizing

45640	45641	†60	110	60 Cycles	26
45642	45643	†60	220	60 Cycles	26

\*Unless the voltage, frequency and range are specified on order, these are considered standard.

†Total period. Synchronous timers can be furnished for total periods and frequency of supply circuit other than 60 seconds and 60 cycles, if required.

The total period of Types D-2, DSB-2 and DSR-2 Timing Switches includes the two amber periods.

Prices of all timing switches upon application.

## G-E Type N-1 Novalux Protectors

For Use with Type RO Transformers and

Novalux Controllers



Open circuits in series street lighting systems are unavoidable, especially on aerial circuits and it is desirable that when an open circuit does occur the primary of the main transformer be deenergized. This protector operates in conjunction with a CR7840 Novalux Controller and its function is to open up the switch in the controller as soon as an open circuit takes place.

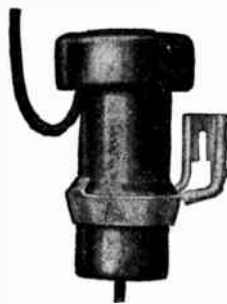
Mechanism consists of 2 solenoids working in opposition with a common armature. One solenoid is energized by controlling circuit, the other by the load circuit to be protected. Under normal conditions both coils are en-

energized and the common armature remains in its lower position. When an "open" occurs in load circuit, lower solenoid is deenergized and armature rises instantly because of overbalancing force of upper solenoid.

Six quarts of No. 10C oil, included in price.

Cat. No.	Control Circuit	Protected Circuit	Ship. Wt. Lbs. Less Oil	Price Each
13X974	6.6 Amps.	6.6 Amps., Series	45	\$50.00
13X975	6.6 Amps.	7.5 Amps., Series	45	50.00
13X976	7.5 Amps.	7.5 Amps., Series	45	50.00
13X977	7.5 Amps.	6.6 Amps., Series	45	50.00
13X978	110 Volts	6.6 Amps., Multiple	45	50.00
13X979	110 Volts	7.5 Amps., Multiple	45	50.00

## G-E Novalux Lightning Arresters



Pellet-Type Oxide Film Arrester for Primary Protection

For lightning protection on primary side of constant-current transformers, pellet type oxide film arresters are recommended.

Each pellet arrester consists of hundreds of miniature oxide film cells, in series and parallel, allowing high-voltage impulse discharges to go through in a number of parallel paths.

The pellet arrester is sensitive to a continuously applied system voltage above its maximum rating and consequently when using these arresters, voltage ratings must not be exceeded.

The pellet-type arrester can be used, within certain limits, on the load side of the transformers.

Arresters must be thoroughly grounded to obtain best protection, and all connections between arresters, lines and ground should be straight and without turns.

### Pellet and Compression Chamber For Outdoor Service Only

For Systems with Non-Grounded Neutral

Cat. No.	*Circuit Min.	Voltage Max.	No. of Arresters Required at Installation			Ship. Wt. Lbs.	Standard Package	Price Each
			Single-Phase	3-Phase	Approx.			
†2906822G1	0	750	2	3	4	24	\$4.35	
†2906823G1	0	750	1	.	7	12	7.00	
†2906822G2	0	750	2	3	4	24	4.20	
†2906823G2	0	750	1	.	7	12	6.70	
2923407G1	1000	3000	2	3	13	12	11.50	
2596671G1	3000	6000	2	3	25	6	21.50	
2596671G2	6000	9000	2	3	37	6	30.00	
2596671G3	9000	15000	2	3	47	3	50.00	
2516584	15000	25000	2	3	350	1	165.00	
2516586	25000	37000	2	3	480	1	232.00	
2593137	37000	50000	2	3	600	1	436.00	

For Systems with Solidly Grounded Neutral

†146187	.....	.....	.	.	1.3	24	\$2.25
†2906822G3	.....	.....	.	.	4	24	4.20
2923407G1	3000	5000	3	3	13	12	11.50
2596671G1	5000	9000	3	3	25	6	21.50
2596671G2	9000	12800	3	3	37	6	30.00
2596671G3	12800	18000	3	3	47	3	50.00
2516584	18000	25000	3	3	350	1	165.00
2516586	25000	37000	3	3	480	1	232.00
2593137	37000	50000	3	3	600	1	436.00

For 2-Phase Systems

Treat installations on quarter-phase, 4-wire systems like two single-phase installations on ungrounded neutral 3-phase systems. Recommendations on arresters for quarter-phase, 3-wire systems on request.

### For Protection of Load Side of Series Lighting Transformers

Single-Pole Cat. No.	Kw. Rating of Transformers (Secondary Amperes (6.6 and 7.5))	Approx. Ship. Wt. Lbs.	Standard Package	Price Each
†2906822G2	1, 2, 3	4	24	\$4.20
2923407G1	5, 7.5, 10, 15	13	12	11.50
2596671G1	20, 25, 30	25	6	21.50
2596671G2	35, 40	37	6	30.00
2596671G3	50, 60, 70	47	3	50.00

\*Ratings apply only to constant-potential circuits, and for installations at altitudes up to 4000 feet. For altitudes above 4000 feet, obtain special recommendations.

†Compression-chamber type; all others are pellet type.

Use one arrester on outside wire at single-phase installation between an outside wire and neutral. Use also on neutral wire a Cat. No. 146187 or 2906822G3, if voltage to ground is not over 300 volts; if, on account of unbalancing, voltage is between 300 and 750 volts, use Cat. No. 2906822G3. Use 2 arresters at a single-phase installation between outside wires. A system is considered solidly grounded when no resistance or reactance is used in grounding the neutral.

**G-E Subway-Type RO Novalux Constant-Current Transformers**

**For A.C. 6.6-Amp. Series Lighting Circuits**  
Single-Circuit Secondaries



A constant-current transformer designed to operate automatically and be mounted in subways or manholes. It can be controlled by Novalux controllers or by any of the present methods of remote control.

Since poles carrying circuits overhead are being removed from many of the city streets, it was found desirable to use some type of transformer which could be mounted underground and thereby connected directly to the underground feeder circuits and to the underground street lighting circuits. This requirement resulted in the development of a subway type RO transformer.

This transformer is almost identical with the pole type, except that it is enclosed in a specially designed cast iron water-proof tank. It is necessary on the 25

and 30-kw. size subway transformer to construct it in a double-deck type, because of the necessity for the transformers to be narrow enough to be lowered and installed in a manhole, the cover of which is only 32 inches in diameter, maximum. The four leads are each brought out at a separate terminal.

Subway transformers are equipped with oil indicating plugs installed in the tanks to indicate the oil level without requiring the removal of the cover. The tanks should be filled with the top oil plug open until the oil runs out and then the plug should be closed. To test for oil level at any time the lower indicating plug should be opened. In case the oil does not flow out, this plug should be closed again and the top plug opened, additional oil being poured in until it flows therefrom. The plug should then be closed again.

If the primary circuit leads into the subway from overhead, pole-type cutouts can be used. If, however, the primary circuit is entirely underground, the D and W subway fuse cutouts must be used.

Prices include oil and hanger hooks.

Cat. No.	Normal Kw. Rating	Primary Amp. at Any Load	Extreme Width Inches	Extreme Height Inches	Gal. No. 10-C Oil	†Approx. Ship. Wt. Lbs.	*Price Each
279687	1	.66	22	38 <sup>3</sup> / <sub>8</sub>	20	640	\$340.00
279688	2	1.29	22	38 <sup>3</sup> / <sub>8</sub>	20	675	350.00
279689	3	1.93	22	38 <sup>3</sup> / <sub>8</sub>	20	705	360.00
279690	5	3.18	28 <sup>1</sup> / <sub>4</sub>	41 <sup>5</sup> / <sub>8</sub>	50	1025	465.00
279691	7.5	4.75	28 <sup>1</sup> / <sub>4</sub>	41 <sup>5</sup> / <sub>8</sub>	50	1100	460.00
279692	10	6.28	28 <sup>1</sup> / <sub>4</sub>	41 <sup>5</sup> / <sub>8</sub>	50	1150	510.00
279693	15	9.39	29 <sup>3</sup> / <sub>4</sub>	46 <sup>1</sup> / <sub>8</sub>	65	1310	550.00
279694	20	12.52	29 <sup>3</sup> / <sub>4</sub>	46 <sup>1</sup> / <sub>8</sub>	65	1455	715.00
279695	25	15.55	29 <sup>3</sup> / <sub>4</sub>	56 <sup>1</sup> / <sub>8</sub>	75	1855	815.00
279696	30	18.70	29 <sup>3</sup> / <sub>4</sub>	56 <sup>1</sup> / <sub>8</sub>	75	1855	870.00

\*For special voltages otherwise standard (other than 2200 to 2400) up to and including 5000 volts, add 10 per cent.

†For special voltages only from 5000 to 13200 and for special double ratings (such as 2300-4600), add 20 per cent.

For variable voltage primaries without taps, apply to the nearest Sales Office.

For special frequency otherwise standard (25, 30 or 40 cycles) in ratings up to and including 20 kw., add 25 per cent.

For 50 cycles, use 60-cycle prices.

For special frequency (25, 30 or 40 cycles) and special voltage (other than 2200 to 2400) up to and including 5000 volts in ratings up to and including 20 kw., add 50 per cent.

For special secondary current otherwise standard (from 5.5 to 20 amperes), use 6.0 ampere prices.

Fuses and cutouts are not included in Cat. No. or price.

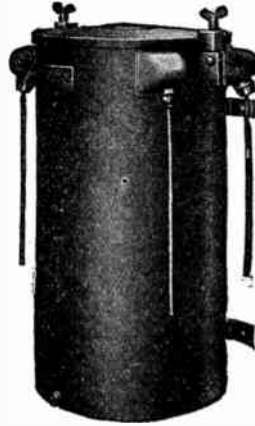
†Weight of oil not included—add 7 pounds per gallon.

The 2300-volt tap is good for operation from 2200 to 2400 volts; an extra tap is provided for operation at 2000 volts.

Lightning arresters must be used on all subway-type RO Transformers for protection, if the supply and load circuits are not entirely under ground.

**G-E Pole-Type RO Novalux Constant-Current Transformers**

**For Operating 6.6-Amp. Series Lighting Loads**  
12300 Volts (with 2000-Volt Tap)-60 Cycles



The Type RO is a constant current transformer which operates automatically. It can be mounted on poles in remote districts or where subdivided downtown lighting circuits are desired. It can be controlled by Novalux controllers, time switch, or main oil switch at the station.

Built in sizes ranging from 1 to 30 kw., to operate at any commercial primary voltage and frequency or secondary current, but the standard transformer is for 60 cycles, 2300 volts on the primary and 6.6 amperes on the secondary. The 2300-volt

transformer will operate satisfactorily on from 2200 to 2400 volts and a tap is provided on the primary for operation at 2000 volts without reduction of output.

The RO Transformer is positive and automatic in action, requiring no attendant or substation for starting or shutting down. A Novalux controller or similar remote control device can be used for operating the transformer. These features are combined with the same current regulation through as wide a range as offered by the best station-type constant-current transformer. This feature alone practically guarantees the normal life of the Mazda lamps operating on a circuit controlled by such a transformer. The efficiency is almost the same as for the station-type transformer and the power-factor is 80 per cent at maximum load.

The high internal reactance of the transformer serves to protect the lamps at starting and acts instantaneously to check surges on the line which would otherwise tend to shorten the life of the lamps.

The moving secondary coil with its high repulsion gives almost perfect regulation from full load to dead short circuit. This feature not only protects the lamps from changes in current, because of changes in secondary load, but also protects the lamps from fluctuations in primary voltage.

Prices include oil.

Cat. No.	Normal Kw. Rating	Primary Amp. at Any Load	Extreme Width Inches	Extreme Height Inches	Gal. No. 10-C Oil	†Approx. Ship. Wt. Lbs.	*Price Each
286181	1	.66	22 <sup>1</sup> / <sub>16</sub>	43 <sup>1</sup> / <sub>4</sub>	17	260	\$250.00
286182	2	1.29	22 <sup>1</sup> / <sub>16</sub>	43 <sup>1</sup> / <sub>4</sub>	17	275	260.00
286183	3	1.93	26 <sup>1</sup> / <sub>16</sub>	43 <sup>1</sup> / <sub>4</sub>	33	360	275.00
286184	5	3.18	26 <sup>1</sup> / <sub>16</sub>	43 <sup>1</sup> / <sub>4</sub>	33	410	310.00
286185	7.5	4.75	26 <sup>1</sup> / <sub>16</sub>	52 <sup>1</sup> / <sub>2</sub>	40	490	330.00
286186	10	6.28	26 <sup>1</sup> / <sub>16</sub>	52 <sup>1</sup> / <sub>2</sub>	40	540	360.00
286187	15	9.39	32 <sup>3</sup> / <sub>16</sub>	52 <sup>1</sup> / <sub>2</sub>	60	725	420.00
286188	20	12.52	32 <sup>3</sup> / <sub>16</sub>	52 <sup>1</sup> / <sub>2</sub>	60	800	470.00
286189	25	15.55	35 <sup>1</sup> / <sub>2</sub>	57 <sup>1</sup> / <sub>2</sub>	85	1085	585.00
286190	30	18.70	35 <sup>1</sup> / <sub>2</sub>	57 <sup>1</sup> / <sub>2</sub>	85	1210	620.00

\*For special voltages otherwise standard (other than 2000 to 2400) up to and including 5000 volts, add 10 per cent.

†For special voltages only from 5000 to 13200 and for special double ratings (such as 2300-4600), add 20 per cent.

For variable voltage primaries without taps, apply to nearest Sales Office.

For special frequency otherwise standard (25, 30 or 40 cycles) in ratings up to and including 20 kw., add 25 per cent.

For 50 cycles, use 60-cycle prices.

For special frequency (25, 30 or 40 cycles) and special voltage (other than 2200 to 2400) up to and including 5000 volts in ratings up to and including 20 kw., add 50 per cent.

For special secondary current otherwise standard (from 5.5 to 20 amperes), use 6.6-ampere prices.

†The 2300-volt tap is good for operation from 2200 to 2400 volts; an extra tap is provided for operation at 2000 volts.

†Weight of oil not included—add 7 pounds per gallon.

All transformers have single-circuit secondaries. If multi-circuit is desired refer to nearest Sales Office.

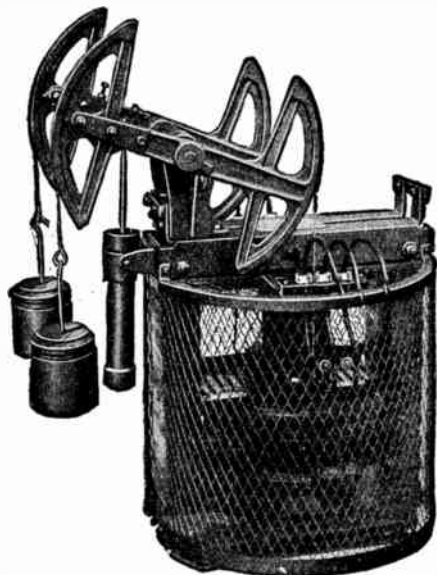
Lightning arresters must be used on all pole-type RO Transformers on both primary and secondary for protection. They are not included in price and catalog e number.

Suspension hooks are furnished with all Type RO Transformers for pole mounting, but where the net weight exceeds 1000 pounds the transformers must be mounted on a platform to assure safe installation.

## G-E Non-Automatic Station Type RV Novalux Constant Current Transformers

For Operating A.C. 6.6-Ampere Series Lighting Loads

2300 Volts (with 80 Per Cent Load Tap)—60 Cycles



The Type RV is a non-automatic, station-type, constant current transformer designed for use in central stations or substations where an operator is in attendance.

Because of the general adoption of series system for street lighting installations, it is necessary to have a transformer that will convert constant-potential energy to a constant-current energy. This requires a regulating device with a floating coil.

In many instances it is desirable to install a constant-current transformer in a station that is always attended. The RV Transformer is non-automatic and admirably serves this purpose.

Built in standard sizes ranging from 5 to 70 kw. output, or in special sizes for any commercial secondary current or frequency, or for any primary potential up to and including 132000 volts. Standard rating is 60-cycle, 2300 volts on primary, and 6.6 amperes on secondary.

The exceptionally fine regulation of G-E constant-current transformers insures rated lumen output, and full life of lamp. The transformer will maintain the secondary current within 1 per cent above or below normal from full load to short circuit, provided the primary potential and frequency remain at rated values.

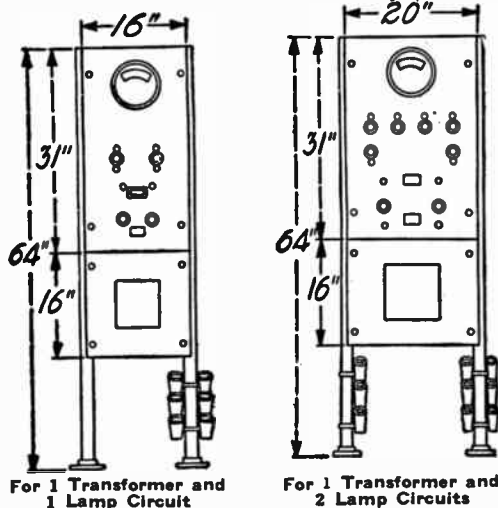
Cat. No.	Normal Kw. Rating	Primary Amp.	Primary KV-A. Input	Normal Secondary Load Volts	Secondary Open Circuit Volts	Ship. Wt. Lbs.	Price Each
197089	5	2.68	6.17	758	910	500	\$350.00
197091	10	5.35	12.30	1515	1820	650	410.00
197093	15	8.02	18.45	2275	2725	850	460.00
197095	20	10.70	24.61	3030	3640	1000	490.00
197097	25	13.38	30.80	3790	4550	1450	580.00
197099	30	16.05	37.00	4550	5455	1600	630.00
†*247080	35	18.73	43.10	5300	6365	1650	740.00
†*230125	40	21.40	49.25	6060	7275	1700	800.00
†*230127	50	26.75	61.50	7580	9100	1900	910.00
†*230129	60	32.10	73.90	9100	10910	2200	990.00
†*230131	70	37.45	86.20	10600	12750	2550	1130.00

\*Built with multi-circuit secondary. Transformers with multi-circuit secondaries cannot be operated as single circuit. Transformers for single-circuit operation can be furnished at standard prices up to and including 40 kw.; for 50, 60 and 70-kw. sizes, an extra charge will be made.

†Transformers from 35 to 70 kw. will be shipped on 80 per cent tap.

## G-E Plug Switch Panels For Non-Automatic Station Type RV Novalux Constant Current Transformers

6.6 or 7.5 Secondary Amperes, 2300 Volts



Panels are designed for the control of one single-circuit secondary or multi-circuit secondary constant current transformer and either one or two lamp circuits per transformer. Lamp circuits may be either arc or incandescent. All panels are rated on the basis of transformer kilowatt output at unity power-factor. They are designed for separate installation near the transformers they are to control and are not suitable for assembly in a switchboard.

The ammeters are connected in series with the secondary circuits through current transformers, thereby insulating the instrument from the high-voltage circuit and eliminating the need for an insulating cover.

Standard subbases equipped with a watt-hour meter and necessary current and potential transformers are listed.

The panels and subbase are asbestos ebony, 1½ inches thick with ¼-inch bevel, and are mounted on a self-supporting framework of 1¼-inch pipe 64 inches high. Blue Vermont marble may be substituted for asbestos ebony.

Each panel Cat. No. includes panel with framework, 5-amp. Type AR-2 ammeter with 10-amp. scale, current transformer, fused primary plug switches, secondary plug switches, necessary plugs, plug racks, card holders and name plate.

Each watt-hour meter Cat. No. includes one subbase with pipe fittings, 110-volt, 5-ampere Type IS-4 single-phase watt-hour meter, current transformer and potential transformer with fuses and supports.

### Panels for 1 Transformer and 1 or 2 Lamp Circuits

Normal Kw. Rating	Amp. Cap. Primary Fuses (Main Panel)	Current Transformer Cap. Amp. (Watt-hour Meters Subbase)	Panels for 1 Lamp Circuit		*Panels for 2 Lamp Circuits	
			Main Panel Cat. No.	Watt-hour Meter Subbase Cat. No.	Main Panel Cat. No.	Watt-hour Meter Subbase Cat. No.
5	4.0	10	2X518	2X538	2X528	2X548
10	6.0	20	2X519	2X539	2X529	2X549
15	10.0	30	2X520	2X540	2X530	2X550
20	12.0	40	2X521	2X541	2X531	2X551
25	15.0	50	2X522	2X542	2X532	2X552
30-35	20.0	60	2X523	2X543	2X533	2X553
40	25.0	80	2X524	2X544	2X534	2X554
50	30.0	80	2X525	2X545	2X535	2X555
60	40.0	100	2X526	2X546	2X536	2X556
70	40.0	125	2X527	2X547	2X537	2X557

Panel for 1 Transformer with 1 Lamp Circuit. each \$160.00

Panel for 1 Transformer with 2 Lamp Circuits. each 245.00

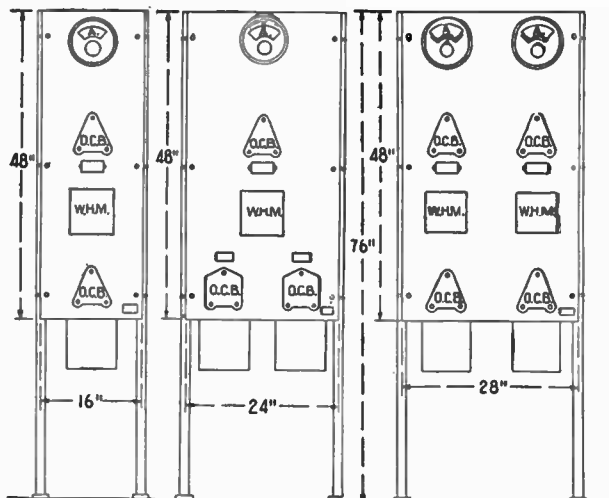
Subbases with Watt-hour Meters, for 1 or 2-Circuit Panels. . . . . each 110.00

\*Two-circuit panels up to and including 30 kw. are for transformers with single-circuit secondaries. Above 30 kw. panels are arranged for multi-circuit secondary transformers.



**G-E FK-41 Oil Circuit Breaker Panels**

For Non-Automatic Station Type RV Novalux  
Constant Current Transformers  
6.6 or 7.5 Secondary Amperes, 2300 Volts



For 1 Transformer and 1 Lamp Circuit

For 1 Transformer and 2 Lamp Circuits

For 2 Transformers with 1 Lamp Circuit per Transformer

Designed for the control of one single-circuit secondary or multi-circuit secondary constant current transformer and either one or two lamp circuits per transformer. Lamp circuits may be either arc or incandescent. Panels are for separate installation near the transformers they are to control and are not suitable for assembly in a switchboard.

Each panel Cat. No. includes panel with framework, 5-amp. Type AR-2 ammeter with 10-amp. scale, current transformer, necessary oil circuit breakers mounted on back of panel, enclosed primary fuses, card holders and name plate.

Each watt-hour meter Cat. No. includes 110-volt, 5-amp. Type IS-4 single-phase watt-hour meter, current transformer and potential transformer with fuses and supports. Watt-hour meter is mounted on front of main panel and instrument transformers and fuses on the back.

**Panels for 1 Transformer and 1 or 2 Lamp Circuits**

Normal Kw. Rating	Fuses (Main Panel)	Current Transformer Cap. Amp. (Watt-hour Meter Equipment)	Panels for 1 Lamp Circuit		Panels for 2 Lamp Circuits	
			Main Panel Cat. No.	Watt-hour Meter Equipment Cat. No.	Main Panel Cat. No.	Watt-hour Meter Equipment Cat. No.
5	4.0	10	2X438	258606	2X450	258606
10	6.0	20	2X439	258607	2X451	258607
15	10.0	30	2X440	258608	2X452	258608
20	12.0	40	2X441	258609	2X453	258609
25	15.0	50	2X442	258610	2X454	258610
30	20.0	60	2X443	258611	2X455	258611
35	20.0	60	.....	.....	2X456	258612
40	25.0	80	.....	.....	2X457	258613
50	30.0	80	.....	.....	2X458	258614
60	40.0	100	.....	.....	2X459	258615
70	40.0	125	.....	.....	2X460	258616

Panel for 1 Transformer and 1 Lamp Circuit... each \$160.00  
 Panel for 1 Transformer and 2 Lamp Circuits. each 245.00  
 Watt-hour Meter Equipment for 1 Transformer with 1 or 2 Lamp Circuits per Transformer... each 100.00

**Panels for 2 Transformers with 1 Lamp Circuit per Transformer**

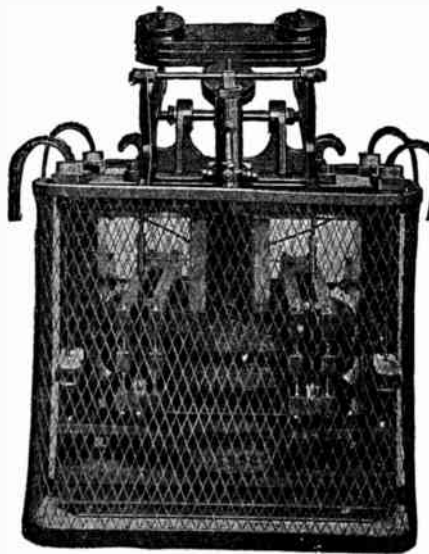
5	4.0	10	2X444	258617	.....	.....
10	6.0	20	2X445	258618	.....	.....
15	10.0	30	2X446	258619	.....	.....
20	12.0	40	2X447	258620	.....	.....
25	15.0	50	2X448	258621	.....	.....
30	20.0	60	2X449	258622	.....	.....

Panel for 2 Transformers with 1 Lamp Circuit per Transformer... each \$350.00  
 Watt-hour Meter Equipment for 2 Transformers with 1 Lamp Circuit per Transformer... each 200.00

\*Two-circuit panels up to and including 30 kw. are for transformers with single-circuit secondaries. Above 30 kw. panels are arranged for multi-circuit secondary transformers.

**G-E Automatic Station Type RF Novalux Constant Current Transformers**

For Operating A.C. 6.6-Ampere Series Lighting Loads  
 12300 Volts (No Taps)—60 Cycles



Type RF with Cage

Designed for use in an unattended substation. Can be used for any indoor installation.

Built in practically any capacity and for any commercial voltage, frequency and secondary current; but it is recommended that, on account of the high secondary voltage, capacities not exceeding 20 kw. be operated with single-circuit secondary. Sizes from 25 to 70 kw. are furnished with multi-circuit secondary.

Can be started up automatically with coil together and with only one lamp on circuit, regardless of capacity of transformer. Current surge not sufficient to destroy lamp.

Transformers are not provided with any taps, either for voltage or for partial load operation. Because constant voltage is maintained in the stations, no primary voltage tap is necessary. Because of high inherent reactance of transformers, if a partial load tap is furnished, operating characteristic will be impaired.

Equipped with protective screening of expanded metal. Balancing mechanism supported on ball bearings.

Cat. No.	Normal Kw. Rating	Primary Amp.	Trans. Kv.-a. Input	Secondary Load Volts	Secondary Open Circuit Volts	Ship. Wt. Lbs.	Price Each
295218	5	3	6.9	758	1035	600	\$400.00
295219	10	6	13.8	1515	2070	750	460.00
295220	15	9	20.7	2275	3100	950	525.00
295221	20	12	27.6	3030	4130	1100	575.00
295222	25	15	34.5	3790	5175	1300	675.00
295223	30	18	41.4	4550	6200	1650	750.00
295224	35	21	48.3	5300	7250	1800	840.00
295225	40	24	55.2	6060	8260	1850	860.00
295226	50	30	69.0	7580	10350	2200	900.00
295227	60	36	82.8	9100	12400	2550	1020.00
295228	70	42	96.6	10600	14500	3000	1250.00

For special voltages otherwise standard (other than 2200 to 2400) or special double-voltage ratings (such as 2300/4600 etc.), add 10 per cent. For variable voltage primaries without taps, apply to nearest sales office. For special frequency otherwise standard (25, 30 or 40 cycles) in ratings to and including 50 kw. add 25 per cent. For 50 cycles use 60-cycle prices. For special frequency (25, 30 or 40 cycles) and special voltage (other than 2200 to 2400) in ratings to and including 50 kw. add 50 per cent. For special secondary current otherwise standard (from 5.5 to 20 ampere), use 6.6-ampere prices.

†Built with multi-circuit secondary. Transformers with multi-circuit secondaries cannot be operated as single circuit. Transformers for single-circuit operation can be furnished up to and including 40 kw. at standard prices. For 50, 60 and 70-kw. sizes, add 10 per cent.

Transformers will operate from 2200 to 2400 volts. No primary voltage tap or partial load tap provided. If 80 per cent load tap is desired, add 5 per cent.

‡Lightning arresters must be used on secondary for protection if load circuit is not entirely underground.



## G-E Type SL Novalux Series Transformers

Subway and Aerial Types  
Protective Device and Film Cutouts  
\*For 60-Cycle, 6.6-Ampere Constant-Current Circuits



Pole Type

The Type SL Transformer is an insulating transformer, the primary winding of which is energized from a long series circuit and the secondary of which is used for supplying current to a small number of lamps connected in series and located where the high potential of the ordinary current series circuit would be objectionable.

Certain classes of lighting require a lower potential than is found on long series lighting circuits, and yet as they function similarly, it is desirable to control them simultaneously with the street lights.

The Type SL Transformer affords an ideal method for this control as the low-voltage series circuit is turned on and off

with the closing or opening of the main constant current transformer circuit.

Fixtures with series sockets and film cutouts must be used on these transformers.

The 0.04 to 1-kw. sizes contain no compound; 1 to 5-kw. sizes are compound filled; both are air-cooled. The 5, 7.5 and 10-kw. sizes are oil-filled.

Suspension hooks are furnished with all Type SL Transformers which have a capacity of over 4 kw. If cross arm suspension is required, specify hanger brackets.

Protective devices are included with the transformers except as noted. On subway-type transformers of 0.25 to 4-kw. capacity, the protective device is assembled in the cap of the transformer.



Subway Type

Kw. Output at Unity P-f. Load	Aerial Type			Subway Type		
	Cat. No. (6.6-Amp. Prim. and Secondary)	Ship. Wt. Lbs.	Price Each	Cat. No. (6.6-Amp. Prim. and Secondary)	Ship. Wt. Lbs.	Price Each
0.04	†195588	20	\$13.00	†195608	32	\$13.00
0.10	†195589	24	15.00	†195609	34	15.00
0.25	247012	36	23.50	†224345	47	23.50
0.50	247013	38	25.00	†224346	53	25.00
1.00	247014	68	32.50	†224347	75	32.50
2.00	247015	83	38.50	†224348	97	38.50
3.00	247016	126	49.00	†245953	140	49.00
4.00	247017	174	70.00	†247030	180	70.00
5.00	247018	290	92.50	247031	500	150.00
7.50	247019	400	114.00	247032	540	120.00
10.00	247020	470	132.00	247033	570	180.00

†Can also be furnished with 7.5-amp. primary and secondary; or 6.6 or 7.5-amp. primary and 15 or 20-amp. secondary.

‡Protective device not required and not included in these Cat. Nos. All other Nos. include protective device.

### Protective Device and Film Cutouts

Protective device and film cutout are the same for either 6.6 or 7.5-ampere secondary.

Protective devices are included in Cat. No. of SL transformer except as noted. This information is for ordering separate devices and film cutouts.

Pole Type Protective Devices				Film Cutouts			
Transformer Kw. Output	Cat. No.	Ship. Wt. Lbs.	Price Each	Cat. No.	Approx. Breakdown Voltage	Shipping Wt. per 100	Price Each
0.25	247063	10	\$3.75	147969	70-250	1/4	\$2.50
0.50	247063	10	3.75	147969	70-250	1/4	2.50
1.0	247064	10	3.75	65951	250-450	1/4	2.00
2.0	6X605	10	3.75	6X611	350-525	3	15.00
3.0	6X605	10	3.75	6X612	525-790	3	15.00
4.0	6X607	10	3.75	6X613	700-1050	3	15.00
5.0	6X608	10	3.75	6X614	875-1310	3	15.00
7.5	6X609	10	3.75	6X615	1310-1950	3	15.00
10.0	6X610	10	3.75	6X616	1750-2625	3	15.00

Subway Type Protective Devices			
5.0	247069	10	\$7.50
7.5	247070	10	7.50
10.0	247071	10	7.50

## G-E Type IL Novalux Series Transformers

For Use on 60-Cycle, 6.6-Ampere Constant-Current Circuits



These transformers allow the use of high efficiency series lamps where high potential is impracticable and unsafe. No film cutout is required since each lamp is independent of the others in the circuit. In case of an accident to one or more, the remainder of the lamps on the circuit burn without interruption.

For use with pendent units, transformers can be mounted on the cross arms of poles.

They save the expense of high-voltage conductors, heavy insulation and high tension cutouts.

When lamp wattage varies between 8% above and 20% below normal, secondary current will not vary more than 1.0% with normal primary current and frequency.

### Single Light

For operating one 6.6, 15, or 20-ampere series lamps from 6.6-ampere constant-current circuit.

Vault or Manhole Type with Primary and Secondary Detachable Couplings—Form B-55  
Pole Base Type with Primary Coupling and Secondary Wiping Sleeve—Form B-5

Cat. No.	LAMP RATING Lumens Amp.	Effective Voltage	Ship. Wt. Lbs.	Price, Each	Pole Base
4X583	4X577 1000/2500 6.6	102	25	\$21.35	\$19.60
4X582	4X576 2500/4000 6.6/15	164	34	25.15	23.40
4X581	4X575 4000/6000 15/20	110	35	25.50	23.75
4X580	4X574 6000/10000 20	102	36	25.75	24.00
4X579	4X573 10000/15000 20	176	68	35.00	33.25
4X578	4X572 15000/25000 20	273	105	41.75	40.00

Pole Base Type with Wiping Sleeves—Form B-2  
Aerial Type with Porcelain Bushings—Form A-2

Wiping Sleeve	Aerial	LAMP RATING Lumens Amp.	Effective Voltage	Ship. Wt. Lbs.	Price, Each	Pole Base	Wiping Sleeve	Aerial
4X571	4X565 1000/2500 6.6	102	20	\$15.00	\$15.00			
4X570	4X564 2500/4000 6.6/15	164	29	18.35	18.35			
4X569	4X563 4000/6000 15/20	110	31	18.65	18.65			
4X568	4X562 6000/10000 20	102	31	19.00	19.00			
4X567	4X561 10000/15000 20	176	63	28.50	28.50			
4X566	4X560 15000/25000 20	273	100	36.00	36.00			

### Two Light—In Series

For operating two 6.6, 15, or 20-ampere Mazda series lamps (in series) from 6.6-ampere constant-current circuit.

Transformers operate two lamps (in series) on the secondary. To avoid interruption of service fixtures with series sockets and film cutouts must be used. If both lamps on secondary burn out transformers operate with secondary short circuited.

\*Pole Type Base with Primary Couplings and Secondary Wiping Sleeves—Form B-6

Cat. No.	LAMP RATING Lumens Amp.	Effective Voltage	Ship. Wt. Lbs.	Price Each
\$286550	1000+1000/2500+2500 6.6	240	40	\$23.00
\$286549	2500+2500/4000+4000 6.6/15	240	58	30.00
\$286548	4000+4000/6000+6000 15/20	210	65	33.00
\$286547	6000+6000/10000+10000 20	195	68	36.00
\$286561	10000+10000/15000+15000 20	308	138	63.00

Pole Base Type with Wiping Sleeves—Form B-4

Cat. No.	LAMP RATING Lumens Amp.	Effective Voltage	Ship. Wt. Lbs.	Price Each
\$286545	1000+1000/2500+2500 6.6	240	35	\$18.00
\$286544	2500+2500/4000+4000 6.6/15	240	53	25.00
\$286543	4000+4000/6000+6000 15/20	210	60	28.00
\$286542	6000+6000/10000+10000 20	195	63	31.00
\$286556	10000+10000/15000+15000 20	308	133	58.00

Aerial Type with Porcelain Bushings—Form A-3

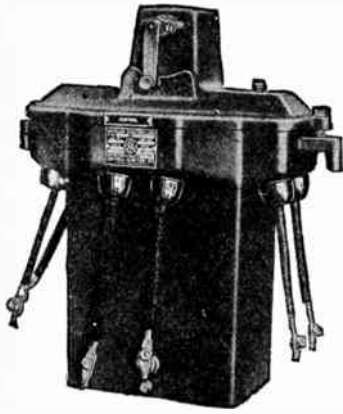
Cat. No.	LAMP RATING Lumens Amp.	Effective Voltage	Ship. Wt. Lbs.	Price Each
\$286540	1000+1000/2500+2500 6.6	240	35	\$18.00
\$286539	2500+2500/4000+4000 6.6/15	240	53	25.00
\$286538	4000+4000/6000+6000 15/20	210	60	28.00
\$286537	6000+6000/10000+10000 20	195	63	31.00
\$286551	10000+10000/15000+15000 20	308	133	58.00

Special transformers can be furnished for any commercial current, frequency, or lumen lamps. \*Can be furnished in vault type.

†1000/2500-lumen transformers are 1:1 ratio and secondary leads supply 6.6 amperes for both 1000 and 2500-lumen lamps. 2500/4000-lumen transformers have secondary leads supplying 6.6 amperes for 2500-lumen lamps and 15 amperes for 4000-lumen lamps. 4000/6000-lumen sizes also have leads which furnish 15 amperes for 4000-lumen lamps and 20 amperes for 6000-lumen lamps. 6000/10000, 10000/15000 and 15000/25000-lumen sizes have one set of secondary leads only supplying 20 amperes since the current required on all the leads is the same.

‡Maximum voltage which can be obtained by means of a voltmeter.

§Series sockets with film cutouts must be used with these transformers.

**G-E Novalux Remote-Control Apparatus****All-Night Type, CR7840-1304-A, B, C or D****Controllers**

Designed to control a Type RO pole or sub-way transformer by means of an adjacent series circuit or a multiple pilot wire control circuit. The 1304-A (with series coil) and B (with shunt coil) consist of a 2300-volt multiple oil switch assembled in the same weatherproof casing with a series operating coil insulated for 8000 volts; or a shunt 110-volt operating coil. If furnished for 6600 volts, it is designated as 1304-C (with series operating

coil) and 1304-D (with shunt operating coil).

The series coil will operate on any frequency, but different coils must be furnished for the various current ratings. The shunt coil will operate on circuits from 110 to 125 volts, but different coils must be furnished for the different frequencies. There is a 64-volt drop across the series coil when used on 6.6-ampere, 60-cycle circuit, and the power consumption is 77 watts. The shunt coil takes approximately 26 watts when operated on a 110-volt, 60-cycle circuit, and the inrush is approximately 6 amperes. The multiple oil switch will make, break, and carry continuously 50 amperes at 2300 volts.

The lever on the top of the case may be moved into three different positions.

The first position allows the apparatus to function automatically, so that when the operating coil is energized the controller is operated. The second position deenergizes the operating coil and drops open the controller so that even if the control circuit is turned on, the controller will still be "off" and the transformer or series circuit may be worked on with perfect safety. Position three engages the controller without the operating coil being energized, which allows the transformer to be thrown into operation manually in case of failure of the control circuit or for testing purposes.

**All-Night Latch Type, CR7840-1304-S or T**

Identical with the 1304-A and B, rated 2300 volts, 50 amperes, but is equipped with a special latch with following operation: When the control circuit, either series or multiple, is first turned on, the controller will engage and lock in. If the control circuit fails or is disconnected, the controller still remains engaged. If the control circuit is again energized, the controller still remains engaged but will be unlatched. When the control circuit is again deenergized the controller will drop out. This is designated as the "all-night latch" type, CR7840-1304-S (with series operating coil) and CR7840-1304-T (with shunt operating coil).

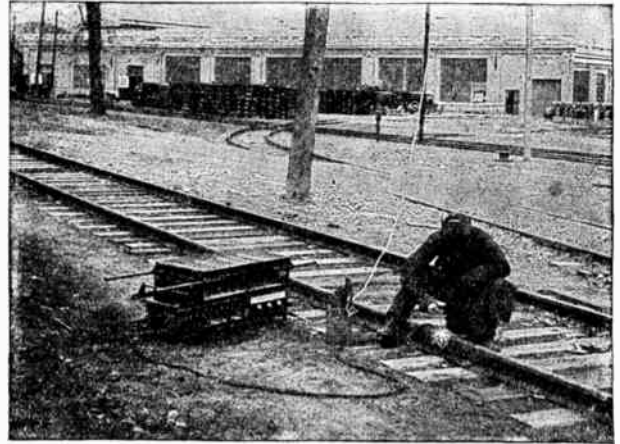
The hand lever may be used to close the controller manually and the controller may be disconnected by operating the control coil by means of the hand lever.

**CR7840-1235 Novalux Controllers**

A double or triple-pole, single-throw oil switch. Contacts are rated 50 amperes at 2300 volts and 30 amperes at 4400 volts. Contacts are closed by a 110 or 220-volt solenoid, energy for which is supplied by a potential transformer connected to the feeder circuit. Contacts, solenoid, and potential transformer are all included in a single weatherproof housing suitable for pole mounting.

**CR7840-1334 Novalux Series Control Switches**

Designed to control a low-voltage constant-potential load. It consists of a series operating coil and a single-pole single-throw contact. Series operating coil is insulated for 8000 volts and can be operated on a series circuit of any frequency. It is necessary to specify the current rating of the series circuit in which it is to be used. Contact tips will carry 25 amperes at 125 volts or 15 amperes at 250 volts. Switch is immersed in oil and enclosed in a weatherproof cast iron case.

**G-E Rail Bonds****Selection of Bonds****Welding Steel-Faced Rail Bonds with Arc Welder**

In construction where the rails are exposed the concealed type of bond is desirable as its location prevents it from outside injury and possibility of theft. The short "U" shape arc weld type bond attached to the head or ball of the rail is quite frequently used on account of its ease of installation and ready inspection. This type of bond is not recommended for "T" rails under 55 pounds. Theft of this bond is discouraged owing to the difficulty of removing it from the rail and the small amount of copper obtainable.

Operating conditions, section of rail and other elements form such an important part in the selection of the proper type and form of bond to be used that recommendations cannot be made without complete information covering the conditions to be met. In a general way the following suggestions may be helpful in determining the selection of bonds to meet standard conditions.

For city track construction where the rails are embedded in the pavement, the concealed type stud terminal bond is preferable, providing there is ample space under the joint plate to permit its use. Under circumstances where this type of bond is impracticable, a long single conductor arc weld or stud terminal type is recommended. For rebonding or bonding track which has been laid, the arc weld or acetylene type of bond, designed to be attached to the head of the rail, may be used to advantage as it can be installed without disturbing the pavement or removing the splice bars.

The manufacturer will gladly submit recommendations with drawings showing how best to meet any bonding conditions. Its engineering department is always at the service of customers to give expert advice on this important subject.

**Mine Bonding**

The bonds often used in mines, consisting of channel pins and short lengths of copper wire, are frequently found to be in such poor condition and of such high resistance that the return current leaves the rails and follows adjacent pipe lines and streams of water on its way back to the power house.

Where the rails are usually light in section and the nature of the roadbed permits excessive movement of the joints, cable bonds of either the stud terminal or arc weld type, long enough to span the splice bar, should be used.

For small rails when the full current capacity is to be utilized Forms D, SF-5, SF-6 or SF-8 bonds installed around the plates, are recommended, and, if given proper care in installation, give excellent results.

The bonds should be installed on the inside of the rail as close under the heads of the track bolts as possible. This reduces to a minimum the possibility of damage to the bonding when cars are derailed. Actual observation shows that bonds installed in this manner have been run over by the wheels of derailed cars without material injury to the bonds.

## G-E Form SF Electric Arc Welded Rail Bonds

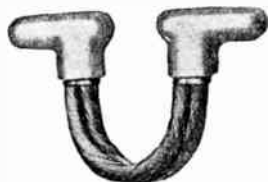
Used on electric railways and in mines, as the metallic arc welding process enables the bonds to be shaped for and applied to all parts of the rail without the need of special equipment.

Electrodes for arc weld bonds are not furnished free with bond orders. Electrodes are furnished in 17-inch lengths in either  $\frac{3}{16}$  or  $\frac{5}{32}$ -inch sizes.

### Approximate Amount of Welding Wire Required for Installing Arc Weld Bonds

No. of Bonds	Form	Capacity	Lbs. per 100
100	SF-1, 2, 3, 7	2/0	10
100	SF-1, 2, 3, 7	4/0	18
100	SF-5, 6, 8, SFC-5	2/0	14
100	SF-5, 6, 8, SFC-5	4/0	22

### For Head of Rail



Form SF-3-2

Form SF-3 single conductor and Form SF-3-2 double conductor bonds have L shaped terminals and are for application to head of rail.

These bonds have concave steel terminals which give a wide welding surface.

Suitable for either single or double bonding.

The standard overall length up to 4/0 capacity is 7 $\frac{1}{2}$  inches.

Form SF-1 single conductor and Form SF-2 double conductor bonds are similar to Forms SF-3 and SF-3-2, except that they have T shaped terminals which limit their use to single bonding where the bolt spacing is 5 inches or over.



Form SF-1 on Rail Head

### For Base of Rail



Form SF-5

Form SF-5 is designed for installing around splice bar close to web of rail with terminals resting on rail base. In this position bond should be welded to rail web.

Overall length of bond is 8 inches longer than the splice bars for 1/0 and 2/0 capacity, and 9 inches longer for 3/0 and 4/0 capacity.

Suitable for application to head of rail on Weber joints. Overall length of 3/0 and 4/0 bonds is 10 $\frac{1}{2}$  inches. Can be supplied in any length.



Form SFC-5

Form SFC-5 is the same as the SF-5 except that a pointed hook is added as part of the terminal. Hook is thin and pointed at end and can be driven under rail base on top of tie in case there is one in the way. Hook keeps terminals near edge of rail base and is of great advantage in holding the bond in position while welding.



Form SFC-5 on Rail Base

Overall length of bond is 7 inches longer than the splice bars for 1/0 and 2/0 capacity, and 8 inches longer for 3/0 and 4/0 capacity.

## G-E Form SF Electric Arc Welded Rail Bonds

Continued

### For Base of Rail



Form SF-6

Forms SF-6 and SF-8 bonds are designed for application around splice bar, for welding to top of rail base.



Form SF-8

The terminals of the SF-6 bond are semi-circular in section; and by placing the flat side against the rail base, the welding process can be carried along both sides as well as the end of the terminals.



Form SF-6 on Rail Base

The terminals of the Form SF-8 bond are flattened out and tapered down to a thin edge at the ends, which provide a wide welding surface. The welding is carried on the rail up over the tops of the terminals. The feature is advantageous for rails with a narrow base.

The overall length for either bond is 7 inches longer than the splice bars for 1/0 and 2/0 capacity and 8 inches longer for 3/0 and 4/0 capacity.

### Cross Bonds



Form SF 7

The Form SF-7 bond is recommended for all arc weld cross bonding. The entire bond is located below the rail base so that all parts of the bond are thoroughly concealed and protected from derailed mine cars or dragging equipment.



Form SF-7, Installed

The overall length is 6 inches greater than the track gauge, but more allowance can be made where desirable.

Form of Bond	Conductor Section	Schedule	Dimensions, INCHES (Overall) Length	Terminal Contact Area	Weight Pounds per 100	Price per 100
SF-1	00	7 $\frac{1}{2}$	1 $\frac{3}{4}$ x $\frac{7}{16}$	52.5	\$50.60	
SF-2	0000	7 $\frac{1}{2}$	2 $\frac{1}{2}$ x $\frac{1}{2}$	81.0	65.25	
SF-3-2	000	10 $\frac{1}{2}$	2 $\frac{1}{2}$ x $\frac{3}{8}$	84.5	69.85	
	0000	10 $\frac{1}{2}$	2 $\frac{1}{2}$ x $\frac{5}{8}$	97.0	74.05	
SF-5	00	24	2 x $\frac{3}{8}$	107.4	79.30	
	00	28	2 x $\frac{3}{8}$	121.0	86.50	
SFC-5	0000	29	2 $\frac{1}{2}$ x $\frac{5}{8}$	197.4	128.20	
	0000	33	2 $\frac{1}{2}$ x $\frac{5}{8}$	219.0	139.00	
SF-6	00	23	1 $\frac{1}{2}$ x $\frac{5}{8}$	101.0	77.50	
	00	27	1 $\frac{1}{2}$ x $\frac{5}{8}$	117.6	84.70	
SF-8	0000	24	2 x $\frac{3}{4}$	170.4	114.70	
	0000	28	2 x $\frac{3}{4}$	192.0	125.50	
	0000	32	2 x $\frac{3}{4}$	213.6	136.30	
	00	50	1 $\frac{3}{4}$ x $\frac{7}{16}$	195.8	126.10	
SF-7	00	52	1 $\frac{3}{4}$ x $\frac{7}{16}$	202.6	129.70	
	0000	50	2 $\frac{1}{4}$ x $\frac{1}{2}$	310.8	184.90	
	0000	52	2 $\frac{1}{4}$ x $\frac{1}{2}$	321.6	190.30	

In figuring prices of arc weld bonds use price on smallest diameter of terminal listed. Schedule length is overall length measured from outer edge of terminals when conductor is straight and extended.

**G-E Forms H and HS Acetylene Welded Rail Bonds**

**G-E Compressed Stud Terminal Bonds**

Flame weld bonds, except cross bonds, are designed to be attached to head of rail and as they may be installed without removing splice bars or disturbing pavement, they can be used to advantage in connection with re-bonding work or bonding new track.

Bonds of this type are made with drop-forged, all-copper terminals, and with solid steel terminals mechanically attached to the copper conductors.

A copper sleeve is placed around the copper conductor at the point where the conductor emerges from the terminals. This sleeve, by deadening vibration, prolongs the life of the conductor strands.

Flux wire for flameweld bonds is a special composition phosphor bronze wire. It is furnished in only one diameter 3/16 inch by the American Steel & Wire Company. Approximately 20 pounds is required for one hundred 4/0 bonds. It is not furnished free with bond orders.

Form H-3 single conductor and Form H-3-2 double conductor bonds are designed for application to the head of the rail. The L shaped terminals are drop-forged onto the copper conductor. Terminal design permits bond to be used on rail joints having small clearance between center track bolts.



Form H-3-2

Bonds 7 or 7 1/2 inches long are recommended. Can be furnished any length.

Form H-1 single conductor and Form H-2 double conductor bonds are similar to Forms H-3 and H-3-2 except that they have T shaped terminals which limit their use to single bonding where the bolt spacing is 5 inches or over.

Form HS-1 single conductor and Form HS-2 double conductor bonds are for use on head of rail; they are also suitable for cross bonding. Bonds have steel terminals of triangular cross section which are mechanically attached to the copper conductor.



Form HS-2

Bond is installed on rail head with the open side of the terminals against the rail, thus forming a V shaped trough for filler metal. Triangular shape of terminals is of distinct advantage as the bond may be used for cross bonding by straightening out the loop and welding the bond to rail in an inverted position.

Bonds when used on head of rail are usually furnished 7 inches in length; for cross bonding, the single conductor bond is furnished in any length desired.

Form of Bond	Conductor Section	DIMENSIONS, INCHES		Weight Pounds per 100	Price per 100
		Schedule Length	Terminal Contact Area		
H-1, H-2, H-3 and H-3-2	0	7	2x1/2	39	\$44.50
	00	7	2x1/2	51	49.80
	000	7 1/2	2x1/2	72	62.60
	0000	7 1/2	2x1/2	81	65.25
	250000 c.m.	7 1/2	2x1/2	105	72.50
H-5 for Weber joints	00	8	2x1/2	54	51.40
	0000	10	2x1/2	94	72.50
HS-1 and HS-2	0	7	...	39	44.50
	00	7	...	51	49.80
	000	7	...	70	61.40
	0000	7	...	78	64.00
HS-2	250000 c.m.	7	...	102	71.00
	300000 c.m.	7	...	110	80.80
	350000 c.m.	7	...	124	90.00

Schedule length is the overall length measured from the outer edges of the terminals when conductor is straight and extended and smallest size diameter terminal listed for a corresponding bond section.

The studs of these bonds are of solid copper of exact size and have a depression on the center of the bottom surface for centering the compressor screw when installing.

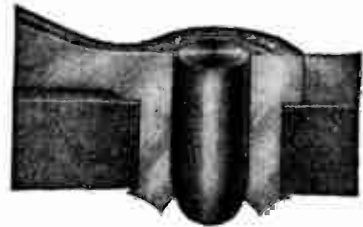
This type of bond is installed by use of a screw compressor exerting a pressure of approximately 20 tons. The compressing portion of the inner screw of the compressor is so designed that a rivet head cannot be formed on the terminal until the hole has been completely filled, even to the pores of the steel. The rivet or button head seals the union, and insures practically a moisture-proof joint. A solution of red lead and linsed oil may be applied to the terminal and adjacent steel, after compression. This will effectually seal the joint against the entrance of moisture.

To effect radial expansion of the copper in the hole equally in all directions, the inner screw of the bond compressor should be centered in the depression in the end of the terminal.

Holes should be drilled with well sharpened tools so that the walls and edges of the hole will be smooth and free from burrs and other irregularities. Bond holes should be of the exact diameter of the bond stud to be inserted.

Oil should not be used in the drilling of holes, as all traces of it cannot readily be removed from the hole, and oil will prevent proper contact between the copper and the steel. A solution of soda and water or plain water may be used, but care should be exercised to see that the hole is wiped perfectly dry before the terminal is inserted. Bonds should not be installed in damp weather. If these simple precautions be disregarded, the efficiency of the bonding will be greatly affected.

**G-E Tubular Stud Terminal Bonds**



These bonds are like compressed stud terminal bonds except that the studs are drilled for expanding radially in the holes in the rails. The illustration shows a sectional view of a tubular terminal expanded into a steel block representing the web of a rail. The effects of the expansion by the taper punch and drift pin are clearly shown.

The same general precautions in regard to drilling the rail and preparing the terminals should be taken as with compressed terminals. Greater care should be used, however, in having the hole drilled to size to insure the best results. After inserting the terminal in the hole, a long taper punch, well lubricated with oil or grease, is driven entirely through the terminal. The diameter of the punch is 1/16 inch larger than the hole in the terminal and it therefore forces the copper in the terminal radially against the walls of the hole. A short drift pin 1/32 inch larger than the maximum diameter of the taper punch is then driven home in the terminal, thus completing the expansion. In driving in the drift pin the copper of the terminal is slightly further expanded and a portion lying close to the pin is forced along by the pin out through the hole in the rail and expanded into a bell mouth. The diameter of the hole through the terminal is increased about 1/8 inch by the action of the taper punch and drift pin, forcing the copper into intimate contact with the steel rail. Tubular terminal bonds are particularly advantageous in rebonding on paved streets and around special work where dense traffic forbids the somewhat longer operation of installing compressed terminal bonds.

Steel drift pins are included in all shipments of tubular terminal bonds. Taper punches are supplied when ordered.

## G-E Ribbon Bonds

### Form A, Solid Terminals—Form AT, Tubular Terminals

The ribbon bond is particularly adapted to use under joint plates where the restricted space demands extreme compactness of design. The conductor of this bond is composed of thin copper ribbons with the greatest width in the horizontal plane, thus affording maximum flexibility in the vertical plane or in the direction of the greatest movement of the joint. The tucking of the conductor provides flexibility for the longitudinal movement of the rails.



Form A-5 Solid Terminal Ribbon Bond



Form AT-5 Tubular Terminal Ribbon Bond

Forms A-5 and AT-5 bonds have conductors equally divided in upper and lower branches and the tucking is located in the center of the bond. They are particularly adapted for single bonding large, girder and T-rails. The balanced bond can also be used on ordinary T-rails having special joint plates or on many of the patented joints. In double bonding large girder rails with two rows of track bolts, tee balanced bond will usually be found to give greater clearances.



Form A-6 Solid Terminal Ribbon Bond



Form AT-6 Tubular Terminal Ribbon Bond

Forms A-6 and AT-6 bonds have the conductor equally divided in upper and lower branches and the tucking is offset from the center of the bond. They are used in double bonding large girder and high T-rails. The bond holes are located at unequal distances from the ends of the rail making it necessary to offset the tucking so as to avoid interfering with the insertion of the track bolts or the terminals of the second bond. Unless otherwise specified the tucking is offset 1 inch from the center of the bond as this is suitable for most conditions.



Form A-7 Solid Terminal Ribbon Bond



Form AT-7 Tubular Terminal Ribbon Bond

Forms A-7 and AT-7 unbalanced, center-tucked bonds having unequally divided conductors and the tucking located in the center of the bond are especially suitable for bonding T-rails having greater space below the track bolt than above.



Form A-8 Solid Terminal Ribbon Bond



Form AT-8 Tubular Terminal Ribbon Bond

Forms A-8 and AT-8 have conductors unequally divided and tucking is offset from the center.

## G-E Form B Ribbon Bonds



Form B bonds may be used on rails where the inner track bolts are located so as to permit drilling of the bond holes between the ends of the rails and the first bolt holes.

## Form C Ribbon Bonds



The Form C beveled head bond is adapted to use on the foot of T-rails having suspended joints. It is particularly suited to bonding third rails.

The terminal heads are beveled to correspond with the angle of the rail foot. As in the other ribbon bonds the conductor laminations are so disposed as to give maximum flexibility in the vertical plane. To determine the correct length of terminals for Form C bonds, inquiries and orders should be accompanied by a sketch of the rail cross section with measurements.

## Forms F and FT Cable Bonds



Form F-5 Solid Terminal Cable Bond



Form FT-5 Tubular Terminal Cable Bond

Forms F-5 and FT-5 bonds have conductors equally divided in upper and lower branches and the tucking is located in the center of the bond. The conductor consists of many fine strands all wound in the same direction with a short pitch. This form of bond is adapted to single bonding large girder and T-rails or the medium sizes of T-rails with special joint plates.



Form F-6 Solid Terminal Cable Bond



Form FT-6 Tubular Terminal Cable Bond

The conductors of Forms F-6 and FT-6 bonds are equally divided in the upper and lower branches and the tucking is offset from the center of the bond. These bonds are used in double bonding large girder rails and high T-rails when the bonds are placed one on each side of the rail and the terminals are staggered necessitating the offsetting of the tucks so as to avoid interference with the insertion of the track bolts or the terminal of the second bond.



Form F-9 Solid Terminal Cable Bond



Form FT-9 Tubular Terminal Cable Bond

The Forms F-9 and FT-9 bonds have conductors equally divided in the upper and lower branches pressed into approximately a triangular shape, thereby affording proper clearances for medium sizes of T-rails having restricted space above the track bolts. The tucking is located at the center of the bonds.



**G-E Forms F and FT Cable Bonds**



Form F-10 Solid Terminal Cable Bond



Form FT-10 Tubular Terminal Cable Bond

Forms F-10 and FT-10 bonds are similar to Forms F-9 and FT-9 except that the tucking is offset for double bonding. For the standard track bolt drillings, offsetting one inch from the center of the bond will locate the tucking at a point opposite the ends of the rails, and avoid interfering with the track bolts.

**G-E Forms D and DT Cable Bonds**



Form D Solid Terminal Cable Bond



Form DT Tubular Terminal Cable Bond

Forms D and DT cable bonds have terminals with offset shanks. The sleeve portion diverges from the web of the rail at an angle of 20 degrees thereby avoiding any sharp bends in the conductor in spanning a joint plate. The shanks of bonds to be used under the plate are at right angles to the terminal studs.

Forms D and DT cable bonds should be at least 6 inches longer than the joint plate which they are to span. The length is measured between centers of terminals when the bond is straight and extended.



Form D Solid Terminal Stud End Bond



Form DT Tubular Terminal Stud End Bond

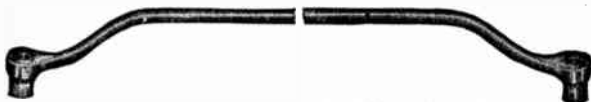
Stub end cable bonds are useful in bonding the various parts of special track work to the main bond around such special work. A stub end bond has but one terminal and a short length of conductor usually 12 inches long, but can be supplied in any length.

Orders should specify length from center of terminal to end of bond.

**G-E Forms E and ET Solid Wire Bonds**



Form E-2 Solid Terminal Wire Bond



Form ET-2 Tubular Terminal Solid Wire Bond

The Form E-2 and ET-2 bonds are formed so as to provide proper clearance around the joint plate. A bond having a formed length of 6 inches longer than the joint plate should be used.

**G-E Forms E and ET Solid Wire Bonds  
Cross Bonding**



Form E-1 Solid Terminal Solid Wire Bond



Form ET-1 Tubular Terminal Solid Wire Bond

Cross bonds should be at least 10 inches longer than the track gauge. This length permits burying the conductor in the ground, reducing the liability of loss by theft.

The length is measured between centers of terminals when the conductor is straight and extended.

**Stub End Solid Wire Bonds**



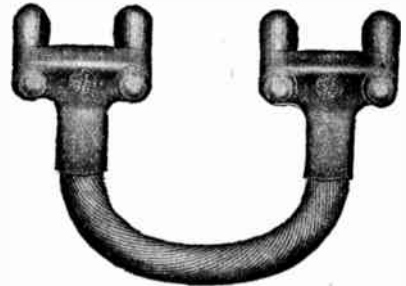
Form E Solid Terminal Stub End Bond



Form ET Tubular Terminal Stub End Bond

Stub end solid wire bonds also are used for bonding the various parts of special track work to the main bond around such special work.

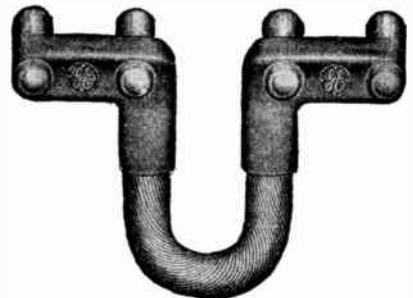
**G-E Form M Twin Stud Terminal Bonds**



Form M-1 Twin Terminal Cable Bond

Form M-1 bonds may be used on all joints where the distance between the two inner track bolts is such as will not interfere with the U-shaped conductor.

The Form M-2 bond has terminals like those of the Form M-1 bond and is made in any required length of conductor. It is used for cross bonding and spanning long distances.



Form M-3 Twin Terminal Cable Bond

The conductor of the Form M-3 bond emerges from one side of the terminal and is used on joints having very short spacing between the inner track bolts.



Form M-5 Twin Terminal Cable Bond

The Form M-5 bond is used on Weber Joints.



## G-E Rail Bond Prices

Stud Terminal Bonds with Solid Copper Terminals Arc and Gas Weld Bonds. Soldered Bonds with Either Ribbon, Cable or Solid Wire Conductors, Except Bevel Head Foot Bonds or Bonds with Tinned Studs. Welded or Soldered Type Bonds Take Prices of Smallest Size Terminals

Conductor	Diam. Terminal Inches	SCHEDULE LENGTHS AND PRICES PER 100 BONDS						
		4-in. Bonds	5-in. Bonds	6-in. Bonds	7-in. Bonds	8-in. Bonds	9-in. Bonds	
0	1/2	\$40.90	\$41.50	\$43.00	\$44.50	\$46.00	\$47.50	
0	5/8	41.50	44.00	45.50	47.00	48.50	50.00	
00	3/4	45.00	46.60	48.20	49.80	51.40	53.00	
00	7/8	50.50	52.10	53.70	55.30	56.90	58.50	
000	1	56.20	56.60	59.00	61.40	63.80	66.20	
0000	1 1/8	56.20	58.60	61.00	63.40	65.80	68.20	
00000	1 1/4	56.50	59.00	61.50	64.00	66.50	69.00	
000000	1 3/8	59.00	61.50	64.00	66.50	69.00	72.00	
250,000	1 1/2	62.00	65.00	68.00	71.00	74.00	77.50	
250,000	1 5/8	67.00	70.00	73.00	76.00	79.00	82.50	
275,000	1 3/4	65.10	68.80	72.50	76.30	80.00	84.00	
275,000	1 7/8	70.10	73.80	77.50	81.30	85.00	89.00	
300,000	2	68.80	72.80	76.80	80.80	84.80	89.00	
300,000	2 1/8	73.80	77.80	81.80	85.80	89.80	94.00	
325,000	2 1/4	.....	77.00	81.50	86.00	90.50	95.00	
325,000	2 3/8	.....	82.00	86.50	91.00	95.50	100.00	
350,000	2 1/2	.....	80.00	85.00	90.00	95.00	100.00	
350,000	2 5/8	.....	85.00	90.00	95.00	100.00	105.00	
375,000	2 3/4	.....	88.60	93.80	99.00	104.30	109.50	
375,000	2 7/8	.....	93.60	98.80	104.00	109.30	114.50	
400,000	3	.....	.....	97.00	103.00	109.00	115.00	
400,000	3 1/8	.....	.....	102.00	108.00	114.00	120.00	
425,000	3 1/4	.....	.....	101.00	107.00	113.00	119.00	
425,000	3 3/8	.....	.....	106.00	112.00	118.00	124.00	
450,000	3 1/2	.....	.....	105.00	111.00	117.00	123.00	
450,000	3 5/8	.....	.....	110.00	116.00	122.00	128.00	
500,000	3 3/4	.....	.....	120.00	127.50	135.00	142.50	
500,000	3 7/8	.....	.....	123.00	130.50	138.00	145.50	
1,000,000	4	.....	.....	.....	200.00	215.00	230.00	

Conductor	Diam. Terminal Inches	SCHEDULE LENGTHS AND PRICES PER 100 BONDS				
		10-in. Bonds	11-in. Bonds	12-in. Bonds	13-in. Bonds	14-in. Bonds
0	1/2	\$49.00	\$50.60	\$52.20	\$53.80	\$55.40
0	5/8	51.50	53.10	54.70	56.30	57.90
00	3/4	54.60	56.30	58.00	59.70	61.40
00	7/8	60.10	61.80	63.50	65.20	66.90
000	1	68.60	71.10	73.60	76.10	78.60
0000	1 1/8	70.60	73.10	75.60	78.10	80.60
00000	1 1/4	72.50	75.00	77.50	80.00	82.50
000000	1 3/8	75.00	78.10	81.20	84.30	87.40
250,000	1 1/2	81.00	84.50	88.00	91.50	95.00
250,000	1 5/8	86.00	89.50	93.00	96.50	100.00
275,000	1 3/4	88.00	92.00	96.00	100.00	104.00
275,000	1 7/8	93.00	97.00	101.00	105.00	109.00
300,000	2	93.50	98.00	102.50	107.00	111.50
300,000	2 1/8	98.50	103.00	107.50	112.00	116.50
325,000	2 1/4	100.00	105.00	110.00	115.00	120.00
325,000	2 3/8	105.00	110.00	115.00	120.00	125.00
350,000	2 1/2	105.50	111.00	116.50	122.00	127.50
350,000	2 5/8	110.50	116.00	121.50	127.00	132.50
375,000	2 3/4	115.30	121.00	126.80	132.50	138.30
375,000	2 7/8	120.30	126.00	131.80	137.50	143.30
400,000	3	121.00	127.50	134.00	140.50	147.00
400,000	3 1/8	126.00	132.50	139.00	145.50	152.00
425,000	3 1/4	125.00	131.50	138.00	144.50	151.00
425,000	3 3/8	130.00	136.50	143.00	149.50	156.00
450,000	3 1/2	129.00	136.00	143.00	150.00	157.00
450,000	3 5/8	134.00	141.00	148.00	155.00	162.00
500,000	3 3/4	150.00	157.50	165.00	172.50	180.00
500,000	3 7/8	153.00	160.50	168.00	175.50	183.00
1,000,000	4	245.00	260.00	275.00	290.00	305.00

Conductor	Diam. Terminal Inches	SCHEDULE LENGTHS AND PRICES PER 100 BONDS				
		15-in. Bonds	16-in. Bonds	17-in. Bonds	18-in. Bonds	18-in. Bonds Add to Price of 18-in. Bonds
0	1/2	\$57.00	\$58.70	\$60.40	\$62.00	\$1.50
0	5/8	59.50	61.20	62.90	64.60	1.50
00	3/4	63.10	64.90	66.70	68.50	1.80
00	7/8	68.60	70.40	72.20	74.00	1.80
000	1	81.10	83.70	86.30	88.90	2.30
0000	1 1/8	83.10	85.70	88.30	90.90	2.30
00000	1 1/4	88.00	91.50	95.00	98.50	2.70
000000	1 3/8	90.50	94.00	97.50	101.00	2.70
250,000	1 1/2	99.00	103.00	107.00	111.00	3.20
250,000	1 5/8	104.00	108.00	112.00	116.00	3.20
275,000	1 3/4	108.50	113.00	117.50	122.00	3.40
275,000	1 7/8	113.50	118.00	122.50	127.00	3.40
300,000	2	116.50	121.50	126.50	131.50	3.80
300,000	2 1/8	121.50	126.50	131.50	136.50	3.80
325,000	2 1/4	125.50	131.00	136.50	142.00	4.40
325,000	2 3/8	130.50	136.00	141.50	147.00	4.40
350,000	2 1/2	133.50	139.50	145.50	151.50	4.60
350,000	2 5/8	138.50	144.50	150.50	156.50	4.60
375,000	2 3/4	144.50	150.80	157.00	163.30	4.90
375,000	2 7/8	149.50	155.80	162.00	168.30	4.90
400,000	3	153.50	160.00	166.50	173.00	5.30
400,000	3 1/8	158.50	165.00	171.50	178.00	5.30
425,000	3 1/4	158.00	165.00	172.00	179.00	5.70
425,000	3 3/8	163.00	170.00	177.00	184.00	5.70
450,000	3 1/2	164.50	172.00	179.50	187.00	6.00
450,000	3 5/8	169.50	177.00	184.50	192.00	6.00
500,000	3 3/4	187.50	195.00	202.50	210.00	7.00
500,000	3 7/8	190.50	198.00	205.50	213.00	7.00
1,000,000	4	320.00	335.00	350.00	365.00	14.00

## G-E Rail Bond Prices

### Stud Terminal Bonds Not Listed

Intermediate sizes of conductor cross section in price schedule take price of next larger conductor cross section having smallest diameter terminal listed.

Intermediate diameters of terminals, other than those covered by the following schedule, take price of next larger diameter terminals.

### Standard List Prices and Standard Weights for Terminal Stud Bonds Having Larger Intermediate Diameter Terminals Than Shown in Previous Column

When Diam of Terminals in Inches Desired Is	ADD TO STANDARD PRICES For Terminals in Inches	Per 100 Bonds Class Y	ADD TO STANDARD For Terminals in Inches	Wt., Lbs. per 100 Bonds
9/16	1/2	\$1.30	1/2	2.6
11/16	5/8	1.60	5/8	3.2
13/16	3/4	2.00	3/4	4
15/16	7/8	2.50	7/8	5
1 1/8	1	6.00	1	12

### Additions for Rail Bonds Having Terminals Longer Than Standard Lengths

Diam of Terminal	DIMEN., IN. Standard Length Not over	Additions to Standard Price per 100 Bonds for Each 1/8 In. Class Y	Additions to Standard Wt., Lbs. per 100 Bonds for Each 1/8 In.
5/8	3/4	1.25	2.5
3/4	3/4	1.75	3.5
7/8	3/4	2.50	5.0
1	3/4	3.15	6.3
1 1/8	3/4	3.20	6.4

### Twin Stud Terminal Bonds

Twin terminal bonds are measured from a point in the center of a line drawn through the center of the two studs to the same point in the other terminal when bond is straight and extended.

The list price of twin terminal bonds is based on the largest size terminal scheduled for bond or equivalent cross section and length.

Conductor Section	Length In.	Wt., Lbs. per 100	Price per 100
00	7	61	\$55.30
0000	7	85	66.50
0000	7 1/2	87 1/2	67.75
0000	8	90	69.00
0000	9 1/2	97 1/2	73.50
250,000	8	118	79.00
300,000	8	128	89.80
350,000	7 1/2	138 1/2	97.50
350,000	8	143	100.00

### Bonds with Tinned Studs

For tinning any standard type stud terminal bond, including twin stud, add \$3.00 per 100 bonds.

### Bonds with Extra Large Terminal Cap

Providing for soldering in addition to compression, add \$7.00 per 100 bonds for stud of 1/8-inch diameter and smaller; for those having terminal diameters, larger than 1/8 inch, add \$10.00.

**G-E Form R-1 Removable Mine Bonds**



Form R-1 bonds are for use on temporary tracks only. The conductor is made of flexible copper strand, soldered into steel terminals. These bonds are installed or removed very easily, being merely driven in or out with a hammer. This does not injure the bond terminals and they can be reinstalled when tracks are moved.

Conductor	Diam. Term. In.	PRICE PER 100 BONDS					
		23-in.	24-in.	25-in.	26-in.	27-in.	28-in.
0	5/8	\$72.10	\$73.60	\$75.10	\$76.60	\$78.10	\$79.60
00	5/8	77.50	79.30	81.10	82.90	84.70	86.50
000	5/8	100.40	102.70	105.00	107.30	109.60	111.90
0000	5/8	112.00	114.70	117.40	120.10	122.80	125.50

Conductor	Diam. Term. In.	PRICE PER 100 BONDS					
		29-in.	30-in.	31-in.	32-in.	33-in.	34-in.
0	5/8	\$81.10	\$82.60	\$84.10	\$85.60	\$87.10	\$88.60
00	5/8	88.30	90.10	91.90	93.70	95.50	97.30
000	5/8	114.20	116.50	118.80	121.10	123.40	125.70
0000	5/8	128.20	130.90	133.60	136.30	139.00	141.70

**G-E Channel Pins**



Made with a straight groove deep enough to avoid cutting the wire in driving. Taper pointed and slightly larger than the hole so, when driven, they make a solid joint. The pins are made of soft steel, copper coated. For temporary work.

Cat. No.	Diam. of Pin, In.	Diam. of Pin Hole, In.	Size of Wire	Wt., Lbs. per 100	Price per 100
134175	3/16	3/32	6	20	\$16.00
17225	3/8	11/32	4	25	16.00
17224	19/32	9/16	0	46	24.00
134176	21/32	5/8	0	50	24.00
134177	25/32	3/4	0	108	30.00
134178	19/32	9/16	00	40	24.00
134179	21/32	5/8	00	50	24.00
17315	3/4	23/32	00	100	30.00
134180	25/32	3/4	00	108	30.00
134181	21/32	5/8	0000	40	24.00
17553	3/4	23/32	0000	70	30.00
134182	25/32	3/4	0000	78	30.00

**Taper Punches for G-E Tubular Terminal Bonds**



Cat. No.	Size Bond	TERMINAL DIMENS., IN.		TAPER PUNCH DIMENS., IN.		Price Each	Price per Dozen
		Diam.	Hole	Diam.	Lgth.		
126430	0	1/2	1/3	15/64	3 1/2	\$.35	\$3.50
126428	00	5/8	9/32	5/16	3 1/2	.35	3.50
126427	000	3/4	11/32	13/32	4	.35	3.50
125426	0000	7/8	13/32	15/32	4	.35	3.50
126429	*0000	1	9/16	5/8	5	.35	3.50

**Drift Pins for G-E Tubular Terminal Bonds**



When bonds of the tubular terminal type are furnished and extra quantity of loose pins, not exceeding 5 per cent, is furnished without charge.

Size Bond	TERMINAL DIMENS., IN.		DRIFT PIN DIMENS., IN.		Price per 100
	Diam.	Diam. of Hole	Diam.	Lgth.	
0	1/2	1/3	1/4	1 1/16	\$1.00
00	5/8	9/32	11/32	1 1/16	1.00
000	3/4	11/32	7/16	1 1/16	1.00
0000	7/8	13/32	1/2	1 3/16	1.50
*0000	1	9/16	21/32	1 1/2	1.50

**Separate Bond Terminals**



Form K-1 Solid Separate Terminal



Form KT-1 Tubular Separate Terminal



Form K-2 Solid Separate Terminal



Form KT-2 Tubular Separate Terminal

Separate bond terminals are furnished drilled and tinned for soldering to the conductor, which may be scrap trolley wire or feeder cable. They are useful in bonding special work where many different distances are to be spanned. Form K-1 terminals have shanks parallel to the web of the rail while the shanks of the Form K-2 terminals are at right angles to the web of the rail.

Conductor	DIMEN., IN.			TERMINALS				Price per 100
	Diam. of Stud	Length in Shank	Stand. of Drilling	Wt., LBS. PER 100	K-1	KT-1	K-2	
0	1/2	1/16	3/4	a27	a23	*	d23	\$20.00
00	1/2	..	..	a26	a22	*	d23	20.00
0	5/8	..	..	a29	a25	*	d25	25.00
00	5/8	1/16	23/64	a28	a24	*	d24	25.00
000	5/8	1/16	1/2	b53	b48	e56	e50	.....
0	3/4	..	..	a33	a28	*	d28	30.00
00	3/4	3/4	29/64	a32	a27	*	d26	30.00
000	3/4	3/4	1/2	b56	b51	e58	e53	37.50
0000	3/4	3/4	9/16	b54	b49	e56	e51	37.50
250,000 C.M.	3/4	..	..	b52	b47	e54	e49	37.50
0	7/8	..	..	..	..	..	..	35.00
00	7/8	..	..	..	..	..	..	35.00
000	7/8	3/4	1/2	b61	b54	f83	f56	42.50
0000	7/8	3/4	9/16	b59	b52	f61	f54	42.50
250,000 C.M.	7/8	3/4	5/8	b57	b50	f59	f52	42.50
300,000 C.M.	7/8	3/4	1/16	c91	c85	g112	g99	50.00
350,000 C.M.	7/8	..	..	c87	c81	g109	g95	50.00
400,000 C.M.	7/8	13/16	49/64	c87	c81	g110	*	55.00
450,000 C.M.	7/8	13/16	27/32	c84	c77	g105	*	55.00
500,000 C.M.	7/8	13/16	7/8	c79	c73	g100	*	.....
000	1	..	..	..	..	..	..	47.50
0000	1	..	..	..	..	..	..	47.50
250,000 C.M.	1	..	..	c104	c96	g125	g110	47.50
300,000 C.M.	1	..	..	c96	c88	g118	g103	55.00
350,000 C.M.	1	1/2	3/4	e92	c85	g114	g99	55.00
400,000 C.M.	1	13/16	43/64	e92	c85	g114	*	60.00
450,000 C.M.	1	13/16	21/32	e88	c81	g110	*	60.00
500,000 C.M.	1	13/16	7/8	e83	c76	g106	*	75.00

\*No tools.

†Terminals made from the same dies are indicated by the alphabetical letters a, b, c, d, e, f, g, opposite the weights. The discrepancy in weight for the same terminal is due to the larger drilling for the conductor.

## G-E Rail Bonding Tools Lovejoy Track Drills



Cat. No.	Description	Wt., Lbs. Each	Price Each
103415	Lovejoy Track Drill for T-Rail.....	60	\$20.00
103416	Lovejoy Track Drill for Girder Rail....	100	20.00

## Buda Hyduty Paulus Track Drills



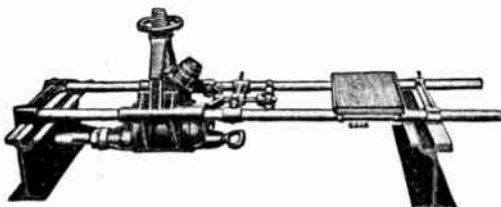
Cat. No.	Description	Wt., Lbs. Each	Price Each
156508	Paulus Track Drill for T-Rails.....	75	\$29.25
156509	Paulus Track Drill for Girder Rails....	80	35.75

## Round Straight Shank Drills For Lovejoy and Paulus Drills



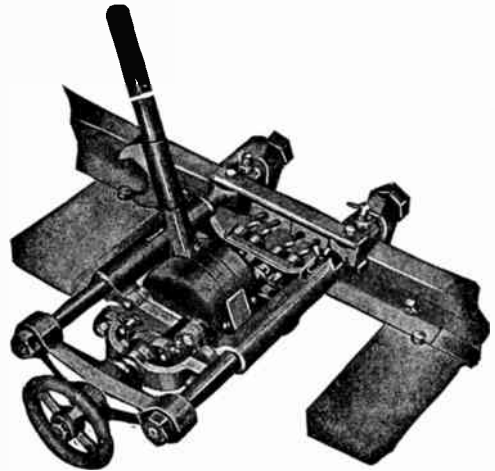
Cat. No.	Diameter Inches	Price Each	Cat. No.	Diameter Inches	Price Each
126218	1 1/32	.....	103441	2 3/32	.....
103434	1/2	.....	103442	3/4	.....
103436	9/16	.....	103446	7/8	.....
103438	5/8	.....	103450	1	.....

## Little Giant Electric Drills High Speed—Single Spindle



Cat. No.	Volts	Drill. Cap. in In. Dia. of Hole in Steel	Morse Round Taper Socket	Wt., Lbs. Each	Price Each
245353	600 d.c.	1	No. 2	90	\$250.00
245354			No. 3	140	305.00
245355			No. 3 or 4	185	380.00

## G-E Rail Bonding Tools Double-twin Spindle Drills



This machine drills all four holes at one time in the head of T-rails for the Twin Stud Terminal Bond. The drills are operated by a hand lever, or motor driven if desired.

Each spindle is provided with an adjusting sleeve so that each drill may be set independently of the others. Each machine is equipped with a gauge for determining the depth of the holes.

The levers by which the machines are operated are detachable so that the tools may be moved easily from place to place. Each drilling machine is equipped with one set of drills.

Cat. No.	Description	Wt., Lbs. Each	Price Each
103470	Hand-operated Double-twin Spindle Drill.....	125	\$360.00

## Little Giant Portable Electric Grinders



It carries an emery wheel 8 inches in diameter, is equipped with connecting cable and switch for 460 to 600-volt circuits.

Cat. No.	Wt., Lbs. Each	Price Each
103477	82	\$105.00

## Hand Screw Compressors

The compressor has a cylindrical sleeve which, in any position, is free to slide in or out of the frame with a single thrust, permitting quick adjustment. A quarter turn sets the sleeve, and the inner screw ram makes the compression on the terminal.



All compressors are designed for 3/8-inch diameter terminals.

Cat. No.	Description	Wt., Lbs. Incl. Wrench Each	Price Each
218276	T-Rails up to 45 Lb., 3 1/2 In.....	28	\$43.50
217028	T " " 80 " 5 1/8 ".....	65	60.00
217029	T " " under 6 1/4 In.....	80	65.00
217030	T- and Girder Rails under 7 1/4 In... ..	105	90.00
217031	T " " " up to 9 In.....	140	90.00
217032	T " " " 9 In. and over ..	165	100.00

## Hydraulic Screw Compressors

This tool compresses the terminals of bonds in the web of T- or girder rails.

Cat. No.	Description	Wt., Lbs. Each	Price Each
108051	Hydraulic Web Bond Compressor for T-Rails up to 100 lb. per Yard....	115	\$175.00
108482	Hydraulic Web Bond Compressor for Girder Rails up to 7 Inches high..	160	250.00
108483	Hydraulic Web Bond Compressor for Girder Rails up to 9 Inches High..	190	255.00

**G-E Railway Line Material**

The standard line material listed in the following pages is the result of wide experience in the design and manufacture of devices to meet every haulage requirement.

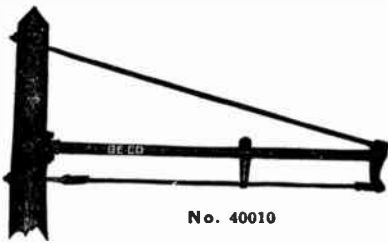
The insulating material used in the various suspensions, strain insulators, etc., is suitable for use under special conditions of high temperatures and is beyond the possibility of injury from any service temperatures.

The rust-resisting finish given these devices, unless otherwise stated in the tables, is applied by the electric oven sherardizing process.

In mines where acids are found in the mine water, sufficient in strength to cause a deterioration of a zinc coating, the japanned finish is preferred. It is recommended that a coat of heavy asphaltum paint be applied from time to time after installation.

Every effort has been made to include in the standard lists all the devices required in approved railway line construction.

**Form A1 Brackets for Wood Poles**



No. 40010

Pole brackets listed represent some of the standard forms called for in modern railway line construction and include the three styles of tube, the use of which has been approved in the best practice. The wrought iron pipe referred to in the table is standard welded gas and water pipe, and the structural tubing is a special high carbon steel tube with butt joint, which, because of the great stiffness of the material, does not require a welded seam.

Material	Nom. Diam. Inches	Inside Act. Diam. Inches	Outside Diam. Inches	Thickness of Wall Inches	Wt. Lbs. per Ft.
Wrought Iron Pipe.....	1 1/4	1.66	1.90	0.140	2.2
" " ".....	1 1/2	1.90	2.375	0.145	2.6
" " ".....	2	2.375	2.875	0.154	3.6
"A" Tubing.....	1 1/4	1.66	1.90	0.095	1.5
"A" ".....	1 1/2	1.90	2.375	0.095	1.87
"A" ".....	2	2.375	2.875	0.107	2.5
"C" ".....	1 1/4	1.66	1.90	0.140	2.2
"C" ".....	1 1/2	1.90	2.375	0.145	2.5
"C" ".....	2	2.375	2.875	0.154	3.5

Cat. No.	Description	Length Feet	Approx. Wt. Lbs. per 100	Price per 100
40009	1 1/2 in. A Tubing.....	9	3250	.....
40010	1 1/2 " C ".....	9	3800	\$765.00
40011	1 1/2 " Wrought Iron Pipe..	9	3900	765.00
40012	2 " A Tubing.....	9	3450	.....
40013	2 " C ".....	9	4000	975.00
40014	2 " Wrought Iron Pipe..	9	4100	975.00
156159	1 1/2 " A Tubing.....	10	3500	.....
156170	1 1/2 " C ".....	10	4125	820.00
156171	1 1/2 " Wrought Iron Pipe..	10	4225	820.00
156172	2 " A Tubing.....	10	3775	.....
156173	2 " C ".....	10	4425	1045.00
156174	2 " Wrought Iron Pipe..	10	4525	1045.00

All brackets listed are finished in black japan and are furnished complete including tube, guy rod, set of castings, cable, eyebolts and lag screws for wood poles or pole clamps for iron pole construction.

Brackets with cable, eyebolts and lag screws omitted may be furnished when desired.

Prices and information on other forms and lengths of brackets for wood poles and all forms of brackets for standard pipe poles furnished on request.

**G-E Form C Rigid Brackets**



No. 40027

Cat. No.	Tubing	Arm In.	Strut In.	Wt., Lbs. per 100	Length Feet	Price per 100
40027	A	1 1/2	1 1/4	2850	9	\$825.00
40028	C	1 1/2	1 1/4	3700	9	895.00
40029	Wrought I. Pipe	1 1/2	1 1/4	3800	9	895.00
40030	A	2	1 1/2	3800	9	1060.00
40031	C	2	1 1/2	5000	9	1145.00
40032	Wrought I. Pipe	2	1 1/2	5100	9	1145.00

For brackets for pipe poles, and other lengths, prices will be quoted upon application.

**G-E Cast Iron Pole Brackets**

For Supporting Pipe Bracket Arms



No. 15037

Cat. No.	Kind of Bracket	For Pipe Inches	Length Inches	Height Inches	Diameter of Hole Inches	Weight Pounds	Price per 100
15026	Medium	1 1/2	22 9/16	28 1/2	2 1/8	2400	\$670.00
15037	Long	1 1/2	30 9/16	28 1/2	2 1/8	3100	770.00
260521	Short	1 1/2	13	12	2 1/8	630	250.00

**G-E Form P Straight Line Suspensions**

Span Wire



For use on 1200 and 2400-volt d.c., direct suspension installations and suitable for changing present 600-volt lines to the higher voltages. All metal parts sherardized finish throughout.

Cat. No.	Description	Size Stud In.	Approx. Wt., Lbs. per 100	Price per 100
106824	Suspension, Complete	5/8	500	\$195.00
106826	Suspension without Guard.	5/8	375	145.00
106823	Porcelain Body, Only	5/8	305	120.00
106828	Suspension Yoke, Only	5/8	125	25.00
106829	Wheel Guard, Only	5/8	75	50.00

## G-E Pole Bracket Castings

### Outer End



Cat. No.	Form of Bracket	Size Tubing Inches	Approx. Wt., Lbs. per 100	Price per 100
125988	A-1	1½	175	\$120.00
125989	A-1	2	225	130.00
125990	A-2	1½	185	120.00
125991	A-2, B-2	2	240	130.00

### Center Casting

Cat. No.	Form of Bracket	Size Tubing Inches	Approx. Wt., Lbs. per 100	Price per 100
125992	A-1, A-2	1½	75	\$80.00
125993	A-1, A-2	2	85	85.00
270958	B	1½	240	120.00
270959	B	2	275	150.00
270961	C	1½	170	90.00
270962	C	2	200	100.00



### Pole End and Pole Strut Casting



Cat. No.	Form of Bracket	Size Tubing Inches	Approx. Wt., Lbs. per 100	Price per 100
125994	A-1, A-2, B	1½	125	\$80.00
125995	A-1, A-2, B	2	140	100.00
106819	C	1½	125	80.00
106820	C	2	140	100.00
*270960	B and C	...	110	50.00

\*Strut casting.

## G-E Form H Suspensions

Form H suspensions consist primarily of malleable iron shells into which the insulation holding the studs is permanently moulded. A load of over five tons is required to pull the stud from this form of suspension in the large size and about three tons in the small size.



### Straight Line

600 Volts



No. 25980

These are made in two sizes, 3¼ inches and 3½ inches in diameter, each of which is furnished with either 5/8-inch or ¾-inch stud. The 3½-inch suspension has extra heavy shell and arms and is designed for the heaviest construction.

Each of these suspensions, being in one piece, is held against turning by the span wire, and cannot, therefore, become unscrewed as a result of vibration in service. Special leather washers to permit adjustment in seating the ear boss against the suspension are listed. All metal parts including the stud have standard sherardized finish.

Over all length, 6½ inches; arm yoke accommodates 3/8-inch span wire.

Cat. No.	SHELL		Diameter Stud In.	Approx. Wt., Lbs. per 100	Price per 100
	Diameter In.	Height In.			
25980	3¼	2	5/8	210	\$105.00
39690	3½	2¼	5/8	265	120.00

143559 Leather Washer for 5/8-inch Stud 5 4.00

## G-E Form H Straight Line Suspensions



600-Volt

Made in two sizes having 3¼-inch diameter shell (No. 25980) and 3½-inch diameter shell (No. 39690). The 3½-inch suspension has extra heavy shell and arms; designed for the heaviest construction.

### With 5/8-Inch Stud

Cat. No.	Description	Volts	Lgth. In.	Wt., Lbs. per 100	Price per 100
25980	With Arm Yokes for 3/8"	600	{ *6½	210	\$105.00
39690	Span Wire			265	120.00
143559	Leather Washer for 5/8" Stud			5	4.00
66624	With 2" Giant Strain Insulators No. 64425	1200	†12¼	460	316.00
66620	With 1" Wood Strain Insulators No. 16727	1200	†25¼	565	270.00
89475	With 1¼" Wood Strain Insulators No. 37488	1200	†25¼	635	290.00
66330	Body with Pins		†4¾	285	120.00
100216	Pin. ½x1½" Long, Round Head, with Cotter			14	4.00

\*Overall. †Between centers of outer eyes. ‡Between centers of clevis holes.

## G-E Form H Single Curve Suspensions

Has a clevis on one side to which pull-off arm is attached by means of a ½-inch diameter steel pin and cotter, permitting renewal of suspension body without disturbing span wire. Eye in pull-off arm accommodates strand up to ½ inch diameter. Height above center of pull-off eye, 3¼ inches. Thickness of arm at pull-off eye, ½ inch. Diameter shell, 3½ inches.



600-Volt

### With 5/8-Inch Stud

Cat. No.	Description	Volts	Lgth. In.	Wt., Lbs. per 100	Price per 100
68953	Plain	600	*47/8	310	\$145.00
68965	With 2" Giant Strain Insulator No. 64417	1200	*9	415	243.00
68945	With 1" Wood Strain Insulator No. 43229	1200	*15	470	235.00
89485	With 1¼" Wood Strain Insulator No. 43230	1200	*15	495	245.00
68961	Body with Pins		†23/8	255	115.00
128424	Pull-Off Arm			75	30.00
100216	Pin. ½x1½" Long, Round Head, with Cotter			14	4.00

\*Between center line of stud and pull-off eye. †Between center line of stud and center of clevis hole.

## G-E Form H Double Curve Suspensions



600-Volt

These are similar to single curve suspensions but are provided with two clevises and arms. Diameter shell, 3½ inches.

### With 5/8-Inch Stud

Cat. No.	Description	Volts	Lgth. In.	Wt., Lbs. per 100	Price per 100
68957	Plain	600	*9¾	395	\$180.00
68969	With 2" Giant Strain Insulators No. 64417	1200	*17	605	376.00
68949	With 1" Wood Strain Insulators No. 43229	1200	*30	715	360.00
89489	With 1¼" Wood Strain Insulators No. 43230	1200	*30	765	380.00
66330	Body with Pins		†4¾	285	120.00
128424	Pull-Off Arm			75	30.00
100216	Pin. ½x1½" Long, Round Head, with Cotter			14	4.00

\*Between centers of pull-off eyes. †Between centers of clevis holes.

Any of the above can be furnished with ¾-inch studs. All metal parts have standard sherardized finish.

**G-E Form H Suspension Arms**



Arm is removable. malleable iron. sherardized. Approximate weight, 110 pounds per 100.

Price, No. 128424 ..... per 100 \$30.00

**G-E Form H Bracket Suspensions**

Consists of the standard 3¼-inch shell to which the bracket arm clamp is hinged, thus providing the flexibility required to care for vibration in the trolley wire.

For suspensions for 2-inch pipe the height from ear seat to bracket arm clamp is 5¼ inches; for 1½-inch pipe the height is 4⅞ inches; diameter of shell, 3¼ inches. All metal parts including stud have standard sherardized finish.



No. 25992

Cat. No.	Description	Wt. Lbs. per 100	Price per 100
25992	Bracket Suspension Complete, ⅝-in. Stud for 2-in. Pipe	540	\$250.00
25993	Bracket Suspension Complete, ⅝-in. Stud for 1½-in. Pipe	530	225.00
25994	Bracket Suspension, ⅝-in. Stud, without Clamp	275	115.00
25996	Clamp for 2-in. Pipe, for Use with Cat. No. 25992	265	135.00
25997	Clamp for 1½-in. Pipe, for Use with Cat. No. 25993	255	110.00

**Form H Bridge or Ceiling Suspensions**

600 Volts



This suspension is used when the head room is unlimited. The diameter of the stud is ⅝-inch.

Approximate weight, 230 pounds per 100. Price, No. 27370 ..... per 100 \$110.00

**G-E Form H Low Ceiling Suspensions**

600 Volts



Distance between centers of screw slots, 4 inches; thickness of slotted ears, ⅝ inch; diameter of shell, 3 inches; height, 1⅞ inches.

Cat. No.	Description	Approx. Wt. Lbs. per 100	Price per 100
1431861	Low Ceiling Suspension ⅝-inch Stud, Sherardized	125	\$85.00

**G-E Form H Flat Top Suspensions**



These suspensions may be attached directly to the mine roof by means of expansion bolts or to timbers by means of special lag screws.

The expansion bolts are not forced above the mine roof and are therefore easily recovered.

Cat. No.	Diam. Stud In.	Material	Approx. Wt. Lbs. per 100	Price per 100
125330	⅝	Malleable Iron, Sherardized	210	\$110.00

**G-E Form HJ Low Ceiling Mine Suspensions**  
Deep Groove—600 Volts  
No. 1431893

The deep groove gives extra long creepage surface and prevents accumulation of coal dust on bottom surface of insulation to stud. Length between centers of holes in lugs, 4¾ inches. Diameter shell, 3 inches. Height above ear seat, 1⅞ inches. Net weight per 100, 170 pounds.

Price, No. 1431893, with ⅝-Inch Stud ..... per 100 \$90.00

Ear seat to top of bearing surface, 1⅞ inches. Diameter of shell, 3 inches; of bearing flange, 3½ inches. Size of stud and top boss, ⅝-inch-11. Net weight per 100, 185 pounds. Price, No. 1431894 ... per 100 \$90.00 Malleable iron, sherardized finish.

**G-E Form HJ Flat Top Suspensions**

Deep Groove



Compound is moulded in one deep groove which gives it a greater creepage surface between the stud and sheet.

Recommended for use in mines having excessive moisture or dust.

Height from ear seat to top of flange, 2¼ inches.

Cat. No.	Flange	DIAMETER, INCHES Shell	Stud	Approx. Wt. Lbs. per 100	Price per 100
261737	3	3	⅝	190	\$90.00

**Form H5 Combination Suspensions**

Designed so that it may be attached direct to mine roof by use of standard expansion bolt, or in case there is considerable variation in height of mine roof same suspension may be attached to lower end of 1¼-inch pipe, the upper end of which has been wedged into a hole drilled into the mine roof. A simple and effective method of attaching the pipe to the mine roof is to slot the pipe with hack saw for a distance of 3 inches, the wedging effect being obtained by driving the pipe into a hole in the roof over a tapered wooden plug.



Cat. No.	Ht. In.	DIAMETER, INCHES Shell	Top Flange	Approx. Wt. Lbs., per 100	Price per 100
261777	2⅜	3	2¼	175	\$105.00
269770	3⅝	3½	2¼	225	130.00



## G-E Roof Fastenings

### Roof Plugs and Lag Screws



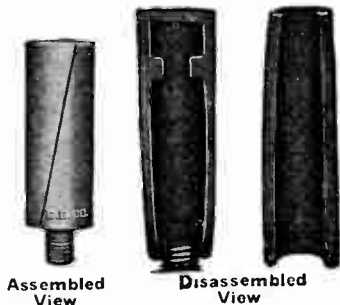
The Forms H and H3 suspensions may be attached to the mine roof by means of the wooden plug and gimlet point lag screw threaded to fit the suspension and projecting 3 inches above it. The plug is drilled axially for the screw and is driven into the hole in the mine roof.

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
34137	Wood Plug (3x1½ Inches)	10	\$6.00
36310	Lag Screw (¾x4 Inches Special) Sherardized	25	9.00
2428433	Wood Plug (4x1½ Inches)	15	8.00
2428435	Lag Screw (¾x5 Inches Special) Sherardized	32	11.00
2428434	Wood Plug (5x1½ Inches)	17	8.50
2428436	Lag Screw (¾x6 Inches Special) Sherardized	39	13.00

### Roof Wedges and Bolts

The bolt is slotted near the top and the upper wedge is arranged to engage it so as to prevent turning of the bolt in screwing up the suspension.

When the suspension is removed from the bolt the whole device is loosened in the hole by a blow with a hammer and may thus be readily recovered.



Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
35691	Lower Roof Wedge, Sherardized	35	\$14.00
35690	Upper Roof Wedge, Sherardized	45	16.00
35689	Roof Bolt (¾ in.-11, 5 in.) Sherardized	40	11.00
41069	Roof Bolt (¾ in.-11, 5 in., with Nut) Sherardized	50	14.00

## G-E Roof Fastenings

### Extension Supports and Combination Clamps with 5/8-Inch Stud



Pipe Clamp

Suspension may be attached to either a 1¼-inch standard pipe fastened vertically in the mine roof or a 1½-inch pipe held horizontally from a side wall or as in outside construction when a 1½-inch pipe cross span or bracket arm is used. Where 1¼-inch standard pipe only is used for supporting the trolley wire from the mine roof the 1¼-inch pipe clamp will be found particularly useful with the flat top suspension.

All are of sherardized finish.



Expansion Case

Cat. No.	Description	Wt., Lbs. per 100	Price per 100
135755	Pipe Clamp	125	\$72.00
125328	Expan. Case	250	70.00
125332	Pipe Clamp	200	60.00
119828	Comb. Clamp	225	85.00



Pipe Clamp



Combination Clamp

## G-E Form D Mine Suspensions



No. 37995

Height from top of ear seat to top of body, 4⅞ inches. For roof bolt and wedges the roof drilling should be 1⅝ inches in diameter, and for 4-inch expansion bolt, 1½ inches in diameter; the depth of the hole at least 4 inches in either case.

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
*37995	5/8	510	\$253.00
†68937	5/8	490	257.00
39704	Body Only	285	125.00

\*With roof bolt and wedges.  
†With 4-inch expansion bolt.

## G-E Cap and Cone Insulators



Cap



Cone



Lock Washer

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
16925	Screw Cap Insulator, 5/8-in. Stud	70	\$56.00
16926	Cone for No. 16925	25	28.00
26143	Screw Cap Insulator, ¾-in. Stud	75	64.00
26144	Cone for No. 26143	25	28.00
19480	Lock Washer for Form D Suspensions	3	7.50

## G-E Form G Suspensions

### Insulated Bolts

Cat. No.	Diam. Stud In.	Head	Approx. Wt., Lbs. per 100	Price per 100
17207	5/8	Standard	90	\$56.00
62561	¾	Standard	95	58.00

Standard head: Dimension A, 12¼ inches; B, ¾-inch.



No. 17207

### Straight Line



Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
25976	5/8	245	\$148.00
25977	Body Only	120	72.00
25978	Cap Only	35	20.00

### Single Curve

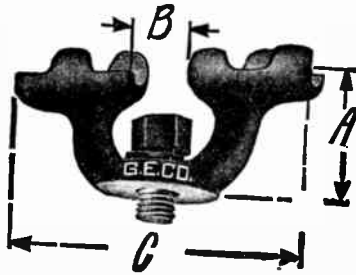
Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
25981	5/8	270	\$156.00
25982	Body Only	145	80.00
25978	Cap Only	35	20.00



The Form G Suspensions consist of malleable iron castings and insulated bolts. The insulated bolt is held firmly in place by a cap casting threaded to the body casting.

**G-E Form T Suspensions**

Bronze Feeder Clamp



Cat. No.	Diam. Stud In.	Size of Wire	DIMENSIONS, INCHES			Approx. Wt., Lbs. per 100	Price per 100
			A	B	C		
16380	3/8	0	1 15/16	1 1/8	5 1/2	90	\$140.00
61567	5/8	0000	2 1/32	1 3/8	5 3/4	225	144.00

**G-E Form D Suspensions**

Straight Line



Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
No. 37979	5/8	195	\$132.00
37970	5/8	100	48.00

Single Curve

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
37983	5/8	245	\$140.00
39701	5/8	150	56.00



No. 37983

Double Curve



No. 37986

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
37986	5/8	295	\$168.00
39702	5/8	200	56.00

Ceiling

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
37991	5/8	350	\$184.00
39703	5/8	250	100.00



No. 37991

Bracket

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
38005	5/8	400	\$250.00
38008	5/8	375	234.00
39706	5/8	305	166.00
39707	5/8	280	150.00

No. 38005

The Form D Suspensions are recommended only for voltages up to and including 600.

All metal parts have standard sherardized finish.

**G-E Form T Feeder Tap Suspensions**

Straight Line



Overall length, 6 inches.

Yokes accommodate 3/8-inch span wire.

Cat. No.	Diameter of Stud Inches	Material	Wt., Lbs. per 100	Price per 100
11294	5/8	Bronze	85	\$90.00
150313	5/8	Malleable Iron, Sherardized.	85	42.00

**G-E Form G Suspensions**

Double Curve



Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
25984	5/8	310	\$172.00
25985	5/8	185	96.00
25978	5/8	35	20.00

Ceiling

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
25998	5/8	225	\$166.00
25991	5/8	75	75.00
25999	5/8	60	35.00



Ceiling Socket



Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
38690	5/8	170	\$98.00
38691	5/8	80	42.00

Bracket

Cat. No.	Diam. Stud In.	Approx. Wt., Lbs. per 100	Price per 100
*25989	5/8	480	\$301.00
*66028	3/4	485	303.00
†25990	5/8	460	276.00
†66030	3/4	465	278.00
25991	5/8	75	75.00
25995	5/8	40	35.00
25996	5/8	275	135.00
25997	5/8	255	110.00

\*For 2-inch pipe.

†For 1 1/2-inch pipe.



**Form P3 Suspensions**

Has a porcelain body, malleable iron yoke, sherardized.



Cat. No.	Size Stud In.	Approx. Wt., Lbs. per 100	Price per 100
246709	5/8	225	\$100.00

**G-E Form R3 Ears**



These ears are made of bronze and are provided with large drop-forged steel wedges for holding the wire. The tensile strength of the ear is greater than the largest size wire it is designed for, and with standard wedges will hold a wire worn 50 per cent of its original size.

Length, 21 inches.

Cat. No.	Size of Wire	Tap In.	Wt., Lbs. per 100	Price per 100
224595	0 and 00	5/8	318	\$440.00
245538	000 " 0000	5/8	365	530.00
1488131	Adapter Only		28	40.00
1460452	Wedges		12	30.00

## G-E Form J3 Economy Clinch Ears



Economy Ears are made by a new process whereby the natural hardness and fine grain of the cast surface, both inside and outside of the lips, are retained.

These ears have extra deep grooves and  $\frac{3}{32}$ -inch thick lips which almost meet when peened around the wire, providing extra metal for wear under the center of the ear. The bottom edges of the lips are gradually tapered up at the ends for a distance of about  $\frac{1}{2}$  of the length of the ear, which design, together with the machine grinding for an equal distance on the sides, practically eliminates any pounding or hammer blows from the trolley wheel, resulting in prolonged life.

These ears are made of bronze and conform to the A.E.R.A. standard.

### For Round Wire

Cat. No.	Length Inches	Size Wire	Tap Inches	Net Wt., Lbs. per 100	Price per 100
270117	9	0	$\frac{5}{8}$	48	\$68.00
270118	12	0	$\frac{5}{8}$	55	79.00
270810	15	0	$\frac{5}{8}$	63	92.00
286490	9	00	$\frac{5}{8}$	58	74.00
286491	12	00	$\frac{5}{8}$	71	86.00
286492	15	00	$\frac{5}{8}$	86	99.00
297951	15	00	$\frac{3}{4}$	92	99.00
286493	9	000	$\frac{5}{8}$	62	79.00
282211	9	000	$\frac{3}{4}$	68	79.00
286494	12	000	$\frac{5}{8}$	76	93.00
292212	12	000	$\frac{3}{4}$	82	93.00
286495	15	000	$\frac{5}{8}$	94	108.00
292213	15	000	$\frac{3}{4}$	100	108.00
270812	12	0000	$\frac{5}{8}$	77	101.00
270120	15	0000	$\frac{5}{8}$	98	117.00
289798	15	0000	$\frac{3}{4}$	104	117.00

## G-E Form A Screw Clamp Ears



No. 41047

### 5-Inch Plain

Form A ears are especially adapted for use with grooved or Fig. 8 wires and are suitable for high speed operation.

The lips of the ears are so shaped as to give a four-point bearing in the grooves which prevents any tendency of the wire to roll out of the ear as a result of torsional or transverse stress.

All malleable iron parts and screws have standard sherardized finish.

### For Round Wire

Cat. No.	Size Wire	Tap In.	Material and Finish	Net Wt., Lbs. per 100	Price per 100
41047	0 and 00	$\frac{5}{8}$	Mal. Iron. Sher.	70	\$50.00
41443	0 and 00	$\frac{5}{8}$	Bronze, Sher....	80	100.00
41049	000 and 0000	$\frac{5}{8}$	Bronze, Sher....	75	50.00
41444	000 and 0000	$\frac{5}{8}$	Bronze.....	85	100.00

### For Grooved Wire

37804	00,000 and 0000	$\frac{5}{8}$	Mal. Iron. Sher.	66	\$50.00
27627	00,000 and 0000	$\frac{5}{8}$	Bronze.....	75	100.00

### For Fig. 8 Wire

109898	00,000 and 0000	$\frac{5}{8}$	Mal. Iron, Sher..	70	\$50.00
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Above ears furnished with  $\frac{3}{4}$ -inch tap at same price.

### 7-Inch Plain

The 7-inch plain ears, being designed especially for use with Nos. 00, 000 and 0000 wire, are extra heavy throughout.



### For Grooved Wire

Cat. No.	Size of Wire	Tap In.	Material and Finish	Net Wt., Lbs. per 100	Price per 100
37805	00, 000 and 0000	$\frac{5}{8}$	Mal. Iron Sher..	88	\$58.00
34124	00, 000 and 0000	$\frac{5}{8}$	Bronze, Sher....	88	120.00

### For Fig. 8 Wire

114878	00, 000 and 0000	$\frac{5}{8}$	Mal. Iron, Sher..	94	\$58.00
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## G-E Form J Improved Clinch Ears



This ear is designed to be used without solder. The wire is held by peening the lips over the wire at the bottom and by the two lugs over the ends of the wire at the top. This ear is used with grooved wire. The lips run the full length of the ear.

Cat. No.	Length In.	Size Wire	Tap In.	Material	Approx. Wt., Lbs. per 100	Price per 100
222244	15	00	$\frac{5}{8}$	Bronze	150	\$180.00

## G-E Form A Screw Clamp Ears

### 10-Inch Curve



### For Grooved Wire

Cat. No.	Size of Wire	Tap In.	Material	Finish	Wt., Lbs. per 100	Price per 100
37808	00, 000 and 0000	$\frac{5}{8}$	Mal. Iron	Sher.	125	\$84.00

### For Fig. 8 Wire

114882	00, 000 and 0000	$\frac{5}{8}$	Mal. Iron	Sher.	130	\$84.00
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### 14-Inch Curve for Grooved Wire

59568	00, 000 and 0000	$\frac{5}{8}$	Mal. Iron	Sher.	185	\$110.00
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## G-E Form A Screw Clamp Strain Ears

### 12-Inch

### For Nos. 00, 000 and 0000 Wires



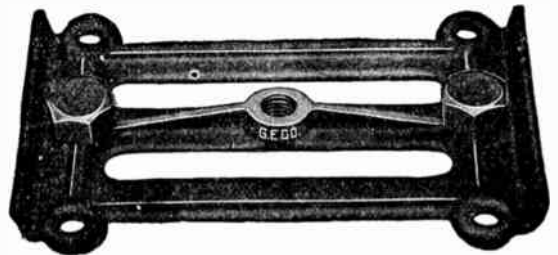
Cat. No.	Description	Wt., Lbs. per 100	Price per 100
34127	For Grooved Wire, $\frac{5}{8}$ -In. Tap, Bronze	165	\$225.00
114380	For Fig. 8 Wire, $\frac{5}{8}$ -In. Tap, Bronze....	170	225.00

### 7-Inch Half Strain



114907	For Fig. 8 Wire, Bronze.....	90	\$100.00
61232	For Grooved Wire, Bronze.....	90	100.00

## G-E Strain Plates



Cat. No.	Description	Wt., Lbs. per 100	Price per 100
62537	Strain Plate, $\frac{5}{8}$ -in. Tap, $\frac{5}{8}$ -in. Studs	300	\$180.00

**G-E Soldered Clinch Strain Ears**



For Round Wire

Cat. No.	Length Inches	Size Wire	Size Tap Inches	Net Wt., Lbs. per 100	Price per 100
68446	15	0	5/8	100	\$165.00
60348	15	00	5/8	110	175.00
60349	15	000	5/8	150	200.00
60350	15	0000	5/8	190	210.00
<b>For Grooved Wire</b>					
60351	15	00	5/8	130	\$210.00
39887	19	000	5/8	238	265.00
39889	19	0000	5/8	290	280.00

Above ears can be furnished with 3/4-inch taps.

**G-E Single End Strain Ears**

For Round Wire



Cat. No.	Length Inches	Size Wire	Net Wt., Lbs. per 100	Price per 100
30459	8	0	40	\$96.00
30460	8	00	50	100.00
34121	9	000	60	104.00
34122	9	0000	70	108.00

For Grooved Wire



Cat. No.	Length Inches	Size Wire	Net Wt., Lbs. per 100	Price per 100
68442	8	00	60	\$120.00
68444	9	000	75	125.00
68445	9	0000	90	130.00

**G-E Form J3 Economy Feeder Clinch Ears**  
For Round Wire



With Horizontal Feeder Lug

These ears have a horizontal or vertical feeder lug securely riveted to the ear web.

Lugs are drilled to accommodate 2/0 to 4/0 solid or stranded feeder wire. Two square head set screws fasten feeder wire in lug.

Made of bronze. Ear lips are untinned but can be furnished tinned for soldering upon request.

Economy Feeder Ears will be furnished in place of Forms J, J2 and T3 feeder ears formerly listed for round wire.

With Horizontal Feeder Lug

Cat. No.	Length Inches	Size Wire	Size Tap Inches	Net Wt., Lbs. per 100	Price per 100
2X309	15	0	5/8	79	\$127.00
2X310	15	00	5/8	102	135.00
2X311	15	000	5/8	110	151.00
2X312	15	0000	5/8	114	161.00

With Vertical Feeder Lug

Cat. No.	Length Inches	Size Wire	Size Tap Inches	Net Wt., Lbs. per 100	Price per 100
2X316	15	0	5/8	80	\$127.00
2X317	15	00	5/8	103	135.00
2X318	15	000	5/8	111	151.00
2X319	15	0000	5/8	115	161.00

Can be furnished with 3/4-inch taps at same price. Add 3 cents net per ear for tinning lips.

**G-E 13/4-Inch Double Boss Strain Ears**

For Use with Strain Plates



Cat. No.	Form	Size Wire	Tap In.	Approx. Wt. Lbs., per 100	Price per 100
88955	J2	0	5/8	130	\$230.00
88899	J2	00	5/8	150	240.00
88898	J2	000	5/8	200	250.00
88897	J2	0000	5/8	245	265.00
88896	P2	00	5/8	170	285.00
88894	P2	000	5/8	225	300.00
88895	P2	0000	5/8	270	320.00

**G-E Form S Strain Ears**

For Round or Grooved Wire



Form S Strain Ears are installed without soldering. The plate is made of malleable iron and may be wired permanently into the overhead construction. The renewable shoes are made in both malleable iron and bronze.

Cat. No.	Description	Wt., Lbs. per 100	Price per 100
189091	For Nos. 0 and 00 Wires, 5/8-Inch Tap, Malleable Iron, Sher.	475	\$300.00
189093	For Nos. 0 and 00 Wires, 5/8-inch Tap, Bronze Shoe.	475	350.00
224430	For Nos. 000 and 0000 Wires, 5/8-Inch Tap, Malleable Iron, Sher.	500	325.00
189096	Malleable Iron Shoe Only, for Nos. 0 and 00 Wires.	225	110.00
189097	Bronze Shoe Only, for Nos. 0 and 00 Wires.	225	240.00
224938	Malleable Iron Shoe Only, for Nos. 000 and 0000 Wires.	250	130.00

**G-E Form Q2 Splicing Ears**



Made of bronze. Length, 20 1/4 inches.

Cat. No.	Size of Wire	Tap In.	Wt., Lbs. per 100	Price per 100
248435	0 and 00	5/8	268	\$346.00
248436	000 " 0000	5/8	287	406.00

**G-E Form R Splicing Sleeves**  
For Pantograph Trolley



Cat. No.	Description	Wt., Lbs. per 100	Price per 100
141184	For No. 0000 Round or Grooved Wire, Sher.	450	\$525.00
141201	Renewable Shoe for No. 141184.	200	100.00

**Form R3 Splicing Sleeves**  
For Round or Grooved Wire

Cat. No.	Description	Wt., Lbs. per 100	Price per 100
245535	For No. 0 and 00.	240	\$400.00
245536	" " 000 " 0000.	287	490.00
1460452	{ Extra Wedges for No. 245535	12 1/2	30.00
	{ " " " " 245536	12 1/2	30.00

## G-E Form M Clamping Ears for Mines



With Bronze Feeder Boss

For use in mine trolley construction. The clamp permits the single operation of turning the nut to fasten the ear onto the suspension and grip the trolley wire. It is made of malleable iron, sherardized finish, and is 2 $\frac{3}{8}$  inches high, 3 $\frac{1}{2}$  inches long, with excellent wheel clearance.

Has a  $\frac{5}{8}$ -inch tap and is for use on 00, 000 and 0000 wire.

The feeder ear is similar to the plain ear except that a bronze feeder boss suitable for 4/0 feeder cable is added.

### Plain

Cat. No.	Description	Net Wt., Lbs. per 100	Price per 100
141292	For Round Wire	100	\$66.00
141296	For Grooved Wire	95	66.00
141294	For Fig. 8 Wire	105	66.00

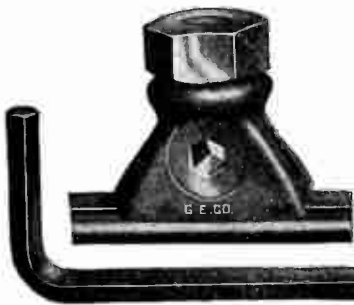
### With Feeder Boss

150342	For Round Wire	120	\$132.00
150341	For Grooved Wire	115	132.00
150340	For Fig. 8 Wire	125	132.00



Plain

## G-E Form L Clamping Ears



Form L Clamping Ears are made for Nos. 00, 000 and 0000 wires, and with  $\frac{5}{8}$ -inch tap only.

They are made of malleable iron, sherardized, and allow perfect wheel clearance.

The special wrenches No. 193540 are included, free, in each shipment.

Cat. No.	Description	Net Wt., Lbs. per 100	Price per 100
217963	For Round Wire	40	\$48.00
217964	For Fig. 8 Wire	30	48.00
216945	For Grooved Wire	30	48.00

## G-E Form L2 Clamping Ears for Mines

For grooved wire, except No. 261257, which is a universal ear suitable for either Fig. 8 or grooved wire. Made of malleable iron, 1 $\frac{3}{4}$  inches high. Tapped  $\frac{5}{8}$  inch.

Cat. No.	Length Inches	Net Wt., Lbs. per 100	Price per 100
245444	3	41	\$43.00
269759	4 $\frac{1}{2}$	60	46.00
261257	3	41	43.00



## G-E Form W Clamping Ears for Mines



For use on either grooved or Fig. 8 wire, 2/0 to 4/0 in size, and offers no obstruction to the passage of the trolley wheel over the wire. It will also take round wire up to  $\frac{7}{8}$  inch diameter when it is desired to string such wire for feeder purposes for operating pumps, drills, or cutting machines. Feeder may be replaced with standard grooved or Fig. 8 wire providing it is

desired to operate electric locomotives over it.

This ear has unusual holding power.

Cat. No.	Tap Inches	Net Wt., Lbs. per 100	Price per 100
297584	$\frac{5}{8}$	75	\$57.50

## G-E Mechanical Splicing Sleeves

### Form E



Designed for use without solder. Made of brass with tempered steel wedges.

#### For Round Wire

Cat. No.	Size Wire	Length Inches	Net Wt., Lbs. per 100	Price per 100
64441	0	10	75	\$130.00

#### For Round or Grooved Wire

64442	00	11	90	\$140.00
64443	000	12	115	160.00
64444	0000	12	125	188.00

#### For Figure 8 Wire

42448	00	10	90	\$140.00
42449	000	10	115	160.00
42450	0000	10	130	170.00

#### Extra Wedges

140073	0 00	..	12 $\frac{1}{2}$	\$9.00
140074	000-0000	..	12 $\frac{1}{2}$	9.00

### Form E2



#### For Round or Grooved Wire

246693	00	..	125	\$170.00
246966	000	..	150	200.00
246967	0000	..	165	230.00

#### Extra Wedges

1460452	....	..	12	\$30.00
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### Form J Improved



Made of bronze.

#### For Round or Grooved Wire

245526	00	15	135	\$160.00
245527	000	15	165	190.00
245528	0000	15	175	220.00

### Form Q Improved



#### For Round or Grooved Wire

133343	0	9	100	\$150.00
133344	00	9	105	170.00
133345	000	10	112	180.00
133346	0000	10	120	200.00

#### For Figure 8 Wire

151678	0	9	100	\$165.00
151679	00	9	125	187.00
151680	000	10	150	200.00
151681	0000	10	150	216.00

## G-E Insulated Turnbuckles



No. 280258

Insulated turnbuckles, sometimes called Brooklyn strain insulators, are provided with drop forged steel eyebolts.

No. 280258 turnbuckle has drop forged casting, No. 40802 malleable iron. The casting is made in two halves which fit around the head of the insulated portion. The drop forged castings are riveted together while the malleable iron castings are fastened together with hollow set screws. Swivel bearing is metal to metal and designed so there is no relative motion between insulated portion and adjoining cap. All iron parts are sherardized.

Cat. No.	Diam. Bolt, In.	Wt., Lbs. per 100	Price per 100	Cat. No.	Diam. Bolt, In.	Wt., Lbs. per 100	Price per 100
280258	$\frac{5}{8}$	325	\$250.00	40802	$\frac{3}{4}$	550	\$360.00

**G-E Form N Trolley Frogs**

15 Degree—For Round, Grooved or Figure 8 Wire



The Form N frog is equipped with renewable malleable iron or bronze wearing pan.

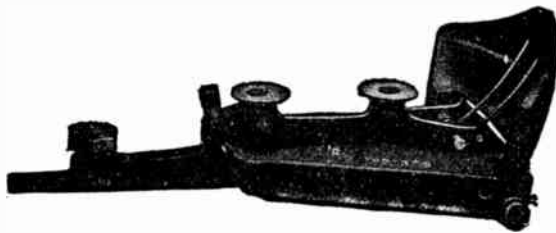
Furnished with malleable iron bodies, sherardized.

Used for Nos. 00, 000 and 0000 wires.

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
200291	Left-Hand Frog, Mall. Iron, Sher....	775	\$480.00
200292	Left-Hand Frog, *Composite.....	775	700.00
200293	Right-Hand Frog, Mall. Iron, Sher...	775	480.00
200294	Right-Hand Frog, *Composite.....	775	700.00
200295	V Frog, Mall. Iron, Sherardized....	800	480.00
200296	V Frog, *Composite.....	800	700.00
200297	Left-Hand Renewable Pan for No. 200291.....	400	200.00
200298	Right-Hand Renewable Pan for No. 200293.....	400	200.00
200299	V Renewable Pan for No. 200295....	400	200.00
200300	Left-Hand Renewable Pan for No. 200292.....	400	420.00
200301	Right-Hand Renewable Pan for No. 200294.....	400	420.00
200302	V Renewable Pan for No. 200296....	400	420.00

\*Malleable iron sherardized body with renewable bronze wearing pan.

**G-E Drawbridge Frogs**



Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
16395	Nos. 00, 000 and 0000 Wire, Bronze...	875	\$1800.00

Frogs similar to the above but for No. 0 wire are furnished if desired.

**G-E Forms G and G2 Trolley Frogs**

Forms G and G2 frogs are made with different divergent angles. The following table gives the range of distance from track switch point to track frog with which each set of frogs may be most satisfactorily used:

Frog Distance	Divergence Angle Trolley Frog
Up to 22 Feet.....	20°
From 20 to 30 Feet.....	15°
Above 28 Feet.....	8°

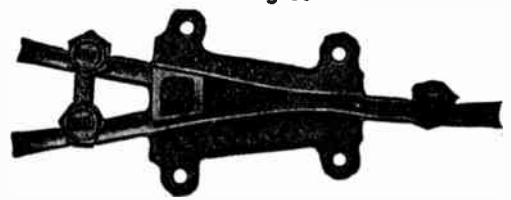
The minimum frog distance given in the table with which the 15 degree frogs may be used to best advantage corresponds to a turnout radius of 40 feet, but when suburban cars, using high speed trolley wheels, run over city tracks it is advisable to use 15 degree rather than 20 degree frogs throughout the city construction.

To insure smooth transition of the wheel between tongue and pan, the pans of all Form G frogs have, at each end, an inclined plane rising at a very acute angle from the horizontal, which receives the flange of the wheel.

**G-E Form G Trolley Frogs**

For Round, Grooved or Figure 8 Wire

20-Degree



20-Degree V Frog  
For Nos. 0 and 00 Wire

Cat. No.	Description	Overall Length INCHES	DMEN. Width	Approx. Wt., Lbs. per 100	Price per 100
29133	R. H. Frog, Bronze.....	17	6 1/2	710	\$840.00
29134	L. H. Frog, Bronze.....	17	6 1/2	710	840.00
29132	V Frog, Bronze.....	17	6 1/2	725	840.00
29135	3-Way Frog, Bronze.....	17	6 1/2	1000	1250.00
114166	L. H. Frog, Mal. Iron....	17	6 1/2	710	420.00
114167	R. H. Frog, Mal. Iron....	17	6 1/2	710	420.00
103779	V Frog, Mal. Iron.....	17	6 1/2	725	420.00
<b>For Nos. 000 and 0000 Wire</b>					
46645	R. H. Frog, Bronze.....	17	6 1/2	710	\$900.00
46646	L. H. Frog, Bronze.....	17	6 1/2	710	900.00
46644	V Frog, Bronze.....	17	6 1/2	725	900.00
46647	3-Way Frog, Bronze.....	17	7 3/8	1000	1500.00
114168	L. H. Frog, Mal. Iron....	17	6 1/2	710	450.00
114169	R. H. Frog, Mal. Iron....	17	6 1/2	710	450.00
103780	V Frog, Mal. Iron.....	17	6 1/2	725	450.00

15-Degree



15-Degree Left-Hand Frog



15-Degree 3-Way Frog  
For Nos. 00, 000, 0000 Wire

29130	R. H. Frog, Bronze.....	18	5 5/16	875	\$1050.00
29131	L. H. Frog, Bronze.....	18	5 5/16	875	1050.00
29129	V Frog, Bronze.....	18	5 5/16	875	1050.00
114164	L. H. Frog, Mal. Iron....	18	5 5/16	875	520.00
114165	R. H. Frog, Mal. Iron....	18	5 5/16	875	520.00
103781	V Frog, Mal. Iron.....	18	5 5/16	890	520.00

8-Degree



8-Degree Right-Hand Frog

29127	R. H. Frog, Bronze.....	21 7/8	6	1300	\$1300.00
29128	L. H. Frog, Bronze.....	21 7/8	6	1300	1300.00
29126	V Frog, Bronze.....	21 7/8	6	1350	1300.00
103782	R. H. Frog, Mal. Iron....	21 7/8	6	1300	650.00
103783	L. H. Frog, Mal. Iron....	21 7/8	6	1300	650.00
103784	V Frog, Mal. Iron.....	21 7/8	6	1350	650.00

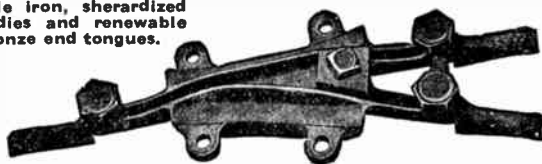


## G-E Form G2 Trolley Frogs

For Round or Grooved Wire

20-Degree

All frogs have malleable iron, sherardized bodies and renewable bronze end tongues.



20-Degree Left-hand Frog

For Nos. 0 and 00 Wire

Cat No	Description	OVERALL DIMEN. INCHES	Approx. Wt., Lbs. per 100	Price per 100
110745	Right-hand Frog.....	19 1/2 6 1/2	710	\$710.00
110746	Left ".....	19 1/2 6 1/2	710	710.00
110747	V Frog.....	19 1/2 6 1/2	725	710.00
110748	3-way Frog.....	19 1/2 7 3/8	1000	1150.00

For Nos. 000 and 0000 Wire

60302	Right-hand Frog.....	19 1/2 6 1/2	710	\$710.00
60301	Left ".....	19 1/2 6 1/2	710	710.00
60303	V Frog.....	19 1/2 6 1/2	725	710.00
60307	3-way Frog.....	19 1/2 7 3/8	1000	1150.00

15-Degree



15-Degree Left-hand Frog

For Nos. 0 and 00 Wire

110749	Right-hand Frog.....	19 1/2 6 1/2	875	\$760.00
110750	Left ".....	19 1/2 6 1/2	875	760.00
110751	V Frog.....	19 1/2 6 1/2	890	760.00
110752	3-way Frog.....	19 1/2 7 3/8	1150	1200.00

For Nos. 000 and 0000 Wire

60228	Right-hand Frog.....	19 1/2 6 1/2	875	\$760.00
60226	Left ".....	19 1/2 6 1/2	875	760.00
60229	V Frog.....	19 1/2 6 1/2	890	760.00
60234	3-way Frog.....	19 1/2 7 3/8	1150	1200.00

8-Degree



8-Degree Left-hand Frog

For Nos. 0 and 00 Wire

110753	Right-hand Frog.....	23 3/8 6 5/8	1300	\$850.00
110754	Left ".....	23 3/8 6 5/8	1300	850.00
110755	V Frog.....	23 3/8 6 5/8	1350	850.00

For Nos. 000 and 0000 Wire

60131	Right-hand Frog.....	23 3/8 6 5/8	1300	\$850.00
60132	Left ".....	23 3/8 6 5/8	1300	850.00
60133	V Frog.....	23 3/8 6 5/8	1350	850.00

For Figure 8 Wire

20-Degree

For Nos. 0 and 00 Wire

246588	Right-hand Frog.....	19 1/2 6 1/2	710	\$710.00
246589	Left ".....	19 1/2 6 1/2	710	710.00
246590	V Frog.....	19 1/2 6 1/2	725	710.00

For Nos. 000 and 0000 Wire

246695	Right-hand Frog.....	19 1/2 6 1/2	710	\$710.00
246696	Left ".....	19 1/2 6 1/2	710	710.00
246697	V Frog.....	19 1/2 6 1/2	725	710.00

15-Degree

For Nos. 0 and 00 Wire

246591	Right-hand Frog.....	19 1/2 6 1/2	875	\$760.00
246592	Left ".....	19 1/2 6 1/2	875	760.00
246683	V Frog.....	19 1/2 6 1/2	890	760.00
110752	3-way Frog.....	18 7 3/8	1150	1200.00

For Nos. 000 and 0000 Wire

60234	3-way Frog.....	18 7 3/8	1150	\$1200.00
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## G-E Form G2 Trolley Frogs

End Tongues



CAT. No. For Grooved Wire	For Fig.8 Wire	OVERALL DIMEN. APPROX.		Price per 100
		INCHES Length	Width per 100	
*110756	*247601	4 5/8	1 75	\$80.00
†65856	†246702	4 5/8	1 75	80.00

\*For 0 and 00 wires.  
†For 000 and 0000 wires.

## G-E Form K Trolley Frogs

For Round or Grooved Wire

12-Degree



This frog has extra long approaches with renewable end tongues. The body is malleable iron sherardized and the end tongues bronze. The bolts for fastening the wire into the frog are 1/4-inch in diameter and have square heads.

For Nos. 0 and 00 Wire

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
140109	Left-Hand Frog.....	2000	\$1300.00
140110	Right-Hand Frog.....	2000	1300.00
129977	V Frog.....	2100	1300.00
150562	Renewable End Tongue.....	80	100.00

For Nos. 000 and 0000 Wire

140107	Left-Hand Frog.....	2000	\$1300.00
140108	Right-Hand Frog.....	2000	1300.00
136004	V Frog.....	2100	1300.00
150563	Renewable End Tongue.....	100	100.00

## Forms K and K2 Crossings, Uninsulated

For Round and Grooved Wire



Adjustable, with Deflector Bars

When crossings having deflector bars are required additional clamp castings and longer bolts are supplied so that the bars and end tongues are tightened into place in one operation.

Form K adjustable crossings are adjustable for any angle between 30 and 90 degrees.

The body parts are malleable iron and the end tongues are of bronze.



Adjustable, with-out Deflector Bars

For Nos. 0 and 00 Wire

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
177881	Without Deflector Bars, Malleable Iron, Sherardized.....	1400	\$1200.00
141692	With Deflector Bars, Malleable Iron, Sherardized.....	2100	1300.00
245890	Right Angle, Malleable Iron, Sherardized.....	1300	900.00
150562	Renewable End Tongue, Bronze..	80	100.00

For Nos. 000 and 0000 Wire

177882	Without Deflector Bars, Malleable Iron, Sherardized.....	1400	\$1200.00
141691	With Deflector Bars, Malleable Iron, Sherardized.....	2100	1300.00
245891	Right Angle, Malleable Iron, Sherardized.....	1350	900.00
150563	Renewable End Tongue.....	100	100.00

**G-E Form G Crossings, Uninsulated**  
For Round and Grooved Wire  
Right Angle

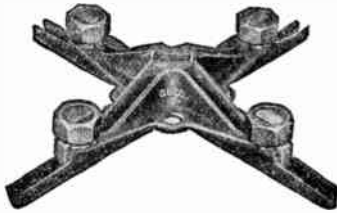
The principle of the inclined plane to insure smooth transition of the trolley wheel between tongue and pan has been embodied in the design of all Form G crossings.

Cat. No. 11297 is of bronze material.

Cat. No. 103972 is of malleable iron, sherardized.

Both numbers are for Nos. 00, 000 and 0000 wires.

Cat. No. 64170 is similar to Cat. No. 11297, except that in the pan a double groove runway is provided for wheels and



Cat. Nos. 11297 and 103972

heavy extension flanges offer a smooth under-run for sliding collectors.



Cat. No. 64170

Cat. No.	OVERALL DIMEN. INCHES		Approx. Wt., Lbs. per 100	Price per 100
	Length	Width		
11297	15 3/8	15 3/8	910	\$1000.00
103972	15 3/8	15 3/8	910	600.00
64170	.....	.....	1000	1250.00

Crossings similar to the above, but for No. 0 wire can be furnished.

**Adjustable**



Can be set at any angle between 30 and 90 degrees. For Nos. 00, 000 and 0000 wires. Overall length of each runway is 20 3/8 inches.

Cat. No.	Material	Wt., Lbs. per 100	Price per 100
11298	Bronze.....	1075	\$1400.00
103973	Malleable Iron, Sherardized.....	1075	875.00

Crossings similar to the above, but for No. 0 wire can be furnished.

**35-Degree**

For Nos. 00, 000 and 0000 wires. Cat. No. 42413 is bronze and No. 103974 malleable iron, sherardized.



Cat. No.	OVERALL DIMEN. INCHES		Approx. Wt., Lbs. per 100	Price per 100
	Length	Width		
42413	16	5 1/2	865	\$1160.00
103974	16	5 1/2	865	600.00

**15-Degree**



Cat. No. 19490 is of bronze, and No. 103975 of malleable iron, sherardized.

19490	21 1/4	5 3/8	1025	\$1320.00
103975	21 1/4	5 3/8	1025	725.00

**8-Degree**



64445	24 1/4	6 1/4	1400	\$1020.00
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**G-E Form L Crossings, Insulated**  
Acute Angle—For Round or Grooved Wire  
For Nos. 00, 000, 0000 Wire  
Right-hand



Cat. No.	Description	OVERALL DIMEN. INCHES		Approx. Price Wt., Lbs. per 100
		Length	Width	
30615	34 Deg. Right-hand Crossing....	39	9 1/2	1725 *
30616	White Fiber Runway, for No. 30615....	.....	.....	25 *
30613	27 Deg. Right-hand Crossing....	39	9 1/8	1700 *
30614	White Fiber Runway, for No. 30613....	.....	.....	25 *
30611	20 Deg. Right-hand Crossing....	46 1/2	6 3/4	1685 *
30612	White Fiber Runway for No. 30611....	.....	.....	25 *
30609	15 Deg. Right-hand Crossing....	46 1/2	6 3/8	1685 *
30610	White Fiber Runway, for No. 30609....	.....	.....	25 *
46181	8 Deg. Right-hand Crossing....	56 1/2	5	1675 *
100919	White Fiber Runway, for No. 46181....	.....	.....	25 *

**Left-hand**



100181	35 Deg. Left-hand Crossing....	39	9 1/2	1725 *
100924	White Fiber Runway, for No. 100181....	.....	.....	25 *
100180	27 Deg. Left-hand Crossing....	39	9 1/8	1700 *
100923	White Fiber Runway, for No. 100180....	.....	.....	25 *
64167	20 Deg. Left-hand Crossing....	46 1/2	6 3/4	1685 *
100922	White Fiber Runway, for No. 64166....	.....	.....	25 *
64166	15 Deg. Left-hand Crossing....	46 1/2	6 3/8	1685 *
100921	White Fiber Runway, for No. 64166....	.....	.....	25 *
100179	8 Deg. Left-hand Crossing....	56 1/2	5	1675 *
100920	White Fiber Runway, for No. 100179....	.....	.....	25 *

\*Prices upon application.

**Form M Crossings, Insulated**  
For Round and Grooved Wire  
Adjustable



Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
134743	For Nos. 0 and 00 Wire.....	1400	\$3000.00
134744	For Nos. 000 and 0000 Wire.....	1400	3000.00
150562	End Tongue for 0 and 00 Wire.....	80	100.00
150563	" " " 000 and 0000.....	100	100.00
180741	White Fiber Runway, for Nos. 134743 and 134744.....	.....	200.00

**Right Angle**



155022	For Nos. 0 and 00 Wire.....	1050	\$3000.00
155023	" " 000 and 0000 Wire.....	1575	3000.00
150562	Renewable End Tongue for No. 155022	80	100.00
150563	" " " 155023	100	100.00
100935	White Fiber Runway, for Nos. 155022 and 155023.....	18	200.00

The body castings are malleable iron, sherardized and the end tongues, bronze.

## G-E Form L Crossings, Insulated

For Round or Grooved Wire

The Form L insulated crossing consists of a beam of selected second growth hickory thoroughly impregnated with preservative oils to exclude moisture, finished with black japan, and castings of bronze, with a replaceable white fiber runway. The fiber runways as listed include fiber plates with screws.

### Right Angle



Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
46184	Crossing for Nos. 00, 000 and 0000 Wire	1750	\$2400.00
100935	Fiber Runway, for Cat. No. 46184	18	200.00

### Adjustable

For Nos. 00, 000 and 0000 Wire



26150	Crossing for Nos. 00, 000 and 0000 Wire, Bronze	1400	\$2400.00
115815	Crossing for Nos. 00, 000 and 0000 Wire Mal. Iron, Sherardized	1400	1800.00
180741	Fiber Runway, for Cat. Nos. above	18	200.00
104590	Cross Tongue for Cat. No. 26150	365	560.00
115816	Cross Tongue for Cat. No. 115815	365	340.00

Crossings similar to above, but for No. 0 wire, can be furnished.

## G-E Form L4 Section Insulators

Double Beam for Round and Grooved Wire



Side View



Bottom View

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
134896	For Nos. 000 and 0000 Wire, 7-Inch Break, 600-volt, Malleable Iron, Sherardized	1500	\$1800.00
140952	For Nos. 0 and 00 Wire, 7-Inch Break, 600-volt, Malleable Iron, Sherardized	1500	1800.00
139266	For Nos. 000 and 0000 Wire, 12-Inch Break, 1200-volt, Malleable Iron, Sherardized	2000	2000.00
290759	Renewable Runway, Complete, Including End Tongues for No. 269564	350	620.00
269564	For Nos. 00, 000 and 0000 Wire, 7-Inch Break, 600-Volt, Malleable Iron, Sherardized	1500	1800.00
156995	Renewable Runway, Complete, Including End Tongues, for Nos. 134896 and 140952	300	315.00
156996	Renewable Runway, Complete, Including End Tongues, for No. 139266	325	340.00

## G-E Form L Section Insulators

For Round and Grooved Wire  
Nos. 00, 000 and 0000



This device is designed especially for use in mines, but may also be used to advantage on spur tracks in surface work.

Cat. No.	Description	Wt., Lbs. per 100	Price per 100
34870	Automatic Section Insulator, Bronze	1650	\$1920.00
34871	Switch Clips with Screws	12	24.00
34872	Locking Spring	5	5.60

Section insulators similar to the above for No. 0 wire can be furnished.

## Form L5 Section Insulators

Hand Operated—600 Volts

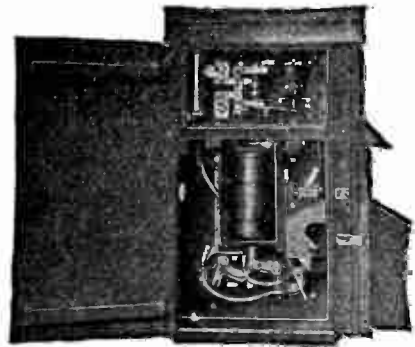
For Nos. 00, 000 and 0000 Wires



Cat. No.	Description	Wt., Lbs. per 100	Price per 100
155024	Mal. Iron, Sherardized	2200	\$1900.00
133903	Switch Contacts for Cat. No. 155024	125	96.00
134626	" Blade for Cat. No. 155024	175	250.00
217129	Runway for Cat. No. 155024	200	500.00

## Automatic Sectionalizing Switches

Type SW-6, Form A-1



Automatic sectionalizing switches improve the efficiency of direct current feeder systems by permitting all section feeders to be placed in multiple. This is accomplished by connecting the switch directly across the section insulators which, while giving all the advantages of the non-sectionalized system, does not in consequence of the automatic operation of the switch, do away with the beneficial results gained from a sectionalized system.

The Type SW-6 Form A1 switch has a continuous capacity of 650 amperes with an overload adjustment of from 600 to 1200 amperes.

This switch is recommended to customers wishing to improve their operating conditions without the large outlay for feeder copper generally necessary. Recommended for use in the original layout of a feeder system, since by its adoption, a smaller cross-section of feeder copper can be utilized.

Price, No. 191712, Weight, 235 Pounds . . . . each \$250.00

**G-E Form L Section Insulators**

Single Beam for Round and Grooved Wire  
600-1200 Volts



For Nos. 0 and 00 Wires

Cat. No.	Description	Approx. Wt., Lbs. per 100	Over All Length In.	Price per 100
19410	7-inch Break, 600-volt, Bronze	31½	975	\$1280.00
For Nos. 00, 000 and 0000 Wires				
19491	7-inch Break, 600-volt, Bronze	31½	1010	\$1280.00
115817	7 " " 600 " Mal-leable Iron, Sherardized....	31½	1010	1100.00
168519	Wooden Runway, for No. 19410..		15	120.00
46190	12-in. Break, 1200-volt, Bronze	36½	1200	1300.00
100176	Wooden Runway, for No. 46190		20	240.00

**G-E Form L Section Insulators**

Single Beam for Round and Grooved Wire  
600 Volts



For Nos. 0 and 00 Wires

Cat. No.	Description	Approx. Wt., Lbs. per 100	Over All Length In.	Price per 100
46740	5/8-inch Tap, 7-inch Break....	31½	1025	\$1400.00
46741	3/4 " " 7 " " ....	31½	1025	1400.00
For Nos. 00, 000 and 0000 Wires				
60434	5/8-inch Tap, 7-inch Break....	31½	1060	\$1400.00
60435	3/4 " " 7 " " ....	31½	1060	1400.00
168519	Wooden Runway, for above		15	120.00

**G-E Pole Type Section Switches**

600 Volts

With Box



Cat. No.	Ampere Capacity	Net Wt. Lbs.	Price Each
259311	200	11	\$18.00
259313	400	15	21.00
259315	600	28	28.00
259317	800	35	38.00
259319	1200	44	50.00

Without Box

Cat. No.	Ampere Capacity	Net Wt. Lbs.	Price Each
259310	200	5	\$10.50
259312	400	7	12.75
259314	600	18	19.00
259316	800	22	28.00
259318	1200	29	40.00

**G-E Spherical Strain Insulators**



Made in 2 sizes having diameters 2¼ inches and 2¾ inches. Smaller size is suitable for a working load of 1000 pounds, the average tensile strength is 3000 pounds. The 2¾-inch size has an average tensile strength of 5000 pounds, and is suitable for a working load up to 2000 pounds. Both sizes are subjected to a potential test of 5000 volts.

With Eye and Clevis

Cat. No.	Diameter Inches	DIAMETER INCHES		Distance Between Center of Eyes or Clevis Holes Inches	Wt. Lbs. per 100	Price per 100
		Eye	Clevis			
27379	2¼	17/32	17/32	4	130	\$85.00
27381	2¾	17/32	17/32	4 7/16	155	105.00
<b>With 2 Eyes</b>						
27378	2¼	17/32	17/32	3 9/16	85	\$80.00
27380	2¾	17/32	17/32	4	125	90.00

**G-E Giant Strain Insulators**



With Eye and Clevis



With Two Eyes

With Eye and Clevis

Cat. No.	Diam. In.	DIAMETER INCHES		Distance bet. Center of Eyes and Clevis Holes Inches	Wt., Lbs. per 100	Price per 100
		Eye	Clevis			
64417	2	9/16	9/16	4 5/32	105	\$108.00
64419	2	11/16	9/16	4 9/32	110	118.00
64427	2	11/16	9/16	3 7/32	92	108.00
64420	2 5/8	9/16	5/8	4 7/16	165	154.00
64421	2 5/8	9/16	3/4	4 7/16	173	164.00
64422	2 5/8	13/16	3/4	4 5/8	182	174.00
64429	2 5/8	9/16	11/16	4 3/16	165	154.00

With Two Eyes

64425	2	9/16	..	3 23/32	87	\$98.00
64428	2	11/16	..	3 31/32	95	118.00
64426	2 5/8	9/16	..	4	155	144.00
64430	2 5/8	13/16	..	4 3/8	200	164.00

With Two Clevises

64418	2	..	9/16	4 19/32	115	\$118.00
64423	2 5/8	..	5/8	4 7/8	180	164.00
64424	2 5/8	..	3/4	4 7/8	200	184.00
108054	With Large Eye and Standard Clevis			4 5/8	200	164.00

**G-E Wood Strain Insulators**

With Two Eyes

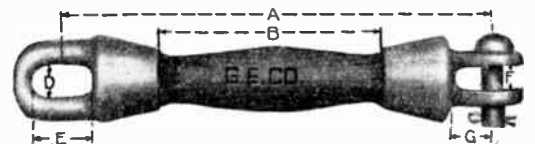
600 Volts



Cat. No.	DIMENSIONS, INCHES		Net Wt., Lbs. per 100	Price per 100
	Length (A)	Diameter (C)		
16727	10 1/4	1	140	\$75.00
37488	10 1/4	1 1/4	175	85.00
61563	12 1/4	1 3/4	400	195.00

With Eye and Clevis

600 Volts



43229	10 3/16	1	160	\$90.00
43230	10 3/16	1 1/4	185	100.00
126140	12 5/8	1 3/4	500	210.00

With Two Clevises

600 Volts



105349	10 1/8	1	180	\$105.00
105348	10 3/8	1 1/4	210	115.00
105350	13	1 3/4	560	240.00

## G-E Feeder Wire Insulators

An all compound insulator with a 1-inch pin hole. For Nos. 0000 to 500000 C. M. conductors.



Cat. No.	Approx. Wt., Lbs. per 100	Price per 100
64259	170	\$140.00

## G-E Tie Top Insulators

Cat. Nos. 46013 and 46007 for Nos. 0000. Nos. 46012 and 46006 for 500000 C. M. No. 46005 for 800000 C. M. and No. 46004 for 1500000 C. M., respectively.

Cat. No.	Diam. Pin Hole, In.	Approx. Wt. Lbs. per 100	Price per 100
46013	1	415	\$150.00
46012	1	445	160.00
46007	1 3/8	410	150.00
46006	1 3/8	440	160.00
46005	1 3/8	520	170.00
46004	1 3/8	450	180.00



## G-E Clip Top Insulators

Cat. Nos. 46011 and 46003 for No. 0000. Nos. 46010 and 46002 for 500000 C. M. No. 46000 for 800000 C. M. and No. 46001 for 1500000 C. M., respectively.

Cat. No.	Diam. Pin Hole, In.	Approx. Wt. Lbs. per 100	Price per 100
46011	1	390	\$150.00
46010	1	415	150.00
46003	1 3/8	385	150.00
46002	1 3/8	410	150.00
46000	1 3/8	495	190.00
46001	1 3/8	520	190.00



## G-E Corner Feeder Insulators

600 Volts

Cat. Nos. 46014 and 46008 take No. 0000 to 500000 C. M. and Cat. No. 46009 takes 600000 to 1500000 C. M. conductors, respectively.

Cat. No.	Diam. Pin Hole, In.	Net Wt., Lbs. per 100	Price per 100
46014	1	390	\$140.00
46008	1 3/8	385	140.00
46009	1 3/8	440	170.00



## G-E Strain Clamps

Wedge Grips with Clevis

Cat. No.	Diam. In.	Wt., Lbs. per 100	Price per 100
*138280	7/16, 1/2	215	\$125.00
†147243	1/4, 3/8	160	115.00



\*Clevis 5/16-inch spread and 5/8-inch diameter pin.  
†Clevis has 3/16-inch spread and 1/2-inch diameter pin.

## Feeder Strain Clamps



Cat. No.	For Cables	Net Wt., Lbs. per 100	Price per 100
100077	0000	190	\$100.00
100076	250000-300000 C. M.	220	110.00
100075	400000-650000 C. M.	275	136.00
100074	700000-1000000 C. M.	350	148.00

## Trolley Terminal Clamps

For dead ending trolley wire.

Cat. No.	Net Wt., Lbs. per 100	Price per 100
27437	355	\$120.00



## Overhead Line Tools



46765 Wrench for Forms H, D, and G, Straight Line Suspensions ..... 325 \$1.25



16915 Trolley Wire Hauling Clamp ..... 615 \$5.35

## Wrenches for G-E Ears and Suspensions



Fig. 1, Combination Wrench

Combination wrenches are made of malleable iron, sherardized. They are furnished in various size openings as indicated in the accompanying table and in addition to fitting G-E ears and suspensions, will fit certain popular sizes of competitive ears and suspensions.

One wrench, Cat. No. 278192, will be packed in each standard case of ears or suspensions. On less than standard case shipments, 1 wrench will be furnished with all orders of 100 suspensions or ears, or over.

Wrench, Cat. No. 285585, will be shipped with Cat. No. 484789 suspension.

Wrench, Cat. No. 193540, is made of 5/16-inch hexagonal steel, sherardized. It is used in hollow clamping screw in Forms L and L2 ears.

Two wrenches, Cat. No. 193540, will be packed in each standard case of ears and 1 wrench with each shipment of less than standard case.

These wrenches will be furnished free of charge to the customer.

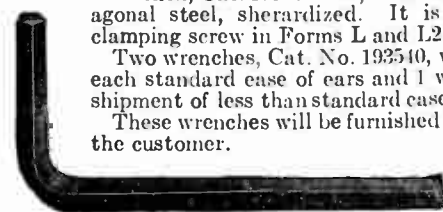


Fig. No. 2, No. 193540

If any wrench other than that regularly furnished is desired, it will be

necessary to specify Cat. No. on requisition.

Cat. No.	Description
278192	Fits Forms M and W Ears; Suspensions, Nos. 125330, 165189, 204245, 261737, 1431862, 1431894, and 1436318.
285585	Fits Forms M and W Ears; Suspensions, Nos. 125330, 261737, 424992, 484789, 1431862, and 1436318.
295704	Fits Forms M and E Ears; Suspensions, Nos. 125330, 165189, 204245, 261737, 1431862 and 1431894.
280159	Fits Forms M and W Ears; Suspensions, Nos. 125330, 165189, 204245, 261737, 1431862, and 1431894.
248227	Fits Hexagonal Nuts and Hollow Screws in Forms L and L2 Ears; Suspensions, Nos. 424992, and 484789.
194522	Fits Hexagonal Nuts and Hollow Screws in Forms L and L2 Ears.
193540	Fits Hollow Screws in Forms L and L2 Ears.

Cat. No.	Lgth. In.	Fig. No.	DIMENSIONS, INCHES				Approx. Weight Pounds per 100	Price per 100
			A	B	C	D		
278192	12	1	2 1/16	2 1/16	1 5/16	1 1/16	155	\$80.00
285585	12	1	2 1/16	2 1/16	1 3/16	1 1/16	155	80.00
295704	12	1	2 1/16	2 3/16	...	1 1/16	155	80.00
280159	12	.	2 1/16	2 3/16	...	1 3/16	150	80.00
248227	8 1/2	.	2 1/8	1 1/8	...	...	100	60.00
194522	6 1/2	.	1 1/8	...	...	...	90	60.00
193540	4 1/2	2	...	...	...	...	18	15.00

**G-E Feeder Tap Insulators**

600 Volts

Opening in insulating bushing is 1 inch. Malleable iron, sherardized.



Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100
40207	For 1 1/4-In. Pipe.....	160	\$70.00
40208	For 1 1/2-In. Pipe.....	180	80.00
40209	For 2-In. Pipe.....	200	90.00

**G-E Mine Roof Drills**



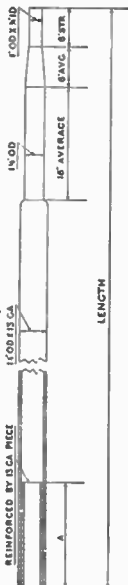
This machine, though light in weight, is of strong design and capable of fast work. It can be set for drilling holes at any angle by simple adjustments. The standard posts give a long range of extension and meet all ordinary mine conditions. The drill can readily be carried, set up, and operated by one man. It can be furnished with any length post and with feed bar having 8, 10, 12 or 14 threads per inch as required.

An ordinary ratchet handle or a double-action ratchet handle can be furnished if desired.

Cat. No.	Description	Approx. Wt., Lbs. per 100	Price per 100 Each
167960	Drill, Complete, with 4-foot Post, Three 1 1/4-inch Augers and Operating Handle.....	65*	.....

\*Price upon application.

**Globe Cold Drawn Seamless Steel Trolley Poles**



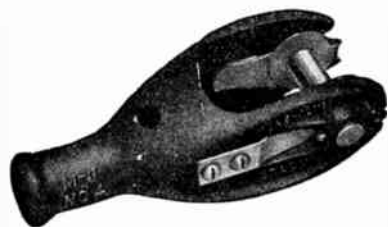
Poles are made of the best grade of open hearth steel, are of 13-gauge thickness, 1 1/2-inch outside diameter at the large end and 1-inch outside diameter and 3/4-inch inside diameter at the small end.

Each type is reinforced. The reinforcement is inserted in the pole in such a manner that it becomes practically integral with the body of the pole.

Style B has additional strength which is due to the longer reinforcements.

Lenth. Feet	Average Weight Pounds	Style A		Load at End of Pole Elastic Limit and Weight Pounds of Pole, In.	Deflection at Elastic Limit and Weight Pounds of Pole, In.	Price Each
		A	Minimum			
12	19.1	1'	4"	46	12 3/4	\$3.45
13	20.3	1'	4"	41	15 1/2	3.65
14	21.8	1'	6"	36	17 3/4	3.90
15	23.7	1'	6"	32	21 3/8	4.15
Style B						
12	22.8	4'	10"	75	15 1/2	\$4.10
13	25.5	5'	2"	68	19 5/8	4.40
14	27.1	5'	7"	61	22 5/8	4.70
15	30.6	5'	9"	56	25	5.00

**No. 4 More-Jones Trolley Harps**



M-J No. 4 Trolley Harps accommodate 4 to 5-inch wheels; 1 1/2 inches between contact washers and regularly furnished with 1/2 and 5/8-inch solid cold rolled steel axles. Harps of malleable iron.

Prices upon application.

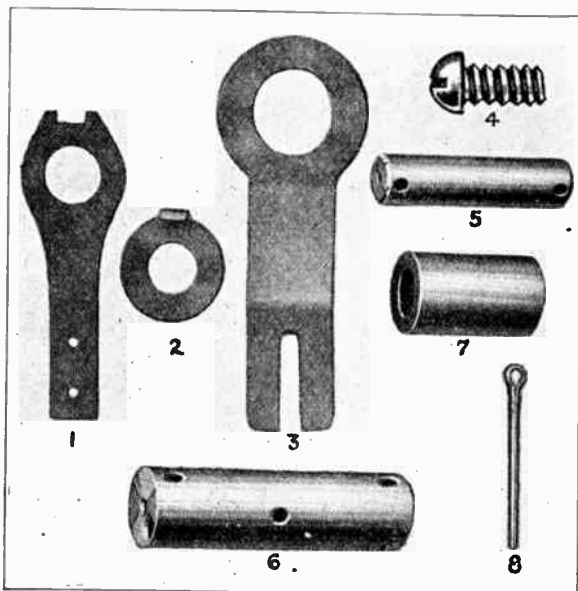
**No. 6 More-Jones Trolley Harps**



M-J No. 6 Trolley Harps, the latest and most improved design, on the bottle principle, to prevent catching or fouling the overhead. For 6-inch wheels, 1 3/4-inch length of hub; equipped with 3/4 or 7/8-inch hollow lubricating shaft. Harps of malleable iron, very light, strong and efficient.

Prices upon application.

**M-J Wheel and Harp Parts**



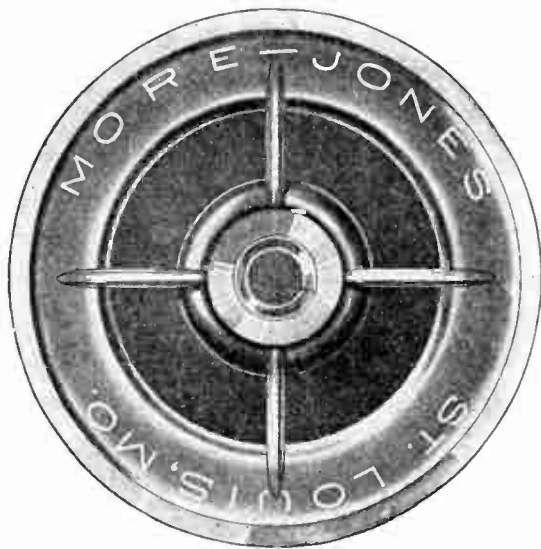
- No. 1—Contact Spring for No. 4 Harp.
  - No. 2—Contact Washer for No. 4 Harp.
  - No. 3—Contact Spring for No. 6 Harp.
  - No. 4—Contact Screw.
  - No. 5—Solid C. H. Steel Shaft.
  - No. 6—Hollow C. H. Steel Lubricating Shaft.
  - No. 7—Graphite Bushing.
  - No. 8—Cotter Pin.
- Contact spring and washer of phosphor-bronze.



## More-Jones 6-inch Trolley Wheels

With Graphite Bushing

Designed for City and Suburban Service

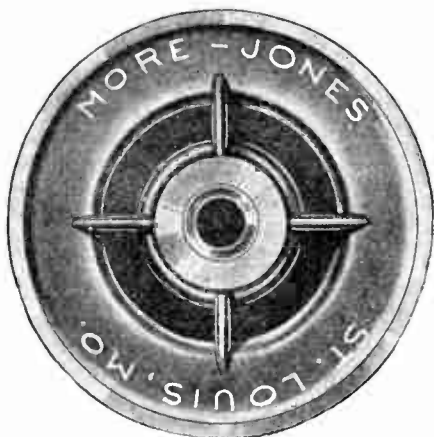


Cat. No.	1	2	3	4	39
Wheel Diameter	in. 6 $\frac{1}{4}$	6 $\frac{1}{4}$	6 $\frac{1}{4}$	6 $\frac{1}{4}$	6
Length of Hub	" 1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2	1 $\frac{1}{2}$
Graphite Bushing	" $\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$
Groove Depth	" $\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$
" Style	" V	U	V	U	V
Cat. No.	40	41	42	18	19
Wheel Diameter	in. 6	6	6	6	6
Length of Hub	" 1 $\frac{1}{2}$	2	2	2	1 $\frac{1}{2}$
Graphite Bushing	" $\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{8}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{5}{8}$	1 $\frac{5}{8}$
Groove Depth	" $\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{7}{8}$	$\frac{7}{8}$
" Style	" U	V	U	Special wide & deep	

Please order by number. Prices upon application.

## More-Jones 5-inch Trolley Wheels

With Graphite Bushing—For City Service



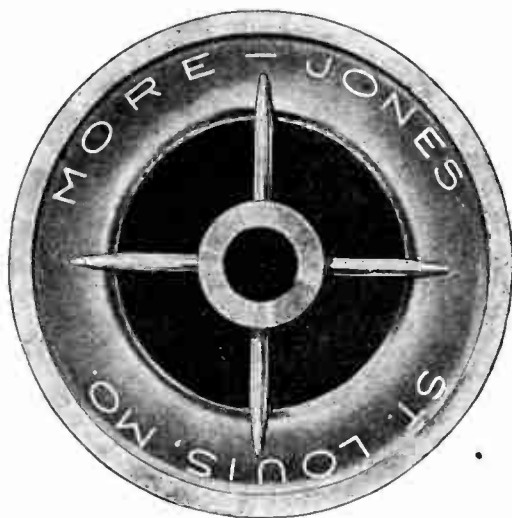
Cat. No.	24	25	26	27	28	29
Wheel Diameter	in. 5	5	5	5	5	5
Length of Hub	" 1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2
Graphite Bushing	" $\frac{5}{8}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$
Groove Depth	" $\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{11}{16}$
" Style	" V	U	V	U	V	U

Please order by number. Prices upon application.

## More-Jones 6-inch Trolley Wheels

Without Graphite Bushing

Designed for City and Interurban Service



Cat. No.	5	6	7	8	9
Wheel Diameter	in. 6	6	6	6	6
Length of Hub	" 1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$
Plain Bore	" $\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$
Groove Depth	" $\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$
" Style	" V	U	V	U	V
Cat. No.	10	11	12	13	14
Wheel Diameter	in. 6	6	6	6	6
Length of Hub	" 1 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2
Plain Bore	" $\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{7}{8}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$	1 $\frac{7}{16}$
Groove Depth	" $\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{23}{32}$
" Style	" U	V	U	V	U

Please order by number. Prices upon application.

## More-Jones 4-inch Trolley Wheels

With Graphite Bushing and Oil Chamber  
For Mines, Industrial Plants and Electric Roads

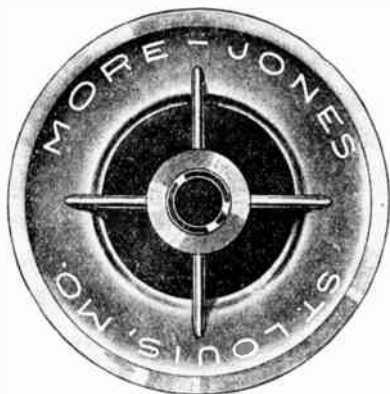


Cat. No.	34	35
Wheel Diameter	in. 4 $\frac{1}{4}$	4 $\frac{1}{4}$
Length of Hub	" 1 $\frac{1}{2}$	1 $\frac{1}{2}$
Graphite Bushing	" "	$\frac{1}{2}$
Flange Width	" 1 $\frac{7}{16}$	1 $\frac{7}{16}$
Groove Depth	" $\frac{11}{16}$	$\frac{11}{16}$
" Style	" V	U

Please order by number. Prices upon application.

**More-Jones 4½-inch Trolley Wheels**

With Graphite Bushing—No Oil Chamber



Cat. No. ....	47	48
Wheel Diameter..... in.	4½	4½
Length of Hub..... "	1½	1½
Graphite Bushing..... "	1½	1½
Flange Width..... "	1 7/16	1 7/16
Groove Depth..... "	11/16	11/16
"    Style.....	V	U

Please order by number.

Prices upon application.

**More-Jones 4-inch Trolley Wheels**

With Graphite Bushing—No Oil Chamber

For Mines, Industrial Plants and Electric Roads



Cat. No. ....	36	37
Wheel Diameter..... in.	4¼	4¼
Length of Hub..... "	1½	1½
Graphite Bushing..... "	1½	1½
Flange Width..... "	1 7/16	1 7/16
Groove Depth..... "	11/16	11/16
"    Style.....	V	U

Please order by number.

Prices upon application.

**More-Jones 5-inch Sleet Wheels**

With Graphite Bushing



Cat. No. ....	51	52
Wheel Diameter..... in.	5	5
Length of Hub..... "	1½	1¾
Graphite Bushing..... "	5/8 Plain Bore	¾-7/8 or 1
Flange Width..... "	Rough	Rough
Groove Depth..... "	11/16	11/16

Mention Cat. No. and diameter of bore in ordering.

Prices upon application.

**More-Jones 4-inch Sleet Wheels**

With Graphite Bushing

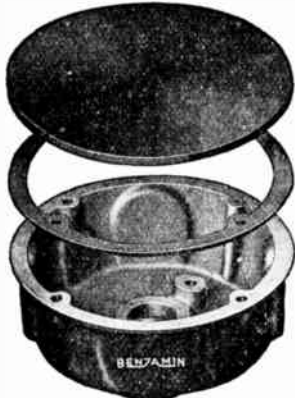


Cat. No. ....	49	50
Wheel Diameter..... in.	4¼	4¼
Length of Hub..... "	1½	1½
Graphite Bushing..... "	1/2	5/8
Flange Width..... "	Rough	Rough
Groove Depth..... "	11/16	11/16

Mention Cat. No. and diameter of bore in ordering.

Prices upon application.

**Benjamin Water-tight Junction Boxes**  
Standard—With Plain Cover and Gasket



No. 6701

Standard Junction or Outlet Boxes are 1½ inches deep inside, 4½ inches in diameter outside, and are supplied in either brass or iron. They are provided with side boss for plunger stuffing box, and have mounting bosses in bottom, tapped for No. 8-32 screws, which are spaced to accommodate interchangeably Benjamin connecting blocks, receptacles and switches. Boxes are also tapped for the No. 10-24 brass screws furnished to fasten cover.

TAPPING.—Boxes are regularly furnished not tapped for conduit.

PLUNGER KEY.—Key Type boxes are arranged with water-tight stuffing box and furnished with plunger key for operating key receptacles or switches.

COVER.—Brass, No. 6920, or iron, No. 6921.

GASKET.—Rubber gasket, No. 6945, makes water-tight connection.

FINISH.—Brass boxes and covers are regularly unfinished, but can be finished in dead black when specified. Iron boxes and covers are dead black.

Cat. No.	Type of Box	Material	Description	Wt., Lbs. Each	Price Each
6700	Keyless	Brass	Box, Cover and Gasket..	2¼	\$2.05
6701	"	Iron	" " " " ..	2¼	1.05
6702	Key	Brass	" " " " ..	2¾	2.55
6703	"	Iron	" " " " ..	2¾	1.55
6900	Keyless	Brass	Junction Box Only .....	1¾	1.30
6901	"	Iron	" " " " .....	1¾	.60
6902	Key	Brass	" " " " .....	1¾	1.80
6903	"	Iron	" " " " .....	1¾	1.10

**Benjamin Water-tight Connecting Blocks**  
With Standard Water-tight Junction Boxes

Rating: 30 Amperes, 125 Volts



No. 6707

CONNECTING BLOCK.—One set of binding screws and three sets of clamp connectors which permit taking off branch circuits as necessary. Feed wires may be passed through without cutting, and clamped firmly without soldering or taping joints. Base is of high heat molded insulating material. Supporting screw holes are spaced 1¾ inches on centers.

JUNCTION BOX.—Standard junction box, brass, No. 6900 or iron, No. 6901.

TAPPING.—Box is regularly furnished not tapped for conduit but no charge is made for tapping when specifications are given with order.

COVER.—Brass, No. 6920, or iron, No. 6921.

GASKET.—Rubber gasket, No. 6945, making water-tight connection.

FINISH.—Brass boxes and covers are regularly unfinished but can be supplied in dead black finish when specified. Iron boxes and covers are dead black.

Cat. No.	Kind of Box	Description	Wt., Lbs. Each	Price Each
6706	Brass	Complete as Described.....	2½	\$2.85
6707	Iron	" " " " .....	2½	1.85

**Benjamin Twin Fuse Receptacles and Water-tight Connecting Blocks**  
With Standard Water-tight Junction or Outlet Boxes  
30 Amperes, 125 Volts



No. 6709

RECEPTACLE.—For Edison Plug Fuses only. Equipped with two sets of clamp connectors which permits one or two circuits to be connected. Fuses not furnished. Receptacle is attached to connecting block by two screws which serve as center contacts for fuse plugs. Receptacle and block are of high heat insulating material. Connecting block is like that furnished with Nos. 6706 and 6707.

JUNCTION BOX.—Standard water-tight junction box, brass, No. 6900, iron, No. 6901.

TAPPING.—Box is regularly furnished not tapped for conduit. No charge is made for tapping when specifications are given with order.

COVER.—Special brass cover, No. 6922.

GASKET.—Rubber gasket, No. 6945, making water-tight connection.

FINISH.—Brass parts are regularly unfinished, but can be supplied in dead black finish when specified. Iron parts are dead black.

Cat. No.	Kind of Box	Description	Wt., Lbs. Each	Price Each
6708	Brass	Complete, as Described.....	3¾	\$4.60
6709	Iron	" " " " .....	3¾	3.90

**Benjamin Water-tight Junction Boxes**  
With Mounting Lugs, Plain Cover and Gasket

These outlet or junction boxes are the same as the standard boxes, Nos. 6900 to 6903, except that they have two mounting screw lugs on the side.

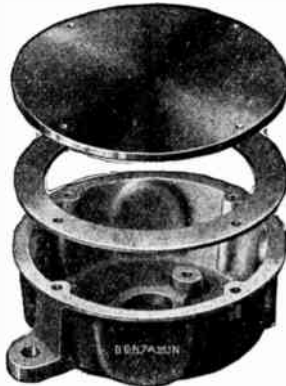
TAPPING.—Boxes are regularly furnished not tapped for outlets. They have four bosses spaced 90 degrees which may be tapped for ½, ¾ or 1-inch conduit. A ½ or ¾-inch outlet may be tapped in bottom of box.

PLUNGER KEY.—Boxes are arranged for water-tight stuffing box and furnished with plunger key for operating key receptacles or switches, as specified.

COVER.—Brass, No. 6920, or iron, No. 6921.

GASKET.—Rubber gasket, No. 6945, makes water-tight connection.

FINISH.—Brass boxes and covers are regularly unfinished but can be finished in dead black when specified. Iron boxes and covers are dead black.



No. 6636

Cat. No.	Type of Box	Material	Description	Wt., Lbs. Each	Price Each
6635	Keyless	Brass	Box, Cover and Gasket..	2½	\$2.30
6636	"	Iron	" " " " ..	2½	1.30
6637	Key	Brass	" " " " ..	2¾	2.80
6638	"	Iron	" " " " ..	2¾	1.80
6630	Keyless	Brass	Junction Box Only .....	2	1.55
6631	"	Iron	" " " " .....	2	.85
6632	Key	Brass	" " " " .....	2½	2.05
6633	"	Iron	" " " " .....	2½	1.35

**Benjamin Single Screw Base Water-Tight Plug Receptacles**

With Standard 4 1/2-Inch Water-Tight Outlet Box

660 Watts, 250 Volts



No. 6719

**RECEPTACLE.**—Edison base type, of high heat molded composition; keyless No. 6959, key No. 6968.

**PLUG.**—Water-tight Edison base type, attaching plug No. 6766 or 6767. Plug makes water-tight connection to receptacle. Order plugs separately by catalogue number.

**OUTLET BOX.**—Water-tight, standard, with rubber gasket No. 6945. Outlet box cover is brass with brass chain attached screw cap. Brass box supplied is No. 6900 keyless; No. 6902, key. Iron box supplied is No. 6901 keyless; No. 6903, key. Key boxes include water-tight stuffing box and plunger key.

**TAPPING.**—Boxes are regularly furnished not tapped for conduit entrance. Specify tapping on order.

**FINISH.**—Brass boxes and covers are regularly unfinished but can be supplied in dead black finish when specified. Iron boxes are dead black.

Cat. No.	Kind of Box	Type of Receptacle	Description	Wt., Lbs. Each	Price Each
6716	Brass	Keyless	Complete, Less Plug...	2 3/4	\$4.00
6717	Iron	Keyless	Complete, Less Plug...	2 3/4	3.30
6718	Brass	Key	Complete, Less Plug...	2 7/8	5.40
6719	Iron	Key	Complete, Less Plug...	2 7/8	4.70
6924	Brass	.....	Cover, Cap and Chain..	3/4	1.95

**Benjamin Twin Screw Base Water-Tight Plug Receptacles**

With Standard 4 1/2-Inch Water-Tight Outlet Box

660 Watts, 250 Volts per Outlet

**RECEPTACLE.**—Edison base type of twin keyless receptacle is regularly furnished. Receptacle may be put in vertical or horizontal position after box has been installed. Supporting screw holes are spaced 1 1/4 inches on centers. The base of the receptacle is made of high heat molded composition.



No. 6721

**PLUG.**—Water-tight, Edison base type, No. 6766 or 6767. Plug makes water-tight connection to receptacle. Order plugs separately by catalogue number.

**OUTLET BOX.**—Water-tight, standard, in brass or iron, with rubber gasket No. 6945. Outlet box cover is brass with 2 brass chain attached screw caps. Brass box is No. 6900 keyless; iron box, No. 6901 keyless; furnished as specified.

**TAPPING.**—Boxes are regularly furnished not tapped for conduit entrance. Specify tapping on order.

**FINISH.**—Brass boxes and covers are regularly unfinished, but can be supplied in dead black finish when specified. Iron boxes are dead black.

Cat. No.	Kind of Box	Description	Wt., Lbs. Each	Price Each
6720	Brass	Complete, Less Plug.....	3 3/8	\$6.00
6721	Iron	Complete, Less Plug.....	3 3/8	5.30
6981	.....	Twin Keyless Receptacle.....	3 3/8	1.40
6926	Brass	Cover, Caps and Chain.....	1 1/8	3.20

**Benjamin Single Screw Base Water-Tight Plug Receptacles**

With 3 1/4-Inch Water-Tight Outlet Box

660 Watts, 250 Volts



No. 6732

**RECEPTACLE.**—Edison base type of high heat molded composition; keyless No. 6959, key No. 6968.

**PLUG.**—Water-tight Edison base type, Nos. 6766 or 6767. Plug makes water-tight connection to receptacle. Order plugs separately by catalogue number.

**OUTLET BOX.**—Water-tight brass outlet box. Key box includes water-tight stuffing box and plunger key. Boxes 6932 and 6934 are equipped with 1 mounting lug. Furnished with rubber gasket and brass cover with chain attached brass screw cap.

Brass box, keyless, 1 boss, No. 6932; key, 1 boss, No. 6934; keyless, 2 bosses, No. 6640.

**TAPPING.**—Boxes Nos. 6932 and 6934, regularly supplied, have side boss tapped for 1/2-inch conduit, 3/4-inch if desired. Special box No. 6640, supplied not tapped but may be tapped for 1/2 or 3/4-inch conduit 1 way or 2 way. A 1/2-inch conduit entrance can be tapped in the bottom of boxes, when specified. Specify tapping; no charge for tapping when size and number of conduit entrances are given with order.

**FINISH.**—Boxes and covers are regularly unfinished, but can be supplied in dead black finish when specified.

Cat. No.	Description	Kind of Box	Wt., Lbs. Each	Price Each
6730	Complete, Less Plug.....	Brass	1 3/4	\$4.20
6732	Complete, Less Plug.....	Brass	2	5.70
6938	Cover, Cap and Chain Only.....	Brass	5/8	1.75
6943	Gasket Only.....	.....	1/32	.05

**Benjamin 3-blade Water-tight Receptacles**

660 Watts, 250 Volts

With Standard 4 1/2-inch Water-tight Outlet Box



No. 6713

**RECEPTACLE.**—3-blade type of keyless receptacle with base of high heat molded composition. Supporting screw holes are spaced 1 1/4 inches on centers.

**PLUG.**—3-blade water-tight attaching plugs Nos. 6762 or 6764, fit this receptacle. Plug and receptacle make water-tight attachment.

Order plugs separately by catalogue number.

**OUTLET BOX.**—Water-tight standard keyless outlet box with rubber gasket No. 6945 and brass cover No. 6924. Boxes can be furnished in either brass or iron as specified below.

Brass box is No. 6900. Iron box is No. 6901.

**TAPPING.**—Boxes are regularly furnished not tapped for conduit entrance. Specify tapping on order.

**FINISH.**—Brass boxes and covers are regularly unfinished, but can be supplied in dead black. Iron boxes are dead black.

Cat. No.	Description	Kind of Box	Wt., Lbs. Each	Price Each
6712	Complete, less Plug.....	Brass	2 7/8	\$4.35
6713	“ “ “.....	Iron	2 7/8	3.65
6984	Receptacle Only.....	.....	1/4	1.00

## Benjamin 2-pole Water-tight Receptacles and Plugs

With Standard Water-tight Junction Boxes

Rating: 15 Amperes, 125 Volts



No. 7751

**RECEPTACLES.**—Are keyless for use with attaching plugs Nos. 7863 and 7864. Have base of high heat molded insulating material.

**ATTACHING PLUGS.**—Regularly furnished with No. 7863; No. 7864 supplied if specified.

Have cast brass body and base of molded insulating material with copper sheath. Gasketed swivel ring makes water-tight connection.

**JUNCTION BOX.**—Standard water-tight brass No. 6900 or iron, No. 6901.

**TAPPING.**—Boxes are regularly furnished not tapped for conduit.

**COVER.**—Brass cover, No. 7880.

**GASKET.**—Rubber gasket makes water-tight connection, No. 6945.

**FINISH.**—Brass parts are regularly unfinished, but can be supplied in dead black when specified. Iron boxes are dead black.

Cat. No.	Kind of Box	Description	Wt., Lbs. Each	Price Each
7750	Brass	Complete, Less Plug	2 <sup>7</sup> / <sub>8</sub>	\$4.00
7751	Iron	"	2 <sup>7</sup> / <sub>8</sub>	3.30
7863	.....	Plug Only, 2-pole, for No. 12 B. & S. Gauge PWP	1/2	2.00
7864	.....	Plug Only, 2-pole, for 1/2-inch Conduit	1/2	1.80

## Benjamin 2 and 3-pole Water-tight Plug Receptacles

With Standard Water-tight Junction Boxes

Rating: 30 Amperes, 250 Volts D.C. or 440 Volts A.C.

**RECEPTACLES.**—Keyless, with high heat molded composition base, has double spring contacts, arranged for 3-pole connection. The same receptacle is made 2-pole by omission of one contact.

**ATTACHING PLUGS.**—Polarized, have cast brass body and molded composition base with copper sheath. Not designed to break circuit under full load. Gasketed swivel ring makes water-tight connection. Plug No. 7861 will be arranged for No. 10 or No. 8 rubber covered portable cable if specified.

**TAPPING AND FINISH.**—Same as above.

**COVER.**—Brass cover, No. 7889.

**GASKET.**—Rubber gasket makes water-tight connection, No. 7879.



No. 7766 with No. 7861 Plug

Cat. No.	Kind of Box	Type of Receptacle	Description	Wt., Lbs. Each	Price Each
7765	Brass	3-pole	Complete, Less Plug	3 1/4	\$5.95
7766	Iron	3 "	"	3 1/4	5.25
7717	Brass	2 "	"	3 1/4	5.95
7718	Iron	2 "	"	3 1/4	5.25
7861	.....	3 "	Plug for No. 12 Cable	3/4	5.00
7886	.....	3 "	" " 1/8-inch O. D. Flexible Conduit	7/8	5.00
7862	.....	2 "	Plug for No. 12 Cable	3/4	5.00
7887	.....	2 "	" " 1/8-inch O. D. Flexible Conduit	7/8	5.00

## Benjamin 2 and 3-Pole Water-Tight Plug Receptacles

With 45-Degree Angle Water-Tight Outlet Box

30 Amperes, 250 Volts D.C. or 440 Volts A.C.



No. 7767

**RECEPTACLE.**—Keyless with base of molded composition. Has double spring contacts for 3-pole connection. Same receptacle is made 2-pole by omission of one contact.

**PLUG.**—Cast iron body and gasketed swivel ring for quick attachment to screw thread covers of Benjamin outlet boxes. Plug No. 7861 and 7862 for No. 12 cable, can also be arranged for No. 10 or No. 8-28 rubber-covered portable cable, if specified.

**OUTLET BOX.**—45-degree angle iron water-tight box with special brass cover No. 7889 and gasket No. 7879.

**TAPPING.**—Box is tapped for 1/2-inch pipe connection at top, and may also be tapped for 1/2-inch connection at rear. Specify tapping. No charge for tapping when size and number of conduit entrances are given with order.

**FINISH.**—Brass boxes and covers are regularly unfinished, but can be supplied in dead black when specified. Iron boxes are dead black.

Cat. No.	Kind of Box	No. of Poles	Description	Wt., Lbs. Each	Price Each
7767	Iron	3	Complete, Less Plug	4 3/8	\$6.80
7719	Iron	2	Complete, Less Plug	4 3/8	6.80
7848	Iron	..	Box Only, Less Cover	2 7/8	2.15

## Benjamin Twin Screw Base Water-Tight Plug Receptacles

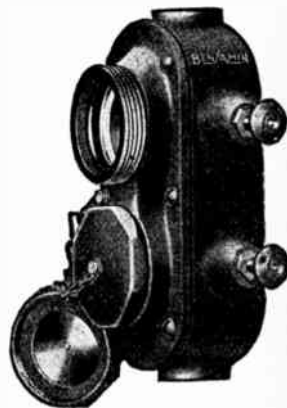
With 2-Gang Water-Tight Outlet Box

660 Watts, 250 Volts

**RECEPTACLE.**—Edison base type of high heat molded composition. Key receptacle, No. 6968 regularly supplied. Keyless receptacles, single or double pole switches or any combination of same, can be supplied with 2-gang box when so specified.

**PLUG.**—Edison base type, No. 6766 or 6767. Plug makes water-tight connection to receptacle. Order plugs separately by catalogue number.

**OUTLET BOX.**—Water-tight, brass with plunger key and stuffing box. Rubber gasket, and brass cover with 2 brass screw caps regularly supplied.



No. 6740

**TAPPING.**—Box is not tapped for conduit entrance, but has 2 bosses which may be tapped for 1/2 or 3/4-inch conduit 1 way or 2 way. Specify tapping; no charge for tapping when size and number of entrances are given with order.

**FINISH.**—Boxes and covers are regularly unfinished, but can be supplied in dead black finish when specified.

Cat. No.	Kind of Box	Type of Box	Description	Wt., Lbs. Each	Price Each
6740	Brass	Key	Complete, Less Plug	3 3/4	\$10.40
6908	Brass	Keyless	2-Gang Box Only	2 1/8	2.90
6910	Brass	Key	2-Gang Box Only	2 1/8	3.90
6927	Brass	.....	Cover with 2 Caps	1 1/8	3.25
6947	.....	.....	Gasket Only	1/2	.15

**Benjamin 2-Pole Water-Tight Connectors**

For Heavy Duty Industrial and Marine Use

15 Amperes, 125 Volts



No. 7743

**CONSTRUCTION.**—Receptacle has brass casing threaded to fit swivel ring on 15-ampere 2-pole plugs.

Plugs are 2-pole type, supplied in 2 sizes, Nos. 7863 and 7864.

**WATER-TIGHT CONNECTION.**—Rubber packing ring seals cord entrance and rubber gasket seals joint between plug and connector.

**CORD STYLES AND SIZES.**—No. 7743 Connector accommodates No. 12 B. & S. Gauge PWP. No. 7742 Connector accommodates 1/2-inch rigid conduit.

**FINISH.**—Brass parts are regularly unfinished, but can be finished in dead black when specified.

Cat. No.	Description	Wt. Lbs.	Price Each
7742	No. 7869 Receptacle with No. 7864 Plug..	1	\$3.60
7743	No. 7868 Receptacle with No. 7863 Plug..	1 3/8	4.00
7868	Receptacle for No. 12 B. & S. Gauge PWP.	1/8	2.00
7869	Receptacle for 1/2-inch Conduit.....	1/2	1.80
7871	Receptacle Base Only.....	1/8	.60

**Benjamin Screw Base Water-tight Attachment Plugs**

660 Watts, 250 Volts

For use with Edison screw base receptacle in water-tight outlet box. Can also be used with threaded connector receptacles, Nos. 6750 and 6751.

Cast brass body and gasketed swivel ring for quick attachment to screw thread covers of Benjamin Water-tight outlet boxes. Insulating parts are of high heat molded composition. Rubber cable gland in neck of device and rubber gasket in swivel ring. Brass parts are regularly unfinished, but can be finished in dead black.



No. 6766

Cat. No.	No. 14 B. & S. Gauge Wire Accommodated	RANGE OF JAWS, IN.		Wt. Lbs. Each	Price Each
		Open	Closed		
6766	PWP.....	3 1/4	3/8	3/4	\$2.50
6767	Basket Weave Armored Cable	2 1/32	15/32	3/4	2.50

**Benjamin 2-pole Water-tight Attaching Plugs**

15 Amperes, 125 Volts

For use with 2-pole receptacle, Nos. 7870 and 7871, in water-tight outlet box. Can also be used with threaded connector receptacles, Nos. 7868 and 7869.

Cast brass body and gasketed swivel ring for quick attachment to screw thread covers of Benjamin water-tight outlet boxes. Insulating parts are of high heat molded composition.

Rubber cable gland in neck of device and rubber gasket in swivel ring, make water-tight connection when plug is attached to receptacle.

Brass parts are regularly unfinished, but can be finished in dead black.



No. 7863

Cat. No.	Wire Opening Arranged for	Wt. Lbs. Each	Price Each
7864	1/2-inch Conduit.....	1/2	1.80

**Benjamin 2-Pole Water-Tight Switches With Standard Water-Tight Junction Boxes**

Rating: 10 Amperes, 125 Volts; 5 Amperes, 250 Volts

**SWITCH.**—Positive in action, quick make and break type with plunger key control and breaks on both sides of circuit at two points. Inner and outer terminals with extra binding screws permit taking off branch circuits. Can be made single-pole by jumper connection. Base is of high heat molded insulating material.

**JUNCTION BOX.**—Standard.

**TAPPING.**—Boxes are regularly furnished not tapped for conduit.

**COVER.**—Brass or iron as specified.

**GASKET.**—Rubber gasket, No. 6945, makes water-tight connection.

**FINISH.**—Brass boxes and covers are regularly unfinished, but can be supplied in dead black when specified. Iron boxes and covers are dead black.

Cat. No.	Kind of Box	Description	Wt. Lbs. Each	Price Each
6710	Brass	Device Complete.....	2 5/8	\$3.95
6711	Iron	Device Complete.....	2 5/8	2.95



No. 6711

**Benjamin 2-Pole Water-Tight Switches With Water-Tight Oblong Junction Boxes**

Rating 10 Amperes, 125 Volts; 5 Amperes, 250 Volts

**SWITCH.**—Positive in action, quick make and break type with plunger key control and breaks on both sides of circuit at two points. Inner and outer terminals with extra binding screws permit taking off branch circuits. Can be made single-pole by jumper connection. Base is of high heat molded insulating material.

**JUNCTION BOX.**—Brass, oblong; 1 1/2 inches deep, 4 inches long and 2 3/4 inches wide outside dimensions.

**COVER.**—Brass.

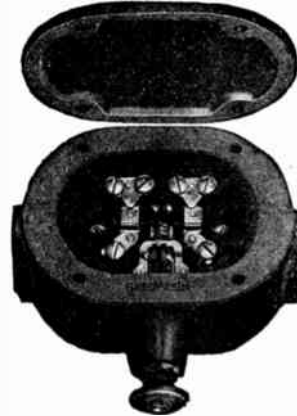
**TAPPING.**—Box is not tapped for outlets but has two bosses which may be tapped

for 1/2-inch conduit 1-way or 2-way, as specified.

**GASKET.**—Rubber gasket, No. 6944, makes water-tight connection.

**FINISH.**—Unfinished; dead black supplied when specified.

Cat. No.	Kind of Box	Description	Wt. Lbs. Each	Price Each
6746	Brass	Device Complete.....	1 3/4	\$4.45



**Benjamin 3-Blade Water-Tight Attaching Plugs**

660 Watts, 250 Volts

For use with 3-blade receptacle, No. 6984, in water-tight outlet box.

Cast brass body and gasketed swivel ring for quick attachment to screw thread covers of Benjamin water-tight outlet boxes. Insulating parts are of high heat molded composition. Rubber cable gland in neck of device and rubber gasket in swivel ring. Brass parts are regularly unfinished, but can be finished in dead black.



No. 6762

Cat. No.	No. 14 B. & S. Gauge Wire Accommodated	RANGE OF JAWS INCHES		Wt. Lbs. Each	Price Each
		Open	Closed		
6762	PWP.....	3 1/4	3/8	3/4	\$2.25
6764	Basket Weave Armored Cable..	2 1/32	15/32	3/4	2.25



## Benjamin 2 and 3-Pole Water-Tight Attaching Plugs

30 Amperes, 250 Volts D.C. or 440 Volts A.C.



No. 7861

For use with 30-ampere 2 and 3-pole receptacles in water-tight outlet box.

Cast brass body and gasketed swivel ring. Insulating parts are of high heat molded composition. Brass parts regularly unfinished, but can be finished in dead black.

Nos. 7861 and 7862 can also be arranged for No. 10 or No. 8-28 rubber-covered portable cable, if specified.

Cat. No.	Description	No. of Poles	Wt., Lbs. Each	Price Each
7861	No. 12 B. & S. Ga. PWP Cable	3	3/4	\$5.00
7886	7/8-In. O. D. Flexible Conduit	3	3/8	5.00
7862	No. 12 B. & S. Ga. PWP Cable	2	3/4	5.00
7887	7/8-In. O. D. Flexible Conduit	2	3/8	5.00

## Benjamin Heavy Duty Water-Tight Fixtures

### Ceiling Fixtures With Screw Globe and Guard

For 75 and 100-Watt Lamps



No. 6800

STRUCTURE.—Standard junction box; in brass, No. 6900 keyless; No. 6902 key; in iron, No. 6901 keyless; No. 6903 key. Box with mounting lugs, 25 cents extra. Brass globe-holding ring No. 6990 for 75-watt; No. 6865 for 100-watt; threaded for attachment of globe and guard. Ring attached to box by 4 screws. Rubber gasket No. 6945 seals joint between box and ring. Keyless receptacle No. 6959; key No. 6963. Base is of high heat molded composition. Brass guard, No. 6991 for 75-watt; No. 6868 for 100-watt; screws on outside of globe-holding ring. No. 6992 clear screw globe for 75-watt;

No. 6867 for 100-watt. Roughed inside ruby or navy blue glass globe may be specified on 75-watt fixtures. No. 6948 rubber gasket for 75-watt; No. 6866 for 100-watt seals globe and ring. Standard box is regularly furnished not tapped for conduit entrance. Specify tapping.

FINISH.—Brass parts regularly unfinished; can be finished in dead black. Iron parts are dead black.

Cat. No.	Size Lamp Watts	Kind of Box	Type of Receptacle	Wt., Lbs. Each	Price Each
6800	75	Brass	Keyless	4 1/8	\$6.75
6801	75	Iron	Keyless	4 1/8	6.05
6802	75	Brass	Key	4 1/4	8.15
6803	75	Iron	Key	4 1/4	7.45
6804	100	Brass	Keyless	5 1/2	8.40
6805	100	Iron	Keyless	5 1/2	7.70
6806	100	Brass	Key	5 5/8	9.80
6807	100	Iron	Key	5 5/8	9.10

### Drop Fixtures

For 40-60-Watt Mazda B or 75-Watt Mazda C Lamps

STRUCTURE.—Brass body, No. 6896 keyless, No. 6897 key. Threaded to receive globe and guard. No. 6897 has stuffing box and plunger key. Keyless receptacle, No. 6959; key No. 6963. Base of high heat molded composition. Brass guard No. 6991 threaded to fit outside of body. No. 6992 globe. Roughed inside, ruby or navy blue glass may be specified. Rubber gasket No. 6948 seals globe and bracket body. Body furnished tapped at top for 1/2-inch iron pipe.

FINISH.—Brass parts regularly unfinished; finished dead black when specified.



No. 6832

Cat. No.	Size Lamp Watts	Kind of Body	Type of Receptacle	Wt., Lbs. Each	Price Each
6830	40-60 or 75	Brass	Keyless	3 1/8	\$6.10
6832	40-60 or 75	Brass	Key	3 1/4	7.50

## Benjamin Heavy Duty Water-Tight Angle Wall Fixtures

### With Screw Globe and Guard

For 40-60-Watt Mazda B or 75-Watt Mazda C Lamps



No. 6818

STRUCTURE.—One piece 90-degree angle bracket body of brass; keyless No. 6882, key No. 6884. Body has 2 mounting lugs and is threaded to receive globe and guard. No. 6884 has stuffing box and plunger key. Keyless receptacle, No. 6959; key No. 6963. Base of high heat molded composition. No. 6991 brass guard threaded to fit outside of bracket body. Clear screw globe with navy standard thread, No. 6992. Roughed inside, ruby or navy blue glass specify. No. 6948 rubber gasket seals globe and bracket body. Regularly not tapped. Body has 3 bosses which may be tapped for 1/2-inch conduit entrance from either side or from top. A 1/2-inch conduit entrance may also be tapped in back of body. Specify tapping; no charge for tapping when location and number of conduit entrances are given with order.

FINISH.—Brass parts, unfinished; Finished dead black when specified.

Cat. No.	Size Lamp Watts	Kind of Body	Type of Receptacle	Wt., Lbs. Each	Price Each
6808	40-60 or 75	Brass	Keyless	3 1/2	\$7.45
6818	40-60 or 75	Brass	Key	3 3/4	8.85

## Benjamin Water-Tight Hand Portables With Screw Globe and Guard

For 40 to 60-Watt Lamps

STRUCTURE.—Cast brass body with hardwood handle, threaded on outside to receive guard and inside for screw glass globe. Body for key receptacle furnished with stuffing box and plunger key. No. G6957 keyless receptacle; No. G6966 plunger key. No. 6870 guard with detachable hook. No. 6992 globe. Roughed inside, ruby or navy blue glass globe may be specified. No. 6948 rubber gasket makes water-tight connection between globe and body. Water-tight stuffing gland in handle seals cable entrance.



No. 6842

Cat. No.	Size Lamp Watts	Type of Receptacle	Wt., Lbs. Each	Price Each
6841	40-60	Keyless	3 5/8	\$7.10
6842	40-60	Key	3 5/8	8.50

## Benjamin Water-Tight Gas, Vapor and Fume-Proof Fixtures

Heavy cast iron hood tapped for 1/2-inch iron pipe, porcelain receptacle with lamp grip. Threaded copper holder receives screw globe and 2 gaskets make fixture gas and water tight. Reflectors are of steel, porcelain enameled, finished white inside; without lamp.

FINISH.—Reflector green enameled outside, black head. Iron hood is green paint enameled.



No. 6848

### With Dome Reflector

Cat. No.	Size Lamp Watts	Diameter Reflector, Inches	Wt., Lbs. Each	Price Each
6845	*150	14	6 1/4	\$7.75
6846	200	16	6 1/2	9.15
6847	300, 500	18	8	10.50

### With 30-Degree Angle Reflector

Cat. No.	Size Lamp Watts	Diameter Reflector, Inches	Wt., Lbs. Each	Price Each
6848	*150	16	6 1/4	\$9.25

\*Takes old 100-watt PS lamps and if No. 91 extension is used, takes 100-watt A lamp.



## R & S Vapor, Gas and Dust-Proof Fixtures

### Screw Globe Type

These fixtures are designed for use in places where dampness, dust, combustible gases or corrosive vapors exist; such as for marine use, out-door use, oil refineries, grain elevators, mines, gas and chemical plants, etc.

They are so constructed that, should the protecting globe accidentally be broken, the fixture body will remain air-tight preventing vapors from entering the conduit line. Fixtures are made in cast iron (electro galvanized), cast brass and cast aluminum alloy.

### Specifications

Brass fixture bodies—standard finish is black oxidized throughout; special finishes upon request.

Iron fixture bodies—standard finish is electro galvanized.

Aluminum fixture bodies and guards—standard finish is natural aluminum color.

Reflectors are made of heavy steel, porcelain enameled green outside, white inside.

Guards are heavy gauge brass round wire, mounted on threaded brass ring; standard finish, black oxidized.

All globes are made of best American flint glass and guaranteed true to size. Only natural colored glass is used. Seating surfaces are ground true and smooth.

High grade cloth inserted rubber gaskets are furnished as standard equipment. Gaskets of other material will be supplied on request.

Receptacles are moulded composition, with shell moulded in base to provide for air-tight condition even though the globe should become broken.

Maximum size of conduit, 3/4 inch. When ordering, specify outlets required.

Standard package, 25.



## R & S Pendent Type Vapor-Proof Fixtures

### With RLM Reflectors

Fixtures are complete with RLM reflector. They are furnished with or without guard.

Watts	RLM Reflector In.	Material	Without Guard			With Guard		
			Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
25-60	12	Brass	6201	3 1/4	\$6.20	6202	4	\$8.00
100-150	14	Cast Iron	6303	6 1/4	7.15	6304	7 1/2	9.40
100-150	14	Brass	6203	6	8.15	6204	7 1/4	10.30
200	16	Cast Iron	6305	6 3/4	7.65	6306	8 1/2	9.90
200	16	Brass	6205	6 1/2	8.65	6206	8 1/4	10.80
300	18	Cast Iron	6307	11	11.00	6308	12 3/4	13.75
300	18	Brass	6207	11	12.00	6208	12 3/4	14.50

## R & S Junction Box Type Vapor-Proof Fixtures

### With RLM Reflectors

These fixtures are mounted on iron or brass junction box and are fitted with RLM reflectors.



Watts	RLM Reflector In.	Material	Without Guard			With Guard		
			Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
25-60	12	Brass	6211	5	\$6.50	6212	5 3/4	\$8.30
100-150	14	Cast Iron	6313	7 3/4	7.50	6314	9 1/2	9.75
100-150	14	Brass	6213	7 1/4	8.50	6214	9	10.50
200	16	Cast Iron	6315	8 1/4	8.00	6316	10	10.25
200	16	Brass	6215	7 3/4	9.00	6216	9 1/2	11.25
300	18	Cast Iron	6317	10 1/2	11.35	6318	12 1/4	14.10
300	18	Brass	6217	10 1/4	12.35	6218	12	14.85

## R & S Pendent Type Vapor-Proof Fixtures

### No Reflectors

### Complete with Guard and Globe

These fixtures are furnished complete with guard and globe, but without reflectors.

### Without Switch



No. 411

Cat. No.	Watts	Material	Weight Pounds	Price Each
411	25-60	Brass	2 1/4	\$4.50
4001	25-60	Aluminum	2	5.50
6324	100-200	Cast Iron	5	5.40
1411	100-200	Brass	4 3/4	6.80
4006	100-200	Aluminum	3 1/2	7.80
6328	300	Cast Iron	8 3/8	8.00
1413	300	Brass	8 3/8	9.50
4009	300	Aluminum	5 1/2	10.50

### With Switch

430	25-75	Brass	3	\$5.90
4004	25-75	Aluminum	2 1/4	6.90

## R & S Junction Box Type Vapor-Proof Fixtures

### No Reflectors

### Complete with Guard and Globe



No. 405

These fixtures are mounted on junction boxes and are furnished complete with guard and globe, but without reflectors.

### Without Switch

Cat. No.	Watts	Description	Weight Pounds	Price Each
405	25-60	Brass Fixture on Iron Box	4	\$4.50
305	25-60	Brass Fixture on Brass Box	4	5.50
4002	25-60	Alum. Fixture on Alum. Box	2	6.50
6334	100-200	Iron Fixture on Iron Box	6 1/2	5.50
1405	100-200	Brass Fixture on Iron Box	6	6.80
1305	100-200	Brass Fixture on Brass Box	6	7.80
4007	100-200	Alum. Fixture on Alum. Box	3 3/4	8.80
6338	300	Iron Fixture on Iron Box	8 1/4	8.00
1414	300	Brass Fixture on Iron Box	8 3/8	9.50
1417	300	Brass Fixture on Brass Box	9	10.50
4011	300	Alum. Fixture on Alum. Box	6 1/8	11.50

### With Switch

431	25-75	Brass Fixture on Iron Box	5	\$5.90
331	25-75	Brass Fixture on Brass Box	5	6.90
4005	25-75	Alum. Fixture on Alum. Box	3 1/2	7.90

## R & S Wall Bracket Type Vapor-Proof Fixtures

### No Reflectors

### Complete with Guard and Screw Globe

All brass, black oxidized finish, mounted on No. 333 iron or No. 332 brass, 4-inch junction box. Boxes drilled and tapped for 1/2 or 3/4-inch conduit as directed without extra charge. Fixtures are fitted with heavy round wire guards.

### Without Switch

Cat. No.	Watts	Description	Wt. Lbs.	Price Each
404	60	On Iron Box	4 3/4	\$5.00
1404	200	On Iron Box	9	8.25
304	60	On Brass Box	4 3/4	5.65
1304	200	On Brass Box	9	9.00

### With Switch

434	60	On Iron Box	6	\$6.60
1334	60	On Brass Box	6	7.35



No. 404

**R & S Marquise Type Watertight Fixtures With Screw Globes**



This type of fixture is suitable for all outdoor lighting in damp, moist or dusty places. It is particularly designed for marquise lighting, and has been used successfully in a number of installations for illuminating the borders of hotel, theatre and auditorium marquise.

Weatherproof, with opal, ground or clear glass globe. Made for lamps up to 60-watt size only.



No. 613

Boxes drilled and tapped for 1/2 or 3/4-inch conduit as directed, without extra charge.

Nos. 610, 611 and 612 have iron box for conduit with brass base and lamp receptacle. In ordering, specify size and number of outlets.

Nos. 613, 614 and 615 have brass base, no box, no receptacle, intended for use where wiring and receptacle are in channel iron of marquise.

Cat. No.	Description	Weight Pounds	Price Each
610	Complete with Opal Globe No. 808.....	3	\$2.75
611	Complete with Ground Globe No. 807.....	3	2.75
612	Complete with Clear Globe No. 806.....	3	2.65
613	Complete with Opal Globe No. 808.....	1 1/2	1.65
614	Complete with Ground Globe No. 807.....	1 1/2	1.65
615	Complete with Clear Globe No. 806.....	1 1/2	1.55

**R & S Watertight Receptacles and Plugs**

**Rectangular Type**

Selective polarity type, receptacle and plug made of bakelite. Two, three or four-wire as listed, mounted in brass box.

Suitable for straightaway conduit. When ordering, specify outlets required.



No. 479

**Single Gang Type 10 Amperes, 125 Volts**

Receptacle Complete with Plug						Plug Only		
Cat. No.	Description	Brass Box In.	Conduit In.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
479	2-Wire	4x2 3/4 x 1 1/2	3/4	2 1/4	\$5.00	452	1/4	\$1.25
1479	3-Wire	4x2 3/4 x 1 1/2	3/4	2 3/4	6.60	1453	1/4	2.50
1579	4-Wire	4x4 x 1 1/2	1	3 1/2	7.15	1463	1/2	2.50
<b>30 Amperes, 125 Volts</b>								
1485	2-Wire	5x3 x 2	1 1/4	5	\$15.40	1488	1/2	\$5.50
<b>60 Amperes, 125 Volts</b>								
480	2-Wire	6x3 x 2	1 1/4	6	\$16.50	1489	1/2	\$5.50

**Gang Type—2-Wire 10 Amperes, 125 Volts**

495	2-Gang	4x2 3/4 x 1 1/2	3/4	2 3/4	\$6.60	452	1/4	\$1.25
638	3-Gang	6x2 3/4 x 1 1/2	1	4	8.80	452	1/4	1.25
639	4-Gang	8x3 1/4 x 1 1/2	1	6	12.10	452	1/4	1.25

**R & S Watertight Snap Switches**

**Round Type 10 Amperes, 125 Volts**

Suitable for use wherever watertight switches are desired, such as in marine work, flood lighting, cold storage plants or exposed places.

When ordering, specify outlets required.



No. 448

Cat. No.	Description	Size Box Inches	Tapped Inches	Weight Pounds	Price Each
448	Single-Pole, Brass Box...	2 3/4	1/2	1	\$3.85
1448	Single-Pole, Brass Box...	2 3/4	3/4	1	3.85
520	Double-Pole, Iron Box...	3 3/4	1/2 or 3/4	2	4.40
1520	Double-Pole, Brass Box...	3 3/4	1/2 or 3/4	2	5.50
1521	3-Way, Iron Box.....	3 3/4	1/2 or 3/4	2	4.40
1522	3-Way, Brass Box.....	3 3/4	1/2 or 3/4	2	5.50

**R & S Watertight Snap Switches**

**Rectangular Type**



No. 496

When ordering, specify outlets required.

**Single Gang Type**

<b>10 Amperes, 125 Volts</b>					
Cat. No.	Description	Size Box Inches	Max. Size Conduit Inches	Wt. Lbs.	Price Each
496	Single-Pole, Brass Box...	4 x 2 3/4	3/4	1 1/4	\$4.40
1493	Double-Pole, Brass Box...	4 x 3	3/4	2 3/4	6.60
1496	3-Way, Brass Box.....	4 x 3	3/4	2 3/4	6.60
<b>30 Amperes, 125 Volts</b>					
521	Double-Pole, Iron Box...	4 3/4 x 4 1/8	1	5	\$8.80
621	Double-Pole, Brass Box...	4 3/4 x 4 1/8	1	5	10.50
<b>50 Amperes, 125 Volts</b>					
625	Double-Pole, Iron Box...	6 x 5 1/4	1 1/4	9	\$15.40
626	Double-Pole, Brass Box...	6 x 5 1/4	1 1/4	9	18.70
<b>5 Amperes, 600 Volts</b>					
156	Double-Pole, Iron Box...	4 1/4 x 4 1/4	1	4 1/2	\$5.50
356	Double-Pole, Brass Box...	4 1/4 x 4 1/4	1	4 1/2	6.60

**Gang Type—Single-Pole**

<b>10 Amperes, 125 Volts</b>					
Cat. No.	Description	Size Box Inches	Max. Size Conduit Inches	Wt. Lbs.	Price Each
627	2-Gang, Brass Box.....	4 x 2 3/4 x 1 5/8	3/4	2	\$6.10
628	3-Gang, Brass Box.....	6 1/8 x 2 3/4 x 1 5/8	3/4	3 1/2	7.70
629	4-Gang, Brass Box.....	4 3/4 x 1 1/8 x 2 3/8	3/4	5	10.50

**R & S Watertight Combination Switches and Receptacles**

**2-Wire Polarized**

This device is a combination of a switch, receptacle and plug mounted in a brass box suitable for straightaway conduit.

When ordering, specify outlets required.



No. 478

<b>10 Amperes, 125 Volts</b>								
Complete with Plug				Plug Only				
Cat. No.	Brass Box In.	Max. Size Conduit In.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each	
478	4	x 2 3/4 x 1 1/2	3/4	2 1/2	\$6.60	452	1/4	\$1.25
1483	7	x 5 x 3	1 1/4	11	\$22.00	1488	1/2	\$5.50
1487	9 3/4	x 5 3/4 x 3	1 1/2	14	\$28.60	1489	1/2	\$5.50

**R & S Watertight Junction Boxes**



No. 1481

Japanned cast iron or brass junction boxes with plain cover.

The cover is provided with a gasket and fastened with brass screws.

Galvanized cast iron boxes can be supplied if so specified when ordering. Prices upon application.

Maximum size of conduit is 3/4 inch.

Prices shown are for boxes undrilled. Tapping, 5 cents net extra per outlet.

Description	Box Complete with Cover and Gasket			Box Only		
	Cat. No.	Wt. Lbs.	Price Each	Cat. No.	Wt. Lbs.	Price Each
3-Inch Iron Box.....	1481	1 3/4	\$ .65	382	1 1/2	\$ .40
4-Inch Iron Box.....	1432	2 1/4	.80	333	1 3/4	.50
3-Inch Brass Box.....	481	2	1.25	381	1 3/4	1.00
4-Inch Brass Box.....	432	2 3/4	1.60	332	2 1/4	1.30

**R&S Watertight Junction Boxes**

Cast iron, 4 inches square with side pads for two outlets, cover with gaskets and brass screws.

**1 1/2 Inches Deep**  
No. 190, Complete, each \$ .90

**2 Inches Deep**  
No. 199, Complete, each 1.00



## Wood Poles

In requisitioning poles the 3 principal determining factors are as follows:

- 1—Species of wood to meet specific requirements;
- 2—Quality of the poles;
- 3—Service on shipments.

### 1—Species

Certain species of wood are best fitted for one kind of installation. In recognition of this we have available in various pole yards one or more of the 5 species that are generally used for poles: (1) western red cedar, (2) northern white cedar, (3) creosoted yellow pine, (4) chestnut, (5) lodgepole pine.

### 2—Pole Quality

Poles sold by the Graybar Electric Company are a quality product. All conform to nationally accepted standards. Inspections are thorough.

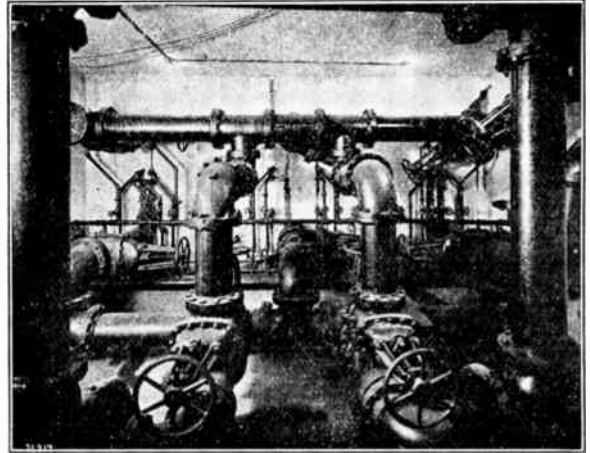
### 3—Service on Shipments

At Minneapolis, and Everett, Washington, cedar poles are concentrated, handled by steam equipment, etc. The stock runs fifty thousand poles and more.

At Texarkana, Texas, and Beaumont, Texas, the largest wood preserving plant thus far ever built makes available a service on pine poles never before undertaken by any producer.

Emergency service is always available to customers when the unforeseen happens.

## Preservative Treatment for Cedar Poles



Showing piping arrangement in pump room of National Pole Cedar Treating Plant at Minneapolis. They are so flexible that they can be put into any tank either through the top or the bottom and so arranged that a continuous circulation of oil can be maintained. In this room are two 2500GPM pumps operated by 240 h. p. motors. The oil can be changed from hot to cold in any one of these treating vats within 3 minutes

### Description

Years of scientific observation by engineers of the largest pole users in the United States has demonstrated that the life of cedar poles can be increased by the proper open tank butt-treatment. If a satisfactory permeation is obtained in the ground line area, the life of a pole, butt-treated in creosote, will depend upon the mechanical wear of the pole above.

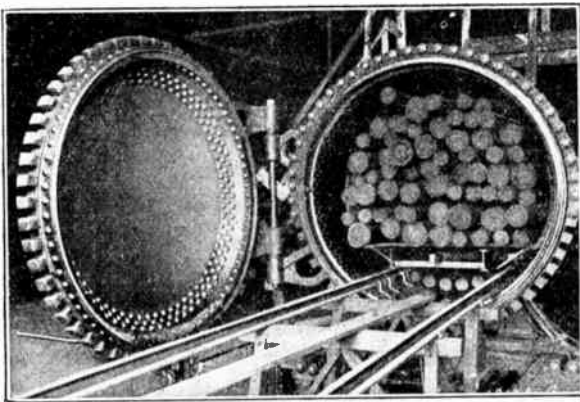
Unless there is a thorough and even permeation, decay will occur in small pockets and in checks through the treated wood.

Proper treatment more than doubles cedar pole value, as the original factor of safety is maintained far beyond the replacement date of the untreated pole.

Five methods of treating cedar poles are:

1. Brush treatment at individual pole yards.
2. AA treatment with open tanks (15 minutes hot creosote).
3. A treatment with open tanks (15 minutes hot carbolineum). More expensive, but no more efficient than the AA treatment. We do not supply this treatment.
4. B treatment with open tanks (4 hours hot—2 hours cold creosote).
5. Puncturing treatment guaranteeing permeation.

If the best material and workmanship are used, any one of these methods is beneficial but varies in degree with the grade of material and workmanship. The first four methods should be used only with seasoned poles. Authorities agree that penetration and oil stability are essential to lasting results. Any method selected insures greater line life if pure distillate of coal tar is used. The purity of the distillate is of paramount importance.



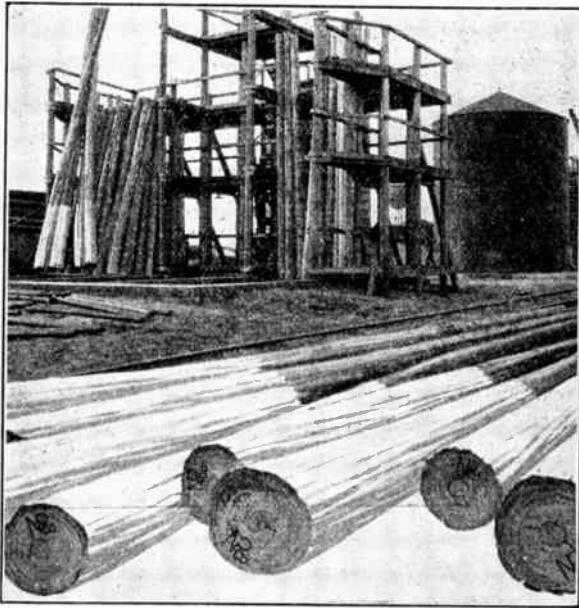
Poles in the cylinder ready to seal the door and begin treatment. The largest creosoting cylinder in the treating industry. It is one of the cylinders located at the Texarkana Plant of the International Creosoting & Construction Company and measures 165 feet long and 9½ feet in diameter.



These poles are 100 feet long. We carry poles of all sizes at all times



## Preservative Treatment for Cedar Poles



One of the Butt Treating Vats Showing View of 130,000 Gallon Reserve Creosote Tank at Minneapolis Plant

### Brush Treatment

Brush treatment of poles consists in applying hot preservative to the ground line surface of a pole with a brush. This method is not in general use among pole dealers, but is used by operating companies for local treatment.

For effective brush treatment the highest boiling point coal tar distillate obtainable is recommended. High boiling creosote oils penetrate more readily and are free from black and sticky tars that do not penetrate but concentrate on the outer wood cells. Graybar Electric "Sozol" has been developed for this work.

### Sozol

Sozol is for brush application for poles and all line construction woods.

From a quality standpoint there is nothing on the market comparable with it. It is pure distillate of coal tar, that is, it is a product obtained directly by distilling off the volatile products of coal tar, and when obtained it is not adulterated by adding any other substances. It is not a by-product, that is, the distillation process is primarily for the purpose of securing this particular oil—not for some other distillate of coal tar in which this oil or a modification of it would come off in the distilling process. All creosote wood preserving oils have two faults in a greater or less degree. Either they are so thin and volatile that when applied with a brush or by open tank method, they partially evaporate or leach out and their preservative qualities are thus impaired; or, they are adulterated with heavier coal tar oils and these heavier constituents clog up outer cells of the wood and prevent the penetration required for effective treatment.

Sozol is of high specific gravity and greater body and, in consequence, is more stable than ordinary pure creosote oils sold for wood preserving. It is not as volatile as these oils; at the same time, it has absolutely no viscous properties which interfere with effective penetration as in the case of mixed oils. In short, it has permanency and maximum property. It is more than a creosote oil, it is a special wood preservative of stability.

Sozol is supplied in drums, barrels and cans.

## Preservative Treatment for Cedar Poles

### Treatment B



Scientific B Treatment, Average Penetration,  $\frac{5}{32}$ -Inch

Treatment B provides for submersion of pole butts in hot creosote for several hours, after which the bath is changed to cold creosote, the duration of each immersion depending upon several factors, but principally upon the degree of seasoning. The intent of treatment B is to give poles as near a full sap penetration as possible but there is no guarantee.

### Pressure Treatment

Pressure treatment, or cylinder treatment impregnating the entire length of the pole, is not required for the preservation of the more durable species of wood, such as chestnut, northern white cedar and western red cedar, as these are subject to rapid decay only at the ground line. Pressure treatment is applied, however, to the different species of Southern pine. This we cover fully under pine poles.

### Puncturing Treatment

#### Permax Method Worth More Money

The perforating treatment of cedar poles is the logical development of the open-tank process.

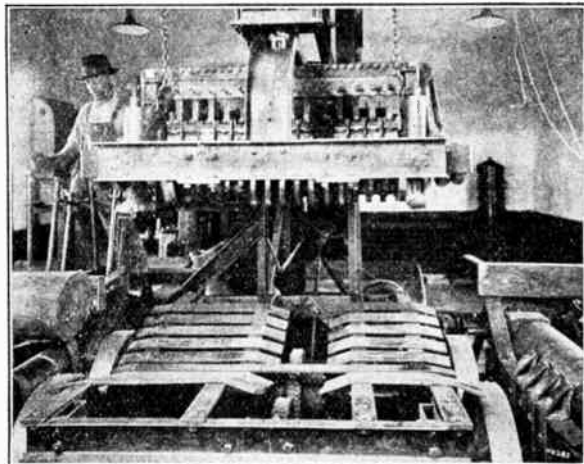
The preservative value of creosote has been recognized for many years and, as a treatment for cedar poles, was first applied with a brush. However, it was found that the painting did not get the creosote into the smaller and deeper season checks and cracks, so the poles were dipped into the creosote. This treatment was named AA and was specified as a continuous immersion for fifteen minutes in creosote heated to not less than 212° F., and not more than 230° F.

The penetration secured by the AA treatment was so shallow and unreliable that the time of treatment was lengthened to a period of from four to six hours in creosote ranging from 212° F. to 230° F. and an immediately succeeding bath in cold creosote for two hours at not more than 110° F. This treatment was called B (see above). By this process a deeper penetration was secured and better results in service were obtained, but it was found that the absorption was irregular. In fact, in seasoned timber of apparently the same condition, some poles absorbed the creosote readily and showed a good penetration while others gave evidence of one surface treatment. Likewise, in the same pole there might be a full sapwood penetration at one point, whereas, in an area but a few inches away there might be little penetration. This uneven absorption naturally led to very uncertain results in service because, after the poles were set in line and were subjected to the various conditions of the seasons with the resultant checking and parting of the fibres, the cracks descending from the upper untreated portion of the pole entered the treated area and where they ran through the shallow treatment they opened up and exposed untreated timber. This permitted the fungi to come in direct contact with untreated fibres with the resultant infection and rotting of the wood within the pole behind the layer of treated timber. This action proved that any treatment was only as effective as the protection given by the shallowest penetration at any point in the ground line area.

This conclusion necessitated the development of a uniformly deep permeation. Much research and experimental work was done to develop a treating process which would give this result.



## Puncturing Treatment for Cedar Poles



Showing Permex Machine Ready to Receive Pole Coming in from Left for Perforating. Note Carriage in Low Position, which is Afterwards Raised to Head of Machine

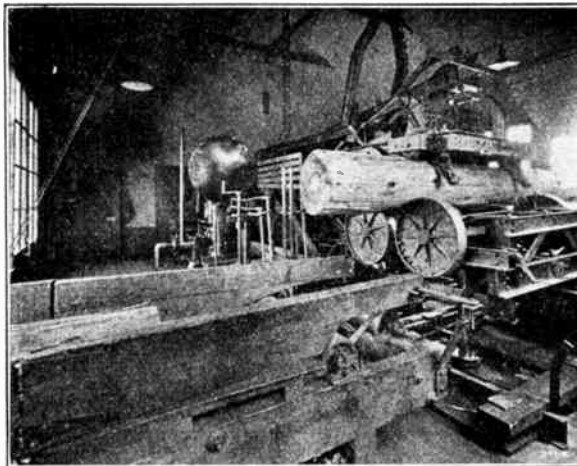
A microscopic study of cedar shows the wood to be very porous. It is made up of long, hollow longitudinal fibres which are spindle-shaped cells, arranged in rings from the pith to the bark. These rings of cells form the annular rings. These fibres, besides furnishing support for the tree, provide means for the movement of the sap. Other than the longitudinal fibres are the medullary rays or cells which extend radially from the pith into the bark. There are no passages in the timber other than the cells within these longitudinal fibres and medullary rays and the sap moves from cell to cell through minute pits or pores which connect adjoining cells at their points of contact.

Although cedar fibre will absorb from 12 per cent to 15 per cent of its oven dry weight in water it will not absorb creosote. Examination, under the microscope, of treated cedar discloses creosote within the cells but shows no absorption in the fibre. Consequently, in order to obtain penetration in cedar the movement of creosote must be by means of the openings in the cells and not through the cell fibre.

If the conditions within the timber remain unchanged after being cut, not so much difficulty would be experienced in treating it, but such is not the case. The sap is a watery solution of sugars, starches, resins, etc., and, while the tree is alive, is constantly in solution and circulating, but, when the timber is cut, peeled and begins to season, some of the water from the sap evaporates and concentrates the sugars and resins which seal up most, if not all, of the minute pits or pores between the adjoining cells.

## Puncturing Treatment for Cedar Poles

Continued



Permex Machine with Pole in Position Ready for Puncturing. The Oil Lift that Raises the Lower Carriage into the Head of the Machine and Acts as a Cushion while the Machine is in Operation

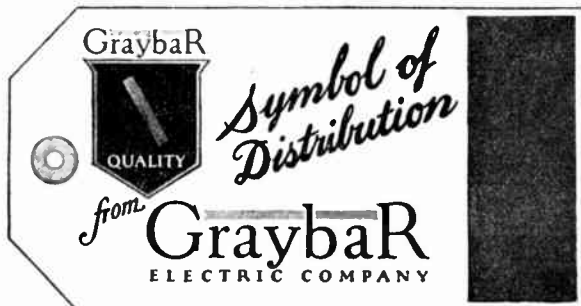
In our Permex treatment no external pressure is applied. The movement of creosote in the cells is entirely dependent on the action of capillary attraction. This is created by first applying heated creosote ranging from 212° to 223° F. for a continuous period of eight hours, thereby vaporizing the moisture in the sapwood, causing it to expand 1/273 times its volume for every degree of heat through which it passes and partially expelling it from the timber and then applying an immediately succeeding bath in cold creosote from 110° F. to 150° F. The cold treatment contracts the vapors, forms a partial vacuum within the cells and draws the surrounding creosote into the timber. This action creates an appreciable longitudinal creep or movement but does not produce much penetration radially or tangentially.

The loss in strength to a pole through perforation has been determined to be in direct proportion to the percentage of the circumference cut away in a horizontal plane and to the depth of the incision.

A scientific machine for perforating, therefore, meets the existing structural conditions in cedar. It was designed to cut radial passages through the fibre just to the depth of the required penetration. The incisions cut the fibres, opened the ends of the longitudinal cells, and provided passage for the movement of creosote so that with the least amount of timber cut in a horizontal plane and with perforations only to the depth of the required penetration, a complete saturation of the fiber was obtained between all perforations.

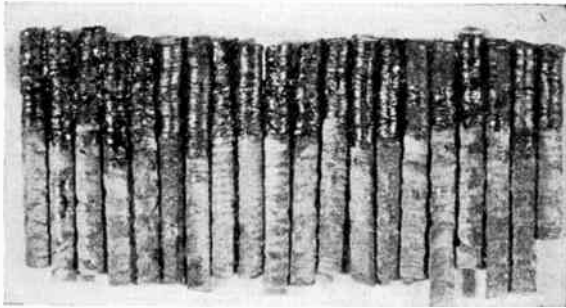
There are many other perforating machines in operation, but they have been designed with no consideration of the conditions of cedar with the result that their perforations are made deeper than necessary and are spaced so close that the timber is weakened to a great extent and, in many cases, the sapwood is so mutilated that it is made no more than a loosely adhering shell. Even though such perforating may produce the required penetration, it is detrimental to the pole, inasmuch as the strength of the pole is greatly reduced and the sapwood is made a weakened shell which will not withstand the abuses of service.

Some apply perforating by means of a studded belt or plate. These belts or plates are about eighteen inches long by six inches wide and contain from seventy-five to one hundred and twenty-five teeth. A mallet is used to pound the teeth into the timber. When the plate is removed, the teeth, which are binding the timber between them, tear the fibres and in many cases loosen the outer sapwood from the heartwood. This produces a very weak and unsatisfactory condition. Furthermore, it is impossible to obtain uniform depth of perforation and impregnation by using belts or plates because the body holding the teeth is not flexible and cannot follow the crevices and irregularities of the timber. On the other hand, the teeth of our machine are inserted into the timber in such a way as to insure a uniform depth of perforation regardless of the uneven surface over which it has to work.

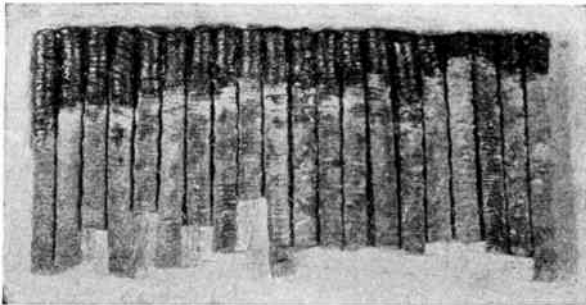


**Puncturing Treatment for Cedar Poles**

Continued



Average Penetration of Punctured Section, 2 1/2-Inch, by our Permex Method



Average Penetration, 1 3/32-Inch, Unscientific Hand Punctured Treatment

It was thought at first that if the same penetration could be obtained in a cedar pole without perforating as with perforating, that better service results could be obtained. Experience has proven the contrary to be true. If creosote were not volatile, and if its preservative value were of indefinite existence and if the layer or treated timber around the outside of the pole were never broken, then a creosoted area on the surface, regardless of depth of penetration, would be sufficient to preserve the pole indefinitely. It has been found, however, in green and even in seasoned poles that season checking occurs after the poles are set in line. But in perforated poles, these checks descending from the upper untreated section run out when they reach the treated, perforated area. Thus the perforating protects the poles, not only in securing a deeper, more uniform impregnation, but also in providing means of relieving the stresses which cause checking in treated ground line section thereby insuring constant and complete protection against infection of the timber.

Two of these proper Permex machines are at the Minneapolis transfer yard where the National Pole & Treating Company maintains an average stock of 80000 poles. Thus, one machine can handle 3/8-inch orders, and the other 1/2-inch orders without stopping to change the knives or change substitution of the order. A third machine is operated by the National Pole & Treating Company at Everett, Washington. These yards handle this work for us.

It is felt that studies by means of an increment borer could well be made by pole users. One large Central Station, whose engineers make such studies independent of the operating department, reported informally, that our Permex Treatment was 30 per cent more efficient than some others on their yards. In making increment borings, the oil in the outside of the boring is naturally smeared by the auger indicating a deeper penetration than the actual.

For a real test, therefore, take a sharp knife, such as a razor blade, and split the boring in half and examine the penetration on the inside. Rest the boring on a smooth clean board when doing this.

There is also much opportunity for the use of Lufkin special pole tapes in checking circumferences at the six-foot point on poles purchased under "Class" specifications.

**American Telephone & Telegraph Co. Specifications No. 6060 for Butt Treating Cedar Poles**

Replacing Specification No. 4287

This specification outlines the requirements for the butt treatment of cedar poles which are prepared for treatment by perforating the ground line section.

**Material Requirements**

**POLES.**—Poles treated under this specification shall conform to all of the requirements of the specification and drawings covering untreated poles of timber referred to in order. When order calls for seasoned poles, poles to be treated shall not have a moisture content greater than 33 per cent. When seasoned poles are not called for, poles to be treated may have a moisture content not greater than 50 per cent.

**PRESERVATIVE.**—Preservative used for impregnating poles ordered under this specification will hereinafter also be referred to as oil. Preservative shall conform to requirements of Specification for Dead Oil of Coal Tar for Brush and Open Tank Treatments hereinafter referred to.

**STORAGE OF POLES PRIOR TO TREATMENT.**—Poles which are stored at treating plant prior to treatment shall be stacked on land from which vegetation has been removed. Bottom layer of any pile of poles held for seasoning shall be supported upon treated or other non-decaying skids in such a manner that no part of the pole shall be less than 1 foot above the surface of the ground.

**Preparation for Treatment**

All outer and inner bark shall be completely removed from all parts of the surface of the pole which are included in minimum length of treated section hereinafter specified. Reduction of circumference, at any point in the section to be perforated, in shaving or cleaning to prepare for treatment shall not exceed 1/2 inch.

A section of the pole surface 3 feet in length and extending completely around the circumference shall be perforated as hereinafter described, so that the upper line of perforations shall not be less than 9 inches nor more than 15 inches above the ground line given for the pole length in the following table:

Length of Pole . . . feet	20 or Less	22	25	30	35	40
Distance of Ground Line Above Butt . . . feet	4	4 1/2	5	5 1/2	6	6
Length of Pole . . . feet	45	50	55	60	65	70
Distance of Ground Line Above Butt . . . feet	6 1/2	7	7 1/2	8	8 1/2	9

Perforations shall be made by teeth designed to cut the wood fibres on a diagonal across the full width of the perforation. The thickness of the teeth shall not be more than 1/8 inch. Width of teeth shall be such that length of perforations measured along pole, will not conflict with spacing of perforations hereinafter prescribed. Teeth shall be inserted into pole to a depth of not less than 3/8 inch nor more than 1/2 inch.

The sum of the widths of all perforations in any encircling row shall not exceed 30 per cent of the circumference at the location of the row.

The pattern of perforations shall be in accordance with the drawing hereinafter referred to.

In any cases where the machine misses and fails to make any of the perforations called for by the system required or by its approved equivalent, the missed places shall be filled in by hand so as to establish the correct pattern.

**Treatment**

**LENGTH OF SECTION TO BE TREATED.**—The minimum length of treated section of a pole shall be in accordance with the following table. The maximum length shall not exceed the figures in this table by more than 2 feet. In all cases the uppermost perforations shall be submerged.

Length of Pole . . . . . feet	20	22	25	30	35	40
Minimum Distance of Plane at Upper End of Treated Section from Butt of Pole . . . . . feet	5	5 1/2	6	6 1/2	7	7
Length of Pole . . . . . feet	45	50	55	60	65	70
Minimum Distance of Plane at Upper End of Treated Section from Butt of Pole . . . . . feet	7 1/2	8	8 1/2	9	9 1/2	10

## American Telephone & Telegraph Co. Specifications No. 6060 for Butt Treating Cedar Poles

### Treatment—Continued

**METHOD OF TREATMENT.**—The pole butts shall be treated by immersion in the preservative to the depth herein before specified. The immersion to this depth shall be continuous, except for the time occupied in making changes from hot to cool oil or from cool to hot oil as hereinafter specified.

For not less than 8 hours, the temperature of the oil in contact with surface of poles shall be maintained between limits of 212 degrees F. and 230 degrees F. At the end of this period, either oil shall be allowed to cool or hot oil shall be removed from tank and cool oil immediately substituted for it. If latter procedure is followed, change of oil shall be made within a period of 15 minutes.

Pole butts shall remain in this cool oil for at least 2 hours. At the end of this period, poles shall not be removed from treating tank unless temperature of oil has fallen to between 110 and 150 degrees F. and the pole butts shall have remained in oil between these temperatures for at least 10 minutes.

Subsequent to the immersion in cool oil the poles may be immersed in a bath of hot oil whose temperature shall not exceed 230 degrees F. for not more than 10 minutes.

### Storage and Handling

**STORAGE OF TREATED POLES.**—If for any reason the treated poles have to be held in storage for more than 2 weeks, they shall be stacked in close piles upon treated or other non-decaying skids. The skids shall be of such strength and such dimensions as to support the poles without producing noticeable distortion of any of them. The skids shall be of such height that no part of any pole shall be less than 1 foot above the surface of the soil.

**HANDLING OF TREATED POLES.**—The protection of treated poles from decay is dependent upon the continuity of a relatively thin treated layer which has been impregnated with preservative. Care shall be taken to avoid injury of the treated butt when the poles are moved to new locations. Treated poles shall not be dragged along ground. Cant hooks, pole tongs and other tools which might cut or bruise the surface layers of poles shall not under any condition be applied to the treated section.

### Inspection

The manufacturer shall furnish proper facilities at his plant for the inspection of this material for the requirements of this specification. Samples for analysis of preservative for use under this specification may be taken whenever desired from any container in which it is being stored or used.

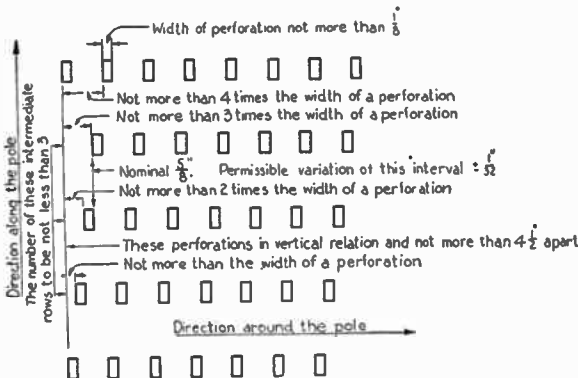
### Supplementary Specification and Drawing

The following specification and drawing are supplementary to this specification:

Specification for Dead Oil of Coal Tar for Brush and Open Tank Treatment.

Drawing No. 47-L-85—Cedar Poles—Pattern for Perforating Poles to Facilitate Treatment.

### Cedar Poles—Pattern for Perforating Poles to Facilitate Treatment



Repeat the pattern as many times as required to perforate prescribed 3 feet of pole surface and to encircle pole.

## Cedar Poles

### Ground Line and Minimum Length of Treated Section

Length of Pole Feet	Distance of Ground-Line Above Butt Feet	Minimum Length of Section Measured from Butt of Pole, Feet		Length of Pole Feet	Distance of Ground-Line Above Butt Feet	Minimum Length of Section Measured from Butt of Pole, Feet	
		5 1/2	6 1/2			7 1/2	8 1/2
20 or less	4	5 1/2	6 1/2	50	7	8	8
25	5	6	6 1/2	55	7 1/2	8 1/2	8 1/2
30	5 1/2	6 1/2	6 1/2	60	8	9	9
35	6	7	7	65	8 1/2	9 1/2	9 1/2
40	6	7 1/2	7 1/2	70	9	10	10
45	6 1/2	7 1/2	7 1/2	...	...	...	...

### Price List for Butt Treating Cedar Poles

Lgth. In.	Size In.	SPEC. B		PERMEX PROCESS		SPEC. AA		
		ALTERNATE HOT AND COLD LONG TIME BUTT TREATMENT	Northern Western Cedar Poles	PERMEATE FOR PERMANENT 3-FOOT INCISED AREA	WESTERN RED CEDAR POLES INCISIONS INCHES	White Cedar Poles	Northern Western Red Cedar Poles	
16	4	\$.42	...	\$.52	...	\$.26	...	
	5	.49	...	.60	...	.30	...	
	6	.63	...	.80	...	.38	...	
18	4	.53	...	.68	...	.30	...	
	5	.63	...	.80	...	.38	...	
	6	.70	...	.88	...	.49	...	
20	4	.67	\$.72	.84	\$.86	\$1.01	\$.34	\$.39
	4 1/2	.70	...	.92	...	...	.38	...
	5	.77	...	.86	1.07	1.20	.45	.48
	5 1/2	.84	...	1.08	...	...	.49	...
	6	.91	1.05	1.16	1.17	1.47	.53	.65
	7	1.16	1.27	1.48	1.56	1.73	.71	.78
	8	...	1.50	2.24	1.80	2.00	...	.95
25	4	.77	...	.96	...	...	.45	...
	5	.98	1.05	1.24	1.32	1.47	.53	.65
	5 1/2	1.16	...	1.48	...	...	.60	...
	6	1.40	1.27	1.80	1.56	1.78	.79	.78
	6 1/2	1.50	...	1.90	...	...	.85	...
	7	1.75	1.50	2.25	1.80	2.00	.95	.95
	8	2.10	1.75	2.90	2.10	2.30	1.15	1.15
30	5	1.45	...	1.90	...	...	.80	...
	5 1/2	1.70	...	2.10	...	...	.90	...
	6	1.90	1.50	2.40	1.80	2.00	1.00	.95
	6 1/2	2.05	...	2.55	...	...	1.15	...
	7	2.30	1.75	2.90	2.10	2.30	1.25	1.15
	8	2.50	2.10	3.20	2.50	2.80	1.45	1.40
35	5	1.95	...	2.40	...	...	1.05	...
	6	2.30	1.80	2.90	2.20	2.30	1.35	1.20
	6 1/2	2.35	...	3.00	...	...	1.60	...
	7	2.50	2.15	3.20	2.60	2.80	1.65	1.45
	8	3.35	2.50	4.25	2.90	3.10	2.05	1.65
	9	...	2.80	...	3.30	3.50	...	2.00
40	6	2.75	...	3.45	...	...	1.70	...
	6 1/2	3.00	...	3.85	...	...	1.90	...
	7	3.35	2.50	4.25	3.05	3.10	2.25	1.65
	8	4.20	2.80	5.30	3.35	3.50	2.70	2.00
	9	...	3.15	...	3.80	4.10	...	2.40
45	6	3.55	...	4.50	...	...	2.50	...
	7	4.20	...	5.30	...	...	2.90	...
	8	5.45	3.15	6.90	3.80	4.10	3.85	2.40
	9	...	3.35	...	4.05	4.70	...	2.80
50	6	5.60	...	7.05	...	...	4.30	...
	7	6.30	...	8.00	...	...	4.75	...
	8	6.60	3.35	8.40	4.05	4.70	4.95	2.80
	9	...	4.20	...	5.05	5.35	...	3.25
55	7	6.60	...	8.30	...	...	5.20	...
	8	8.45	4.20	10.60	5.05	5.35	5.65	3.25
	9	...	5.05	...	5.60	6.00	...	3.70
60	7	8.65	...	10.90	...	...	5.85	...
	8	9.35	5.05	11.75	5.60	6.00	6.30	3.70
	9	...	5.55	...	6.30	6.75	...	4.20
65	8	...	5.55	...	6.30	6.75	...	4.20
	9	...	6.70	...	7.25	7.75	...	4.95
70	8	...	6.70	...	7.25	7.75	...	4.95
	9	...	7.85	...	8.20	8.75	...	5.75
75	8	...	7.85	...	8.20	8.75	...	5.75
	9	...	8.95	...	9.10	9.60	...	6.50
80	8	...	8.95	...	9.10	9.60	...	6.50
	9	...	9.75	...	10.20	10.75	...	7.50
85	8	...	9.75	...	10.20	10.75	...	7.50
	9	...	10.60	...	12.70	13.30	...	9.00
90	8	...	10.60	...	12.70	13.30	...	9.00

**Red or Western Cedar Poles**

**National Electric Light Association Specifications**

Same as A. T. & T. Co. Specification

The material desired under these specifications consists of poles and guy stubs of the best quality of either seasoned or live green cedar of the dimensions hereinafter specified. The poles covered by these specifications are of Western white cedar, otherwise known as red cedar, Western cedar or Idaho cedar. Seasoned poles shall have preference over green poles, provided they have not been held for seasoning long enough to have developed any of the timber defects hereinafter referred to. All poles shall be reasonably straight, well proportioned from butt to top, shall have both ends squared, sound tops, the bark peeled, and all knots and limbs closely trimmed.

When the dimension at the butt is not given, the poles shall be reasonably well proportioned throughout their entire length. No pole shall be over six inches longer or three inches shorter than the length of which it is accepted. If any pole is more than six inches longer than is required, it shall be cut back.

**Minimum Dimensions of Poles in Inches**

Length of Poles Feet	Class A	Class B	Class C	Class D
	28	25	22	18½
20	30	28	26	24
25	34	31	28	26
30	37	34	30	28
35	40	36	32	30
40	43	38	34	32
45	45	40	36	..
50	47	42	38	..
55	49	44	..	..
60	52	46	..	..
65	54	48	..	..
70	55	50	..	..
75	56	52	..	..
80	57	54	..	..
85	59	56	..	..
90	61	58	..	..

**Quality of Timber**

**DEAD POLES.**—No dead poles and no poles having dead streaks covering more than one quarter of their surface shall be accepted. Poles having dead streaks covering less than one quarter of their surface shall have a circumference greater than otherwise required. The increase in the circumference shall be sufficient to afford a cross-sectional area of sound wood equivalent to that of sound poles of the same class.

**TWISTED, CHECKED OR CRACKED POLES.**—No poles having more than one complete twist for every twenty feet in length, no cracked poles and no poles containing large season checks shall be accepted.

**CROOKED POLES.**—No poles having a short crook or bend, a crook or bend in two planes or a reverse crook or bend shall be accepted. The amount of sweep measured between the six foot mark and the top of the pole, shall not exceed one inch to every six feet in length.

**"CAT FACES."**—No poles having "cat faces," unless they are small and perfectly sound and the poles have an increased diameter at the "cat face," and no poles having "cat faces" near the six foot mark or within ten feet of their tops shall be accepted.

**SHAVED POLES.**—No shaved poles shall be accepted.

**WIND SHAKES.**—No poles shall have cup shakes (checks in the forms of rings) containing heart or star shakes, which enclose more than 10 per cent of the area of the butt.

**BUTT ROT.**—No poles shall have butt rot covering in excess of 10 per cent of the total area of the butt. The butt rot, if present, must be located close to the center in order that the pole may be accepted.

**KNOTS.**—Large knots, if sound and trimmed close, shall not be considered a defect. No poles shall contain hollow or rotten knots.

**MISCELLANEOUS DEFECTS.**—No poles containing sap rot, woodpeckers' holes or plugged holes, and no poles showing evidence of having been eaten by ants, worms or grubs, shall be accepted.

**MARKING.**—Every pole shall be scored with a cross at a point ten feet from the butt.

**Red or Western Cedar Poles**

**Western Red Cedar Association Official**

**Specifications**

**Top Measure Poles**

**Table No. 1—Minimum of Measurement**

Top Designation, In.	Circumference, In.	Top Designation, In.	Circumference, In.
6	18½	9	28
7	22	10	31
8	25	..	..

**Table No. 2**

Poles 35 feet and longer shall have a minimum circumference measurement at extreme butt as follows:

Length	7 Inch Top	8 Inch Top	9 Inch Top	Length	7 Inch Top	8 Inch Top	9 Inch Top
	35 ft.	33 in.	36 in.		39 in.	65 ft.	45 in.
40 "	34 "	37 "	40 "	70 "	47 "	50 "	
45 "	..	39 "	42 "	75 "	48 "	51 "	
50 "	..	41 "	44 "	80 "	50 "	53 "	
55 "	..	42 "	45 "	85 "	51 "	54 "	
60 "	..	44 "	47 "	90 "	52 "	55 "	

**Table No. 3**

Length of Pole, Ft.	Maximum Sweep Between Top and Ground Line, In.		Length of Pole, Ft.	Maximum Sweep Between Top and Ground Line, In.	
	7	8		7	8
20	3	3	60	9	9
25	3	3	65	10	10
30	4	4	70	10½	10½
35	5	5	75	11	11
40	5½	5½	80	12	12
45	6	6	85	13	13
50	7	7	90	14	14
55	8	8	..	..	..

**Minimum Carloads**

Minimum weights required to make carload lots of poles:  
 Cars loaded with 35' or shorter poles..... 40,000 lb.  
 Cars loaded with 40' poles or 40' and shorter poles. 50,000 lb.  
 Loads containing any 45' or longer poles (double or overhand loads)..... 66,000 lb.  
 Triple loads..... 99,000 lb.  
 The above minimum weights will be used in all instances excepting as follows:

Sizes Inches	Length Feet	Weight Pounds	Size Inches	Length Feet	Weight Pounds
4	20	100	7	40	675
5	20	135	8	40	800
6	20	190	9	40	1000
7	20	250	8	45	1000
8	20	325	9	45	1200
5	25	200	8	50	1200
6	25	250	9	50	1400
7	25	325	8	55	1400
8	25	400	9	55	1600
6	30	325	8	60	1600
7	30	400	9	60	1850
8	30	550	8	65	1850
6	35	450	9	65	2200
7	35	550	8	70	2200
8	35	650	9	70	2600
9	35	800	8	75	2600

Poles under tentative N. E. L. A. Western Red Cedar specifications 1922 will be priced on application.

## Cedar Poles

### Tentative Specification Western Cedar Poles

Studied by the N.E.L.A. in 1922 but Not Officially Adopted

To make available complete specification information on all species of poles, the following specification known as tentative N.E.L.A. Standard is published.

This specification for Western red cedar poles was before the Association in the year 1922-23 and has been adopted as standard by a few of the operating companies.

Lgth Ft.	Ground Line Distance from Butt Ft.	AAA		AA		A		B	
		Top	6 Ft. from Butt	Top	6 Ft. from Butt	Top	6 Ft. from Butt	Top	6 Ft. from Butt
16	3.5	..	..	..	..	..	..	..	..
18	4.0	..	..	..	..	..	..	..	..
20	4.5	28	36	26	34	24	32	22	30
25	5.0	28	38	26	36	24	34	22	32
30	5.5	28	40	26	38	24	36	22	34
35	6.0	28	42	26	40	24	38	22	36
40	6.5	28	44	26	42	24	40	22	38
45	7.0	28	47	26	44	24	42	22	40
50	7.0	28	49	26	47	24	44	22	42
55	7.5	28	52	26	49	24	47	22	44
60	7.5	28	54	26	52	24	49	22	47
65	8.0	28	56	26	54	24	52	22	49

Lgth. Ft.	Ground Line Distance from Butt Ft.	C		D		EE	
		Top	6 Ft. from Butt	Top	6 Ft. from Butt	Top	6 Ft. from Butt
16	3.5	..	..	19	23	18	21
18	4.0	20	26	19	24	18	22
20	4.5	20	27	19	25	18	23
25	5.0	20	30	19	27	18	25
30	5.5	20	32	19	30	18	27
35	6.0	20	34	19	32	..	..
40	6.5	20	36	19	34	..	..
45	7.0	20	38	..	..	..	..
50	7.0	20	40	..	..	..	..
55	7.5	20	42	..	..	..	..

## Increment Borers



By turning this instrument it is forced to any desired depth into the pole being examined, and a core, the boring, may be withdrawn from it, which is a complete cross section of the wood.

The depth of penetration of the creosote is determined by its color; the condition of the wood, the annular rings, etc. are clearly visible.

This is the recognized method of determining creosote penetration. The holes do no harm if they are carefully plugged with tight-fitting creosoted plugs.

Prices upon application.

## Northern White Cedar Poles

Otherwise Known as Maine Cedar, Michigan Cedar or Canadian Cedar

### Northern White Cedar Association Specifications Top Measure Poles

All posts and poles shall have been cut from live, green, growing Northern White Cedar timber.

**PERCENTAGES OF MAXIMUM DEFECT.**—Not more than 10 per cent. of the number of pieces of any lot or shipment shall contain the maximum crook or butt rot.

**VARIATION IN SIZES.**—If not to exceed 2 per cent. of the pieces in any lot or shipment are below the minimum size, and there is an equal number of pieces as large as the minimum of the next larger size, the shipment shall be considered as conforming to these specifications so far as size is concerned.

**LENGTHS.**—Any post or pole 7 feet to 18 feet inclusive may be either two inches longer or two inches shorter than its specified length. Any pole 20 feet and longer may be short of its specified length one-half an inch for each five feet of its length, or it may be six inches longer than its specified length.

**MANUFACTURE.**—All posts and poles shall be peeled and knots closely trimmed.

**KNOTS.**—Knots are permitted if sound, smoothly trimmed and do not plainly impair the strength of the pole or post.

**SHORT KINKS.**—Short kinks not permitted.

**ROT.**—

- (a) Sap or skid rot not permitted.
- (b) Poles 16 feet and longer having minimum top sizes, of the dimensions required, must have sound tops. Poles 16 feet and longer having tops one inch or more in circumference above the minimum top sizes, may have one pipe rot not more than one-half inch in diameter. Posts or poles 7 feet to 14 feet inclusive, pipe rot is permitted.
- (c) Butt and ring rot combined shall not exceed 10 per cent. of the area of the butt.

**TWIST.**—Winding twist permitted unless very unsightly and exaggerated.

**CAT FACES.**—Cat faces permitted if sound, and if their distance from the top of the pole is not less than 20 per cent. of the length of the pole in 30 feet and shorter poles, and 25 per cent. on 35 feet and longer poles.

**DISCOLORATION.**—Discoloration not considered a defect under these specifications.

**CROOK OR SWEEP.**—1. Posts or poles 7 feet to 14 feet inclusive. One-way sweep not exceeding maximum shown in Table No. 2 is permitted.

- 2. Poles 16 feet and longer.
  - (a) **BELOW GROUND LINE.**—Sweep not to exceed diameter of butt.
  - (b) **ABOVE GROUND LINE.**—Reverse sweep, and two-way sweep, meaning a sweep in two planes allowed providing line drawn from center of pole at top to center of pole at ground line (see Table No. 2) does not leave the pole at any point. One-way sweep allowed not to exceed maximum shown in Table No. 2.

**BUTT ROT.**—The Association Specifications admit butt rot to the extent of 10 per cent. of the total area of the butt.

**CROOK.**—The rules admit a crook one way of 5 inches on a 25-foot pole, 6 inches on 30-foot pole, 7 inches on a 35-foot pole, measuring the crook from a point 6 feet from the butt to the top of the pole.

Lengths, Ft.	Maximum Sweep, in.	Between Points	Ground Line
7 to 14, Inc.	4	Top to butt	.....
16, 18 and 20	4	" " ground line	4 ft. from butt
25	5	" " " "	6 " " "
30	6	" " " "	6 " " "
35	7	" " " "	6 " " "
40	8	" " " "	6 " " "
45	9	" " " "	6 " " "
50	10	" " " "	6 " " "
55	11	" " " "	6 " " "
60	12	" " " "	6 " " "
65	13	" " " "	6 " " "
70	14	" " " "	6 " " "

Northern White Cedar Poles

Creosoted Yellow Pine Poles



Northern White Cedar Association Specifications

Diam. Top Inches	Length Feet	Approx. Weight Lbs.	No. To From	CARLOAD To	Diam. Top Inches	Length Feet	Approx. Weight Lbs.	No. To From	CARLOAD To
4	16	85	340	400	6	30	350	90	125
5	16	105	300	400	6 1/2	30	350	75	100
6	16	135	230	300	7	30	450	75	100
7	16	165	200	250	8	30	600	50	75
8	16	200	150	225	5	35	400	75	100
9	16	300	100	130	5 1/2	35	400	75	100
4	18	95	325	400	6	35	450	75	100
5	18	125	250	300	6 1/2	35	450	60	80
6	18	155	200	250	7	35	600	50	75
7	18	200	150	225	8	35	850	40	60
8	18	325	95	125	6	40	625	50	75
9	18	425	90	125	6 1/2	40	625	45	60
4	20	100	300	400	7	40	850	40	60
5	20	130	230	300	8	40	1100	30	45
5 1/2	20	130	230	300	Following sizes require				
6	20	190	150	225	two cars for shipping.				
7	20	250	125	150	6	45	900	60	80
8	20	350	90	125	7	45	1100	50	70
9	20	450	75	100	8	45	1350	45	60
5	22	175	175	250	6	50	1150	50	70
4	25	150	200	250	7	50	1350	45	60
5	25	200	150	225	8	50	1700	35	45
5 1/2	25	200	135	190	6	55	1400	40	50
6	25	250	125	150	7	55	1700	35	45
6 1/2	25	250	100	130	8	55	2200	25	35
7	25	350	90	125	7	60	2200	25	35
8	25	425	90	125	8	60	2500	22	30
5	30	275	110	175	7	65	2500	22	30
5 1/2	30	275	100	130	8	65	3000	18	25

Prices on application.

A. T. & T. Co., Western Union and National Electric Light Association Northern White Cedar Specifications

Class	Length Feet	Circum. Top Inches	Circum. 6 Feet from Butt Inches	Approx. Weight Lbs.	Class	Length Feet	Circum. Top Inches	Circum. 6 Feet from Butt Inches	Approx. Weight Lbs.
G	20	12 1/2	..	100	A	35	24	43	850
F	20	15 1/2	..	130	E	40	18 3/4	..	625
D	20	17 1/4	..	130	D	40	18 3/4	..	625
C	20	18 3/4	27	190	C	40	18 3/4	40	625
E	22	15 1/2	..	175	B	40	22	43	850
D	22	17 1/4	..	175	A	40	24	47	1100
C	22	18 3/4	28 1/2	250	Following sizes require				
B	22	22	30	275	two cars for shipping.				
G	25	12 1/2	..	150	E	45	22	..	1100
F	25	15 1/2	..	200	D	45	22	..	1100
E	25	17 1/4	..	200	C	45	18 3/4	43	900
D	25	18 3/4	..	250	B	45	22	47	1100
C	25	18 3/4	30	250	A	45	24	50	1350
B	25	22	32	350	D	50	22	..	1350
A	25	24	36	425	C	50	18 3/4	46	1150
D	30	18 3/4	..	350	B	50	22	50	1350
C	30	18 3/4	33	350	A	50	24	53	1700
B	30	22	36	450	B	55	22	53	1700
A	30	24	40	600	A	55	24	56	2200
D	35	18 3/4	..	450	B	60	22	56	2200
C	35	18 3/4	36	450	A	60	24	59	2500
B	35	22	38	600					

Prices on application.

Pine Poles Ready for Quick Shipment Stock Length, 16 to 75 Feet

The creosoted pine pole has many natural advantages which account for its wide-spread use and popularity. Probably the greatest single incident that has ever occurred to confirm the judgment of engineers in the selection of this pole was the terrific sleet storm of December, 1924. The most notable feature of the whole storm was the remarkable manner in which creosoted pine poles withstood the great ice and wind loads.

Our creosoted pine pole has a long life because it is permanently fortified against decay by the high grade creosote oil injected under a heavy pressure. We recommend a uniformly deep penetration of the preservative into the wood as developed by the International specifications for the manner of treatment and American Wood Preservers' Association standard specification for Grade 1 creosote.

Creosoted pine is the strongest of the commonly used pole woods. Hence it is standard practice in pine line construction to use smaller poles or fewer poles per mile, thus reducing costs.

The strength of the creosoted pine pole does not decrease during years of service. Long after installation the factor of safety of a pine line is as great as when it was first built.

Specifications permit the use of only the best creosote produced in either America or Europe and the use of this high grade oil explains the cleanliness and non-bleeding qualities of Graybar Electric poles.

The average taper of the yellow pine pole, which can be counted on as approximately 1 inch in 10 feet explains its symmetry, uniformity and attractiveness in the line. It must be remembered that this figure is an average over all lengths and sizes, and being an average cannot invariably be applied to individual poles or to one individual size or to one individual order.

Quick delivery of these poles can be made, for large quantities of all sizes are maintained at the plant ready for immediate shipment. At any time our representative will gladly call on a customer personally for a discussion of his requirements. Technical data will be supplied upon request.

Wood Preservation

Development of the Art

As long ago as fifty years the term "Commercial Creosote Oil" could be referred to, with confidence in what the term meant; but in recent years the term has been abused. "Commercial Creosote Oil" as the term is used today, generally refers to an inferior substance to that defined by this term in years gone by. The "Commercial Creosote Oil" of today can be, and generally is, a mixture of low grade, inferior Creosote Oil and tar. Despite specifications usually written to limit the tar content, this percentage sometimes runs all the way up to ninety-five per cent and is used under the indefinite term "Commercial Creosote Oil."

Real coal tar Creosote Oil is a pure distillate, free from admixture of any kind. A mixture of Creosote Oil and tar is not a Creosote Oil. It is therefore necessary for the buyer to be careful not to be misled by a reference to a mixture as "Creosote Oil" whether termed "Commercial" or otherwise.



**Creosoted Yellow Pine Poles**  
Wood Preservation  
Developments of the Art  
Continued

Pure creosote oil, of high gravity—means stability. The same gravity can be falsely made up by adding coal tar to a light volatile creosote oil.

**Seasoning**

At cutting, wood contains a high percentage of moisture which must be eliminated to allow the entrance of the preservative. Removing this moisture is called seasoning. This can be accomplished by natural seasoning, or seasoning in air, requiring proper piling for a period of 2½ to 4½ months. It may also be accomplished by artificial, or seasoning by steam. This requires only a few hours and has the advantage of sterilizing and opening the pores of the wood rendering it receptive to the preservative.

The difference in these two processes when properly handled is small but no other single item of the preservation process requires closer attention than seasoning. Poles at this stage of manufacture must be perfectly sound and in the best possible condition, otherwise an internal rot is set up which may prove most insidious and destructive to line life.

We always recommend the best creosote oil in the empty cell process, which where a minimum quantity of oil is used, is the most stable; a pure coal tar distillate will have more oil left in the pole in five years with 6 pounds used in the original treatment, than would be found in the pole treated with 12 pounds of the adulterated creosote oil.

Selected white wood and the best Oil unite in forming the efficient Creosoted Yellow Pine Pole.

The Graybar Electric Company guards, by scientific detail specifications, against both inferior products and the manipulation of the best products by man. It selects its poles and it selects, with equal care, its Creosote Oil.

Creosote Oil, a pure distillate of coal tar—in combination with the best wood, makes the best Creosoted Yellow Pine Pole.

We advocate same oil, empty cell treatment 8 pounds final retention, for a cheaper pole, probably good for 40 years.

**American Telephone & Telegraph Co.**  
**Specifications No. 6050 for Creosoted**  
**Southern Yellow Pine Poles**

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429

This specification is for use in supplying the American Telephone and Telegraph Company and Associated Companies of the Bell Telephone System.

The material desired under this specification consists of creosoted Southern yellow pine poles, divided into classes with respect to dimensions and framed for various purposes as hereinafter described.

Orders under this specification should state the length and circumference class desired and should specifically call for

- "Poles" when framing with gains and bolt holes is desired; or for
- "Cable Poles" when framing only with bolt holes for the attachment of cables is desired; or for
- "Guy Stubs" when roofing only is desired; or for
- "Braces" when framing for a push brace is desired.

If framing differing from the forms hereinafter described is desired, the order should include full details.

The specification and drawings are supplementary so that a detail described in either is to be interpreted as a requirement just as if it appeared in both.

**Definition of Terms**

The following definitions shall apply in this specification:

**BLUE SAP STAIN.**—Is a bluish stain of sapwood, caused by the action of certain molds and fungi, that is not accompanied by softening or other disintegration of the wood.

**CHECKS.**—A check is a lengthwise separation of the wood fibres caused by forces set up within the wood due to shrinkage during seasoning.

**A HEART CHECK.**—Is one extending from the pith toward, but not to, the surface of the piece.

**CRACKS.**—Are fractures across the lengthwise fibres of the wood resulting usually from mechanical stresses.

**American Telephone & Telegraph Co.**  
**Specifications No. 6050 for Creosoted**  
**Southern Yellow Pine Poles**

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429

Continued



Poles in process of seasoning. Illustration shows the uniformity and symmetry of pine poles and shows a part of the large stock carried on hand at all times; quick shipment is possible

**Definition of Terms**

**DECAY, ROT, DOTE AND RED HEART.**—Decay is disintegration of wood substances due to the action of wood-destroying fungi. Rot and dote mean the same as decay. Red heart is the incipient stage of a destructive heart rot.

**DISTANCE FROM BUTT.**—Where distance from butt is specified, the measurements shall be made from the average level of the sawn butt surface.

**FACE OF POLE.**—The face of a "pole" is the side on which the gains are located. The face of a "Cable Pole" or a guy stub is the side under the peak of the roof. The face of a push brace is the side on which the notch is located.

**GRAIN.**—Spiral-grained or twist-grained wood is that in which the fibres take a winding course around the tree, as though the tree has been twisted about its axis.

**INSECT DAMAGE.**—Holes or tunnels entering the body of the pole and indicating attack by worms, grubs or insects shall be considered insect damage. The scoring or channeling of the pole surface by insects working under the bark, but not into the sapwood, shall not be classed as insect damage.

**KNOT DIAMETER.**—The diameter of a knot is its diameter measured at the surface of the pole in a direction at right angles to the lengthwise axis of the pole.

**LIVE TIMBER AND DEAD STREAKS.**—Live timber is that cut from trees which were standing and living at the time of cutting. Dead streaks start from the butt and are portions of the sapwood in which the life processes had ended prior to the cutting of the tree, differing therein from wounds—such as catfaces, scars and turpentine cuttings—where the growth of new wood and the accumulation of resin show that life processes are still acting to repair the injured part. Scars or catfaces are surface depressions in the body of the pole, generally elliptical in shape, resulting from tree wounds where healing has not reestablished the normal cross-section of the pole. A shake is a lengthwise separation of the wood fibres between annual growth rings. Short crooks are localized deviations from straightness which, within any section of five (5) feet or less in length, reach an amount of more than five (5) inches. Sweep is the deviation of a pole from straightness. Sweep shall be measured as indicated in diagram.

**Standard Dimensions and Shape**

The poles shall be of the designs and dimensions shown. Where maximum or minimum dimensions are shown or indicated by allowable variations, the dimensions shall be within the limits specified. Where limits are not shown, the dimensions shall correspond reasonably to the stated figures.

**LENGTH.**—Poles under fifty (50) feet in length shall not be over three (3) inches shorter or six (6) inches longer than their nominal length. Poles fifty (50) feet or over in length shall not be over six (6) inches shorter or twelve (12) inches longer than their nominal length.

The length of all poles, except push braces, shall be the distance between the butt and the base of the roof. The length of braces shall be as shown on the drawing "Framing of Creosoted Yellow Pine Cable Poles, Guy Stubs and Braces" hereinafter referred to.

**American Telephone & Telegraph Co.  
Specifications No. 6050 for Creosoted  
Southern Yellow Pine Poles**

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429  
Continued

**Standard Dimensions and Shape**

**CIRCUMFERENCE.**—Poles shall be classified with respect to their circumference in accordance with the following table entitled "Minimum Circumferences Creosoted Yellow Pine Poles." This table gives the minimum allowable circumference at six (6) feet from the butt and at the top for poles of each class and length listed, but it does not preclude the acceptance of poles having greater circumferences at these points of measurement than those listed in the table. The top dimensional requirement shall be understood to apply at a point corresponding to the minimum length permitted for the pole.

**Minimum Dimensions of Poles in Inches  
Circumference**

Lgth. from Pole Butt Ft.	Dist. of Ground Line from Butt Feet	DIMENSIONS POLE, INCHES									
		CLASS AAA		CLASS AA		CLASS A		CLASS B		CLASS C	
		6 Feet from Butt	Top	6 Feet from Butt	Top	6 Feet from Butt	Top	6 Feet from Butt	Top	6 Feet from Butt	Top
16	4	..	..	..	..	..	..	..	..	..	..
18	4	..	..	..	..	..	..	..	..	..	..
20	4	..	..	..	..	20	28	18 1/2	26 1/2	17	23 1/2
22	4 1/2	..	..	..	..	20	29	18 1/2	27	17	24 1/2
25	5	23	33 1/2	21 1/2	31	20	30	18 1/2	28	17	26 1/2
30	5 1/2	23	35	21 1/2	33 1/2	20	32	18 1/2	30	17	28
35	6	23	37	21 1/2	35	20	33 1/2	18 1/2	32	17	30
40	6	23	38 1/2	21 1/2	37	20	35	18 1/2	33 1/2	17	32
45	6 1/2	24 1/2	40	23	38 1/2	21 1/2	37	20	35	18 1/2	33 1/2
50	7	24 1/2	41 1/2	23	40	21 1/2	38 1/2	20	37	18 1/2	35
55	7 1/2	24 1/2	43	23	41 1/2	21 1/2	40	20	38 1/2	18 1/2	37
60	8	24 1/2	45	23	43	21 1/2	41 1/2	20	40	18 1/2	38 1/2
65	8 1/2	24 1/2	46 1/2	23	45	21 1/2	43	20	41 1/2	..	..
70	9	24 1/2	48	23	46 1/2	21 1/2	45	20	43	..	..
75	9 1/2	24 1/2	49 1/2	23	48	21 1/2	46 1/2	20	45	..	..
80	10	24 1/2	51	23	49 1/2	21 1/2	48	..	..	..	..
85	10 1/2	24 1/2	52 1/2	23	51	21 1/2	49 1/2	..	..	..	..
90	11	24 1/2	54	23	52 1/2	21 1/2	51	..	..	..	..

Lgth. from Pole Butt Ft.	Dist. of Ground Line from Butt Feet	DIMENSIONS POLE, INCHES									
		CLASS D		CLASS E		CLASS F		CLASS G			
		6 Feet from Butt	Top	6 Feet from Butt	Top	6 Feet from Butt	Top	6 Feet from Butt	Top		
16	4	16	20 1/2	15	18 1/2	14	..	12	..		
18	4	16	21 1/2	15	19 1/2	14	..	12	..		
20	4	16	22 1/2	15	20 1/2	14	No Butt Re-quirement	12	No Butt Re-quirement		
22	4 1/2	16	23 1/2	15	21 1/2	14	..	12	..		
25	5	16	24 1/2	15	22 1/2	14	..	12	..		
30	5 1/2	16	26 1/2	15	24 1/2	14	..	..	..		
35	6	16	28	15	26 1/2	..	..	..	..		
40	6	16	30	15	28	..	..	..	..		
45	6 1/2	17	32	..	..	..	..	..	..		
50	7	17	33 1/2	..	..	..	..	..	..		

**SHAPE.**—Poles shall be free from short crooks. Poles may have sweep in two planes or sweep in two directions in one plane, provided that a straight line connecting the center of the butt with the center of the top does not at any intermediate point pass through the external surface of the pole.

Where sweep is in one direction only, the amount between the top and the butt shall not be greater than one (1) inch for each five (5) feet of length.

**Material Requirements**

All poles shall be cut from live Southern yellow pine timber (*Pinus palustris*, *Pinus echinata*, *Pinus taeda*, *Pinus caribaea*, and *Pinus rigida serotina*).

All poles shall be free from decay, rot, dot, red heart, dead streaks, cracks and bird holes. Poles shall be free from all other imperfections exceeding in amount the allowances specified.

Blue sap stain and hollow pith centers in the tops or butts of poles or in knots are not imperfections under this specification.

**INSECT DAMAGE.**—Insect damage is permitted to the following extent: Pin holes circular in outline, less than one sixteenth (1/16) of an inch in diameter, and not greater in number than fifteen (15) per four (4) square inches.

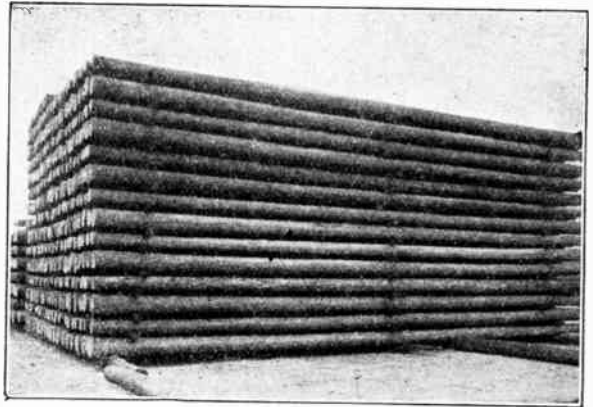
**GRAIN.**—No pole shall have more than one complete twist of grain in any twenty (20) feet of length.

**Shakes and Checks (Before Treatment)**

**SHAKES.**—The tops of poles shall be free from shakes. Shakes in the butt surface not over one (1) foot in depth and extending over not more than one quarter (1/4) of the circumference are permitted, provided they are at least one (1) inch distant from the edge of the butt.

**American Telephone & Telegraph Co.  
Specifications No. 6050 for Creosoted  
Southern Yellow Pine Poles**

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429  
Continued



Poles in process of seasoning. Illustration shows storage yard of the International Creosoting & Construction Company, illustrates the uniformity, symmetry and general good appearance of this manufacturer's poles

**Shakes and Checks (Before Treatment)**

Shakes over one (1) foot in depth or shakes extending over more than one quarter (1/4) of the circumference shall be permitted only when they fall inside a circle whose center is the pith center of the piece and whose diameter is one half (1/2) the diameter of the butt.

**CHECKS.**—The top and side surfaces of the pole shall be free from injurious checks. Heart checks are permitted in the butt surface.

**SCARS.**—No pole shall have had a turpentine face, a cat-face or other form of scar located within two (2) feet of the ground line hereinbefore established in the table entitled "Minimum Circumferences Creosoted Yellow Pine Poles."

In other sections of the pole, scars, which have been smoothly trimmed so as to remove all bark and all surrounding or overhanging wood not completely intergrown with the wood of the body of the pole, are permitted, provided

(1) That such trimming does not result in abrupt changes in the contour of the pole surface or have a depth of more than one (1) inch, except that where the diameter of the pole at the location of the scar is more than ten (10) inches, the depth may be one tenth (1/10) of the diameter; and

(2) That the circumference of the pole at any point on trimmed surfaces located between the butt and a point two (2) feet below the ground line is not less than the circumference at the ground line.

**KNOTS AND HOLES.**—Knots over one (1) inch in diameter, showing discoloration or softness of fibre, indicating possible decay, shall be neatly gouged, to a depth of not more than one fifth (1/5) of the diameter of the pole at the point where the knot is located, to permit determination of the character and extent of decay. Sound wood shall not be unnecessarily removed. The gouging should be done in such a manner as to insure drainage of water from the hole when the pole is set. Where such gouging reveals the presence of rot in the heart wood, the pole shall be rejected.

Knots under one (1) inch in diameter need not be gouged. All poles shall be free from nails, spikes and other metal.

**Preparation for Treatment**

**BARK.**—Outer bark shall be completely removed from the surface of all poles.

No patch of inner bark left on the pole surface shall be more than one quarter (1/4) of an inch wide or four (4) inches long. No two patches of inner bark of these dimensions shall be separated from each other by less than six (6) inches. Slivers or spots of inner bark of lesser dimensions shall not be considered in applying the requirement for minimum distance between patches.

## American Telephone & Telegraph Co. Specifications No. 6050 for Creosoted Southern Yellow Pine Poles

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429

Continued

### Preparation for Treatment

**SAWING AND TRIMMING.**—All knots shall be trimmed close. Complete overgrown knots, where the covering wood does not rise more than one (1) inch above the main surface of the pole, need not be trimmed.

All poles shall be neatly sawed at the butt along a plane which shall not be out of square with the axis of the pole by more than two (2) inches per foot of butt diameter.

Beveling at the edge of the sawn butt surface not over one-twelfth ( $\frac{1}{12}$ ) of the diameter in width (or an equivalent area, if unsymmetrically located) shall be permitted.

**FRAMING.**—Before poles are subjected to the creosoting process they shall be framed in accordance with the terms of the order.

When the order calls for "guy stubs," the poles shall only be roofed as shown in the appended drawing.

When the order calls for "cable poles," the poles shall be roofed, and fitted with one (1) bolt hole as shown in the appended drawing. The peak of the roof shall be located on the concave side of poles showing sweep or curvature, and on the concave side of greatest curvature in case the pole shows sweep or curvature in more than one direction.

When the order calls for "braces," the upper end of the poles shall be shaped and framed in accordance with the details shown in the appended drawing. Braces shall satisfy specification requirements for the dimensions of the class ordered before framing is begun. The 14-foot, 28-foot, 33-foot and 38-foot braces shall satisfy at four (4) feet from the butt the dimensional requirements specified at six (6) feet from the butt for poles two (2) feet longer.

When the order calls for "poles," the poles shall be roofed and gained in accordance with the details shown in the appended drawing. The number of gains applied shall be as shown in the following table for the class and length of the pole:

Required No. of Gains	No. OF FEET							
	Class AAA	Class AA	Class A	Class B	Class C	Class D	Class E	Class F
6	25 or Over	26 or Over	25 or Over	25 or Over	25 or Over	.....	.....	.....
5	.....	.....	22	22	22	22 or Over	.....	.....
4	.....	.....	20	20	20	20	20 or Over	.....
3	.....	.....	.....	.....	18	18	18	.....
2	.....	.....	.....	.....	.....	16	16	16 or Over

No gains shall be cut in class G.

Each gain shall be of the dimensions shown in the drawing appended hereto. The distance between gains and the distance between the uppermost gain and the peak of the roof shall be as shown in this drawing. A twenty-one thirty-seconds ( $\frac{21}{32}$ ) inch hole shall be bored through the pole at the center of each gain. This hole shall be perpendicular to the face of the gain. The removal of the wood between the upper edge of the top gain and the roof is permitted, provided the surface is at no point below the level of the face of the top gain.

Differences in level between gains on the same pole shall be such that if straight edges thirty (30) inches long are placed on the faces of the finished gains so as to extend fifteen (15) inches on either side from the center line of the pole and are sighted in the direction of the length of the pole, the straight edges in any two gains will not depart from parallelism by more than one sixteenth ( $\frac{1}{16}$ ) of an inch at their ends.

## American Telephone & Telegraph Co. Specifications No. 6050 for Creosoted Southern Yellow Pine Poles

Adopted in 1928 as Revising and Replacing Specification  
Nos. 4209 and 4429

### Preparation for Treatment

Continued

The gains on poles showing sweep or curvature shall be located on the concave side of the pole. In case the pole shows sweep or curvature in more than one direction, the concave side with the greatest curvature shall be gained.

When the order specifies a lesser or greater number of gains than is hereinbefore required for "poles," or is accompanied by drawings describing framing different from that shown on the appended drawings, the instructions of the order shall be followed in framing the pole.

**MARKING.**—All poles shall be clearly marked with a marking hammer, scribe or branding iron. The mark shall not be less than one (1) inch in height. The center of the mark shall be located on the face of the pole within two (2) inches above or below a point ten (10) feet from the butt.

Legible hammer marks showing the circumference, classification and length of pole shall be applied to the butts of all poles.

### Treatment

All poles before being treated shall satisfy all requirements hereinbefore set forth.

Unless otherwise ordered, poles shall be impregnated with not less than twelve (12) pounds of coal tar creosote per cubic foot of wood, in accordance with the requirements of the specification for Creosoting Timber hereinafter listed.

See specification for Creosote Oil.

**HANDLING.**—Care shall be taken in handling poles to preserve the continuity of the treated layer. Pole tongs, cant hooks and other pointed tools capable of producing indentations of more than one (1) inch in depth shall not be used on poles treated under this specification. Pole tongs shall be so handled as to preclude their tearing away from any pole. Treated poles shall not be dragged along the ground.

**STORING.**—When, for any reason, poles treated under this specification have to be held in storage, they shall be stacked in close piles (either parallel or crosswise) on treated or other non-decaying skids. The skids shall be of such dimensions and so arranged as to support the poles without producing noticeable distortion of any of them. The skids shall be so placed that no part of any pole shall be in permanent water, or in contact with the underlying soil.

**SHIPMENT OF POLES.**—It is desired that poles be shipped on flat cars. Gondola cars or other cars having fixed sides shall not be used for shipment except when flat cars are not available for shipping within the time limit in an order. When a shipping time limit is not given in an order, shipment in other than flat cars shall only be made when permission to do so has been obtained from the purchaser of the poles.

Poles, when loaded, shall be secured in position by stakes of adequate strength, placed in the sockets on the side of the flat car, and by wiring from the stakes on one side of the car to stakes on the other side in accordance with the rules and specifications of the railroad association of the district in which the shipment originates, or in the absence of such rules and specifications, in accordance with the rules and specifications of the railroad initially receiving the shipment.

### Inspection

The manufacturer shall furnish proper facilities at his plant for the inspection of this material for the requirements of this specification.

**Top Specification Poles—Top Measurement Only**

These Poles Furnished as Specified: In Either 8-pound Empty Cell, (Rueping), 12-pound Empty Cell, (Rueping) or 12-pound Full Cell, (Bethel) Treatment

Large Stocks of All Lengths Maintained Ready for Immediate Treatment and Shipment

**8 Pounds Final Retention**

Lgth. Pole Feet	Estimated Weights in Pounds						
	TOP DIAMETER, INCHES						
	4	5	6	7	8	9	10
16	113	164	226	...	...	...	...
18	146	207	277	...	...	...	...
20	160	226	306	400	...	...	...
22	174	249	338	441	...	...	...
25	226	315	418	536	672	...	...
30	...	408	541	686	855	...	...
35	...	522	682	855	1058	...	...
40	...	...	837	1048	1278	...	...
45	...	...	1011	1255	1523	...	...
50	...	...	1208	1485	1791	2129	...
55	...	...	1424	1734	2082	2463	...
60	...	...	1659	2012	2402	2825	3285
65	...	...	...	2312	2740	3210	3722
70	...	...	...	2636	3111	3628	4188
75	...	...	...	2989	3511	4075	4686

**12 Pounds Final Retention**

16	120	175	240	...	...	...	...
18	155	220	295	...	...	...	...
20	170	240	325	425	...	...	...
22	185	265	360	470	...	...	...
25	240	335	445	570	715	...	...
30	...	435	575	730	910	...	...
35	...	555	725	910	1125	...	...
40	...	...	890	1115	1360	...	...
45	...	...	1075	1335	1620	...	...
50	...	...	1285	1580	1905	2265	...
55	...	...	1515	1845	2215	2620	...
60	...	...	1765	2140	2555	3005	3495
65	...	...	...	2460	2915	3415	3960
70	...	...	...	2805	3310	3860	4455
75	...	...	...	3180	3735	4335	4985

Number of Poles Required to Make a Minimum Carload—Lengths 40 Feet and Less, or a Minimum

Twinload—Lengths 45 Feet and Over

**8-pound Treatment**

16	266	183	133	...	...	...
18	206	145	109	...	...	...
20	188	133	99	75	...	...
22	173	121	89	69	...	...
25	133	96	72	56	45	...
30	...	74	56	44	36	...
35	...	58	44	36	29	...
40	...	...	36	29	24	...
45	...	...	48	30	32	...
50	...	...	40	33	27	23
55	...	...	34	29	24	20
60	...	...	29	24	20	17
65	...	...	...	21	18	15
70	...	...	...	19	16	14
75	...	...	...	17	14	12

**12-pound Treatment**

16	250	172	125	...	...	...
18	195	137	102	...	...	...
20	177	125	93	71	...	...
22	163	114	84	64	...	...
25	125	90	68	53	42	...
30	...	69	53	42	33	...
35	...	55	42	33	27	...
40	...	...	34	27	23	...
45	...	...	45	36	30	...
50	...	...	38	31	26	22
55	...	...	32	27	22	19
60	...	...	28	23	19	16
65	...	...	...	20	17	15
70	...	...	...	18	15	13
75	...	...	...	16	13	12

**Creosoted Yellow Pine Poles**

Continued

Factors for Computing Cubic Contents

Butt Diam. Inches	TOP DIAMETER IN INCHES					
	4.5	5	5.6	6	6.5	7
	FACTORS					
6.5	.167	.181	.197	.213	.230	....
7	.183	.198	.214	.231	.249	.267
7.5	.200	.216	.232	.250	.268	.287
8	.219	.235	.251	.269	.288	.307
8.5	.238	.254	.271	.290	.309	.329
9	.258	.275	.292	.311	.330	.351
9.5	.279	.296	.314	.333	.353	.374
10	.300	.318	.337	.356	.377	.398
10.5	.323	.341	.360	.380	.401	.423
11	.347	.365	.385	.405	.427	.449
11.5	.371	.390	.410	.431	.453	.476
12	.397	.416	.437	.458	.480	.504
12.5	....	....	....	.486	.509	.532
13	....	....	....	.515	.538	.562
13.5	....	....	....	.544	.568	.592
14	....	....	....	.575	.599	.624
14.5	....	....	....	.606	.630	.656
15	....	....	....	.638	.663	.689
15.5	....	....	....	.671	.697	.723
16	....	....	....	.705	.731	.758
16.5	....	....	....	.740	.767	.794
17	....	....	....	.776	.803	.831
17.5	....	....	....	.813	.840	.869
18	....	....	....	.851	.879	.907
18.5	....	....	....	.890	.918	.947
19	....	....	....	.929	.958	.987
19.5	....	....	....	.969	.999	1.029
20	....	....	....	1.011	1.040	1.071
20.5	....	....	....	1.053	1.083	1.114
21	....	....	....	1.096	1.127	1.158
21.5	....	....	....	1.140	1.171	1.203
22	....	....	....	1.185	1.217	1.249
22.5	....	....	....	1.231	1.263	1.296
23	....	....	....	1.278	1.310	1.344

Butt Diam. Inches	TOP DIAMETER IN INCHES					
	7.5	8	8.5	9	9.5	10
	FACTORS					
6.5	.307	....	....	....	....	....
7	.328	.349	....	....	....	....
7.5	.350	.371	.394	....	....	....
8	.372	.395	.418	.442	....	....
8.5	.396	.419	.442	.467	.492	....
9	.420	.444	.468	.493	.519	.545
9.5	.446	.470	.494	.520	.546	.573
10	.472	.496	.521	.547	.574	.602
10.5	.500	.524	.550	.576	.603	.631
11	.528	.553	.579	.605	.633	.662
11.5	.559	.582	.609	.636	.664	.693
12	.587	.613	.640	.667	.696	.725
12.5	.618	.644	.671	.700	.729	.759
13	.650	.676	.704	.733	.762	.793
13.5	.682	.710	.738	.767	.797	.828
14	.716	.744	.772	.802	.832	.864
14.5	.750	.779	.808	.838	.869	.900
15	.786	.815	.844	.875	.906	.938
15.5	.822	.851	.881	.912	.944	.977
16	.860	.889	.920	.951	.983	1.016
16.5	.898	.928	.959	.990	1.023	1.057
17	.937	.967	.999	1.031	1.064	1.098
17.5	.977	1.008	1.039	1.072	1.106	1.140
18	1.018	1.049	1.081	1.114	1.149	1.184
19.5	1.059	1.091	1.124	1.158	1.192	1.228
20	1.102	1.134	1.168	1.202	1.237	1.273
20.5	1.146	1.179	1.212	1.247	1.282	1.319
21	1.190	1.224	1.258	1.293	1.329	1.365
21.5	1.236	1.269	1.304	1.339	1.376	1.413
22	1.282	1.316	1.351	1.387	1.424	1.462
22.5	1.329	1.364	1.399	1.436	1.473	1.511
23	1.378	1.413	1.449	1.485	1.523	1.562

To obtain the volume of a Yellow Pine Pole or Stub, record the length in feet, and the butt and top diameters in inches; multiply the length in feet by the factor opposite the butt diameter and under the top diameter.

EXAMPLE: Length of pole, 40 feet. Factor, 1.273.  
Butt diameter, 20 inches. 40x1.273 = 50.920 cu. ft.  
Top diameter, 10 inches.

## International Creosoting & Construction Co. Specifications for the Preservative Treatment of Creosoted Pine Poles

The following specifications list treatments as follows:  
Rueping process, using 8 pounds of creosote per cubic foot of wood.

Rueping process, using 12 pounds of creosote per cubic foot of wood.

Bethel process, using 12 pounds of creosote per cubic foot of wood.

This does not mean that only the above number of pounds of creosote per cubic foot of wood can be used in the Rueping and the Bethel processes. Eight and twelve pounds are named because they are the amounts of creosote usually specified. Any other quantity of creosote, within the range of good treating practice, will be furnished in either process, if the customer so desires.

### 8-Pound Rueping Empty Cell Process

The following specification is intended to obtain an empty cell treatment for the poles; if the material to be treated is in a different condition as to moisture and seasoning, material for each retort charge shall be selected as to condition of moisture so that there will be no great difference in degree of seasoning in any one charge. Only perfectly sound poles shall be treated and all framing shall be done before treatment. The treating plant shall be equipped with indicating and recording gauges and other necessary apparatus for accurately observing and recording the treating process. Above the level of the creosoting cylinder there shall be an overhead drum for the purpose of determining that the cylinder is full of preservative and free from air and the gauge reading indicating a full cylinder shall not be taken until the preservative is seen to overflow through the valve on top of this drum. There shall also be a sap drum below the level of the cylinder by means of which sap and condensation shall be removed continuously. The treating plant must have all the necessary chemicals, a laboratory and laboratory apparatus to enable the quality of preservative to be determined.

#### Air-Seasoning

In air-seasoning, the poles shall be stacked in such a manner as to provide free air circulation and minimum contact between individual pieces in each stack. These stacks shall be placed on treated or otherwise permanent skids at least 6 inches above the ground on a well drained storage yard free from vegetation and decaying wood, so located that prevailing winds strike them freely. Alleys between the stacks shall be wide, continuous and straight. The material shall remain until in the judgment of the inspector it is sufficiently seasoned to obtain the maximum benefit from the treatment.

#### Seasoning by Steam

When time for air-seasoning is not available, steam-seasoning shall be used. Live saturated steam shall be admitted to the treating cylinder taking care that all air is swept from the cylinder before the outlet valve is closed. Pressure shall then be raised gradually to the maximum temperature desired, this maximum being determined by the treating inspector. It should not be less than 259 degrees F. nor more than 270 degrees F. The duration of the steaming process is dependent upon the degree of seasoning of the poles in the cylinder charge but shall in no case be carried to such an extent as to injure the timber.

#### Initial Vacuum

After the steaming process has been completed the steam shall be blown off and the treating cylinder exhausted as quickly as possible to as high a vacuum as possible which must be at least 24 inches at sea level or proportionately less at higher altitudes. This vacuum shall be maintained for at least 1 hour or for whatever longer period is necessary, so that the wood may be as dry and free from air as practicable. During the exhaustion process the temperature within the treating cylinder shall be maintained by means of steam under pressure in the closed coils. The cylinder shall be relieved of sap and condensation continuously.

#### Initial Air Pressure

In the case of air-seasoned poles, initial air pressure is the first step in the treating process. With steam-seasoned poles this step immediately follows the initial vacuum. The poles shall be subjected to air pressure of sufficient intensity and duration (usually 40 to 70 pounds) to provide under a quick high vacuum the ejection of surplus preservative, and to insure a retention and proper distribution of the stipulated number of pounds of preservative per cubic foot of wood.

## Specifications for the Preservative Treatment of Creosoted Pine Poles

### 8-pound Rueping Empty Cell Process

Continued

#### Treatment

The creosote shall be introduced between 165 degrees F. and 200 degrees F., the cylinder pressure being maintained constant until the cylinder is filled. The oil must be seen by the inspector to flow from the over-head drum on top of the treating cylinder, thus assuring him that the cylinder is completely filled with the preservative. The pressure shall then be gradually raised to and maintained at a minimum of 150 pounds per square inch until there is obtained the largest gross absorption that can be reduced to the stipulated final retention (i. e. 8 pounds per cubic foot) calculation being based on readings of the working tank gauges and the weight of the creosote at 100 degrees F. During treatment the creosote temperature shall average 180 degrees F. For the purpose of obtaining maximum sapwood penetration this gross absorption shall average not less than 16 pounds of creosote per cubic foot of wood. The quantity of oil for final retention shall be based on the cubic content of wood in the treating cylinder as determined by actual measurement of the top and butt of each pole in each charge. Under no conditions may shortage of oil in one charge be offset by an excess in another; the minimum final retention in each case must be 100 per cent of the quantity of creosote specified.

#### Final Vacuum

After pressure is completed and the cylinder is emptied of oil a sufficient vacuum shall be promptly created and maintained until the timber can be removed from the cylinder free from dripping oil.

#### Preservative

Creosote used in the treatment of these poles to comply with each of the following: A. T. & T. Co. Creosote Specification No. 6050 which includes No. 4227 Oil; American Wood Preserver's Association Standard, Creosote specifications for grade 1; American Railway Engineering Association Standard, Creosote Specification for grade 1.

### 12-pound Bethel Full Cell Process

The following specification is intended to obtain a full cell treatment for the poles; and if the material to be treated is in a different condition as to moisture and seasoning, material for each retort charge shall be selected as to condition of moisture so that there will be no great difference in degree of seasoning in any one charge. Only perfectly sound poles shall be treated and all framing shall be done before treatment. The treating plant shall be equipped with indicating and recording gauges and other necessary apparatus for accurately observing and recording the treating process. Above the level of the creosoting cylinder there shall be an overhead drum for the purpose of determining that the cylinder is full of preservative and free from air and the gauge reading indicating a full cylinder shall not be taken until the preservative is seen to overflow through the valve on top of this drum. There shall also be a sap drum below the level of the cylinder by means of which sap and condensation shall be removed continuously. The treating plant must have all the necessary chemicals, a laboratory and laboratory apparatus to enable the quality of preservative to be determined.

#### Air Seasoning

In air-seasoning, the poles shall be stacked in such a manner as to provide free air circulation and minimum contact between individual pieces in each stack. These stacks shall be placed on treated or otherwise permanent skids at least 6 inches above the ground on a well drained storage yard free from vegetation and decaying wood so located that prevailing winds strike them freely.



## Specifications for the Preservative Treatment of Creosoted Pine Poles

### 12-pound Bethel Full Cell Process

Continued

#### Air-seasoning

Continued

Alleys between the stacks shall be wide, continuous and straight. The material shall remain until in the judgment of the inspector it is sufficiently seasoned to obtain the maximum benefit from the treatment.

#### Seasoning by Steam

When time for air-seasoning is not available, steam-seasoning shall be used. Live saturated steam shall be admitted to the treating cylinder taking care that all air is swept from the cylinder before the outlet valve is closed. Pressure shall then be raised gradually to the maximum temperature desired, this maximum being determined by the treating inspector. It should not be less than 259 degrees F. nor more than 270 degrees F. The duration of the steaming process is dependent upon the degree of seasoning of the poles in the cylinder charge but shall in no case be carried to such an extent as to injure the timber.

#### Initial Vacuum

After the steaming process has been completed the steam shall be blown off and the treating cylinder exhausted as quickly as possible to as high a vacuum as possible which must be at least 24 inches at sea level or proportionately less at higher altitudes. This vacuum shall be maintained for at least 1 hour or for whatever longer period is necessary so that the wood may be as dry and free from air as practicable. During the exhaustion process the temperature within the treating cylinder shall be maintained by means of steam under pressure in the closed coils. The cylinder shall be relieved of sap and condensation continuously.

In the case of air-seasoned poles initial vacuum will be the first step in the treating process.

#### Treatment

The creosote oil shall be introduced without breaking the vacuum, at a temperature of not less than 165 degrees F. and not more than 200 degrees F. until the cylinder is filled to overflowing. The oil must be seen by the inspector to flow from the overhead drum on top of the treating cylinder, thus assuring him that the cylinder is completely filled with the preservative. During treatment the temperature shall average 180 degrees F. The pressure on the preservative shall be applied gradually until such an amount of oil has been injected into the poles as to provide maximum penetration and a final retention of 12 pounds of creosote per cubic foot, calculation being based on readings of the working tank gauges and the weight of the creosote at 100 degrees F. Also, cubic contents of the poles shall have been determined by actual butt and top measurements of each pole in each charge and the quantity of oil injected shall be based on the cubic content figure obtained from these measurements. Under no conditions may shortage of oil in one charge be off-set by an excess in another; the minimum final retention in every case must be 100 per cent of the quantity of creosote specified.

#### Final Vacuum

After the pressure period is completed and the cylinder is emptied of oil, a sufficient vacuum shall be maintained until the timber can be removed from the cylinder free from dripping oil.

#### Preservative

Creosote used in the treatment of these poles to comply with each of the following: A. T. & T. Co. Creosote specification No. 6050 which includes No. 4227 Oil; American Wood Preserver's Association Standard, Creosote Specification for Grade 1; American Railway Engineering Association Standard, Creosote Specification for Grade 1.

## Specifications for the Preservative Treatment of Southern Yellow Pine Poles

### 12-Pound Rueping Empty Coil Process

\*See Explanatory Note on Page 843

#### General

The following specification is intended to obtain an empty cell treatment for the poles; and if the material to be treated is in a different condition as to moisture and seasoning, material for each retort charge shall be selected as to condition of moisture so that there will be no great difference in degree of seasoning in any one charge. Only perfectly sound poles shall be treated. The treating plant shall be equipped with indicating and recording gauges and other necessary apparatus for accurately observing and recording the treating process. Above the level of the creosoting cylinder there shall be an overhead drum for the purpose of determining that the cylinder is full of preservative and free from air and the gauge reading indicating a full cylinder shall not be taken until the preservative is seen to overflow through the valve on top of this drum; there shall also be a sap drum below the level of the cylinder by means of which sap and condensation shall be removed regularly. The treating plant must have all the necessary chemicals, a laboratory, and laboratory apparatus to enable the quality of preservative to be determined.

#### Air Seasoning

In air seasoning, the poles shall be stacked in such a manner as to provide free air circulation and minimum contact through individual pieces in each stack. These stacks shall be placed on treated or otherwise permanent skids at least 6 inches above the ground on a well drained storage yard free from vegetation and decaying wood so located that prevailing winds strike it freely, and each layer shall be separated by creosoted strips. Alleys between the stacks shall be wide, continuous, and straight. The material shall remain until in the judgment of the inspector it is sufficiently seasoned to obtain the maximum benefit from the treatment.

#### Seasoning by Steam

When time for air seasoning is not available, steam seasoning shall be used. Live, saturated steam shall be admitted to the treating cylinder taking care that all air is swept from the cylinder before the outlet valve is closed. Pressure shall then be raised gradually to the maximum temperature desired, this maximum being determined by the treating inspector. It should not be less than 259 degrees F., nor more than 270 degrees F. The duration of the steaming process is dependent upon the degree of seasoning of the poles in the cylinder charge but shall in no case be carried to such an extent as to injure the timber.

#### Initial Vacuum

After the steaming process has been completed the steam shall be blown off and the treating cylinder exhausted as quickly as possible to as high a vacuum as possible which must be at least 24 inches at sea level or proportionately less at higher altitudes. This vacuum shall be maintained for at least 1 hour or for whatever longer period is necessary, so that the wood may be as dry and free from air as practicable. During the exhaustion process the temperature within the treating cylinder shall be maintained by means of steam under pressure in the closed coils. The cylinder shall be relieved of sap and condensation continuously.

#### Initial Air Pressure

In the case of air seasoned poles, initial air pressure is the first step in the treating process. With steam seasoned poles this step immediately follows the initial vacuum.

The poles shall be subjected to air pressure of sufficient intensity and duration (usually 40 to 70 pounds) to provide under a quick high vacuum the ejection of surplus preservative, and to insure a retention and proper distribution of the stipulated number of pounds of preservative per cubic foot of wood.



## Specifications for the Preservative Treatment of Southern Yellow Pine Poles

### 12-Pound Rueping Empty Coil Process

Continued

\*See Explanatory Note on Page 843

#### Treatment

The creosote shall be introduced between 170 and 200 degrees F., the cylinder pressure being maintained constant until the cylinder is filled. The oil must be seen by the inspector to flow from the overhead drum on top of the treating cylinder, thus assuring him that the cylinder is completely filled with the preservative. The pressure shall then be gradually raised to and maintained at a minimum of 150 pounds per square inch until there is obtained the largest gross absorption that can be reduced to the stipulated final retention (i.e. 12 pounds per cubic foot) calculation being based on readings of the working tank gauges and the weight of the creosote at 100 degrees F. The quantity of oil for final retention shall be based on the cubic content of wood in the treating cylinder as determined by actual measurement of the top and butt of each pole in each charge. Under no conditions may shortage of oil in one charge be offset by overage in another; the minimum final retention in each case must be 100 per cent of the quantity of creosote specified.

#### Final Vacuum

After pressure is completed and the cylinder is emptied of oil, a sufficient vacuum shall be promptly created and maintained until the timber can be removed from the cylinder free from dripping oil.

#### Preservative

See creosote specification.

### Standard Specifications for Creosote Oil for Ties and Structural Timber

#### Grade 1

- 1.—\*The oil shall be a distillate of coal gas tar or coke-oven tar. It shall comply with the following requirements:
- 2.—It shall not contain more than 3 per cent of water.
- 3.—It shall not contain more than .5 per cent of matter insoluble in benzol.
- 4.—The specific gravity of the oil at 38 degrees C., compared with water at 15.5 degrees C., shall not be less than 1.03.
- 5.—The distillate, based on water-free oil, shall be within the following limits: Up to 210 degrees C, not more than 5 per cent; up to 235 degrees C, not more than 25 per cent.
- 6.—The residue above 355 degrees C., if it exceeds 5 per cent, shall have a float test of not more than 50 seconds at 70 degrees C.
- 7.—The oil shall yield not more than 2 per cent of coke residue.
- 8.—The foregoing tests shall be made in accordance with the standard methods of the American Wood-Preservers' Association.

#### Specification for Creosote

NOTE.—Creosote of Grades 2 and 3 are also available, both are inferior to Grade 1 and are therefore not used by the International Company.

The above is the standard specification for Grade 1 creosote.

\*Owing to the complexity of the chemical composition and physical properties of coal tar creosote oil, and to the fact that some of the same compounds and properties which characterize coal tar creosote are found in certain petroleum derivatives, the determination of the purity of creosote oil is difficult.

## American Telephone and Telegraph Co., Specifications No. 4227 for Coal Tar Creosote

For Use Only in Supplying

A. T. & T. and Associated Companies

#### General

The material desired under these specifications is that known as dead oil of coal tar or coal tar creosote. It shall consist wholly of distillates of gas tar produced by the destructive distillation of bituminous coal either in the manufacture of coal gas or in the manufacture of coke by the by-product process. It shall be without adulteration.

Information shall be furnished on request as to the origin of the oil and the names of the parties through whose hands it may have passed. A copy of any analysis of the oil that may have been made prior to its use shall also be furnished.

The right is reserved to take representative samples of the oil and test the same wherever desired.

#### Requirements

All coal tar creosote furnished under these specifications shall conform to the following requirements:

1st. The oil shall have a specific gravity at 38 degrees Centigrade, as compared with water at 15.5 degrees Centigrade of not less than 1.03.

2nd. The oil shall be thoroughly liquid at a temperature of 38 degrees Centigrade.

3rd. When 100 grams of the oil are distilled in accordance with the requirements of the specifications for the analysis of dead oil of coal tar or coal tar creosote hereinafter referred to.

(a) Not more than 5 per cent shall distill off up to 205 degrees Centigrade.

(b) Not more than 40 per cent shall distill off up to 235 degrees Centigrade.

(c) Not more than 80 per cent shall distill off up to 315 degrees Centigrade.

(d) Not less than 60 per cent shall distill off up to 360 degrees Centigrade.

(e) The oil shall not contain more than 2 per cent of water.

(f) The quantity of tar acids present in the fractions distilling below 300 degrees Centigrade shall not exceed 10 per cent, measured by volume, of the total sample distilled.

(g) The subphonation residue from the fraction distilling between 300 degrees Centigrade and 360 degrees Centigrade shall not exceed 2 per cent, measured by volume, of the said fraction.

4th. The constituents of the oil insoluble in benzol shall not exceed 0.50 per cent by weight.

5th. When oil is intended for use in the treatment of wood duct it shall be free from acids of the acetic series and their salts.

#### Analysis

The oil shall be analyzed in accordance with the methods outlined in the specifications for the analysis of dead oil of coal tar or coal tar creosote hereinafter referred to.

**Standard Specifications for Creosote Oil****American Wood Preserver's Association Grade 1 Oil**

Creosote used in treatment of Graybar Electric pine poles complies with this specification, also with A. T. & T. creosote specification No. 4227, also with A. R. E. A. creosote specification for grade 1. This specification was formerly published as A. T. & T. No. 3743.

- (1) The oil shall be a distillate of coal-gas tar or coke-oven tar. It shall comply with the following requirements:
- (2) It shall not contain more than 3 per cent of water.
- (3) It shall not contain more than 0.5 per cent of matter insoluble in benzol.
- (4) The specific gravity of the oil at 38 degrees C. compared with water at 15.5 degrees C. shall be not less than 1.03.
- (5) The distillate, based on water-free oil, shall be within the following limits:  
Up to 210 degrees C., not more than 5 per cent.  
Up to 235 degrees C., not more than 25 per cent.
- (6) The residue above 355 degrees, if it exceeds 5 per cent, shall have a float-test of not more than 50 seconds at 70 degrees C.
- (7) The oil shall yield not more than 2 per cent coke residue.
- (8) The foregoing tests shall be made in accordance with the standard methods of the American Wood Preservers' Association. (See manual—creosote, analysis.)  
Approved, 1917; adopted, 1921; amended and adopted, 1923.

Owing to the complexity of the chemical composition and physical properties of coal-tar creosote oil, and to the fact that some of the same compounds and properties which characterize coal-tar creosote are found in certain petroleum derivatives, the determination of the purity of creosote oil is difficult. When there is not certain assurance that the oil is a pure product, the following tests will aid in arriving at an opinion as to its coal tar origin:

- (a) Fraction distilling between 210 and 235 degrees C. is usually solid or contains some solids when cooled to 25 degrees C.
- (b) All of the fractions up to 315 degrees C. contain tar acids in varying amounts, usually at least 1 per cent, calculated on the amount of the fraction tested. (See manual—creosote, analysis, tar acids.)
- (c) The specific gravity of the fraction 235 and 315 degrees C. is usually not lower than 1.025 and specific gravity of the fraction between 315 and 355 degrees is usually not lower than 1.085 and 38 degrees C. compared with water at 15.5 degrees C. However, some pure-tar distillates fall slightly below these limits.

If the oil does not comply with at least one of the foregoing tests it is undoubtedly not a pure coal-tar creosote.

**Dating Nails**

The dating nail (illustrated above) is placed in every International Creosoted Pine Pole at a point 12 feet from the butt. It shows the year of treatment and the monogram of the International Creosoting & Construction Company and thus serves as a permanent record through which the customer will know who furnished the poles and how long they are lasting.

**Specifications No. 3782 for Dead Oil Coal Tar for Brush and Open Tank Treatment****(Extract)**

This oil is standard stock with us for open tank work.

**GENERAL.**—The material desired under these specifications is that known as dead oil of coal tar or coal tar creosote, obtained through the distillation of coal tar produced by the destructive distillation of bituminous coal at a temperature high enough to yield a tar consisting mainly of compounds of the aromatic series. It shall be without adulteration.

Information shall be furnished on request as to the origin of the oil and the names of all parties through whose hands it may have passed. A copy of any analysis of the oil that may have been made prior to its offering shall also be furnished. The right is reserved to take representative samples of the oil and test the same wherever desired.

**NOTE.**—When unseasoned timber is being treated by the cylinder pressure process using steam for seasoning, the oil may contain not more than five (5) per cent of water. But in case more than two (2) per cent of water is present in the oil, the quantity of the preservative added to the timber shall be increased by an amount sufficient to ensure that the required amount of oil computed on a water-free basis has been taken up by the timber.

**REQUIREMENTS.**—All dead oil of coal tar furnished under these specifications shall conform to the following requirements:

- 1st.—The oil shall have a specific gravity of at least one and three-hundredths (1.03) at thirty-eight degrees Centigrade (38°C.).
- 2nd.—The oil shall be thoroughly liquid at a temperature of thirty-eight degrees Centigrade (38°C.).
- 3rd.—When one hundred grams of the oil are distilled in accordance with the requirements of the specifications for the Analysis of Dead Oil of Coal Tar or Coal Tar Creosote hereinafter referred to—
  - (a) Not more than eight (8) per cent shall distill off up to 210° C.
  - (b) Not more than thirty-five (35) per cent shall distill off up to 235° C.
  - (c) Not more than eighty (80) per cent shall distill off up to 315° C.
  - (d) The oil shall not contain more than two (2) per cent of water.
  - (e) The quantity of tar acids present in the fractions distilling below 300° C. shall not exceed ten (10) per cent (measured by volume) of the total sample distilled.
  - (f) The sulphonation residue from the fraction distilling between 300° C. and 360° C. shall not exceed one and one-half (1½) per cent of the said fraction.
- 4th.—The constituents of the oil insoluble in benzol shall not exceed five-tenths (0.5) per cent by weight.

**Specification No. 3783 for Liquid Grade Dead Oil of Coal Tar****(Extract)**

Some prefer this specification over No. 3782 for use in winter. It is about 15½% more expensive than No. 3782.

**GENERAL.**—The material desired under these specifications is a liquid grade of dead oil of coal tar or coal tar creosote, to be obtained through the distillation of a coal tar produced by the destructive distillation of bituminous coal at a temperature high enough to yield a tar consisting mainly of compounds of the aromatic series. It shall be without adulteration.

Information shall be furnished on request as to the origin of the oil and the names of all parties through whose hands it may have passed. A copy of any analysis of the oil that may have been made prior to its offering shall also be furnished. The right is reserved to take representative samples of the oil and test the same wherever desired.

**REQUIREMENTS.**—All dead oil of coal tar furnished under these specifications shall conform to the following requirements:

- 1st.—The oil shall have a specific gravity of at least one and eight-hundredths (1.08) at fifteen degrees Centigrade (15° C.).
- 2nd.—The oil shall be thoroughly liquid at a temperature of five degrees Centigrade (5° C.).
- 3rd.—When one hundred grams of the oil are distilled in accordance with the requirements of the specifications for the Analysis of Dead Oil of Coal Tar or Coal Tar Creosote hereinafter referred to—
  - (a) Not more than one (1) per cent shall distill off up to 210° C.
  - (b) Not more than ten (10) per cent shall distill off up to 235° C.
  - (c) Not less than twenty-five (25) per cent and not more than sixty (60) per cent shall distill off up to 300° C.
  - (d) The oil shall not contain more than one (1) per cent of water.
  - (e) The quantity of tar acids present in the fractions distilling below 300° C. shall not exceed eight (8) per cent (measured by volume) of the total sample distilled.
  - (f) The sulphonation residue from the fraction distilling between 300° C. and 360° C. shall not exceed one and one-half (1½) per cent of the said fraction.
- 4th.—The constituents of the oil insoluble in benzol shall not exceed five-tenths (0.5) per cent by weight.

**Depth of Pole Setting**

In sandy or swamp ground, oil barrels or casks set in the ground will materially assist in securing substantial pole foundations. The following specifications are recommended for the depth in feet of holes:

Line (Height)	Solid Ground		Soft Ground		Solid Rock
	Poles (Depth)	Corners	Line	Corners	
22	5	5	5	5	3
25	5	5½	5½	6	3
30	5	5½	6	6½	3½
35	6	6½	6½	7	4
40	6½	7	7	7½	4
45	6½	7	7	7½	4½
50	7	7½	7½	8	4½
55	7½	8	8	8½	5
60	8	8½	8½	9	5½
65	8½	9	9	9½	5½

Guy stubs should be set not less than 7 feet in any soil except solid rock.

**Cedar Poles for Electric Light Work**

Height Feet	Size Top Inches	Average Wt., Lbs. Each	No. of Poles to a Car	Height Feet	Size Top Inches	Average Wt., Lbs. Each	No. of Poles to a Car
25	5½	225	130	40	6	800	80
25	6	250	100	40	7	900	75
28	7	400	80	45	6	900	70
30	5	300	110	45	7	1000	65
30	6	350	90	50	6	1200	55
30	7	420	75	55	6	1400	45
35	6	550	100	..	..	..	..

**Wind Pressures**

Velocity	37	53	65	75	83	91	105	119	130
Pounds per Sq. Ft.	5	10	15	20	25	30	40	50	60

The pressures given above are such as would be exerted against a flat surface set perpendicularly to the direction of the wind. For a cylindrical surface like a pole or wire, the effective pressure is two-thirds of what it would be for a square surface of the same area as the cylinder. It is considered that an allowance of from 20 to 30 pounds per square foot of area for pole lines is ample. The above table was calculated from Professor Langley's formula,  $P = .0036V^2$ , in which P is the pressure per square foot of surface in pounds, and V is the velocity of the wind.

**General Construction Rules**

**SIZE OF HOLES.**—The holes should be large enough to permit the free entrance of the poles, and should be full size at the bottom so as to admit of the use of tampers.

**TAMPING POLE HOLES.**—All pole holes, except those in very hard gravel or rock formations, should be tamped so thoroughly that the necessity for hauling away excess dirt is obviated.

**PROTECTING POLES.**—Where corner poles or other poles are exposed to injury from whittling, pole butt should be well painted and heavily sanded. If this is not sufficient in any special case, the pole butt should be wound with No. 10 galvanized wire, spaced ½ inch apart, painted and sanded.

**PAINTING POLES.**—The top and gaens of all poles should be painted with one or more coats of approved paint. All poles which are protected by strain plates or shims from the cutting of messengers or guys, should be painted with one or more coats of approved paint on the space occupied by the strain plate.

**FACING ARMS (CITY CONSTRUCTION).**—At long spans the cross arms should be placed on the side of the poles away from the long spans. Arms on poles should face the originating source of the lead, or face to face, depending on the general condition, except corner pole; then it should face the corner. At the terminals of a lead, the last two poles should face away from the originating source. On corners, arms should face the point of intersection of curb lines, thus facing each other. First arm each side of the corner should ordinarily face the corner.

**ON CURVES.**—Arms each side of center of curve should face the center of curve.

**LOCATION OF POLES AND ANCHORAGES.**—Special attention should be given to location of poles, where the ground washes badly, where there are cuts or excavations, and along the banks of creeks or streams. Do not locate poles along the edges of cuts or embankments.

**General Construction Rules**

Continued

**SPACING POLES.**—In locating pole line, if it becomes necessary to either reduce or lengthen distance between poles on account of obstacles, objections of property holders, etc., the preference should be for the shorter spans.

**LOCATION OF POLES AT STREET CROSSINGS.**—In leading away from the originating end of the line when a cross street is reached, pole should not be located on the corners, but should be spaced to fall on the property line. In this connection, alleys may be regarded as street crossings.

**ON STREETS.**—Poles and stubs on streets should be set inside of and as near the curb line as possible.

**IN ALLEYS.**—Poles in alleys should be set as close as possible to the side lines of the alleys.

**ON PROPERTY LINES.**—Poles on streets should be located on or near property lines.

**DISTRIBUTION OF POLES.**—In distributing the poles, care should be taken to select the heaviest poles for corners and terminals and to place the straightest and best-looking poles on streets and in front of residences.

**POLE FITTING AND SETTING—TRIMMING.**—All poles that are rough in appearance should be smoothed, and knots should be trimmed close. Top of pole should be leveled with one cut of saw at right angles to length of pole, and edge should be beveled ¼ of an inch with a draw-knife.

**FRAMING POLES.**—Poles should be raised at the top and placed in a framing buck so that the heaviest sag or curve will be nearest the ground. If the pole be crooked or badly shaped it should be turned with cant hooks until the best side for framing is brought uppermost and the pole securely choeked. In this position it should first be roofed. Seven inches should be measured from the top of the pole, and this point should be the center of the top gaen. The succeeding gaens should be spaced 18 inches on centers. Gaens should be leveled with a straight edge or sighting sticks.

**NOTE.**—In alleys, poles stepped in line with alley as high as 12 to 15 feet; then turn at right angles to alley and continue to the top. This is to prevent liability of danger to top wagons in narrow alleys.

**BUTTING POLES.**—Every pole should be squared across the bottom before setting. This should be done with a crosscut saw, and not with an ax.

**BRACES AND CROSS-ARM FITTING.**—Arms should be sighted and leveled at right angles to pole length, and not parallel with the ground. This includes all corner poles.

A spirit level should not be used for leveling arms.

**CANTING ARMS ON CORNERS.**—When a lead makes a double corner or changes from one side of the street to the other, the last arm should set at right angles to the line of direction leading to the corner, and the first arm leading away should set at right angles to the line of direction leading away from the corner.

If the change of direction forms an angle of less than forty-five degrees, one or both corner arms may be canted slightly to secure the greatest space between lines. This should not be permissible where the angle is forty-five degrees or over.

**CANTING ARMS ON SINGLE-POLE CORNERS.**—The arm should set in a line that will divide in half the angle formed by the two lines of direction of the route.

On curves the inside of the arms should point to the common center of a circle of which the lead curve forms the circumference.

Single pole corners are not desirable and should not be used when the pull is over 20 feet, unless it is an unavoidable case.

**GUY STUBS.**—A guy stub in no case should be smaller in diameter at butt or top than the pole it supports, and should be as straight as possible on account of the tendency to buckle. A stub at the head of heavy lines should be as massive as possible.

A guy stub should be raked to position before filling hole, and should not be set straight and raked with the anchor guys. In the proportion that stub is curved or buckled its strength is decreased. No stub should be raked less than 24 inches.

Guy stubs holding a strain greater than a one-arm lead should measure 12 inches across the top or more, if procurable.

## Wood Crossarms



Virgin Old-Growth Douglas Fir

The prime requisites in a crossarm are lightness, strength and durability; some engineers stress one quality and some another, but Rainier Fir is the best answer for all sorts of uses and conditions; however, we are equally able to furnish long leaf yellow pine crossarms, and creosoted arms, in either fir or yellow pine.

Rainier is the arm most widely used and most generally preferred; its use is by no means confined to this country; for instance, this arm was selected for the lines of the American Expeditionary Forces in the world war.

The United States Forestry Service has made elaborate tests of different woods and with results almost uniformly favorable to fir for crossarms; certainly for lightness and strength, and continuing strength over a period of years, Rainier fir is in a class by itself. Exceptional cases are well established of a line life of these arms up to fifty years. Another advantage is that they need no treatment whatsoever, which subject is covered hereinafter.

Rainier fir crossarms do not require painting or the use of any preservative; are more than double the necessary strength with a large "factor of safety"; they live in actual service for many years.

Long-leaf yellow pine crossarms are manufactured in the Gulf Region, and when they have a large heart content, are strong and durable.

Short-leaf yellow pine (and long-leaf sapwood) crossarms, should be creosoted (pressure treatment) before being put into service; this treatment prolongs the life of the arms for many years, but great care should be exercised that only pure distillate oil is used and the treatment given by a reliable creosoting company.

Creosoted yellow pine crossarms should be made from short-leaf yellow or long-leaf yellow pine; sapwood is no objection, as it has the necessary strength and takes oil readily. Only pure distillate creosote (dead oil of coal tar) should be used; this assures a clean surface, free from "goo"; the treatment consists, first of full seasoning by steam and vacuum; second, of impregnation with preservative under high pressure.

## Wood Crossarms



Showing how the Big Firs are Felled

We maintain at each warehouse a liberal stock of the genuine Rainier fir arm, in order to give customers service when in need of arms quickly. Many central stations and crossarm users find it more satisfactory and economical to buy their entire supply from these stocks as they need arms rather than to take a carload at a time and carry the investment themselves over an uncertain period of time.

A good many public utilities require from time to time small lots of arms of special size and manufacture, that is, other than those hereinafter listed as standard. We will be glad at any time to stock any special arm for a customer under a special contract arrangement, and any of our representatives will be glad to go into this matter fully on request. We have also at Chicago, Minneapolis, Centralia, Wash., and Newark, N. J. large stocks of blank arms, which can be cut to length and bored according to your special requirements. This is merely another link in the chain of Graybar Electric service on crossarms.

**TREATMENT OF RAINIER ARMS.**—In some localities it is occasionally found necessary to color crossarms so as to distinguish them from arms used for other purposes. As previously stated, the genuine Rainier fir arm does not require any preservative treatment, and we recommend that if a color is necessary the arms be dipped in the proper stain, which our Pacific Coast mills are prepared to do.

We recommend, however, that a Rainier arm be dipped in a hot solution of pure distillate creosote oil, if that will answer the purpose of color. This treatment tends to prevent an arm from checking and to protect it from woodpeckers, and from the inroads of termites, etc. Unless color is demanded, this is a useless expense.

All arms bored for one  $\frac{5}{8}$ -inch center bolt and  $\frac{3}{8}$ -inch brace bolts unless otherwise specified, except as shown in "Standard" table.

**MINIMUM CARLOAD WEIGHT.**—Fir from Pacific Coast Mills, 38,000 pounds. Small cars are scarce and weight of at least 50,000 pounds should be figured on. Cars to contain as high as 90,000 pounds can be had. Smaller cars are available in the Southern Yellow Pine Regions—minimum weight, 34,000 pounds.

Standard arms are manufactured as shown in table; orders for special arms should be accompanied by sketch or blueprint showing exactly what is wanted, and are subject to delay in manufacture.

**CREOSOTE OIL DIP TREATMENT.**—Hot dip treatment (immersion for five minutes in hot creosote oil). This treatment can be given only at Pacific Coast Mills, Mississippi mills, Louisiana mills, Virginia mills, and Chicago and Minneapolis warehouses.

If board measure of arm is wanted, add one-half inch to height and width of finished arm; if length runs into inches take next higher foot length; multiply height by width in inches; divide by twelve, and multiply by length in feet.

All dimensions are subject to the usual manufacturing variations; crossarms long in stock show some shrinkage from original dimensions.

## Wood Crossarms



## Wood Crossarms

### Electric Light Arms

Cat. No.	Size and Length	WEIGHT POUNDS PER ARM		WEIGHT POUNDS PER ARM		Price per 100 Arms
		Fir	Yellow Pine	YELLOW PINE CROSBOTED 8 Lbs.	12 Lbs.	
1	3 1/4 x 4 1/4 in.	10.2	13.2	15.24	15.93	\$39.375
2	4 ft. 2 pin	13.6	17.6	20.32	21.24	52.50
3	5 ft. 4 pin	17	22	25.40	26.55	65.625
4	6 ft. 4 pin	20.4	26.4	30.48	31.82	78.75
5	6 ft. 6 pin	20.4	26.4	30.48	31.82	78.75
6	8 ft. 6 pin	27.2	35.2	40.64	42.48	105.00
7	8 ft. 8 pin	27.2	35.2	40.64	42.48	105.00
8	8 1/2 ft. 10 pin	28.9	37.4	43.18	45.14	118.125
9	10 ft. 8 pin	34	44	50.80	53.10	131.25
10	10 ft. 10 pin	34	44	50.80	53.10	131.25
11	10 ft. 12 pin	34	44	50.80	53.10	131.25

### Electric Light Arms

Cat. No.	PIN HOLES			Size In.	Center Bolt Hole In.	Brace In.
	Center	SPACINGS, IN. Sides	Ends			
1	28		4	1 1/2	5/8	25
2	16	12	4	1 1/2	5/8	28
3	18	17	4	1 1/2	5/8	28
4	22	21	4	1 1/2	5/8	32
5	16	12	4	1 1/2	5/8	32
6	18	17 1/2	4	1 1/2	5/8	32
7	16	12	4	1 1/2	5/8	32
8	16	9 3/4	4	1 1/2	5/8	32
9	17 1/2	15 3/4	4	1 1/2	5/8	42
10	16	12	4	1 1/2	5/8	42
11	16	9 3/8	3 3/8	1 1/2	5/8	42

### R. S. A. (Railway Signal Association) Arms

21	20	22	4	9/16	1 1/8	..
22	19	17 1/4	4	9/16	1 1/8	..
23	19	15 1/2	4	9/16	1 1/8	..
24	16	12 3/8	2 1/2	9/16	1 1/8	..

### Western Union Arms

25	20	11 1/2	3	9/16	1 1/8	..
26	21	11 1/2	3	9/16	1 1/8	..
27	22	11 1/2	3	9/16	1 1/8	..

### Pony Telephone Arms

31	17	..	3 1/2	1 3/8	5/8	..
32	23	..	3 1/2	1 3/8	5/8	..
33	29	..	3 1/2	1 3/8	5/8	25
34	16	9 1/2	3 1/2	1 3/8	5/8	28
35	16	9 3/4	3 1/2	1 3/8	5/8	28
36	16	9 3/4	3 3/4	1 3/8	5/8	28
37	16	9 3/4	4	1 3/8	5/8	28
38	16	9 3/8	3 3/8	1 3/8	5/8	28

### N. E. L. A. Arms

41	30	..	4	1 1/2	1 1/8	28
42	30	14 1/2	4	1 1/2	1 1/8	38
43	30	14 1/2	4	1 1/2	1 1/8	38
44	30	12	4	1 1/2	1 1/8	38

### N. E. L. A. (Light) Arms

51	30	..	4	1 1/2	1 1/8	28
52	30	14 1/2	4	1 1/2	1 1/8	38
53	30	14 1/2	4	1 1/2	1 1/8	38
54	30	12	4	1 1/2	1 1/8	38

### New England Arms

61	30	..	3	1 1/2	1 1/8	33
62	30	13 1/2	4 1/2	1 1/2	1 1/8	36
63	30	13 1/2	4 1/2	1 1/2	1 1/8	36
64	30	13 1/2	4 1/2	1 1/2	1 1/8	36

### New England Power Arms

71	30	..	3	1 1/2	1 1/8	33
72	30	13 1/2	4 1/2	1 1/2	1 1/8	36
73	30	13 1/2	4 1/2	1 1/2	1 1/8	36
74	30	13 1/2	4 1/2	1 1/2	1 1/8	36

### Pacific Arms

81	28	..	4	1 1/2	5/8	32
82	28	12	4	1 1/2	5/8	32
83	28	12	4	1 1/2	5/8	32
84	28	12	4	1 1/2	5/8	42
85	28	12	4	1 1/2	5/8	42

Any change required from standard spacings, pin holes or bolt holes as here given, must be distinctly specified on the order.

### R. S. A. (Railway Signal Association) Arms

21	3x4 1/4 in.	19.2	24.6	28.44	29.70	\$78.75
22	6 ft. 4 pin	25.6	32.8	37.92	39.60	105.00
23	8 ft. 6 pin	32	41	47.40	49.50	131.25
24	10 ft. 10 pin	32	41	47.40	49.50	131.25

### Western Union Arms

25	3x4 1/4 in.	19.2	24.6	28.44	29.70	\$78.75
26	6 ft. 6 pin	25.6	32.8	37.92	39.60	105.00
27	8 ft. 8 pin	32	41	47.40	49.50	131.25
27	10 ft. 10 pin	32	41	47.40	49.50	131.25

### Pony Telephone Arms

31	2 3/4 x 3 3/4 in.	5	6.5	7.50	7.84	\$20.00
32	24 in. 2 pin	6.25	8.125	9.38	9.80	25.00
33	30 in. 2 pin	7.5	9.75	11.25	11.76	30.00
34	36 in. 2 pin	8.75	11.375	13.13	13.72	35.00
35	42 in. 4 pin	13	16.8	19.28	20.25	51.67
36	62 in. 6 pin	17	22.2	25.63	26.79	68.33
37	82 in. 8 pin	21.25	27.625	31.88	33.72	85.00
38	102 in. 10 pin	25	32.5	37.50	39.20	100.00

### N. E. L. A. Arms

41	3 1/2 x 4 1/2 in.	12 3/8	15.83	19.00	19.79	\$59.37
42	3 ft. 2 in. 2 pin	22 1/3	27.92	33.50	34.90	89.06
43	5 ft. 7 in. 4 pin	32	40	48.00	50.00	118.75
44	8 ft. 6 pin	36 2/3	45.83	55.00	57.29	148.44

### N. E. L. A. (Light) Arms

51	3 1/4 x 4 1/4 in.	10.77	13.93	16.09	16.82	\$52.50
52	3 ft. 2 in. 2 pin	18.98	24.57	28.36	29.65	78.75
53	5 ft. 7 in. 4 pin	27.2	35.2	40.64	42.48	105.00
54	8 ft. 6 pin	31 1/6	40 1/2	46.57	48.68	131.25

### New England Arms

61	3 1/4 x 4 1/4 in.	10.2	13.2	15.24	15.93	\$39.375
62	3 ft. 2 pin	18.7	24.2	27.94	29.20	78.75
63	5 ft. 6 in. 4 pin	26.35	34.1	39.37	41.15	105.00
64	7 ft. 9 in. 6 pin	34	44	50.80	53.10	131.25

### New England Power Arms

71	3 3/4 x 4 3/4 in.	13.5	17	20.79	21.75	\$50.00
72	3 ft. 2 pin	24.75	31.17	37.12	39.88	100.00
73	5 ft. 6 in. 4 pin	34.87	43.92	53.71	56.19	133.33
74	7 ft. 9 in. 6 pin	45	56.67	69.30	72.50	166.67

### Pacific Arms

81	3 1/4 x 4 1/4 in.	10.2	13.2	15.24	15.93	\$39.375
82	3 ft. 2 pin	17	22	25.40	26.55	65.625
83	5 ft. 4 pin	23.8	30.8	35.56	37.17	91.875
84	7 ft. 6 pin	30.6	39.6	45.72	47.79	118.125
85	9 ft. 8 pin	37.4	48.4	55.88	58.41	144.375

**Wood Crossarms**

**Specifications**

**RAINIER FIR CROSSARMS:**

- MATERIAL**— Sound, live, yellow Douglas fir; close-grained (at least eight rings per inch); straight grained (not out of parallel to edge of arm in central section more than five degrees).
- PROHIBITED**— Rot, dote, loose heart, loose or rotten knots, snakes and splits.
- ALLOWED**— Warp up to 1/8 inch off-set per lineal foot; sound knots up to one inch diameter, but not at pin holes or in clusters; pitch pockets up to 8 inches in length; season checks up to one inch in depth; sap-wood up to 25 per cent of volume of arm.
- MANUFACTURE**— Best commercial practice; kiln dried in sizes up to 3 3/4 x 4 1/4 finished; planed on all four sides; pin holes accurately centered, smooth and not badly broken out by bits in boring; dimensions as shown, with commercial variations.

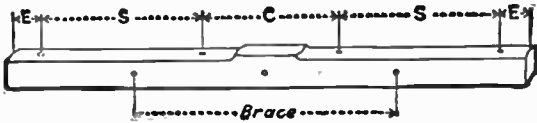
**WESTERN STANDARD GRADE FIR.**—This grade covers all crossarms up to 4x5 inches, inclusive, finished size either way; the arms shall be: reasonably straight grained, well manufactured from sound, live seasoned lumber (green lumber prohibited) 75 per cent heart, by volume; free from rot, dote, loose-heart, loose or unsound knots, shakes, splits boxed heart, warp in excess of 1/8-inch off-set per foot, sound knots in clusters or larger than 1 1/4 inches in diameter, pitch-pockets more than 8 inches long, season checks more than 1 inch deep and any other defect that seriously impairs strength.

**LONG-LEAF YELLOW PINE:** Genuine Long-Leaf Yellow Pine, guaranteed every arm at least 7/8 heart in volume, and free from knots (except small, sound knots, not over one inch in diameter), or other defects that would impair the strength of the arm.

**VIRGINIA YELLOW PINE:** Free from loose or unsound knots or other defects which would impair the strength of the arm.

**CREOSOTED CROSSARMS AND CONDUIT:** Free from large, unsound or loose knots, or other defects which would impair strength; creosoted steam and vacuum treatment—dead oil of coal tar under pressure—either 12 lbs. per cu. ft. (full cell) or 8 lbs. per cu. ft. (empty cell) as ordered.

**How to Describe a Crossarm (In Placing Your Order)**



- STATE**—A—Quantity wanted.
- B—Material and quality (or grade).
- C—Treatment (if any).
- D—Width, in inches (and fraction).
- E—Height, in inches (and fraction).
- F—Length, in feet and inches.
- G—Number of pin holes.
- H—Size of pin holes.
- I—Spacing between pin holes (center - side - end).
- J—Size center bolt hole.
- K—Size brace bolt holes.
- L—Space between brace bolt holes.

For example, the standard Bell Telephone Crossarm is described—"Rainier Fir, unpainted, 3 3/4"x4 1/4"-10', bored for ten 1 1/8" pin holes, spaced 16" center, 12" sides, 4" end, one 5/8" center bolt hole, two 3/8" brace bolt holes 42" apart."

**Important**

In ordering crossarms, be very careful to specify just what is wanted, and, if other than standard boring, send sketch or blue print with order. Arms specially made are of no use for general stock, and cannot be taken back if mistake is made in ordering.

**Wood Pins**

**Specifications**

**MATERIAL.**—Pins shall be sound, reasonably straight grained, yellow or black locust (or Oak, as called for), free from knots, checks, sap wood, brush-wood, cracks, etc., except as hereinafter specified.

**SAP WOOD.**—Sap wood is permitted on the shoulder of the pin provided it does not extend into the tenon.

**CHECKS.**—Season checks not over 1/8 inch deep are permitted provided they do not appear elsewhere than in the shoulder and lower half of the tenon.

**KNOTS.**—Pins shall be free from loose or unsound knots; sound knots not exceeding 1/4 inch in diameter are permitted on the shoulder and lower half of the tenon.

**GRAIN.**—The grain of the wood shall be reasonably parallel to the axis of the pin; irregularities in grain which are wholly confined to the section within one inch of the bottom of the tenon shall be permitted.

**WORM HOLES.**—Worm holes and channels not over 1/8 inch diameter are permitted provided they do not impair the holding power of the thread or the placing of the nail in the pin, and provided that they shall not appear in over 10 per cent of pins in any shipment.

**DIMENSIONS.**—Pins are usually made from unseasoned wood due to difficulty of securing and manufacturing seasoned timber. Pins after seasoning shall be of the dimensions shown in drawing, or as ordered (with allowable variations as shown).

**FLAT SHOULDERS.**—One flat surface is permitted, provided the wood is not cut away to the depth of the shoulder at any point of the circumference; in the bottom one-fourth of the tenon irregularities in shape which do not involve the removal of more than one-quarter of the cross-section called for in the drawing are permitted; provided these defects do not occur in more than 10 per cent of the pins furnished.

**THREADS.**—All pins shall have four threads per inch; the thread shall be smooth and of uniform pitch; the thread shall taper 1/8 inch in diameter to 1 inch in length.



- L = Length Pin
- F = " Top
- E = " Tenon
- D = Diameter Thread
- C = Length "
- S = Diameter Shoulder
- T = " Tenon on Top
- M = " " at Middle
- B = " " Bottom

1 1/4 x 8 Pins Inches	1 1/2 x 9 Pins Inches	Allowable Variation Inches
8	9	1/4
4	5	1/4
4	4	1/4
3 3/4	3 3/4	1/4
2 1/2	2 1/2	1/4
1 1/2	1 3/4	1/8
1 3/8	1 1/2	1/8
1 1/4	1 1/2	1/8
1 3/8	1 1/8	1/8

**Standard Pins**



DIMENSIONS			Locust	Oak	DIMENSIONS			Locust	Oak
M	L	D	Wt. Lbs. per 1000	Wt. Lbs. per 1000	M	L	D	Wt. Lbs. per 1000	Wt. Lbs. per 1000
1 1/4	8	1	325	300	1 1/2	9	1	450	400

**Transposition Pins**



1 1/4	9	1	400	350	1 1/2	10	1	500	450
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**High Tension Pins**



1 1/2	11	1 3/8	550	500	1 3/4	12	1 3/8	1300	1100
1 1/2	12	1	600	550	1 3/4	10 1/8	1	1000	850
1 1/2	12	1 3/8	650	600	1 3/4	10 1/8	1 3/8	1100	900
1 3/4	12	1	1200	1000	1 3/4	14	1 3/8	1400	1200

**Duplex Pins**



1 1/4	11 1/2	1	500	450	1 1/2	12	1	650	600
1 1/4	12	1	550	500	...	...	...	...	...

Prices upon application.



## Wood Brackets, Pole Steps and Cobs

### Specifications

**MATERIAL.**—Sound, reasonably straight grained, Oak, free from knots, checks, sap wood, etc., except as hereinafter specified.

**SAP WOOD.**—Permitted up to 25 per cent of volume of bracket.

**CHECKS.**—Season checks not over 1/8 inch deep are permitted provided they do not appear within two inches of the thread.

**KNOTS.**—Brackets shall be free from loose or unsound knots; sound knots not exceeding 1/2 inch in diameter permitted below the shoulder, but not in lower 3-inch section of bracket.

**GRAIN.**—Grain of the wood shall be reasonably parallel to the axis of the bracket.

**WORM HOLES.**—And channels not over 1/8 inch diameter are permitted provided they do not impair the holding power of the thread, or the nail holes; and provided that they shall not appear in over 10 per cent of the brackets furnished in any shipment.

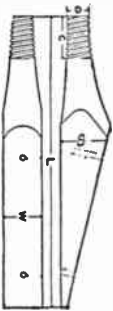
**DIMENSIONS.**—After seasoning, dimensions with allowable variations shall be as shown; Wane allowed in body of bracket not exceeding 1/4 inch; irregularities in body of bracket not to exceed 10 per cent of volume.

**THREADS.**—All brackets shall have four threads per inch; the thread shall be smooth and of uniform pitch; the thread shall taper 1/8 inch in diameter to 1 inch in length.

**MANUFACTURE.**—All workmanship shall be of best commercial grade.

**STANDARD PACKAGE.**—Nos. 1, 3, 4 and 5, 25 per bundle. Nos. 2 and 6, 20 per bundle.

It is the practice to furnish oak pins and brackets "dipped in red paint," without extra charge; this treatment is of little or no protective value, and we earnestly recommend instead, a dipping in hot Creosote Oil, at a slight additional charge; not only does this make a clean bracket, but gives a preservative value, and a lasting effect.



L = Length Bracket.....	As ordered	1/4
D = Diameter Thread.....	"	1/4
C = Length ".....	"	2 1/2
W = Width.....	As ordered	1/8
S = Height at Shoulder....	"	1/8

Allowable Variation Inches

### Brackets

Standard No.	W	DIMENSIONS			Wt. Lbs. per 1000
		S	L	D	
4	1 1/2	2	10	1	500
" " 1	1 1/2	2	12	1	600
" " 3	1 1/2	2 1/4	12	1	700
" " 5A. T.&T.	1 5/8	2	12	1	700
" " 2	2	2 1/4	12	1	800
" " 6 W.U.	2	2 3/8	12	1	850



### Pole Steps

Standard	1 1/2	2	7	..	500
"	1 1/2	2 1/4	7	..	550
Western Union	1 3/4	2 3/4	7	..	700



### Cobs

S	DIMENSIONS			Wt. Lbs. per 1000	S	DIMENSIONS			Wt. Lbs. per 1000
	L	D	D			L	D		
1 1/4	2 1/4	1	60	2 1/4	5 1/4	1 3/8	..	..	
1 3/8	4 1/2	1	..	2 1/4	6 1/2	1 3/8	..	..	
2 1/4	5 1/4	1	..	2 1/2	8	1 3/8	..	..	
2 1/4	4 1/2	1 3/8	..	2 3/4	9	1 3/8	..	..	



Prices upon application.

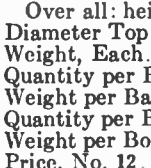
## No. 9 Hemingray Glass Pony Insulators



Over all: height, 3 3/4"; diameter, 2 1/4".

Diameter Groove.....	inches	3/8
Weight, Each.....	pounds	9/16
Quantity per Barrel.....		400
Weight per Barrel.....	pounds	258
Quantity per Box.....		250
Weight per Box.....	pounds	158
Price, No. 9.....	per 1000	\$94.70

## No. 12 Hemingray Glass Double Groove Pony Insulators



Over all: height, 3 3/8"; diameter, 2 3/8".

Diameter Top Groove.....	inches	3/8
Weight, Each.....	pounds	5/8
Quantity per Barrel.....		400
Weight per Barrel.....	pounds	285
Quantity per Box.....		250
Weight per Box.....	pounds	172
Price, No. 12.....	per 1000	\$94.60



## No. 14 Hemingray Glass Deep Groove, Double Petticoat Pony Insulators



Over all: height, 3 3/8"; diameter, 2 7/8".

Diameter Groove.....	inches	3/8
Weight, Each.....	pounds	3/4
Quantity per Barrel.....		300
Weight per Barrel.....	pounds	248
Quantity per Box.....		200
Weight per Box.....	pounds	173
Price, No. 14.....	per 1000	\$120.40

## No. 16 Hemingray Glass Long Distance Insulators



Over all: height, 4"; diameter, 2 5/8".

Diameter Groove.....	inches	3/8
Weight, Each.....	ounces	15 1/2
Quantity per Barrel.....		275
Weight per Barrel.....	pounds	296
Quantity per Box.....		175
Weight per Box.....	pounds	187
Price, No. 16.....	per 1000	\$141.00

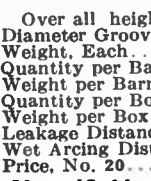
## No. 19 Hemingray Glass Deep Groove, Double Petticoat Insulators



Over all: height, 3 3/8"; diameter, 3 1/4".

Diameter Groove.....	inches	1/2
Weight, Each.....	ounces	18
Quantity per Barrel.....		200
Weight per Barrel.....	pounds	261
Quantity per Box.....		150
Weight per Box.....	pounds	186
Leakage Distance.....	inches	4 3/4
Wet Arcing Distance.....	inches	1
Price, No. 19.....	per 1000	\$168.30

## No. 20 Hemingray Glass Street Railway Insulators

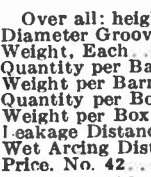


Over all height, 4 1/2"; diameter, 3 1/4".

Diameter Groove.....	inches	3/4
Weight, Each.....	ounces	18
Quantity per Barrel.....		200
Weight per Barrel.....	pounds	265
Quantity per Box.....		150
Weight per Box.....	pounds	186
Leakage Distance.....	inches	4 3/4
Wet Arcing Distance.....	inches	1
Price, No. 20.....	per 1000	\$168.30



## No. 42 Hemingray Glass Double Petticoat Insulators



Over all: height, 4 3/4"; diameter, 3 3/4".

Diameter Groove.....	inches	5/8
Weight, Each.....	ounces	24
Quantity per Barrel.....		175
Weight per Barrel.....	pounds	303
Quantity per Box.....		100
Weight per Box.....	pounds	170
Leakage Distance.....	inches	6 1/2
Wet Arcing Distance.....	inches	1 1/4
Price, No. 42.....	per 1000	\$196.00



## No. 23 Hemingray Glass Power Insulators



Height, 2 1/4"; diam., 4".

Diameter Groove.....	inches	3/4
Weight, Each.....	ounces	18
Quantity per Barrel.....		200
Weight per Barrel.....	pounds	256
Quantity per Box.....		100
Weight per Box.....	pounds	130
Leakage Distance.....	inches	5 1/4
Wet Arcing Distance.....	inches	1 1/4
Price, No. 23.....	per 1000	.....

**No. 43 Hemingray Glass Top Groove Western Union Insulators**



Over all: height, 4 1/4"; diameter, 3 5/8".  
 Diameter Groove... inches 3/16  
 Weight, Each... ounces 25  
 Quantity per Barrel... 163  
 Weight per Barrel... pounds 297  
 Quantity per Box... 120  
 Weight per Box... pounds 179  
 Price, No. 43... per 1000 \$225.00

**No. 53 Hemingray Glass One-Piece Transposition Insulators**



Over all: height, 4 1/2"; diam., 4".  
 Diameter Groove... inches 3/8  
 Weight, Each... ounces 28 1/4  
 Quantity per Barrel... 100  
 Weight per Barrel... pounds 218  
 Quantity per Box... 50  
 Weight per Box... pounds 104  
 Price, No. 53... per 1000 \$291.20

**No. 60 Hemingray Class Cable Insulators**



Over all: height, 5"; diam., 3 1/4".  
 Diameter Groove... inches 1 & 1/4  
 Weight, Each... ounces 30  
 Quantity per Barrel... 100  
 Weight per Barrel... pounds 233  
 Quantity per Box... 50  
 Weight per Box... pounds 107  
 Line Voltage... 6300  
 Price, No. 60... per 1000 \$258.70

**No. 61 Hemingray Glass Cable Insulators**

Over all: height, 3 3/4"; diam., 3 1/4".  
 Diameter Groove... inches 1  
 Weight, Each... ounces 18  
 Quantity per Barrel... 200  
 Weight per Barrel... pounds 255  
 Quantity per Box... 150  
 Weight per Box... pounds 185  
 Line Voltage... 6600  
 Price, No. 61... per 1000 \$226.40



**No. 62 Hemingray Glass Cable Insulators**

Over all: height, 4"; diam., 3 3/4".  
 Diameter Groove... inches 1 1/4  
 Weight, Each... ounces 25 1/2  
 Quantity per Barrel... 125  
 Weight per Barrel... pounds 236  
 Quantity per Box... 100  
 Weight per Box... pounds 174  
 Leakage Distance... inches 5 3/8  
 Wet Arcing Distance... inches 1 1/2  
 Line Voltage... 6600  
 Price, No. 62... per 1000 \$258.70



**No. 71 Hemingray High Voltage Glass Insulators**



Height, 3 3/4"; diam., 4 3/4".  
 Diameter Groove... inches 3/4  
 Weight, Each... ounces 32  
 Quantity per Barrel... 100  
 Weight per Barrel... lbs. 242  
 Quantity per Box... 50  
 Weight per Box... lbs. 115  
 Leakage Distance... in. 7  
 Wet Arcing Distance... in. 1 3/4  
 Price, No. 71... per 1000 \$232.90

**No. 72 Hemingray High Voltage Glass Insulators—Line Voltage 11000**

Height, 4"; diam., 4 3/4".  
 Diameter Groove... inches 1 1/4  
 Weight, Each... ounces 37  
 Quantity per Barrel... 100  
 Weight per Barrel... pounds 260  
 Quantity per Box... 50  
 Weight per Box... pounds 129  
 Leakage Distance... inches 8 3/4  
 Wet Arcing Distance... inches 1 3/4  
 Price, No. 72... per 1000 \$232.90



**No. 103 Hemingray Insulating or Break Knobs**

Old No. 3.

Height over all, 2 inches; diameter, 2 inches; groove, 5/8 inch; hole, 3/8 inch.



Cat. No.	Std. Pkg.	Wt., Lbs. per Bbl.	Price per 1000
103	500	230	\$90.70

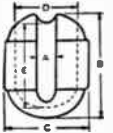
**Thomas Porcelain Guy Strain Insulators**

Dry process porcelain; brown glaze.

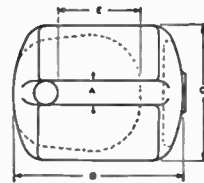
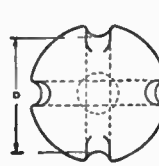


Cat. No.	361	362
Height... inches	3	4 1/16
Diameter... inches	2 5/8	3 1/4
Groove... inches	1 1/16	7/8
Mechanical Strength... pounds	19000	25000
No. in Barrel	500	182
Gross Weight per 100... pounds	78	215

Cat. No.	365	366
Height... inches	2 1/2	3 1/4
Diameter... inches	2 3/8	2 5/8
Groove... inches	1/2	5/8
Mechanical Strength... pounds	6500	15500
No. in Barrel	625	350
Gross Weight per 100... pounds	63	110



**Thomas Standard Porcelain Guy Strain Insulators**



Dry or wet process porcelain; brown glaze.

All these insulators are packed in convenient wire-bound wood boxes.

No. 500-6

**500 Series (Dry Process)**

Cat. No.	500	502	504	506
Height... inches	2 1/8	3 1/2	3 3/8	5 1/2
Diameter... inches	1 1/8	2 1/2	2 7/8	3 3/8
Groove... inches	3/8	1/2	1/2	3/4
Mechanical Strength... pounds	4030	14000	19000	45000
No. in Box	270	72	72	30
Gross Weight per 100... pounds	25	139	171	333

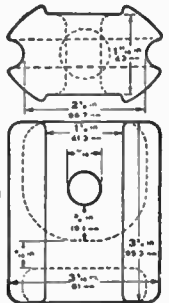
**602 Series (Wet Process)**

Cat. No.	602	604	606
Height... inches	3 1/2	3 3/8	5 1/2
Diameter... inches	2 1/2	2 5/8	3 3/8
Groove... inches	1/2	1/2	3/4
Dry Flash-Over Voltage	23000	25000	31000
Wet Flash-Over Voltage	14000	15000	20000
Mechanical Strength... pounds	11000	19000	45000
No. in Box	72	72	30
Gross Weight per 100... pounds	139	171	333

**No. 508 Thomas Porcelain Break Strain Insulators**

Dry process porcelain; brown glaze.

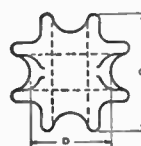
Cat. No.	508
Height... inches	3 3/4
Diameter... inches	3 3/8
Groove... inches	1 1/16
Mechanical Strength... pounds	19000
No. in Barrel	300
Gross Weight per 100... pounds	165



**Thomas Porcelain Break Strain Insulators**

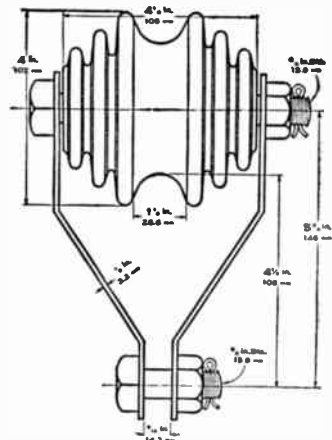
Wet process porcelain; brown glaze.

A guy strain insulator also used for dead-ending. Packed in convenient wire-bound wood boxes.



Cat. No.	510	511	512	513	514
Height... in.	3 1/2	5 3/8	6 3/4	10	7
Diam... in.	2 1/2	3 1/4	3 1/2	4 3/4	3 3/4
Groove in.	5/8	3/4	7/8	1 1/2	1
Dry Flash-Over Voltage	30000	35000	40000	55000	45000
Wet Flash-Over Voltage	15000	20000	25000	30000	25000
Mechanical Strength... pounds	10000	15000	20000	45000	20000
No. in Box	72	30	25	25	25
Gross Wt. per 100... pounds	114	300	428	1085	470

## No. 13052 Thomas Porcelain Bob Strain Insulators



Wet process porcelain; brown glaze.

The wet flash-over value given is based on the axis of the spool being in a horizontal position. If used with axis in vertical position, value will be slightly reduced due to concentrated flow of rain over the insulated surface.

All metal fittings are hot dip galvanized.

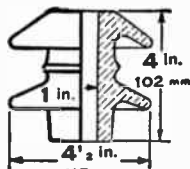
Insulator is shipped completely assembled, ready for use.

Nominal Rating	volts	6600
Dry Flash-Over Voltage		35000
Wet Flash-Over Voltage		23700
Leakage Distance	inches	4 3/8
Wet Arcing Distance	inches	2
Mechanical Strength	pounds	4000
No. in Barrel		90
Gross Weight per 100	pounds	475

## Thomas Porcelain Pin Strain Insulators

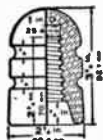
Wet process porcelain; brown glaze.

Designed for use on angle turns for moderate voltage primaries.



Cat. No.	7019	7028	7030	7031
Nominal Rating	volts	10000	6600	10000
Dry Flash-Over Voltage		55000	33000	52000
Wet Flash-Over Voltage		26000	17000	24000
Leakage Distance	inches	5	3 3/4	5 1/4
Wet Arcing Distance	inches	2 1/2	1 5/8	1 1/4
No. in Barrel		18	85	25
Gross Weight per 100	pounds	830	220	800

## Thomas Porcelain One Part Telephone Insulators



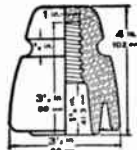
Brown glaze.		1911	*1012
Nominal Rating	volts	1200	1200
Leakage Distance	inches	2	2 3/4
Mechanical Strength	pounds	2500	2500
No. in Barrel		400	500
Gross Weight per 100 pounds		84	66

\*No. 1012 has 1 groove.

## No. 1094 Thomas Porcelain One Part Pin Type Insulators

Brown glaze.

Electrical values given are based on tests conducted in accordance with A.I.E.E. Specification No. 41.



Nominal Rating	volts	5000
Dry Flash-Over Voltage		50000
Wet Flash-Over Voltage		26000
Leakage Distance	inches	6 3/4
Wet Arcing Distance	inches	1 3/4
Mechanical Strength	pounds	5000
Minimum Pin Height Recommended	inches	5 1/4
No. in Barrel		125
Gross Weight per 100	pounds	195

## Thomas Porcelain Assembled Strain Insulators

Wet process porcelain; bronze glaze.  
A high grade type of assembled strain insulator. Used for dead-ending.

The insulator units used in these assemblies are taken from the 510 Series. The connecting links are similar in design to those used in the Thomas Link-Type Hewlett Insulator, and are made of soft copper, a material which readily shapes itself to the exact contour of the cableway under tension. Terminal fittings are steel forgings, hot dip galvanized.

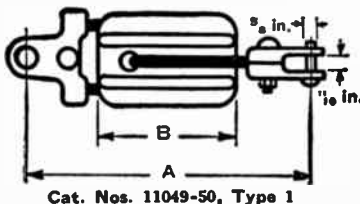
While this type of insulator is most commonly used in single unit assemblies (Type 1) there are occasions when higher potentials or severe service make multi-unit assemblies desirable. Type 2 (2 unit strings) and 3 unit assemblies (Type 3) can also be furnished.

Special assemblies using strain hooks, strain eyes or standard cable-thimble can be made up promptly.

Insulators are shipped completely assembled. The mechanical strength of any assembly is 8000 pounds. All insulators packed in convenient wire-bound wood boxes.

### Porcelain Units Used

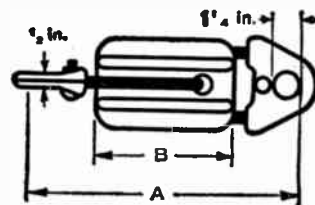
Assembly No.	Insulator No.	Assembly No.	Insulator No.	Assembly No.	Insulator No.
11049	511	11051	511	11053	511
11050	512	11052	512	11054	512



Using Clevis Top and Bottom

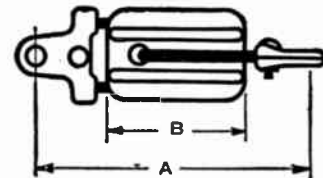
Cat. No.	Type No.	DIMENSIONS, IN.		FLASH-OVER VOLTAGE		Std. Pkg.	Gross Wt., Lbs. per 100
		A	B	Dry	Wet		
11049	1	10 1/2	5 3/8	35000	20000	50	820
11049	2	18 1/4	5 3/8	65000	38000	25	1300
11049	3	26	5 3/8	90000	56000	12	2000
11050	1	11 1/8	6 3/4	40000	22000	50	970
11050	2	21	6 3/4	75000	42000	25	1600
11050	3	30 1/8	6 3/4	105000	62000	12	2550

Using Eye Top and Bottom



Cat. Nos. 11051-2, Type 1

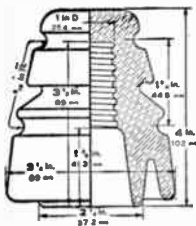
11051	1	11	5 3/8	35000	20000	50	620
11051	2	18 3/4	5 3/8	65000	38000	25	1100
11051	3	26 1/2	5 3/8	90000	56000	12	1800
11052	1	12 3/8	6 3/4	40000	22000	50	770
11052	2	21 1/2	6 3/4	75000	42000	25	1400
11052	3	30 3/8	6 3/4	105000	62000	12	2350



Using Clevis Top and Eye Bottom

Cat. Nos. 11053-54, Type 1							
11053	1	10 3/4	5 3/8	35000	20000	50	720
11053	3	26 1/4	5 3/8	90000	56000	12	1900
11054	1	12 1/8	6 3/4	40000	22000	50	870
11054	2	21 1/4	6 3/4	75000	42000	25	1500
11054	3	30 3/8	6 3/4	105000	62000	12	2450

**No. 1185 Thomas Porcelain One Part Pin Type Insulators**



Brown glaze.

Transposition type insulator also commonly used for arc-light service.

Nominal Rating..... volts	5000
Dry Flash-Over Voltage.....	*40000
Wet Flash-Over Voltage.....	*25000
Leakage Distance..... inches	5 1/4
Mechanical Strength..... pounds	2500
No. in Barrel.....	125
Gross Weight per 100..... pounds	195

\*Measured between lower groove and pin. The dry flash-over between grooves is 23000 volts; wet flash-over voltage is 13000 volts; leakage distance is 1 1/4 inches.

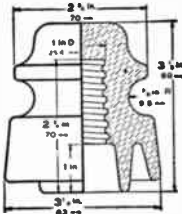
**No. 1111 Thomas Porcelain One Part Pin Type Insulators**

Brown glaze.

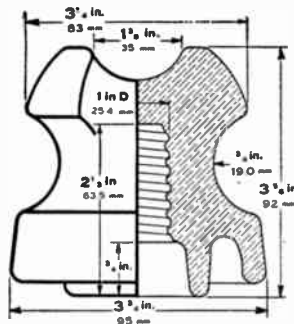
N. E. L. A. standard.

This insulator is packed in convenient wire-bound wood boxes.

Nominal Rating..... in.	5000
Dry Flash-Over Voltage.....	40000
Wet Flash-Over Voltage.....	20000
Leakage Distance..... in.	5 1/8
Wet Arcing Distance..... in.	1 5/8
Mechanical Strength..... lbs.	6000
Min. Pin Height Recommended..... in.	4 1/4
No. in Box.....	50
Gross Weight per 100..... lbs.	150



**No. 1108 Thomas Porcelain One Part Pin Type Insulators**



Brown glaze.  
Nominal Rating

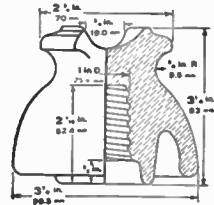
..... volts	6600
Dry Flash-Over Voltage.....	55000
Wet Flash-Over Voltage.....	30000
Leakage Distance in.	5
Wet Arcing Distance..... in.	1 5/8
Mechanical Strength..... pounds	4000
Min. Pin Height recommended..... in.	4
No. in Box.....	50
Gross Weight per 100..... pounds	172

**No. 1009 Thomas Porcelain One Part Pin Type Insulators**

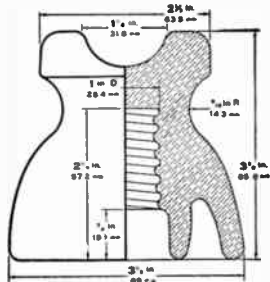
Brown glaze.

Packed in convenient wirebound wood boxes.

Nominal Rating..... volts	8000
Dry Flash-Over Voltage.....	55000
Wet Flash-Over Voltage.....	25000
Leakage Distance..... in.	6
Wet Arcing Distance..... in.	1 7/8
Mechanical Strength..... lbs.	3000
Min. Pin Height Recommended..... in.	4
No. in Box.....	50
Gross Weight per 100..... lbs.	160

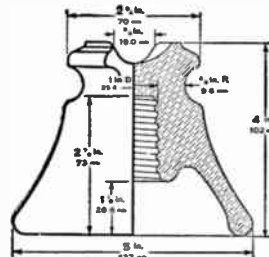


**No. 1049 Thomas Porcelain One Part Pin Type Insulators**



Brown glaze.  
Packed in convenient wire-bound wood boxes.

Nominal Rating... volts	5000
Dry Flash-Over Voltage	50000
Wet Flash-Over Voltage	23000
Leakage Distance... in.	5 1/4
Wet Arcing Distance... in.	1 3/4
Mechanical Strength..... pounds	3000
Min. Pin Height Recommended..... in.	4
No. in Box.....	50
Gross Weight per 100..... pounds	170



**No. 1164 Thomas Porcelain One Part Pin Type Insulators**

Brown glaze.

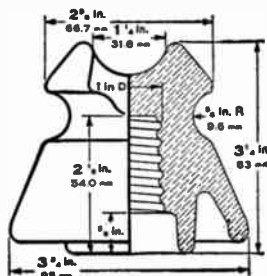
An excellent insulator with ample leakage surface, especially designed for use in salt-fog belts, around cement works, coke ovens, mills, railroads and dusty highways.

Nominal Rating..... volts	11000
Dry Flash-Over Voltage.....	57000
Wet Flash-Over Voltage.....	40000
Leakage Distance..... inches	6 1/4
Wet Arcing Distance..... inches	2 1/4
Mechanical Strength..... pounds	4000
Minimum Pin Height Recommended..... inches	5
No. per Barrel.....	100
Gross Weight per 100..... pounds	220

**No. 1010 Thomas Porcelain One Part Pin Type Insulators**

Brown glaze.  
Packed in convenient wire-bound wood boxes.

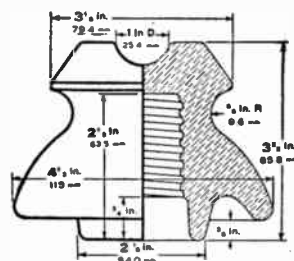
Nominal Rating..... volts	6600
Dry Flash-Over Voltage.....	55000
Wet Flash-Over Voltage.....	25000
Leakage Distance..... in.	4 3/4
Wet Arcing Distance..... in.	1 7/8
Mechanical Strength..... pounds	3000
Min. Pin Height Recommended..... in.	4
No. in Box.....	50
Gross Weight per 100..... pounds	160



**Thomas Porcelain One Part Pin Type Insulators**

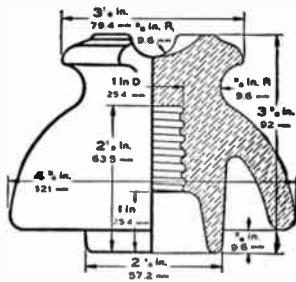
**No. 1067—1 3/8-Inch Pin Hole  
No. 1197—1-Inch Pin Hole**

Nom. Rating... volts	11000
Dry Flash-Over Volt.	58000
Wet Flash-Over Volt.	30000
Leakage Distance in.	5
Wet Arcing Distance..... in.	2 1/4
Mechanical Strength..... lbs.	4000
Min. Pin Ht. Recommended..... in.	4 1/2
No. in Barrel.....	100
Gross Weight per 100..... lbs.	225



## Thomas Porcelain One Part Pin Type Insulators

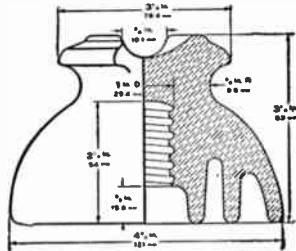
No. 1177—1-Inch Pin Hole  
No. 1196— $\frac{13}{8}$ -Inch Pin Hole



Brown glaze.	
Nominal Rating..... volts	13500
Dry Flash-Over Voltage.....	70000
Wet Flash-Over Voltage.....	42000
Leakage Distance..... inches	7 5/8
Wet Arcing Distance..... inches	2 1/4
Mechanical Strength..... pounds	3000
Minimum Pin Height Recommended..... inches	4 3/4
No. in Barrel.....	100
Gross Weight per 100..... pounds	260

## No. 1153 Thomas Porcelain One Part Pin Type Insulators

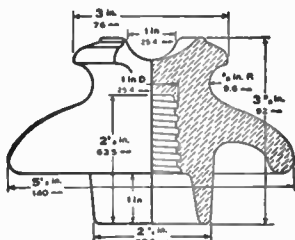
Brown glaze.  
Electrical values based on tests conducted in accordance with A.I.E.E. Specification No. 41.



Brown glaze.	
Nominal Rating..... volts	13500
Dry Flash-Over Voltage.....	68000
Wet Flash-Over Voltage.....	40000
Leakage Distance..... inches	8 3/4
Wet Arcing Distance..... inches	2 3/8
Mechanical Strength..... pounds	3000
Minimum Pin Height Recommended..... inches	4 1/2
No. in Barrel.....	100
Gross Weight per 100..... pounds	260

## Thomas Porcelain One Part Pin Type Insulators

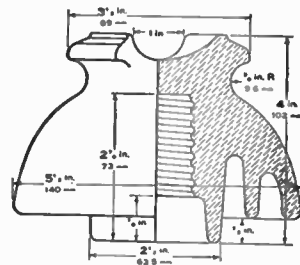
No. 1188—1-Inch Pin Hole  
No. 1190— $\frac{13}{8}$ -Inch Pin Hole



Brown glaze.	
Nominal Rating..... volts	15000
Dry Flash-Over Voltage.....	70000
Wet Flash-Over Voltage.....	45000
Leakage Distance..... inches	7
Wet Arcing Distance..... inches	3
Mechanical Strength..... pounds	4000
Minimum Pin Height Recommended..... inches	5
No. in Barrel.....	75
Gross Weight per 100..... pounds	255

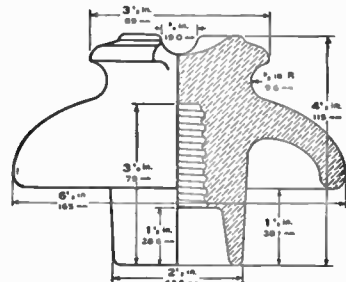
## Thomas Porcelain One Part Pin Type Insulators

No. 1151— $\frac{13}{8}$ -Inch Pin Hole  
No. 1152—1-Inch Pin Hole



Brown glaze.	
Nominal Rating..... volts	17500
Dry Flash-Over Voltage.....	75000
Wet Flash-Over Voltage.....	45000
Leakage Distance..... inches	9 1/2
Wet Arcing Distance..... inches	2 3/4
Mechanical Strength..... pounds	4000
Minimum Pin Height Recommended..... inches	5
No. in Barrel.....	65
Gross Weight per 100..... pounds	400

## Thomas Porcelain One Part Pin Type Insulators



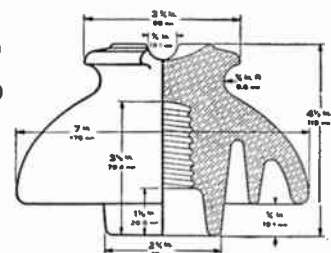
No. 1178—1-Inch Pin Hole  
No. 1179— $\frac{13}{8}$ -Inch Pin Hole

Brown glaze.	
Nominal Rating..... volts	20000
Dry Flash-Over Voltage.....	85000
Wet Flash-Over Voltage.....	50000
Leakage Distance..... inches	9
Wet Arcing Distance..... inches	3 1/2
Mechanical Strength..... pounds	4000
Minimum Pin Height Recommended..... inches	5
No. in Barrel.....	50
Gross Weight per 100..... pounds	440

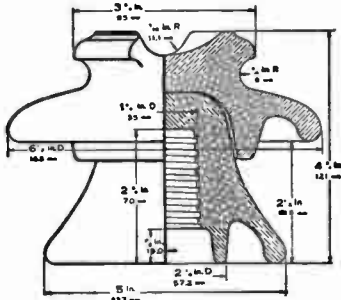
## Thomas Porcelain One Part Pin Type Insulators

No. 1157—1-Inch Pin Hole  
No. 1158— $\frac{13}{8}$ -Inch Pin Hole

Brown glaze.	
Nom. Rating..... volts	23000
Dry Flash-Over Voltage.....	88000
Wet Flash-Over Voltage.....	50000
Leakage Dis..... in.	11 3/4
Wet Arcing Dis..... in.	3 1/2
Mechanical Strength..... lbs.	4000
Min. Pin Ht..... in.	6
No. in Barrel.....	40
Gross Wt. per 100..... lbs.	590



**No. 2120 Thomas Porcelain Two Part Pin Type Insulators**

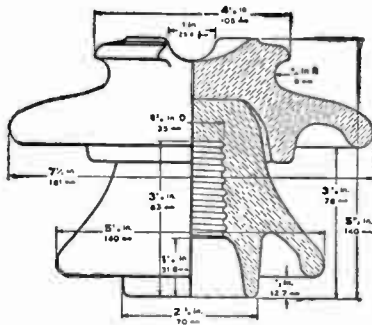


No. 2120

Brown glaze.

Nominal Rating.....	volts	23000
Dry Flash-Over Voltage.....		87000
Wet Flash-Over Voltage.....		55000
Leakage Distance.....	inches	10½
Wet Arcing Distance.....	inches	4¼
Mechanical Strength.....	pounds	3000
Minimum Pin Height Recommended.....	inches	5¼
No. in Barrel.....		35
Gross Weight per 100.....	pounds	615

**Thomas Porcelain Two Part Pin Type Insulators**



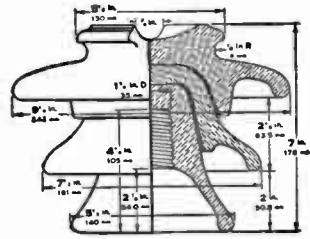
No. 2117

Brown glaze.

Cat. No.....	<b>2117</b>	<b>2125</b>	
Nominal Rating.....	volts	27000	35000
Dry Flash-Over Voltage.....		95000	115000
Wet Flash-Over Voltage.....		65000	75000
Leakage Distance.....	inches	12½	16½
Wet Arcing Distance.....	inches	5	6
Mechanical Strength.....	pounds	3000	3000
Minimum Pin Height Recommended.....	inches	5¾	7
No. in Standard Package.....		*25	†12
Gross Weight per 100.....	pounds	800	1270

\*No. 2117 packed in a barrel. †No. 2125 packed in a crate.

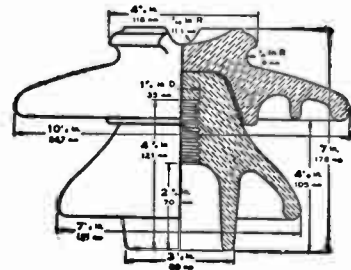
**No. 3064 Thomas Porcelain Three Part Pin Type Insulators**



Brown glaze.

Nominal Rating.....	volts	40000
Dry Flash-Over Voltage.....		130000
Wet Flash-Over Voltage.....		85000
Leakage Distance.....	inches	19¾
Wet Arcing Distance.....	inches	6½
Mechanical Strength.....	pounds	3000
Minimum Pin Height Recommended.....	inches	7½
No. in Crate.....		6
Gross Weight per 100.....	pounds	1700

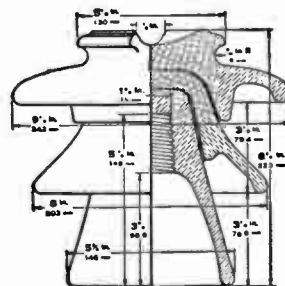
**No. 2124 Thomas Porcelain Two Part Pin Type Insulators**



Brown glaze.

Nominal Rating.....	volts	45000
Dry Flash-Over Voltage.....		140000
Wet Flash-Over Voltage.....		90000
Leakage Distance.....	inches	21¼
Wet Arcing Distance.....	inches	7
Mechanical Strength.....	pounds	3000
Minimum Pin Height Recommended.....	inches	8
No. in Crate.....		6
Gross Weight per 100.....	pounds	1800

**No. 3067 Thomas Porcelain Three Part Pin Type Insulators**



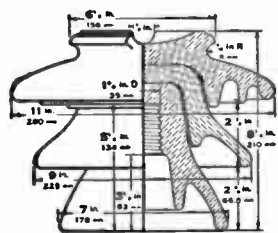
Brown glaze.

Nominal Rating.....	volts	45000
Dry Flash-Over Voltage.....		145000
Wet Flash-Over Voltage.....		95000
Leakage Distance.....	in.	22¼
Wet Arcing Distance.....	in.	7¼
Mech. Strength.....	lbs.	3000
Min. Pin Ht.....	in.	9½
No. in Crate.....		6
Gross Weight per 100.....	lbs.	1850



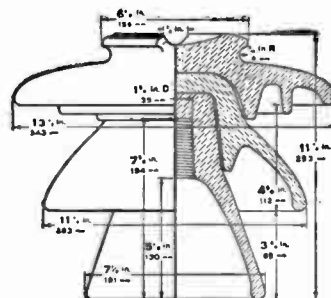
## No. 3055 Thomas Porcelain Three Part Pin Type Insulators

Brown glaze.



Nominal Rating	50000
Dry Flash-Over Volt.	150000
Wet Flash-Over Volt.	100000
Leakage Distance	25 1/4
Wet Arcing Distance	7 1/2
Mechanical Strength	3500
Minimum Pin Height Recommended	9
No. in Crate	3
Gross Weight per 100	2700

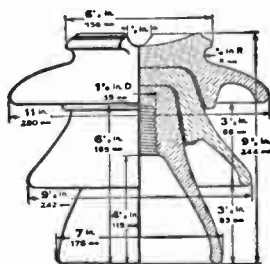
## Thomas Porcelain Three Part Pin Type Insulators



No. 3066

## No. 3066 Thomas Porcelain Three Part Pin Type Insulators

Brown glaze.

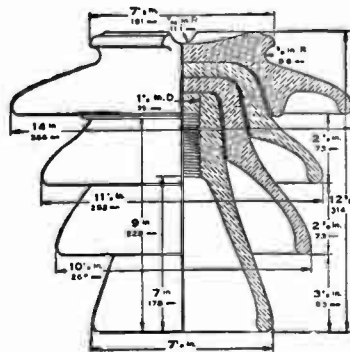


No.	3065	3060
Nominal Rating	55000	66000
Dry Flash-Over Voltage	175000	185000
Wet Flash-Over Voltage	120000	135000
Leakage Distance	30 1/4	34
Wet Arcing Distance	9 1/4	9 3/8
Mechanical Strength	3500	3500
Minimum Pin Height Recommended	12	12
No. in Crate	3	3
Gross Weight per 100	2900	3900

Brown glaze.

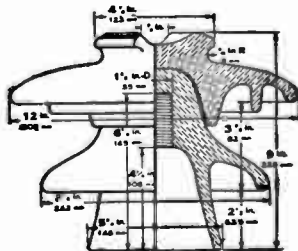
Nominal Rating	50000
Dry Flash-Over Voltage	155000
Wet Flash-Over Voltage	105000
Leakage Distance	26
Wet Arcing Distance	8
Mechanical Strength	3500
Minimum Pin Height Recommended	11
No. in Crate	3
Gross Weight per 100	2700

## Thomas Porcelain Four Part Pin Type Insulators



No. 4038

## No. 2126 Thomas Porcelain Two Part Pin Type Insulators



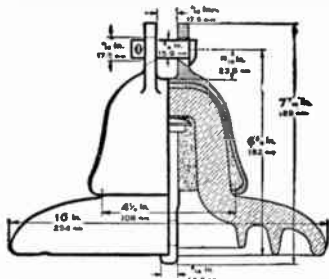
Brown glaze.

Nominal Rating	55000
Dry Flash-Over Voltage	150000
Wet Flash-Over Voltage	105000
Leakage Distance	27
Wet Arcing Distance	8 1/2
Mechanical Strength	3500
Minimum Pin Height Recommended	10
No. in Crate	3
Gross Weight per 100	3000

No.	4038	4039	4040
Nominal Rating	70000	80000	89000
Dry Flash-Over Voltage	195000	200000	210000
Wet Flash-Over Voltage	140000	150000	160000
Leakage Distance	41 1/4	47	48 1/2
Wet Arcing Distance	10	12	12 1/2
Mechanical Strength	4000	4000	4000
Minimum Pin Height Recommended	13 1/2	15	15 1/2
No. in Crate	3	2	2
Gross Weight per 100	5100	6600	7000

**Thomas Porcelain Suspension Strain Insulators**

**Nos. 1165 and 1166 Clevis Type**



No. 1165

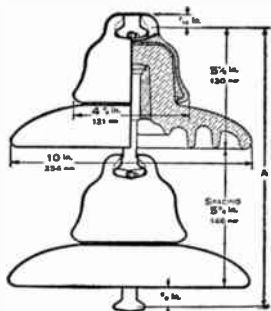
Brown glazed porcelain; hot dip galvanized hardware.

No.	1165	1166
Leakage Distance.....inches	11	13
Wet Arcing Distance.....inches	3¾	3¾
Ultimate Mechanical Strength.....pounds	18000	10000

No. Units in Length Assembled String	String Inches	FLASH-OVER K.V.		GROSS WT., LBS. PER 100	
		Dry	Wet	No. 1165	No. 1166
1	5¾	85	50	...	...
2	11½	148	90	...	58
3	17¼	204	130	51	44
4	23	255	170	66	57
5	28¾	303	210	80	69
6	34½	351	250	95	81
7	40¼	400	290	111	96
8	46	448	330	127	108

**Thomas Porcelain Suspension Strain Insulators**

**Nos. 1191 and 1192 Ball-Socket Type**



No. 1191

Brown glazed porcelain; hot dip galvanized hardware.

No.	1191	1192
Leakage Distance.....inches	13	11
Wet Arcing Distance.....inches	3⅞	3⅞
Ultimate Mechanical Strength.....pounds	10000	18000

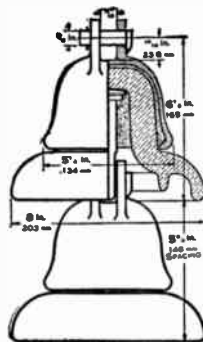
No. Units in Length Assembled String	String Inches	FLASH-OVER K.V.		GROSS WT. LBS. PER 100	
		Dry	Wet	No. 1191	No. 1192
1	5¾	85	50	...	...
2	11½	148	90	58	...
3	17¼	204	130	44	51
4	23	255	170	57	66
5	28¾	303	210	69	80
6	34½	351	250	81	95
7	40¼	400	290	96	111
8	46	448	330	108	127

**No. 1176 Thomas Porcelain Suspension Strain Insulators**

**Clevis Type**

Brown glazed porcelain; hot dip galvanized hardware.

Leakage Distance.....inches	8
Wet Arcing Distance.....inches	2¾
Ultimate Mechanical Strength.....pounds	18000



2-Unit Assembly

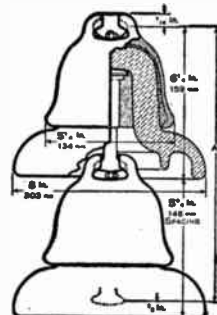
No. of Units in Length Assembled String	String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5¾	70	35	14
2	11½	120	70	36½
3	17¼	160	105	47
4	23	200	135	58½

**No. 1201 Thomas Porcelain Suspension Strain Insulators**

**Ball-Socket Type**

Brown glazed porcelain; hot dip galvanized hardware.

Leakage Distance.....inches	8
Wet Arcing Distance.....inches	2⅞
Ultimate Mechanical Strength.....pounds	18000



2-Unit Assembly

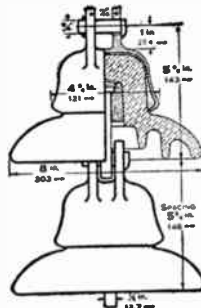
No. of Units in Length Assembled String	String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5¾	70	35	14
2	11½	120	70	36½
3	17¼	160	105	47
4	23	200	135	58½

**No. 1173 Thomas Porcelain Suspension Strain Insulators**

**Clevis Type**

Brown glazed porcelain; hot dip galvanized hardware.

Leakage Distance.....inches	9½
Wet Arcing Distance.....inches	2¾
Ultimate Mechanical Strength.....pounds	10000

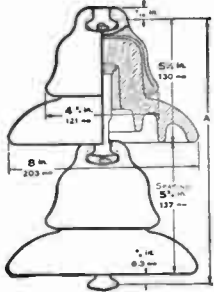


2-Unit Assembly

No. of Units in Length Assembled String	String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5¾	75	45	12½
2	11½	125	75	33
3	17¼	170	115	44
4	23	210	150	55

**No. 1194 Thomas Porcelain Suspension Strain Insulators**

**Ball-Socket Type**

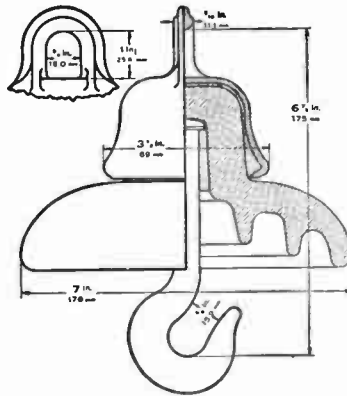


2-Unit Assembly

Brown glazed porcelain; hot dip galvanized hardware.  
 Leakage Distance..... inches 9½  
 Wet Arcing Distance..... inches 27/8  
 Ultimate Mechanical Strength..... pounds 10000

No. of Units in String Assembled	Length String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5 3/8	75	45	12 1/2
2	10 3/4	125	75	33
3	16 1/8	170	115	44
4	21 1/2	210	150	55

**Thomas Porcelain Suspension Strain Insulators Hook Type**



No. 1174

Brown glazed porcelain; hot dip galvanized hardware.

**No. 1174**

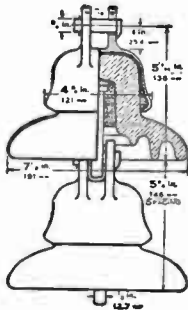
Leakage Distance..... inches 8½  
 Wet Arcing Distance..... inches 23/8  
 Ultimate Mechanical Strength..... pounds 4000  
 Gross Weight..... pounds 7

No. of Units in Assembled String	Length String In.	Flash-Over K.V.		Gross Weight Lbs.
		Dry	Wet	
1	6 7/8	70	35	35
2	13 3/4	120	70	70
3	20 5/8	165	105	105
4	27 1/2	200	140	140

**No. 1199 Thomas Porcelain Suspension Strain Insulators**

**Clevis Type**

Brown glazed porcelain; hot dip galvanized hardware.  
 Leakage Distance..... inches 8¼  
 Wet Arcing Distance..... inches 2½  
 Ultimate Mechanical Strength..... pounds 10000



2-Unit Assembly

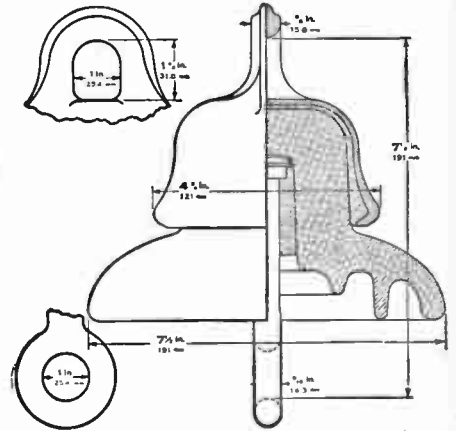
No. of Units in Assembled String	Length String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5 3/4	70	40	12
2	11 1/2	120	70	32
3	17 1/4	165	110	41
4	23	205	140	50

**No. 1203**

Leakage Distance..... inches 8¼  
 Wet Arcing Distance..... inches 2¼  
 Ultimate Mechanical Strength..... pounds 10000  
 No. of Units in Assembled String..... 1 2 3 4  
 Length String..... inches 7¼ 14½ 21¾ 29  
 Dry Flash-Over..... k.v. 65 110 150 190  
 Wet Flash-Over..... k.v. 35 65 95 125  
 Gross Weight..... pounds 15 35 48 60

**Thomas Porcelain Suspension Strain Insulators Eye Type**

Brown glazed porcelain; hot dip galvanized hardware.

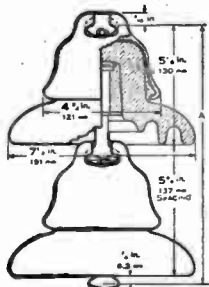


No. 1202

No.	1202	1186
Leakage Distance..... inches	8¼	4¼
Wet Arcing Distance..... inches	2¾	1¼
Ultimate Mechanical Strength..... pounds	10000	4000
Dry Flash-Over..... volts	70000	.....
Wet Flash-Over..... volts	35000	.....
Gross Weight..... pounds	11¾	3¾

**No. 1195 Thomas Porcelain Suspension Strain Insulators**

**Ball-Socket Type**



2-Unit Assembly

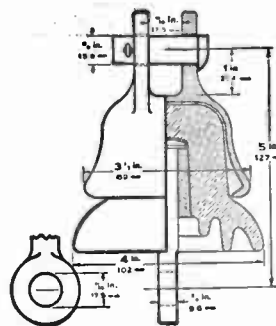
Brown glazed porcelain; hot dip galvanized hardware.  
 Leakage Distance..... inches 8¼  
 Wet Arcing Distance..... inches 25/8  
 Ultimate Mechanical Strength..... pounds 10000

No. of Units in String Assembled	Length String In.	FLASH-OVER K. V.		Gross Wt. Lbs.
		Dry	Wet	
1	5 3/8	70	40	12
2	10 3/4	120	70	32
3	16 1/8	165	110	41
4	21 1/2	205	140	50

**No. 1193 Thomas Porcelain Suspension Strain Insulators**

**Clevis Type**

Leakage Distance..... inches 4¼  
 Wet Arcing Distance..... inches 1¼  
 Ultimate Mechanical Strength..... pounds 4000  
 Gross Weight..... pounds 3¾



**No. 11069 Thomas Link-Type Hewlett Insulators**

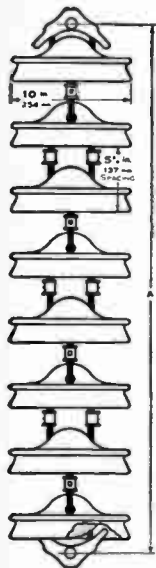
**10-Inch Standard Units**

This assembly includes forged-steel blind adapters (No. 5688) hot dip galvanized at top and bottom terminals. The connecting links (No. 5657) are of soft-drawn copper; the connecting couplers (No. 5656) are cast bronze and are equipped with phosphor bronze spring clips (No. 5613).

Standard brown glazed porcelain units assembled on 5 $\frac{3}{8}$ -inch spacing.

Any desired number of units can be assembled in a string.

Terminal Fittings such as hooks, eyes, clevis, etc., can be found listed elsewhere in this section.



No. of Units in Assembled String	Dimension "A" Inches	FLASH-OVER, K.V.		Gross Weight Pounds
		Dry	Wet	
1	5 $\frac{7}{8}$	75	45	19 $\frac{1}{2}$
2	11 $\frac{1}{4}$	145	90	32 $\frac{1}{2}$
3	16 $\frac{5}{8}$	205	135	50
4	22	250	170	65
5	27 $\frac{3}{8}$	300	205	80
6	32 $\frac{3}{4}$	350	240	95
7	38 $\frac{1}{8}$	390	275	110
8	43 $\frac{1}{2}$	430	310	125

**No. 11070 Thomas Link-Type Hewlett Insulators**

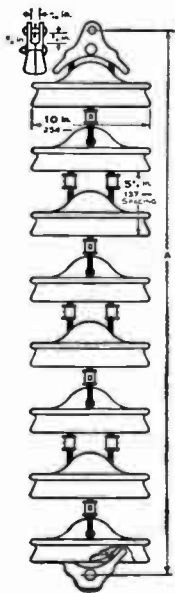
**10-Inch Standard Units**

This assembly includes forged-steel clevis adapter (No. 5681) at top of string and a forged-steel blind adapter (No. 5668) at bottom terminal. The connecting links (No. 5657) are of soft-drawn copper; the connecting couplers (No. 5656) are cast bronze and are equipped with phosphor bronze spring clips (No. 5613).

Standard brown glazed porcelain units assembled on 5 $\frac{3}{8}$ -inch spacing.

Any desired number of units can be assembled in a string.

Terminal Fittings such as hooks, eyes, clevis, etc., can be found listed elsewhere in this section.



No. of Units in Assembled String	Dimension "A" Inches	FLASH-OVER, K.V.		Gross Weight Pounds
		Dry	Wet	
1	7 $\frac{1}{2}$	75	45	19 $\frac{1}{2}$
2	12 $\frac{7}{8}$	145	90	32 $\frac{1}{2}$
3	18 $\frac{1}{4}$	205	135	50
4	23 $\frac{3}{8}$	250	170	65
5	29	300	205	80
6	34 $\frac{3}{8}$	350	240	95
7	39 $\frac{3}{4}$	390	275	110
8	45 $\frac{1}{8}$	430	310	125

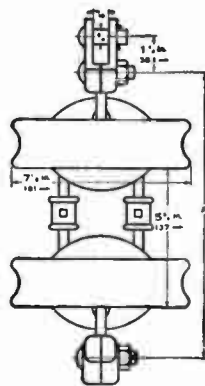
**Thomas Porcelain Link-Type Hewlett Insulators**

**7 $\frac{1}{2}$ -Inch Unit**

Brown glazed porcelain; hot dip galvanized hardware.

**No. 11073**

This assembly provides a blind adapter at both terminal ends into which may be inserted any of several styles of terminal fittings, i.e., hook, eye, thimble, etc.



No. 11074

No. of Units in Assembled String	Dimension Inches	FLASH-OVER, K.V.		Gross Weight Pounds
		Dry	Wet	
1	5 $\frac{3}{4}$	75	45	13 $\frac{1}{4}$
2	11 $\frac{1}{8}$	130	90	26 $\frac{3}{4}$
3	16 $\frac{1}{2}$	185	135	38 $\frac{1}{2}$
4	21 $\frac{3}{8}$	235	170	47 $\frac{1}{2}$

**No. 11074**

Assembly provides a clevis at one terminal end and at the other a blind adapter into which may be inserted any of several styles of terminal fittings, i.e., hook, eye, thimble, etc.

No. of Units in Assembled String	Dimension "A" Inches	FLASH-OVER, K.V.		Gross Weight Pounds
		Dry	Wet	
1	7 $\frac{1}{4}$	75	45	13 $\frac{1}{4}$
2	12 $\frac{5}{8}$	130	90	26 $\frac{3}{4}$
3	18	185	135	38 $\frac{1}{2}$
4	23 $\frac{3}{8}$	235	170	47 $\frac{1}{2}$

**No. 11075**

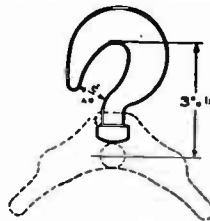
This assembly provides a clevis at both terminal ends.

No. of Units in Assembled String	Dimension "A" Inches	FLASH-OVER, K.V.		Gross Weight Pounds
		Dry	Wet	
1	8 $\frac{3}{4}$	75	45	13 $\frac{1}{4}$
2	14 $\frac{1}{8}$	130	90	26 $\frac{3}{4}$
3	19 $\frac{1}{2}$	185	135	38 $\frac{1}{2}$
4	24 $\frac{3}{8}$	235	170	47 $\frac{1}{2}$

**Thomas Suspension Insulator Fittings and Accessories**  
For Link-Type Hewlett Insulators

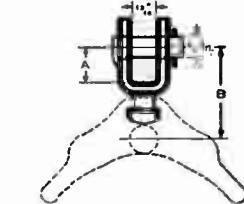
**No. 5448 Hooks**

**No. 5449 Eyes**

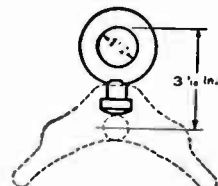


A drop-forged steel fitting. Ultimate mechanical strength, 15000 pounds. Weight, .875 pounds.

**No. 5686 Clevises**

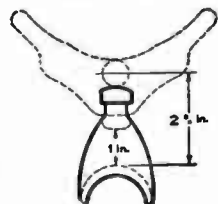


A drop-forged steel fitting. Ultimate mechanical strength, 15000 pounds. Dimension A, 1 $\frac{1}{8}$  inches; B, 2 $\frac{3}{4}$  inches. Weight, .875 pounds.



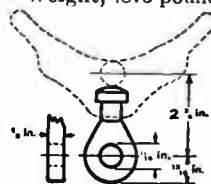
A drop-forged steel fitting. Ultimate mechanical strength, 15000 pounds. Weight, .625 pounds.

**No. 5655 Thimbles**



A one-piece dead-ending device having much the same utility as a common wire-rope thimble. Ultimate mechanical strength, 15000 pounds. Weight, 1 $\frac{1}{8}$  pounds.

**No. 5552 Standard Connectors**



A drop-forged steel fitting. Ultimate mechanical strength, 15000 pounds. Weight, .375 pounds.

## Thomas Porcelain Baby Link-Type Hewlett Insulators 6-Inch Units

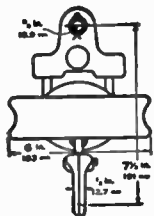
Brown glazed porcelain; hot dip galvanized terminals.  
Ultimate mechanical strength, 6000 pounds.

Can be furnished in multi-unit strings using bronze couplers for intermediate connections, if desired.

Electrical values given here are based on tests conducted in accordance with A. I. E. E. Specification No. 41.

### No. 11026

This assembly provides a large eye at both terminal ends.



No. 11031

No. of Units in String	Length of String Inches	FLASH OVER K. V.		Gross Weight Lbs.
		Dry	Wet	
1	7 <sup>3</sup> / <sub>16</sub>	70	40	7 <sup>1</sup> / <sub>2</sub>
2	12 <sup>3</sup> / <sub>16</sub>	120	75	13 <sup>1</sup> / <sub>4</sub>
3	16 <sup>3</sup> / <sub>16</sub>	165	105	21
4	20 <sup>15</sup> / <sub>16</sub>	195	130	29

### No. 11031

This assembly provides a large eye at one end and a clevis at the other terminal.

No. of Units in String	1	2	3	4
Length of String.....inches	7 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>8</sub>	16 <sup>1</sup> / <sub>4</sub>	20 <sup>5</sup> / <sub>8</sub>
Dry Flash-Over.....k. v.	70	120	165	195
Wet Flash-Over.....k. v.	40	75	105	130
Gross Weight.....pounds	7 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	21	29

### No. 11032

No. 11032 assembly provides a clevis at both terminal ends.

No. of Units in String	1	2	3	4
Length of String.....inches	7 <sup>3</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>16</sub>	15 <sup>15</sup> / <sub>16</sub>	20 <sup>5</sup> / <sub>16</sub>
Dry Flash-Over.....k. v.	70	120	165	195
Wet Flash-Over.....k. v.	40	75	105	130
Gross Weight.....pounds	7 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	21	29

### No. 11062

No. 11062 assembly provides a blind adapter at both terminal ends, into which may be inserted any of several styles of terminal fittings, i.e., hook, eye, thimble, etc.

No. of Units in String	1	2	3	4
Length of String.....inches	4 <sup>7</sup> / <sub>16</sub>	8 <sup>13</sup> / <sub>16</sub>	13 <sup>3</sup> / <sub>16</sub>	17 <sup>11</sup> / <sub>16</sub>
Dry Flash-Over.....k. v.	70	120	165	195
Wet Flash-Over.....k. v.	40	75	105	130
Gross Weight.....pounds	7 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	21	29

### No. 11063

This assembly provides a large eye at one terminal end and at the other a blind adapter into which may be inserted any of several styles of terminal fittings, i.e., hook, eye, thimble, etc.

No. of Units in String	1	2	3	4
Length of String.....inches	6 <sup>3</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>16</sub>	14 <sup>15</sup> / <sub>16</sub>	19 <sup>5</sup> / <sub>16</sub>
Dry Flash-Over.....k. v.	70	120	165	195
Wet Flash-Over.....k. v.	40	75	105	130
Gross Weight.....pounds	7 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	21	29

### No. 11064

This assembly provides a clevis at one terminal end and at the other a blind adapter into which may be inserted any of several styles of terminal fittings, i.e., hook, eye, thimble, etc.

No. of Units in String	1	2	3	4
Length of String.....inches	5 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>4</sub>	14 <sup>5</sup> / <sub>8</sub>	19
Dry Flash-Over.....k. v.	70	120	165	195
Wet Flash-Over.....k. v.	40	75	105	130
Gross Weight.....pounds	7 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>4</sub>	21	29

## Type A Memco Clark Insulator Clamps



Replacing Tie Wires for Clamping Insulators to Conductors

The clamping jaws are bolted together with tie pieces of heavy solid copper with

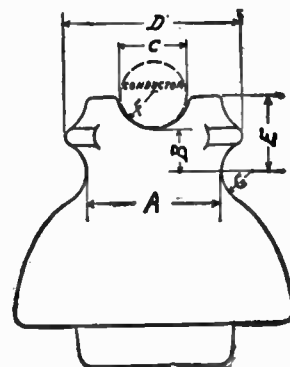
button heads engaging holes in the clamps. Once the conductor is gripped by the clamping jaws, it serves as a part of the clamp itself.

When ordering, the following information should be supplied:

- 1.—Name and number of insulator, or fill in dimensions on sketch.
- 2.—Solid or stranded wire used.
- 3.—Conductor, bare or insulated.
- 4.—Exact outside diameter of conductor.

These clamps are supplied of either special high tensile strength compositions, or of malleable iron protected by a heavy coating of zinc and with steel bolts and nuts sherardized. Malleable iron clamps cannot be supplied in lots of less than 100.

Prices upon application.



## Type C Memco Clark Insulator Clamps



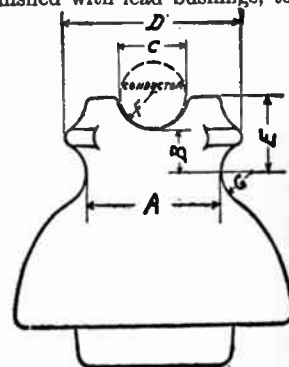
Especially Adapted for Small Heavy Insulators at Railroad Crossings

There are suitable bushings of soft copper or aluminum provided, depending upon the conductor. It also provides when furnished with lead bushings, to amply protect the insulator, an excellent means of holding insulated conductors in place.

Type C clamp provides rigid construction and is recommended for use on lines strung under considerable tension, such as steel messenger lines, etc.

The clamp is also used with small insulators on the transmission line and also proves serviceable in the power house for attaching bus bars to insulators.

Prices upon application.



**No. 600 Peirce Lineman's Safety Platforms**



Connecting larger transformers, making up cable joints, replacing and washing hi-line insulators, and soldering joints are a few of the many uses to which this platform can be put.

The frame is of high grade steel throughout, forged to shape. Platform is made from a specially cured aeroplane spruce. The chain is 5 feet long, of high grade tested steel.  
Width, 9 3/8 inches; length, 71 inches.  
Shipping weight, 44 pounds each.

Price, No. 600.....each \$50.00

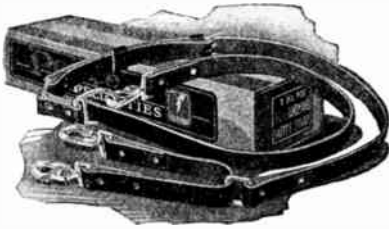
**Peirce Lineman's Safety Straps**

For Use with Lineman's Safety Platform

The length of the leather strap is 6 feet minimum; it can be adjusted to 15 inches. First quality harness leather throughout, sewed with strong linen thread.

A strap made of heavy duty fabric is also furnished; it is not adjustable in length; much heavier and less flexible, but stronger than leather.

Snaps and buckles are steel drop forgings. Straps are reinforced at buckle ends with safety copper clips.  
Price, No. 610, Leather Strap, Wt., 6 1/2 Lbs....each \$21.00  
Price, No. 611, Fabric Strap, Wt. 7 Lbs.....each 30.00



**Hubbard Copperweld Ground Rods**



Briefly, the advantages derived from the use of Copperweld Ground Rods are:

Smaller diameter, less earth displaced, easier to drive—a 4-pound hammer, with light blows, will drive the rod.

Long life, protection from rusting, welded copper.

Little time and field labor are required for installing Copperweld Rods and attaching the grounding wire. This saving will more than offset the difference in storeroom prices.

These ground rods are listed as standard by the Underwriter's Laboratories.

Cat. No.	Diameter Inches	Length Feet	Ship. Wt., Lbs. per 100	Cat. No.	Diameter Inches	Length Feet	Ship. Wt., Lbs. per 100
9415	3/8	5	200	9447	3/4	7	1090
9416	3/8	6	240	9448	3/4	8	1250
9425	1/2	5	350	9449	3/4	9	1400
9426	1/2	6	420	9450	3/4	10	1550
9427	1/2	7	490	9452	3/4	12	1850
9428	1/2	8	560	9465	1	5	1400
9430	1/2	10	700	9466	1	6	1690
9435	5/8	5	540	9467	1	7	1960
9436	5/8	6	650	9468	1	8	2250
9437	5/8	7	760	9469	1	9	2530
9438	5/8	8	870	9470	1	10	2810
9439	5/8	9	980	9472	1	12	3370
9440	5/8	10	1090	9474	1	15	4200
9445	3/4	5	770	9479	1	20	5600
9446	3/4	6	940	....	...	..	....

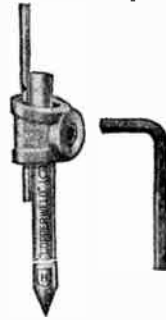
Prices upon application.

**Hubbard Mechanical Ground Rod Clamps**

For attaching either solid or stranded grounding wires to ground rods, galvanized pipe, or sub-station switching arms.

The clamps are made of high grade, corrosion-resisting, non-ferrous metal.

Five safety screw wrenches are furnished with every 100 clamps.



Cat. No.	Size Rod Inches	Size of Wire	Ship. Wt., Lbs. per 100
9490	3/8	4-17 B&S Solid	25
9491	1/2	4-14 B&S Solid	30
9492	5/8	3/8" Strand to	55
9493	3/4	8 B&S Solid	75
9495	1	4/0 Strand to	90
9496	*1 1/4	4 B&S Solid	120

\*I.D. pipe.

Prices upon application.

**Peirce Ground Rod Moulds**

Peirce Ground Rod Moulds are used for making cast solder connections on ground rods. Both solid and stranded grounding wires can be attached to the ground rod by this method.

The moulds are drawn from sheet brass and are tinned for easy soldering. The collar fits snugly to the ground rod and prevents solder leakage.



Cat. No.	DIAM., INCHES Ground Rod	Top of Mould	Ship. Wt., Lbs. per 100	Cat. No.	DIAM., INCHES Ground Rod	Top of Mould	Ship. Wt., Lbs. per 100
9480	3/8	1 5/16	2.75	9483	3/4	1 5/16	3.50
9481	1/2	1 1/16	3.00	9485	1	1 1/16	3.75
9482	5/8	1 3/16	3.25	....	...	...	....

Prices upon application.

**Hubbard Copperweld Staples**



The larger size are used for attaching ground wire moulding to the pole and the smaller sizes for attaching the insulated or bare grounding wires to the pole.

Nos. 7521 and 7522 are designed to be used with standard N.E.L.A. 1-inch moulding.

**Rolled Point Staples**

Cat. No.	Ht. In.	Width Inside In.	Thick. Wire In.	Ship. Wt., Lbs. per 100	Cat. No.	Ht. In.	Width Inside In.	Thick. Wire In.	Ship. Wt., Lbs. per 100
7493	1 1/4	1/4	.114	1	7496	2	1/2	.162	2 1/4
7494	1 1/2	3/16	.144	1 1/2	7521	2	1 1/16	3/16	3 1/2
7495	1 3/4	3/8	.144	1 3/4	7522	3	1 1/16	1/4	9

**Cut Point (Fence) Staples**

7651	1 3/8	1/2	.162	1 3/4	7653	2	1/4	.162	2 1/4
7652	1 1/2	3/8	.162	2	7654	1 1/4	3/16	.114	3/4

Prices upon application.

**Hubbard Drive Caps and Points**

**Hot Galvanized**

Standard unthreaded, pipe or conduit can be easily converted into an effective ground by the use of Hubbard Drive Caps and Points.

Made of malleable iron and galvanized with pure zinc by the hot-dip process.



Hubbard Burger Drive Caps

I.D. Pipe In.	Cat. No.	Std. Wt., Lbs. Pkg. per 100	Ship. Price per 100
3/4	9540	50 90	\$77.70
1	9541	50 196	82.20
1 1/4	9542	50 302	111.00

**Peirce Drive Points**

Cat. No.	Std. Wt., Lbs. Pkg. per 100	Ship. Price per 100
9550	50 38	\$40.40
9551	50 83	41.80
9552	50 129	49.10



Point



## Hubbard Ground Pipe

Hot Galvanized



An efficient form of driven ground. It has four times as great an area in contact with the soil as a solid rod of equal weight. Connection with the grounding wire or strand is made by filling the upper end of the pipe with molten solder after driving, and then inserting the grounding wire. Pipe is made of the best grade of steel pipe, forged to a long, sharp point, and then thoroughly hot-dip galvanized, inside and out, after which a plug is inserted to a depth of 6 inches

Cat. No.	Nominal Size Pipe Inches	Actual O.D. Inches	Length Feet	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
9500	3/4	1.050	8	5	880	\$271.65
9502	2 1/2	2.875	6	2	3475	715.00

## Hubbard Ground Rods

Without Copper Wire—Hot Galvanized



Made of stiff, high carbon open hearth steel, with long sharp points. Unwired rods are provided with holes through the upper ends for attaching grounding wires. These holes are located one inch from end of rods.

Cat. No.	Diam. Inches	Length Feet	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9555	3/8	5	25	185	\$30.73
9556	3/8	6	25	223	35.70
9565	1/2	5	20	300	48.18
9566	1/2	6	20	360	56.45
9567	1/2	7	20	420	64.72
9576	5/8	6	10	600	82.90
9577	5/8	7	10	700	95.44
9578	5/8	8	10	800	107.98
9598	1	8	3	2133	275.00

With Cooper Wire—Hot Galvanized



No. 12 wire soldered to rod; free end, 5 inches long.

Cat. No.	Diam. Inches	Length Feet	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9505	1/2	5	25	320	\$64.28
9506	1/2	6	20	395	72.52
9516	5/8	6	10	595	101.20
9538	1	8	3	2133	314.85

## No. 2400 Peirce Terminals for Grounding Wires

Tinned Copper



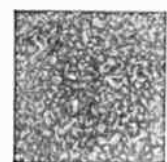
The wire used for connecting the overhead ground wire to the earth is soldered to the tinned copper terminal which is slipped under the head or nut of the bolt fastening the lower end of the ground wire bayonet to the pole. This insures a good contact at a low cost of material and labor.

Size, 2x2 inches x 22 gauge. Diameter hole, 1 1/16 inch. Standard package, 100.

Approximate shipping weight, per 100 pieces, 4 pounds. Price, No. 2400 Terminals.....per 100 \$14.20

## No. 9546 Hubbard Ground Plates

With Terminal—Hot Galvanized



Made of galvanized 20-gauge sheet steel, 12 inches square. Can be attached to butt of a pole before erection, or dropped in the hole before earth is filled in. Standard package, 10. Shipping weight per 100, 170 pounds.

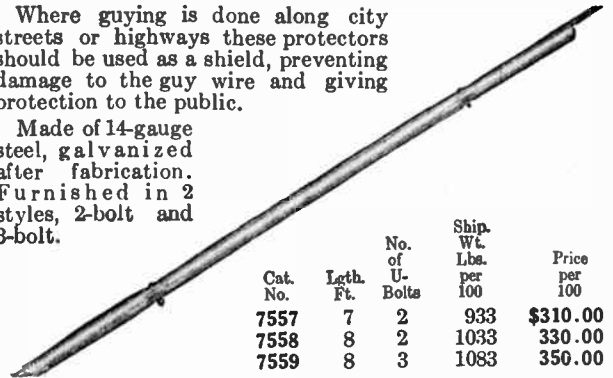
Price, No. 9546.....per 100 \$75.00

## Hubbard Guy Wire Protectors

Hot Galvanized

Where guying is done along city streets or highways these protectors should be used as a shield, preventing damage to the guy wire and giving protection to the public.

Made of 14-gauge steel, galvanized after fabrication. Furnished in 2 styles, 2-bolt and 3-bolt.

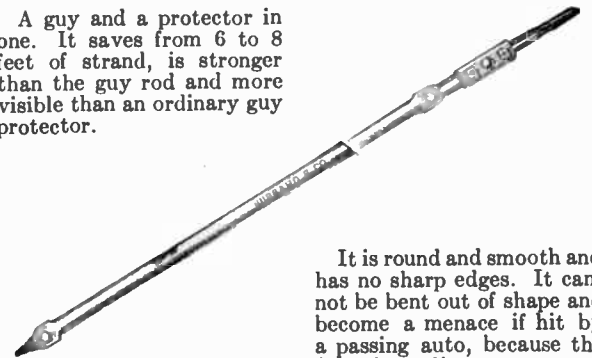


Cat. No.	Length Ft.	No. of U-Bolts	Ship. Wt. Lbs. per 100	Price per 100
7557	7	2	933	\$310.00
7558	8	2	1033	330.00
7559	8	3	1083	350.00

## Hubbard Guy-Guards

Hot Galvanized

A guy and a protector in one. It saves from 6 to 8 feet of strand, is stronger than the guy rod and more visible than an ordinary guy protector.



It is round and smooth and has no sharp edges. It cannot be bent out of shape and become a menace if hit by a passing auto, because the guy strain immediately pulls it back into alignment.

Furnished in 6-foot lengths for guys that make an angle of 30° or less with the pole, and in 8-foot lengths for guys that make an angle of greater than 30° with the pole.

Cat. No.	Anchor Rod Inches	Size Steel Gauge	Length Feet	Outside Diam. Inches	Std. Pkg.	Ship. Wt. Lbs. per 100	Price per 100
7566	1/2-5/8-3/4	12	6	2	2	1500	\$300.00
7567	7/8-1	9	6	2 1/2	2	2400	500.00
7568	1/2-5/8-3/4	12	8	2	2	2000	400.00
7569	7/8-1	9	8	2 1/4	2	3200	650.00

## No. 7546 Hubbard Rock Guy Bolts

Hot Galvanized

Used where solid rock extends to surface or in stone or concrete walls. Of 1" round steel, 18" long, with drop forged eye (1 1/2 x 2" inside). Std. pkg., 25. Ship. wt., 600 lbs. per 100. Price, No. 7546.....per 100 \$95.00



## No. 7547 Hubbard Rock Guy Bolts

With Wedge—Hot Galvanized

Has wedge and split end which spreads bolt as wedge is driven against bottom of hole. Of 1-inch round steel, 18" long. Std. pkg., 25. Ship. wt., 600 pounds per 100. Price, No. 7547.....per 100 \$104.00



## No. 7545 Hubbard Rock Guy Anchors

Hot Galvanized

Consists of 2 drop forged tapered sides 9 1/2 inches long, a wedge and a 3/4 x 2 1/2-inch machine bolt. Standard package, 50. Shipping weight per 100, 496 pounds. Price, No. 7545.....per 100 \$116.00



**Hubbard Hub Guards**

Hot Galvanized

Used on corner poles to protect them from the hubs of vehicles.

Standard package, 1.



Cat. No.	Dimensions Inches	Weight Pounds per 100	Price per 100
7100	14x18x1/8	700	\$180.00
7101	16x18x1/8	950	189.88
7102	14x30x3/16	2100	518.00
7103	16x30x3/16	2550	526.25

**Hubbard Anchor Rods**

Hot Galvanized

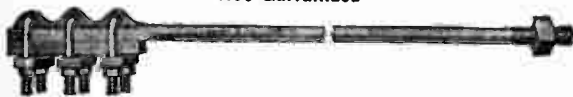


The eyes are drop-forged. Rods, 3/4-inch diameter and under, have 3 1/2 inches of rolled threads. The 1 and 1 1/4-inch rods have 3 1/2 inches of cut threads. Rods with two eyes furnished if desired for special construction. All prices include square nut, but no washers.

Cat. No.	Diameter Inches	Length Feet	SIZE EYE, INCHES	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7405	1/2	5	3/4	1	20	325
7406	1/2	6	3/4	1	10	402
7407	1/2	7	3/4	1	10	468
7415	5/8	5	1 1/2	2	10	540
7416	5/8	6	1 1/2	2	10	640
7417	5/8	7	1 1/2	2	10	740
7418	5/8	8	1 1/2	2	10	840
7426	3/4	6	1 1/2	2	10	910
7427	3/4	7	1 1/2	2	5	1060
7428	3/4	8	1 1/2	2	5	1210
7429	3/4	9	1 1/2	2	5	1360
7430	3/4	10	1 1/2	2	5	1510
7438	1	8	1 1/2	2	3	2166
7440	1	10	1 1/2	2	3	2700
7442	1	12	1 1/2	2	3	3290
7444	1 1/4	10	1 1/4	2 1/4	2	4400

**Hubbard Clamp Type Anchor Rods**

Hot Galvanized



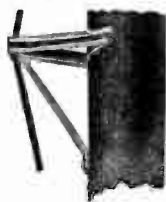
Where stiff high strength guy wire is used it is not only a difficult job, but a costly one to make up and clamp the strand to the regular guy rod and wire rope thimble. With the clamp type anchor rod it is now possible to secure a stiff guy wire in less than one quarter of the time. The upper U-bolt is removed and hook of block inserted in bolt hole giving a direct pull on guy wire. Clamp is so designed that the greater the strain, the tighter the grip. Used with 1/2 to 5/8-inch strand.

Cat. No.	Diam. In.	Length Rod, Ft.	Price per 100	Cat. No.	Diam. In.	Length Rod, Ft.	Price per 100
7468	1	8	\$500.00	7472	1	12	\$700.00
7470	1	10	600.00				

**Peirce Pole Struts**

Hot Galvanized

Made of heavy steel channels, with a broad bearing against the pole, from which it extends 11 inches.



Cat. No.	DIMENSIONS, IN		Wt., Lbs. Each	Price per 100
	Strut Channel	Brace Channel		
1500	2x5/8	1x1/2	8 1/2	\$350.00

**Hubbard Steelwing Anchors**

Hot Galvanized

With the Steelwing Anchor, no adjustments must be made under ground. It has a large bearing surface against undisturbed earth so that it will not creep.

This anchor is easily installed. It can be set without a wrench. Goes in more easily and disturbs the earth less.

Nos. 7526 and 7528 have 1 1/2x2-inch eye; Nos. 7530 and 7550, 1 3/4x2 1/4-inch eye.



Cat. No.	Diameter Wing Inches	Overall Length Rod Feet	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7526	6	3/4	10	1040	\$333.00
7528	8	1	10	1860	610.60
7530	10	1 1/4	10	2900	854.80
7550	10	1 1/4	5	3690	932.50

**Hubbard Gould Clamp Anchor Rods**

Hot Galvanized



Combines an anchor rod, guy clamp and guy thimble all in one. The clamp body and snubbing post are drop forged and will develop the full strength of the rod. The sheave on the snubbing post prevents abrasion of the galvanizing on the strand when the strand is pulled up under strain. A considerable saving in installing time is effected.

Length of anchor rod as shown is from the center of the sheave to the end of the rod.

Cat. No.	Diam. Rod Inches	Length Rod Feet	Length Clamp Inches	Size of Strand Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
6415	5/8	5	6	5/16 to 5/8	5	766	\$185.00
6416	5/8	6	6	5/16 to 5/8	5	866	200.00
6417	5/8	7	6	5/16 to 5/8	5	966	215.00
6418	5/8	8	6	5/16 to 5/8	5	1066	230.00
6426	3/4	6	6	5/16 to 5/8	3	1136	240.00
6427	3/4	7	6	5/16 to 5/8	3	1286	260.00
6428	3/4	8	6	5/16 to 5/8	3	1436	280.00
6429	3/4	9	6	5/16 to 5/8	3	1586	300.00
6430	3/4	10	6	5/16 to 5/8	3	1736	320.00
6438	1	8	6	5/16 to 5/8	2	2456	450.00
6440	1	10	6	5/16 to 5/8	2	2986	525.00
6442	1	12	6	5/16 to 5/8	2	3516	600.00

**Hubbard Guyeye Anchor Rods**

Hot Galvanized

Eliminates the guy thimble. Combines drop forged oval eye and guy thimble; should be used only with guy strand.

Cat. No.	Diam. In.	Lgth. Ft.	Eye In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
8406	1/2	6	1 1/2x 3/4	10	400	\$79.61
8407	1/2	7	1 1/2x 3/4	10	510	92.31
8416	5/8	6	1 1/2x 3/4	10	690	111.05
8418	5/8	8	1 1/2x 3/4	10	890	135.58
8426	3/4	6	5/8x 7/8	5	995	143.80
8428	3/4	8	5/8x 7/8	5	1295	178.90
8429	3/4	9	5/8x 7/8	5	1460	201.62
8438	1	8	5/8x1 1/8	3	2365	316.70
8440	1	10	5/8x1 1/8	3	2895	378.45



**Tu-Guyeye Anchor Rods**

For tying two wires at the same point.

8529	3/4	9	7/8x 3/4	5	1490	\$221.50
8538	1	8	1x 3/4	3	2420	346.35
8540	1	10	1x 3/4	3	2950	408.10

**Hubbard Guy Thimbles**

Hot Galvanized

Cat. No.	Size Strand Inches	Size Guy Rod Inches	Std. Pkg.	Wt. Lbs. per 100	Price per 100
7593	3/8	1/2 and 5/8	1000	10	\$7.58
7594	1/2	5/8 and 3/4	500	22	9.75
7595	5/8	1	250	45	13.75

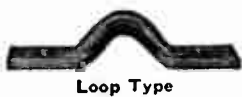


No. 7593

## Hubbard Wall Straps

Hot Galvanized

Used by telephone, electric railway companies, and central stations for attaching guys to buildings, dead-ending messengers or span wires on buildings or walls.



Loop Type



### Guyeye Type

Cat. No.	Type	DIMENSIONS, INCHES			Diam. Holes	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
		Length over All	Width	Thick-ness				
8892	Loop	8	1 1/4	3/4	5/16	150	95	\$44.40
8895	Guyeyc	16 7/8	1 1/2	3/4	5/16	25	240	66.60
8896	Guyeyc	24 3/8	1 1/2	3/4	5/16	25	328	88.80

## Hubbard Guy Shims

Hot Galvanized

Keeps the guy strand from cutting into the pole, which not only injures pole but retains moisture about the strand and accelerates corrosion. Six or more are required per pole.

Cat. No.	Dimensions Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7570	1 1/2 x 7/32 x 8	500	57	\$9.50

## No. 7575 Hubbard Strain Plates

Hot Galvanized

Serves the same purpose as the guy shim but gives better protection and is cheaper to install. From 2 to 4 are required per pole.

Cat. No.	Dimen. In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7575	4x8x14-Ga.	250	75	\$17.10

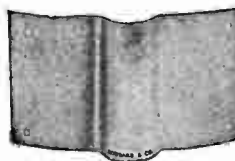


## No. 7576 Hubbard Moulding Strain Plates

Hot Galvanized

Used to prevent strand from cutting or crushing ground wire moulding. Will fit over N. E. L. A. standard 1-inch ground wire moulding.

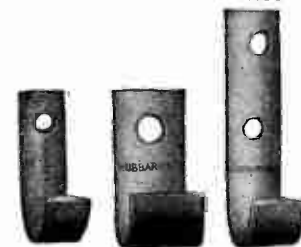
Cat. No.	Dimen. In.	Ship. Wt., Lbs. per 100	Price per 100
7576	4x8x14-ga.	75	\$18.15



## Hubbard Guy Hooks

Hot Galvanized

The No. 7584 guy hook is the N. E. L. A. and A. T. & T. Company's standard and is in general use, although the 2-bolt type is preferred by some construction men. For lighter work, the 3 1/2-inch hook gives satisfactory results. Made of half oval steel, bent with the flat side to the pole, except No. 7583 1/2 which is formed from flat steel.



Cat. No.	Size Steel Inches	Length Inches	Diameter Holes, In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7583 1/2	1 1/4 x 3/8	3 1/4	9/16	450	39	\$8.27
7584	1 3/4 x 3/8	4	1 1/16	200	87	17.81
7585	1 1/2 x 3/8	3 1/2	9/16	300	59	12.59
7586	1 1/2 x 3/8	6	9/16	200	88	17.81

## No. 7448 Hubbard 2-Bolt Guy Clamps

Hot Galvanized



This clamp is made from hot rolled open hearth steel plates, 1 1/16-inch wide by 3/8-inch thick.

Dimensions, 1 1/8 x 3/8 x 3 3/8 inches.

Standard package, 175.

Weight, 122 pounds per 100.

Price, No. 7448, 2-Bolt Clamps..... per 100 \$26.37

## Hubbard Rolled Steel Guy Clamps

Hot Galvanized; Light Type

Made from hot rolled steel plates 3/8 inch thick. Furnished with 1/2-inch elliptical shoulder bolts. Used on 5/8 to 1 1/8-inch strand.

Cat. No.	Type	Dimens. Bolt Inches	Wt., Lbs. per 100	Price per 100
7448	2	1 1/16 x 3/8 x 3 3/8	135	\$26.37
7449	3	1 1/16 x 3/8 x 4	155	37.40
7450	3	1 1/16 x 3/8 x 6	226	45.20



## Hubbard 3-Bolt Heavy Type Guy Clamps

Hot Galvanized



Made of plates 1 1/2 inches wide, 3/8 inch thick; equipped with 5/8-inch special heat treated steel bolts. Bolts may be assembled from either side. Standard pack-

age, 75. Shipping weight per 100, 274 pounds. Price, No. 7461, 6 Inches Long..... per 100 \$55.48

## Hubbard Heavy Type 4-Bolt Guy Clamps

Hot Galvanized



This clamp has a combination of a long smooth clamping surface and powerful bolts, giving it great holding power. Heavy bolts eliminate the possibility of twisting off or straining bolt when nuts are tightened. Sides are punched with elliptical holes so that bolts may be assembled from either side.

Made of plates 1 1/2 inch wide by 3/8 inch thick; equipped with 5/8-inch special heat treated steel bolts.

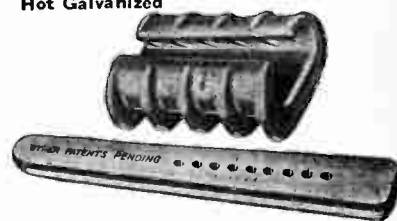
Standard package, 50. Weight per 100, 365 pounds.

Price, No. 7464, 8 Inches Long..... per 100 \$73.79

## No. 7476 Hubbard Wedge Type Guy Clamps

Hot Galvanized

This clamp holds equally well when applied in either direction. The springy sides of the body readily adjust themselves to elongation of the strand when strain is applied.



Can be applied in much less time than a 3-bolt clamp.

Both parts are drop forged from special alloy steel. A brass cotter pin is furnished which holds the wedge in place after it has been properly tightened.

Size of strand, 3/8 inch. Overall length of clamp, 3 1/2 inches; of wedge, 6 3/4 inches. Standard package, 100.

Shipping weight per 100, 210 pounds. Price, No. 7476..... per 100 \$93.00

## Hubbard Wire Rope Clips

Hot Galvanized



Cat. No.	Size Strand Inches	Standard Package	Weight Pounds per 100	Price per 100
7482	3/8	50	37	\$46.75
7484	1/2	50	75	52.60
7485	5/8	50	87	64.28

## Hubbard Pole Markers

Hot Galvanized and Solid Copper

Have 1-inch diameter head. Carried in stock blank and can be stamped with raised letters or numerals as ordered. Overall length, 2 inches. Standard package, 1000.



Cat. No.	Material	Wt., Lbs. per 100	Price per 100
2000	Solid Copper	7	\$13.80
5000	Galv. Steel	6	5.50

**Hubbard Pole Dating Nails**

Hot Galvanized



Used for indicating the year in which poles were set and also the height of poles. Special nails with 2 or 3 numerals, letter or characters, depressed in the head can be furnished. Overall length, 2 1/2 inches.

Standard package, 100. Weight per 100, 4.4 pounds.

Cat. No.	1900	1920	1921	1922	1923	1924	1925	1926
No.	Blank	20	21	22	23	24	25	26
Cat. No.	1927	1928	1929	1930	1935	1940	1945	1955
No.	27	28	29	30	35	40	45	55
Price	per 100 \$2.30							

**Hubbard Drop Forged Guyeye Nuts**

Hot Galvanized



Used extensively on the threaded end of machine bolts passed vertically through the cross arm for attaching suspension type insulators. Also useful for dead ending lines. By their use an eye may be added to either end of a double arming bolt or a second eye to an eye bolt.

The guyeye nut is designed exclusively for use with guy strand and eliminates the guy thimble. It is well rounded with a generous radius, so that the strand will not be sharply kinked.

Cat. No.	Diam. Bolt Inches	INSIDE DIMENSIONS EYE, INCHES		Std. Pkg. per 100	Ship. Wt., Lbs. per 100	Price per 100
		Width	Length			
7510	5/8	7/8	1 1/2	100	121	\$66.60
7511	3/4	7/8	1 1/2	100	117	66.60
7512	1	1 1/4	1 11/16	100	170	77.70

**Hubbard Drop-Forged Eye Nuts**

Hot Galvanized



No. 7502

Drop-forged eye nuts were designed for use on the threaded ends of machine bolts passed vertically through cross arms for attaching suspension type insulators. They are also useful for dead ending lines. By their use a second eye may be added to the eye bolts, which permits the attachment of a back guy to the same bolt that supports the insulators to dead ended wire.

Cat. No.	Diam. Bolt Inches	EYE DIMENSIONS, IN.		Std. Pkg. per 100	Wt., Lbs. per 100	Price per 100
		Width	Length			
7500	1/2	1 1/8	1 1/8	200	49	\$41.80
7501	5/8	1 1/8	1 1/8	200	46	41.80
7502	3/4	1 1/2	1 11/16	200	60	55.10
7503	3/4	1 1/2	1 11/16	200	56	55.10

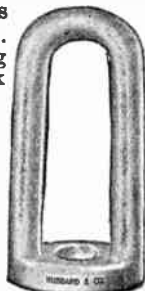
**Hubbard Drop Forged Bolt Eyes**

Hot Galvanized



No. 7514

Used on either head or nut end of a machine bolt. Standard bolt eye may be used for attaching suspension insulators with clevis type cap to cross arm. Long type is for supporting suspension insulators with hook in cap of upper unit.



Nos. 7515 to 7518

Cat. No.	Diam. Bolt In.	INSIDE DIMEN. EYE, IN.		Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
		Width	Length			
*7514	5/8	1 1/8	1 11/16	200	83	\$44.40
7515	5/8	1 3/8	3 3/16	125	103	51.10
7516	3/4	1 3/8	3 3/16	125	100	51.10
7517	5/8	1 3/16	2 11/16	125	90	46.60
7518	3/4	1 3/16	2 11/16	125	87	46.60

\*Has standard eye. All others have long eye.

**Hubbard Pole Reinforcing Material**

Hot Galvanized



Reinforcement Band



Reinforcement Pipe

The Hubbard Reinforcement Band makes a strong and reliable method for attaching a stub when the butt of a pole is rotted. This arrangement saves the expense of installing a new pole and provides a reinforcement which adds years of life to the pole.

Bolts and lag screws to complete this construction should be ordered separately.

Cat. No.	Description	Size	Std. Wt., Lbs. Price	
			Pkg. per 100	per 100
7850	Reinforcement Band	12 Ga.x2"x68 1/2"	10	410 \$59.60
7851	Reinforcement Band	12 Ga.x2"x89 1/2"	10	525 75.50
7852	Reinforcement Pipe	2" Ex. Hvy.x5"	10	220 48.20

**Hubbard Stubbing Washers**

Hot Galvanized



Used for attaching a pole, rotted off at the ground line, to a new stub.

Size washer, 3 1/4 x 3 1/8 x 1/4 inches. Diameter hole, 3/4 inch. Size bolt, 5/8 inch.

Standard package, 250. Weight per 100, 75 pounds.

Price, No. 7825 ..... per 100 \$17.73

**Hubbard Steps for Wood Poles**

Hot Galvanized



\*Long hook head.

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Diameter	Length			
7123	5/16	9	300	70	\$13.81
7125	5/8	10	250	95	16.49
*7126	5/8	10	175	115	24.15

**Hubbard Pole Steps for Wood Poles**

Button Head—Hot Galvanized



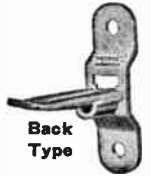
Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Diameter	Length			
7129	5/8	9 1/2	175	105	18.69

**Peirce Detachable Pole Steps**

Hot Galvanized



Lag Screw Type



Back Type

Lag screw type is installed by slipping the plate over the lag and screwing lag in pole until the plate bites into the wood. Step slides down in a groove on each side of head of lag. When the step is removed nothing but the head of the lag extends from pole.

Back type is attached by two 1/2-inch lag screws.

Cat. No.	Description	Ext. from Pole, In.	Std. Wt., Lbs. Price	
			Pkg. per 100	per 100
7231	Step	4 3/4	300	41 \$33.30
7232	Back	...	300	44 22.20
7235	Lag and Plate	...	250	34 16.60
7236	Step	5 1/8	250	54 35.60

**Hubbard Steps for Steel Poles and Towers**

Button Head Hot Galvanized



Length thread, 2 1/2 inches.

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Diameter	Length			
7140	5/8	6	300	84	\$25.00

## Hubbard Solid Steps

For Tubular Poles  
Hot Galvanized



Cat. No.	Size Steel Inches	DIAMETER OF POLE, IN.		Wt., Lbs. per 100	Price per 100
		Nominal	Actual Outside		
7204	1 1/2 x 3/16	4	4 1/2	195	\$64.36
7204 1/2	1 1/2 x 3/16	4 1/2	5	210	69.30
7205	1 1/2 x 3/16	5	5 1/2	225	74.26
7206	1 1/2 x 3/16	6	6 5/8	240	79.20
7207	1 1/2 x 3/16	7	7 5/8	275	90.76
7208	1 1/2 x 3/16	8	8 5/8	300	99.00
7209	1 1/2 x 3/16	9	9 5/8	325	107.26
7210	1 1/2 x 3/16	10	10 3/4	355	115.50

## Hubbard Split Steps

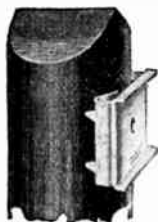
For Tubular Poles  
Hot Galvanized



Cat. No.	Size Steel Inches	DIAMETER OF POLE, IN.		Wt., Lbs. per 100	Price per 100
		Nominal	Actual Outside		
7304	1 1/2 x 3/16	4	4 1/2	220	\$66.00
7304 1/2	1 1/2 x 3/16	4 1/2	5	235	70.50
7305	1 1/2 x 3/16	5	5 1/2	250	75.00
7306	1 1/2 x 3/16	6	6 5/8	275	82.50
7307	1 1/2 x 3/16	7	7 5/8	300	90.00
7308	1 1/2 x 3/16	8	8 5/8	325	97.50
7309	1 1/2 x 3/16	9	9 5/8	350	105.00
7310	1 1/2 x 3/16	10	10 3/4	380	114.00

## Peirce Presteel Pole Gains

Hot Galvanized



For attaching cross arms to poles without the need for gaining the pole. The design provides a saddle for the cross arm, a springy saddle for the pole and four points for holding the gain in a fixed position.

Its construction allows for easy installation and ready adjustment for alignment of the cross arm. It spaces the cross arm away from the pole so drainage and ventilation overcome decay.

Cat. No.	Size Arm Inches	Diam. Hole Inches	Size Steel Gauge	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5091	3 1/4 x 4 1/4	1 3/16	9	10	285	\$64.40
5092	3 1/2 x 4 1/2	1 3/16	9	10	285	64.40
5093	3 3/4 x 4 3/4	1 3/16	9	10	285	64.40
5094	4 x 5	1 3/16	9	10	285	64.40

## Peirce Cross Arm Reinforcing Plates

Hot Galvanized



Designed to give greater effectiveness than the standard square washer and provide a means for preventing checking and splitting of the cross arm at the point of attachment to the pole.

Made from flat steel 3 7/8 inches wide. A 1 1/16-inch rib is pressed vertically on the plate to give greater strength.

Cat. No.	Size Arm Inches	Diam. Hole Inches	Size Steel Gauge	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5042	3 1/4 x 4 1/4	1 3/16	7	100	117	\$26.10
5043	3 1/2 x 4 1/2	1 3/16	7	100	119	26.40
5044	3 3/4 x 4 3/4	1 3/16	7	100	121	26.90
5045	4 x 5	1 3/16	7	100	128	28.40
5047	6 x 8	1 3/16	7	100	178	39.60

## Hubbard Guyeye Bolts

Hot Galvanized



### 5/8-Inch—1/2x3/4-Inch Oblong Eye

Cat. No.	Lgth. In.	Std. Pkg.	Ship. Wt., Lbs. per 100		Price per 100	Cat. No.	Lgth. In.	Std. Pkg.	Ship. Wt., Lbs. per 100		Price per 100
			per 100	per 100					per 100	per 100	
9060	10	50	140	\$44.88	9065	15	50	190	\$49.73		
9062	12	50	160	46.65	9068	18	50	220	52.13		

### 3/4-Inch—5/8x7/8-Inch Eye

9080	10	50	210	\$61.45	9085	15	50	300	\$69.35
9082	12	50	240	64.30	9088	18	25	340	72.65

## Hubbard Machine and Crossarm Bolts

Hot Galvanized



Hubbard Machine and Through Bolts, unless otherwise specified, are furnished with rolled threads which insure a perfect nut fit the full length of the thread.

### 3/8-Inch Machine Bolts

Cat. No.	Length Inches	Length Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
9603	3	3	1500	13.1	\$3.71
9603 1/2	3 1/2	3	1250	14.6	4.04
9604	4	3	1000	16.	4.37
9604 1/2	4 1/2	3	900	17.5	4.66
9605	5	3	800	18.9	5.27
9605 1/2	5 1/2	3	750	20.4	5.56
9606	6	3	650	21.8	5.89

### 1/2-Inch Machine Bolts

9704 1/2	4 1/2	3	550	33.8	\$7.93
9704 3/4	4 3/4	3	500	35.	8.36
9705	5	3	500	36.3	8.36
9706	6	3	400	41.4	9.22
9707	7	3	400	46.5	10.08
9708	8	4	350	51.6	10.93
9710	10	4	150	61.8	12.63
9712	12	6	150	72.	14.83
9714	14	6	150	82.2	16.53
9716	16	6	150	92.4	18.25
9718	18	6	100	102.6	19.95
9720	20	6	100	112.8	21.65

### 5/8-Inch Crossarm Bolts

9808	8	4	100	82	\$15.10
9810	10	4	100	98	17.10
9812	12	6	100	114	19.10
9814	14	6	100	130	21.10
9816	16	6	100	146	23.10
9818	18	6	50	150	25.10
9820	20	6	50	164	27.10
9822	22	6	50	178	29.10
9824	24	6	50	192	31.10
9826	26	6	50	206	33.10
9828	28	6	50	220	35.10

### 3/4-Inch Machine Bolts

9908	8	4	50	112	\$23.83
9910	10	4	50	134	24.75
9912	12	6	50	156	27.68
9914	14	6	50	178	30.60
9916	16	6	50	200	33.53
9918	18	6	50	222	36.45
9920	20	6	25	244	39.38
9922	22	6	25	266	42.30
9924	24	6	25	288	45.23
9926	26	6	25	322	48.15
9928	28	6	25	344	51.08

**Hubbard Carriage Bolts**

Hot Galvanized

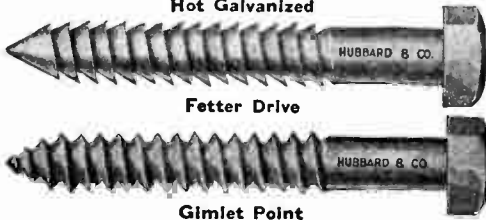


Carriage bolts are used for attaching the braces to cross-arms on most overhead lines.

Cat. No.	LENGTH, INCHES			Weight Pounds per 100	Price per 100
	Over All	Thread	Std. Pkg.		
<b>3/8-Inch</b>					
9633	3	1 3/4	1500	12.9	\$3.56
9633 1/2	3 1/2	1 3/4	1250	14.3	3.90
9634	4	1 3/4	1000	15.8	4.23
9634 1/2	4 1/2	1 3/4	900	17.2	4.51
9635	5	1 3/4	800	18.7	5.08
9635 1/2	5 1/2	1 3/4	750	20.1	5.37
9636	6	1 3/4	700	21.6	5.70
<b>1/2-Inch</b>					
9643	3	2 1/2	800	24.7	\$6.28
9643 1/2	3 1/2	3	700	27.3	6.70
9644	4	3	600	29.8	7.13
9644 1/2	4 1/2	3	500	32.4	7.55
9645	5	3	450	34.9	7.98
9645 1/2	5 1/2	3	400	37.5	8.41
9646	6	3	350	40.	8.84

**Hubbard Lag Screws**

Hot Galvanized



Fetter Drive

Gimlet Point

Fetter drive lag screws have become practically standard for construction work because of their greater holding power. Threads do not tear the wood. Gimlet point screws will be furnished for 1/4-inch and 5/8-inch, fetter drive screws for 3/8, 1/2 and 5/8-inch.

Cat. No.	Lgth. In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100	Cat. No.	Lgth. In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
<b>5/16-Inch</b>									
9732	2	4500	4.7	\$2.35	9733	3	2500	6.5	\$2.80
9732 1/2	2 1/2	3000	5.6	2.55	9733 1/2	3 1/2	2000	7.4	3.05
<b>3/8-Inch</b>									
9742 1/4	2 1/4	3000	7.8	\$3.10	9744	4	1250	12.2	\$4.00
9742 1/2	2 1/2	2500	8.3	3.10	9744 1/2	4 1/2	1000	13.5	4.30
9743	3	2000	9.6	3.40	9745	5	1000	14.8	4.65
9743 1/2	3 1/2	1500	10.9	3.70	9746	6	600	17.4	5.35
<b>1/2-Inch</b>									
9752 1/2	2 1/2	1200	16.7	\$4.85	9755	5	600	28.2	\$7.10
9753	3	1000	19.	5.30	9755 1/2	5 1/2	550	30.5	7.55
9753 1/2	3 1/2	1000	21.3	5.75	9756	6	500	32.8	8.00
9754	4	800	23.6	6.20	9756 1/2	6 1/2	500	35.1	8.45
9754 1/2	4 1/2	700	25.9	6.65	9757	7	500	37.4	8.90
<b>5/8-Inch</b>									
9764	4	550	35.1	\$8.80	9765 1/2	5 1/2	400	46.5	\$10.75
9764 1/2	4 1/2	500	38.9	9.45	9766	6	350	50.3	11.40
9765	5	450	42.7	10.10					

**Hubbard Drop Forged Screw Eye Bolts**

Hot Galvanized



Has drop forged oval eye and 3 inches of gimlet lag screw thread.

Cat. No.	Lgth. to Ctr. of Eye, In.	Diam. In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9930	7	1/2	100	50	\$33.50
9931	7 3/4	5/8	100	75	44.50
9932	7 3/4	3/4	50	95	55.50

**Hubbard Double Arming Bolts**

Hot Galvanized



The double arming bolt, used with four square washers, represents a much more economical means of tying cross arms together than the old method of a wooden block with a hole through it and a long machine bolt.

The points are finished and prices include four square nuts but no washers.

Cat. No.	LENGTH, INCHES			Std. Pkg.	Approx. Shipping Wt., Lbs. per 100	Price per 100
	Over All	Thread				
<b>1/2-Inch</b>						
9842	12	5	100	76		\$17.38
9844	14	6	100	85		18.62
9846	16	6	100	93		19.70
9848	18	8	100	102		21.05
9850	20	8	100	110		22.23
9852	22	8	50	120		23.70
9854	24	8	50	128		24.88
<b>5/8-Inch</b>						
9862	12	5	50	144		\$28.00
9864	14	6	50	158		29.77
9866	16	7	50	172		31.53
9868	18	8	50	186		33.15
9870	20	8	50	200		34.83
9872	22	8	50	214		36.48
9874	24	8	50	228		38.13
<b>3/4-Inch</b>						
9882	12	5	50	230		\$40.30
9884	14	6	50	250		42.78
9886	16	6	50	270		45.18
9888	18	8	50	290		47.95
9890	20	8	50	310		50.40
9892	22	8	25	330		53.60
9894	24	8	25	350		56.05

**Hubbard Drop Forged Eye Bolts**

Hot Galvanized



With drop forged oval eyes. All standard eye bolts are rolled threaded 6 inches except the 6-inch bolt which is rolled threaded 4 inches. The D. A. eye bolts have cut threads up to within 1 1/2 inches of the eye.

<b>1/2-Inch—Size of Eye, Inside 3/4x1-Inch</b>									
Cat. No.	Lgth. to Center of Eye Inches	Std. Pkg.	Wt. Lbs. per 100	Price per 100	Cat. No.	Lgth. to Center of Eye Inches	Std. Pkg.	Wt. Lbs. per 100	Price per 100
9938	8	100	65	26.95	9946	16	100	105	30.77
9940	10	100	75	27.00	9948	18	100	115	31.52
9942	12	100	85	28.08	9950	20	100	125	32.63
<b>5/8-Inch—Size of Eye, Inside 1 1/2x2-Inch</b>									
9956	6	100	84	\$32.30	9964	14	100	148	\$38.78
9958	8	100	100	34.10	9966	16	50	164	41.18
9960	10	100	116	35.13	9968	18	50	180	42.98
9962	12	100	132	36.90	9970	20	50	196	44.85
<b>3/4-Inch—Size of Eye, Inside 1 1/2x2-Inch</b>									
9976	6	50	116	\$47.00	9984	14	50	212	\$57.90
9978	8	50	140	50.65	9986	16	25	236	61.25
9980	10	50	164	51.70	9988	18	25	260	64.37
9982	12	50	188	54.55	9990	20	25	284	67.23

**5/8-Inch Double Arming Eye Bolts—3 Nuts**

Cat. No.	Lgth. to Center of Eye Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
9785	16	50	188	\$71.23
9788	18	50	204	73.17
9790	20	50	220	75.40

**3/4-Inch Double Arming Eye Bolts—3 Nuts**

Cat. No.	Lgth. to Center of Eye Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
9796	16	50	284	\$88.29
9798	18	50	308	91.36
9800	20	50	330	94.43



## Hubbard Flat Cross Arm Braces

Hot Galvanized



Made only from new open hearth steel.

### 1 7/32 x 7/32-Inch

Cat. No.	Length Inches	Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	Length Inches	Ship. Wt., Lbs. per 100	Price per 100
8020	20	142	\$16.35	8028	28	198	\$22.02
8022	22	156	17.76	8030	30	212	23.51
8024	24	170	19.18	8032	32	226	24.92
8026	26	184	20.60	.....	.....	.....	.....

### 1 1/4 x 1/4-Inch

Cat. No.	Length Inches	Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	Length Inches	Ship. Wt., Lbs. per 100	Price per 100
8120	20	167	\$17.73	8128	28	233	\$24.01
8122	22	183	19.29	8130	30	250	25.64
8124	24	200	20.84	8132	32	266	27.19
8126	26	216	22.40	.....	.....	.....	.....

## Hubbard Vertical Braces

Cat. No.	No. of Arms	Length Over All Inches	Spacing Inches	Size Angle Inches	Ship. Wt., Lbs. per 100	Price per 100
7976	2	20	18	1 1/2 x 1 1/2 x 3/16	300	\$53.70
7977	3	38	18	1 1/2 x 1 1/2 x 3/16	670	92.75
7978	4	56	18	1 1/2 x 1 1/2 x 3/16	840	132.80
7986	2	26	24	1 1/2 x 1 1/2 x 3/16	390	69.33
7987	3	50	24	1 1/2 x 1 1/2 x 3/16	750	123.20
7988	4	74	24	1 1/2 x 1 1/2 x 3/16	1110	175.75

## Hubbard Round Washers

Hot Galvanized



Washers are cleanly cut and are galvanized in such a manner as to insure a heavy, even coat of pure zinc with no large drops to interfere with the fit of the bolt or nut.

Cat. No.	O.D. In.	Size Hole In.	Thickness Inches	FOR BOLT SIZE INCHES	Weight per 100 Pounds	Std. Pkg.	Price per 100
7801	1	7/16	5/64	3/8	16	15000	\$ .60
7802	1 1/4	1/2	5/64	3/8	30	7000	.81
7803	1 3/8	9/16	7/64	1/2	42	5000	1.08
7805	1 3/4	1 1/16	1/8	5/8	75	2500	1.83
7806	2	1 1/2	1/8	3/4	112	2000	2.52

## Hubbard Square Washers

Hot Galvanized

Washers are cleanly cut and are galvanized in such a manner as to insure a heavy, even coat of pure zinc with no large drops to interfere with the fit of the bolt or nut.



Cat. No.	Dimensions Inches	Diam. of Hole, In.	For Bolt Size, In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7812	2 x 2 x 1/8	1 1/16	1/2 or 5/8	1500	14.5	\$2.42
7814	2 1/4 x 2 1/4 x 3/16	1 3/16	5/8 or 3/4	1000	24.	3.54
7816	3 x 3 x 3/16	1 3/16	5/8 or 3/4	500	43.5	7.42
7817	3 x 3 x 1/4	1 3/16	5/8 or 3/4	350	58.5	9.10
7818	4 x 4 x 3/16	1 3/16	5/8 or 3/4	250	83.	12.58
7819	4 x 4 x 1/4	1 5/16	3/4 or 7/8	250	117.	16.13
7820	4 x 4 x 1/2	1 7/16	1	100	215.	32.62
7826	3 1/2 x 3 1/2 x 3/8	1 5/16	3/4 or 7/8	200	124.	21.50
7827	6 x 6 x 3/8	1 3/16	1	100	370.	57.00

## No. 3830 Peirce Sign Hangers for Span Wires

Hot Galvanized



For attaching small stop signs to trolley span wires. Channel part has 1 3/32-inch hole for bolting to sign. Hinged joint keeps sign in a vertical position. Length over all, 5 1/4 inches. Standard package, 100; weight per 100, 58 pounds.

Price, No. 3830.....per 100 \$30.00

## Hubbard Cross Arm Back Braces

Hot Galvanized



This brace is designed for back bracing cross arms at corners and terminal poles, in many cases eliminating the necessity for double arming. Made of open

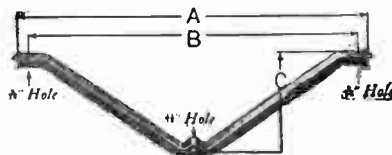
hearth steel. Attached to the arm by two 1/2-inch machine bolts at each end and to the pole by a 5/8-inch through bolt.

The lengths given are overall dimensions.

Cat. No.	Size Steel Inches	LENGTH Feet	In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
7966	1 1/2 x 1 1/2 x 3/16	6	..	5	1100	\$178.20
7967	1 3/4 x 1 3/4 x 3/16	7	10	5	1970	233.60
7969	1 3/4 x 1 3/4 x 3/16	9	1	5	1740	304.40

## Hubbard Angle Cross Arm Braces

Hot Galvanized



Furnished to specifications. Give dimensions, A, B, C, as indicated on illustration, and state size of angle.

Cat. No.	Size, Angle Inches	DIMENSIONS, IN.			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		A	B	C			
7950	1 1/2 x 1 1/2 x 3/16	40	37	12	5	705	\$114.58
7952	1 1/2 x 1 1/2 x 3/16	51	48	14 3/4	5	885	135.62
7953	1 3/4 x 1 3/4 x 3/16	63	60	18	5	1281	182.80
7954	1 3/4 x 1 3/4 x 3/16	69	66	20	5	1409	201.05
7955	1 3/4 x 1 3/4 x 3/16	75	72	18	5	1485	206.72
7956	2 x 2 x 3/16	75	72	22	5	1779	245.25

### N.E.L.A. Standard

Cat. No.	Size, Angle Inches	A	B	C	Std. Pkg.	Wt., Lbs. per 100	Price per 100
7940	1 1/2 x 1 1/2 x 3/16	45	42	12	5	776	\$123.85
7941	1 1/2 x 1 1/2 x 3/16	51	48	18	5	967	143.90
7942	1 1/2 x 1 1/2 x 3/16	63	60	18	5	1095	159.32
7943	1 3/4 x 1 3/4 x 3/16	75	72	22	5	1560	217.12

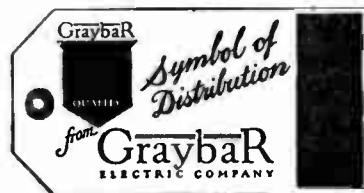
## Hubbard Angle Steel Alley Braces

Hot Galvanized

Forged Ends

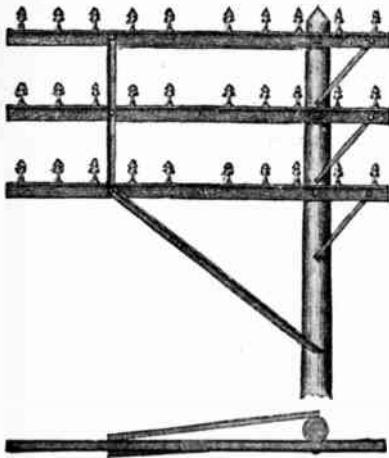


Cat. No.	Size Angle Inches	Length Feet	Std. Pkg.	Wt., Lbs. per 100 Pcs.	Price per 100
7979	1 3/4 x 1 3/4 x 3/16	5	5	1295	\$215.82
7981	1 1/2 x 1 1/2 x 3/16	5	5	1100	183.98
7982	1 1/2 x 1 1/2 x 3/16	6	5	1300	207.60
7984	1 3/4 x 1 3/4 x 3/16	7	5	1760	267.78
7985	2 x 2 x 1/4	10	5	3800	544.60



**Hubbard Extension Fixtures**

Hot Galvanized



Showing Diagonal Back and Vertical Brace Assembled

Where it is necessary to clear buildings or trees without the use of high poles, extension fixtures of the A. T. & T. Co. design furnish a very rigid and economical construction. They are designed for supporting either 6 or 10 pin arms, No. 8051 Back Brace being used with 6, and No. 8052 with 10 pin arms.

The Vertical Brace shown is designed for 3 arms spaced 12 inches apart, or 2 arms on 24-inch centers, additional arms being cared for by placing other vertical braces in "series" with the first.

Prices do not include bolts.

Cat. No.	Description	Length Inches	Size of Angle Inches	Std. Wt., Lbs. Pkg. per 100	Price per 100
8050	Diagonal with Step	83	2 x2 x3/16	5 1750	\$208.74
8051	Back	54 1/2	2 x2 x1/4	5 1350	167.54
8052	Back	66 7/16	2 x2 x1/4	5 1665	223.94
8054	Vertical	30 5/8	1 3/4 x1 3/4 x1/4	5 745	97.04

**Hubbard Pole Balconies**

Hot Galvanized

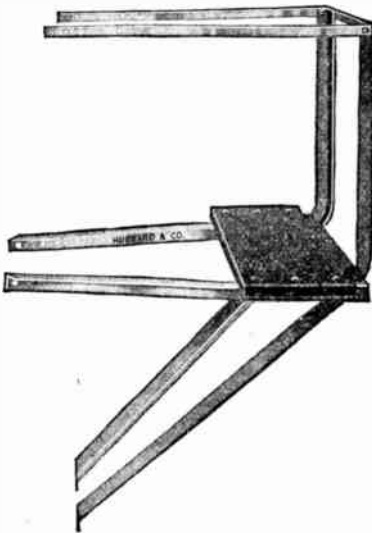
The frame, braces and guard rails of this balcony are made of open hearth steel, galvanized by the hot-dip process. The wooden platform is made of thoroughly seasoned oak, painted with two coats of standard green pole paint.

Nos. 9035 and 9045 are identical except that the railing on the No. 9035 Balcony fastens to a telephone terminal box and the railing on the No. 9045 Balcony fastens to the pole.

These balconies are used for convenience and comfort in telephone terminal box work and serve as switching platforms with the power companies.

Upright braces are 1 1/2 x1 1/2 x3/16-inch steel, the platform supports 1 3/4 x1 3/4 x3/16-inch angle steel, and the guard rail of 1 1/4-inch flat steel.

The complete balcony includes all bolts for fastening parts together but not bolts for attaching to pole.

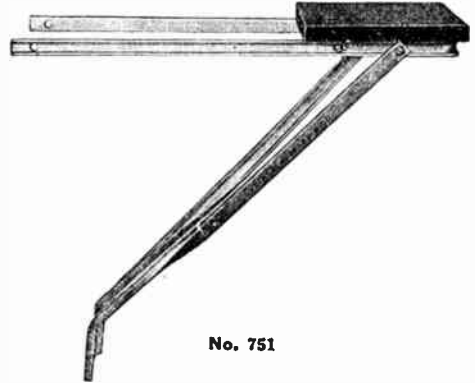


Cat. No.	Size Seat Inches	Style of Railing	Ship. Wt., Lbs. Each	Price Each
9035	14 1/4 x29 3/4	Terminal Box	65	\$30.00
9045	14 1/4 x29 3/4	Pole	67	37.50

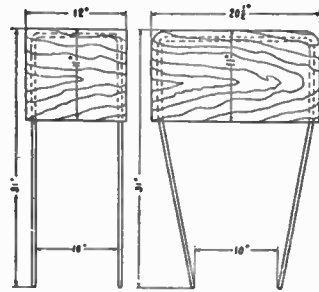
**Peirce Pole Seats**

Hot Galvanized

The frames and braces of all styles are of 1 1/2-inch channel steel. The wood seats are 1 1/8-inch cypress, boiled in creosote. The bars of the all steel seats are 3/8-inch square steel, let into the frame in such manner as to leave no projecting ends. There is no strain on the riveted joints. The bars are placed with corners up to prevent slipping. They are shipped completely assembled in bundles of five.



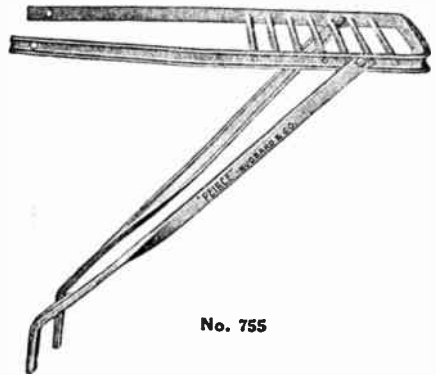
No. 751



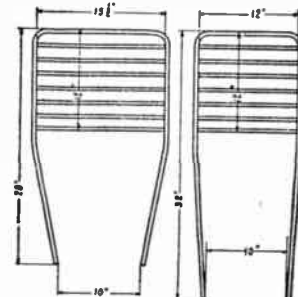
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No. 753

Cat. No.	Size of Seat Inches	Style of Seat	Std. Pkg.	Wt. Pounds per 100	Price per 100
751	11x12	Wood, Creosoted	5	1260	\$333.30
753	11x20	Wood, Creosoted	5	1400	486.60



No. 755



No. 755

No. 757

Cat. No.	Size Seat Inches	Style of Seat	Std. Pkg.	Wt. Pounds per 100	Price per 100
755	12x13 3/8	Steel, Galvanized	5	1400	\$420.70
757	12x11	Steel, Galvanized	5	1260	402.00

## Hubbard Cable Suspension Clamps

Hot Galvanized



These are the standard A. T. & T. Company's Cable suspension clamps, the one-bolt type being used for light cables and on cable arms, and the three-bolt clamp for heavy cables and long spans. The one-bolt clamp is furnished without a bolt, as the 5/8-inch through bolt is used both for attaching the clamp to the pole and tightening the clamp on the stand. The three-bolt clamp is furnished with two 1/2-inch high carbon steel guy clamp bolts.

Cat. No.	Type	Length In.	Size Strand In.	Std. Pkg	Wt., Lbs. per 100	Price per 100
8901	1-Bolt	2 3/8	1/4 to 1/16	250	74	\$16.72
8903	3-Bolt	2 5/8	1/4 to 1/16	100	220	43.28

## Hubbard Reinforcing and Safety Straps

For Suspension Clamps

Hot Galvanized



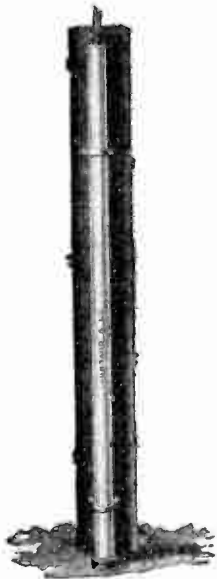
No. 8905 is used to support the messenger bolt at points of extreme stress, such as long spans. No. 8906 is a Safety Strap to prevent the cable's falling if the hangers give way. No. 8907 is a combination of Nos. 8905 and 8906.

### Reinforcing Straps

Cat. No.	Size Steel Inches	Wt., Lbs. per 100	Price per 100
8905	1 1/2 x 1/8	36	\$27.20
8906	1 3/4 x 1/8	76	39.13
8907	1 3/4 x 1/8	116	66.33

## Hubbard U-Cable Guards and Straps

Hot Galvanized



When telephone or power cables enter the ground at the base of a pole or side of a building they should be protected by U-cable guards.

The U-cable guards are made from No. 14 gauge sheet steel and are formed into a U shape. This shape provides the additional strength necessary against collision and the rounded surface protects the pedestrian.

The straps are made from flat steel and are shaped to fit the U-cable guards.

### U-Cable Guards

Cat. No.	Leth. Ft.	Diam. In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
7531	6	1 1/8	5	450	\$88.80
7532	5	2 3/16	5	750	141.00
7533	8	2 3/16	5	1225	225.50
7534	5	3 3/16	5	1100	205.50
7535	8	3 3/16	5	1750	328.40

### Mounting Straps

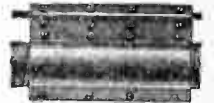
Cat. No.	Size Steel Inches	Used with Cable Guards No.	Diam. Holes Inches	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
7538	1/8 x 3/4	7531	9/32	200	13	\$7.80
7439	1/8 x 3/4	7532-3	9/32	150	21	11.40
7540	3/16 x 1	7534-5	11/32	100	55	24.00

## Hubbard Grade Clamps

Hot Galvanized



Grade clamps are clamped around the cable and messenger when running overhead cables up inclines and over hills in order to prevent creeping of the cable.



Presteel Type

Cat. No.	Messenger	Size, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Cable	Clamp			
8984	3/8 to 5/8	2 5/8	7 1/8 x 12	10	760	\$494.20
8985	3/8 to 5/8	3 1/2	7 1/8 x 12	10	760	494.20
<b>Drop Forged Type</b>						
8986	5/16 to 1/2	1 3/8	5 1/4 x 4	25	200	\$153.42
8987	5/16 to 1/2	2 1/16	6 1/4 x 4	25	245	172.42
8988	5/16 to 1/2	2 1/2	7 x 4	25	266	179.68
8989	5/16 to 1/2	2 7/8	7 3/8 x 4	25	284	186.64

## Hubbard Steel Cable Cross Arms

Hot Galvanized

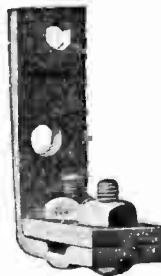


Furnished complete with A.T. & T. Co. 1-bolt messenger clamps No. 8901 and clamp bolts, but without braces or brace bolts.

Cat. No.	Use Cross Arm Brace No.	Cable Spacing		Leth. In.	Size Angle In.	Std. Pkg.	Wt. Lbs. Each	Price per 100
		No. of Cables	Pole Side					
8922	8120	2	20	24	3x3x1/4	1	13	\$325.00
8923	8120	4	20	36	3x3x1/4	1	22	472.50
8924	8130	6	20	48	3x3x1/4	1	30	630.00
8933	8120	4	20	36	5x3x5/16	1	32	682.00
8934	8130	6	20	48	5x3x5/16	1	44	945.00
8938	8130	4	32	48	5x3x1/2	1	65	1365.00
8939	8130	6	20	48	5x3x1/2	1	66	1415.00

## Hubbard Universal Messenger Hangers

Hot Galvanized



The universal hanger is forged from open hearth steel with a specially curved groove, which allows it to be used at corners as well as on straight runs.

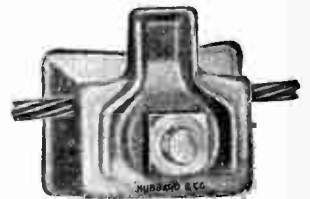
Two 1/2-inch high carbon steel guy clamp bolts clamp the messenger securely at each pole.

Cat. No.	Dimen. Inches	Length Legs, In.	Wt., Lbs. per 100	Price per 100
8911	2 x 1 1/2	4 3/4 x 4 1/4	300	\$73.68
8912	1 3/4 x 3 3/8	4 7/8 x 3 3/4	230	67.84

## Hubbard Non-Breakable Messenger Hangers

Hot Galvanized

The non-breakable hanger is one of the most economical to install. Placed on standard 5/8-inch through bolt, requiring no extra nuts, and the vertical finger keeps the messenger in place while it is being pulled taut, after which the strand is dropped into the groove and the nut set up. It is made of malleable iron, with back curved to fit the pole, has a long clamping surface, and supports the cable well away from the pole.



Cat. No.	Size Cable Inches	Wt. Lbs. per 100 Pieces	Price per 100
8914	5/16 and 3/8	150	\$67.50
8915	1/16 and 1/2	150	67.50

**Hubbard Crossover Clamps**

Hot Galvanized



Used for joining two cable messengers when they cross each other at right angles. For telephone work where cables turn corners, or where branch cables leave line at points distant from poles.

Weight, 160 pounds per 100. Dimensions, 1½x1½x3¼ in. Price, No. 8930 Clamps . . . . . per 100 \$75.00

**Hubbard Reinforcing Links**

Hot Galvanized



Used on each side of the cable suspension clamp to relieve side strains at angles in the line. Bolted to the pole by ½-inch lag screws.

Cat. No.	DIMEN., INCHES Length	Size Steel	Std. Pkg.	Wt., Lbs. per 100	Price per 100
8919	5¾	1½	150	102	\$26.75
8929	8¾	1½	125	126	33.00

**Hubbard Conduit Straps**

Hot Galvanized



No. 8925



No. 8927

For attaching standard 2 or 3-inch vertical conduit to wood poles. Nos. 8925 and 8926 are made of 1x¼-inch steel and have holes for ¾-inch lag screws. Nos. 8927 and 8928 are made of 1¼x¼-inch steel with ½-inch holes.

Cat. No.	Width Inside In.	Nominal Size Conduit, In.	Type	Std. Pkg.	Shp. Wt., Lbs. per 100	Price per 100
8925	2½	2	Single	25	78	\$18.20
8926	3½	3	Single	25	100	23.80
8927	4¾	2	Double	25	106	24.90
8928	7	3	Double	25	150	35.50

**Hubbard Manhole Ladders**

Hot Galvanized



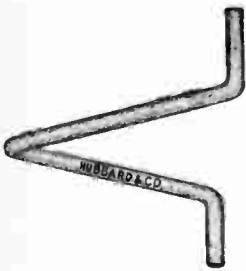
The 6½, 8, 10 and 12-foot lengths have sides of 1½x½x¾-inch channel and rungs of ¾-inch round open hearth steel. The 14-foot ladder is made of channel 2½x½x¾-inch sides. The rungs pass through the sides and are riveted over on the outside. They are 12 inches apart spaced from the bottom rung which is placed 12 inches from the bottom of the ladder.

Standard package, 5.

Cat. No.	Length Feet	No. of Rungs	Rung Spacing Inches	Width Inside Inches	Shp. Wt., Lbs. Each	Price per 100
9111	6½	6	12	12	24½	\$559.40
9112	8	7	12	12	30	688.40
9113	10	9	12	12	38	860.20
9115	12	11	12	12	46	1032.00
9117	14	13	12	12	53	1204.40

**Hubbard Pulling-In Irons for Manholes**

Hot Galvanized



Pulling-in irons are set into the concrete or brick walls of street vaults opposite all duct entrances to provide a convenient and strong attachment for the pulling-in blocks for installing or removing cables. They are made of ¾-inch steel in accordance with the A. T. & T. Company's specifications, and are so designed as to straddle the brick.

Cat. No.	Size Steel Inches	Extension from Wall Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9119	¾	9	5	500	\$111.00
9120	¾	12	5	600	128.80

**No. 9145 Hubbard Dowel Pins**

In laying multiple duct clay conduit, these dowel pins are inserted in holes provided in the ends of the lengths and thus keep adjacent lengths in proper alignment and insure the smoothness of the ducts. Made of ¾-inch round steel, 3 inches long.



Cat. No.	Size Inches	Shp. Wt., Lbs. per 100	Price per 100
9145	¾x3	8	\$1.70

**Peirce Presteel Cable Racks**

Hot Galvanized

For manhole and interior cable work.

The rack sections are made in three lengths which can be combined into almost any desired length.

These sections are made from 1½x½x¾-inch open hearth steel channel, with ample strength to support the heaviest cables. They should be fastened to manhole walls with ½x4-inch Peirce Expansion Bolts.



**Rack Sections**

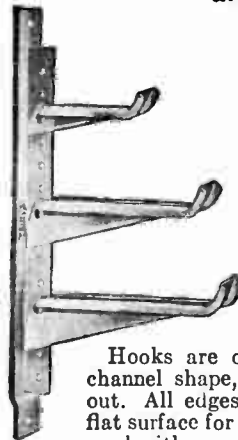
Cat. No.	No. of Holes	Hole Spacing	DIMENSIONS, INCHES Length Over All Bolt Hole Spacing		Wt., Lbs. per 100	Price per 100
2124	8	1½	15	13½	120	\$35.10
2125	14	1½	24	22½	260	62.60
2126	18	1½	30	28½	310	73.80

**Hooks**

Cat. No.	Extensions From Face of Rack	Thickness of Plate	Wt., Lbs. per 100	Price per 100
2131	4	1½x1½x¾	52	\$28.90
2132	7½	1½x1½x¾	104	41.10
2133	10	1½x1½x¾	126	50.40

**Peirce Underground Cable Racks, Hooks and Insulators**

For Heavy Cab'e Work  
Hot Galvanized



Rack section is 2¼x2¼x¼-inch steel T section, offset at lower end for overlapping when combining two racks. Any desired length of cable racks can be made in this manner. Racks have 1½-inch mounting hole at top and bottom and are fastened to new manhole walls with No. 2246 anchor bolt which is cemented into the wall. ½x4-inch Peirce expansion bolts are used for attaching to manholes not provided with anchor bolts.

Hooks are one-piece ¾-inch steel pressed to a channel shape, insuring uniform strength throughout. All edges are rounded and there is a smooth flat surface for the cable to rest upon. Hooks can be used with or without an insulator.

Insulators fit snugly on the cable hooks and the weight of the cable holds them in place.

**Racks**

Cat. No.	No. Holes	Hook Hole Spacing	DIMENSIONS, INCHES Length Over All Bolt Hole Spacing		Std. Pkg.	Wt., Lbs. per 100	Price per 100
2225	14	1½	27½	25½	5	805	\$133.30
2246	Anchor Bolt-½x6-Inch.				250	74	14.30

**Hooks**

Cat. No.	Extension	Width	Std. Pkg.	Wt., Lbs. per 100	Price per 100
2231	5	2½	125	173	\$75.50
2232	9½	2½	100	300	95.50
2233	14	2½	75	510	135.50

**Insulators**

Cat. No.	Radius for Cable, Inches	Width Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
2121	2½	3¼	50	136	\$28.90

## No. 2120 Peirce Cable Rack Insulators

### Standard Type



These insulators, used on Peirce cable rack hooks, provide a smooth, well rounded surface which permits cable creepage without injury to lead sheaths. Also provide insulation between cable and rack. Width, 2 3/4 inches. Std. pkg., 50. Weight per 100, 100 pounds. Price, No. 2120, for 1 1/2-Inch Cable..... per 100 \$26.40

## Hubbard Cable Duct Shields

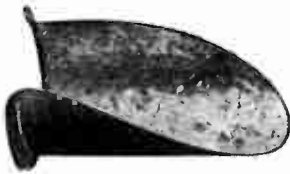
### Zinc and Hot Galvanized Steel

Used to protect cable sheaths at the entrance of ducts.

No. 9140 fits a 3-inch duct and may be installed, if desired, after the cable is pulled in.

No. 9141 is sheet zinc.

No. 9142 is designed to be attached to the cable. As the cable expands and contracts the wear comes on the shield rather than on the lead sheath.



Cat. No.	Material	SIZE, INCHES Diam.	Length	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
9140	20-Ga. Sheet Steel..	3	6	100	61	\$25.60
9141	18-Ga. Zinc.....	3	6	100	58	25.60
9142	12-Ga. Sheet Steel..	2 5/8	9	100	170	39.30

## No. 2100 Peirce Lock Clips

### Hot Galvanized

Locks the hooks to the cable racks and prevents them from being accidentally loosened by workmen. Easily installed. Does not come into contact with the cable in any way that might injure the lead sheath. Made of 18-gauge zinc. Standard package, 100. Shipping weight per 100, 2.5 pounds. Price, No. 2100..... per 100 \$2.90



## Hubbard Standard Transposition Brackets

### Hot Galvanized



Nos. 9250 and 9252 are similar to 9251, illustrated except that the Western Union Standard Bracket No. 9250 does not have the 3/8-inch round holes for lagging the bracket to the arm. No. 9251 is the A. T. & T. Co. standard for one wire, and No. 9252 for two wires on a transposition insulator. The Western Union bracket is clamped on the arm by a 3/8 x 4 1/2-inch carriage bolt. Pins and bolts not included in price.

Cat. No.	Size of Steel Inches	For Cross-arms Size, In.	Wt., Lbs. per 100	Price per 100
9250	1 1/4 x 5/8	3 x 4	245	\$58.83
9251	1 1/4 x 3/8	3 1/4 x 4 1/4	245	58.83
9252	1 1/2 x 3/8	3 1/4 x 4 1/4	378	80.37

## Hubbard Transposition Brackets

### For Phantom Circuits

### Hot Galvanized

The A. T. & T. Co. standard Transposition Bracket for 4-wire transpositions with large, double potticoated porcelain insulators, such as are used on the transcontinental circuits, is fastened to the cross arm by two 1/2 x 3/4-inch machine bolts, spaced 2 3/8 inches apart, and has holes for 1/2-inch pins. The price includes the two parts shown, the smaller of which projects above the arm, but no bolts or pins.



Cat. No.	DIMENSIONS, INCHES		Wt., Lbs. per 100	Price per 100
	Steel	Cross-arm		
9275	1 1/2 x 3/8	3 1/4 x 4 1/4	750	\$383.44

## No. 9280 Hubbard Break Iron Brackets

### Hot Galvanized



No. 9280 Break Iron is furnished complete as illustrated. The standard 5/8-inch wood top pins are spaced on 6 1/2-inch centers. The 1/2 x 6-inch machine bolt is equipped with a clipped pin washer.

Cat. No.	Pin Spacing Inches	Ship. Wt., Lbs. per 100	Price per 100
9280	6 1/2	407	\$122.20

## Peirce Multipoint Transposition Brackets

### Hot Galvanized



No. 237

Made with an angle steel back to which presteel points are riveted. Equipped with spiral spring threads for insulators having standard 1-inch pin hole.

No. 237 is for 2-wire transposition. No. 437 is for transposing 4 wires of 2-toll circuits on which a phantom is connected.

Furnished with No. 1021 3/8-inch U bolts for 3 1/4 x 4 1/4-inch cross arms, unless otherwise specified.



No. 437

Cat. No.	SIZE STEEL, IN. Points	Back	Std. Pkg.	Wt., Lbs. per 100	Price per 100
237	12-Ga.	1 x 1 x 1/8	20	215	\$71.50
437	12-Ga.	1 1/4 x 1 1/4 x 1/8	10	500	164.60

## Hubbard Transposition Brackets

### Hot Galvanized



Made of 5/8-inch round steel with a standard paraffined wood cob threaded for insulators with a 1-inch pin hole. Diameter tap, 1/2 inch. This bracket is almost always attached to the cross arm by screwing on to the thread of a Western Union pin.

Standard package, 100. Weight per 100, 160 pounds. Price, No. 121..... per 100 \$82.36

## Peirce Transposition Brackets

### Hot Galvanized

No. 111 is for long spans and heavy work; No. 114 is for use with 2-wire transposition insulators.

Made of 1-inch channel steel. Adjustable for cross arms 3 1/4 x 4 1/4 to 4 x 5 inches. Equipped with cross arm U-bolt No. 1021 unless otherwise specified.



No. 111

Cat. No.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
111	25	144	\$74.00
114	25	160	85.50



No. 114

## Peirce Cross Arm U-Bolts

### Hot Galvanized

Formed from 3/8-inch round steel.

Cat. No.	DIMEN., INCHES Size Arm	Diam.	Std. Pkg.	Wt., Lbs. per 100	Ship. Price per 100
1021	3 1/4 x 4 1/4	3/8	300	48	\$13.20
1022	3 1/2 x 4 1/2	3/8	300	54	13.20
1023	3 3/4 x 4 3/4	3/8	300	60	13.20
1024	4 x 5	3/8	250	66	13.20



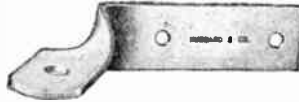
**Hubbard Telephone Corner Brackets**

Hot Galvanized

Used where the lead from the pole comes to the building at an angle.

Mounting and insulator holes on Nos. 9204 and 9205 are 1 1/32 inch. Mounting holes on Nos. 9206 and 9207 are 1 1/32 inch, insulator mounting holes, 1 3/8 inch.

Porcelain knobs and bolts listed below are used on these brackets but are not included in the price.



Cat. No.	Size Steel Inches	Length Inches	Legs Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9204	1 1/32 x 1 1/32	5 5/8	2 1/2	250	80	\$26.60
9205	1 1/32 x 1 1/32	10 1/8	1 1/16	200	89	31.53
9206	1 1/2 x 3/16	4 3/4	2 1/2	250	60	17.50
9207	1 1/2 x 1/4	4 3/4	4 1/2	200	110	20.50

**Hubbard Porcelain Knobs for Telephone Brackets**



No. 9225

These knobs are of dry process white glazed porcelain, and are for use with the telephone brackets listed above.



No. 9226

Cat. No.	Type	DIMEN., INCHES Diam. Bolt Hole	Height	Ship. Wt., Lbs. per 100	Price per 100
9225	Two-Groove	3/8	1 1/2	18	\$7.70
9226	Four-Groove	1/2	2 1/4	33	13.20

**Hubbard Bolts for Telephone Brackets**

Hot Galvanized

For attaching porcelain knobs to telephone brackets.

Cat. No.	Type	Diam. Inches	Length Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9232	Stove Bolt	5/16	2	3500	6	\$2.48
9603	Machine Bolt	3/8	3	1500	13	3.71
9605 1/2	Machine Bolt	3/8	5 1/2	750	20	5.56

**Hubbard Telephone Distributing Brackets**

Hot Galvanized



No. 9200

Cat. No.	Style Bracket	DIMEN., INCHES Size of Steel	Length of Legs	Approx. Ship. Wt., Lbs. per 100	Price per 100
9202	L Pole	2 x 1 1/4	3 3/4 x 3	87	\$17.58
9200	L House	1 3/4 x 3 1/16	3 1/4 x 2 3/8	51	12.13

**Peirce Telephone Knob Screw Insulators**

Hot Galvanized

No. 2920 screw is 3/8 inch in diameter and 1 1/2 inches long.

No. 2927 brown glazed porcelain knob is used with this fixture. No. 2927 wire groove is 1/2 inch wide; hole is 1/2 inch in diameter. Standard package, 500.

Price, No. 2920, Wt., per 100 Pcs., 44 Lbs. . . . per 100 \$18.10  
Price, No. 2927, Wt., per 100 Pcs., 29 Lbs. . . . per 100 11.10



**Peirce Telephone Wireholders**

All-Porcelain Type



Combines a wall bracket, insulator and screw all in one. Used as a corner bracket where the lead from the pole comes to the building at an angle and as a standard house bracket for carrying the pairs on a straight run along the building or for dead-ending.

The double groove on the top makes an ideal arrangement for tying in twisted telephone pairs.

No metal is exposed after installation. The wireholder is not affected by atmospheric conditions and will not make rust stains on the house.

Cat. No.	Equipped with	Wire Hole Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
1622	No. 20x2-In. Galv. Screw	5/16 x 3/4	50	60	\$20.00
1632	No. 20x2-In. Brass Screw	5/16 x 3/4	50	60	24.40

**No. 8918 Hubbard Span Clamps**

Hot Galvanized



Used when service connections are made at points between poles. Equipped with No. 8901 suspension clamp and bolt. Insulator spacing, 5 3/4 inches.

Standard package, 100. Weight per 100, 138 pounds.

Price, No. 8918 . . . . . per 100 \$77.50

**No. 9214 Peirce Porcelain Knobs for Telephone Racks**



Made of brown glazed dry process porcelain.

The wire groove is divided by a fin which keeps the two wires of the twisted pair separated.

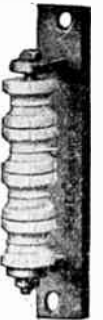
Cat. No.	DIMENSIONS, IN.			Bolt Hole	Ship. Wt., Lbs. per 100	Price per 100
	Height	Diameter	Wire Groove			
9214	1 1/2	1 3/4	3/4	2 3/4	22.7	\$12.00

**Peirce Distributing Knob Racks**

Hot Galvanized

For Telephone Wires

These racks furnish a secure but inexpensive means for distributing twisted pair telephone wires from cable poles. Nos. 2900, 2901 and 2902 are made with 1 3/4-inch channel steel back. The holes take a 1/2-inch lag screw.



Cat. No.	No. of Knobs	Wt., Lbs. per 100	Price per 100
2900	4	348	\$111.20
2901	6	460	147.10
2902	8	545	183.30

The above prices are for racks complete with knobs.

**Hubbard Insulated Pole Bands**

Hot Galvanized



No. 7246

Insulated pole bands are in popular use for trolley work. They eliminate one splice on each attachment.

Will be furnished galvanized, complete with standard No. 508 insulators, unless otherwise specified.

DIAM. POLE, IN.	Nominal	Out-Side	SOLID			SPLIT		
			Cat. No.	Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	Ship. Wt., Lbs. per 100	Price per 100
4	4 1/2	7254	350	\$113.90	7244	390	\$127.00	
4 1/2	5	7254 1/2	365	118.80	7244 1/2	405	131.70	
5	5 1/2	7255	380	123.70	7245	420	136.80	
6	6 3/8	7256	400	130.20	7246	440	143.20	
7	7 3/8	7257	420	136.80	7247	460	149.70	
8	8 3/8	7258	440	143.20	7248	480	156.40	

**Hubbard Solid Trolley Pole Bands**

Hot Galvanized



1-Bolt



2-Bolt

For attaching span wires to tubular poles. Formed from open hearth steel 1 1/2 inches wide, 3/16 inch thick. Equipped with 1/2 x 1 1/8-inch elliptical guy clamp bolts. Bolts of the 2-bolt bands are 1 1/2 inches apart on centers.

POLE, INCHES Nom. Diam.	O.D.	Std. Pkg.	1-Bolt Type			2-Bolt Type		
			Cat. No.	Wt., Lbs. per 100	Price per 100	Cat. No.	Wt., Lbs. per 100	Price per 100
3	3 1/2	25	7213	136	\$44.60	7223	166	\$57.00
3 1/2	4	25	7213 1/2	148	48.40	7223 1/2	188	61.00
4	4 1/2	25	7214	160	52.20	7224	200	65.10
4 1/2	5	25	7214 1/2	172	56.00	7224 1/2	212	69.10
5	5 1/2	25	7215	185	60.20	7225	225	73.10
6	6 3/8	25	7216	210	68.40	7226	250	81.50



876  
HUBBARD  
FORKS

## Hubbard Pole Bands with Pull-Off Rods Hot Galvanized



The Hubbard Pole Band with Pull-off Rod eliminates the necessity for using an individual band for each guy.

Cat. No.	Nominal Diameter of Pole Inches	Outside Diameter of Band Inches	Wt., Lbs. per 100	Price per 100
7344	4	4½	700	\$150.20
7344½	4½	5	750	161.10
7345	5	5½	800	171.80
7346	6	6⅝	900	193.10
7347	7	7⅞	1000	214.60
7348	8	8⅞	1100	236.20

## Hubbard Fork



These bolts have No. 357 insulators with Fork has 6-inch thread.  
Price includes insulators.

Cat. No.	Diameter Inches	Length Inches from Center of Bolt Hole	Std. Pkg.	Wt., Lbs. Std. Pkg.	Price per 100
8810	½	10	50	104	\$36.90
8811	½	12	50	114	38.20
8812	½	14	50	124	39.60
8813	⅝	12	50	156	46.60
8814	⅝	14	50	171	48.40
8815	⅝	16	50	186	50.60

## Hubbard Split Trolley Pole Bands Hot Galvanized



2-Bolt

3-Bolt

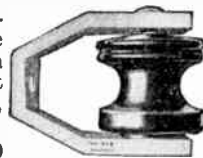
For attaching span wires to tubular poles; formed from open hearth steel 1½ inches wide, ⅜ inch thick. Equipped with ½x1⅝-inch elliptical shoulder guy clamp bolts. The 2 end bolts of 3-bolt bands are 1½ inches apart.

POLE, INCHES		2-Bolt Type			3-Bolt Type			
Nom. Diam.	O.D.	Std. Pkg.	Cat. No.	Wt., Lbs. per 100	Price per 100	Cat. No.	Wt., Lbs. per 100	Price per 100
3	3½	15	7323	175	\$55.50	7333	215	\$71.00
3½	4	15	7323½	190	59.90	7333½	230	75.20
4	4½	15	7324	205	66.60	7334	245	79.80
4½	5	15	7324½	220	71.80	7334½	260	84.60
5	5½	15	7325	245	76.40	7335	275	89.50
6	6⅝	15	7326	255	82.90	7336	295	96.00

## No. 561 Hubbard Insulated Forks

Hot Galvanized

Made of 1¼x½-inch channel. Equipped with insulator No. 355. Oval hole 1½x¾-inch in back permits through bolt to be assembled to clevis without removing insulator. Standard package, 50. Weight per 100, 240 pounds.  
Price, No. 561..... per 100 \$56.10

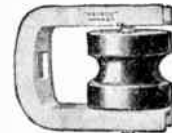


## Hubbard Insulated Forks

Hot Galvanized



No. 8820



No. 641

By the addition of a standard ⅝-inch through bolt, lag screw or carriage bolt, the insulated forks illustrated may be converted into fork bolts, which simplifies considerably the keeping of stocks.

Fork No. 8820 is made of 1½x¼-inch flat steel, formed so that the head of the through bolt keeps it from turning. It is equipped with insulator No. 357, which is attached by a ¾-inch bolt.

No. 641 is made of 1¼x½-inch channel steel and is provided with a square bolt hole, into which the square shoulders of a carriage bolt fits, preventing the fork from turning around on the bolt. Insulator No. 357 is also furnished with this fork.

## Hubbard Drop Forged Turnbuckles

Hot Galvanized



Eye and Eye

Eye and Hook

All Hubbard Turnbuckles including bodies, hooks, eyes and clevises are drop forged steel, insuring reliability and strength.

The sizes listed below are carried in stock. However, special assemblies can be made.

Diam. Bolt In.	Open In.	Closed In.	Length Opening In.	Width Eye In.	Length Eye In.	Opening Hook In.	Opening Clevis In.	Ship. Wt., Lbs. per 100	Approx. Price per 100
3/8	16½	10½	6	9/16	7/8	1½	1½	85	
1/2	17¾	11¾	6	3/4	1	5/8	5/8	160	
1/2	23¾	14¾	9	3/4	1	5/8	5/8	185	
1/2	29¾	17¾	12	3/4	1	5/8	5/8	210	
5/8	19½	13½	6	1½	2	3/4	3/4	260	
5/8	25½	16½	9	1½	2	3/4	3/4	310	
5/8	31½	19½	12	1½	2	3/4	3/4	360	
3/4	20	14	6	1½	2	7/8	7/8	370	
3/4	26	17	9	1½	2	7/8	7/8	430	
3/4	32	20	12	1½	2	7/8	7/8	490	

Size, Inches	CAT. No.					
	Eye and Eye	Eye and Hook	Eye and Clevis	Hook and Hook	Hook and Clevis	Clevis and Clevis
3/8 x 6	8601	8621	8641	8661	8681	8701
1/2 x 6	8602	8622	8642	8662	8682	8702
1/2 x 9	8603	8623	8643	8663	8683	8703
1/2 x 12	8604	8624	8644	8664	8684	8704
5/8 x 6	8605	8625	8645	8665	8685	8705
5/8 x 9	8606	8626	8646	8666	8686	8706
5/8 x 12	8607	8627	8647	8667	8687	8707
3/4 x 6	8608	8628	8648	8668	8688	8708
3/4 x 9	8609	8629	8649	8669	8689	8709
3/4 x 12	8610	8630	8650	8670	8690	8710

Prices upon application.

## Hubbard Dead-Ending Shackles

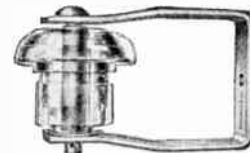
Hot Galvanized

Used for dead-ending or breaking bare signal wires. Shackle clamps around cross arm, which gives it greater holding power than pin construction. A ⅝-inch lag screw is used to prevent displacement by creeping.

A lead washer and sleeve prevent glass insulator from coming into contact with the steel cotter bolt, eliminating breakage of insulator due to expansion and contraction.

Size, 3/16x1 1/16 inches. Shackle is for 3/4x4 1/4-inch cross arm.

Cat. No.	Description	Std. Pkg.	Wt., Lbs. per 100	Price per 100
9290	Shackle Complete less Insulator	100	225	\$89.40
9291	Glass Insulator	50	175	59.80
9292	Wet Process Porcelain Insulator	50	175	77.70



## Hubbard Standard Western Union Pins

Made in accordance with the specifications of the Western Union Telegraph Co., and the Railway Signal Association. The cobs are of the best grade of air dried oak, turned to a gauge and boiled in paraffine to exclude all moisture. The pins are made of stiff, high carbon steel with clean threads, square nuts and clipped, round washers, and are for use with standard insulators having 1-inch pin holes.

### Long Shank Pins for Wood Cross Arms

Cat. No.	Diam. In.	LENGTH, IN.		Std. Pkg.	Wt. Lbs. per 100	PRICE, PER 100	
		Above Shoulder	Below Shoulder			Plan	Galv.
8006	1/2	4 1/4	5	325	74	\$17.37	\$19.67
8005	5/8	4 1/4	5	250	106	21.65	25.45



### Lag Screw Pins for Wood Arms and Poles

8006	1/2	4 1/4	3	400	63	.....	\$18.50
8007	5/8	4 1/4	3	350	90	.....	27.50

## Hubbard Standard Western Union Pins

Hot Galvanized

Cobs are of the best grade of air dried oak, turned to fit a gauge and boiled in paraffin to exclude moisture. Pins are of stiff, high carbon steel with clean threads, square nuts and clipped round washers, and are for use with standard insulators having 1-inch pin holes.

### Short Shank Pins

For Steel Cross Arms, Transposition Brackets and Break Irons

Cat. No.	Diam. In.	LENGTH, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder			
8010	1/2	4 1/4	1	500	53	\$22.12
8015	5/8	4 1/4	1	350	74	27.15
8015A	5/8	4 1/4	1 3/8	300	76	29.35



With Long Cob for Transposition Insulators

8011	1/2	5	1	400	59	\$24.62
8016	5/8	5	1	300	77	29.65

## No. 3825 Peirce Forged Steel Pins

Hot Galvanized

For Railway Feeders

For use with composition feeder insulators at points of excessive load.

Weight, pounds, per 100, 276. Std. pkg. 50.

Cat. No.	LENGTH, IN.		DIAM., IN.			Price per 100
	Above Shoulder	Below Shoulder	Shank	Shoulder	Thread	
3825	4 1/4	3 3/8	1 1/4	2 1/2	1	\$110.60



## Hubbard Wood Top Pins

Hot Galvanized

With Steel Bolts

Wood top pins are composed of seasoned locust tops, thoroughly impregnated with paraffine and stiff steel fin bolts. They are made in a variety of heights with short and long shanks for wood, angle or channel steel arms, and for two sizes of insulator pin holes, 1 and 1 3/8 inches in diameter. Furnished with nut and washer.

Packed in barrels and kegs in quantity desired.

Cat. No.	Diam. Top	SIZE OF WOOD TOP INCHES		SIZE OF BOLT, IN.		Length of Bolt Below Top, In.	Wt. Lbs. per 100	Price per 100
		Diam.	Length	Diam.	Length			
8070	1	1 3/8	4 1/2	1/2	5 1/2	1	60	\$21.48
8071	1	2 1/4	5 1/4	1/2	6 1/2	1 1/4	68	27.25
8072	1 3/8	2 1/4	4 1/2	5/8	5 1/2	1	95	33.50
8073	1 3/8	2 1/4	5 1/4	5/8	6 1/2	1 1/4	105	35.75
8074	1	1 3/8	4 1/2	1/2	9 1/2	5	75	24.58
8075	1	2 1/4	5 1/4	1/2	10 1/2	5 1/4	85	30.15
8076	1	2 1/4	5 1/4	1/2	11 1/2	6 1/4	96	30.53
8077	1 3/8	2 1/4	4 1/2	5/8	9 1/2	5	130	39.08
8078	1 3/8	2 1/4	4 1/2	5/8	10 1/2	6	136	40.58
8079	1 3/8	2 1/4	5 1/4	5/8	10 1/2	5 1/4	140	40.58
8080	1 3/8	2 1/4	6 1/2	5/8	12 1/2	6	170	45.28
8081	1 3/8	2 1/2	8	5/8	14	6	196	54.42
8082	1 3/8	2 3/4	9	5/8	16	7	221	60.00



## Peirce Long Shank Forged Steel Pins With 1-Inch Spring Thread

For Wood Cross Arms

Hot Galvanized



Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Wt. Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
71	1/2	4 3/4	4 3/4	9 1/2	100	93	\$32.90
74	1/2	4 3/4	5 1/2	10 1/4	100	98	39.30
80	5/8	4 3/4	4 3/4	9 1/2	100	129	40.90
81	5/8	4 3/4	5 1/2	10 1/4	100	136	43.30
81A	5/8	4 3/4	6 1/2	11 1/4	100	143	44.40
82	5/8	6	4 3/4	10 3/4	100	140	46.70
84	5/8	6	5 1/2	11 1/2	100	146	50.00
83	5/8	6	6 1/2	12 1/2	100	154	51.10
90A	3/4	4 3/4	5 3/4	10 1/2	100	192	60.70
90	3/4	6	5 3/4	11 3/4	100	207	65.50
91	3/4	6	6 3/4	12 3/4	100	220	70.40

## Peirce Short Shank Forged Steel Pins with 1-Inch Spring Thread

For Steel Cross Arms and Brackets

Hot Galvanized

For electric light, telephone and telegraph lines, on which insulators with 1-inch pin holes are used, this pin possesses all the advantages of the well known Western Union type of pin.

The method of fastening the spring thread to the pin allows for expansion and contraction of the insulator but does not lock the insulator to the pin.



Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
72	1/2	4 3/4	1 1/4	6	100	81	\$34.40
86	5/8	4 3/4	1 1/4	6	100	101	37.80
87	5/8	6	1 1/4	7 1/4	100	112	41.10
93A	3/4	4 3/4	1 1/2	6 1/2	100	126	42.60
93	3/4	6	1 1/2	7 1/2	100	142	48.20

## Peirce Long Shank Forged Steel Pins

With Standard 1-Inch Lead Threads for Low Voltage Insulators For Wood Cross Arms

Hot Galvanized



Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
971	1/2	4 3/4	4 3/4	9 1/2	100	120	\$32.90
974	1/2	4 3/4	5 1/2	10 1/4	100	125	39.30
980	5/8	4 3/4	4 3/4	9 1/2	100	149	40.90
981	5/8	4 3/4	5 1/2	10 1/4	100	156	43.30
981A	5/8	4 3/4	6 1/2	11 1/4	100	163	44.40
982	5/8	6	4 3/4	10 3/4	100	160	46.70
984	5/8	6	5 1/2	11 1/2	100	166	50.00
983	5/8	6	6 1/2	12 1/2	100	174	51.10
990A	3/4	4 3/4	5 3/4	10 1/2	100	205	60.70
990	3/4	6	5 3/4	11 3/4	100	220	65.50
991	3/4	6	6 3/4	12 3/4	100	233	70.40

## Peirce Short Shank Forged Steel Pins

With Standard 1-Inch Lead Threads for Low Voltage Insulators

Hot Galvanized

For Steel Cross Arms and Brackets

Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Approx. Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
972	1/2	4 3/4	1 1/4	6	100	108	\$34.40
986	5/8	4 3/4	1 1/4	6	100	131	37.80
987	5/8	6	1 1/4	7 1/4	100	132	41.10
993A	3/4	4 3/4	1 1/2	6 1/4	100	139	42.60
993	3/4	6	1 1/2	7 1/2	100	155	48.20



## Peirce Lag Screw Forged Steel Pins

With Standard 1-Inch Lead Threads for Low Voltage Insulators

Hot Galvanized

For Pole and Transformer Wiring



Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Approx. Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
973	1/2	4 3/4	3	7 3/4	100	104	\$32.10
975	1/2	6	3	9	100	115	36.00
988	5/8	4 3/4	3	7 3/4	100	112	36.00
989	5/8	7 1/2	4	11 1/2	100	154	43.90
994	3/4	6	4	10	100	158	50.80

## Peirce Broad Base Forged Steel Pins

Hot Galvanized

Designed for supporting heavy primary and secondary lines on wood cross arms. Base is 2 1/2 inches wide and made in two styles, for flat top arms and for round arms.

Shank, 5/8 inch in diameter, is provided with 2 1/2-inch cut thread.

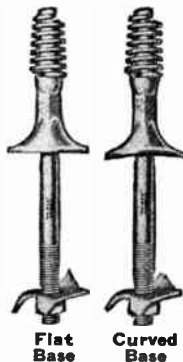
Spring Thread for 1-in. Pin Hole

Standard package, 75.

Cat. No.	Base	Above Arm In.	Length Shank In.	Ship. Wt., Lbs. per 100	Price per 100
1080	Curved	4 1/2	5 1/2	148	84.00

Lead Thread for 1-in. Pin Hole  
Standard package, 125.

1091	Flat	4 1/2	5 1/2	207	\$77.00
1090	Curved	4 1/2	5 1/2	207	84.00



Flat Base Curved Base

## Peirce Presteel Pins

Hot Galvanized

The same pin can be used for either steel or wood arms, on any size wood arm, on arms bored for any size of pin.

The pin is fastened to the arm with a 5/8-inch machine bolt. The nut fits within the body of the pin and is held from turning.

Furnished with spring thread only.



Straight Base



Curved Base

### Straight Base for Flat Top Arms

Cat. No.	DIMENSIONS, INCHES					Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	D	E	F				
5201	5	3	1 1/2	1	100	91	\$46.00	
5202	6 1/2	3 3/4	1 3/4	1	50	112	58.00	
5203	8	3 1/2	2	1	50	144	72.60	

### Curved Base for Round Top Arms

5221	5	3	1 1/2	1	100	91	\$46.00
5222	6 1/2	3 3/4	1 3/4	1	50	112	58.00
5223	8	3 1/2	2	1	50	144	72.60

Bolts are not included. Use 5/8-inch machine bolts, 2 inches long for steel arms and 6 inches for wood arms.

## Bolt Assemblies for Presteel Pins

Cat. No.	Description	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5241	No. 9802 Machine Bolt (5/8x2-Inch) and No. 5036 Spring Lock Washer.	500	39	\$12.20
5247	No. 9806 Machine Bolt (5/8x6-Inch) and No. 5040 Lock Washer.	250	69	18.90

## Peirce Lag Screw Type Forged Steel Transformer Pins

Hot Galvanized



The Peirce Screw Type Pins are in popular use as transformer pins for running leads from the line cross arm to the transformer arm, also for pole work such as running leads from the lighting circuit down the pole to the lighting fixtures.

### Spring Thread

Cat. No.	Diam. In.	LENGTH, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Above Shoulder	Below Shoulder	Total			
73	1/2	4 3/4	3	7 3/4	100	65	\$32.10
75	1/2	6	3	9	100	76	36.00
88	5/8	4 3/4	3	7 3/4	100	88	36.00
89	5/8	7 1/2	4	11 1/2	100	120	43.90
94	3/4	6	4	10	100	130	50.80

## Peirce Lag Screw Type Presteel Transformer Pins

Spring Thread—Hot Galvanized

Furnished with No. 22x2-inch wood screw. Diameter pin thread, 1 inch.

Cat. No.	LENGTH, IN.		Diam. Base In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
	Above Shoulder	Over All				
122	4 3/4	6 3/4	2 1/2	100	78	\$37.80



## No. 125 Peirce Lag Screw Type Forged Steel Transformer Pins

Broad Base

Hot Galvanized



For running leads from the line cross arm to the transformer arm, also for pole work such as running leads from the lighting circuit down the pole to the lighting fixtures.

Furnished with No. 22x2-inch wood screw. Diameter pin thread, 1 inch.

### Spring Thread

Cat. No.	LENGTH, IN.		Diam. Base In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
	Above Shoulder	Over All				
125	5	7	2	100	63	\$37.80

## No. 1650 Peirce Primary Lead Wireholders

All-Porcelain Type

Made from high grade wet process porcelain. Has sufficient leakage distance for primary voltages. No. 22x2-inch brass screw. Wire hole, 7/8 inch. Extension of wire, 3 1/2 inches. Standard package, 25. Weight per 100, 192 pounds.

Price, No. 1650.....per 100 \$88.00



## No. 5462 Peirce Insulated Cross Arm Fuse Block Brackets

Hot Galvanized

This bracket cemented to an insulator provides a clamp for attaching the fuse block or cutout. This gives double insulation to the fuse block. Fuse block or cutout can be quickly removed from cross arm without breaking the porcelain. The bracket being clamped to the cross arm binds the fibres of the wood together and prevents splitting and rotting.

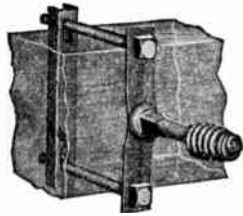
Adjustable for cross arms from 3 1/4x4 1/4 to 4x5 inches; adaptable to most fuse blocks and cutouts. Cross arm straps are not included and should be ordered separately.

Size of fuse block bolts, 3/8x3 1/2 inches, spaced 3 to 3 3/4 inches. Standard package, 15. Weight per 100, 550 pounds. Price, No. 5462.....per 100 \$247.20



**No. 4452 Peirce Side Clamp Pins**

Hot Galvanized



For supporting long primary leads from line wires to fuse blocks. It binds the fibers of the arm together and keeps the arm from splitting and rotting.

Adjustable to any size cross arm from 3/4x4 1/4 to 4x5 inches. Pin extension, 5 3/8 inches. Standard package, 75. Weight per 100, 231 pounds.

Price, No. 4452.....per 100 \$64.40

**No. 5452 Peirce Fuse Block Clamps**

Hot Galvanized

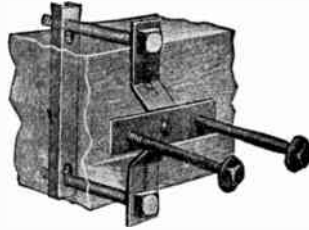
The fuse block or cutout can be quickly removed from the cross arm without breaking the porcelain.

This clamp clamps the fibres of the wood together and prevents splitting.

Adjustable to cross arms from 3/4x4 1/4 to 4x5 inches. Accommodates all standard makes of fuse blocks.

Fuse block bolts, 3/8x4 inches, spaced 3 to 4 inches. Standard package, 100. Weight per 100, 191 pounds.

Price, No. 5452.....per 100 \$75.50

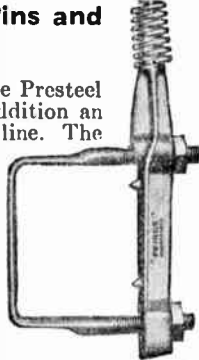


**Peirce Drop Forged Clamp Pins and Corner Plates**

Hot Galvanized

This pin has all the advantages of the Presteel and channel type clamp pins and in addition an assembly for angles and corners in the line. The reinforcing plate for corner construction holds the pin rigid against strains of 1200 pounds in any direction. On straight lines the pin is used without the plate and is prevented from shifting by two 1/4-inch lugs.

Made for flat and roofed top arms from 3/4x4 1/4 to 4x5 inches.



Cat. No.	Type of Thread	Pin Ht. Above Arm In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
4410	1" Spring	4 3/4	25	155	\$47.10
4420	1" Lead	4 3/4	100	175	47.10

**Reinforcing Plates**

Standard package, 100.



Cat. No.	Flat Top Arm	Roofed Top Arm	Size Arm In.	Use Strap No.	Wt. Lbs. per 100	Price per 100
5071	5081	3 1/4 x 4 1/4	1001	94	\$23.30	
5072	5082	3 1/2 x 4 1/2	1002	100	21.80	
5073	5083	3 3/4 x 4 3/4	1003	106	22.20	
5074	5084	4 x 5	1004	112	23.10	

**Peirce Clamp Pins**

For Low Voltage Insulators

Hot Galvanized

The pins listed are equipped with Peirce 1-inch spring threads.

Pin No. 4300 is pressed from a single piece of 12-gauge sheet steel.

No. 4400 is made of 3/4x3/8x1/8-inch channel steel.

All pins are of the same height above the arm, 4 3/4 inches, same as the N.E.L.A. standard wood pin.

Cat. No.	Size Cross Arm Inches	Height Above Arm, In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
4300	4x5 and Smaller	4 3/4	100	86	\$39.60
4400	4x5 and Smaller	4 3/4	25	114	55.50

No. 4300

No. 4400

**Peirce Clamp Pins**

For High Voltage Insulators

Hot Galvanized

For supporting high voltage insulators on angle steel, pipe or wood arms. Made of a single piece of 1x1/2-inch channel steel bent double, and separated by spacers.

**1 1/2-Inch Separable Thimble Type**

Cat. No.	Ht. Above Arm, In.		Std. Pkg.	Wt. Lbs. per 100	Price per 100
	Mounted on Angle or Pipe	Mounted on Wood Arm			
4808	8	5 3/4	25	203	\$64.60
4809	9	6 3/4	25	217	72.20
4810	10	7 3/4	25	230	76.80



No. 4810



No. 4860

**1 3/8-Inch Lead Thread Type**

Cat. No.	Ht. Above Arm, In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
4858	8	5 3/4	100	\$72.20
4859	9	6 3/4	100	79.80
4860	10	7 3/4	75	84.40

**Peirce Clamp Pins**

Hot Galvanized

Designed for angle and corner construction and will withstand strains of 2500 pounds without deflection. Each pin is forged from a single piece of new hot rolled open hearth steel and is so constructed that the greatest amount of metal is at the point where the strain is the hardest. Broad base rests evenly on arm, 4 lugs hold pin from turning on the cross arm.



Cat. No.	For Flat Top Arm Inches	Pin Ht. Above Arm In.	1-IN. SPRING THRD. Approx. Ship.		1-IN. LEAD THRD. Approx. Ship.		Price per 100
			Wt., Lbs. per 100	Std. Pkg.	Cat. No.	Std. Pkg.	
4310	3 1/4 x 4 1/4	5 1/2	348	50	4320	368	\$74.00
4311	3 1/2 x 4 1/2	5 1/2	348	50	4321	368	74.00
4312	3 3/4 x 4 3/4	5 1/2	412	50	4322	432	87.50
4313	4 x 5	5 1/2	412	50	4323	432	87.50

**Peirce Cross-Arm Straps**

Hot Galvanized

Drop forged from round steel and have a broad flat bearing on the arm, which helps to hold the pins firmly upright. By drop forging from round stock, freedom from flaws is assured, and the threads are always uniform in size.



**Light Cross-Arm Straps**

Cat. No.	Size of Arm Inches	SIZE STRAP, INCHES	Std. Pkg.	Wt., Lbs. per 100	Price per 100
1001	3 1/4 x 4 1/4	3/16 x 1 1/8 Flat	1/2	100	\$26.70
1002	3 1/2 x 4 1/2	3/16 x 1 1/8 Round	1/2	85	27.80
1003	3 3/4 x 4 3/4	3/16 x 1 1/8	1/2	90	29.10
1004	4 x 5	3/16 x 1 1/8	1/2	95	31.40

**Heavy Cross-Arm Straps**

Cat. No.	Size of Arm Inches	SIZE STRAP, INCHES	Std. Pkg.	Wt., Lbs. per 100	Price per 100
2001	3 1/4 x 4 1/4	1/4 x 1 3/8	5/8	75	\$34.20
2002	3 1/2 x 4 1/2	1/4 x 1 3/8	5/8	75	37.60
2003	3 3/4 x 4 3/4	1/4 x 1 3/8	5/8	75	39.10
2004	4 x 5	1/4 x 1 3/8	5/8	150	41.10

**Peirce Angle Clamps**

Hot Galvanized



No. 161



No. 165

**Notched Angle Clamps**

Angle clamps are used for supporting clamp pins on cross-arms of angle section, such as the Bo-Arrow, and Angle Arms.

Cat. No.	Size Angle Inches	Size Bolt Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
159	2 1/2 x 2 1/2	5/8	150	114	\$18.60
160	3 x 2	5/8	150	110	19.80
161	3 x 3	3/8	140	125	21.80
162	3 1/2 x 3 1/2	5/8	100	141	23.30

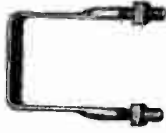
**Standard Pipe Clamps**

Cat. No.	Size	Std. Pkg.	Wt., Lbs. per 100	Price per 100
165	1 1/4	100	160	\$33.10
166	1 1/2	75	163	34.60
167	2	100	170	36.00

## Peirce Drop Forged Cross-Arm Straps

Hot Galvanized

For attaching broad base clamp pins to cross arms, insulated fuse block clamps to cross arms, channel clamp pins to cross arm in a horizontal position, for running vertical leads between the arms.



### Light Cross-Arm Straps

Cat. No.	Size of Arm Inches	SIZE STRAP, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Flat	Round			
1871	3 1/4 x 1 1/4	3/16 x 1 1/8	1/2	100	94	\$30.20
1872	3 1/2 x 1 1/2	3/16 x 1 1/8	1/2	100	100	32.70
1873	3 3/4 x 1 3/4	3/16 x 1 1/8	1/2	75	106	36.60
1874	4 x 5	3/16 x 1 1/8	1/2	75	112	39.80

### Heavy Cross-Arm Straps

Cat. No.	Size of Arm Inches	SIZE STRAP, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Flat	Round			
1881	3 1/4 x 1 1/4	1/4 x 1 3/8	5/8	75	126	\$30.90
1882	3 1/2 x 1 1/2	1/4 x 1 3/8	5/8	75	133	34.20
1883	3 3/4 x 1 3/4	1/4 x 1 3/8	5/8	75	140	37.50
1884	4 x 5	1/4 x 1 3/8	5/8	75	147	39.10

## Peirce Forged Steel Corner Pins

Hot Galvanized

A solid 1-piece forging with 8-inch base and cross arm clamping arrangement. Will withstand 4000 pounds side strain for corner and angle construction. Tapered shank and wings provide a wedge-lock of the pin to cross arm; broad flat cross arm plate assists in reinforcing cross arm. Made for 4x5-inch flat top cross arms. Standard package, 10



Cat. No.	LENGTH SHOULDER			Wt. Lbs. per 100	Price per 100
	A- In.	Be- In.	Over In.		
5428	8 1/2	14 1/2	837	\$259.80	
5430	9 1/2	15 1/2	882	270.40	
5432	10 1/2	16 1/2	927	281.50	
5434	11 1/2	17 1/2	959	297.50	
5436	12 1/2	18 1/2	994	310.90	
5064	4x5 Cross Arm Plate 91			19.20	

## Peirce Presteel Cross Arm Saddles

Hot Galvanized

Used with Peirce Forged Steel Pins on round top cross arms. Pressed from No. 7 gauge sheet steel.



Cat. No.	DIMENS., INCHES		Approx. Ship. Wt., Lbs. per 100 Pieces	Price per 100
	Width Cross Arm	Size Pin Hole		
5001	3 1/4	1 1/16	87	\$15.10
5002	3 1/2	1 1/16	93	17.30
5003	3 3/4	1 1/16	99	18.60
5004	4	1 1/16	105	18.70
5005	5	1 1/16	130	23.30
5011	3 1/4	1 1/16	87	15.10
5012	3 1/2	1 1/16	93	17.30
5013	3 3/4	1 1/16	99	18.60
5014	4	1 1/16	105	18.90
5015	5	1 1/16	130	23.30

## Peirce Lock Washers

Hot Galvanized

For use on long shank insulator pins to lock nuts on wooden cross arms.



Cat. No.	Size of Pin Hole, In.	Size of Steel, In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5040	1 1/16	12ga. x 1 3/4	500	10	6.40
5041	1 3/16	12ga. x 1 3/4	500	10	6.40

## Hubbard Spring Lock Washers

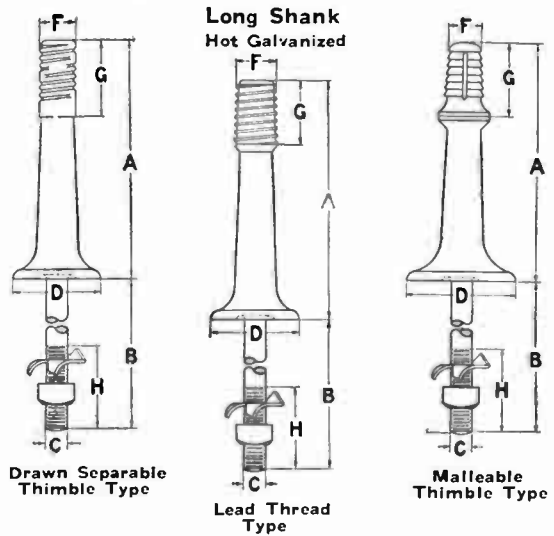
Hot Galvanized

Coiled flat from bars of special alloy steel. For use with short shank forged steel pins on steel arms.



Cat. No.	Size Pin Hole, In.	Size of Steel, In.	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5036	1 1/16	1 1/16 x 3/4	100	2.2	2.20
5037	1 3/16	1 1/4 x 3/16	100	4.3	2.80

## Peirce Forged Steel Pins for Wood Arms



The Peirce Pin is a solid forging from a single bar of special treated high carbon steel and has neither welds nor joints. Its strength is uniform in all directions. There are no flanges or webs which must be placed in line with the strain. There are no projections to concentrate electrostatic stresses. The full strength of the pin is carried up to the top of the insulator bore. There is no weakness at the base of the thimble as with malleable pins.

### With Drawn Zinc Separable Thimbles

For Cementing into Insulators with 1-Inch Pin Hole

Cat. No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	H			
5604	4	5 1/2	3/4	2 1/2	27/32	2 1 3/4	75	196	\$86.20
5608	5	5 1/2	3/4	2 1/2	27/32	2 1 3/4	50	209	89.10
5612	6	5 1/2	3/4	2 1/2	27/32	2 1 3/4	50	233	92.00

For Cementing into Insulators with 1 3/8-Inch Pin Hole

Cat. No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	H			
5624	6	6 1/2	3/4	3	17/32	2 1/2 2 3/4	35	374	\$122.20
5626	7	6 1/2	3/4	3	17/32	2 1/2 2 3/4	35	409	126.40
5628	8	7	3/4	3	17/32	2 1/2 2 3/4	25	460	132.20
5630	9	7	3/4	3 1/2	17/32	2 1/2 2 3/4	25	552	152.40
5632	10	7	3/4	3 1/2	17/32	2 1/2 2 3/4	25	601	159.60
5634	11	7	3/4	3 3/4	17/32	2 1/2 2 3/4	25	674	171.10
5636	12	7	3/4	3 3/4	17/32	2 1/2 2 3/4	20	738	181.10
5638	13	7	3/4	3 3/4	17/32	2 1/2 2 3/4	20	792	184.50

### With Lead Threads

For Screwing into Insulators with 1-Inch Pin Hole

Cat. No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	H			
5704	4	5 1/2	3/4	2 1/2	1 1 5/8	1 3/4	100	225	\$87.00
5708	5	5 1/2	3/4	2 1/2	1 1 5/8	1 3/4	100	240	90.10
5712	6	5 1/2	3/4	2 1/2	1 1 5/8	1 3/4	75	267	93.00

For Screwing into Insulators with 1 3/8-Inch Pin Hole

Cat. No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	H			
5724	6	6 1/2	3/4	3	1 3/8	2 1/8 2 3/4	50	450	\$130.40
5726	7	6 1/2	3/4	3	1 3/8	2 1/8 2 3/4	50	485	134.50
5728	8	7	3/4	3	1 3/8	2 1/8 2 3/4	50	536	140.10
5730	9	7	3/4	3 1/2	1 3/8	2 1/8 2 3/4	50	624	159.60
5732	10	7	3/4	3 1/2	1 3/8	2 1/8 2 3/4	45	688	166.50
5734	11	7	3/4	3 3/4	1 3/8	2 1/8 2 3/4	45	759	177.60
5736	12	7	3/4	3 3/4	1 3/8	2 1/8 2 3/4	30	826	187.40
5738	13	7	3/4	3 3/4	1 3/8	2 1/8 2 3/4	30	893	197.10

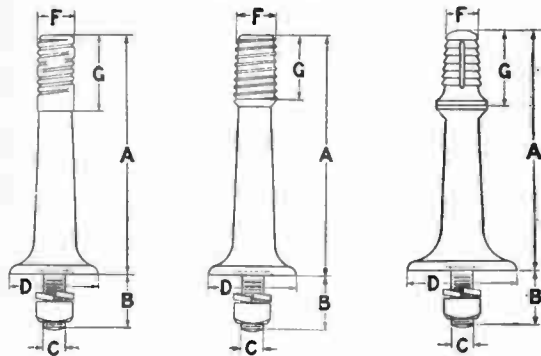
### With Malleable Thimbles

For Cementing into Insulators with 1 3/8-Inch Pin Hole

Cat. No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	H			
4124	6	6 1/2	3/4	3	1 1/8	2 1/2 2 3/4	50	393	\$133.60
4126	7	6 1/2	3/4	3 3/4	1 1/8	2 1/2 2 3/4	35	453	138.00
4128	8	7	3/4	3 3/4	1 1/8	2 1/2 2 3/4	35	511	143.80
4130	9	7	3/4	3 3/4	1 1/8	2 1/2 2 3/4	25	561	163.80
4132	10	7	3/4	3 3/4	1 1/8	2 1/2 2 3/4	25	615	171.20
4134	11	7	3/4	4 3/4	1 1/8	2 1/2 2 3/4	25	673	182.60
4136	12	7	3/4	4 3/4	1 1/8	2 1/2 2 3/4	25	831	192.60
4138	13	7	3/4	4 3/4	1 1/8	2 1/2 2 3/4	20	989	195.60

**Peirce Forged Steel Pins for Steel Arms**

**Short Shank  
Hot Galvanized**



**Drawn Separable Thimble Type**

**Lead Thread Type**

**Malleable Thimble Type**

The separable thimble which is a part of the standard pin is drawn from sheet zinc, and the threads are rolled.

The lead thread pin is made the same as the standard, and in addition is notched and so prepared that when the lead thread is cast, it actually becomes a part of the pin.

The malleable thimble pin is also made similar to the standard pin except that the top is threaded with a standard 3/4-inch thread 1 3/8-inch long so that it may be used with any separable malleable thimble. Unless otherwise specified, pin is furnished complete with malleable iron thimbles for cementing into insulators with a 1 3/8-inch hole.

**With Drawn Zinc Separable Thimbles**

**For Cementing into Insulators with 1-Inch Pin Hole**

Stock No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	G			
5603	4	1 3/4	3/4	2 1/2	2 1/2	2	100	139	\$71.90
5607	5	1 3/4	3/4	2 1/2	2 1/2	2	100	152	74.80
5611	6	1 3/4	3/4	2 1/2	2 1/2	2	75	178	77.60

**For Cementing into Insulators with 1 3/8-Inch Pin Hole**

Stock No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	G			
5623	6	1 3/4	3/4	3	1 7/8	2 1/2	50	302	\$102.20
5625	7	1 3/4	3/4	3	1 7/8	2 1/2	35	339	106.40
5627	8	1 3/4	3/4	3	1 7/8	2 1/2	35	384	112.10
5629	9	1 3/4	3/4	3 1/2	1 7/8	2 1/2	25	474	132.20
5631	10	1 3/4	3/4	3 1/2	1 7/8	2 1/2	25	523	139.40
5633	11	1 3/4	3/4	3 3/4	1 7/8	2 1/2	25	596	150.80
5635	12	1 3/4	3/4	3 3/4	1 7/8	2 1/2	25	656	161.00
5637	13	1 3/4	3/4	3 3/4	1 7/8	2 1/2	20	716	165.10

**With Lead Threads**

**For Screwing into Insulators with 1-Inch Pin Hole**

Stock No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	G			
5703	4	1 3/4	3/4	2 1/2	1	1 5/8	175	167	\$73.50
5707	5	1 3/4	3/4	2 1/2	1	1 5/8	175	181	76.40
5711	6	1 3/4	3/4	2 1/2	1	1 5/8	175	207	79.00

**For Screwing into Insulators with 1 3/8-Inch Pin Hole**

Stock No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	G			
5723	6	1 3/4	3/4	3	1 3/8	2 1/8	100	365	\$113.00
5725	7	1 3/4	3/4	3	1 3/8	2 1/8	100	400	115.20
5727	8	1 3/4	3/4	3	1 3/8	2 1/8	75	450	120.80
5729	9	1 3/4	3/4	3 1/2	1 3/8	2 1/8	75	550	140.10
5731	10	1 3/4	3/4	3 1/2	1 3/8	2 1/8	75	599	147.00
5733	11	1 3/4	3/4	3 3/4	1 3/8	2 1/8	75	673	158.20
5735	12	1 3/4	3/4	3 3/4	1 3/8	2 1/8	75	733	167.80
5737	13	1 3/4	3/4	3 3/4	1 3/8	2 1/8	60	793	177.50

**With Malleable Thimbles**

**For Cementing into Insulators with 1 3/8-Inch Pin Hole**

Stock No.	DIMENSIONS, INCHES						Std. Pkg.	Wt., Lbs. per 100	Price per 100
	A	B	C	D	F	G			
4123	6	1 3/4	3/4	3	1 1/8	2 1/2	50	321	\$113.60
4125	7	1 3/4	3/4	3 3/4	1 1/8	2 1/2	50	383	117.80
4127	8	1 3/4	3/4	3 3/4	1 1/8	2 1/2	35	433	123.60
4129	9	1 3/4	3/4	3 3/4	1 1/8	2 1/2	35	483	143.80
4131	10	1 3/4	3/4	3 3/4	1 1/8	2 1/2	25	539	150.80
4133	11	1 3/4	3/4	4 1/4	1 1/8	2 1/2	25	699	162.40
4135	12	1 3/4	3/4	4 1/4	1 1/8	2 1/2	25	755	172.50
4137	13	1 3/4	3/4	4 1/4	1 1/8	2 1/2	25	913	176.30

**Peirce Drawn Zinc Separable Thimbles**

**For Peirce Pins**



As these thimbles are included with the pins with which they are listed, it is not necessary to order them separately, except when they are to be cemented into insulators used for replacements.

No. 5051 Thimble, 7/32 inch in diameter, is cemented into insulators with a standard 1-inch pin hole. The 1 1/32-inch Thimble No. 5052 is used with insulators having a 1 3/8-inch pin hole.

Cat. No.	Diam. of Thimble Inches	Size of Insulator Pin Hole Inches	Std. Pkg.	Shipping Weight Pounds per 100	Price per 100
5051	7/32	1	2400	6.5	\$17.80
5052	1 1/32	1 3/8	800	12.5	20.00

Packed in barrel.

**Peirce Lead Thread Separable Thimbles  
Drawn Thimble Type**

While the cementing of thimbles into the insulators is recommended as being the most dependable method, there are cases, for instance, where wood pins are being replaced with forged steel pins, in which the cost and trouble of cementing the thimbles are too great.

For such conditions standard Peirce drawn zinc thimbles are furnished with lead threads cast on them, so that insulators can be screwed on the thimbles mounted on the pins instead of having the thimbles cemented into the insulators and then screwed on the pins. These thimbles may be used on No. 5600 series forged steel pins, high voltage clamp pins, and pole top pins.



Cat. No.	For Insulator Pin Hole, In.	Size of Thimble, In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
5020	1	7/32	400	35.5	\$27.80
5025	1 3/8	1 1/32	250	56.5	33.30

**No. 5018 Peirce Lead Thread Thimbles**

**Malleable Thimble Type**

This thimble is made by casting lead threads on the No. 5019 thimble adapter and is used with pins having a standard 3/4-inch center bolt or with Peirce No. 4100 series pin.

The lead thread is made to screw directly into an insulator having a 1 3/8-inch pin hole.



Cat. No.	For Insulator Pin Hole In.	Hole in Thimble In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
5018	1 3/8	3/4	150	118	\$43.30

**No. 5019 Peirce Thimble Adapters**

**Hot Galvanized**

Provides a method for using insulators, in which Peirce Drawn Thimbles are cemented, on old lines equipped with cast iron separable thimbles.



Cat. No.	DIMEN., IN.			Ship. Wt., Lbs. per 100	Price per 100
	Outside Thread	Inside Thread	Height		
5019	1 1/2	3/4	3	55	\$27.80

**Peirce Presteel Centering Washers**

**Hot Galvanized**

Used on the lower end of Peirce Forged Steel Pins to center the pin when used on arms bored for wood pins.

Cat. No.	To Fit Hole Inches	Pin Hole Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
5030	1 1/4	1 3/16	500	28	\$12.40
5031	1 1/4	1 1/16	500	27	12.40
5032	1 1/2	1 3/16	500	31	12.40
5033	1 1/2	1 1/16	500	29	12.40





## Peirce Solid Steel Pole Top Pins

Hot Galvanized



No. 3120

This type of pole top pin is made of a solid bar of special stiff steel. The two bolt holes at right angles permit the lining up of the wire groove of the insulator.

### Lead Thread

For 1 1/8-Inch Insulator Pin Hole

Cat. No.	DIMENSIONS INCHES		Length Over All	Std. Pkg.	Weight Pounds per 100	Price per 100
	Spacing of Through and Eye Bolt	Diam.				
3120	8	1	20	10	745	\$125.20
3124	8	1	24	10	833	147.40
3125	8	1 1/8	24	10	979	187.40
3131	10	1 1/8	30	10	1148	205.10
3137	10	1 1/8	36	10	1317	245.10

### Separable Zinc Thimble

For Cementing Into 1 1/8-Inch Insulator Pin Hole

Cat. No.	Spacing of Through and Eye Bolt	Diam.	Length Over All	Std. Pkg.	Weight Pounds per 100	Price per 100
3220	8	1	20	10	714	\$125.20
3224	8	1	24	10	802	147.40
3225	8	1 1/8	24	10	954	178.40
3231	10	1 1/8	30	10	1123	205.10
3237	10	1 1/8	36	10	1292	245.10

### \*Malleable Iron Thimble

For Cementing Into 1 1/8-Inch Insulator Pin Hole

Cat. No.	Spacing of Through and Eye Bolt	Diam.	Length Over All	Std. Pkg.	Weight Pounds per 100	Price per 100
3420	8	1	20	10	745	\$130.80
3424	8	1	24	10	833	153.00
3425	8	1 1/8	24	10	979	192.90
3431	10	1 1/8	30	10	1148	210.70
3437	10	1 1/8	36	10	1317	250.60

### Eye Bolts



No. 3151



No. 4151

For 1-Inch Pin

Curved Shoulder Type	Broad Washer Type	Length to Center of Eye Inches	Diameter Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3149	4149	10	5/8	50	129	\$37.80
3151	4151	12	5/8	50	145	42.20
3153	4153	14	5/8	50	161	47.10

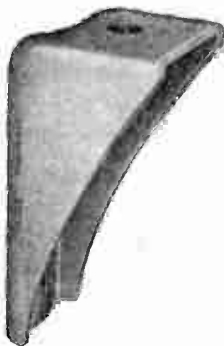
For 1 1/8-Inch Pin

Curved Shoulder Type	Broad Washer Type	Length to Center of Eye Inches	Diameter Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3150	4150	10	5/8	50	129	\$37.80
3152	4152	12	5/8	50	149	42.20
3154	4154	14	5/8	50	161	47.10

\*Unless otherwise specified, pins come complete with Thimble No. 5021. Adapter may be used.

## Peirce Presteel Pole Top Brackets

Hot Galvanized



Some engineers like to use the same type of pin for both cross arms and pole top work. The Presteel Top Bracket allows them to use Peirce Steel Pins for both these purposes, which simplifies stock keeping.

It is pressed out of a single plate 1/4-inch thick, with no welds or seams. This construction makes it strong enough for use with Peirce Steel Pins, and guarantees that it is free from flaws.

Cat. No.	Pin Hole Inches	Bolt Holes Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
3035	13/16	1 1/16	10	440	\$159.50
3036	1 1/16	1 1/16	10	440	159.50

## Peirce Presteel Pole Top Pins

Hot Galvanized

Peirce Presteel Pins are made from No. 9 gauge sheet steel, which gives the maximum strength for a given weight.

Mounting holes are 1/16-inch.



No. 3048

### Spring Thread Type

Cat. No.	Length Overall Inches	Hole Spacing Inches	Diam. of Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3040	18	8	1	10	240	\$96.20
3045	24	8	1	10	340	131.20

### Lead Thread Type

Cat. No.	Length Overall Inches	Hole Spacing Inches	Diam. of Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3034	18	8	1	10	331	\$96.20
3039	18	8	1 1/8	10	404	118.40
3044	24	8	1	10	447	131.20
3049	24	8	1 1/8	10	510	153.30

### Separable Zinc Thimble Type

Cat. No.	Length Overall Inches	Hole Spacing Inches	Diam. of Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3042	18	8	27/32	10	275	\$115.50
3043	18	8	1 1/8	10	286	115.50
3047	24	8	27/32	10	400	149.90
3048	24	8	1 1/8	10	406	150.00

## Peirce Pipe Pole Top Pins

For 1 1/8-Inch Pin Hole

For the higher voltage lines the extra heavy pipe pins are in general use, because of their strength and light weight.

Mounting holes are 1/16-inch.

### With Separable Zinc Thimble

Cat. No.	Size of Pipe Inches	Length Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3060	1 1/4	18	10	220	\$128.60
3061	1 1/2	18	10	310	198.90
3063	1 1/2	24	10	703	237.80
3065	1 1/2	28	10	823	277.80
3066	2	28	10	1098	341.20
3067	1 1/2	32	10	945	294.40
3068	2	32	10	1265	393.20
3069	2	36	10	1433	445.40

### Lead Thread

Cat. No.	Length Overall Inches	Hole Spacing Inches	Diam. of Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3070	1 1/4	18	10	337	\$128.60	
3071	1 1/2	18	10	457	182.90	
3073	1 1/2	24	10	826	237.80	
3075	1 1/2	28	10	946	319.20	
3076	2	28	10	1221	412.00	
3077	1 1/2	32	10	1078	294.40	
3078	2	32	10	1398	434.40	
3079	2	36	10	1566	486.60	

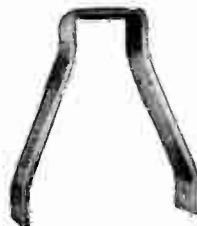
### \*Malleable Thimble

Cat. No.	Length Overall Inches	Hole Spacing Inches	Diam. of Thread Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3080	1 1/4	18	10	220	\$139.60	
3081	1 1/2	18	10	310	209.80	
3083	1 1/2	24	10	703	248.60	
3085	1 1/2	28	10	823	288.80	
3086	2	28	10	1098	352.30	
3087	1 1/2	32	10	945	305.20	
3088	2	32	10	1265	404.30	
3089	2	36	10	1433	456.40	

\*Unless otherwise specified, pins come complete with thimble No. 5021. Adapters may be used.

## Hubbard Ridge Irons

Hot Galvanized



Fastened to pole by four 1/2-inch lag screws, holes staggered to prevent splitting pole top.

Pins not included in prices.

Cat. No.	Steel In.	DIMENS., INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Ht.	Pole	Pin Hole			
9407	2 1/4 x 1/8	7	6	9/16	10	140	\$42.50
9408	2 3/4 x 3/16	8	7	1 1/16	10	280	66.80
9409	2 3/4 x 1/4	8 1/4	7	13/16	5	450	81.80
9410	3 x 1/4	18 1/2	7	1 9/16	5	888	155.85

**Peirce Pole Top Pins**

**Angle Steel**

**Hot Galvanized**

Used to support a 1-inch bore insulator at a considerable height above pole top.

**Spring Thread Type**

Cat. No.	Size Steel Inches	Length Inches	Spacing Inches	Mounting Hole Inches	Diam. Thrd. In.	Std. Pkg.	Wt. per 100	Price per 100
3030	2x2x3/16	18	8	1 1/16	1	10	360	\$140.00
3031	2x2x3/16	24	8	1 1/16	1	10	460	193.30
3033	2x2x3/16	36	10	1 1/16	1	10	600	229.80

**Lead Thread Type**

3001	2x2x3/16	18	8	1 1/16	1	5	469	\$140.00
3002	2x2x3/16	24	8	1 1/16	1	5	569	193.30
3003	2x2x3/16	36	10	1 1/16	1	5	709	229.80

**Heavy Channel**

**Lead Thread Type**

Composed of two heavy channels riveted back to back.

3024	1 3/4x5/8	18	8	1 1/16	1 3/8	10	587	\$152.90
3025	1 3/4x5/8	24	8	1 1/16	1 3/8	10	723	189.30

**Light Channel**

Nos. 3000, 3010 and 3012 are used for signal wires. No. 3000 is offset so as to bring insulator over center of pole when necessary to fasten the pin to side of pole. No. 3010 is a straight pin, similar to No. 3012. Nos. 3013 and 3017, made of presteel, for use with 1-inch bore insulators on light 6600 and 11000 volt lines.

**Spring Thread Type**

3000	1 x 1/2	18	4	7/16	1	25	144	\$55.30
3010	1 x 1/2	12	4	7/16	1	25	88	32.40
3012	1 x 1/2	18	4	7/16	1	25	128	56.00
3013	1 7/8x1	15	4	1 1/16	1	10	150	52.20

**Lead Thread Type**

3014	1 x 1/2	18	4	7/16	1	125	201	\$55.30
3015	1 x 1/2	12	4	7/16	1	150	145	44.40
3016	1 x 1/2	18	4	7/16	1	150	185	57.80
3017	1 7/8x1	15	4	1 1/16	1	100	207	52.20

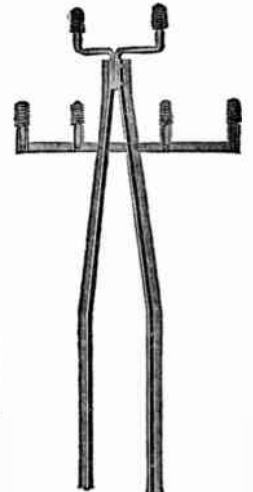
No. 3000

**Peirce Fire Alarm Fixtures**

**Hot Galvanized**



3-Wire



6-Wire

These are combination fixtures for carrying signal wires on electric light, telephone or other foreign poles. Any number of wires, from one to six, can be correctly spaced on the various brackets which are bolted to the angle legs. These legs are of 1 3/4x1 3/4x1/8 - inch angle steel and the insulator brackets of 1x1/2x1/8 - inch channel steel.

Prices include all bolts for fastening parts together, but not the 1/2-inch through bolts, for which 5/8-inch holes are provided in the legs.

**Complete Assembly**

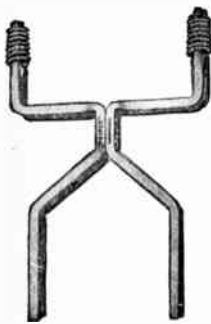
Cat. No.	Assembly	CONSISTING OF			Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Legs	Bracket	Arm			
2582	2-Wire	2592	2591	.....	5	1400	\$365.60
2583	3-Wire	2592	2590	2593	5	1475	393.20
2584	4-Wire	2592	2591	2593	5	1600	442.70
2585	5-Wire	2592	2590	2594	5	1665	490.20
2586	6-Wire	2592	2591	2594	5	1790	539.80

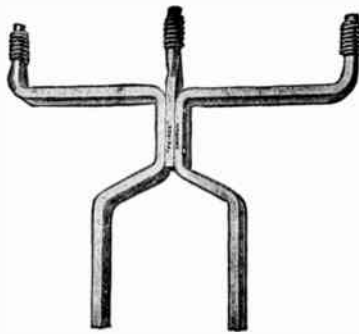
Cat. No.	Description	Std. Pkg.	Wt., Lbs. per 100	Price per 100
2590	One-Point Bracket.....	10	75	\$22.70
2591	Two-Point Bracket.....	10	200	72.20
2592	Pair Angle Legs.....	10	1200	293.30
2593	Two-Point Arm.....	10	200	77.10
2594	Four-Point Arm.....	10	390	174.20

**Peirce Ridge Brackets**

**Hot Galvanized**



No. 228



No. 338

Convenient for carrying a few foreign wires such as signal and fire alarm circuits on pole tops.

The No. 228 is made of 1x1/2-inch steel channel and is for use on poles with 6 3/4-inch diameter tops.

The 8-wire bracket, No. 338, is somewhat heavier than the 228, being made of 1 1/2x3/8-inch channel. This bracket is used on poles with 7-inch tops.

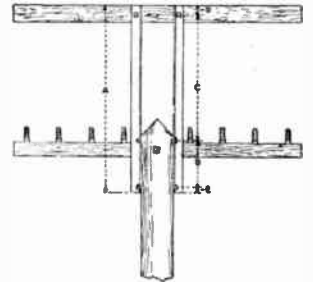
The points of these brackets are 4 1/2 inches high and are equipped with Peirce spring threads for 1-inch hole insulators. Each bracket is provided with sufficient holes for secure mounting.

Cat. No.	Size Channel	DIMENSIONS, INCHES			Ship. Wt., Lbs. per 100	Price per 100
		Spacing	Diam. Pole	Diam. Holes		
228	1 x 1/2	10	6 3/4	7/8	300	\$89.50
338	1 1/2x3/8	10	7	7/8	700	260.20

**Peirce Pole Extensions**

**Hot Galvanized**

Designed to support electric light wires 48 inches above the telephone wires on the first cross arm when the upper through bolt of the extension is located at the top of the telephone arm. The clearance specified, 48 inches, is that required by the Bell companies. Holes for 5/8-inch through bolts. Size angle, 3x3x1/4 inches.



Cat. No.	Description	DIMENSIONS INCHES					Wt. Lbs.	Price per 100
		A	B	C	D	E		
2375	Angles only.....	76	24	43 3/4	4 1/4	2	57	\$716.20
2376	Complete.....	74	24	45	3	2	87	1055.60

**Hubbard Ground Wire Bayonets**

**Hot Galvanized or Plain**

**Offset Bayonets**

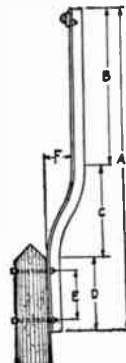
The offset type of bayonet is used when an overhead ground wire is installed on a single-circuit transmission line employing pole top pin or ridge iron construction.

**Offset Bayonets**

Cat. No.	Length Inches	Size Angle Inches	Wt. Lbs. per 100	Price per 100
6420	54	2 1/2x2 1/4x1/4	2050	\$323.00
6421	72	2 1/2x2 1/2x1/4	2829	405.00
6422	81	3 x3 x1/4	3800	507.00

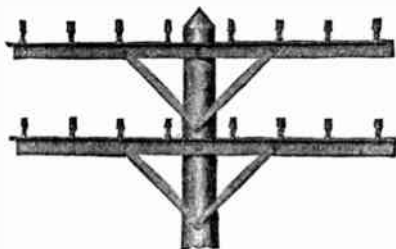
**Dimension of Offset Bayonets, Inches**

B	C	D	E	F
23 1/2	12	18 1/2	15	8
37 1/2	14	20 1/2	17	10
39 5/8	15 1/8	25 1/2	22	12



## Hubbard Angle Steel Cross Arms

Hot Galvanized



Steel arms of a given cross section are uniform in strength, and when protected by hot-dip galvanizing, their strength remains uniform throughout the life of the zinc coating, probably thirty years.

Unless otherwise specified, holes will be of the following sizes: for through bolts,  $\frac{1}{16}$  inch; for brace bolts,  $\frac{7}{16}$  inch for flat braces and  $\frac{9}{16}$  inch for angle braces; and for pins,  $\frac{13}{16}$  inch. Quotations on special arms will be given promptly.

### Telephone Arms

Cat. No.	No. of Pins	Lgth. In.	Punched for Pole No.	PIN SPACING, IN.		Size Angle Inches	Shp. Wt., Lbs. Each	Price Each
				Side Pins	Pole Pins			
7602	2	20	8020	16	..	3 x2 x $\frac{3}{16}$	5 $\frac{1}{4}$	.....
7604	4	40	8020	16	10	3 x2 x $\frac{3}{16}$	10 $\frac{1}{4}$	.....
7606	6	60	8022	16	10	3 x3 x $\frac{1}{4}$	24 $\frac{1}{2}$	.....
7608	8	80	8030	16	10	3 x3 x $\frac{1}{4}$	32 $\frac{3}{4}$	.....
7610	10	100	8032	16	10	3 x3 x $\frac{1}{4}$	41	.....

### Electric Light Arms—N. E. L. A. Standard Spacing

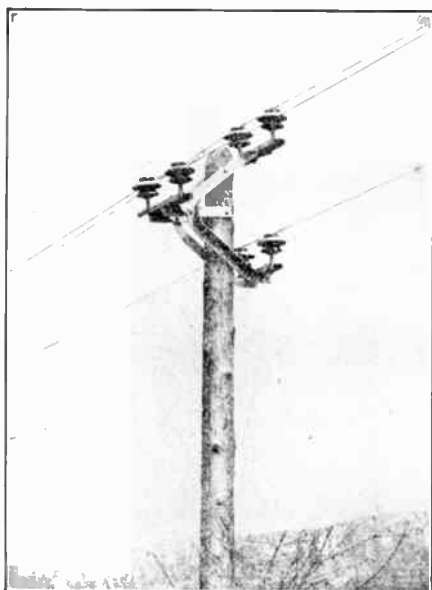
7612	2	36	8120	30	....	3 x3 x $\frac{1}{4}$	14 $\frac{3}{4}$	.....
7614	4	65	8126	30	14 $\frac{1}{2}$	3 x3 x $\frac{1}{4}$	26 $\frac{1}{2}$	.....
7616	6	94	7910	30	14 $\frac{1}{2}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{16}$	56 $\frac{1}{2}$	.....
7620	8	117 $\frac{3}{4}$	7941	30	13 $\frac{5}{8}$	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{16}$	70 $\frac{3}{8}$	.....

### Power Transmission Arms

7622	2	28	8120	24	..	3 x3 x $\frac{1}{4}$	11 $\frac{2}{3}$	.....
7632	2	40	8120	36	..	3 x3 x $\frac{1}{4}$	16 $\frac{2}{3}$	.....
7642	2	52	8120	48	..	3 x3 x $\frac{1}{4}$	21 $\frac{7}{8}$	.....
7672	2	80	7910	74	..	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{16}$	48	.....
7624	4	76	7950	24	24	3 x3 x $\frac{1}{4}$	31 $\frac{1}{2}$	.....
7634	4	116	7912	38	36	3 $\frac{1}{2}$ x3 $\frac{1}{2}$ x $\frac{3}{16}$	69 $\frac{1}{2}$	.....

## Hubbard Bo-Arrow Single and Double Arming Sets

Hot Galvanized



Showing Standard Construction on Hubbard Double Bo-Arrow Arms

A complete line of Bo-Arrow Arms, Hi-Ten Extensions and Pole Top Fixtures can be supplied.

Write for detailed information.

## Peirce Double Arming Channels and Plates

Hot Galvanized



No. 6824



No. 6844

Can be used for double arming Peirce Forged Steel Pins or Suspension Type Insulators on wood or steel cross arms. Adjustable for poles from 7 to 12 inches, top diameter, with gains  $\frac{1}{2}$ -inch deep.

Cat. No.	Material	DIMENSIONS, INCHES				Std. Length Pkg.	Wt. per 100	Price per 100
		Size Slots	Pin Holes	Spacing	Size Steel			
6824	Channel	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	20	4x1 $\frac{1}{2}$	21	1080	\$124.40
6927	Channel	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	23	4x1 $\frac{1}{2}$	27	1226	155.40
6830	Channel	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	26	4x1 $\frac{1}{2}$	30	1350	185.60
6844	Plate	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	20	1 $\frac{1}{2}$ x4	21	1300	148.10
6847	Plate	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	23	1 $\frac{1}{2}$ x4	27	1477	168.00
6850	Plate	1 $\frac{3}{16}$ x3	1 $\frac{3}{16}$	26	1 $\frac{1}{2}$ x4	30	1650	187.80

## Hubbard Ground Wire Bayonets

Hot Galvanized



Used for supporting the overhead ground wire on wood or steel poles.

All bayonets have two  $\frac{1}{16}$ -inch holes for  $\frac{5}{8}$ -inch through bolts, and their upper ends have two  $\frac{9}{16}$  holes. Bayonets are fastened to the back of the pole by the upper cross arm bolt and a lag screw or a second through bolt.

Corner bayonets are used at all points where double arms are required. They consist of two angles, one bent, the other straight, fastened together by two  $\frac{1}{2}$ -inch machine bolts furnished with the angles. The angle is bent for an 8-inch pole top, but the angles may be spread to fit any size of pole. The through bolt holes in the bent leg of the bayonet are slotted  $\frac{1}{16}$ -inch wide by  $1\frac{1}{2}$  inches long, to allow for any inaccuracy in boring bolt holes in the poles.

Bayonets equipped with Peirce 1-inch Spring Threads will be furnished when specified.

No. 6484 No. 6584 Standard package, 5.

### Straight Bayonets

Cat. No.	Length Over All	DIMENSIONS, INCHES		Weight Pounds per 100	Price per 100
		Bolt Hole Spacing	Size Angle		
6436	36	10	2 x2 x $\frac{1}{4}$	957	\$140.43
6448	48	12	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{1}{4}$	1640	222.93
6466	66	15	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{1}{4}$	2255	296.23
6484	84	20	3 x3 x $\frac{1}{4}$	3430	416.13

### Corner Bayonets

6536	36	10	2 x2 x $\frac{3}{16}$	1464	\$251.13
6548	48	12	2 x2 x $\frac{3}{16}$	1952	310.20
6566	66	15	2 x2 x $\frac{1}{4}$	3509	501.90
6584	84	20	2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{1}{4}$	5740	779.50

## Hubbard Belcher Ground Wire Clamps

Hot Galvanized

The Type J Belcher Clamp for bayonets provides a secure fastening and one that does not injure the wire. Wire comes in contact only with the rounded surfaces, the link holding it away from sharp corners. The ground wire can be strung through the clamps for several spans at a time and clamps tightened after pulling up. There is only one bolt to adjust.



No. 6450



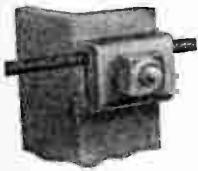
No. 6451

For clamping overhead ground wires to steel towers, the type U clamp is in general use. Two clamps are used on each wire.

Cat. No.	Type	Spacing Inches Bayonet Hole	Std. Pkg.	Wt., Lbs. per 100	Price per 100
6450	J	1 $\frac{5}{16}$	100	44	\$21.60
6451	U	1 $\frac{1}{2}$	100	70	47.30

**Hubbard Rolled Steel Ground Wire Clamps**

Hot Galvanized



No. 6455

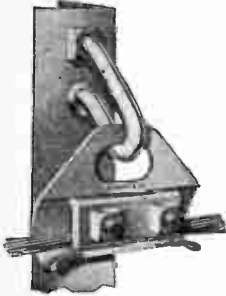
The rolled steel clamps have a long smooth clamping surface with the ends belled to prevent cutting of ground wire. No. 6455 is furnished with a 1/2x2 1/2-inch machine bolt.

The No. 6454 clamp, similar to No. 6455, is not furnished with a bolt, as a 3/8-inch through bolt is used both for attaching the clamp to the pole and tightening the clamp on the wire.

Cat. No.	Size of Wire Inches	Length Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
6454	No. 14 to 6 B&S....	2	500	35	\$18.40
6455	5/8 to 1/2.....	2 1/2	100	120	22.90

**Hubbard Flexible Ground Wire Clamps**

Hot Galvanized

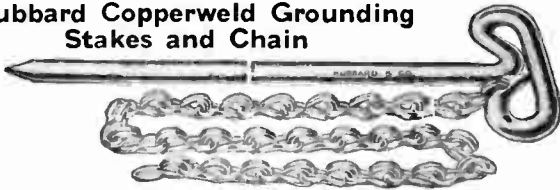


The flexible clamps allow the clamps to swing with the ground wire. The ends are belled out to prevent cutting the strand and for the same reason the clamping surface is perfectly smooth.

The clamp section is 3 1/2 inches long and is equipped with two 1/2x1 5/8-inch clamp bolts. The U bolt is 5/8-inch diameter, and will fit bayonets with hole spacings of 1 7/8-inch.

Cat. No.	Bayonet Hole Spacing Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
6460	1 7/8	50	172	\$167.00

**Hubbard Copperweld Grounding Stakes and Chain**

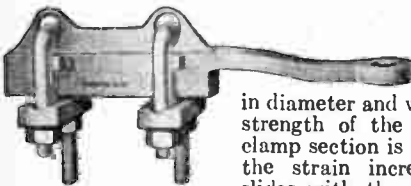


The grounding chain is used for throwing over bare conductors while power is off to protect line builders from an accidental throwing in of current. The grounding stake is used in conjunction with the chain for ground connections.

Cat. No.	Material	Size	Approx. Ship. Wt. Lbs., per 100 Pcs.	Price per 100
9400	Chain	Specify length	35 Lbs. per 100 Ft.	.....
9403	Stake	1/2"x3'	285	.....
9404	Stake	1/2"x4'	355	.....
9405	Stake	1/2"x5'	425	.....
9406	Stake	1/2"x6'	475	.....

**Hubbard Dead End Clamps**

Hot Galvanized



Designed for use with stranded conductors from 5/8 to 1/2-inch in diameter and will develop the full strength of the wire. The loose clamp section is grooved so that as the strain increases this section slides with the conductor and the

movement of the U-bolts with it to an off-center position, the clamping pressure is increased. The ends of the clamp have a large opening. The two lugs on each side of clamp insure a vertical alignment of U-bolts during assembly.

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Weight Pounds per 100	Price per 100
	Leth. Arrangement	Length Overall			
6700	7 1/4	13 3/8	15	775	\$383.20

**Belcher Strain Yokes**

Hot Galvanized



For standard suspension many operating companies are ready to protect their high tension lines by double suspension

throughout. The best way to do this is with two strings hanging at an angle with each other, with one Belcher Strain Yoke and standard conductor suspension clamps.

In dead ending long spans of heavy wire in transmission line construction, it is good practice to use two strings of suspension insulators in parallel on each line wire, so as to decrease the mechanical stress on insulator units and thus secure a greater factor of safety, both mechanically and electrically. This is often necessary at crossings and angle turns.

For straight line crossings, as compared with dead ending it has two advantages; the cost of the suspension is half that of dead ending as two strings are used at each tower connection instead of four; also, in case of a broken disc, the line will adjust itself without shock.

Formed of steel plate 1/4 inch thick, hot pressed, to shape and support the two strings of insulators 13 inches apart on centers, which is the standard for 10-inch discs. Each yoke is furnished with the five bolts illustrated, and with a hole for the discharge horn bolt.

Discharge or arching horns for use with these yokes can be furnished to meet specifications.

Their design allows all necessary movement in any direction and their reliability is guaranteed by the fact that every part is forged from open hearth steel and hot dip galvanized.

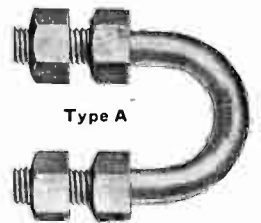
Cat. No.	Material	Thickness of Steel Inches	Insulator String Spacing Inches	Ship. Wt. Lbs. per 100	Price per 100
6770	Strain Yoke	1/4	13	960	\$386.70
6780	Arching Horn	1/4	..	440	.....

**Hubbard U-Bolts**

Hot Galvanized

U-bolts are used on tower arms for attaching strings of suspension type insulators.

Standard package, 100.



Type A

Cat. No.	Number and Kind of Nuts	Diam. of Bolt Inches	Height of Bolt on Centers Inches	Width of Thread Inches	Length of Bolt Inches	Width Inside Inches	Ship. Weight Pounds per 100	Price per 100
6791	2 Hex.	1/2	2	1 1/4	1 1/2	1 1/2	39	\$17.50
6792	4 Hex.	5/8	3	1 1/2	1 3/4	1 5/8	93	21.60
6794	4 Sq.	5/8	3 1/2	1 3/4	3	1 3/8	165	32.00
6795	4 Hex.	3/4	4 1/2	3	3	2 5/8	221	47.30

Type B

6797	2 Hex.	5/8	3 15/16	1 27/32	1 3/8	2 7/16	138	\$32.20
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**No. 6785 Hubbard Drop Forged Ball Eye**

Hot Galvanized

Designed to fit suspension insulator hardware of the ball and socket type.

Cat. No.	DIMEN., IN. Size Stock	Diam. Eye	Ship. Wt., Lbs. per 100	Price per 100
6785	5/8	5/8	50	\$44.00



**Hubbard Links**

Hot Galvanized

Cat. No.	Size Stock	Length Eye In.	Width Eye In.	Ship. Wt., Lbs. per 100	Price per 100
6781	3/8	1 1/2	9/16	18	\$13.10
6782	3/8	2 1/16	9/16	21	14.20
6783	1/2	2 3/8	1/8	39	22.00
6784	5/8	3 3/4	1	99	54.80
6788	3/4	3 1/2	1	125	69.40





## Hubbard Drop-Forged Clevises

### Type A

Hot Galvanized

Hubbard clevises are furnished complete with clevis bolt and brass cotter.

Special clevises with any clevis opening or any length from eye to center of bolt can be furnished promptly in the sizes listed.

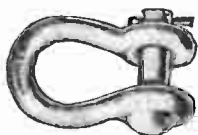
Cat. No.	Size Stock In.	Length to Center of Bolt	Clevis Opening In.	Diam. Clevis Bolt In.	Width Inside In.	Wt., Lbs. per 100	Price per 100
6793	1/2	2	1 1/16	5/8	1 1/16	66	\$27.10
6798	3/16	3	1 3/8	3/4	1 3/8	146	47.50
6799	9/16	4	1 3/8	3/4	1 3/8	160	52.20
6800	1/2	3	3/4	5/8	1 1/16	85	37.10
6802	3/8	2	1 1/16	5/8	1 1/16	60	26.60
6803	9/16	4 3/8	3/4	3/4	3/4	160	52.20

## Hubbard Drop-Forged Clevises

### Type B

Hot Galvanized

Hubbard clevises are furnished complete with clevis bolt and brass cotter.



Cat. No.	Size Stock In.	Length Eye to Center of Bolt	Clevis Opening In.	Clevis Bolt In.	Width Inside In.	Wt. Lbs. per 100	Price per 100
6801	1/2	2 5/8	3/4	9/16	1 5/16	77	\$36.60

## Hubbard Drop Forged Eyes



Hot Galvanized



Cat. No.	Size Stock In.	Inside Lgth. Over All, In.	Eye, In. Width	Eye, In. Length	Std. Pkg.	Wt., Lbs. per 100	Price per 100
6789	1/2	3 3/8	7/8	1 1/8	100	60	\$48.90
6790	1/2	3 3/8	7/8	1 1/8	100	60	60.00

## Hubbard Connecting Links

Hot Galvanized



Rolled steel, shaped to provide a clevis on one end and an eye on the other. Complete with one clevis bolt and brass cotter. 1/2-inch clevis bolt.

Cat. No.	Size of Stock	DIMENSIONS, INCHES				Ship. Wt., Lbs. per 100	Price per 100
		Eye End	Clevis End	Opening in Clevis	Holes C to C		
6786	1/4 x 1 1/2	3/4	9/16	9/16	2 3/8	169	\$58.60
6787	5/16 x 1 3/4	1 3/16	9/16	5/8	1 1/4	503	174.80

## Hubbard Clevis Bolts

Hot Galvanized



Hubbard Clevis Bolts have a drop-forged clevis which develops the full strength of the bolt. Bolts are measured from the shoulder of the clevis to the end of the bolt. Hexagon nuts are furnished. Length of opening is 1 13/16 inches, width of opening, 3/4 inch, outside diameter of eye, 1 5/8 inches.

Cat. No.	Size of Stock In.	Length of Bolt In.	Length of Threads In.	Diam. of Clevis Bolt In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
6805	5/8	5	4 1/2	1/2	50	125	\$40.60
6809	5/8	9	6	1/2	50	162	52.20
6814	5/8	14	6	1/2	50	195	63.30
6825	3/4	5	4 1/2	5/8	50	161	52.40
6829	3/4	9	6	5/8	50	225	73.00
6834	3/4	14	6	5/8	35	305	99.20

## Hubbard Hook Bolts

### For Suspension Insulators

Hot Galvanized



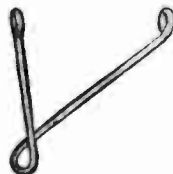
Hook bolts are used for supporting strings of suspension type insulators from cross arms. Hooks are drop-forged and made in 3 lengths above the shoulder, 1 1/2 inches for angle steel arms, 6 inches for wood arms up to 4x5 inches, and 9 inches for the double channel cross arms used on steel towers.

Cat. No.	Shipping Weight, Pounds. per 100	6751 1/2	6756	6759
Price	per 100	\$38.00	86.60	92.40

## Hubbard Corner Construction Brackets

### For Small Angles

Hot Galvanized



Used with suspension type insulators to give the desired clearance to the line wire. A 1/2-inch link is sometimes used in the lower end for attaching insulator string and will be furnished when specified.

Cat. No.	Size In.	Spacing of Eyes, In.	Extension, In.	Ship. Wt., Lbs. per 100	Price per 100
6727	5/8	12	12	353	\$67.80
6728	3/4	12	12	490	94.20

### 3/4-inch J Bolts for Corner Construction Brackets

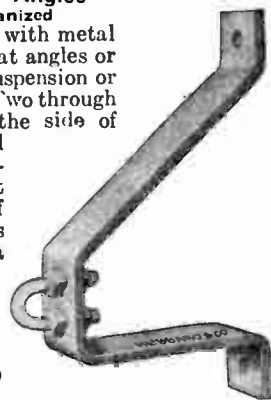
Cat. No.	Inside of Hook to End of Bolt, In.	Depth of Cross Arm, In.	Ship. Wt., Lbs. per 100	Price per 100
6734	6 3/4	4	125	\$24.00
6734 1/2	7 1/4	4 1/2	141	26.90
6735	7 3/4	5	147	28.20
6736	8 3/4	6	160	30.90

## Hubbard Corner Construction Brackets

### For Large Angles

Hot Galvanized

This type of bracket is used with metal cap suspension type insulators at angles or corners in lines using either suspension or pin type insulators on tangents. Two through bolts fasten the bracket to the side of the pole, toward the "pull" and the string of insulators is attached to the 5/8-inch U-bolt shown. The bracket is made of 3/8x2-inch flat steel and extends 8 inches from the pole, with a bolt spacing of 14 1/8 inches.

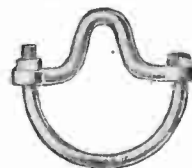


Cat. No.	Size of Steel In.	Hole Spacing In.	Std. Pkg.	Lbs. per 100	Price per 100
6725	3/8x2	14 1/8	10	700	\$145.00

## Hubbard Strain Insulator Clevises

### Hewlett Suspension Type

Hot Galvanized



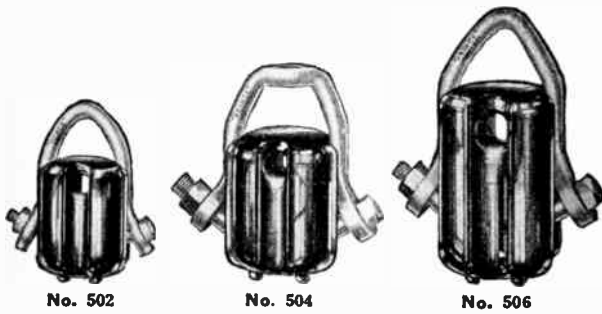
This clevis is made from 1/2-inch round steel with drop-forged eyes that accommodate the 3/8-inch curved clevis bolt.

Fits the 6, 7 1/2 and 10-inch Hewlett Insulators. Ultimate strength, 5000 pounds. Should be used only for light strains.

Cat. No.	DIMENSIONS, INCHES				Std. Pkg.	Weight Pounds per 100	Price per 100
	Diam. Clevis is Bolt	Diam. Clev-Inside	Length Inside	Width Inside			
895	1/2	3/8	1 1/16	3 3/2	1 1/8	150	\$53.30

**Peirce Strain Insulators**

Standard Type—Dry Process



The Peirce Standard Type Strain Insulators are made in accordance with the specifications of the National Electric Light Association.

They are produced from the highest grade of dry process porcelain and are designed so that all sharp corners and edges have been eliminated.

An exclusive feature of the Peirce Strain Insulator is the radius of the wire groove, which is so designed that it gives a maximum bearing surface on the clevis bolt and may be used equally as well with guy strand or insulated wire.

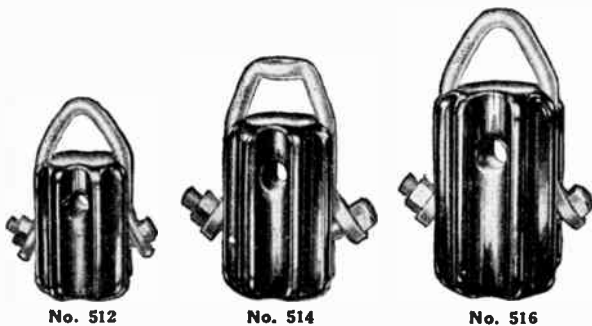
Peirce Dry Process Insulators are ordinarily used for dead-ending secondary circuits and for guying.

No. 502 is used with clevis No. 805, light type, No. 825, heavy type or No. 845, eye type. No. 504 is used with clevis No. 807, light type, No. 827, heavy type or No. 847, eye type. No. 506 is used with No. 811, light type, No. 831, heavy type or No. 851, eye type.

Cat. No.	DIAMETER, INCHES			Std. Pkg.	Weight Pounds per 100	Price per 100
	Hole	Over All	Over Groove			
502	9/16	25/8	1 1/8	50	101	\$31.10
504	9/16	27/8	2 1/8	50	148	36.60
506	1 1/16	3 3/8	2 3/8	25	276	73.30

**Peirce Strain Insulators**

Multi-Fin Type—Wet Process



For dead-ending primary circuits and guying of high tension lines Peirce Multi-Fin Strain Insulators possess every feature required for dependable, continuous service.

They are made from thoroughly vitrified wet process porcelain and are designed with rugged fins and well rounded edges, which eliminate the possibility of chipping due to rough handling or abuse after installation.

The radius of the wire groove is so designed that it gives a maximum bearing surface on the clevis bolt and may be used equally as well with guy strand or insulated wire.

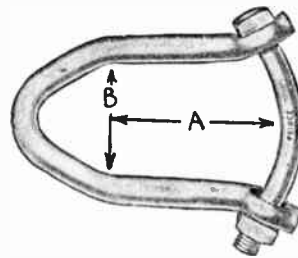
No. 512 is used with clevis No. 805, light type, No. 825, heavy type or No. 845, eye type. No. 514 is used with clevis No. 807, light type, No. 827, heavy type or No. 847, eye type. No. 516 is used with clevis No. 811, light type, No. 831, heavy type or No. 851 eye type.

Cat. No.	DIAMETER, INCHES			Line Voltage	Std. Pkg.	Weight Pounds per 100	Price per 100
	Hole	Over All	Over Groove				
512	5/8	2 1/16	1 1/8	2200	50	152	\$40.00
514	3/4	3 3/16	2 1/8	4400	25	258	82.00
516	7/8	3 3/8	2 3/8	6600	20	504	111.00

**Hubbard Strain Insulator Clevises**

Hot Galvanized

Light Type



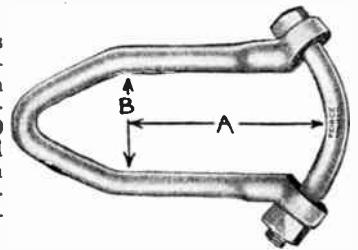
No. 803

The light type clevis is drop-forged from 3/16-inch diameter open hearth steel. Has an ultimate strength of 8000 pounds and is equipped with a 3/8-inch bolt. An eye 1/8-inch inside diameter is required to accommodate this clevis.

Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100
	A	B				A	B		
801	3	1 1/2	62	\$33.90	807	3	2 1/4	68	\$33.30
802	4	1 1/2	72	36.80	808	4	2 1/4	79	38.10
803	3	1 3/4	64	41.40	809	5	2 1/4	89	40.40
804	4	1 3/4	74	36.80	810	3	2 1/2	71	36.40
805	3	2	66	34.90	811	4	2 1/2	81	41.00
806	4	2	76	37.30	812	5	2 1/2	91	41.00

Heavy Type

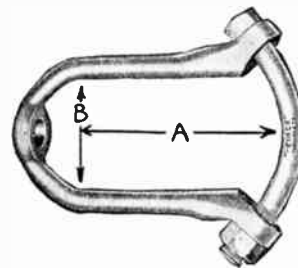
The heavy type clevis is drop-forged from 1/2-inch diameter open hearth steel. Has an ultimate strength of 13000 pounds and is equipped with a 1/2-inch bolt. An eye 1 1/2-inch inside diameter is required to accommodate this clevis.



No. 823

Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100
	A	B				A	B		
821	3	1 1/2	96	\$43.30	828	4	2 1/4	120	\$47.80
822	4	1 1/2	111	46.70	828 1/2	4 1/2	2 1/4	126	48.30
823	3	1 3/4	102	43.30	829	5	2 1/4	132	48.90
824	4	1 3/4	114	58.20	830	3	2 1/2	111	56.60
825	3	2	105	44.40	831	4	2 1/2	125	48.30
826	4	2	117	46.70	831 1/2	4 1/2	2 1/2	131	48.80
827	3	2 1/4	108	43.30	832	5	2 1/2	137	50.00

Eye Type



No. 843

The eye type clevis is similar to the heavy type, except that it has a drop-forged eye in the crotch of the clevis which is provided with an 1 1/16-inch hole. This hole permits the clevis to be attached to the head end of a through bolt, nut end of a through bolt, double arming bolt, eye bolt, or double arming eye bolt.

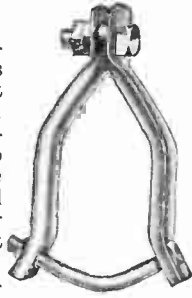
Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100	Cat. No.	DIMEN., IN.		Approx. Ship. Wt., Lbs. per 100	Price per 100
	A	B				A	B		
841	3	1 1/2	117	\$64.40	848	4	2 1/4	135	\$68.80
842	4	1 1/2	129	71.00	848 1/2	4 1/2	2 1/4	141	79.90
843	3	1 3/4	119	65.40	849	5	2 1/4	147	80.80
844	4	1 3/4	131	72.00	850	3	2 1/2	126	69.30
845	3	2	121	66.60	851	4	2 1/2	138	66.70
846	4	2	133	73.20	851 1/2	4 1/2	2 1/2	144	81.50
847	3	2 1/4	123	67.60	852	5	2 1/2	150	82.50



## Hubbard Strain Insulator Clevises Barmack Presteel Type (Patented) Hot Galvanized

A strong and adjustable clevis for dead-ending wires. The adjustment of this style clevis is approximately 1-inch. It will fit many sizes and types. Clevis No. 900 is adjustable for all standard Multi-Fin Strain Insulators. No. 902 is also adjustable for 7-inch Multi-Fin type Strain Insulators. The  $\frac{3}{8} \times 1\frac{1}{2}$ -inch curved machine bolt has a  $1\frac{1}{2}$ -inch thread for adjustment. Ultimate strength about 8000 pounds. Has  $\frac{1}{2} \times 1\frac{1}{2}$ -inch machine bolt, pipe spacer, lock washer and  $\frac{3}{8} \times 1\frac{1}{2}$ -inch curved machine bolt.

Cat. No.	Inside Lgth., In.	Inside Wdth., In.	Std. Pkg.	Pounds per 100	Price per 100
900	2 $\frac{3}{4}$	1 $\frac{3}{4}$	50	68	\$77.80
902	4 $\frac{1}{4}$	2 $\frac{1}{4}$	50	83	77.80

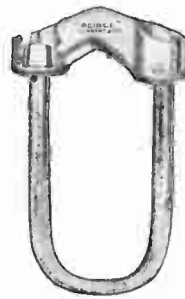


## Hubbard Strain Insulator Clevises

### Copper Bale Single Type Hot Galvanized

Has a bale made of soft metal (copper) to equalize the strains over the entire bearing surface of the insulator.

The drop-forged yoke may be used through the eye of a standard  $\frac{5}{8}$ -inch eye bolt, No. 7502 eye nut or No. 7515 Bolt Eye. The head of the copper bale is  $\frac{3}{4}$ -inch diameter. Ultimate strength, 8000 pounds.



Cat. No.	Inside Length Inches	Inside Width Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
1535	5 $\frac{3}{8}$	2 $\frac{3}{4}$	100	138	\$107.70

### Copper Bale Double Type

2535	5 $\frac{3}{8}$	2 $\frac{3}{4}$	100	185	\$144.40
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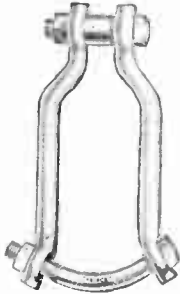
## Hubbard Strain Insulator Clevises

### Barmack Drop-Forged Type (Patented)

Hot Galvanized

Designed for dead-ending or anchoring lines.

It is furnished complete with a  $\frac{3}{8} \times 2$ -inch machine bolt, pipe spacer, lock washer and  $\frac{3}{8}$ -inch curved machine bolt.



Cat. No.	In-side Lgth. In.	In-side Wdth. In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
861	3	1 $\frac{1}{2}$	100	81	\$44.60
863	5	1 $\frac{1}{2}$	100	101	55.60
867	3	2 $\frac{1}{2}$	100	90	49.50
869	5	2 $\frac{1}{2}$	100	110	60.50

## Hubbard Strain Insulator Clevises

### Drop-Forged Double Type

Hot Galvanized

With this type of clevis two strain insulators can be assembled in a series.

The light type is made from  $\frac{3}{16}$ -inch round steel and equipped with  $\frac{3}{8}$ -inch curved bolts.

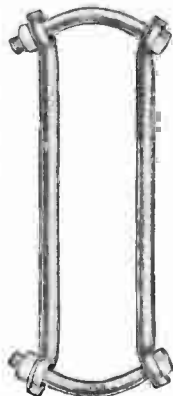
The heavy type is drop-forged from  $\frac{1}{2}$ -inch diameter open hearth steel. It is equipped with  $\frac{1}{2}$ -inch bolt.

### Light Type

Cat. No.	Inside Length Inches	Inside Width Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
881	8	1 $\frac{1}{2}$	100	101	\$55.60
882	8	2	100	105	57.80
883	8	2 $\frac{1}{2}$	100	109	60.00
884	10	1 $\frac{1}{2}$	100	119	64.40
885	10	2	100	123	67.60
886	10	2 $\frac{1}{2}$	100	127	84.40
887	12	1 $\frac{1}{2}$	100	139	82.50
888	12	2	100	143	85.00
889	12	2 $\frac{1}{2}$	100	147	88.90

### Heavy Type

781	8	1 $\frac{1}{2}$	100	135	\$77.70
782	8	2	100	144	77.70
783	8	2 $\frac{1}{2}$	100	153	77.70
784	10	1 $\frac{1}{2}$	100	153	84.40
785	10	2	100	162	84.40
786	10	2 $\frac{1}{2}$	100	171	84.40
787	12	1 $\frac{1}{2}$	100	173	88.80
788	12	2	100	182	88.80
789	12	2 $\frac{1}{2}$	100	191	88.80



No. 885

## Hubbard Dead-End Tongues

Hot Galvanized

For fastening clevises and insulators equipped with a hook, clevis or eye, to a wood cross arm.



Cat. No.	Size of Steel In.	Tongue Opening In.	Hole in Back In.	For Bolt In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
615	$\frac{3}{8} \times 1\frac{1}{2}$	1 $\frac{1}{16} \times 1\frac{7}{8}$	$\frac{1}{16}$	$\frac{5}{8}$	100	88	\$46.50

## Hubbard Dead-End Angles

Hot Galvanized

Used for attaching the heavy, light or Barmack types of clevises to buildings or cross arms.



Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Lbs. per 100	Price per 100
	Angle	Mounting Hole	Attach. Hole			
620	3x3x $\frac{5}{16}$	$1\frac{1}{16}$	$1\frac{1}{4}$	100	150	\$31.10

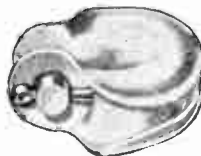
## Pierce Thimble Clevises

Hot Galvanized

Used for dead-ending insulated lines to suspension insulators. Made of pressed steel.

Surfaces are well rounded to prevent injury to the insulation of the line wires.

The No. 655 clevis has a  $\frac{5}{8}$ -inch opening for attaching to the stud of the insulator while the No. 653 and No. 654 have  $\frac{3}{16}$ -inch openings.



No. 655

Cat. No.	Gauge of Steel	Size of Cable Inches	Holds Strain Pounds	Std. Pkg.	Weight Pounds per 100	Price per 100
653	12	$\frac{1}{2}$	4000	250	26	\$25.80
654	11	1	6000	125	49	29.50
655	9	1	8000	100	67	34.40

## Klauber Universal Dead Ending Clevises

Hot Galvanized



No. 555 Clevis

Eye Connection

This clevis is the only one made that will anchor a metal cap strain insulator with any one of the three types of connections—eye, clevis and hook—on the end of a bolt through the side of a cross arm or building. Where a variety of insulators are used, the universal clevis is a necessity. Forged from flat steel  $\frac{3}{16} \times 1\frac{1}{2}$  in., and fits both  $\frac{1}{2}$  and  $\frac{5}{8}$ -inch bolts. Weight, 94 pounds per hundred.

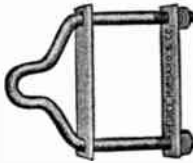
Price, No. 555 Clevises..... per 100 \$33.30

**Peirce Cross Arm Clevises**

Hot Galvanized

For dead ending wires on wood arms.

Cat. No.	Size Arm Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
549	3 1/4 x 4 1/4	100	191	\$57.80
550	3 1/2 x 4 1/2	100	215	66.80
551	3 3/4 x 4 3/4	100	224	69.60
552	4 x 5	100	233	72.40



**Peirce Insulated Clevises**

With Wet Process Insulators

Hot Galvanized



No. 1339



No. 1345

For dead-ending primary lines.

The No. 1339 is suitable for use with circuits up to 4000 volts, the No. 1340 up to 6000 volts and the No. 1345 up to 7500 volts.

The yoke of the clevis on No. 1339 and 1340 is made of No. 11 gauge by 1 1/2-inch flat steel and is equipped with a 5/8-inch cotter bolt and brass cotter. The yoke of a 1345 clevis is made of 3/4 x 1 1/2-inch flat steel equipped with a 5/8-inch clevis bolt and brass cotter.

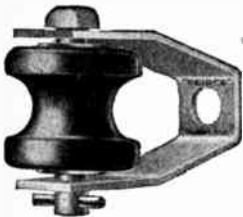
Clevis No. 1339 is furnished with an 1 1/8-inch round mounting hole, Clevis No. 1340 is furnished with an 1/2 x 3/4-inch oval hole while No. 1345 has an 1/2-inch square hole.

Cat. No.	Style of Insulator	Length to Center of Bolt Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
1339	No. 1608	4 3/16	125	125	\$51.30
1340	No. 1609	4 3/8	50	269	64.80
1345	No. 1610	5 1/2	35	340	154.00

**Peirce Insulated Clevises**

With Dry Process Insulators

Hot Galvanized



For secondary work. Furnished with standard Peirce rack insulators, No. 355 for the large type and No. 1606 for the small type.

The yoke of the clevis is made of No. 11 gauge by 1 1/2-inch flat steel and is equipped with a 5/8-inch cotter bolt and brass cotter pin.

The hole for mounting the No. 1341 is 1/2-inch.

The hole for mounting the No. 1342 is a 3/4-inch oval.

Cat. No.	Style of Insulator	Length to Center of Bolt, In.	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
1341	No. 1606	4 3/16	125	136	\$42.80
1342	No. 355	4 3/8	150	225	56.00

**Peirce Secondary Racks**

Chicago Type

Hot Galvanized

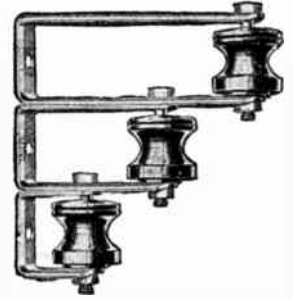
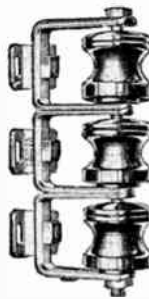


Chicago type racks consist of presteel U-shaped points made of No. 12 gauge steel securely riveted to a 1/2 x 1 1/4-inch flat steel back. The insulators are attached to the rack with a 5/8-inch button head bolt. Pole mounting holes are 1/2 x 1-inch for use with either 5/8-inch through bolts or lag screws. No. 355 insulators are standard equipment. Nos. 356, 455, 456 and 465 insulators can be used.

Cat. No.	No. of Line Wires	DIMEN., IN. Wire Spacing	Over All Length	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
248	2	8	12 1/2	10	562	\$157.60
344	3	4	12 1/2	10	662	168.70
348	3	8	20 1/2	10	887	237.50
448	4	8	28 1/2	5	1212	317.40
544	5	4	20 1/2	5	1110	159.70

**Peirce Universal Secondary Rack Units**

Hot Galvanized



The rack units are made alike and can be assembled to make any combination secondary racks with 4 or 8-inch spacings. They eliminate carrying various spacing racks.

The rack units are made of a single piece of steel and are roofed so that they will not injure the insulation of the line wire when pulled through the rack and also that they will drain readily.

The insulator bolt used is a standard 5/8-inch machine bolt, generally 2 inches longer than the overall length of the rack which can be readily determined as each unit is 4 inches overall in height.

No. 355 insulators are generally used with these racks. The Nos. 356, 455, 456 and 465 insulators can be used and furnished at a slight extra cost.

All three units interchange and interlock in perfect alignment. By adding No. 702 Foot Rack with 5/8 x 1-inch machine bolt these racks can be mounted on buildings.

Cat. No.	Exten- sion	Over All Ht.	Size of Steel	Mounting Holes	Std. Pkg.	Lbs. per 100	Price per 100
702	Rack	Foot		3/16 x 1	10	80	\$26.60
704	4	4	3/16 x 1 1/2	2 1/8 x 7/8	25	90	25.30
708	8	4	3/16 x 1 1/2	2 1/8 x 7/8	10	145	34.50
712	12	4	3/16 x 1 1/2	2 1/8 x 7/8	10	210	44.60

**Peirce Heavy Presteel Secondary Racks**

Hot Galvanized



No. 278

Of sufficient weight and strength for general secondary work; however, for long spans and cable construction Standard Pierce Racks are recommended.

Made of a presteel channel back; presteel channel U-shaped points inserted through and riveted to the back, and a 5/8-inch through rod for attaching No. 355 insulators to points.

The Nos. 278, 374, 378 and 478 are furnished with straps so that they may be used on buildings for making heavy service connections. When used on poles, the straps should be hammered flat against the pole, increasing the bearing surface. The Nos. 1278, 1374, 1378 and 1478 may be used in connection with Peirce Rack Bands for attaching the racks to tubular steel poles.

Cat. No.	No. of Line Wires	DIMENSIONS, INCHES Wire Spacing	Length Over All	Std. Pkg.	Wt., Lbs. per 100	Price per 100
278	2	8, with Straps	16 1/2	10	526	\$157.80
374	3	4, with Straps	16 1/2	10	654	174.40
378	3	8, with Straps	24 1/2	10	879	258.90
478	4	8, with Straps	32 1/2	10	1172	342.20
1278	2	8, without Straps	16 1/2	10	486	145.50
1374	3	4, without Straps	16 1/2	10	614	162.20
1378	3	8, without Straps	24 1/2	10	729	242.20
1478	4	8, without Straps	32 1/2	10	972	310.20

**Insulators for Peirce Secondary Racks**

Heavy Type



Designed to accommodate wire and cables up to 2,000,000 C.M. in cross sectional area, for use on secondary racks and other applications.

Cat. No.	Color of Glaze	Kind of Porcelain	Wt., Lbs. per 100	Price per 100
465	Brown	Wet Process	165	\$31.00

## Peirce Secondary Racks

Hot Galvanized  
Standard Type

Strong enough for the heaviest work, with an ample factor of safety. Equipped with No. 355 insulators, although Nos. 356, 455 and 456 insulators can be furnished if desired. The insulators are packed in corrugated paper boxes and the racks are wired in bundles of ten.

The width of the back of the rack is 2 3/4 inches with a slot 3/4 inch wide between the two angles, which allows the use of 5/8-inch through or lag bolts for fastening the rack to the pole.

Cat. No.	No. of Line Wires	DIMEN., IN. Wire Spacing	Length Over All	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
250	2	4	9 1/2	10	591	\$126.60
258	2	8	13 1/2	10	734	187.70
350	3	4	13 1/2	10	866	204.40
358	3	8	21 1/2	5	1116	278.90
450	4	4	17 1/2	5	1108	250.40
458	4	8	29 1/2	5	1488	394.40
540	5	4	21 1/2	5	1380	311.10
3058	3	8	13 1/2	5	914	215.50

### Extended Back Type

Similar in all respects to the standard rack except that the angles forming the back are extended to accommodate through bolts for attaching the rack. Some construction men like this feature as the insulators can be assembled on the rack in the storeroom and attached to the pole without removing them.

Cat. No.	No. of Line Wires	DIMEN., IN. Wire Spacing	Length Over All	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
1250	2	4	13 1/16	10	654	\$160.50
1258	2	8	17 9/16	10	794	204.40
1350	3	4	17 9/16	10	926	221.10
1358	3	8	25 9/16	5	1178	295.50
1450	4	4	21 9/16	5	1168	280.40
1458	4	8	33 9/16	5	1415	411.10
1540	5	4	25 9/16	5	1440	328.90
3158	3	8	17 9/16	5	974	232.20

## Insulators for Peirce Secondary Racks

### Standard Type

No. 355 brown glazed insulator is the most popular secondary rack insulator and is furnished on all heavy type racks unless otherwise specified. For marking the neutral wire of a secondary circuit, some construction men use the No. 355 white glazed insulator.

Where high mechanical strength is required, such as for dead-ending heavy lines, the No. 455 is used by many companies.

Cat. No.	Color of Glaze	Kind of Porcelain	Ship. Wt., Lbs. per 100	Price per 100
355	Brown or White	Dry Process	132	\$16.70
455	Brown	Wet Process	132	23.10

### Double Groove Type

Has 2 grooves, one for tying in the main circuit and the other for the service wires.

356	Brown	Dry Process	134	\$24.40
456	Brown	Wet Process	134	27.80

### No. 1606 Light Rack Type

Insulators for the light racks are furnished with either brown or white glaze, both of which are made of dry process porcelain. The brown glazed insulator is also used on the No. 1341 clevis, on spreader racks, light racks, and on sister hook and tree fixtures.

1606	Brown	Dry Process	45	\$11.40
1606	White	Dry Process	45	12.60

### No. 1603 House Rack Type

Used with house racks. Also used on the No. 2925 swinging knob fixture.

1603	Brown	Dry Process	45	\$9.80
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## Peirce Presteel Secondary Racks

Hot Galvanized  
Heavy Service Type

The heavy service type rack has greater strength per pound than any rack heretofore made.

It has no rivets, no pockets to hold moisture and no lapping of material which so frequently starts rusting.

There is not a sharp edge or corner on it.

It has great uniform strength to resist all strains—dead end, side pull and dead load.

The wide back makes it good for either pole or building work.

Equipped with No. 355 insulator.

Cat. No.	No. of Line Wires	Wire Spacing In.	Over-all Length In.	Std. Pkg.	Wt. Lbs. per 100	Price per 100
2844	2	4	12 1/2	10	542	\$126.60
2846	2	6	14 1/2	10	713	157.60
2848	2	8	16 1/2	10	764	187.70
3844	3	4	16 1/2	10	896	204.40
3846	3	6	20 1/2	5	1049	270.00
3848	3	8	24 1/2	5	1154	278.90
4844	4	4	20 1/2	5	1156	250.40
4846	4	6	26 1/2	5	1448	381.90
4848	4	8	32 1/2	5	1543	394.40

### Light Service Type

The light service type rack is of exactly the same construction as the heavy service type except that it is smaller and lighter.

Because of its strength and low cost it is especially adapted for running extensions from secondary mains; for lines where future development is limited; and for house service connections.

Equipped with No. 1606 insulators.

The mounting holes on these racks are exactly the same spacing as the heavy service type. This feature permits installing a light service and heavy service rack back to back on a pole using the same through bolt.

2744	2	4	12 1/4	10	322	\$100.00
2746	2	6	14 1/4	10	362	110.90
2748	2	8	16 1/4	10	394	117.80
3744	3	4	16 1/4	10	479	148.60
3746	3	6	20 1/4	10	616	155.50
3748	3	8	24 1/4	10	598	168.40
4744	4	4	20 1/4	10	621	197.30
4746	4	6	26 1/4	10	703	179.90
4748	4	8	32 1/4	10	742	219.00

## Peirce Light Presteel Secondary Racks

Hot Galvanized

These racks were designed for light secondary work. They are especially adaptable, on account of their strength and low cost, for running extensions from secondary mains; for lines where future development is limited; and for house service connections.

The light presteel racks have a presteel channel back 1 1/2 x 1 1/16-inch; No. 12 gauge channel U-shaped points, which are inserted through and riveted to the back, and a 1/2-inch insulator bolt for attaching the No. 1606 insulators to the points.

When 4-inch spacing racks are specified, a shield for attaching over the upper edges of the points, is furnished to prevent injury to the insulation when stringing the wire.

Cat. No.	No. of Line Wires	DIMENSIONS, INCHES—Wire Spacing	Length Over All	Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
276	2	6, with Straps	13 1/4	10	350	\$110.90
376	3	6, with Straps	19 1/4	10	555	155.70
476	4	6, with Straps	25 1/4	10	740	179.90
1276	2	6, without Straps	13 1/4	10	310	100.00
1376	3	6, without Straps	19 1/4	10	445	144.30
1476	4	6, without Straps	25 1/4	10	594	169.90
2768	2	8, without Straps	16 1/2	10	350	108.90
3768	3	8, without Straps	24 1/2	10	545	155.10

**Peirce Extension Brackets**  
For Secondary Racks  
Hot Galvanized



No. 3355

Extension brackets are made in two styles, with flat and curved backs, for wall and for pole use, respectively. Both types have one 1/16-inch hole and two 3/16-inch holes for mounting. The brackets are made of No. 9 gauge steel, provide a 6-inch extension, have a 4-inch bearing on pole or wall, and are equipped with a 5/8x2-inch carriage bolt.

Cat. No.	Description	Wt., Lbs. per 100 Pieces	Price per 100 Pairs
3355	Curved Back, for Poles	250	\$65.80
3356	Flat Back, for Walls	250	65.80

**Peirce Pole Bands**  
For Secondary Racks  
Hot Galvanized



No. 7364



No. 7374

Used for attaching all styles of Peirce Secondary Racks to tubular steel poles.

Made of 1/4x1 1/2-inch steel, in two styles, the single type for attaching one rack, and the double type for attaching two racks, to the pole.

Bands are furnished with 5/8x2-inch carriage bolts for attaching the rack and 1/2x1 3/8-inch clamp bolts for clamping.

**Single Type**

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Weight Pounds per 100	Price per 100
	Nominal Pole Diameter	Actual Outside Diameter			
7363	3	3 1/2	15	287	\$73.30
7363 1/2	3 1/2	4	15	303	79.90
7364	4	4 1/2	15	320	87.00
7364 1/2	4 1/2	5	15	376	97.70
7365	5	5 1/2	15	388	105.50
7366	6	6 5/8	15	415	108.80
7367	7	7 5/8	10	447	111.00
7368	8	8 5/8	10	479	114.30

**Double Type**

Cat. No.	Nominal Pole Diameter	Actual Outside Diameter	Std. Pkg.	Weight Pounds per 100	Price per 100
7373	3	3 1/2	15	333	\$77.75
7373 1/2	3 1/2	4	15	349	88.80
7374	4	4 1/2	15	366	99.90
7374 1/2	4 1/2	5	15	421	115.00
7375	5	5 1/2	15	433	118.00
7376	6	6 5/8	15	460	122.40
7377	7	7 5/8	10	492	126.50
7378	8	8 5/8	10	524	131.00

**Peirce Channel and Presteel Pole Brackets**

Hot Galvanized



No. 144

The No. 144 is a popular bracket for light telephone circuits on transmission poles. It is attached to the pole by two 3/8-inch lag screws. Equipped with Peirce 1-inch spring thread.

The No. 152 is recommended for heavier work such as electric railway feeders and where greater extension from the pole is desired. Mounting holes are 1/16-inch. Extension from pole is 5 inches. Equipped with 1-inch lead thread.

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Weight Pounds per 100	Price per 100
	Size of Steel	Extension			
144	1x1 1/2	2 1/2	25	80	\$31.80
152	No. 9 Ga.	5	25	240	55.50

**Peirce Dead-Ending Straps**  
For Secondary Racks

Hot Galvanized



Used to temporarily dead-end a line. Provided with a 3/8-inch hole for 1/2-inch lag screw.

Cat. No.	Type	Pole Mounting Hole, In.	Size of Steel, In.	Ship. Wt., Lbs. per 100	Price per 100
999	Light	9/16	14-ga. x 1 1/4	60	\$18.90
1000	Heavy	9/16	1 1/4 x 1 1/4	100	21.10

**Peirce Dead-End Brackets**  
For Railway Signal Circuits  
Hot Galvanized

Equipped with a 3/8 x 4 1/2-inch carriage bolt with sufficient thread to make it suitable for use on cross arms 3 1/4 x 4 1/4 to 4 x 5 inches.



An important feature of this type bracket is the method of attaching insulator, which places the porcelain in compression, developing its full strength. In the case of a broken insulator it holds the wire in its original position eliminating possibility of a false signal due to a short.

Cat. No.	DIMENSIONS, INCHES		Std. Pkg.	Weight Pounds per 100	Price per 100
	Size of Bolt	Insulator Hole			
195	3/8x4 1/2	1/2x1 1/16	50	102	\$41.30

**Peirce Presteel Cross Arm Brackets**

Hot Galvanized



For heavy work such as running electric railway feeders and signal wires on cross arms.

Furnished with standard lead thread for pin holes having a 1-inch diameter and has an extension of 2 1/2 inches.

The height of bracket above the cross arm gives sufficient clearance for most insulators.

Bracket should be mounted to cross arms by 5/8-inch cross arm straps.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Weight Pounds per 100	Price per 100
	Size of Steel	Extension Above Cross Arm	Height			
172	9 Ga.	2 1/2	6	25	230	\$55.50

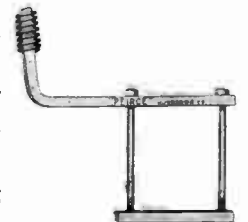
**Peirce Cross Arm Terminal Brackets**

Hot Galvanized

Used for dead-ending lines on cross arms.

It is adjustable to cross arms 4x5-inch and smaller. May be used either on top or below the arm.

Equipped with Peirce 1-inch spring thread.



No. 105

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Weight Pounds per 100	Price per 100
	Holes	Channel	Extension			
105	1 3/8	1	4 5/8	10	160	\$54.80

**No. 107 Peirce Cross Arm Extra Wire Brackets**

Hot Galvanized

Extension 4 Inches

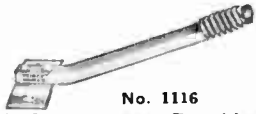


Will support an extra wire at the end of a filled arm.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Length	Holes	Channel			
107	18	7/8	1	25	152	\$68.10

## Peirce Cross Arm Distributing Brackets

Hot Galvanized



No. 1116

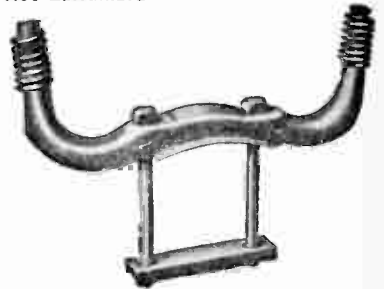
No. 131 is for running leads between arms such as are required for transformer pole wiring, attached to the end of cross arm by a  $\frac{3}{8}$ -inch carriage bolt and  $\frac{1}{4}$ -inch lag screw. Provided with a slot so that the same carriage bolt, used to prevent the cross arm from splitting, may, also, be used for attaching bracket to arm.

The No. 1116 is used for transformer pole wiring and attached to cross arm by Peirce Drop-Forged Cross Arm Straps, which are not included in price. Equipped with 1-inch Peirce spring threads.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Weight Pounds per 100	Price per 100
	Holes	Channel	Extension			
131	$\frac{7}{16}$	1	4	25	79	\$53.30
1116	$\frac{9}{16}$	$1\frac{1}{4}$	$10\frac{1}{2}$	10	140	51.80

## Peirce Heavy Presteel Break Arms

Hot Galvanized



The Cow Horn No. 231 is the type of break arm in general use as a circuit breaker on series lighting circuits. It fits any standard cross-arm, by the arrangement of two bolts with slots and holes in the bracket and in the cross-arm strap.

Cat. No.	Spacing Points In.	Size Steel Gauge	Std. Pkg.	Wt., Lbs. per 100	Price per 100

## Peirce Cross Arm Distributing Brackets

Hot Galvanized

The No. 200 bracket is used for taking off street lamp or service connections. It is adjustable to cross arms 4x5-inch and smaller. Is especially convenient for carrying two wires vertically from arm to arm or for running jumper wires from one end of the cross arm to the other.

Nos. 210 and 300 are used for taking off service connections from ends of cross arms. Adjustable to 4x5-inch and smaller. Presteel points are riveted to angle steel.



No. 210

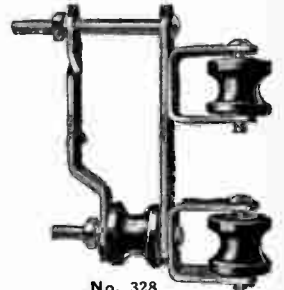
Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Weight Pounds per 100	Price per 100
	Size of Steel	Spacing	Channel			
200	1 Channel	16	10	230	\$90.00	
210	$1\frac{1}{4} \times \frac{1}{8}$ Angle	13	10	300	86.60	
300	$1\frac{1}{4} \times \frac{1}{8}$ Angle	$6\frac{1}{2}$	10	340	104.00	

## Peirce Spreader Racks

Wilson Type  
Hot Galvanized

Provides a new and dependable method for taking off secondary services from the ends of cross arms. The neutral wire is usually carried on the insulators under the arm.

Rack No. 328 is furnished complete with No. 1606 insulators. No. 330 heavy type is equipped with No. 355 insulators. Adjustable for cross arms 4x5 inches and smaller.

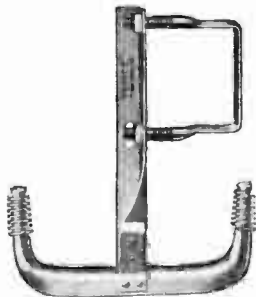


No. 328

Cat. No.	INSULATOR SPACING, IN.		Std. Pkg.	Wt. Lbs. per 100	Price per 100
	Vertical	Horizontal			
328	$5\frac{1}{2}$	$3\frac{7}{8}$	20	607	\$135.50
330	$5\frac{1}{2}$	$5\frac{1}{4}$	20	890	169.20

## Peirce Cross Arm Extra Wire Brackets

Hot Galvanized



For supporting heavy extra wires on a filled cross arm.

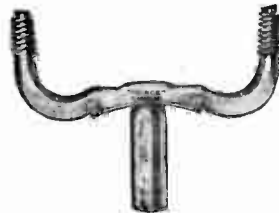
Cross arm straps Nos. 1001, 1002, 1003 and 1004 are used for attaching this bracket to the arm but are not included in the price.

The presteel points are made of 9-gauge sheet steel.

Cat. No.	DIMENSIONS, INCHES		Spacing	Extension	Std. Pkg.	Wt. Lbs. per 100	Price per 100
	Holes	Steel					
230	$\frac{9}{16}$	9 Ga. Sheet	10	4	10	300	\$163.30

## Peirce Break Arm Brackets

Hot Galvanized



Break arm brackets are used for breaking series lighting circuits.

Made of No. 9 gauge steel and pressed to shape.

Has a shank which is designed to fit into cross arms bored for  $\frac{1}{2}$  inch insulator pins.

Standard package, 10.

Cat. No.	Spacing	Size of Steel	Shipping Weight Pounds per 100	Price per 100

## Peirce Spreader Brackets

Hot Galvanized

Used where great strength is needed.

These brackets are pressed to shape from No. 9 gauge open hearth steel and are equipped with Peirce 1-inch spring threads which prevent insulator breakage.

Standard package, 10.



No. 217

Cat. No.	Wiring Spacing Inches	Wt., Lbs. per 100	Price per 100
317	$6\frac{1}{2}$	400	196.70



No. 317

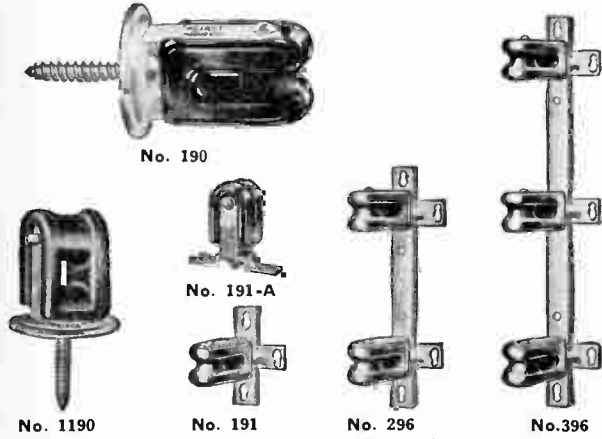
## Peirce Wireholders

All-Porcelain Multi-Point Type  
Hot Galvanized

Equipped with No. 1654 All-Porcelain Insulators which have a  $\frac{3}{8}$ -inch bolt and cork washer. Insulators can be installed after back has been mounted to building and can be easily removed or installed to make various spacing wireholders. Base is No. 12 gauge presteel channel  $2\frac{3}{8}$  inches wide with  $\frac{1}{2}$ -inch flanges. Mounting slots are  $\frac{3}{16} \times 1\frac{1}{2}$ -inch with  $\frac{3}{16}$ -inch center punch. Cork washer prevents breakage of insulators when assembling.

Cat. No.	No. of Wires	Wire Spacing Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3299	2	9	25	268	70.20
3394	3	$4\frac{1}{2}$	25	352	95.20
3396	3	6	25	401	100.00
1654	Insulator		50	84	25.00

**Peirce Wireholders**  
Standard Type  
Hot Galvanized



The standard type of wireholders have been designed on scientific principles, namely, metal parts in tension and porcelain in compression each developing its greatest strength. The No. 1602 insulator used on these wireholders is designed with well rounded edges almost entirely eliminating chipping or breakage and it is secured to the bracket by a complete band of metal.

This wireholder is not affected by temperature changes or by the difference in the coefficient of expansion of its various parts.

The No. 190 wireholder is in use for making house service connections and when in use the brass cotter pin interlocks the insulator with the metal portion of the wireholder eliminating falling wire hazard should the insulator become broken.

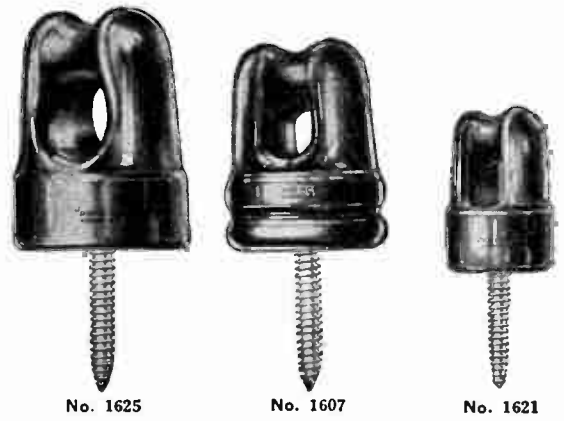
Peirce wireholders are also made in multi-point types. They are provided with ample mounting holes spaced away from the insulator eliminating the possibility of breaking the insulator when driving the screw.

The corner iron No. 501 is used for attaching multi-point wireholders to the corner of a building when occasion demands this type of construction.

Cat. No.	No. of Wires	Wire Spacing Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
190	1	0	50	78	\$28.00
191	1	0	50	96	30.00
191-A	1	0	25	76	27.20
296	2	6	25	204	66.70
299	2	9	25	208	70.20
394	3	4 1/2	25	284	95.20
396	3	6	25	308	100.00
494	4	4 1/2	25	390	111.20
1190	1	0	125	147	71.10
1602	*	*	100	36	11.70
1604	**	**	100	59	18.40
501	Corner Iron		25	20	17.80

\*Insulator with 1/2x1 1/16-inch wire hole. \*\*With 3/4x1/8-inch hole.

**Peirce Wireholders**  
All-Porcelain Type



The screw type All-Porcelain Wireholder combines a wall bracket, insulator and screw all in one. A jab and a few turns is all that is necessary to install it. This type of wireholder has been designed so that no metal is exposed after installation.

The insulator is small and fits the hand. The wire hole grooves are well rounded so that they will not injure the insulation of the line wire. The insulators have an ample factor of safety for all secondary voltages.

The special wood screw which is a part of this wireholder has a clean cut thread and a point which starts into the wood under very little pressure. The cement used in attaching the screws is non-porous; weather does not affect it.

No. 31 expansion shields are used for mounting the screw type wireholders into brick, stone or concrete buildings.

Nos. 1607, 1614, 1621 and 1625 are equipped with galvanized screw; Nos. 1617, 1624, 1631 and 1635 with brass screw; Nos. 1627, 1634, 1641 and 1645 with toggle bolt; Nos. 1637, 1644, 1651 and 1655 with carriage bolt.

Cat. No.	Size of Screw or Bolt Inches	Size of Wire Holes Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
1607	No. 22x2	1 1/16 x 13/16	50	108	\$23.10
1617	No. 22x2	1 1/16 x 13/16	50	108	27.50
1627	1/4 x 4 1/2	1 1/16 x 13/16	50	110	50.00
1637	3/8 x 5	1 1/16 x 13/16	50	122	37.80
1614	No. 20x2	1 1/16 x 3/4	50	85	20.90
1624	No. 20x2	1 1/16 x 3/4	50	85	25.30
1634	1/4 x 4 1/2	1 1/16 x 3/4	50	86	47.70
1644	3/8 x 5	1 1/16 x 3/4	50	99	35.50
1621	No. 20x2	7/16 x 3/4	50	60	17.90
1631	No. 20x2	7/16 x 3/4	50	60	21.50
1641	1/4 x 4 1/2	7/16 x 3/4	50	62	39.30
1651	3/8 x 5	7/16 x 3/4	50	74	32.60
1625	No. 22x2 1/4	2 3/32	50	122	35.00
1635	No. 22x2 1/4	2 3/32	50	122	39.00
1645	1/4 x 4 1/2	2 3/32	50	124	57.20
1655	3/8 x 5	2 3/32	50	136	45.00

**Peirce Bracket Feet**

Hot Galvanized

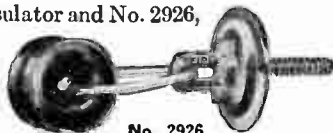
For use with vertical wall brackets; extension 4 3/8 inches from wall. Furnished complete with two stove bolts.



Cat. No.	Extension Inches	Channel Inches	Holes	Spread of Base Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
500	4 3/8	1 x 3/8	1 1/2	10 1/16	20	88	\$48.90

**Peirce Swinging Knob Fixtures**

No. 2925 has No. 1603 insulator and No. 2926, No. 2927. For electric light wires and telephone twists. 2-inch screw cannot loosen nor eye straighten out.

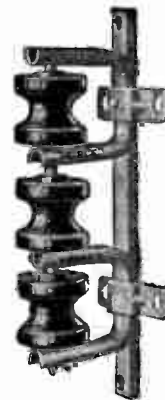


Price, No. 2925 Wt., 102 Lbs. per 100.....per 100 \$38.30  
Price, No. 2926 Wt., 82 Lbs. per 100.....per 100 34.70

**Peirce Light Presteel House Racks**

Hot Galvanized

For use as house brackets. Sometimes used for carrying secondary wires vertically on the poles where the wire is lighter than No. 3 wire. Made with 3/4-inch channel back and presteel points. Mounting slots are 7/16x1 1/2-inch, both in the back and straps. Insulator through bolt is 3/8-inch diameter. Racks assembled with No. 1603 insulator.

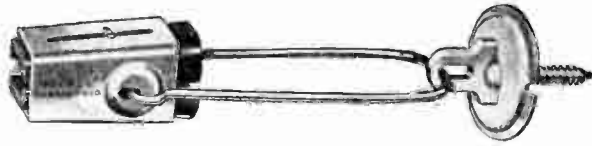


Cat. No.	No. of Line Wires	Wire Spacing Inches	Length Over All Inches	Std. Pkg.	Wt., Lbs. per 100	Price per 100
183	1	0	6 3/8	10	150	\$44.40
286	2	6	12 3/8	10	300	96.40
383	3	3	12 3/8	10	356	113.20
386	3	6	18 3/8	10	448	142.20
583	5	3	18 3/8	10	548	185.50
501	Corner Iron			25	20	17.80
1603	Insulator			100	45	9.80



## Peirce Wedge-Grip Service Brackets

Hot Galvanized



No. 3920

No. 3925



No. 3926

Designed for use with multiple conductor service cable. For a long time there has been a demand for this type of cable for use on service drops, but because of the lack of a suitable bracket or support, it has not been used. The wedge grip cable-holder solves the problem.

Jaws of bakelite sliding in a tapered steel shell hold cable in vise-like grip. Steel shell is anchored to pole or house by a copperweld wire bale which can be removed for attaching to eye bolt or secondary rack bolt by swinging through 180 degrees.

Screw eye No. 3925 is used as an anchor in wood while a 1/4-inch eye bolt and a 1/4-inch expansion nut is used as an anchor in brick, stone or concrete. No. 3920 cableholder is furnished with flat face bakelite jaws for 2-conductor cable and No. 3922 with grooved jaws for 3-conductor cable.

No.	Description	Approx. Ship. Wt., Lbs. per 100	Price per 100
3920	Wedge-Grip Service Bracket for Flat Cable...	45	\$80.00
3922	Wedge-Grip Service Bracket for Round Cable.	45	80.00
3925	Screw Eye for Anchoring in Wood.....	48	20.00
3926	1/4-Inch Eye Bolt and 1/4-Inch Expansion Bolt for Anchoring in Masonry.....	15	19.00

## No. 9270 Hubbard Transposition Brace Plates

Hot Galvanized



No. 9270 plate has been developed for the purpose of eliminating to some extent the expensive going over and tightening up of the transposition brackets as practiced by many construction engineers.

The plate, fitting snugly over the roof of the crossarm, is held in position by a lug sunk into the wood and by the machine bolts holding the transposition bracket. Side swing is eliminated by the portion of the plate which bears on the roof of the arm.

The tight fitting channel construction of the plate holds the bracket rigidly in a vertical position even under extreme contractions of the crossarm

due to weathering. A shrinkage of 1/16 inch will not alter the vertical alignment of the brackets.

Besides eliminating losses due to wire crosses and contacts caused by faulty phantom circuits, it greatly improves the line appearance.

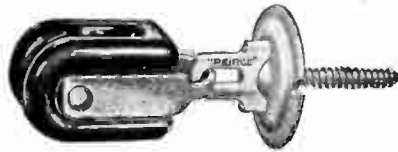
Pressed from No. 11 gauge steel which is slotted as shown by the illustration, to provide for a tight fitting adjustment.

Used with transposition bracket No. 9275 on R.S.A. roofed crossarms.

Approximate shipping weight per 100, 52 pounds.

Price, No. 9270.....per 100 \$26.64

## No. 2932 Peirce Swinging Knob Fixtures



Furnished with a redesigned No. 1602 insulator. The insulator hole is 1/2 x 1/2 inch. Standard package, 50. Shipping weight, 100 pieces, 95 lbs.

Price, No. 2932, with Insulator.....per 100 \$37.80

## No. 2945 Peirce Swinging Knob Fixtures with Bolts

Hot Galvanized



The swinging knob fixture is similar to the standard Peirce Fixture No. 2925 except that a 3/8 x 5-inch carriage bolt is secured to the base instead of the standard wood screw.

Some construction men are using this fixture, bolted through the cross arm, for taking off service drops. The fixture is adaptable to light secondaries on twisted wires.

No.	Ins. No.	Wt., Lbs. per 100	Price per 100
2945	1603	111	\$43.10

## Peirce Swinging Knob Fixtures

Hot Galvanized



These fixtures are used for making house service connections. The sister hook arrangement permits the removal of the insulator, for driving the screw, without the use of tools.

The No. 2928 is equipped with a Peirce No. 1606 insulator. The No. 2929 with a Peirce No. 355 insulator.

Price, No. 2928, Wt. 165 Lbs. per 100.....	per 100	\$66.70
Price, No. 2929 Wt. 250 Lbs. per 100.....	per 100	88.80

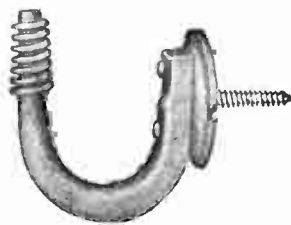
## Peirce Tree Insulators

Hot Galvanized

- The Peirce Tree Fixture provides:
- 1.—Sufficient insulation.
  - 2.—An easy method of installation without injury to the tree.
  - 3.—An easy method of stringing in the line without cutting.
  - 4.—A roller bearing to prevent chafing the insulation.
  - 5.—Sufficient strength and flexibility for use with various sizes of wire.

The sister hook feature permits the removal of insulators for driving the screw and stringing in the wire without the usual trouble with small nuts and bolts, also eliminates danger of parts working loose.

No.	Type	Standard Package	Wt., Lbs. per 100	Price per 100
2934	Flexible	75	155	\$72.90
2933	Rigid	75	115	39.10



## No. 132 Peirce Screw Brackets

Hot Galvanized

Small diameter of screw, No. 24x2 1/2", prevents splitting of wood. Std. pkg. 100.

Cat. No.	Base In.	Extension In.	Wt. Lbs. per 100	Price per 100
132	3 1/2	4 1/2	166	\$62.20

**No. 312 Peirce Forged Hook Brackets**

Hot Galvanized

Used for running secondaries on poles and for making service attachments on buildings. Forged from open hearth steel, this bracket is stronger and more dependable than the malleable iron type formerly used.

Furnished with either the resilient spring thread or lead threads for insulators having a standard 1-inch pin hole.



Cat. No.	Size Steel	DIMENSIONS, IN.		Std. Pkg.	Ship. Wt., Lbs. per 100	Price per 100
		Extension	Size Screw			
312	5/8	4 1/2	2 3/4	200	140	\$45.10

**Peirce Prussian Hook Brackets**

Hot Galvanized



For supporting wires on poles, trees, houses, etc. Made with Peirce spring thread for insulators with 1-inch diameter pin holes.

Cat. No.	Size Steel Inches	DIMENSIONS, INCHES			Ship. Wt., Lbs. per 100	Price per 100
		Extension	Inside Height	Length Screw		
313	5/8 Round	4 1/2	3 3/4	3	130	\$38.90
314	5/8 Square	5 1/4	4	2 1/2	170	43.30
315	1/2 Square	4 3/4	4	2 1/2	105	34.40
316	1/2 Round	4 1/4	4	2 1/2	86	29.30

**No. 1312 Peirce Brick Drive Brackets**

Hot Galvanized

The Peirce Brick Drive Bracket is drop-forged from open hearth steel which eliminates the possibility of breaking when driven.



Weight, Pounds.....per 100 95  
Price, No. 1312.....per 100 \$44.40

**Peirce Light Presteel House Brackets**

Hot Galvanized



No. 136



No. 253 1/2



No. 253



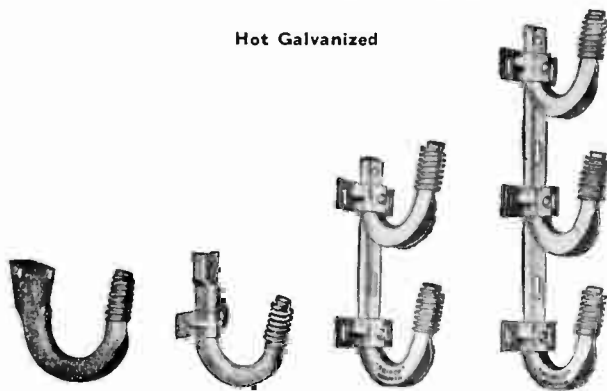
No. 353

No. 136 is used for supporting telephone wires on transmission poles. Nos. 253, 253 1/2 are popular house brackets.

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Extension	Spacing	Size of Holes			
136	3 1/2	...	5/16	25	56	\$22.40
153	3 3/4	...	1 1/32	25	80	25.80
253	3 3/4	9	1 1/32	20	170	67.00
253 1/2	3 3/4	6 1/2	1 1/32	20	180	64.60
353	3 3/4	6 1/2	1 1/32	20	300	106.60

**Peirce Heavy Presteel Brackets**

Hot Galvanized



No. 138

No. 154

No. 254 1/2

No. 354

Cat. No.	DIMENSIONS, INCHES			Std. Pkg.	Wt., Lbs. per 100	Price per 100
	Extension	Spacing	Size of Holes			
138	4 1/2	...	7/16	25	80	\$37.80
154	4 1/2	...	13/32	25	100	44.40
254 1/2	4 1/4	6 1/2	1 1/32	20	210	64.60
254	4 1/4	9	1 1/32	20	235	97.80
354	4 1/4	6 1/2	1 1/32	20	400	128.90

**Peirce Presteel Corner Brackets**

Hot Galvanized



No. 242

These brackets are designed for attaching service wires to the corner of building.

The long straps, bent to fit the corner of the building, are provided with an 1 1/2-inch hole and an 1 1/32 x 1 1/16-inch slot on each side.



No. 150

Cat. No.	Extension	DIMENSIONS, INCHES			Std. Pkg.	Wt. Lbs. per 100	Price per 100
		Channel	Holes	Spacing			
150	3 1/2	No. 12 Ga.	1 1/32	...	25	80	\$30.40
242	3 3/4	3/4	1 1/32	9	20	180	66.60
342	3 3/4	3/4	1 1/32	6 1/2	20	260	98.80

**Peirce Presteel Horizontal Brackets**

Hot Galvanized



No. 243

Should be used where service wires are taken from cross arm in a horizontal position.

Cat. No.	Extension	DIMENSIONS, INCHES		Std. Pkg.	Wt., Lbs. per 100	Price per 100
		Holes	Spacing			
243	3 3/4	13/32	8	20	150	\$59.30
343	3 3/4	13/32	6	10	245	83.80

**Peirce Insulated Pole Brackets**

For Lamp Leads

Hot Galvanized



No. 174

Used for supporting vertical leads of duplex cable or twisted single wires between cross arm and arc or incandescent lamp. Easy to install. No small bolts or movable parts. Nos. 173 and 174 are equipped with No. 1604 insulators and support the wire 5 inches from the pole. The No. 1660 insulator is not connected to the screw by a band of metal. The line wire is supported 5 1/8 inches from the pole.

Cat. No.	Size of Screw Inches	Mounting Holes Inches	Extension Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
174	...	7/8	5	25	240	88.20
1660	1/2 x 3	..	5 1/8	25	228	111.00

## Peirce Insulated Lamp Hanging Attachments

Hot Galvanized

### Suspension Insulator Type

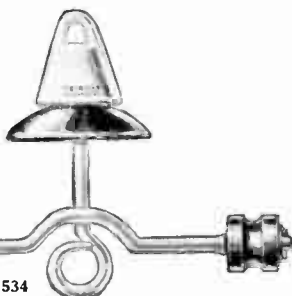


No. 1504 is a metal cap suspension insulator and has a safety hook for an arc lamp. The No. 1514 is similar to No. 1504, except that it has a metal cap tapped for 3/4-inch pipe thread for screwing to the mast arm stud and a pig tail hook for supporting the arc lamp. The No. 1524 is similar to the No. 1514 except that it has a 3/4-inch pipe thread stud instead of a pig tail hook for fastening the arc lamp.

Cat. No.	Overall Length Inches	Working Voltage	Std. Pkg.	Weight Pounds per 100	Price per 100
1504	6 3/4	6600	50	330	\$296.20
1514	7 5/8	6600	50	330	296.20
1524	5 1/16	6600	50	295	296.20

### Suspension Insulator Type with Insulated Spreader Arm

No. 1534 is similar to the No. 1504, except that it has an extended pig tail hook for supporting the arc lamp and an insulated spreader arm for attaching the lamp leads.



No. 1534

Cat. No.	Wire Spacing, Inches	Working Voltage	Std. Pkg.	Weight Pounds per 100	Price per 100
1534	12	6600	25	525	\$349.70

### Insulated Lamp Hanger Type

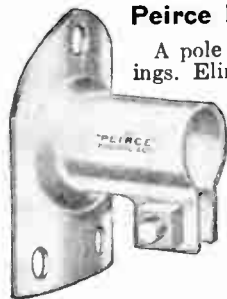


No. 1591

The No. 1591 consists of a special 6600 volt pin type insulator, a cap for attaching to the mast arm and a stud for attaching the lamp. Both stud and cap are threaded with standard 3/4-inch pipe threads. No. 1592 is similar to No. 1591 except that the pig tail hook is cemented into insulator instead of stud.

1591	6 1/2	6600	50	328	\$107.00
1592	8 3/4	6600	50	290	107.00

## Peirce Presteel Pole Plates



A pole plate of presteel stronger than castings. Eliminates threads on pole end of bracket as it clamps around the pipe.

Permits the wiring of a street hood bracket either internal or external. Has three 1/16-inch mounting holes for 1/2 or 3/4-inch lag screws or bolts. Curved to fit the pole which saves the lineman considerable time in installing. Used for mounting any 3/4 or 1 1/4-inch pipe connections to a wooden pole.

Stock No.	DIMENSIONS, INCHES			Finish	Std. Pkg.	Weight Lbs. per 100	Price per 100
	Size Pipe	Height	Width				
3700	3/4	5	3 3/4	Painted	2	180	\$100.00
3701	3/4	5	3 3/4	Galvanized	2	190	110.00
3702	1 1/4	6	4	Painted	2	239	180.00
3703	1 1/4	6	4	Galvanized	2	254	200.00

## Peirce Pig Tail Arc Lamp Hooks

Hot Galvanized



Made of a 1/2-inch piece of steel, pointed, with a carriage bolt head. Hook is inserted in a malleable pipe cap with standard 3/4-inch pipe thread. Can be attached to mast arm studs.

Overall length is 4 3/4 inches; diameter of hook, 1 3/8 inches. Weight per 100 pieces, 60 pounds.

Price, No. 3340, Std. Pkg., 10. per 100 \$44.10

## Peirce Street Hood Brackets

Straight Arm Type



No. 3381

Made of a straight length of 1 1/4-inch pipe with an ornamental head piece at outer end, equipped with a 1 1/4-inch pipe nipple for attaching reflector hood. Reducing bushing No. 3381 can be furnished. Ornamental scroll has one 9/16-inch mounting hole for pole support and two clamps for fastening to the pipe arm. This bracket takes up less space on the pole. Special lengths can be furnished.

Cat. No.	Length Feet	Size Pipe Inches	Finish	Std. Pkg.	Wt., Lbs. per 100	Price per 100
3704	4	1 1/4	Painted	2	2120	\$710.00
3714	4	1 1/4	Hot Galv.	2	2139	820.00

### Reducing Bushing

3381	*1 1/4	**3/4	Brass	10	50	88.20
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\*Size of pipe thread, inches. \*\*Reduced to pipe thread, inches.

### Right Angle Type

Similar to Straight Arm Bracket except that it has neither ornamental head piece nor nipple. It

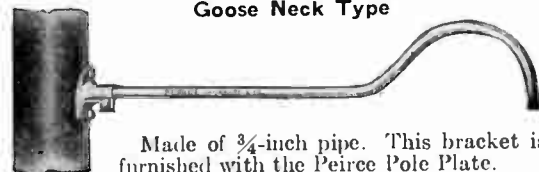


is one piece of 1 1/4-inch pipe with a threaded end to engage the reflector head. Reducing Bushing for 1 1/4-inch pipe thread street hood brackets can be furnished for attaching reflector hoods.

Furnished with Peirce Presteel Pole Plate and ornamental scroll. Special lengths can be furnished on request.

Cat. No.	Length Feet	Size Pipe Inches	Finish	Std. Pkg.	Weight Pounds per 100	Price per 100
3724	4	1 1/4	Painted	2	2140	\$730.00
3734	4	1 1/4	Hot Galv.	2	2158	840.00

### Goose Neck Type

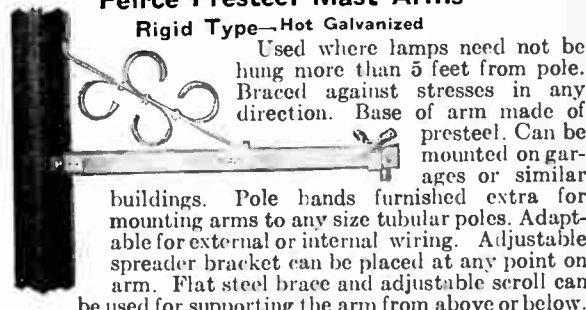


Made of 3/4-inch pipe. This bracket is also furnished with the Peirce Pole Plate.

3725	40	3/4	Painted	2	729	\$230.00
3745	40	3/4	Hot Galv.	2	750	260.00
3754	48	3/4	Painted	2	804	270.00
3764	48	3/4	Hot Galv.	2	830	320.00

## Peirce Presteel Mast Arms

Rigid Type—Hot Galvanized



Used where lamps need not be hung more than 5 feet from pole. Braced against stresses in any direction. Base of arm made of presteel. Can be mounted on garages or similar

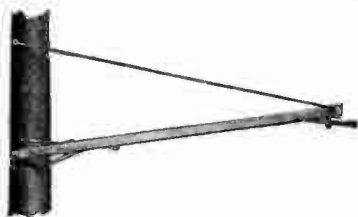
buildings. Pole hands furnished extra for mounting arms to any size tubular poles. Adaptable for external or internal wiring. Adjustable spreader bracket can be placed at any point on arm. Flat steel brace and adjustable scroll can be used for supporting the arm from above or below.

Cat. No.	Length Feet	Size of Section Inches	Std. Pkg.	Wt., Lbs. Each	Price per 100
3203	3	1 1/16 x 2 5/16	5	11 1/2	\$568.00
3204	4	1 1/16 x 2 5/16	5	14	696.00
3205	5	1 1/16 x 2 5/16	5	16 1/2	810.00

**Peirce Presteel Trolley Mast Arms**

**Rod Type**

Hot Galvanized



The strong points of the trolley arm are its safety and simplicity. The long swinging loops of wire are eliminated. The lamp is out of the reach of children, and cannot fall to the street. The trimmer has no trouble operating the Arm under any weather conditions, and runs no risk of injury by street traffic.

The lamp trimmer climbs the pole, pulls the lamp in by the rod attached to the lamp hanger, and then pushes it back to place by the same rod. There are no chains or ropes to break or become jammed on pulleys. The sliding mechanism is simple, and is completely protected from sleet and ice.

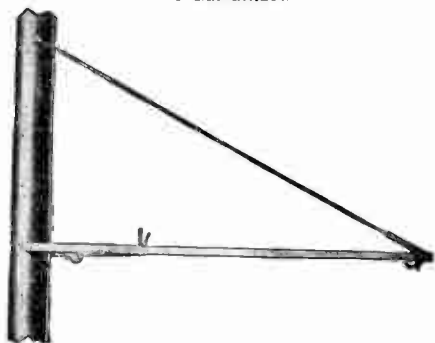
The Arm is pressed from a single length of 14-gauge sheet steel. It is furnished with a 1/2 inch round eye rod, a channel steel back brace to prevent its swinging around the pole, a channel spreader arm, and an operating rod with a trolley which has a 3/4-inch pipe-threaded connection for lamps. On this lamp connection is another spreader arm. All parts are hot-dip galvanized.

Cat. No.	Length Feet	Size of Section Inches	Std. Pkg.	Weight Pounds Each	Price per 100
3406	6	1 1/16 x 2 5/16	2	35	\$1480.00
3408	8	1 1/16 x 2 5/16	2	41	1700.00
3410	10	1 1/16 x 2 5/16	2	47	1820.00
3412	12	1 1/16 x 2 5/16	2	53	2070.00
3414	14	1 1/16 x 2 5/16	2	59	2400.00
3416	16	1 1/16 x 2 5/16	2	65	2750.00

**Peirce Presteel Trolley Mast Arms**

**Chain Type**

Hot Galvanized



No. 3610

This type of mast arm is the latest development for street lighting. The carriage is operated by a continuous chain which is completely protected.

All movable parts are equipped with brass bushings which permit a free easy movement. The idler and sprocket are made from a non-rusting alloy. These mast arms are safe and simple. The long swinging loops of wire are eliminated. The lamp trimmer has no trouble operating the arm. He climbs the pole, unlocks the handle and by revolving it pulls the lamp toward him. The handle locking device will not freeze nor hinder quick operation.

Cat. No.	Length Feet	Size of Section Inches	Std. Pkg.	Weight Pounds Each	Price per 100
3606	6	1 1/16 x 2 5/16	2	30	\$1720.00
3608	8	1 1/16 x 2 5/16	2	36	1900.00
3610	10	1 1/16 x 2 5/16	2	42	2140.00
3612	12	1 1/16 x 2 5/16	2	48	2370.00
3614	14	1 1/16 x 2 5/16	2	54	2600.00
3616	16	1 1/16 x 2 5/16	2	60	2900.00

**Peirce Rigid Mast Arms**

Hot Galvanized

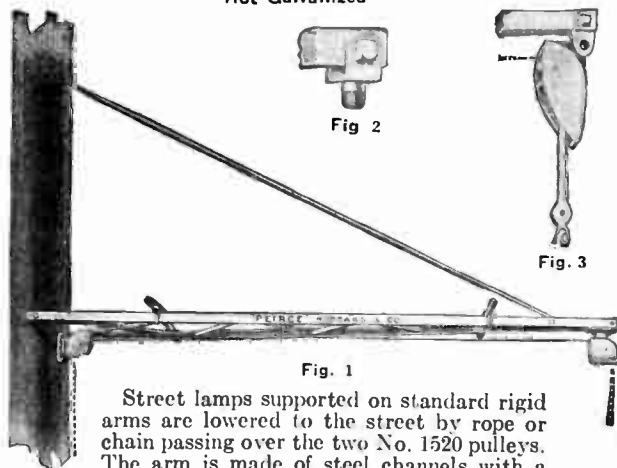


Fig. 1

Fig. 2

Fig. 3

Street lamps supported on standard rigid arms are lowered to the street by rope or chain passing over the two No. 1520 pulleys. The arm is made of steel channels with a 1/2-inch eye rod as a tension member.

Can be furnished in three styles as illustrated above. Figure 1 is the standard rigid type arm which includes two No. 1520 pulleys but no chain.

Figure 2 illustrates the flexible stud fastening for attaching the lamp. With this type arm there are neither chain nor pulleys.

Figure 3 illustrates the No. 1525 Sleet Proof Pulley with clamp knob on the end of the arm. With this type there is included No. 1520 Pole Pulley and No. 1525 Sleet Proof Pulley with clamp knob but no chain.

**Standard Type (Fig. 1)**

Cat. No.	Length Feet	Size of Channel Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3506	6	1 1/2	5	3500	\$1226.00
3508	8	1 1/2	5	4100	1728.00
3510	10	1 1/2	5	4600	2216.00
3512	12	1 1/2	5	5400	2312.00
3514	14	1 1/2	5	6000	2428.00
3516	16	1 1/2	5	6500	2760.00

**Flexible Stud Type (Fig. 2)**

Cat. No.	Length Feet	Size of Channel Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3546	6	1 1/2	4	3000	\$750.40
3548	8	1 1/2	4	3600	1175.20
3550	10	1 1/2	4	4100	1437.60
3552	12	1 1/2	4	4900	1711.00
3554	14	1 1/2	4	5500	1819.20
3556	16	1 1/2	4	6000	2123.40

**Sleet Proof Pulley Type (Fig. 3)**

Cat. No.	Length Feet	Size of Channel Inches	Std. Pkg.	Weight Pounds per 100	Price per 100
3526	6	1 1/2	4	3775	\$1237.00
3528	8	1 1/2	4	4375	1697.80
3530	10	1 1/2	4	4875	1960.20
3532	12	1 1/2	4	5675	2233.60
3534	14	1 1/2	4	6275	2341.70
3536	16	1 1/2	4	6775	2646.00
1520	Sleet Proof Pulley	10		300	249.20
1525	Sleet Proof Pulley with Clamp Knob			575	319.70
1530	Galvanized Mast Arm Chain (Specify Length)	13 C Ft.			.....

**Bermico Guy Wire Protectors**



Made from tough cellulose fibres, impregnated with water-proof compound.

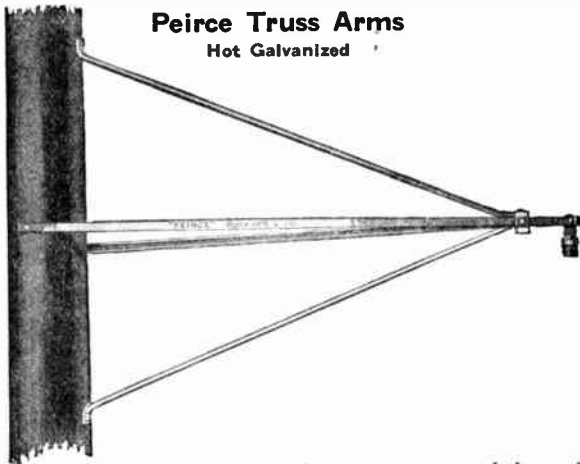
Because of the dielectric properties, this protector assures safety against pole wires that have become grounded through leakage and a wet pole.

Supplied in 8-foot lengths; 3-inch inside diameter.

Furnished in aluminum lacquer at no additional charge.

A 3/8-inch slot runs the entire length of the casing.

Prices upon application.

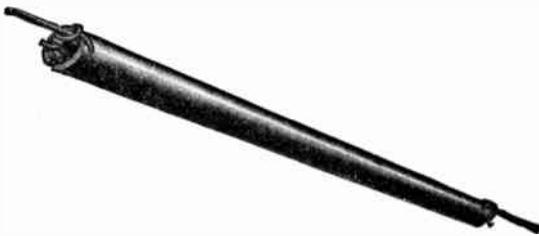


**Peirce Truss Arms**  
Hot Galvanized

This type of arm is lighter than most types and the preference of some construction men because of its low cost. Made of 3/4-inch channel and furnished with 3/4-inch threaded pipe connection for hoods. Attached to pole by 3/8-inch lag screws or through bolts. Can be supported from above or below.

Cat. No.	Size Channel Inches	Length Feet	Std. Pkg.	Wt., Lbs. per 100	Price per 100
370	3/4	4	5	800	\$260.00
371	3/4	6	5	1200	354.00

### Bermico Tree Wire Protectors



Minimizes interruption of service and reduces loss of current from overloads caused by swinging and dead grounds. Made from cellulose fibres, and impregnated with waterproof compound.

In standard lengths of 54 inches; inside diameter, 1 1/2 inches. A 1/2-inch slot runs the entire length of the tube. Prices upon application.

### Bermico Half Round Wire Protectors



Bermico Half Round is standard Bermico Conduit sawed in halves. Gives protective covering to all wires leading down poles into the ground. Made from long cellulose fibres, impregnated with waterproof compound, under pressure.

Will withstand high voltages up to 50000 volts. Furnished with radii as follows: 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2 and 3 inches. All sections are 8 feet in length except the 3/4, 1, and 1 1/4-inch sizes which are approximately 5 feet.

Sections are easily joined because of the socket type joints on each end. Prices upon application.

### Paragon Grounds



Made of one continuous piece of pure No. 22 sheet copper. Five feet of No. 4 copper connecting wire furnished with each ground. The cones are perforated to give ample discharge points and filled with charcoal to give uniform filling and attract and hold moisture in the earth around the cone. The cylinders are not perforated and are furnished either filled with charcoal or open at both ends with no filling.

Cat. No.	Description	Length Filling	Price Each
1	Cylinder.....	1	\$5.00
2	".....	2	6.25
3	Cone.....	1	5.00
4	".....	2	6.25

### Matthews Cable Clamps

For Use on Power Cable Only



These clamps are designed to relieve the strain from cables ranging in size from 000 to 1500000 CM at corners and dead ends, and to do away with the expense of splices at these places and the cost of making up into strain insulators, etc.

Two brass bolts are needed when clamps are used on a.c. cables.

Guaranteed to effect a saving of at least \$5.00 per corner turn in cables from 000 to 1500000 CM inclusive.

Packed in bags of 12, 25 and 50 each. Shipping weight, 410 pounds per 100.

Price, Galvanized Finish..... each \$3.60  
Price, Brass Bolts for Use on A.C. Cable.... per pair 1.00

### Diamond Combination Cable Clamps

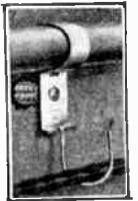
With Detachable Bridle Rings

Diamond Galvanized

This combination cable clamp and bridle ring provides a more economical and more quickly applied fastening for attaching lead covered cables and parallel runs of bridle wire to walls built of any material.

The rings are snapped into place by hand and may easily be opened for the addition or removal of bridle wires. Only one size of ring is used interchangeably with all sizes of clamps effecting an economy in the number of parts required in blockwork.

Diameter of eye, 1 inch.



### Without Bridle Rings or Screw Anchors

No.	SIZE CLAMP, INCHES Cable Diameter	Conduit or Pipe Diameter	DIAMETER WOOD SCREW AND LENGTH No. Inches	Size Screw Anchor Inches	Price per 100
OA	9/16	1/4	14 1 1/4	1/4x1	\$5.00
O	1 1/16	3/8	14 1 1/4	1/4x1	5.20
1	1 1/8	1/2	14 1 1/4	1/4x1	6.45
2A	1	3/4	14 1 1/4	1/4x1	9.30
2	1 3/16	...	14 1 1/4	1/4x1	9.70
3A	1 3/8	1	14 1 3/4	1/4x1 1/2	14.00
3	1 1/2	1 1/4	14 1 3/4	1/4x1 1/2	15.00
4A	1 7/8	1 1/2	14 1 3/4	1/4x1 1/2	16.90
4	2 1/16	2	14 1 3/4	1/4x1 1/2	18.75
5	2 5/8	2 1/2	14 1 3/4	1/4x1 1/2	19.75

### Small Sizes without Bridle Ring Attachment

O/G	3/16	1/8	8 1	3/16x3/4	\$1.40
5/0	3/8	1/8	8 1	3/16x3/4	1.87
4/0	7/16	1/8	8 1	3/16x3/4	2.13
3/0	1/2	1/8	8 1	3/16x3/4	2.25
2/0	5/8	1/8	8 1	3/16x3/4	2.37

**Diamond Grade Clamps**

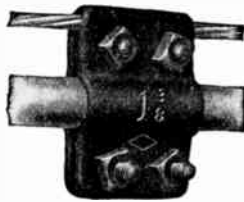
**Diamond Galvanized**

For securing lead cable to messenger strands on steel inclines.

Made of refined malleable iron with grooves to conform to the standard diameter of messenger strands and various sizes of lead covered cable.

Supplied with four 1/2-inch high tensile bolts.

Size of Clamp.....inches	27/8	2 1/2	2 1/16	1 3/8
Distance Top to Bottom.....inches	7 3/8	7	6 1/4	5 1/4
Width.....inches	4	4	4	4
Thickness of Each Side.....inches	5/16	5/16	5/16	5/16
Diameter of Cable.....inches	2 5/8	2 1/2	2 1/16	1 3/8
Price.....each	\$4.10	3.66	3.15	2.10



**Trident Guy Clamps**

Made from high grade malleable iron. Bolts have countersunk heads.

Price, 3 Bolts.....each \$ .38  
Price, 2 Bolts.....each .34



**Diamond Heavy Pattern Guy Clamps**

Made from high grade malleable iron with countersunk heads.

Price.....each \$1.50

**Diamond Strand Connectors**

Designed for connecting up dead ends of messenger strands when they occur between poles. With the connector the dead ends of wire strands are looped in opposite directions and held with 3-bolt guy clamps. Width of grooves, 1 inch; diameter of holes, 5/8 inch. Diamond galvanized.

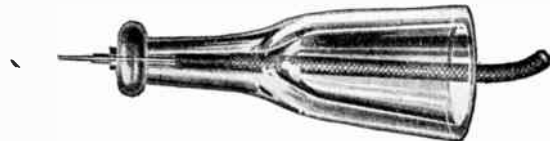
Price.....each \$ .60

**Diamond Insulated Screw Eyes**

The porcelain ring has a diagonal opening which allows the easy insertion of wires and when pulled taut they cannot become released from the ring. Is galvanized. Put up in containers of 100 and 250.

Price.....per 100 \$15.00

**Diamond Bridle Wire Insulators**



For insuring a dry connection between a bare wire and an insulated wire tapped therefrom. Where a dry connection is necessary to prevent leakage over and around the insulation the wire insulator is used. The braid and rubber portion is stripped from the bare wire which is passed through the messenger-proof cup and soldered to prevent messenger following the bare wire into the protected glass petticoat.

It is used on loading coils in telephone construction and for lead-in wires on telegraph strands.

Price.....per 100 \$40.00

**Never-Creep Installing Bars**



The installing bar is a turned maple handle 10 feet long with a galvanized Never-Creep Holder mounted on one end and a malleable tamp head on the other.

Price.....each \$2.35

**Chance New Improved Expanding Anchors**

These anchors are double dipped in asphalt-preserving paint and the rods are hot dip galvanized.

Important features of these anchors are: Has both housing and base for supporting plates; expanding arms hinged to cross

**With Thimbleye Rods**



No.	ANCHOR In. Way	Rod Ft.	Wt. Lbs. per 100	Price Each
62125	6 2	1 1/2x5	935	\$1.72
62126	6 2	1 1/2x6	1000	1.81
64586	6 4	5/8x6	1435	2.23
64587	6 4	5/8x7	1535	2.36
64588	6 4	5/8x8	1635	2.48
82586	8 2	5/8x6	1600	2.33
82587	8 2	5/8x7	1700	2.46
82588	8 2	5/8x8	1800	2.58
82346	8 2	3/4x6	1880	2.58
82347	8 2	3/4x7	2025	2.75
82348	8 2	3/4x8	4185	2.92
84586	8 4	5/8x6	2175	2.98
84587	8 4	5/8x7	2275	3.11
84588	8 4	5/8x8	2375	3.23
84346	8 4	3/4x6	2455	3.23
84347	8 4	3/4x7	2600	3.40
84348	8 4	3/4x8	2760	3.57
10346	10 4	3/4x6	3580	4.73
10347	10 4	3/4x7	3725	4.90
10348	10 4	3/4x10	3885	5.07
108	10 4	1x8	4885	5.24
1100	10 4	1x10	5500	5.41

head by one-piece spider; interlocking plates; expanding arms hinged to plates by eined loops; wide deep ribbed expanding arms; drop-forged expanding head; marginal guideways for guiding plates and holding anchor together; corrugated plates registering with corrugating plates; nut retaining feature; made of rust-resisting steel of structural specifications.

**Without Rods**

No.	ANCHOR In. Way	Wt. Lbs. per 100	Price Each
62	6 2	550	\$1.25
64	6 4	760	1.50
82	8 2	925	1.60
84	8 4	1500	2.25
104	10 4	2625	3.75

**Chance Capstan Pulley Blocks and Detachable Capstans**



For line construction and repairs, block luffing, pole raising and placing, cable pulling, cable splicing, rigging and pulling work in general.

A rope pulley block with which one man can exert a direct pull or lift of from 1000 to 4000 pounds.

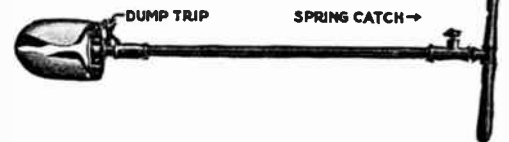
No.	Capacity Pounds	Rope Size Inches	Price Each
2	2000	1/2	\$12.50
4	4000	5/8	18.75

Prices include 33 feet of rope.

Price, No. 3, Detachable Capstans.....each \$7.50

Price, No. 5, Detachable Capstans.....each 12.50

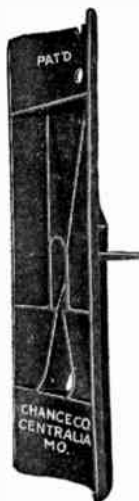
**Chance Heavy Telegraph Augers**



Price, Complete.....each \$8.50



## Never-Creep Anchors



Twineye



Thimbleye

An ordinary 8-inch auger is all that is required to install all sizes up to and including the 36-inch. The Thimbleye rod is furnished at no extra cost and is so shaped that it holds the cable in a true cylindrical form thus preventing flattening of cable which shifts the greater strain upon a portion of the wires sooner or later resulting in injury. The Twineye, having two thimble shaped orifices is for joint construction or double guying. Prices on Never Creeps with Twineye rods instead of single Thimbleye, add 10 cents to the list prices following.

Cat. No.	Size of Plate Inches	Holding Surface Sq. In.	SIZE OF ROD Diam. Inches	Length Feet	Weight Pounds	Price, Ea. Anchor Complete
510 <sup>1</sup> / <sub>2</sub>	5x10	55	1/2	5	7	\$1.45
510 <sup>1</sup> / <sub>2</sub>	5x10	55	1/2	6	8	1.55
615 <sup>1</sup> / <sub>2</sub>	6x15	97	1/2	5	10	2.00
615 <sup>1</sup> / <sub>2</sub>	6x15	97	1/2	6	11	2.10
615 <sup>5</sup> / <sub>8</sub>	6x15	97	5/8	6	14	2.30
620 <sup>5</sup> / <sub>8</sub>	6x20	130	5/8	6	16	2.85
620 <sup>5</sup> / <sub>8</sub>	6x20	130	5/8	7	17	3.00
820 <sup>5</sup> / <sub>8</sub>	8x20	180	5/8	6	20	3.45
820 <sup>5</sup> / <sub>8</sub>	8x20	180	5/8	7	21	3.60
820 <sup>3</sup> / <sub>4</sub>	8x20	180	3/4	6	23	3.75
820 <sup>3</sup> / <sub>4</sub>	8x20	180	3/4	7	24	3.95
825 <sup>3</sup> / <sub>4</sub>	8x25	212	3/4	6	26	4.65
825 <sup>3</sup> / <sub>4</sub>	8x25	212	3/4	7	27	4.85
825 <sup>3</sup> / <sub>4</sub>	8x25	212	3/4	8	29	5.05
830 <sup>3</sup> / <sub>4</sub>	8x30	255	3/4	6	32	5.45
830 <sup>3</sup> / <sub>4</sub>	8x30	255	3/4	7	33	5.65
830 <sup>3</sup> / <sub>4</sub>	8x30	255	3/4	8	35	5.85
835 <sup>3</sup> / <sub>4</sub>	8x35	297	3/4	6	38	6.40
835 <sup>3</sup> / <sub>4</sub>	8x35	297	3/4	7	39	6.60
835 <sup>3</sup> / <sub>4</sub>	8x35	297	3/4	8	41	6.80
835-1	8x35	...	1	7	44	7.40
835-1	8x35	...	1	8	47	7.75
1040-1	10x40	440	1	7	63	9.40
1040-1	10x40	440	1	8	65	9.75

## Never-Creep Mauls



Price, 4-lb. Maul for 1/2, 5/8, and 3/4-inch Rods... each \$2.00  
 " 18 " " " 1-inch Rod..... " 2.35

## Chance Linemen's Socket Wrenches



Made of best tool steel and specially tempered to withstand the severest use.

Made in 2 sizes, 3/4 and 5/8-inch. The 3/4-inch wrench is used principally for steel pole line construction. The 5/8-inch wrench is used for standard wood pole and cross arm, telephone and telegraph and electric light construction.

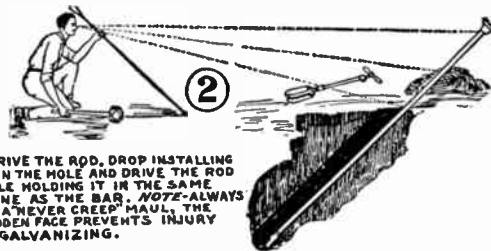
It takes the place of a hammer, or hand axe in driving lags, pins, bolts, etc. Nuts on 2 or 3-bolt messenger clamps can be tightened without removing wrench from nuts.

Size Inches	Takes Bolts and Smaller Inches	Weight Pounds Each	Price Each
3/4	3/4	3 1/3	\$3.25
5/8	5/8	2 3/4	3.25

## Never-Creep Anchors

### Method of Installing

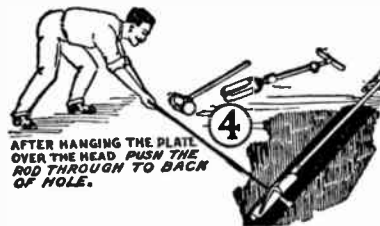
Locate the spot desired for the anchor rod and measure from that point back from the pole the length of the rod and start the hole at this point. Use an 8-inch auger and bore the hole as nearly at right angles to the line of strain as conditions will allow.



TO DRIVE THE ROD, DROP INSTALLING BAR IN THE HOLE AND DRIVE THE ROD WHILE HOLDING IT IN THE SAME PLANE AS THE BAR. NOTE-ALWAYS USE A NEVER CREEP MAUL, THE WOODEN FACE PREVENTS INJURY TO GALVANIZING.



CATCH THE PLATE BY THE HOLDER, ON THE TAPPING BAR, PASS DOWN INTO THE HOLE AND HANG OVER THE HEAD OF THE ROD.



AFTER HANGING THE PLATE OVER THE HEAD, PUSH THE ROD THROUGH TO BACK OF HOLE.



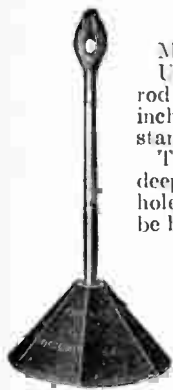
NOTICE.—After driving the rod take the installing bar and measure the distance the rod is from the bottom of the hole to be sure the plate will have room to swing freely on the rod without touching the bottom.

After hanging plate on the rod attempt to disengage the holder until the rod has been pushed through to the opposite wall of the hole. This not only allows easier disengagement of the holder but permits the plate to drop and swing freely upon the rod.

Always use a Never-Creep wooden faced iron maul to drive the rod. Don't use a hand axe or hammer. They will batter the eye, injure the galvanizing and ruin the rod.

**Chance Pyramid Anchors**

Without Rods



Made of semi-steel, asphaltum dipped. Use the 5/8 or 3/4-inch Thimbleye or Twineye rod for an 8-inch cone anchor and a 3/4 or 1-inch rod for the 12-inch cone anchor. A standard threaded rod may be used. To install, bore a hole not less than 5 feet deep directly in line with top of pole, boring hole as far from pole as possible. Hole must be bored according to size cone.

No.	Anchor In.	Wt. Lbs. per 100	Price Each	No.	Anchor In.	Wt. Lbs. per 100	Price Each
6	6	340	\$ .65	16	16	3740	\$3.15
8	8	569	.75	19	19	4625	5.00
10	10	1030	1.10	19H	19	5500	5.50
12	12	2025	1.50	23	23	6000	5.65

**Chance Screw Anchors**

Made to be screwed into the solid earth.



For the 6 and 7-inch anchors use No. 300 auger, for 8-inch anchor use No. 300 or 500 auger, for 10-inch or larger anchors use No. 500 auger. Upon installing anchor, remove eyenut from rod, place wrench down over rod and over square shank on the helix. Then screw the eyenut back on the rod.

No.	Anchor Inches	Rod In.	Wt., Lbs. per 100	Price Each
126	6	1/2	800	\$1.65
586	6	5/8	1000	1.90
587	7	5/8	1100	2.30
347	7	3/4	1400	2.70
588	8	5/8	1300	3.05
348	8	3/4	1600	3.40
5810	10	5/8	1500	3.85
3410	10	3/4	1750	4.20

**Chance Thimbleye Threaded Anchor Rods**

Equipped with thimble. Holds cable in a true cylindrical form.

Size Ft.	Price Each	Size Ft.	Price Each	Size Ft.	Price Each
1/2x5	\$.47	3/4x6	\$ .98	1x7	\$1.84
1/2x6	.56	3/4x7	1.15	1x8	2.14
5/8x6	.73	3/4x8	1.32	1x10	2.45
5/8x7	.86	3/4x9	1.49	.....	.....
5/8x8	.98	3/4x10	1.85	.....	.....



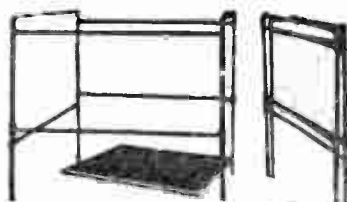
**Chance Twineye Threaded Anchor Rods**

Used in joint construction on heavy leads needing a double guy. Made in 3/4 and 1 inch diameters only.



Size Ft.	Price Each	Size Ft.	Price Each	Size Ft.	Price Each
3/4x6	\$1.07	3/4x9	\$1.58	1x8	\$2.23
3/4x7	1.24	3/4x10	1.95	1x10	2.54
3/4x8	1.41	1x7	1.93	.....	.....

**Manhole Guards**



Open, 50x50x42 in.; closed, 31x50x42 in.

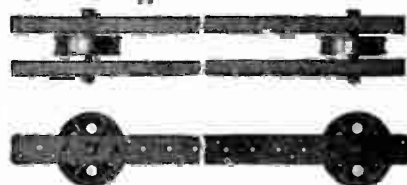
Ship. wt., 43 lbs.

Price, Manhole Guards, each \$25.00

**Manhole Skids and Sheaves**

Price, 9-foot... per set \$60.00

Extra lengths, \$3.00 per foot.



**Manhole Frames and Covers**



**Square**

Cat. No.	SIZE, INCHES		Ht. In.	Wt., Lbs. Each	Price Each
	Opening	Flange			
229	17x22	31x36	6	340	\$25.00
271	18x30	26x38	5	375	26.00
278	28x32	38x42	7 1/4	620	49.00
<b>Round</b>					
202	23	36	9	540	\$30.50
204	23	36	9	450	29.00
206	23	36	9	400	27.50
208	23	35	7	350	24.00
211	23	36	6	315	22.50
212	22	30	5 1/4	265	20.00

**Diamond Manhole Cover Hooks**

This is a useful tool for the subway construction force. It is designed to easily raise a heavy manhole cover by prying the wedged point end of the hook under the groove provided in the cover for the purpose.

The hook is made of an excellent quality of electric tool steel suitably hardened at and adjacent to the hook to prevent its bending, and at the same time sufficiently tough to prevent breaking off.

Price.....each \$1.50



**Empire Duct Rods**

Furnished in 2 styles, tapered and straight. Tapered sticks are furnished when not otherwise specified. They measure 1 1/4 inches at the middle of the rod and taper to 1 inch at coupling. Straight sticks are furnished of uniform diameter 1 inch throughout.

Couplings are malleable iron. Ends are interchangeable. Axles are machined from brass rod, solid head and shouldered on coupling. Wheels are machined at hub to fit axle and shaped to conform to curve of duct. The rod is made of best selected straight grain well seasoned hickory, tapering to 1 inch at coupling.



Length.....feet	3	4
Price, with Wheels.....each	\$1.45	\$1.60
Price, without Wheels.....each	1.25	1.40

GraybaR

Symbol of  
Distribution

from GraybaR

ELECTRIC COMPANY

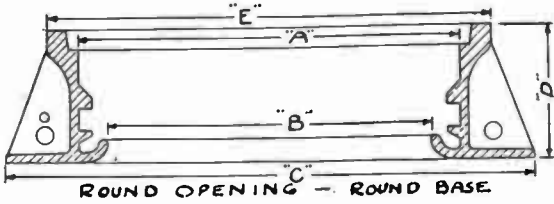
## Manhole Frames and Covers

These frames and covers are cast from an analysis of iron which has proven, by test and experience to be high in tensile strength and wear resistance qualities.

All manholes are machine finished on both frame and cover, which eliminates all rocking covers, makes inter-

change of frames and covers possible, and eliminates necessity of matching.

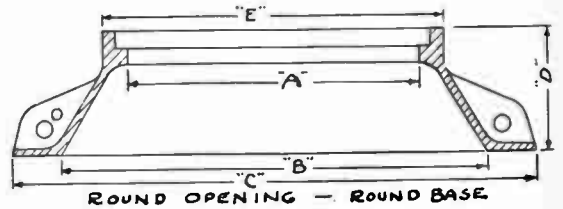
The illustrations show only a few of a large group of various sizes, shapes, weights and patterns, which can be furnished.



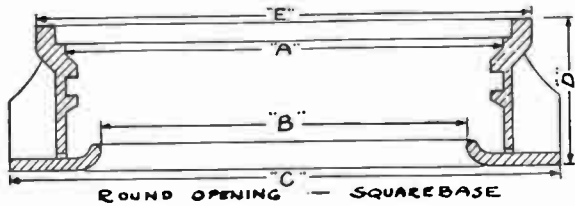
No.  
11797  
14051

DIMENSIONS, INCHES					Weight Pounds
A	B	C	D	E	
34½	30	46½	11	39½	1270
31½	27	43½	11	36½	1088

No.	DIMENSIONS, INCHES					Weight Pounds
	A	B	C	D	E	
14052	30	41	49	10	31	797
11353	27	38	46	10	31	670
11351	24	35	43	10	28	560



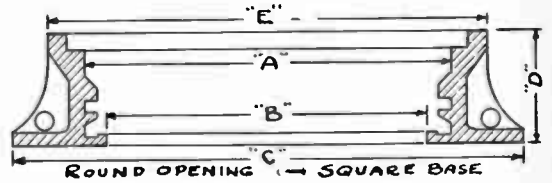
Weight Pounds  
797  
670  
560



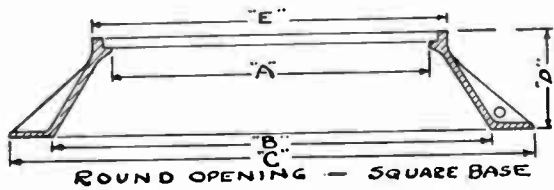
No.  
306

DIMENSIONS, INCHES					Weight Pounds
A	B	C	D	E	
35½	30	45	11⅜	40½	1413

No.	DIMENSIONS, INCHES					Weight Pounds
	A	B	C	D	E	
13375	30½	26¾	42	9	35½	1130



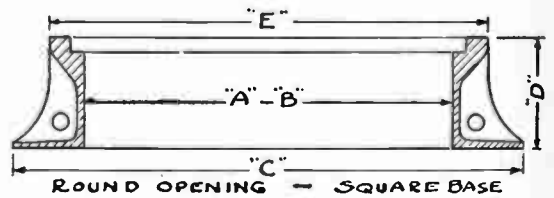
Weight Pounds  
1130



No.  
14053

DIMENSIONS, INCHES					Weight Pounds
A	B	C	D	E	
26	36	43	8	29	474

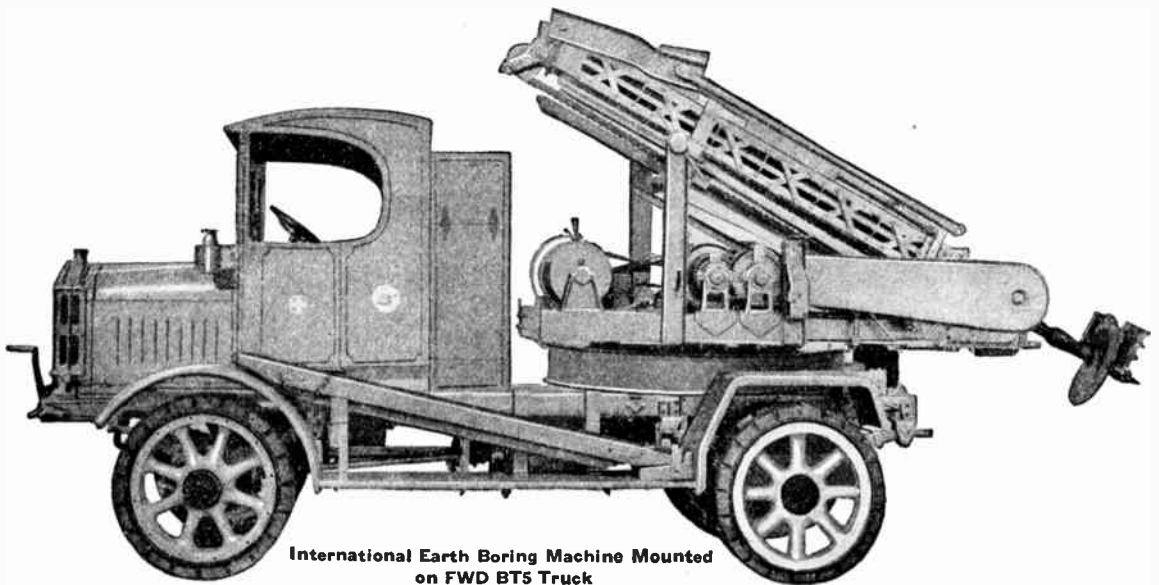
No.	DIMENSIONS, INCHES					Weight Pounds
	A	B	C	D	E	
13802	30⅙	30⅙	42	9	35½	786



Weight Pounds  
786

Prices upon application.

### Earth Boring Equipment International Earth Boring Machines Mounted on FWD Trucks



International Earth Boring Machine Mounted on FWD BT5 Truck

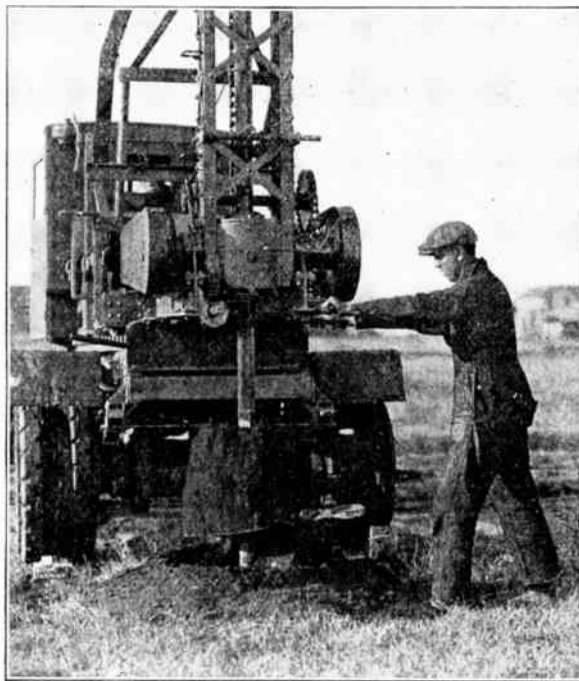
The utility field requires special equipment—"anything" will not do. Particularly does this apply to the selection of means of transportation. The vehicles used for hauling supplies and machinery must be powerful and yet they must have speed. Most of the hauling can be done with trucks, yet not "any" trucks will do, for the work is too varied, too exacting, too specialized. Years ago the FWD Truck appealed to utility engineers as a possible solution to the problem of selecting a truck which would cover the wide range of utility transportation requirements. Several FWD's were put into service. The engineers learned from actual observation that the rear wheels of the truck pushed, the front wheels pulled and the trucks traveled almost everywhere they were directed. They hauled heavy, cumbersome material. Twenty tons of cable were hauled on one FWD and two trailers. They hauled poles to location—long unwieldy poles that did their best to rack the trucks but failed. Other tests were conducted and the FWD's always won out. The trucks were equipped with regular American Telephone and Telegraph line construction body, winch, derrick, and boring machine. This was probably the FWD's most decisive test, for the performance of the equipment mounted on a truck is governed by the performance of the truck itself. The four driving wheels and scientific construction of the FWD, however, enabled it to "walk" right up to the places where the holes were to be dug and the poles set, whether those places were on a steep bank, in a hilly field, or in a ditch. The FWD filled every requirement. From those experimental days until now the FWD's have performed the ordinary work and they have performed the extraordinary

work. They are used with success by utility companies in general hauling and they are easily meeting every requirement made upon them in specialized hauling.

The FWD earth boring truck has been expressly built to meet the extreme conditions it must encounter. Not one ounce of the FWD's power is wasted in pushing dead weight. Power is transmitted to all four wheels and all of the weight of truck and load is used for traction. This means traction on every inch of tire and less tractive effort to propel the truck. The power of the FWD from the motor flows through a multiple disc clutch to a jaw clutch type of transmission. With this transmission the gears are always in mesh and there is no chance of stripping them. At the rear of the transmission and driven by the transmission shaft is a rugged spool or sprocket which drives a 5-inch silent chain. This chain runs over a second and larger sprocket, inside of which is placed a center differential. The propeller shafts lead to front and rear axles from this differential and function through the type of drive pronounced correct by all makes of pleasure cars—pinion and ring gear through bevel gear differentials and full floating axles. By the distribution of the power to all four wheels, strains are divided, a longer life insured for the truck, greater tractive ability provided, economy produced in operation and upkeep costs lessened.

The International Earth Boring Machine is mounted exclusively on the FWD. This boring machine has been on the market longer than other

boring machines and has an enviable reputation for stability and performance and reducing the cost of line construction and line maintenance. The savings which have been effected with this machine are remarkable.



The illustration shows the machine working under ideal conditions; there is, however, practically no place where poles are set that is not accessible to the FWD Earth Boring Machine. The turntable permits the auger to bore at the end of the truck or at either side. The auger can be swung from one extreme position to the other in 15 seconds.

## Earth Boring Equipment

## International Earth Boring Machines Mounted on FWD Trucks

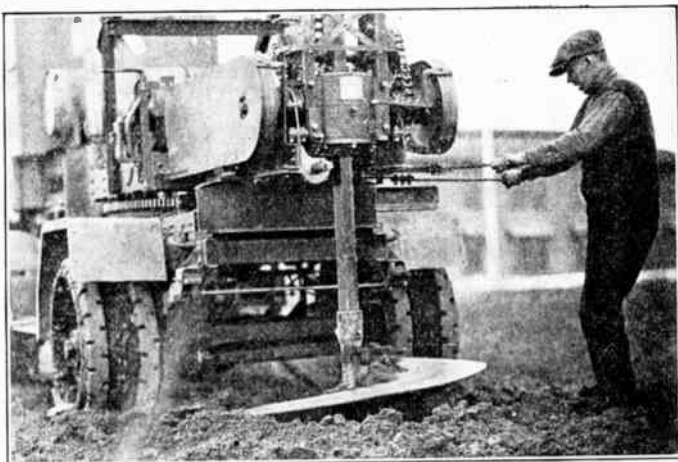
Three men are necessary to operate the FWD Earth Boring Machine—one to drive the truck and control the various gear shifts of the machine, one to operate the earth boring machine and one ground man to assist the machine operator.

By the use of the turn table, the auger may be given a wide sweep and the tower tilted so as to bore a straight hole even though the truck be on very uneven ground. Slanting holes can also be bored for anchor posts. When the truck is in place, tower is given the tilt desired, the auger lowered and the lever thrown to set the auger in motion. In ordinary soil the auger is sunk to a depth of about 2 feet, when it is raised and by centrifugal motion the dirt is removed from the auger almost instantly. This action is repeated until the hole is bored the desired depth.

The derrick may be quickly dismantled by removing one bolt and one yoke pin. This derrick is carried in the brackets provided for alongside the truck. By the removal of six bolts, the complete earth boring equipment may be removed from the truck, thus releasing the truck for other purposes. Steps are mounted on the left-hand side of the tower and a toe guard effectively prevents operator's foot being caught by the tower guide when climbing the tower. All levers are compactly and conveniently arranged on the right-hand side of the truck so that the operator may obtain the maximum of speed and safety in the digging of holes and setting of poles. As a safety factor, truck and boring machine cannot be operated at the same time. It is necessary to disengage the truck when operating the boring machine and the boring machine apparatus must be disconnected before engaging the truck.

Under favorable conditions, the International Earth Boring Machine will bore a 24-inch hole 7 feet deep in 2 minutes. Under ordinary conditions, holes can be bored and poles dropped into them at the rate of 60 per 8-hour day. Records furnished by present users are indicative of a saving of from 3 to 5 dollars on each hole bored and pole set. This machine will dig holes in any kind of soil that can be dug by hand methods without blasting. By using a special auger, supplied by the company, a 24-inch hole 7 feet deep can be dug through the toughest shale in 12 minutes.

The earth boring machine is designed exclusively for FWD trucks and is operated from a power take-off. To operate any part of the borer the operator must first throw in the rotating earth boring clutch. The tower on the earth boring machine can be furnished in various lengths to meet the de-



The 48-inch auger is used for digging holes for abutments for high power lines. The illustration above shows the 4-foot auger working in wet clay.

Because of its sturdy construction and evenly balanced weight, the FWD Earth Boring Machine is not affected by the severest soil conditions met in digging even the larger size holes. The truck has the power to carry the machine to the place desired and the machine is built to stand the gaff of the hard work.

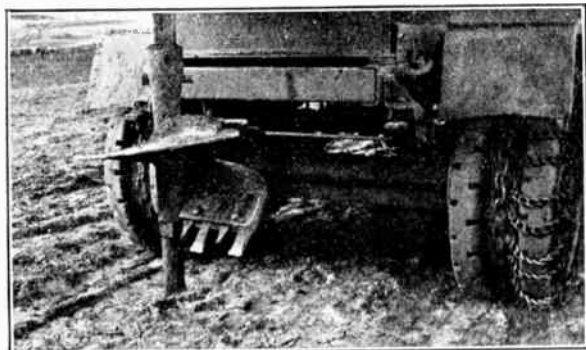
mand of the user. A 6-foot tower allows for boring a hole 6 feet deep; a 9-foot tower is used for boring holes up to 9 feet deep and a 12-foot tower provides for holes up to the 12-foot depth. This tower is of latticed angle iron and is  $8\frac{1}{2}$  inches one way by  $15\frac{1}{2}$  inches the other and it is possible to tilt it to any angle desired by means of a double-acting ratchet wrench. The tower is tilted on a worm made from carbon steel carbonized. This worm has a reduction of 44 to 1. The augers are all made of special cast steel and are of special designs of the spiral type and can be had in various sizes from 15 inches to 48 inches. Cutting blades are furnished with each auger.

The Central Station Type Machines are equipped as standard with one 24-inch and one 30-inch auger and have a 9-foot tower. This machine will bore a hole 10 feet on absolutely level ground, and is rated as a 9-foot size, one foot being allowed for unevenness in ground surface. The boring machine is furnished with a 6-foot turn table which enables the operator to bore holes from either side of the truck as well as from the rear. This turn table gives a range of more than 180 degrees and the auger may be stopped at any point within this range. It requires but 15 seconds to turn the table from one extreme position to the other.

In order to relieve the springs of the truck from all strains and shocks when the boring machine is in operation, a positive lock has been provided on the rear springs. These locks are left in place when moving from one hole to another and disengaged only when the truck is traveling for any unusual distance.

The Telephone Type Earth Boring Machine is the same as the Central Station Type except that it is a 6-foot machine. It will, however, bore holes 7 feet deep on level ground. The auger tower, shaft and chain are, therefore, 3 feet shorter than the Central Station Type. It will set 35-foot poles, instead of 65-foot. Augers furnished are 20-inch and 24-inch instead of 24-inch and 30-inch. Total weight is 14,300 pounds instead of 15,000.

With the above exceptions, both types of machines are identical and the same amount of extras as outlined in the Central Station Type are shipped with the machine.



As the picture above clearly illustrates, boring through shale requires a machine that is built to successfully withstand the unusually hard knocks encountered in this work.

By using a specially designed auger, a 24-inch hole 7 feet deep can be dug through the toughest shale in 12 minutes. These augers are made at the factory and are furnished extra.

## Earth Boring Equipment

## Enclosed Gear Boring Machines Mounted on FWD Trucks

The Enclosed Gear Boring Machine is mounted on the FWD Model HT-7 Line Construction Truck and the FWD BT5. The BT5 is described on the preceding pages. The FWD Model HT-7 Line Construction Truck was especially designed to meet the demand for a small, fast, sturdy 2-ton truck for work in the utility field. It is exceptionally powerful—its four driving wheels carry it through soft fields, over hills, and in and out of ditches. It has a wide range of speeds, 7 forward and 2 in reverse. (It can be equipped with a 4-speed transmission if preferred.) No time is lost in getting to the job or in traveling from one location to the next. Four-wheel brakes insure safety to the mechanism, to the workmen and to pedestrian. Moreover, the FWD is economical. It does not develop more power but it puts more of the power developed to use.

The Enclosed Gear Earth Boring Machine which is mounted on the HT-7 Line Construction Truck brings into the operating department of the public utility field a mechanism which affords not only a tremendous labor saving factor but at the same time leaves the class of the heavy duty machine and ranks as a simple tool. It will bore any pole hole and set the pole in any location where hand digging is possible and where it is at all practicable to place a truck. Occupying but 1½x4 feet in the truck body and weighing a little less than a ton, it can be used on a truck which will also perform any and all of the regular maintenance requirements.

Power is delivered to the boring machine by a special transmission counter shaft which permits full engine torque and the use of any desired speed of the truck transmission for every phase of boring machine operation. The truck counter shaft is extended by means of a propeller shaft which is mounted in self-aligning bearings and which carries the chain sprocket driving up to the clutches of the boring machine proper. The entire operation is controlled by two levers placed at the rear of the truck and just to the left of the boring head in such a position as to permit the operator to clearly see every phase of the hole-boring cycle. One



Enclosed Gear Boring Machine Mounted on FWD Model HT-7 Truck

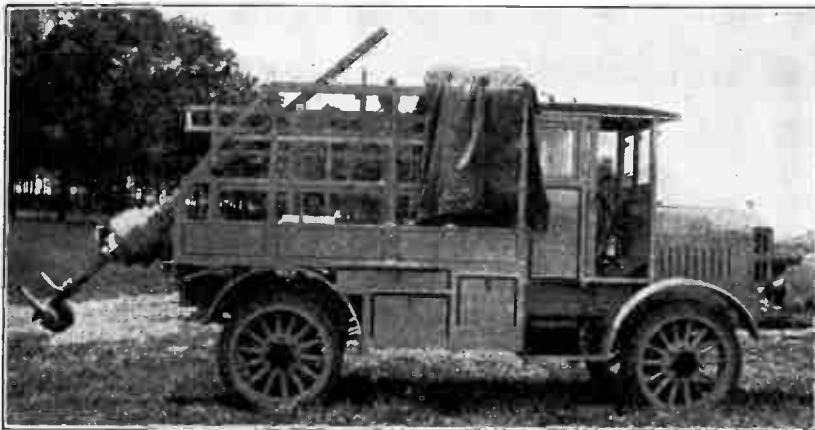
lever is connected to each clutch, the one controlling the drive and the other the feed. The boring heads are universal in movement, adjustable to 45 degrees in any direction by means of a worm sector on each head and which latter also provide the means of rigidly locking the heads in any desired position. This universal movement means that the auger rack can quickly be brought into a perpendicular digging position, regardless of the inequality of the ground. Levels are provided on each boring head to guide the operator in his leveling operation.

The earth auger with its standard 13-foot rack will dig a 6-foot hole anywhere and on strictly level ground a 7-foot hole. Extra length auger racks are supplied to specifications, permitting of its usage on deeper holes where desired. One 20 and one 24-inch auger are supplied as standard equipment with the 13-foot rack, but 12, 16 and 30-inch augers are also available. For anchor holes a special 3-flight auger of 9-inch diameter can be had.

The boring machine is readily detachable from the truck body, leaving the body clear of every obstruction. It is necessary to loosen only four U-bolts and uncouple chain and control links, then the entire unit can be lifted clear of the body by means of the Graybar winch and derrick which are also a vital part of the entire equipment. The boring machine can be as readily and quickly replaced in the truck body.

Sixty to eighty holes dug and poles set is considered a fair 8-hour day's work. However, 100 holes dug and poles set is not uncommon. When the digging is done under adverse conditions 30 to 50 holes dug and poles set may be considered a good day's work.

Special line construction bodies have been designed for both the HT-7 and BT5 and are included as optional equipment. These bodies are constructed of steel with a heavy steel reinforced oak floor. Racks and compartments are provided on both sides for derricks, pike poles, cant-hooks and other tools. A large box and a water cask are also incorporated in the unit. Derrick anchor hinges and a safety hook are provided on the rear of the body. The 12-ounce duck tarpaulin which covers the body is supported by removable hickory bows.



Side view—auger set for boring anchor holes. (Maximum tilt of auger 45 degrees.)  
Tool lockers on each side, one locker extending entirely across body underneath floor.  
Sliding doors on cab.



## Earth Boring Equipment

## Buda-Hubron Earth Drills Mounted on FWD Trucks

The FWD Model HT-7 Line Construction Truck was especially designed to meet the big demand for a small, fast, sturdy truck for work in the utility field. After years of exhaustive tests in the United States and foreign countries under actual operating conditions varying from good to very poor, the HT-7 has become perfected. It is now complete in every respect, ready to meet the requirements of the most exacting operator.

The HT-7 is an exceptionally powerful truck. Its four driving wheels carry it through soft fields, over hills, and in and out of ditches. Through the rough, swampy places—up to the hubs in sticky mud—it plows right through.

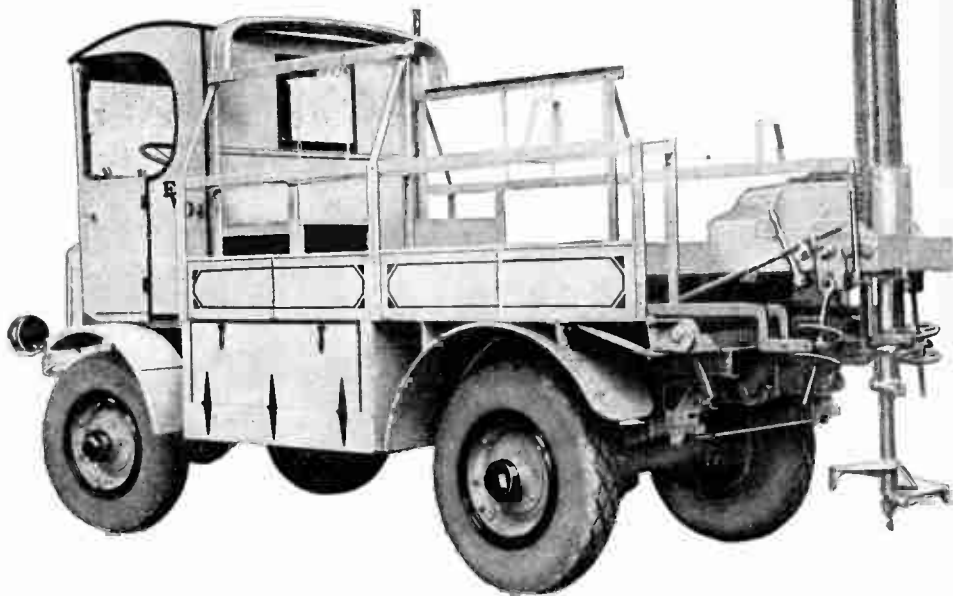
The HT-7 has a wide range of speeds; 7 forward and 2 in reverse. (It can be equipped with a 4-speed transmission if preferred.) It is a speedy truck. No time is lost in getting to the job or traveling from one location to the next. It is safe—four-wheel brakes insure safety to the mechanism, to the workmen, and to pedestrians. With all these qualifications, the FWD is economical. It does not develop more power but it puts more of the power developed to use. Even when the truck is required to do the hardest kind of work it is done economically, for economical trucking is the result of FWD performance.

A special line construction body has been designed for this new model and is included as optional equipment. The body, which is 119 inches long, is constructed of steel with a heavy steel reinforced oak floor. Racks and compartments are provided on both sides of the body for derricks, pike poles, canthooks and other tools. A large box and a water cask are also incorporated in the unit. Derrick anchor hinges are provided on the rear of the body as well as a safety hook. The 12-ounce duck tarpaulin which covers the front half of the body is supported by removable hickory bows. (Full length tarpaulin can be furnished if desired.)

The Buda-Hubron Earth Drill as mounted on the FWD HT-7 is used by telegraph and power companies, railroads and contractors for digging holes on cross-country, high-tension lines, along railroads and highways or wherever pole lines are built.

The large drills dig in earth, clay, hardpan, etc., and handle without difficulty the small stones encountered in ordinary drilling. Twisted steel drills can be furnished which will sink a hole 1½ inches in diameter to depths up to 15 feet in solid shale for blasting operation. The speed of drilling, of course, depends upon the character of the ground. In tough, heavy clay a 22-inch diameter hole will be sunk 6 feet in from 2 to 3 minutes. The machine will drill under water and handle gravel readily. On blast hole work, in solid shale, the machine will average from 140 to 180 feet a day.

Buda-Hubron Earth Drill  
Mounted on FWD Model  
HT-7 Truck



The Buda-Hubron Earth Drill is simple to operate and as nearly fool-proof as any machine can be. The machine, mounted on springs, moves upward when the drill strikes an obstruction and comes back into place when the obstruction has been dislodged. The cone friction clutch, connecting the engine to the main drive shaft, is so designed that it will slip when the drill strikes too large a boulder to be handled, thus relieving any undue strains on the machine. The drill proper, held in a specially designed chuck mounted on the drill spindle, is lowered or fed by hand and raised by power.

The large size drill, furnished up to 22 inches in diameter, consists of a single cast steel helix, polished on the top and provided with a special check valve, and equipped with removable manganese and carbon steel cutters, bolted to the helix, which when worn can easily be removed for grinding or replacement.

When the drill is lowered, the earth dug by the cutters is forced up through the check valve and slides on the polished top of the helix. The loosened earth does not turn in the hole with the drill, which is an important factor in economical operation and accounts for the remarkable digging ability of the machine. When about 2 feet of earth has collected on top of the drill, the drive clutch is disengaged and the drill raised to the surface by engaging the lifting clutch. The drive clutch is then engaged and the whirling drill throws the dirt around the outside of the hole. The check valve in the drill prevents the return to the hole of any earth already on top of the helix.

Automobile Pole Derricks



Graybar Polesetting Derricks have been developed by the American Telephone and Telegraph Company as a result of the application of modern methods to the erection and maintenance of telephone, telegraph and electric transmission pole lines. They are standard equipment on a majority of Bell System line construction trucks.

The outstanding feature about Graybar Derricks manufactured by the Four Wheel Drive Auto Company is the FWD inspection which is famous for its exacting requirements. Graybar Derricks are made to conform to the specifications of the American Telephone and Telegraph Company. The tubing is of the well-known Shelby manufacture. It has a tensile strength of from 115,000 to 120,000 pounds. The flattened ends of the tubes are strongly reinforced. The cable sheaves are fitted with self-lubricated bronze bushings. When the parts have been built and thoroughly inspected they are painted with a rust-preventing priming coat and then finished with red enamel.

Middle type derricks which are used for general derrick work, center over the middle of the rear of the trucks. Only two men are required to operate this type of derrick; one man operates the winch and the other guides the pole. As many as 10 men are required to do the same work by hand with pike poles; through the use of the derricks, pole setting is done in much shorter time at a reduced cost and yet with less danger to the workmen than hand methods. The middle type derrick is raised and adjusted with the winch. When used as a stiff leg assembly an old pole may be removed from the ground without preliminary digging unless it is firmly embedded or has an abnormal flare. When not in use, the derrick may be disassembled and carried on the side of the truck body, where it is out of the way.

The corner type derrick which works at the right rear corner of the truck body facilitates derrick work in alleys and other restricted places where it is not possible to use the middle type to good advantage. Operating characteristics are practically the same as the middle type.

A complete derrick assembly includes:

- Derrick Proper
  - 1 Right-Hand Side Leg
  - 1 Left-Hand Side Leg
  - 1 Middle Leg, Upper Section
  - 1 Middle Leg, Middle Section
  - 1 Middle Leg, Lower Section
  - 1 Apex, Pin Key, Snap and Chain
  - 1 Floor Pocket Bolt
  - 2 Connecting Pins, Key, Snap and Chain
  - 1 Foot Plate
  - 1 Rear Spindle and Sheave (Length to Suit Truck Body)
  - 1 Tail Bolt Assembly
  - 2 Front Supports for Spindle
  - 1 Floor Pocket
  - 1 Winch Line Hook for End of Winch Line
- } Designated as Metal Parts  
for Attaching to Truck  
Body

LM (Light Middle) and HM (Heavy Middle) Types

The LM Derrick, which has a lift of 20 feet, should handle poles up to approximately 45 feet in length and the HM, which has a lift of 22½ feet, should handle poles up to approximately 55 feet in length. The length in each case depends on the balance point of each pole.

The LM Derrick weighs 385 pounds and the HM 570 pounds, not including the weight of boxing nor body parts such as tail bolt assembly, spindle and sheave.

Price, Type LM.....each .....  
Price, Type HM.....each .....

LC (Light Corner) and HC (Heavy Corner) Types

The LC, which has a lift of 20 feet, is used for handling poles up to 45 feet in length. The HC type, which has a lift of 22½ feet, is used for handling poles up to 55 feet in length. The length in each case depends on the balance point of the pole to be lifted.

The LC Derrick weighs 380 pounds, and the HC 570 pounds, not including the weight of boxing nor body parts such as tail bolt assembly, spindle and sheave.

Price, Type LC.....each .....  
Price, Type HC.....each .....

The 2870 Derrick

The 2870 Derrick, which is an enlarged middle type, has a lift of 28 feet. It should handle average weight poles up to approximately 70 feet long depending on the balance point of the pole. This is a heavy duty derrick intended for service heavier than that supplied by the standard A.T.&T. heavy type derricks. The same thoroughness of construction that characterizes the A. T. & T. corner type and middle type derricks is also typical of the 2870. Every part is thoroughly inspected. Nothing is used that is not up to specifications.

The derrick is designed to be light so as to be easily handled by the construction crew, yet strong enough to carry the poles safely. It weighs 750 pounds exclusive of boxing and the body parts such as tail bolt assembly, spindle and sheave.

Price, 2870 Derrick.....each .....

Adjustable Type

The standard types are provided with a foot piece for lower end of middle leg, which fixes the position of the derrick head and overhang at rear of truck.

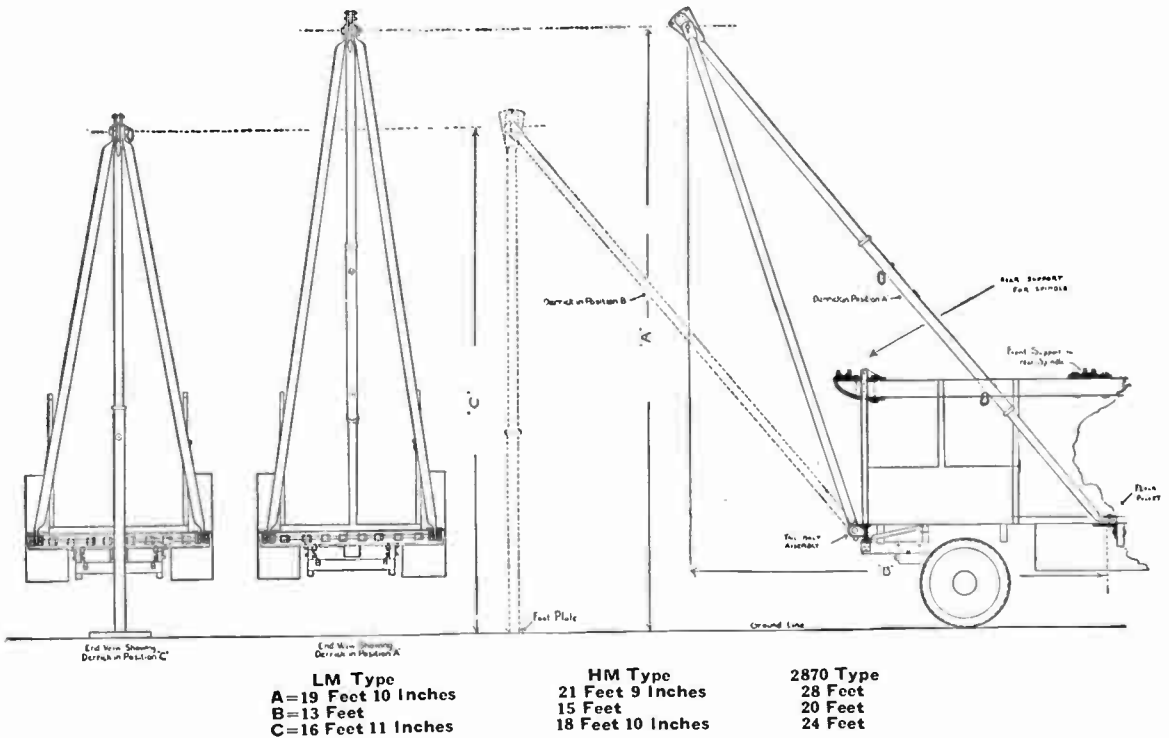
Many times a bank on which a pole is placed or to be placed, or a hedge or deep gutter has prevented the truck being so placed as to be of service.

The Adjustable Type Derrick can be changed from one extreme position to the other without the telescoping center leg becoming disengaged. All positions are fixed by the use of pins.

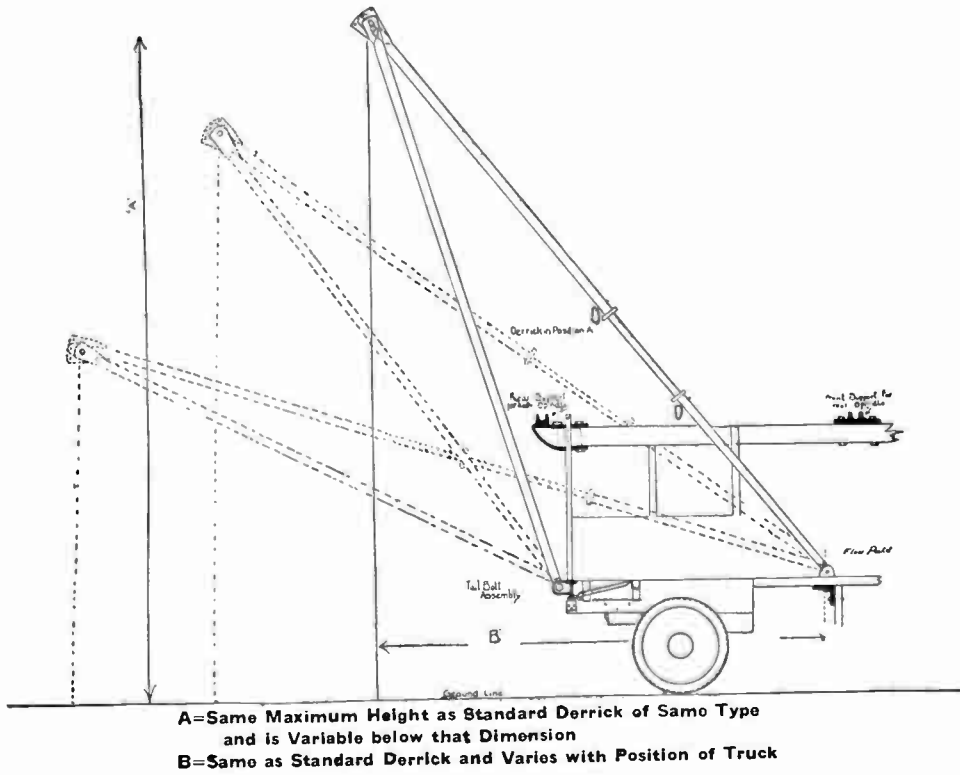
Price, Adjustable Type.....each .....

## Automobile Pole Derricks

LM, HM and 2870 Types



### Adjustable Type



**Winches and Trailers**

In addition to the material shown in this catalogue, for Public Utility Work, we can furnish various types of Winches and Trailers.

Complete information, specifications and prices will be furnished upon application.

**Galvanized Bridle Rings**



Style	Eye	Size, Inches Opening	Shank	Price per 1000
A	1 5/8	1/4	1 1/4	\$70.00
C	1 1/4	1/4	1 1/2	60.00
E	5/8	1/4	7/8	26.00
F	3	1/4	1 3/4	270.00

Prices on enamel furnished upon application.

**Marline and Lacing Twine**  
**Marline**

Furnished in 2 or 3-ply and in 1 and 5-pound balls.  
Price, Marline . . . . . per pound \$ .65

**Waxed Lacing Twine**

Made of pure flax and saturated in beeswax.  
Price, in One-pound Balls . . per lb. \$6.00



**Improved Paper Sleeves**

Made of best grade of manilla paper, carefully selected and put up in cartons of 1000 each, sealed ready for shipment.

Style	Dimen. In.	Price per 1000	Style	Dimen. In.	Price per 1000
2 1/2 A	1/8 x 2 3/4	\$3.00	18 A	1/8 x 18	\$6.00
3 B	3/16 x 3	3.00	18 B	3/16 x 18	6.00
3 C	3/7 x 3	3.00	18 C	3/7 x 18	6.00

**National Seamless Single Tube  
Copper Sleeves**



Made accurately to size from high grade electrolytic copper and furnished in a temper that permits of easy twisting. A large stock is maintained at all times and orders will be filled promptly.

**For Solid Copper Wires**

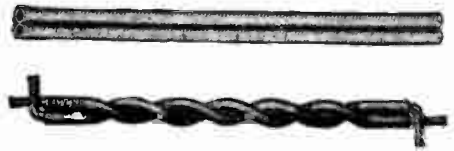
Cat. No.	Wire Size B. & S. Gauge	Decimal Equivalent	Length Sleeve Inches	Weight Pounds per 100
450	6	.162	6	8 1/4
451	5	.182	6 3/4	13 3/4
452	4	.204	7 1/2	16
453	3	.229	8 1/2	20
454	2	.259	9 3/4	30
455	1	.289	11	39
456	0	.325	12 1/2	48
457	00	.365	14	72
458	0000	.410	16	89
459	00000	.460	18	112

**For Standard Stranded Copper Cables**

Cat. No.	Cable Size B. & S. Gauge	Decimal Equivalent	Length Sleeve Inches	Weight Pounds per 100
460	4	.231	8 1/2	20
461	3	.260	9 3/4	30
462	2	.292	11	39
463	1	.328	12 1/2	48
464	0	.368	14	72
465	00	.414	16	89
466	000	.465	18	112
467	0000	.522	19 1/2	153
468	250,000 C M	.575	21	169
469	300,000 C M	.621	21 3/4	187
470	500,000 C M	.853	24	300

Prices upon application.

**National Double Tube Connectors**



These sleeves are manufactured accurately to size from the best grade of pure copper. Each detail of operation has been carefully planned, and a rigid factory inspection weeds out any possible defective material.

When twisted, National Sleeves are drawn so tightly around the conductors as to form practically a welded joint.

Thus the danger of corrosion, due to air and moisture, is entirely eliminated; and instead of building up a high resistance, as is true of the average hand splice, a joint of this type has a ratio of conductivity with the conductor of better than two to one.

**National Double Tube Copper Sleeves for  
Stranded Cable**

Cat. No.	Gauge No.	Diam. Wire Inches	Length Inches	Wt., Lbs. per 1000
200	0000 B&S	.530	20	1570
201	000 B&S	.470	20	1400
202	00 B&S	.420	18	1025
203	0 B&S	.375	16	675
204	1 B&S	.330	14	550
205	2 B&S	.291	12	350
206	3 B&S	.261	9 1/2	250
207	4 B&S	.231	8 3/4	190

**National Double Tube Copper Sleeves for Solid Wire**

Cat. No.	Wire Size B. & S. Gauge	Decimal Equivalent	Length Sleeve Inches	Weight Pounds per 100
210	0000 B&S	.460	20	1400
211	000 B&S	.410	18	1025
212	00 B&S	.365	16	675
213	0 B&S	.325	14	550
214	1 B&S	.289	12	350
215	2 B&S	.258	9 1/2	250
216	3 B&S	.229	8 3/4	190
217	4 B&S	.204	6	130
218	4 B&S	.204	8	160
219	5 B&S	.182	6	115
220	6 B&S	.162	6	100
221	7 B&S	.144	5 3/4	85
222	8 B&S	.128	5 1/2	60
223	8 BWG	.165	6	100
224	9 B&S	.114	5 1/4	50
225	9 BWG	.148	5 3/4	85
226	10 B&S	.102	4 3/4	30
227	10 BWG	.134	5 1/2	60
228	11 BWG	.120	5 1/4	50
229	12 B&S	.081	4 1/2	23
230	12 BWG	.109	4 3/4	35
231	12 NBS	.104	4 3/4	30
232	14 B&S	.064	4	20
233	14 BWG	.083	4 1/2	23
234	14 NBS	.080	4 1/2	23
235	16 B&S	.051	4	18
236	16 BWG	.065	4	20
237	17 B&S	.045	4	15
238	18 B&S	.040	4	14

**National Double Tube Tinned Copper  
Sleeves**

Cat. No.	Wire Size B. & S. Gauge	Decimal Equivalent	Length Sleeve Inches	Weight Pounds per 100
240	8 BWG	.165	6 3/4	110
241	9 BWG	.148	5 3/4	90
242	10 BWG	.134	5 1/2	65
243	12 BWG	.109	4 3/4	40
244	14 BWG	.083	4 1/2	30
245	16 BWG	.065	4	25

**National Double Tube Tinned Steel Sleeves**

Cat. No.	Wire Size B. & S. Gauge	Decimal Equivalent	Length Sleeve Inches	Weight Pounds per 100
250	8 BWG	.165	6 3/4	90
251	9 BWG	.148	5 3/4	60
252	10 BWG	.134	5 1/2	55
253	12 BWG	.109	4 3/4	35
254	14 BWG	.083	4 1/2	30
255	16 BWG	.065	4	25

## National Single Tube Connectors

For Splicing Underground Power Transmission Cables



These sleeves are split their entire length to enable the hot solder to flow evenly around the cable and are covered with a coating of tin to permit easy soldering. The ends are beveled so that there will not be the possibility of the building up of a high potential occasioned by sharp corners.

Cat. No.	Size Cond.	DIAMETER, INCHES		Length Inches	Ship. Wt., Lbs. per 100
		Cable	Approx. Inside Sleeve		
325	12 B&S Solid	.081	.086	2	1
326	10 B&S Solid	.102	.107	2	1 1/2
327	10 B&S Strand	.115	.120	2	2
328	8 B&S Solid	.128	.133	2	2
329	6 B&S Solid	.162	.167	2	3
330	6 B&S Strand	.183	.190	2	4 1/2
331	5 B&S Solid	.182	.188	2	4
332	5 B&S Strand	.206	.212	2	5
333	4 B&S Solid	.204	.210	2	5
334	4 B&S Strand	.231	.240	2	5 1/2
335	3 B&S Solid	.229	.235	2	5
336	3 B&S Strand	.261	.270	2	6
337	2 B&S Strand	.291	.299	2	6
338	1 B&S Strand	.330	.340	2	7
339	0 B&S Strand	.375	.381	2	8
340	00 B&S Strand	.420	.428	2	9
341	000 B&S Strand	.470	.482	2	12
342	0000 B&S Strand	.530	.540	2 1/4	15
343	200000 C. M.	.512	.522	2 1/4	14
344	250000 C. M.	.575	.585	2 1/4	24
345	300000 C. M.	.630	.642	2 1/2	28
346	350000 C. M.	.679	.693	2 1/2	33
347	400000 C. M.	.728	.741	2 3/4	38
348	450000 C. M.	.770	.785	2 3/4	43
349	500000 C. M.	.819	.828	3	48
350	550000 C. M.	.855	.867	3	50
351	600000 C. M.	.891	.907	3	57
352	650000 C. M.	.927	.944	3	60
353	700000 C. M.	.963	.981	3	65
354	750000 C. M.	.999	1.016	3 1/2	87
355	800000 C. M.	1.035	1.048	3 1/2	91
356	850000 C. M.	1.062	1.081	3 1/2	98
357	900000 C. M.	1.092	1.112	3 1/2	100
358	950000 C. M.	1.125	1.145	3 1/2	107
359	1000000 C. M.	1.152	1.175	4	118
360	1250000 C. M.	1.289	1.314	4	173
361	1500000 C. M.	1.412	1.437	5	205
362	1750000 C. M.	1.526	1.556	5 1/2	250
363	2000000 C. M.	1.630	1.665	6	310
364	2500000 C. M.	1.819	1.854	6 1/2	370

## National Tinned Copper Cable Sleeves



It is not desirable to splice large gauge telephone cable, pilot wires, signal wires and

station control cable by hand as the joint would be too bulky.

This sleeve makes a neat, compact and mechanically correct joint.

Cat. No.	Gauge B. & S.	Diameter Wire Inches	Length Inches	Weight Pounds per 100
259	9	.114	1 1/2	5
260	10	.102	1 1/2	5
260A	12	.080	1 1/2	4
261	13	.072	1 1/2	4
262	14	.064	1 1/2	4
262A	15	.058	1 1/2	3
263	16	.051	1 1/2	3

Prices upon application.

## Minerallac Hangers

For Cable and Conduit



Hanger without Porcelain Bushing

These hangers are made of the best quality of spring steel and are finished in either japan or galvanized, making them rust-proof. They are intended especially for open wiring, and for running cable and conduit in exposed positions where appearance is an important factor.

By their use an installation may be made much more neatly, and may be more compactly arranged, than with any other form of hanger, since it is possible

to install the cables or conduit with only 1/8-inch clearance. Thus, in installations which present unusual difficulties, due to the surface being wired over or to restricted space, the Minerallac Hanger will easily solve the problem. Another important advantage is the greatly reduced time of installation, since the hanger is properly held in place by means of only one screw or bolt.

Cat. No.	DIAM. OF OPENING INCHES		Size Cond. Inches	Std. Pkg.	Approx. Std. Pkg.	PRICE, PER 100	
	Min.	Max.				Japanned	Galv.
0	5/8	3/4	3/8	100	4 1/2	\$3.45	\$4.45
1	7/8	1 1/8	1/2 and 3/4	100	7 1/2	\$3.80	\$4.80
2	1 1/4	1 1/2	1	100	10	\$5.45	\$6.45
3	1 1/2	1 3/4	1 1/4	100	10	\$5.45	\$6.45
4	1 3/4	1 3/4	1 1/2	100	14	\$6.75	\$7.75
5	2	2 1/4	2	50	11	\$7.25	\$8.25
6	2 1/2	3	2 1/2	50	12 1/2	\$8.10	\$9.10

Above prices do not include stove bolts or bushings.

## Minerallac Porcelain Bushings

For voltages below 500 the hanger may be used directly upon the cable or conduit. With higher voltages, it is necessary to insulate them properly from grounds.

The porcelain bushing is designed to furnish the proper insulation for covered cables of any voltage and to resist mechanical shock.

Each size of hanger is fitted with a bushing as shown in the table below, the corresponding numbers of each being used together.



Hanger with Porcelain Bushing

Cat. No.	DIAMETER, INCHES OF OPENING		Size of 250-volt Rubber Covered Cable	Approx. Wt., Lbs. per 100	Price per 100
	Min.	Max.			
1	5/16	1 1/2	8 to 00	8	\$5.25
2	5/8	2 1/2	000 " 0000	12 1/2	6.00
3	7/8	1 3/4	250000 " 450000	13	6.60
4	1 1/8	1 3/2	500000 " 750000	21 1/2	7.65
5	1 5/16	1 1/2	750000 " 1000000	28	8.50
6	1 3/4	2	1125000 " 2500000	35	12.00

**National Aerial Cable Rings**



This ring is made of spring steel wire galvanized by hot dip process after being formed. It is attached without the use of a tool and will stay in position on the strand.

Specify size of strand when ordering.

Packed in burlap sacks.

Size Inches	Size Strand Inches	Weight per 1000 Pkg.	Std.	Price per 1000
1½	5/8-3/8	55	2000	\$18.00
2	5/8-3/8	62	1000	27.50
2 Heavy	5/8-3/8	75	1000	30.00
2½	3/8-7/8	90	1000	35.00
3	3/8-7/8	105	500	38.00
3½	7/8	115	500	43.00

**National Marline Cable Hangers**

No. 3 A. T. & T. Specifications



The hooks are made of No. 9 spring steel wire and are regalvanized by hot dip process after they are formed.

The loop is three-ply houseline in the lengths indicated.

Lgth. of Loop, In.	Size of Cable, Pair	Wt., Lbs. per 1000	Price per 1000
9	25	35	\$17.00
11	50	37	19.00
12	75	38	20.00
14	100	40	22.00
15	150	42	24.00
16	200	45	25.00

No. 6 regalvanized hooks furnished on this grade at a net advance of \$1.50 per 1000.

**Bonita Aerial Cable Rings**

Attach on the strand by hand easily and quickly. May be used either for new work or re-clipping on old cables. May be reused. The ring size is determined by the diameter of the circular opening of the rings when on the strand. May be obtained for any diameter of messenger wire. Specify strand size in each instance. Allow at least ¼-inch greater diameter of ring than outside diameter of cable to be installed.



Diam. Inches	No. and Kind of Wire	Std. Pkg.	Wt. Lbs.	Price per 1000
1½	11 round	2000	65	\$16.00
1½	1/4 x 3/8	1000	48	18.00
2	1/4 x 1/2	1000	70	25.00
2	1/2 x 1/4	1000	87	30.00
2½	1/2 x 1/2	500	55	35.00
3	1/2 x 1/2	500	60	40.00
3½	1/2 x 1/2	500	65	45.00
4	Special	250	..	70.00
4½	to order	250	..	85.00

**No. 1515-1 Klein's Cable Sheath Splitting Knives**



Extra heavy. Knife edge is tempered and ground to a keen edge. Handle is made of leather. Weight per dozen, 12 pounds.

Price, No. 1515-1.....each \$2.75

**Diamond Screw Duct Rods**



Couplings are made of government bronze. The hickory shafts are well seasoned.

Threads are accurately cut to ¼-inch U.S.S., 10 threads per inch. Rivets are countersunk. Hickory shafts are ½ inch in diameter.  
 Price, 3-Foot Length.....each \$1.65  
 Price, 4-Foot Length.....each 1.80

**Goodyear Glove Brand Electric Linemen's Gloves**



Designed specifically to protect linemen's hands from contact with live wires.

To make these gloves seamless and reversible, porcelain forms are dipped repeatedly into a high grade maroon rubber solution. Between dips the gloves are allowed to dry for several hours in an atmosphere where the cleanliness of the air, its temperature and humidity, are closely watched. The windows of the dipping room are closely screened and the air entering the room is washed and admitted through a special ventilation system to keep foreign matter from entering the rubber.

Goodyear Gloves are vulcanized in live steam to assure the required tensile strength, pliability and electrical resistance. Steam curing also adds to the aging quality of the rubber.

Made in 2 types:

**No. 106—Class A**

For use without protectors. These gloves are given a voltage test of 10000 volts for 3 minutes and 16000 volts for 1 minute, with a maximum leakage of 18 milliamperes.

Made in sizes 10 and 11.

**No. 108—Class B**

For use with protectors. These gloves are given 10000 volts for 3 minutes and 14000 volts for 1 minute, with a maximum leakage current of 14 milliamperes.

Made in sizes 10 and 11.

Prices upon application.

**No. 8863 Olympic Linemen's Leather Protector Gloves**



Made of the best grain horse-hide; soft, pliable, durable and comfortable.

All seams are double and lockstitched. Finger seams on the back of glove and nothing to wear away between the fingers.

Thumb is reinforced with leather strap, and gun-cut on palm also protected and reinforced.

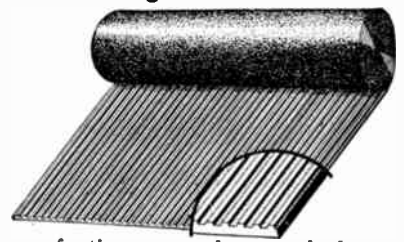
No. 8863 is the short style as shown in illustration.

No. 8863B is finished with 2¼-inch band top or short gauntlet.

No. 8863G is finished with 4 or 5 inch gauntlet.  
 Price.....per dozen pairs \$21.00

**Bull Dog Corrugated Rubber Switchboard Matting**

Made with broad flat top corrugations, offering a wearing surface practically indestructible and especially easy to clean. Is invaluable for switchboard use because of high insulation qualities. Provides sure footing, wears long, and always looks well.



Thickness Inches	Bull Dog			Service		
	Volts	PER SQUARE YARD Weight Pounds	Price	Volts	PER SQUARE YARD Weight Pounds	Price
1/4	40000	15.52	\$5.00	25000	14.16	\$7.00
3/8	54000	24.34	3.00	33000	22.36	4.50



## Marshall's Linemen's Shields



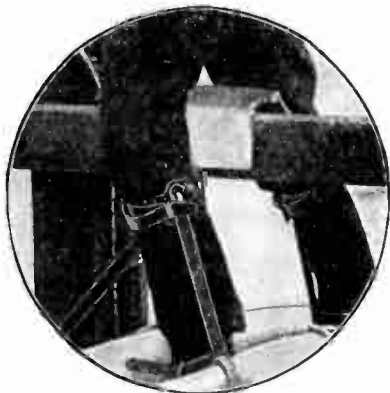
Linemen's shield submerged test as follows: Shield placed in water, inside of shield filled with water to within 1½ inches of edge of shield. 1 minute at 20000 volts, ½ minute at 25000 volts and 10 seconds at 30000 volts.

Do not try to repair or patch these shields. If for any reason whatsoever the shields become defective or unserviceable inside of five years from date of shipment, return shield with full details, and an allowance will be made towards the purchase of a new one.

Price ..... each \$35.00  
 " Hard Rubber Rings for Linemen's Shields " .50  
 " Straps for Linemen's Shields " .75

## Marshall's Linemen's Cross Arm Shields

Tested to 20000 Volts



Cross arm protectors dry test. Metal on inside and metal on outside. 1 minute at 10000 volts, ½ minute at 15000 volts, and 10 seconds at 20000 volts.

In ordering cross arm shields, be careful in stating length between pins from center to center and width of cross arm on tip as they have to be made to fit. Made in lengths up to 17 inches from center to center of pins.

Price ..... each \$10.00

## Marshall's Linemen's Shoes

Test: Place the shoe in 2 inches of water, fill the shoe with water to depth of 1¼ inches at center of shoe. 2 minutes at 5000 volts, 1 minute at 10000 volts and 10 seconds at 20000 volts.



A perfectly insulated rubber shoe which gives linemen on the poles, on the ground and in the manholes absolute protection against pressures up to 20000 volts. It is vulcanized into a solid piece and will not peel nor come apart; nor can it be affected by oil, gasoline or grease. No metal used in any part of its construction.

Each pair of shoes includes 1 pair of specially made stockings. Shoes carried in sizes 7, 8, 9, 10 and 11. Unless special size is specified No. 9 will be sent.

Price ..... per pair \$12.00  
 " Linemen's Stockings " 1.25

## No. 325 Simplex Pole Jacks

A combination pushing and pulling jack. Light and sturdy. Furnished with pike pole, steel chains, detachable base and steel lever pole.

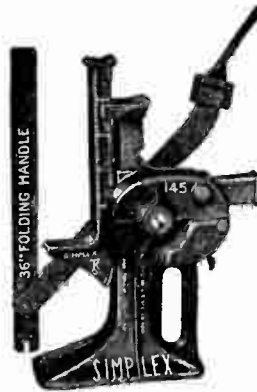
No. .... 325  
 Capacity ..... tons 5  
 Height ..... inches 48  
 Lift ..... inches 36  
 Weight, without Equipment... lbs. 28  
 Weight, with Equipment..... lbs. 97  
 Price ..... each \$40.00



## No. 145 Simplex Truck and Bus Jacks

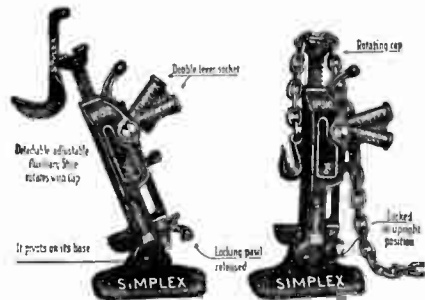
Handles trucks and busses of 5-ton capacity and over.

Working parts are of drop-forged steel; geared mechanism insures easy lifting; adjustable shoe can be placed in 5 different positions and provides a range of lifts from 2¼ inches at the lowest point of shoe to 19½ inches at the highest, when extended. Any intermediate height may be obtained. With 36-inch folding steel handle.



Capacity ..... tons 5  
 Height ..... inches 12  
 Lift ..... inches 7½  
 Weight ..... pounds 30  
 Price, No. 145..... each \$16.00

## No. 310 Simplex Emergency Single Acting Jacks



A single acting, 15-ton jack of extraordinary utility and efficiency. Its pivoting base enables jack to be operated at full capacity, at any angle from horizontal to vertical, as well as vertically.

An all-around jack for use anywhere and everywhere heavy objects are to be pushed or lifted.

The steel detachable shoe and 5-foot special chain attachment permit grappling and engaging loads in awkward or difficult positions, and where the ordinary lifting jack could not operate at all. Heavy calks on base prevent slipping.

Provided with four lifting and pushing points—rotating cap, lower lift, steel adjustable shoe and steel chain, enabling jack to meet every emergency condition.

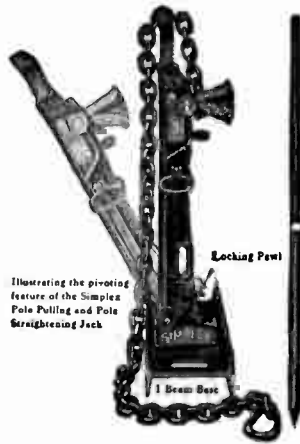
Capacity ..... tons 15  
 Lift ..... inches 13  
 Height ..... inches 22¼  
 Weight, Jack ..... pounds 66  
 Weight, Chain and Bar, etc ..... pounds 36  
 Weight, Total ..... pounds 102  
 Price ..... each \$48.00

**No. 329 Simplex Pole Pulling Jacks**

Single acting; automatic in raising and lowering, will not trip. For pulling and straightening telephone, telegraph, electric light and trolley poles any depth in the ground without digging around them.

With 8-foot steel chain, 5-foot steel pinch bar and steel I-beam base.

No. .... 329  
Capacity..... tons 15  
Height..... inches 37½  
Lift..... inches 21  
Wt., Complete... lbs. 193  
Price..... each \$70.00



**No. 87 Simplex Pole Derrick Jacks**

Designed to support the rear end of heavy pole, maintenance trucks, when setting poles with a derrick mounted on the truck. Also recommended for use in garages, under heavily loaded truck to relieve pressure on pneumatic tires and springs while standing idle.



Cat. No. .... 87  
Capacity..... tons 5  
Lift..... inches 14  
Height..... " 23  
Weight..... pounds 35  
Price, No. 87..... each \$18.00

**Simplex Screw Type Cable Reel Jacks**

Jacks will handle any standard weight reel with the use of the 3-way nuts.

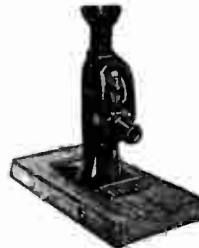
No. 1 jack handles reels from 42 to 60 inches in diameter; No. 2 handles reels from 60 to 90 inches in diameter.

Size of screw, 1 7/8 inches in diameter.

No. ....	1	2
Min. Ht. Bearing Pt. in.	19 5/8	29 3/4
Max. Ht. Bearing Pt. in.	31 1/8	46 1/4
Lift..... in.	11 1/2	16 1/2
Length Base in.	26	39 1/2
Width Base in.	12	15 1/2
Weight..... lbs.	51	89
Price... per pair	\$36.00	48.00



**Simplex Portable Cable Reel Jacks**



No. 41



No. 81

Jack held on oak base by taper wedged brackets—can be quickly removed and packed in tool box. Made single acting, raising the load on the downward stroke only, and double acting, raising the load on both the downward and upward strokes.

Designed to lift small, but heavy cable reels from 24 inches to 48 inches diameter, and can readily be used for any work, where 1 to 2-ton loads are to be handled.

**Simplex Cable Reel Jacks**

Nos. 320 and 321 are recommended for warehouse purposes.

They will accommodate any height of wire or cable reel.

No. 322 is especially designed for cable reels from 36 to 84 inches in diameter. It is furnished in pairs, one right and one left, so that men operating jacks are working on the same side of the reel and are raising the reel uniformly. The bracing between jack and the oak base has right and left-hand threads so that the jack and base can always be kept taut and in perfect alignment. No. 322 is automatic double acting and



No. 320

recommended for construction work. From start to finish of a cable pulling job, the multiplied manpower of quick-acting Simplex Cable Reel Jacks saves time and money at every step. By fractions of an inch Simplex Jacks level up so the reel pulls evenly.

Blocking is unnecessary with these jacks. The reel once placed, stays put.

No. ....	320	321	322
Capacity..... tons	5	10	10
Height of Cap, Lowered..... inches	21	34 1/2	29
" " Raised..... "	32	48 1/2	43
Weight..... pounds	46	108	104
Price..... each	\$35.00	50.00	65.00

Cat. No. ....	DOUBLE ACTING			SINGLE ACTING			
	41	42	43	81	82	83	84
Capacity... tons	1	1 1/2	2	1	1 1/2	2	5
Lift..... in.	8	9 1/2	11	7	8 1/2	9 3/4	7 1/2
Height... "	11 1/2	13 1/4	14 1/2	11 3/4	13 1/4	14 3/4	16
Total Height..... in.	19 1/2	22 3/4	25 1/2	18 3/4	21 3/4	24 1/2	23 1/2
Weight with Base... lbs.	15 1/2	18	19	17 1/2	18 1/2	19 1/2	35
Price... each	\$16.00	18.00	20.00	16.00	18.00	20.00	24.00

**No. 126 Simplex Geared Single Acting Ratchet Jacks**

For handling heavy machinery, raising and lowering tanks, skidding heavy rigs and for all heavy lifting. It is operated on the downward stroke of the lever only. Equipped with forged steel side foot lift. Materials used are: chrome nickel forged rack bar and cap, chrome vanadium steel pawls, bronze pinion bearings. Furnished with 6-foot oval hickory lever pole.



Capacity..... tons 25  
Height..... inches 27 1/2  
Lift..... " 13  
Weight..... pounds 182  
Price, No. 126..... each \$100.00

## Simplex Geared Car Jacks



For easy safe handling of loaded railroad cars and locomotives, for lumber and logging roads and for heavy industrial service. Thoroughly safe, powerful and dependable. Equipped with a Simplex oval socket and 6-foot oval pole.

No.	Cap. Tons	Ht. In.	Lift In.	Wt. Lbs.	Price Each
125	25	26½	16	165	\$100.00
135	35	26½	16	216	135.00

## No. 22 Simplex Single Acting Jacks



Single acting and automatic in raising and lowering. For electric and steam railway service, contractors and general shop and industrial service. Without machine screw. Work-parts, steel drop forgings. With 5-foot steel lever pole.

Capacity	..... tons	10
Height	..... inches	21¼
Lift	..... inches	12
Weight	..... pounds	59
Price, No. 22, with Double or Round Socket and 5-Foot Round Steel Bar	..... each	\$25.00
Price, No. 22, with Oval Socket and 5-Foot Oval Pole	..... each	25.00
Price, No. 22, with Square or Round Socket without Pole	..... each	24.00

## No. 24 Simplex Single Acting Bridge Jacks

The No. 24 is single acting, automatic in raising and lowering. For street railway track work, bridge, frog, or general industrial service, the No. 24 has the strength and power that produces a maximum day's work.

Equipped with the Simplex oval socket and 6-foot oval pole.

Capacity	..... tons	15
Height	..... inches	23¾
Lift	..... "	13
Weight	..... pounds	86
Price, No. 24, with Oval Socket and 6-foot Oval Pole	..... each	\$38.00
Price, No. 24, with Round Socket and 6-foot Round Pole	..... each	\$38.00
Price, No. 24, with Square Socket without Pole	..... "	36.00



## No. 29 Simplex Single Acting Car Jacks

No. 29 Simplex jack is a powerful 15-ton automatic jack. Particularly adapted for steam and electric railway service, contractors', steel mills, and general industrial duty. Built without a machine screw. Equipped with Simplex oval socket and 6-foot oval pole.

Capacity	..... tons	15
Height	..... inches	28½
Lift	..... "	18
Weight	..... pounds	98
Price, No. 29, with Oval Socket and 6-foot Oval Pole	..... each	\$40.00
Price, No. 29, with Round Socket and 6-foot Round Pole	..... each	40.00
Price, No. 29, with Square Socket without Pole	..... each	38.00



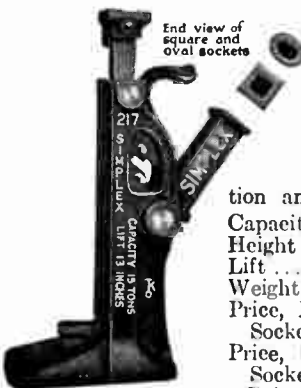
## No. 216 Simplex Single Acting Track Jacks

This track jack is recommended for track work only. Has concave base which insures firm foundation and prevents bending. All working parts are heat-treated drop forgings. Furnished with oval socket and 5-foot oval pole or with square socket to accommodate standard lining bar. No. 216 is tripping style, single acting, and operates on the downward stroke of the lever.

Capacity	..... tons	15
Height	..... inches	17¼
Lift	..... "	8
Weight	..... pounds	51
Price, No. 216, with Square Socket without Pole	..... each	\$19.00
Price, No. 216, with Oval Socket and 5-foot Pole	..... each	20.00



## No. 217 Simplex Single Acting Track Jacks



Recommended for track work only. Tripping style. Operates on downward stroke of lever. Working parts are heat-treated drop forgings. Base is cored, or concave, which insures a firm foundation and safeguards against bending.

Capacity	..... tons	15
Height	..... inches	23
Lift	..... "	12½
Weight	..... pounds	58
Price, No. 217, with Square Socket without Pole	..... each	\$21.00
Price, No. 217, with Oval Socket and 5-foot Oval Pole	..... each	22.00

## No. 218 Simplex Single Acting Track Jacks

Recommended for track work only. The working parts are heat-treated drop forgings. The base on this jack is cored, or concave, which insures a firm foundation and safeguards against bending. Furnished with oval socket and 5-foot oval pole or with square socket to accommodate standard lining bar. Is tripping style, single acting, and operates on the downward or effective stroke of the lever.

Capacity	..... tons	15
Height	..... inches	29½
Lift	..... "	18
Weight	..... pounds	74
Price, No. 218, with Square Socket without Pole	..... each	\$27.00
Price, No. 218, with Oval Socket with 5-foot Pole	..... each	28.00



## No. 106 Simplex Double-Acting Track Jacks

For track work only.

Working parts are heat-treated drop forgings. Base is cored or concave. Furnished with oval socket and 5-foot oval pole or with square socket to accommodate standard lining bar. Tripping style, double acting.

Capacity	..... tons	12
Height	..... inches	29
Lift	..... inches	17½
Weight	..... pounds	78
Price, No. 106, with Square Socket without Pole	..... each	\$27.00
Price, No. 106, with Oval Socket and Oval Pole	..... each	28.00



**No. 101 Simplex Double-Acting Track Jacks**

This jack is recommended for track work only. Is tripping style, double acting and operates on the upward and downward strokes of lever. Working parts are heat-treated drop forgings. Base is concave. Furnished with oval socket and 5-foot oval pole or with square socket to accommodate standard lining bar.

Capacity, 12 tons. Height, 23 inches. Lift, 12½ inches.

Weight, 59 pounds.  
Price, No. 101, with Square Socket without Pole.....each \$21.00

Price, No. 101, with Oval Socket and 5-Foot Oval Pole.....each \$22.00



**No. 324 Simplex Aerial Cable Jack and Slack Puller**

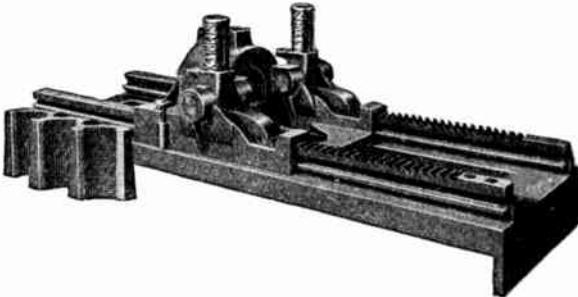


Designed for pulling both overhead and underground power and telephone cables. Also for taking up slack in guy wires.

Made from the best grade of steels and all parts are heat-treated and hardened. Single acting and automatic operation.

No..... 324  
Capacity.....pounds 4000  
Travel.....inches 20  
Weight, Complete with Handle.....pounds 14  
Price.....each \$30.00

**Simplex Pipe Pushing Jacks**



Designed for pushing pipe through the most unfavorable soil conditions without crushing or distorting it. Can be operated by 2 or 4 men, depending upon soil conditions. When solid cribbing or blocking is difficult to obtain, it is then possible to hold the jack against the back pressure with one lever, while the other lever is being operated.

The duplex levers or sockets can be operated singly, alternately or together, depending on size of pipe, soil conditions and cribbing.

Each size of pipe requires a set of tapered jaws, as perfect gripping is necessary to avoid crushing the pipe.

Furnished complete with one set of tapered jaws, two 1¼x36-inch steel lever bars and two 2-inch steel pipes for extending lever bars (5 feet long for No. 332 and 7 feet long for No. 334). Specify size tapered jaws required.

No.	Handles Pipe Diameter, inches	Weight Pounds	Price Each	Extra Jaws per Set
332	¾, 1, 1¼, 1½ and 2	198	\$110.00	\$12.00
334	2, 2½, 3 and 4	305	150.00	15.00

**Simplex Special Steel Pilots**

Size.....inches	1¼	1½	2	2½	3	4
Weight.....pounds	1	1¼	3	5	7½	11
Price.....each	\$ .75	1.00	1.25	1.75	2.50	3.00

**Matthews Adjustable Reels For Both Pay Out and Take Up**

Wire in coils is hard to handle unless some sort of reel is used. This reel makes the handling of wire on coils easy and wire can be handled on it easier than on wooden reels.

The five arms can be quickly and easily contracted or expanded to fit the inside diameter of any coil of wire within its range. The revolving table is made of sheet steel reinforced by a turned over edge which prevents it from being bent out of shape. This edge also prevents the wire from being caught under the table or cutting itself on the sharp edge.



Supplied with or without a brake. The brake is recommended as it prevents racing when paying out wire.

An exclusive feature in the form of four roller bearings is provided. These roller bearings prevent the reel from catching on the frame or bending due to unequal pressure on the sides of the table. They can be operated either in the vertical or horizontal position.

All reels are furnished with brake, unless otherwise specified.

Shipping weight, without brake, 103 pounds; with brake, 105 pounds.

Price, without Brake.....each \$122.00  
Price, with Brake.....each 130.00

**Oshkosh Folding Take-up Reels**

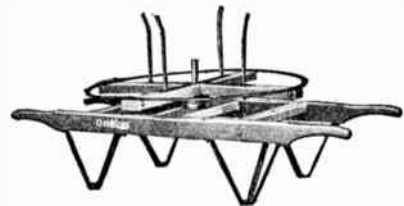
The reel part collapses and automatically throws off the coil at the same time and in an instant is ready for another coil. The frame, made of heavy hardwood, is strong and heavily reinforced throughout and folds up like a hinge.

It can be taken down in a moment merely pulling the pin out of the shaft, throwing off the coil and folding up the frame.



Cat. No.	Take up Reel, in.	Wt., Lbs. Each	Price Each
896	18	40	\$41.60
897	21	41	42.30
898	24	42	43.40

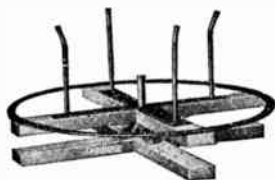
**Oshkosh Barrow Reels**



Made of hard rock maple strongly reinforced with angle iron braces. Rests on strong steel legs. Has a large diameter pivot and is made for heavy work.

Cat. No.	Description	Wt., Lbs. Each	Price Each
900	Barrow Reel Only.....	80	\$46.40
901	Extra Pins, per Set of 4.....	4	5.60

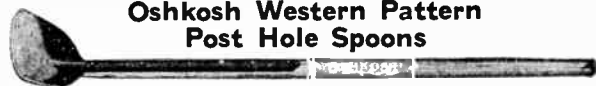
## Oshkosh Pay-out Reels



Made of hard maple, well constructed and re-enforced throughout.

Cat. No.	Wt., Lbs. Each	Price Each
902	40	\$27.80

## Oshkosh Western Pattern Post Hole Spoons



High carbon steel blades, 22-inch straps, rock maple or Northern white ash handle. Extra heavy handles furnished.

### Maple Handles

Cat. No.	Size Feet	Weight Pounds Each	Price Each	EXTRA HANDLES		
				Cat. No.	Wt., Lbs. Each	Price Each
859	7	10	\$6.20	993	4	\$2.90
860	8	10	6.60	994	5	3.20
861	9	11	7.00	995	6	3.50
862	10	11	7.60	996	7	4.00

### Ash Handles

Cat. No.	Size Feet	Weight Pounds Each	Price Each	EXTRA HANDLES		
				Cat. No.	Wt., Lbs. Each	Price Each
1023	7	10	6.70	1005	6	4.00
1024	8	10	7.40	1006	6	4.50
1025	9	11	8.20	1007	7	5.20
1026	10	12	9.60	1008	7	6.20
1027	12	14	11.40	1009	8	7.40

## Oshkosh Eastern Pattern Post Hole Spoons



Made with high carbon steel blades, with 22-inch straps, and equipped with rock maple or Northern white ash handle. Extra heavy handles furnished.

### Maple Handles

Cat. No.	Size Feet	Weight Pounds Each	Price Each	EXTRA HANDLES		
				Cat. No.	Wt., Lbs. Each	Price Each
859E	7	10	\$6.20	993	4	\$2.90
860E	8	10	6.60	994	5	3.20
861E	9	11	7.00	995	6	3.50
862E	10	11	7.60	996	7	4.00

### Ash Handles

Cat. No.	Size Feet	Weight Pounds Each	Price Each	EXTRA HANDLES		
				Cat. No.	Wt., Lbs. Each	Price Each
1023E	7	10	\$6.70	1005	6	\$4.00
1024E	8	10	7.40	1006	6	4.50
1025E	9	11	8.20	1007	7	5.20
1026E	10	12	9.60	1008	7	6.20
1027E	12	14	11.45	1009	8	7.40

## Oshkosh Standard Crooked Long Handle Shovels



The blades are made of high carbon steel with 22-inch straps. Handles are select rock maple or Northern white ash and are extra heavy.

### Maple Handles

Cat. No.	Size Feet	Strap Inches	Weight Pounds Each	Price Each	EXTRA HANDLES		
					Cat. No.	Wt., Lbs. Each	Price Each
874	7	22	8	\$6.40	1000B	4	\$4.60
875	8	22	9	6.90	1000	5	5.30

### Ash Handles

Cat. No.	Size Feet	Strap Inches	Weight Pounds Each	Price Each	EXTRA HANDLES		
					Cat. No.	Wt., Lbs. Each	Price Each
1040	7	22	8	\$7.00	1014	4 1/2	\$4.30
1041	8	22	9	7.60	1015	5	4.80
1042	9	22	10	8.40	1016	5 1/2	5.60
1043	10	22	11	10.10	1017	6	6.50

## Oshkosh Standard Straight Post Hole Shovels



These shovels are straight from tip of the blade to the top of the handle. The blades are made of high carbon steel with 22-inch straps. Handles are select rock maple or Northern white ash and are extra heavy.

### Maple Handles

Cat. No.	Size Feet	Strap Inches	Weight Pounds Each	Price Each	EXTRA HANDLES		
					Cat. No.	Wt., Lbs. Each	Price Each
867	7	22	8	\$6.20	993	4	\$2.90
868	8	22	9	6.60	994	5	3.20
869	9	22	10	7.00	995	6	3.50
870	10	22	11	7.50	996	7	4.00

### Ash Handles

Cat. No.	Size Feet	Strap Inches	Weight Pounds Each	Price Each	EXTRA HANDLES		
					Cat. No.	Wt., Lbs. Each	Price Each
1032	7	22	8	\$6.60	1005	6	\$4.00
1033	8	22	9	7.30	1006	6	4.50
1034	9	22	10	8.00	1007	7	5.30
1035	10	22	11	9.60	1008	7	6.20

## No. 1090 Oshkosh Standard 4 1/2-foot Round Point Shovels



Equipped with high carbon steel blades and select Northern white ash handles.

Cat. No.	Size Ft.	Wt., Lbs. Each	Price Each	EXTRA HANDLES		
				Cat. No.	Wt., Lbs. Each	Price Each
1090	4 1/2	5	\$3.60	1091	2	\$1.20

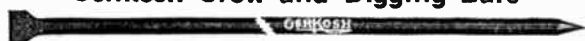
## No. 1092 Oshkosh Standard D Handle Round Point Shovels



Equipped with high carbon steel blades and select Northern white ash handles.

Cat. No.	Wt., Lbs. Each	Price Each	EXTRA HANDLES		
			Cat. No.	Wt., Lbs. Each	Price Each
1092	4	\$3.60	1093	2	\$1.40

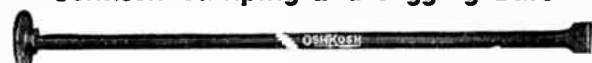
## Oshkosh Crow and Digging Bars



Made of special octagon crucible steel, exceedingly tough and stiff.

Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each	Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each
1062	1x8	23	9.90	1065	1 1/8x8	30	11.70

## Oshkosh Tamping and Digging Bars



Made of special octagon crucible steel, tough and stiff.

Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each	Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each
1072	1x8	23	10.40	1075	1 1/8x8	30	12.60

**Oshkosh Plain Digging Bars**



Made of special octagon crucible steel, tough and stiff.

Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each	Cat. No.	Size Inches x Feet	Weight Pounds Each	Price Each
1081	1x7	19	\$8.60	1084	1 1/8x7	24	\$9.90
1082	1x8	21	9.90	1085	1 1/8x8	28	11.50

**No. 852 Oshkosh Digging Spuds with Tamper**



A light, evenly balanced digging tool. Handle is made of steel tubing with a tamping head of malleable iron, and the blade and socket are of one piece of forged high carbon steel.

Cat. No.	Size Ft.	Wt., Lbs. Each	Price Each
852	9	20	\$10.60

**No. 853 Oshkosh Loys or Slicks**



The handle is of 2-inch selected maple and the blade is of tool steel 4x1/2 inches, burned onto the handle and held by two large rivets.

Length, eight feet. Weight, 18 pounds each. Price, No. 853.....each \$13.60

**Oshkosh Tamping Bars**



Handle is made of hard rock maple. The tamping head is faced with an iron shoe, and measures 1 3/4x4 inches.

Cat. No.	Size Feet	Weight Pounds Each	Price Each	Cat. No.	Size Feet	Weight Pounds Each	Price Each
854	7	13	\$7.30	856	9	16	\$8.90
855	8	14	8.10	...	...	...	...

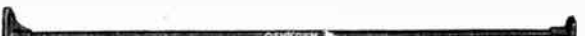
**Oshkosh Tamping Bars With Extra Heavy Iron Shoe**



Made with hard rock maple handles with 1 1/4x1/2-inch steel shoe on tamping face.

Cat. No.	Size Ft.	Wt., Lbs. Each	Price Each	Cat. No.	Size Ft.	Wt., Lbs. Each	Price Each
1054	7	13	\$6.70	1056	9	15	\$8.10
1055	8	15	7.30	....	..	..	....

**No. 1044 Oshkosh Electric Tamping Bars**



Made of steel tubing with malleable iron tampers of different size on each end.

Cat. No.	Size Ft.	Wt., Lbs. Each	Price Each
1044	8	15	\$7.90

**Oshkosh Plain Pike Poles**



Handles of old growth yellow Washington Fir, straight grained, and free from defects. Pike is of crucible steel with upset shoulder, which distributes the thrust on the entire top of the pole. The pike is driven in and fastened with a rivet running through ferrule, pike and pole.

**Standard Small Size**

Handle is 2 inches even diameter no taper.

Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each	Cat. No.	Size In.	Wt., Lbs. Ft.	Price Each
805	2x10	6	\$5.00	807	2x14	10	\$6.20
806	2x12	8	5.50	808	2x16	11	7.60

**Western Electric Pattern**

Handle is 2 1/2 inches in the middle and tapers to 2 inches at each end.

Cat. No.	Size	Wt., Lbs.	Price Each	Cat. No.	Size	Wt., Lbs.	Price Each
817	2 1/2x10	12	\$6.10	820	2 1/2x16	15	\$9.20
818	2 1/2x12	13	6.50	821	2 1/2x18	18	10.10
819	2 1/2x14	14	7.80	822	2 1/2x20	20	11.70

**Oshkosh Guarded Pike Poles**



Handles of soft, old growth yellow Washington Fir, straight grained, and free from defects. The forks are malleable iron with the fork and socket cast in one piece.

Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each
832	2 x10	10	\$7.00
833	2 x12	12	7.70
834	2 x14	13	8.90
795	2 x16	15	10.70
796	2 1/2x12	13	10.80
797	2 1/2x14	14	11.70
835	2 1/2x16	15	12.30
836	2 1/2x18	16	13.00
837	2 1/2x20	19	13.50

**Oshkosh Mule Pattern Wood Pole Supports**



Made of Washington Fir tapering slightly at both ends. Forged steel fork and pick, banded at each end with steel bands.

Cat. No.	Size Ft.	Diam. at Ctr., In.	Wt., Lbs. Each	Price Each	Cat. No.	Size Ft.	Diam. at Ctr., In.	Wt., Lbs. Each	Price Each
845	6	3 1/2	23	\$18.60	847	8	4 1/2	29	\$23.80
846	7	4	26	21.60	.....	.....	.....	.....	.....

**No. 848 Oshkosh Standard Deadman Wood Pole Supports**



Made of select rock maple. Heavy wrought steel fork and pike banded at both ends with steel.

Cat. No.	Size Ft.	Size of Wood, In.	Wt., Lbs. Each	Price Each
848	8	4x2	29	\$27.40

**Oshkosh Jenney Pattern Wood Pole Supports**



Made of Washington Fir with forged steel fork.

Steel pikes are placed in the bottom to prevent it from slipping on hard ground.

This support is collapsible and has steel bushed holes where there is any wear.

A light, strong, safe, pole support.

Cat. No.	Size Ft.	Size of Wood, In.	Wt., Lbs. Each	Price Each
842	6	1 3/4x3	25	\$18.60
843	7	1 3/4x3 1/2	30	21.30
844	8	1 3/4x3 1/2	35	23.10

**Oshkosh Malleable Clasp Cant Hooks**



Hooks are hammer forged from crucible steel and have heavy upset points. Clasp and toe ring are made of best grade malleable iron. Handles of select hard rock maple and second growth hickory.

**Select Maple Handles**

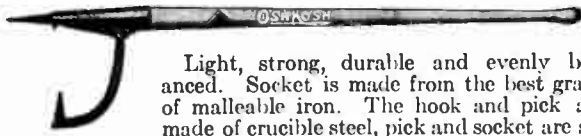
Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each
188A	2 1/4x4	7	\$4.45
189A	2 1/4x4 1/2	8	4.60
188	2 1/2x4	8	4.50
189	2 1/2x4 1/2	8 1/2	4.70

**Select Hickory Handles**

Cat. No.	Size	Wt., Lbs.	Price Each
199A	2 1/4x4	7	\$5.10
200A	2 1/4x4 1/2	8	5.30
199	2 1/2x4	8	5.20
200	2 1/2x4 1/2	9	5.30



## Oshkosh Malleable Solid Socket Peavies



Light, strong, durable and evenly balanced. Socket is made from the best grade of malleable iron. The hook and pick are made of crucible steel, pick and socket are set in oil, under screw pressure, not burnt or driven in.

### Regular Maple Handles

Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each
121	2 1/4 x 4	7	\$5.60
122	2 1/4 x 4 1/2	7	5.80
124	2 1/2 x 4	9	5.90
125	2 1/2 x 4 1/2	9	6.00
<b>Select Hickory Handles</b>			
134	2 1/4 x 4	8	\$6.20
135	2 1/4 x 4 1/2	8	6.50
137	2 1/2 x 4	9	6.30
138	2 1/2 x 4 1/2	10	6.60

## Oshkosh Carrying or Lug Hooks

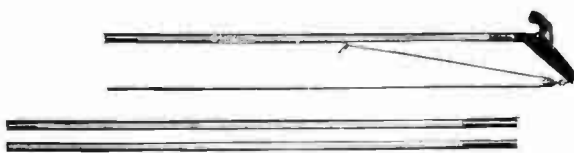


For handling poles and heavy timbers. Made with crucible steel chisel point hooks, and malleable iron clasps and swivels. Handles of selected hard rock maple.

### Regular Pattern

Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each	Cat. No.	Size In. x Ft.	Wt., Lbs. Each	Price Each
295	2 1/2 x 4	7	\$5.40	297	2 1/2 x 5	8	\$5.60
296	2 1/2 x 4 1/2	8	5.50	...	...	...	...
<b>Extra Heavy, with Steel Swivels</b>							
298	3 x 5	12	7.70	300	3 x 7	14	\$10.00
299	3 x 6	13	8.30	...	...	...	...

## No. 915 Oshkosh Tree Trimmers



Made with a light steel head and a thin high grade saw steel knife. Equipped with genuine soft old growth yellow Washington Fir handle 1 1/2 inches in diameter, made in 3 sections, connected with positive locking ferrules. This tree trimmer will easily cut a 1 1/2-inch limb. It is light and works easily.

Cat. No.	Description	Wt., Lbs. Each	Price Each
915	Trimmer Complete	13	\$15.10

## No. 913-15 Klein Tree Trimmer Saws



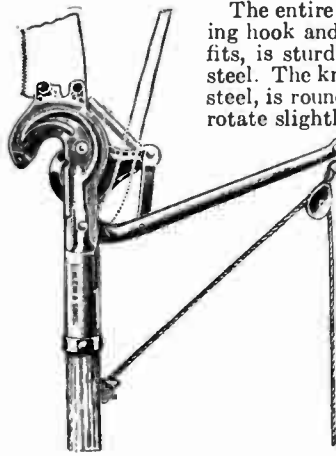
No. 913-15



No. 913-12

No.	Style	Weight Pounds	Price Each
913-15	Curved Blade	1 1/2	\$3.00
913-12	Straight Blade	3/8	3.00

## No. 3628 Klein's Tree Trimmers



The entire head of this tool, comprising hook and socket into which handle fits, is sturdily constructed of pressed steel. The knife, made of tempered tool steel, is round in shape and arranged to rotate slightly with each cut, thus providing the entire circumference of the blade for cutting and giving an edge more than 3 times the length of that on the ordinary blade.

The leverage makes this trimmer cut the heavier branches quite easily. Knife may be readily removed for sharpening or renewal. Two threaded holes are provided for attaching saw.

Size over all, 12 1/2 inches. Weight, 3 1/2 pounds. Price, No. 3628, Trimmer ..... each \$8.50

## No. 3628-K Circular Tool Steel Knife For Klein Tree Trimmer

Weight, 3 ounces. Price, No. 3628-K ..... each \$1.50

## No. 913G Klein Saw Grasps



When a hand saw is required the regular tree trimmer saws can be set in this grasp in a few seconds and held securely with a single thumb screw. Efficient for cutting heavy branches. Weight, 1/2 pound.

Price No. 913G ..... each \$ .75

## Boston Wire Cutters



Designed for general use. Handles are insulated.

Cat. No.	0-WC	1-WC	2-WC	3-WC
Length..... inches	18	24	30	36
Opening..... inches	1/2	3/4	1 1/8	1 1/4
Price..... each	\$7.15	8.45	11.65	15.60

## Porter's New Easy Bolt Clippers



The handles are of jappanned malleable iron, tough and strong; the buffers are rubber; the jaws are tool steel, of a temper shown by long experience to be the best for cutting annealed bolts and rivets. The jaws can be dressed when necessary with a mill file. Nos. 0 and 1 have open handle grips. Nos. 2 and 3 have solid grips, adjusted by set screw. No special wrench or shims required.

No.	0-NE	1-NE	2-NE	3-NE
For Annealed Bolts in Thread				
Approximate Length..... inches	5/8	3/4	1 1/2	5/8
Weight..... pounds	3 1/4	5 1/4	8 1/2	12 1/2
Price..... each	\$4.00	5.00	7.00	9.00

## Nos. 48 and 49 Electricians' Shears

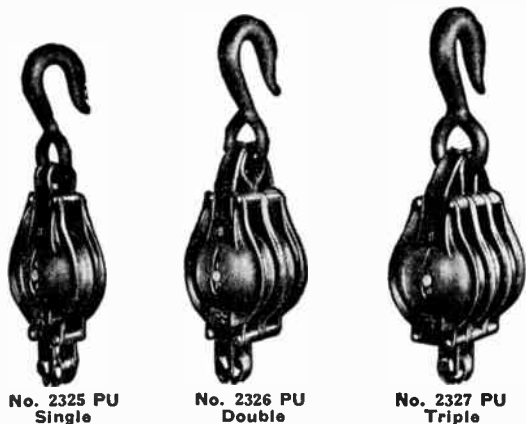


Forged steel. No. 48 has 3 1/2-inch blade and is 14 inches long. No. 49 has 3-inch blade and is 12 3/4 inches long.

Price, No. 48 ..... each \$2.00  
 " " 49 ..... " 1.75

**B & L Public Utility Tackle Blocks for Manila Rope**

Malleable Iron Shells—Loose Side Hooks and Becketts



Made for public utility work for hard service. Malleable iron plates with specially designed partitions, all held together securely by 4 rivets properly placed, are used to make a strong, durable, rigid shell, of light weight with a bead or flare to protect the rope against chafing. Forging steel of special analysis is used for drop forging the hooks, which are then tested to determine both yield point and ultimate strength.

The sheave pins are made from heat treated nickel alloy steel ground to size. Close tolerance is allowed between pin and bushing. Sheaves are of rugged design to resist wear and to withstand maximum crushing strain. Forging steel straps are accurately drilled for pin bearings to insure perfect alignment of sheaves at all times.

Two types of bushings are recommended, viz.: Patent bronze bushings for hand work, and self-lubricating graphite bronze bushings for heavy duty and power hoisting.

Blocks can be furnished with wood shells if so desired. Keeper or safety link hooks can also be furnished with blocks if so desired.

Order by figure number, stating also size of shell or size of Manila rope to be used, and whether regular loose hooks or hooks with safety links are required.

Length Shell Inches	For Rope Diameter Inches	APPROX. WEIGHT, POUNDS		
		Single	Double	Triple
3/8	3	1 3/8	2 1/8	3
1/2	4	1 3/4	2 3/4	4 1/4
5/8	5	3 1/4	5	6 1/4
3/4	6	4 3/8	7	9 1/4
7/8	7	6 3/8	9 3/4	12 1/2
1	8	8 1/4	12 1/2	16 1/8
1 1/8	9	11 1/4	17 3/4	25 1/4
1 1/4	10	14 1/2	21	27

**No. 8 B & L Public Utility Snatch Blocks for Wire Rope**

Drop Forged Flatted Stiff Swivel Hooks, Heads and Links



This block is designed especially for truck winch work. Built rugged to stand hard service and heavy loads, and light enough to be easily handled by the screw.

It is all galvanized.

Diameter of sheave, 8 inches. Size of sheave pin, 3/8 inch.

Larger and smaller sizes of this block can be furnished if desired.

Price, No. 8 ..... each \$7.50

**B & L Conductor Stringing Snatch Blocks**

14-Inch Sheave Aluminum Block Roller Bushed



No. PV-32

For stringing aluminum conductor on transmission lines. Price ..... each \$25.00

**Wood Shell Lignumvitae Sheave**

Roller Bushed



No. PV-38

Made in 2 sizes; 10 1/2 and 7-inch sheave.

For stringing copper conductor on transmission lines.

Price, 10 1/2-Inch Sheave...each \$7.50  
Price, 7-Inch Sheave.....each .....

**7-Inch Shell Drop Link Wood Snatch Roller Bushed Cast Iron Sheave**

For stringing lighter copper conductors.

Price ..... each \$2.75



No. 2349

## B & L Public Utility Snatch Blocks for Manila Rope

Drop Forged Flatted Stiff Swivel Hooks, Heads and Links—Safety-Locking Link



No. 2355, Wood Shell

All of the connections as well as the hook are drop forged from .25 carbon open hearth forging steel. The flatted drop forged hooks are of special design and tests show unusually high strength. The safety locking feature prevents accidental disengaging; the hook must be deliberately canted over full 90° to one side in order to release.

Sheave pins are made from heat treated nickel alloy steel ground to size with correct tolerance between pin and bushing.

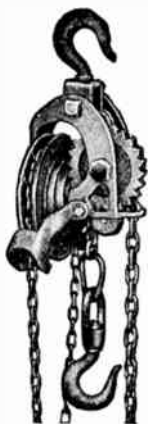


No. 2356, Iron Shell

PRICE, EACH

Size Sheave Inches	For Diameter Rope Inches	Length Shell Inches	No. 2355 WOOD SHELL		No. 2356, MALLEABLE IRON SHELL	
			Patent 6-Roller Bushed	Graphite Bronze Bushed Self-Lub.	5-Roller Bushed	Star Metaline Bushed Self-Luba
3	x1 1/8 x 1/4	7/8	\$3.10	\$3.60	\$5.85	\$6.55
3 1/2	x1 1/4 x 1/2	7/8	3.70	4.00	7.10	7.65
4 1/2	x1 3/8 x 5/8	1	4.40	4.90	8.35	9.10
5	x1 7/8 x 5/8	1 1/8	5.20	5.70	9.65	10.50
5 3/4	x1 7/8 x 3/4	1 1/4	6.66	7.35	13.00	14.20
6 3/4	x2 1/8 x 3/4	1 1/2	8.45	9.55	15.90	17.60
8	x2 1/4 x 7/8	1 3/4	14.00	15.40	20.40	22.20
9	x2 5/8 x 1	2	18.70	20.60	27.20	29.60

## Improved B & L Star Chain Hoists



The principle of the B & L Hoist operation is extremely simple and the points of contact of the scroll on hand wheel and load gear teeth are machined to an accurate fit.

Improved construction methods eliminate the possibility of spreading the load gear teeth being engaged at exact depth by scroll, even after long wear, and with overload.

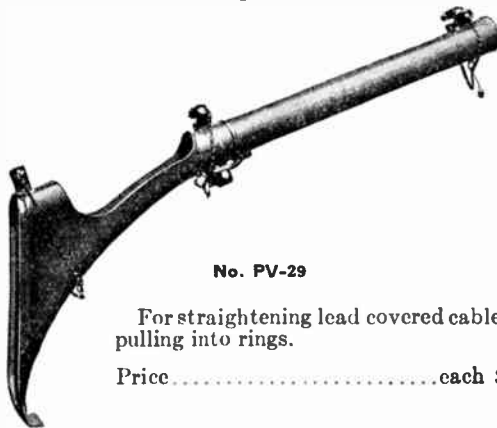
It is fully equipped with radial and thrust ball bearings. It has only 2 moving parts. It holds its load securely at any point without a brake. All parts are interchangeable, being built and assembled by precision methods. It is light, safe and portable. It is compact with low head room. The drop-forged steel hooks are proof-tested. It is automatically lubricated and operates with perfect smoothness. Chains are the finest obtainable and fit the wheels correctly.

Hoist is tested to twice its rated capacity before shipment. In efficiency of operation the B & L Improved Star Chain Hoist compares favorably with the most expensive geared hoists.

Capacity Hoist Pounds	Power Required to Lift Full Load Pounds	Regular Lift Feet	Weight Pounds Hoist Complete	Price Each
500	30	8	38	\$45.00
1000	52	8	47	50.00
2000	92	8	65	60.00
3000	110	8	96	80.00
4000	130	9	133	100.00
6000	123	10	147	110.00
8000	135	10	188	130.00
12000	200	12	341	230.00

The 6000-pound capacity and larger sizes have foot blocks.

## B & L Aerial Cable Guide and Straightener



No. PV-29

For straightening lead covered cable while pulling into rings.

Price.....each \$21.50

## B & L Aerial Cable Cars



No. PV-36

For riding messenger strand in placing rings or making repairs.

Price.....each \$16.50

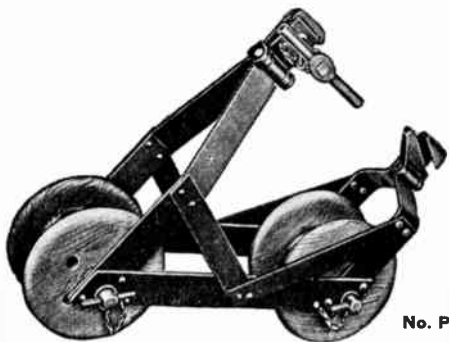
## B & L Aerial Hand Lines



No. PV-37

For hoisting tools or supplies to lineman.  
Price, Complete .....each \$5.30  
For separate parts, prices upon application.

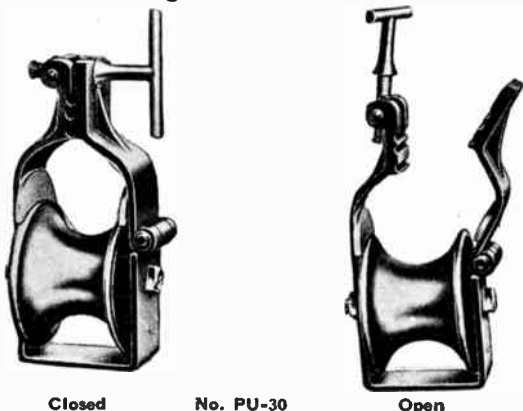
**B & L Aerial Cable Guides with Wood Rollers**



No. PV-39

For pulling lead covered cable into supporting rings.  
Price.....each \$24.00

**B & L Single Sheave Cable Blocks**



Closed

No. PU-30

Open

For guiding winch lines in conjunction with aerial cable guides.  
Price.....each \$6.50

**B & L Booster Hooks**



No. PV-31

For relieving load on rings when pulling long spans.  
Price.....each \$2.15

**B & L C Hooks**



No. PU-28

Steel forging for connecting load to winch line.  
Price.....each \$2.00

**Reliable Double Eye Luffing Cable Grips**



Used for pulling slack or removing old cable. Shortest body permits longest pull in cramped manhole. 9-inch length of body also standard.

Cat. No.	Size Inches	For Cable Diam. Inches	Cat. No.	Size Inches	For Cable Diam. Inches
842	3/4 x 18	3/4 to 7/8	852	3/4 x 24	3/4 to 7/8
843	1 x 18	1 to 1 1/8	853	1 x 24	1 to 1 1/8
844	1 1/2 x 18	1 1/2 to 1 7/8	854	1 1/2 x 24	1 1/2 to 1 7/8
845	2 x 18	2 to 2 3/8	855	2 x 24	2 to 2 3/8
846	2 1/2 x 18	2 1/2 to 2 7/8	856	2 1/2 x 24	2 1/2 to 2 7/8
847	3 x 18	3 to 3 3/8	857	3 x 24	3 to 3 3/8
848	3 1/2 x 18	3 1/2 to 3 7/8	858	3 1/2 x 24	3 1/2 to 3 7/8

Prices upon application.

**Reliable Double Eye Split Cable Grips**



Used for pulling slack in working cables. Can be attached and removed without cutting cables.

Cat. No.	Size Inches	For Cable Diam. Inches	Cat. No.	Size Inches	For Cable Diam. Inches
862	3/4 x 18	3/4 to 7/8	872	3/4 x 24	3/4 to 7/8
863	1 x 18	1 to 1 1/8	873	1 x 24	1 to 1 1/8
864	1 1/2 x 18	1 1/2 to 1 7/8	874	1 1/2 x 24	1 1/2 to 1 7/8
865	2 x 18	2 to 2 3/8	875	2 x 24	2 to 2 3/8
866	2 1/2 x 18	2 1/2 to 2 7/8	876	2 1/2 x 24	2 1/2 to 2 7/8
867	3 x 18	3 to 3 3/8	877	3 x 24	3 to 3 3/8
868	3 1/2 x 18	3 1/2 to 3 7/8	878	3 1/2 x 24	3 1/2 to 3 7/8

Prices upon application.

**Reliable Single Eye Cable Grips**

Hard Wire



Duplex hard tough wire grip for attaching pulling line to the end of a cable. Resists wear in rough, sandy conduits. Large sizes used on aerial cable.

Cat. No.	Size Inches	For Cable Diam. Inches	Cat. No.	Size Inches	For Cable Diam. Inches
802	3/4 x 22	3/4 to 7/8	812	3/4 x 30	3/4 to 7/8
803	1 x 22	1 to 1 1/8	813	1 x 30	1 to 1 1/8
804	1 1/2 x 22	1 1/2 to 1 7/8	814	1 1/2 x 30	1 1/2 to 1 7/8
805	2 x 22	2 to 2 3/8	815	2 x 30	2 to 2 3/8
806	2 1/2 x 30	2 1/2 to 2 7/8	816	2 1/2 x 45	2 1/2 to 2 7/8
807	3 x 30	3 to 3 3/8	817	3 x 45	3 to 3 3/8
808	3 1/2 x 30	3 1/2 to 3 7/8	818	3 1/2 x 45	3 1/2 to 3 7/8

Prices upon application.

**Reliable Single Eye Cable Grips**

Soft Wire



Soft wire grips with soft eyes for attaching pulling line to the end of a cable. Soft eye slips easily through aerial rings.

36 inch length of body also standard.

Cat. No.	Size Inches	For Cable Diam. Inches	Cat. No.	Size Inches	For Cable Diam. Inches
822	3/4 x 18	3/4 to 7/8	832	3/4 x 24	3/4 to 7/8
823	1 x 18	1 to 1 1/8	833	1 x 24	1 to 1 1/8
824	1 1/2 x 18	1 1/2 to 1 7/8	834	1 1/2 x 24	1 1/2 to 1 7/8
825	2 x 18	2 to 2 3/8	835	2 x 24	2 to 2 3/8
826	2 1/2 x 18	2 1/2 to 2 7/8	836	2 1/2 x 24	2 1/2 to 2 7/8

Prices upon application.

## No. 102-1 Klein's Splicing Clamps



A handy pocket size tool adapted specially for telephone troublemen.

Arranged with 5 round holes for bare wire.

Copper wire Nos. 8, 10, 12, 14, 16, B. & S.

Iron wire Nos. 10, 12, 14, 16, 18, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head, black handles.

Size, 8 inches.

Weight per dozen, 6 pounds.

Price, No. 102-1 .....each \$2.60

## No. 102-3 Klein's Splicing Clamps



Covers a wide range of wire sizes used in telephone and telegraph line work. Large hole can be used in serving guy wire or messenger strand. The dies fit the wire snugly insuring perfect mechanical and electrical joints.

This clamp is arranged with 5 round holes and one oval hole for bare wire.

Copper wire Nos. 2, 4, 6, 8, 10, 12, B. & S.

Iron wire Nos. 4, 6, 8, 10, 12, 14, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head, black handles.

Size, 10 $\frac{3}{4}$  inches.

Weight per dozen, 15 pounds.

Price, No. 102-3 .....each \$3.35

## No. 105-15 Klein's Splicing Clamps



A convenient pocket size clamp particularly adapted for telephone and telegraph repair work.

This clamp is arranged with openings for twisting double tube sleeves.

Copper sleeves Nos. 8, 10, 12, 14, 17, B. & S.

Iron sleeves Nos. 10, 12, 14, 16, 19, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head and black handle.

Size, 8 inches.

Weight per dozen, 5 pounds.

Price, No. 105-15 .....each \$2.75

## No. 105-17 Klein's Splicing Clamps



The unusually wide range of sizes in this clamp makes it particularly valuable for general telephone and telegraph work.

This clamp has 5 sets of chambers for twisting double tube sleeves.

Copper sleeves Nos. 6, 8, 10, 12, 14, 17, B. & S.

Iron sleeves Nos. 8, 10, 12, 14, 16, 19, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head and black handles.

Size, 10 $\frac{3}{4}$  inches.

Weight, per dozen, 15 pounds.

Price, No. 105-17 .....each \$3.35

## No. 132-12 Klein's Combination Wire and Sleeve Clamps



For telephone and telegraph general line and trouble work.

This clamp has four round holes for twisting bare wire.

Copper wire Nos. 6, 8, 10, 12, B. & S.

Iron wire Nos. 8, 10, 12, 14, B. W. G.

The reverse side has four double chambers for twisting sleeves.

Copper sleeves Nos. 8, 10, 12, 14, 17, B. & S.

Iron sleeves Nos. 10, 12, 14, 16, 19, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head and black handle.

Weight per dozen, 10 pounds.

Price, No. 132-12, Size, 9 inches.....each \$3.50

## No. 132-15 Klein's Combination Wire and Sleeve Clamps



The unusual range of wire and sleeve sizes covered by this clamp makes it practically a universal tool for telegraph, telephone and power line work. Has 5 round holes for twisting bare wire and an oval opening for guy wire or messenger strand. Copper wire Nos. 4, 6, 8, 10, 12, B. & S. Iron wire Nos. 6, 8, 10, 12, 14, B. W. G. Strand opening .437x.624.

Reverse side has 5 chambers for twisting double tube sleeves. Copper sleeves Nos. 6, 8, 10, 12, 14, 17, B. & S. Iron sleeves Nos. 8, 10, 12, 14, 16, 19, B. W. G.

Hammer forged from high grade crucible tool steel. Oil tempered, polished head and black handles.

Weight, per dozen, 16 pounds.

Price No. 132-15 .....each \$4.75

## No. 107 Klein's Di-Stock Sleeve Twisters



This tool has ample leverage for use on heavy wires beyond the capacity of

standard splicing clamps or connectors. The illustration above shows the Di-Stock fitted for making double tube joints.

Forged from high grade crucible steel. Has swing latch provided with thumb nut to fit over reverse jaw to hold both jaws securely in place.



Open to Receive Wire

Special prices on any combination upon application. Specify sizes of sleeve tool is intended for.

Tools are made to order only. Weight, 4 pounds.

Price, No. 107-2, for Sleeves.....each \$13.75

## No. 1802-30 Klein's Self-locking Troublemens' Blocks



Especially for use with Klein's Wire Grips. No. 1802-30 is furnished with 25 feet  $\frac{3}{8}$ -inch Manila rope, 2 $\frac{1}{2}$  pounds. Consists of light steel shell blocks galvanized, fitted with snubbing hook to lock load in any position. To lock load, pull luff rope under hook. To release, simply pull rope. Blocks are arranged with spring guard snap hooks. When pulling up wire to make a splice, it may be used with two grips attached to snaps or with hook to anchor to an insulator-pin or other convenient anchorage.

Cat. No.	Description	Wt. Lbs.	Price per Set
1802-30	Galv., with 25 Ft. $\frac{3}{8}$ -inch Rope.....	2 $\frac{1}{2}$	\$4.00

**No. 1611 Klein's Chicago Grips for Insulated Wire**



Main body piece and lever are forged steel. Drawn parts are wrought steel. Rivets are machine turned.

The upper jaw has a series of transverse shallow grooves into which, on applying strain, the insulation is tightly compressed but not injured.

Cat. No.	Description	Max. Open. In.	Wt. Lbs.	Price Each
1611-20	No. 4 Wire and Smaller.....	1/2	2 5/16	\$3.75
1611-30	No. 00 Wire and Smaller.....	9/16	3 3/4	4.75
1611-40	No. 0000 Wire and Smaller.....	3/4	7 1/4	7.50

**No. 1613 Klein's Chicago Grips for Bare Wire**

Main body piece and lever are forged steel. Draw parts are wrought steel. Gripping jaws are machined smooth. Rivets are machine turned. The harder the pull, the tighter the hold. It pulls straight without leaving kinks in the wire. It is handy to put on and holds itself in place by means of a spring acting on the compressing lever. Arrangement of draw links is so that it does not hang down at right angles and is not in the way of line when grip is put on.

Cat. No.	Description	Max. Open. In.	Wt. Lbs. Each	Price Each
1613-30	For No. 6 Wire and Smaller...	7/32	1 1/2	\$2.00
1613-40	For No. 0 Wire and Smaller...	5/16	2 5/8	4.00
1613-50	For No. 0000 Wire and Smaller...	1/2	7 1/2	6.75

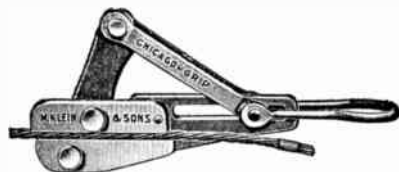
**No. 1626 Klein's Chicago Grips for Aluminum Cable**



Both gripping jaws are smooth and cannot injure strands of cable. Furnished plain or pulley type. Smaller sizes to order.

Cat. No.	For Cable	Maximum Opening, In.	Weight Pounds	Price Each
1626-39	250000 C.M.	5/8	7 3/4	\$10.00
1626-40	500000 C.M.	1/2	7 3/4	10.00

**No. 1628 Klein's Chicago Grips for Messenger Strand Wire**



These grips can be modified to order to accommodate strand wires of larger diameters.

Cat. No.	Description	Maximum Opening Inches	Weight Pounds	Price Each
1628-6	For 6000-Pound Strand	1 3/8	8 1/2	\$12.45
1628-16	For 16000-Pound Strand	1 1/2	14	24.80

**No. 1625-20 Klein's Improved Haven's Grips**



A heavy grip adapted for handling plain or stranded wire from No. 6 to 3/4 inch in diameter. The particular feature of construction is a swing latch which engages with stud on lower jaw, thus centralizing the pressure on cross bolt which is strongly made of turned machined steel.

Weight per dozen, 69 pounds.

Price, No. 1625-20 ..... each \$7.00

**No. 1604 Klein's Haven's Steel Grips**



For all around work. Forged from crucible steel. The eccentric or dog is hand cut, hardened and tempered. All rivets are steel, machine turned. Handle and eccentric allows instantaneous hold. A shake of rope on tackle disengages or releases grip. Heavy strain makes it grip tighter.

Cat. No.	Size	Weight, Pounds per Dozen	Price Each
1604-10	No. 8 Wire and Finer.....	12	\$2.00
1604-20	1/2-inch " " " .....	30	3.00

**No. 1702-20 Klein's Howes Wire Tools**



The strap is harness leather 1 1/4 inches wide and 7 feet long. At one end a forged steel swivel hook is provided with opening to permit anchoring round insulator pin. The forward end has a locking device to hold the load at any distance and is so arranged that a wire grip can be readily attached.

The metal parts are galvanized.

Weight per set, 2 pounds.

Price, No. 1702-20, Single Purchase.....per set \$6.80

**No. 740 Matthews Strainometers**

For use with No. 730 Matthews Slack Puller.

This dependable device measures the strain to which the wire or guy strand has been pulled by means of graduations on the movable strain bolt. Each graduation denotes 500-pound strain. Maximum strain register is 3000 pounds.

Can be easily attached to either end of slack puller or to block and tackle.

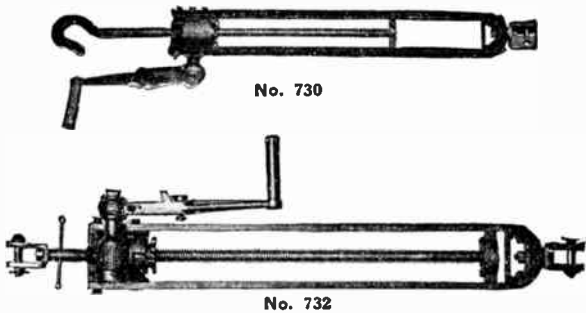
Shipping weight, 15 pounds.

Price, No. 740 ..... each \$24.00





## Matthews Quick Release Slack Pullers



Enables one man to do the work of four when taking the slack out of guy strand, messenger wire or changing strain insulators, or for splicing trolley wire, telephone or power cable under tension; also used for pulling back underground cable. Takes the place of block and tackle. One man can easily pull 3000 pounds with the No. 730, 6000 pounds with the Nos. 731 or 732, and 10000 pounds with the Nos. 7100 or 7110. No slack is lost in dead ending as strain is held to the exact point pulled.

With the new quick release feature, when the entire take-up has been used, the wire is temporarily dead ended and the lock released. This permits the slack puller to be immediately extended to its maximum or any intervening length.

No.	Description	Ship. Wt. Lbs.	Price Each
730	Maximum Take-Up, 19 Inches	17	\$50.00
731	Same as No. 730, Except That Clevis is Substituted for Hook	17	55.00
732	Same as No. 731, Except That it Also Has Quick Take-Up Feature	17	60.00
7100	Maximum Take-Up, 27 Inches	45	100.00
7110	Same as No. 7100, Except That it Also Has Quick Take-Up Feature	45	120.00

The 730 and 731 do not have quick release or quick take up features.

## No. 201 Klein's Diamond Special Side-cutting Pliers



Has handles shaped to the curvature of the hand.

Powerful leverage and keen reinforced cutting knives make this plier adaptable for heavy cutting in telephone, telegraph and power line work. Full clearance back of the knife permits use on insulated wire.

Has polished head and handles temper blued.  
Packed 6 in a box.

Cat. No.	Size Inches	Wt., Lbs. per Dos.	Price Each	Cat. No.	Size Inches	Wt., Lbs. per Dos.	Price Each
201-5	5	3	\$2.60	201-8	8	12	\$3.75
201-6	6	5	2.80	201-9	9	12½	4.45
201-7	7	7½	3.35	.....	.....	.....	.....

## No. 212 Klein's Diamond Special Side-cutting Pliers With Sleeve Joint Twisters



Handles are curved to fit hand. Powerful leverage and keen reinforced cutting knives make this plier adaptable for heavy cutting in telephone, telegraph and power line work. These pliers have chambers for twisting double sleeve joints. Has polished head and handles temper blued.

Cat. No.	Size Inches	FOR SLEEVE No.	B.& S.	Weight, Lbs. per Dozen	Price Each
212-6	6	17	.045	5	\$3.35
212-7	7	17	.045	7½	3.75
212-8	8	10	.104	12	4.45

## No. 232 Klein's End Cutting Pliers



Stout jaws and broad cutting knives.

No.	Price Each
232-5½	\$6.00
232-7	6.70

## No. 303-6 Klein's Long Needle Nose Pliers



Long nose permits use in confined spaces. Has polished head and handles temper blued.

Weight per dozen, 3 pounds.  
Price, No. 303-6, Length 6 Inches..... each \$2.00

## No. 202 Klein's Oblique Cutting Pliers



Electricians, telephone men and switchboard builders will find this plier a most useful tool. Cuts close, the narrow head permitting use in confined places. Knives are perfectly fitted so that they meet accurately at all points.

Has polished head and handles temper blued.

Cat. No.	Size In.	Weight, Pounds per Dozen	Price Each
202-5	5	4	\$2.25
202-6	6	4¼	2.50

## No. 301 Klein's Long Nose Pliers without Cutters



For the electrician and general mechanic. Adaptable to stripping the ends of insulated wire and the extra long reach of the jaws permits working in confined spaces.

Has polished head and handles temper blued.

Cat. No.	Size In.	Wt., Lbs. per Dos.	Price Each	Cat. No.	Size In.	Wt., Lbs. per Dos.	Price Each
301-5	5	2¾	\$1.85	301-6	6	3	\$2.00

## No. 203 Klein's Long Nose Side Cutting Pliers



For the electrician and general mechanic.

Adaptable to stripping the ends of insulated wire. The extra long reach of the jaws permits working in confined spaces.

Has polished head and handles temper blued.

Cat. No.	Size In.	Wt., Lbs. per Dos.	Price Each	Cat. No.	Size In.	Wt., Lbs. per Dos.	Price Each
203-5	5	2¾	\$2.20	203-6	6	3	\$2.40

**No. 305-6 Klein's Long Flat Nose Pliers**

Has long wide flat nose. Inside of jaws left smooth if desired. Has polished head and handles temper blued.



Weight per dozen, 3½ pounds.  
Price, No. 305-6, Length 6 Inches..... each \$2.20

**No. 206-6 Klein's Long Flat Nose Side Cutting Pliers**



Has long wide flat nose and cutting knives. Smooth jaws if desired. Has polished head

and handles temper blued. Weight per dozen, 3½ pounds.  
Price, No. 206-6, Length 6 Inches..... each \$2.40

**No. 304-6 Klein's Long Duck Bill Pliers**

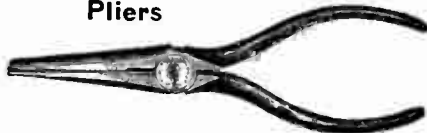
For general use. Jaws are wider and heavier than those of flat nose pliers.



Has polished head and handles temper blued. Weight per dozen, 3¼ pounds.  
Price, No. 304-6, Length, 6 Inches..... each \$2.20

**No. 205-6 Long Duck Bill Side Cutting Pliers**

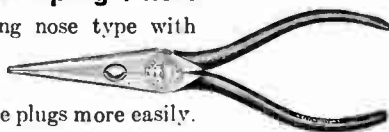
General use. Jaws are wider and heavier than those of flat nose plier. Has polished head and handles temper blued.



Weight per dozen, 3 pounds.  
Price, No. 205-6, Length, 6 Inches..... each \$2.40

**No. 301-C Klein's Long Nose Cord Crimping Pliers**

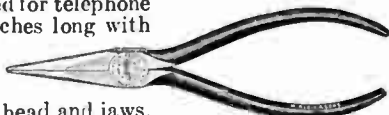
This plier is a long nose type with special opening for crimping switchboard cords to make them fit into the plugs more easily.



Size, 6 inches.  
Price, No. 301-C, Weight per Dozen, 2¾ Pounds... each \$2.40

**No. 316 Klein's Long Nose Pliers**

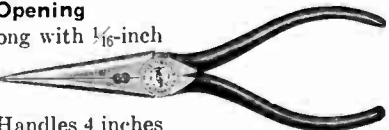
Particularly adapted for telephone work. Jaws are 2 inches long with ¼-inch point. Handles are 4 inches long, tempered blue. Polished head and jaws.



Size, 6 inches.  
Price, No. 316 Weight per Dozen, 2¾ Pounds.... each \$2.00

**No. 316-S Klein's Long Nose Pliers**

With Sleeve Opening  
Jaws are 2 inches long with ¼-inch point. Has openings for No. 17 B.&S. double



tube copper sleeves. Handles 4 inches long, tempered blue; polished head and jaws.  
Price, No. 316-S, Size 6 Inches..... each \$2.40

**No. 406-6½ Klein's Slip Joint Pliers**

This plier embodies all the advantages offered by a tool of this type. Has a wire cutter and a screwdriver handle. Has polished head and handles temper blued.

Weight per dozen, 7 pounds.  
Price, No. 406-6½, Length, 6½ Inches..... each \$1.00



**No. 302-6 Klein's Long Curved Nose Pliers**



A handy plier for working around switchboards, terminals and telephones, due to the nose being curved. Angle is arranged to give full clearance and prevent skinning of knuckles. Adaptable to a variety of uses. Jaws will not lose their shape or set due to pressure applied, owing to quality of steel used, its hardening and tempering.

Weight per dozen, 2¾ pounds.  
Has polished head and handles temper blued.  
Price, No. 302-6, 6-inch..... each \$2.40

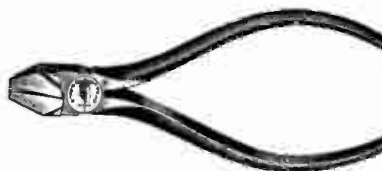
**No. 408-8 Klein's Bent Nose Slip Joint Pliers**



For use in difficult places. An excellent general purpose tool. Has polished head and handles temper blued.

Weight per dozen, 8 pounds.  
Price, No. 408-8, 8-inch..... each \$1.50

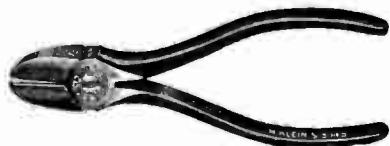
**No. 235-6 Klein's Diagonal Cutting Pliers**



This plier has many uses. It has long cutting knives well matched and the head is narrow to permit its use in confined places.

Has polished head and handles temper blued.  
Weight per dozen, 4½ pounds.  
Price, No. 235-6, 6 Inches..... each \$3.00

**No. 242-6 Klein's Oblique Cutting Pliers Heavy Pattern**



Heavy pattern for general work. The knives are perfectly fitted, so that they meet accurately at all points.

Will be found particularly satisfactory where it is not necessary to reach into confined spaces. Has polished head and handles temper blued.

Cat. No.	Size Inches	Weight, Pounds per Dozen	Price Each
242-6	6	4¼	\$2.50

### No. 407-7 Klein's Utility Slip Joint Pliers

Heavy duty type. Adaptable as pipe wrench or wire cutter. Has sure grip jaws for irregular shapes.

Polished head and handles temper blued.

Weight per dozen, 7 1/2 pounds.



Price, No. 407-7, Length, 7 Inches ..... each \$1.25

### Klein's Linemen's Pole Climbers

Also Called Spurs or Hooks

Safety is the first and vital point in considering linemen's pole climbers. The lineman going up a pole depends entirely upon his spurs.

To assure utmost dependability Klein Climbers are forged from special steels and are individually tempered. Shanks and gaffs are tested to insure perfect riveting and temper.

Leg iron or shank is made of spring steel, gaff or spur is forged from tool steel.

The shape of Klein Climbers has been carefully considered. It is the result of many years' experience and much practical suggestion from linemen. Klein Climbers have flexible shanks and yield readily to pressure of leg; they do not chafe. Gaff or spur is correct in shape, set of angle and temper. It is hand riveted to leg iron in secure manner.

### Klein's Eastern Climbers



When ordering specify length of shank desired. Measure from instep to extreme end. Other than stock sizes to order. Tested before leaving factory.

#### No. 1901

Stock sizes, 15, 15 1/2, 16, 16 1/2, 17, 17 1/2 and 18 inches.

Has punched strap loops. Packed 1 pair in a carton.

Price, No. 1901, Wt. 3 5/8 Lbs. .... per pair \$4.10

#### No. 1900

Same and same sizes as No. 1901 but has riveted strap loops. Packed 1 pair in a carton.

Price, No. 1900, Wt. 3 5/8 Lbs. .... per pair \$4.45

#### No. 1903

Light weight pattern with riveted strap loops. Packed 1 pair in a carton.

Price, No. 1903, Wt. 2 7/8 Lbs. .... per pair \$4.45

#### No. 1907



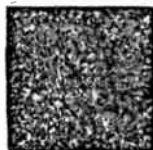
This is the standard tree climber used by forest rangers, top loggers, fire wardens, surveyors, etc. Made in all standard sizes.

Has punched strap loop. Gaffs, or spurs, are 5 1/2 inches long measured on the outside and 3 inches long measured on the underside. They are set high in the leg iron so that points clear the ground.

Packed 1 pair in a carton.

Price, No. 1907 ..... per pair \$5.00

### Nos. 8200-8202 Klein's Soft Pads for Eastern Climbers



Made of select plain leather, and lined with sheepskin or felt, with loops through which to slip climber straps. Size, 4x4 inches. Weight per dozen sets, 3 pounds.

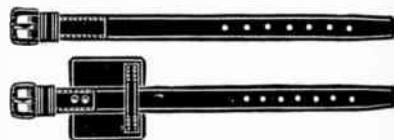
Price, No. 8200 Sheep-Lined ..... per pair \$8.85

Price, No. 8201 Felt-Lined ..... per pair .85

Price, No. 8202 Plain Leather ..... per pair .65

### No. 5301 Klein's Straps for Eastern Climbers

Set consists of 2 upper straps with 4x4 plain leather pads and 2 lower straps.



Made of select high grade harness leather, heavy drop-forged roller buckles, lock stitching with hot waxed harness thread.

Straps are 22 inches long, 1 1/4 inches wide.

Cat. No.	per Doz. Sets	Description	Price
5301-1	15	With Plain Pads.....	per set \$3.45
5301-2	16	With Sheep Lined Pads.....	per set 3.70
5301-3	16	With Felt Lined Pads.....	per set 3.70
5301-4	6	Straps without Pads.....	per pair 1.45
5301-5	9	Straps with Plain Pads.....	per pair 2.05

### No. 5111 Klein's Hip Pocket Tool Cases



This case is suitable for carrying pliers or other tools in hip pocket.

Prevents cutting of clothes, or possible injury to the person.

Made of black leather.

Weight per dozen, 2 1/2 pounds.

Price, No. 5111, Size, 5x7 Inches .... each \$1.00

### No. 5116 Klein's Detachable Plier Holsters



Made of heavy harness leather with loop to slip over belt.

Carries 7, 8 or 9-inch side cutting pliers.

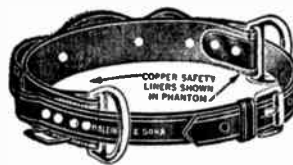
Mouth of pocket is framed to hold open position permanently.

Length, 10 inches.

Weight per dozen, 6 pounds.

Price, No. 5116 ..... each \$1.50

### Genuine Klein's Tool Belts



Made of select first quality harness leather. Cushion carries D rings. Outer or loop layer is 1 1/2 inches wide formed into tool loops by riveting to cushion. It also passes through D rings and is furnished with a strong drop forged buckle.

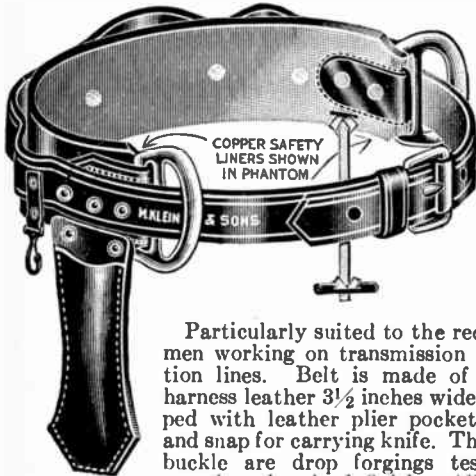
D rings are solid steel drop forgings of improved design tested to 1500 pounds. Surfaces taking wear of D rings are protected with copper safety liners riveted through full thickness of belt. All rivets are solid copper set with burrs and sewing is with hot waxed harness thread, lock stitched. D rings and buckle galvanized finish. A belt capable of giving long service.

No. 5202 has 2 1/4-inch cushion. No. 5204 with cushion 3 1/2 inches wide is more comfortable to recline in when using safety strap.

Made in lengths 36, 38, 40, 42, 44, 46 and 48 inches. Specify length required measuring from end of buckle to middle hole at other end of belt.

Cat. No.	Size Inches	Weight Pounds per Dozen	Price Each
5202	2 1/4	30	\$4.75
5204	3 1/2	32	5.10

**No. 5204-D.E. Genuine Klein's Tool Belts**



Particularly suited to the requirements of men working on transmission and distribution lines. Belt is made of first quality harness leather 3½ inches wide and is equipped with leather plier pocket, tape thong and snap for carrying knife. The D rings and buckle are drop forgings tested to 1500 pounds galvanized finish. All rivets solid

copper hand set. Sewing is with hot waxed linen thread lock stitched.

Made in 36, 38, 40, 42, 46 and 48-inch sizes, measured from end of buckle to middle hole at other end of belt.

Width, 3½ inches. Weight per dozen, 35 pounds.  
Price, No. 5204-D.E. .... each \$6.50

**No. 5206-1A Genuine Klein's Belts and Safety Straps Combined**



The tool belt in this outfit is 2¼ inches wide. Strap, 1¾ inches. All snaps, D rings and buckles are solid steel drop forgings tested to 1500 pounds and are galvanized finish. The strap may be adjusted to length by means of buckle or it may be detached entirely from the belt.

Genuine harness leather throughout. Hot waxed harness thread lock stitched.

Belt made 36, 38, 40, 42, 44, 46 and 48 inches long.  
Weight, per dozen, 60 pounds.

Price, No. 5206-1A, with Strap, 1¾ In. x 6 Ft. . each \$9.60

**No. 5211 Genuine Klein's Tool Belts N.E.L.A. Type**

This tool belt is made of select first quality harness leather. The inner or cushion layer, 3 inches wide, is narrowed at ends to carry D rings. Body strap, 2 inches wide, is riveted and stitched to cushion and also passes through D rings. Two tool straps are provided and formed into 2 tool loops at each side.



D rings and buckle are solid steel drop forgings tested to 1500 pounds; galvanized.

Surfaces taking wear of D rings are protected by copper safety liners riveted through full thickness of belt.

Rivets are solid copper, hand set with burrs.

Sewing is with linen thread, hot waxed and lock stitched.

Tool belt is made in 36, 38, 40, 42, 44, 46 and 48-inch lengths.

When ordering tool belts specify length required, measuring from end of buckle to middle hole at other end.

Packed individually.

Weight per dozen, 36 pounds.

Price, No. 5211 ..... each \$6.25

**No. 5205 Genuine Klein's Tool Belts**



Made of select first quality harness leather. The inner or cushion layer, 2¼ inches wide, carries the D rings and is lock stitched and riveted to the outer layer and is furnished with a strong drop forged buckle.

The D rings are solid steel drop forgings tested to 1500 lbs. and are of improved design. Surfaces which take the wear of the D rings are protected with copper safety liners riveted to the belt. D rings and buckle are galvanized finish. Solid copper rivets set with burrs; sewed with hot waxed thread, lock stitched. The loop strap is 1¼ inches wide, formed into 6 loops.

Made in lengths 36, 38, 40, 42, 44, 46 and 48 inches; figured from end of buckle to middle hole at other end of belt.

Weight, per dozen, 32 pounds.  
Price, No. 5205, Width, 2¼ Inches. .... each \$5.60

**No. 5210 Genuine Klein's Tool Belts**



**Bell System Type**

First quality harness leather. Cushion, 3 inches wide, is in one piece to which D rings are secured. Belt straps are in 2 pieces sewed and riveted to cushion at ends. Two plier

keepers are provided; also a tape holder of rawhide. D rings and buckle are solid steel drop forgings tested to 1500 pounds. Galvanized. Rivets are solid copper, hand set with burrs. Sewing is with linen thread, hot waxed and lock stitched. Made in lengths 34, 36, 38, 40, 42, 44, 46, 48 and 50 inches. Specify length required, measuring from end of buckle to middle hole at other end.

Weight per dozen, 38 pounds. Packed individually.

Price, No. 5210 ..... each \$6.70

**No. 5250 Genuine Klein's Safety Straps**



Standard type. Genuine harness leather of first quality. Sewed with hot waxed harness thread, lockstitched. Rivets are solid copper, set with burrs. Snaps have a solid strap loop with roller and buckle, solid drop forgings tested to 1500 pounds. Strap may be lengthened or shortened. Reinforced at ends with copper safety clasp riveted through double thickness of leather. Snaps and buckle galvanized finish.

Weight per dozen, 30 pounds.

Price, No. 5250, 1¾ Inches x 6 Feet. .... each \$4.85

**No. 5253 Genuine Klein's Safety Straps**



This strap is a heavy duty type. Genuine harness leather, first quality. Securely sewed with hot waxed harness thread, lock stitched. Solid copper rivets and burrs. The snaps and buckle are extra heavy steel drop forgings tested to 1500 pounds. The strap may be lengthened or shortened by adjusting buckle. Reinforced at both ends with safety clips of sheet copper riveted. Snaps and buckle are galvanized.

Extra heavy drop-forged roller snaps and buckle. Weight, per dozen, 39 pounds.

Price, No. 5253, 2 Inches x 6 Feet. .... each \$6.20

## No. 5257 Genuine Klein's Safety Straps

### Bell System Type



Has a double tongue buckle. First quality and selection harness leather. Securely sewed with linen thread, hot waxed, lock stitched. Solid copper rivets and burrs set by hand. Snaps and buckle are solid steel drop forgings, tested to 1500 pounds. Galvanized. Adjustable length. One end reinforced with copper safety clip. Weight per dozen, 40 pounds. Packed individually.

Price, No. 5257-S, 2x61½ Inches ..... each \$6.50  
 " " 5257-L, 2x70 " ..... " 6.85

## No. 5258 Genuine Klein's Safety Straps

### N. E. L. A. Type



Heavy duty. First quality and selection harness leather. Sewing is with linen thread, hot waxed, lock stitched. Solid copper rivets with burrs hand set. Snaps and buckle are solid steel drop forgings tested to 1500 pounds. Galvanized. Adjustable length. Reinforced at buckle end with safety copper clip. Weight per dozen, 39 pounds.

Packed individually.

Price, No. 5258 ..... each \$6.70

## No. 5251 Genuine Klein's Safety Straps



Particularly suited to the requirements of work on transmission and distribution lines. Genuine harness leather of first quality. The wear under the buckle is taken by a stout leather pad while the return end at the fixed snap is secured by stitching and riveting. By this means the copper safety clips are eliminated and consequently the strap is unique as having a minimum of metal furnishings.

Strap may be lengthened or shortened. Snaps and buckle galvanized finish.

Width, 1¾ inches.  
 Weight, per dozen, 39 pounds.

Price, No. 5251 ..... each \$4.85

## No. 5215 Klein's Extension Straps



This strap is 1¾ inches wide, made of first quality harness leather and fitted with special forged D ring and buckle. It is worn attached to D ring on main body belt and used when large diameter poles necessitate a longer safety strap than the regular. By engaging snap of the regulation safety strap to the special D ring on the extension strap the lineman can immediately adapt his outfit so that he has no difficulty in working conveniently. No matter how large the pole—can be lengthened or shortened.

Size, 1¾x15 inches.

Weight per dozen, 14 pounds.

Price, No. 5215 ..... each \$2.00

## No. 5209 Klein's Safety Harnesses



Back

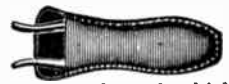
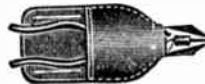


Front

Meets requirements of various safety commissions for use where danger from gassing is present. Working in gassy manholes, gas tanks, oil tanks and even boilers, men are frequently overcome and an emergency arises instantly. This harness provides a sure means by which patient can be brought to safety and danger overcome. Design is such that it slings wearer in a perpendicular position so that he can be readily hauled through an ordinary manhole opening. A solid harness leather back plate 2¼x10 inches is stitched and riveted around the 1¼-inch adjustable belt strap. Back plate also carries a tested drop forged D ring to which the ¾-inch manila life line, 25 feet in length is permanently attached. Shoulder straps are ¾ inch and made adjustable and riveted to belt at single ends. These straps hold belt in position around chest so as not to encumber wearer while working. Weight per dozen, 30 pounds.

Price, No. 5209, with Life Line ..... each \$6.70

## Nos. 5107 and 5112 Leather Plier Pockets



Made of good quality leather. Has slits through which belt is inserted. No. 5112 is the same as No. 5107 except that plier does not protrude.

Price, No. 5107, Weight per Dozen, 2½ Pounds. .each \$1.65  
 " " 5112 " " 2½ " " " .70

## No. 5108 Klein's Inspectors' Harness Leather Tool Bags

This bag is made of harness leather and will stand rough usage. It has a shoulder strap combined with a pad and hand strap; also a saw and bit holder. The bottom is three ply and is studded with steel studs. Retaining straps pass clear around the bag.



Seams are sewed with hot waxed linen thread, lockstitched.

Cat. No.	Size In.	Wt. Lbs.	Price Each
5108-18	18x8	4½	\$8.50
5108-20	20x8	5½	8.75

## No. 5102 Klein's Linemen's Canvas Tool Bags

Made of one piece white duck reinforced all around bottom, 3¼ inches up, with heavy bag leather. Bottom is made of heavy leather outside, duck inside. Lock stitched all around. Bottom and sides are joined together with lock-stitched leather welt seams. Has harness leather handles and two retaining straps with buckles.



Cat. No.	Size In.	Wt. Lbs.	Price Each
5102-18	18	3½	\$5.25
5102-20	20	3¾	5.75

**No. 1305-2 Klein's Inspectors' Tool Kits**



Solid black leather folding case strongly stitched, reinforced back. Fitted with one each of the following tools: No. 201-6 side-cutting plier; No. 301-5 long nose plier; No. 1550-2 Xela electricians' knife; 1 pair electricians' tweezers; 1 special file; 1 special screwdriver.

A handy assortment to fit the pocket. Weight, 1½ pounds.

Price, No. 1305-2 ..... each \$7.50

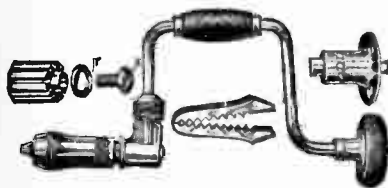
**No. 333 Graybar Lineman's Braces**



This brace is specially constructed of heavy design to stand up to severe requirements of line construction work. Has a 10-inch sweep. Weight per dozen, 41 pounds.

Price, No. 333 ..... each \$4.50

**Millers Falls Ratchet Bit Braces**



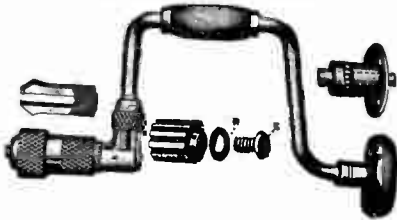
Holds bit shanks only. Barber chuck with forged steel alligator jaws. Boxed ratchet. Ball-bearing head, with steel quill. Handle has inserted metal rings. Cocobolo

head and handle. Exposed metal parts are nickel-plated and buffed. This brace will fulfill every boring requirement where bit shanks only are used. Packed 1/6 dozen in a box.

No.	Sweep Inches	Wt., Lbs. per 1/6 Doz.	Price Each	No.	Sweep Inches	Wt., Lbs. per 1/6 Doz.	Price Each
30	14	7½	\$5.10	33	8	5½	\$4.65
31	12	6½	4.95	34	6	5	4.65
32	10	6	4.70	..	..	..	..

**Millers Falls Ratchet Bit Braces**

Has cocobolo head and handle. Exposed metal parts nickel plated and buffed. Has lion ball bearing chuck and jaws have parallel milled grooves which grip along their entire length. Holds bit shanks, round from 1/8 to 1/2 inch and No. 1 Morse taper shanks. Boxed ratchet.



Packed two in a box.

No.	Sweep Inches	Wt., Lbs. per 1/6 Dozen	Price Each	No.	Sweep Inches	Wt., Lbs. per 1/6 Dozen	Price Each
769	16	9½	\$6.80	772	10	7½	\$6.05
770	14	9	6.45	773	8	7	6.00
771	10	8	6.30	...	..	..	..

**No. 542 Millers Falls Solid Center Auger Bits**



The distinguishing feature of this bit is its solid center. Designed with two spurs and two cutting edges for cabinet making and other fine work where clean smooth boring is the chief essential. Deep single twist allows maximum clearance, preventing clogging.

Highly polished over all. Length, 9 inches.

Packed six in a pasteboard box.

Size in 16ths In.	Price per Dozen	Size in 16ths In.	Price per Dozen	Size in 16ths In.	Price per Dozen	Size in 16ths In.	Price per Dozen
3	\$4.50	9	\$5.50	15	\$9.00	21	\$13.50
4	4.00	10	6.00	16	9.00	22	13.50
5	4.00	11	7.00	17	10.50	24	15.00
6	4.00	12	7.00	18	10.50	..	..
7	4.50	13	8.00	19	12.06	..	..
8	5.00	14	8.00	20	12.00	..	..

**No. 922 Millers Falls Ship Auger Car Bits**



This type of bit without spur is made especially for boring in rough timber. Sizes 1/8-inch and smaller have full polished twist and round. Larger sizes have black hollows. Twelve inches twist, 18 inches over all.

Packed six in a pasteboard box up to and including 1/8-inch. Packed three in a pasteboard box above this size.

Size, In. in 16ths	Price Each	Size, In. in 16ths	Price Each	Size, In. in 16ths	Price Each
4	\$11.00	11	\$12.00	18	\$16.00
5	11.00	12	12.00	20	18.00
6	11.00	13	13.00	22	20.00
7	11.00	14	13.00	24	23.00
8	11.00	15	14.50	..	..
9	11.00	16	14.50	..	..
10	11.00	17	15.00	..	..

**Millers Falls Screwdriver Bits**



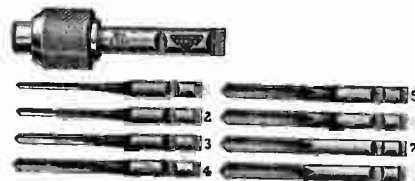
Hammer forged of high grade steel with special attention given to hardening and tempering.

Length over all, 4 inches.

Packed six in a pasteboard box.

No.	Width Point In.	For Screws No.	Wt., Lbs. per Dozen	Price per Dozen
4	4/16	6 to 8	5	\$2.80
5	5/16	8 " 12	6	2.90
6	6/16	12 " 16	8	3.00
8	8/16	16 " 20	10	3.15
10	10/16	20 " 24	11	3.50

**Millers Falls Chucks and Drills for Spiral Ratchet Screwdrivers**



Converts spiral ratchet screwdrivers into automatic drills for boring small holes. Drills can be changed without removing chuck from screw driver. Has improved ball chuck. Operates same as when driving screws.

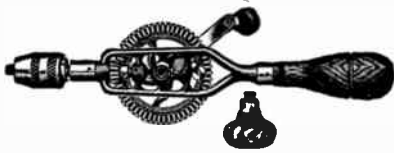
Packed in wooden box.

No.	For Use with Screwdrivers, Nos.	Quantity	DRILLS In.	Wt. Oz.	Price Each
6700	67 and 670	3	1/16 - 3/32	2	\$ .45
6100	61 " 610	8	1/16 - 1/8	3	.95
6200	62 " 620	8	1/8 - 1/4	4	.95



## No. 5 Millers Falls Hand Drills

Capacity, 0 to 1/4-inch round shank drills. Three-jaw chuck, improved protected springs; single speed; ball thrust bearing; cut gears; double steel pinion, including idler to equalize the bearings.



Detachable side handle, cocobolo hollow-end main handle containing eight wood boring points. Black enameled malleable iron frame; red enameled large gear; other parts nickeled.

The wide rim on the large gear can be firmly held between the thumb and finger tips in doing delicate work.

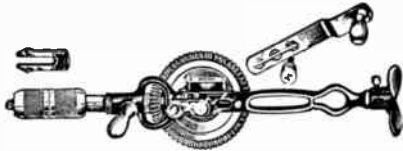
Length, 12 1/2 inches.

Packed one in box. Weight, 1 3/4 pounds.

Price, No. 5, with Drill Points.....each \$3.70

## No. 12 Millers Falls Breast Drills

Capacity 1/8 to 1/2-inch round bit and No. 1 Morse taper shanks. Two-jaw Master chuck; protected springs;



two speeds—gear ratios even and 3 to 1; speed changed by pressing the spring and shifting large gear. Annular ball bearing spindle and ball thrust bearing with take up nut to provide for wear; cut gears; steel pinion; idler roll to equalize bearing. Stained hardwood handles; crank handle extensible, 4 to 6-inch radius. Black enameled malleable iron frame and adjustable breastplate; level attached. Red enameled large gear. Other parts nickeled. Length 17 1/2 inches. Weight 6 1/2 pounds.

Price, No. 12.....each \$5.75

## No. 85 Millers Falls Radio Hand Drills



Capacity, 0 to 1/4-inch round shank drills.

Built especially for radio fans. This drill is sturdy and

takes all drills used in radio work; handsomely finished. Three-jaw chuck; protected springs. Single speed; ball thrust bearing; cut gears; steel pinion. Solid main handle of stained hardwood. Malleable iron frame enameled black. Large gear enameled red. Other parts are nickeled. Length, 12 1/2 inches. Weight each, 1 3/4 pounds.

Packed one in a box.

Price, No. 85, without Drills.....each \$2.30

## No. 97 Millers Falls Breast Drills

Capacity, 0 to 1/2-inch round shank drills, three-jaw chuck, protected springs. Two speeds—gear ratios even and 2 3/4 to 1; ball thrust bearing; cut gears; steel pinions;



double gear drive; stained hardwood handles; black enameled malleable iron frame, red enameled large gear, other parts nickeled. Breast plate has hand-hold for steadying tool. Large auxiliary breast plate. Adjustable crank handle. Take-up nut to overcome ball bearing wear. Fast and slow speeds separated by bushings. Five ratchet actions—neutral, ordinary and continuous right or left hand. Length, 17 1/2 inches. Packed 1 in a box. Weight, 8 1/4 pounds.

Price, No. 97.....each \$11.65

## No. 315 Millers Falls Hand Drills



Capacity, 0 to 1/4-inch round shank drills. Three-jaw chuck; protected springs; single speed; hardened

thrust collar; steel idler gear to equalize bearings.

Ratchet operated by boss on crank handle; cut gears; steel pinion.

Hollow end main handle, stained hardwood.

Solid steel frame, polished and nickeled; large gear enameled red; other exposed metal parts nickeled.

Length, 11 1/2 inches. Weight, 1 pound 3 ounces.

Packed one in a box.

Price, No. 315, without Points.....each \$3.85

## No. 2100 Millers Falls Breast Drills



Capacity, 0 to 1/2-inch round shank drills. Three-jaw chuck, protected springs. Two speeds, gear ratio even, and 3 to 1. Cut gears, steel pinions.

Stained hardwood handles. Black enameled malleable frame. Red enameled large gear, other metal parts polished.

Slightly rotating the knurled ring changes the speed instantly at any point, and without removing drill from work. Length, 17 1/2 inches.

Price, No. 2100.....each \$5.25

## No. 2 Millers Falls Hand Drills



Capacity, 0 to 3/8-inch round shank drills. Three-jaw chuck; protected springs, single-speed; ball thrust bearing; cut gears; steel pinion; adjustable friction roll to equalize bearings.

Detachable side handle, cocobolo hollow-end main handle containing 8 wood boring points. Black enameled malleable iron frame; red enameled large gear; other parts nickeled. Length, 14 1/2 inches.

Price, No. 2, with Drill Points.....each \$4.50

## No. 63 Ratchet Screwdrivers

Ratchet, operates smoothly, noiselessly



and without friction, and is so constructed that the mechanism cannot get bent, broken or out of order. It is a compact, strong tool, well proportioned and handsomely finished.

Ratchet operates by means of cam in rear of shifter sleeve, self-locking on pawls. Operates either to right or left by turning shifter ring. In vertical position can be used as solid screwdriver.

Ratchet pawls are tool steel. Ratchet springs are spring steel. Ratchet frame is cold rolled steel. Highest quality screwdriver steel blade, hardened and tempered. Hardwood, highly polished handle, well shaped.

Length.....inches 3 4 5

Price, No. 63.....each \$ .80 .90 1.00

**No. 55 Millers Falls Radio Ratchet Screwdrivers**



For light work. Thumb and finger ratchet blade by means of collar while handle rests securely in hand with pressure against screw. Screw is tightened by turning handle. Hardwood handle. Right and left ratchet or solid. Six in a box.

Blade Inches	Over All Inches	Diameter Blade, In	Wt., Oz. per Six	Price Each
2	5	3/16	14	\$ .75
3	6	3/16	16	.80
4	7	3/16	18	.85
5	8	3/16	20	.90
6	9	3/16	22	.95

**Millers Falls Spiral Ratchet Screwdrivers**



An improved spiral ratchet screwdriver. Right and left hand ratchet movements. Has a device for making it rigid. Has accurately machined steel spiral or rod, manganese bronze spiral nuts, hardened tool steel ratchet pawls, stained hardwood handle, and blades of special analysis steel. Exposed metal parts polished and nickel plated. Three screwdriver blades furnished. One in a box.

No.	LENGTH, INCHES		WEIGHT, OUNCES		Price Each
	Extended with Bit	Closed	Without Blades	3 Blades	
67	12 5/8	9 3/8	8	1 1/2	\$2.30
61	20 1/2	14 1/4	16	2 1/4	3.10
62	26 1/4	17 1/4	24	3	4.10

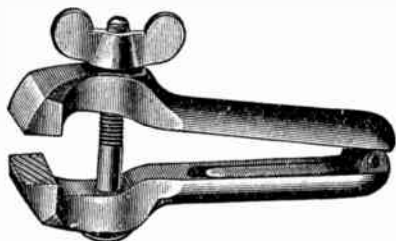
**Millers Falls Spiral Ratchet Screwdrivers**



Has spring in handle. Tool works on the principle of an automatic drill in which handle is pushed and quickly returns for next stroke. Offers a quick method of drilling small holes when used in connection with chuck and drills. Hardwood handle. Blade of special analysis steel. Steel spiral, accurately machined. Packed 1 in a box.

No.	Extended Lgth. without Blade, In.		Lgth. Closed In.		Wt., Oz. without Blade		Wt., Oz. Three Blades		Price Each
	11 3/8	8 1/8	9	1 1/2	18	2 1/4	3	4.75	
670	11 3/8	8 1/8	9	1 1/2	18	2 1/4	3	\$2.75	
610	18 3/8	12 5/8	18	2 1/4	27	3		3.50	
620	24 5/8	16 1/8	27	3				4.75	

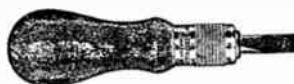
**No. 3 Millers Falls Hand Vises**



Solid steel castings, well tempered, in black finish with polished jaws. Jaws opened by a heavy spring and closed with thumb nut and screw bolt. Jaws are checked to insure firm grip. Length, 5 inches. Width of jaws, 1 1/2 inches. Jaws open, 1 1/4 inches. Weight each, 1 1/8 pounds.

Price, No. 3 ..... each \$1.75

**No. 59 Millers Falls Ratchet Screwdrivers**



A rugged type tool. Blade of best quality screwdriver steel, hardened and tempered. Hardwood handle highly polished. Exposed metal parts polished and nickel-plated. Length blade, 1 1/2 inches; over all, 6 1/4 inches. Packed six in a box. Price, No. 59 ..... each \$1.00

**No. 5 Millers Falls Tool Holders**



The tools are made from high-grade steel, carefully tempered and finished

and honed to a fine cutting edge.

These tools are contained in the handle which is hollow with screw cap. The jaws hold with a vise-like grip. Socket and screw threads are carefully cut so as to mesh perfectly and prevent shell from working loose and allowing tools to disengage themselves from the jaws. Cocobolo handles, highly polished. No. 5 has tools without blue finish.



Tools for No. 5

Length of handle, 7 1/2 inches. Length of tools, 4 inches. Weight, 14 ounces. Packed one in a box. Price, No. 5, Contains 10 Tools.....per dozen \$39.60

**No. 81 Millers Falls Automatic Drills**



By turning knurled nut on over end of handle, handle is released and slides down on frame, exposing points. Knurled nut locks magazine securely. Metal partitions in magazine keep each point in place. Size of point is marked against each compartment. Handle is of convenient size to fit the hand comfortably.

Has improved ball chuck, knurled handle and spiral nut of Tobin bronze. Shell cannot be completely unscrewed and lost.

Length, 10 1/2 inches.

Weight, 9 ounces.

Packed one in a box.

Price, No. 81 ..... each \$2.70

**Klein's Lineman's Wrenches**

**Bell System Type**



This wrench is forged from selected bar steel and is of the open end type with 2 openings of different size at each end. A hole is also provided for turning in pole steps, etc.

Weight per dozen, 21 pounds.

Price, No. 3146, for 5/8-Inch Hardware..... each \$2.50  
Price, No. 3146-A, for 3/4-Inch Hardware..... each 2.50

## No. 3109-20 Klein's Combination Steel Lag Screw Wrenches



This wrench is forged from select bar steel. The slot is formed in a cross shape and will fit machine bolts, nuts or lag screws from  $\frac{3}{8}$  inch to  $\frac{5}{8}$  inch. The small end of the wrench is arranged for  $\frac{3}{16}$ -inch machine bolts or lag screws. The round hole allows the end of a bolt to come through as the nut is run on.

The jaw is wider at its upper portion and when this wrench is put on a nut or bolt the tendency is to draw the bolthead or nut into the wrench and prevent slipping off. Weight, per dozen, 20 pounds.

Price, Nos. 3109-20, Length, 13 $\frac{1}{2}$  Inches ..... each \$2.50

## Solid Handle Monkey Wrenches

### Black Finish

Lgth. In.	Opens In.	Price per Doz.
6	$\frac{7}{8}$	\$15.00
8	$1\frac{1}{4}$	18.00
10	$1\frac{3}{4}$	22.00
12	$2\frac{1}{8}$	28.00
15	$2\frac{3}{4}$	38.00
18	$3\frac{1}{8}$	48.00



## Stillson Pattern Wrenches



Wood handle, 6 to 14 inches; steel handle, 18 to 48 inches.

Takes Pipe, In.	Length In.	Price Each	Takes Pipe, In.	Length In.	Price Each	Takes Pipe, In.	Length In.	Price Each
$\frac{1}{2}$	6	\$2.00	1	10	\$2.50	2	18	\$5.00
$\frac{3}{4}$	8	2.25	$1\frac{1}{2}$	14	3.50	$2\frac{1}{2}$	24	7.25

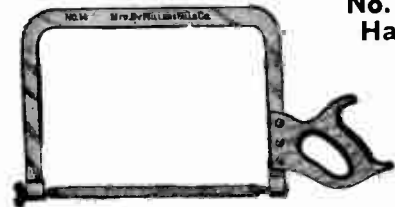
## Millers Falls Hack Saw Frames



Polished and nickeled steel, cocobola handle. Adjustable 8 to 12 inches.

Price, No. 10, Depth 2 $\frac{3}{8}$  Inches..... each \$2.25  
 " " 11 " 3 $\frac{1}{2}$  " ..... " 2.40

## No. 14 Millers Falls Hack Saw Frames



Extra heavy; for sawing steel rails, girders. Polished and nickeled steel. For 12-inch blades. Depth, 10 $\frac{1}{4}$  inches. No. 14... each \$4.15

## No. 1027 Millers Falls Hack Saw Frames



Pistol grip hack saw frames give a comfortable grip. Extensible from 8 to 12 inches.

Packed one in a box. Wt., 1 $\frac{3}{4}$  lbs.

Price, No. 1027, with One 10-Inch Blade ..... each \$1.75

## Peirce Expansion Shields



For attaching multi-point brackets to brick or stone buildings. Size of screw, Nos. 20 and 22; diameter of shield,  $\frac{1}{2}$  inch; length of shield, 2 inches. Standard package, 100. Weight per 100 pieces, 9.5 pounds.

Price, No. 31.....per 100 \$13.10

## Millers Falls Hand Hack Saws Flexible—Tungsten



Flexible blades differ from all hard blades in that the teeth only are hardened. Recommended for use particularly on thin sections of soft materials, both sheet and tubing. Superior to the all hard for use in out of the way places, and when frame must be held in other than a normal position.

Electricians, plumbers and steam fitters will find this type of blade more economical than all hard.

Flexible blades should be strained tighter in frame than all hard. Because they stretch more readily tension should be increased frequently while in use.

When starting a new blade in an old cut, give work a greater turn if possible. This will overcome the binding due to wider set of new blade.

No.	Length Inches	Width Inches	Gauge	No. of Teeth	Gross in Box	Price per Gross
41	8	$\frac{7}{16}$	025-23	14	$\frac{1}{2}$	\$8.00
42	9	$\frac{7}{16}$	025-23	14	$\frac{1}{2}$	9.00
43	10	$\frac{1}{2}$	025-23	14	$\frac{1}{2}$	10.00
44	11	$\frac{1}{2}$	025-23	14	$\frac{1}{2}$	11.00
45	12	$\frac{9}{16}$	025-23	14	$\frac{1}{2}$	12.00
51	8	$\frac{7}{16}$	025-23	18	$\frac{1}{2}$	8.00
52	9	$\frac{7}{16}$	025-23	18	$\frac{1}{2}$	9.00
53	10	$\frac{1}{2}$	025-23	18	$\frac{1}{2}$	10.00
54	11	$\frac{1}{2}$	025-23	18	$\frac{1}{2}$	11.00
55	12	$\frac{9}{16}$	025-23	18	$\frac{1}{2}$	12.00
61	8	$\frac{7}{16}$	025-23	24	$\frac{1}{2}$	8.00
62	9	$\frac{7}{16}$	025-23	24	$\frac{1}{2}$	9.00
63	10	$\frac{1}{2}$	025-23	24	$\frac{1}{2}$	10.00
64	11	$\frac{1}{2}$	025-23	24	$\frac{1}{2}$	11.00
65	12	$\frac{9}{16}$	025-23	24	$\frac{1}{2}$	12.00
71	8	$\frac{7}{16}$	025-23	32	$\frac{1}{2}$	8.00
72	9	$\frac{7}{16}$	025-23	32	$\frac{1}{2}$	9.00
73	10	$\frac{1}{2}$	025-23	32	$\frac{1}{2}$	10.00
74	11	$\frac{1}{2}$	025-23	32	$\frac{1}{2}$	11.00
75	12	$\frac{9}{16}$	025-23	32	$\frac{1}{2}$	12.00

## Peirce Expansion Bolts



No.	Size Inches	Standard Package	Wt., Lbs. per 100	Price per 100
1	$\frac{1}{4} \times 1\frac{3}{4}$	100	7.1	\$7.90
2	$\frac{1}{4} \times 2$	100	7.5	8.20
3	$\frac{1}{4} \times 2\frac{1}{2}$	100	8.3	8.60
4	$\frac{1}{4} \times 3\frac{1}{4}$	100	9.5	10.30
4A	$\frac{1}{4} \times 4$	100	10.7	11.60
4B	$\frac{1}{4} \times 5$	100	12.3	14.50
5	$\frac{3}{8} \times 2\frac{1}{2}$	100	14.9	14.30
6	$\frac{3}{8} \times 3$	100	15.9	15.30
7	$\frac{3}{8} \times 3\frac{1}{2}$	100	16.9	16.30
8	$\frac{3}{8} \times 4\frac{1}{2}$	100	18.9	19.20
9	$\frac{3}{8} \times 5$	100	19.9	19.60
10	$\frac{3}{8} \times 5\frac{1}{2}$	100	21.0	20.80
11	$\frac{1}{2} \times 2\frac{1}{2}$	50	41.2	23.00
12	$\frac{1}{2} \times 3\frac{1}{2}$	50	47.2	25.10
13	$\frac{1}{2} \times 4$	50	50.2	26.40
14	$\frac{1}{2} \times 4\frac{1}{2}$	50	53.0	27.30
15	$\frac{1}{2} \times 5$	50	56.0	28.60
16	$\frac{1}{2} \times 5\frac{1}{2}$	50	59.0	29.80
17	$\frac{1}{2} \times 6\frac{1}{2}$	50	62.0	32.00
18	$\frac{1}{2} \times 8$	50	73.0	35.80

## Extra Lead Sleeves

No.	Diameter Inches	Standard Package	Wt., Lbs. per 100	Price per 100
22	$\frac{1}{4}$	100	2.75	\$2.80
23	$\frac{3}{8}$	100	5.9	4.40
24	$\frac{1}{2}$	100	21.5	13.30

**Nos. 50 and 53 Peirce Hammer Drills**



The Peirce Hammer Drill is a double-ended tool designed for drilling holes easily in brick, stone and concrete. It drills the hole and swages the lead sleeve of the bolt. Holds all sizes of drill points.

The drill cannot become wedged in the hole while drilling as a backward stroke of the hammer instantly releases it.

Injury to the hands of the operator is impossible.

The chuck has a quick release whereby a drill-point may be instantly removed and a sharp one inserted.

Price, No. 50 for Tamping 1/4-Inch Bolts.....each \$14.82  
 Price, No. 53 for Tamping 3/8-Inch Bolts.....each 15.78

**Nos. 56-65 Peirce Drill Points**



For 1/4-inch expansion bolts, 1/2x4 or 6-inch drill points are used; for 3/8-inch bolts, 5/8x6-inch points; for 1/2-inch bolts, 7/8-inch points, the length of drill point depending on the length of bolt used. One and three-fourths inches of drill point is held inside the chuck. All drill points are measured over all except the 12-inch which are 14 inches over all.

Cat. No.	Size Inches	Wt., Lbs. per 100	Price per 100	Cat. No.	Size Inches	Wt., Lbs. per 100	Price per 100
56	3/8x 4	20	\$89.20	61	5/8x12	79	\$329.40
57	1/2x 4	23	89.20	62	3/4x 6	47	230.40
58	1/2x 6	33	101.60	63	3/4x12	107	461.00
59	1/2x12	65	220.00	64	7/8x 6	57	303.60
60	5/8x 6	38	164.60	65	7/8x12	137	607.20

**Peirce Hand Chucks**

Permits the use of Peirce Drill Points with the old method of hand-and-hammer drilling.



Cat. No.	Description	Std. Pkg.	Wt., Lbs. Each	Price per 100
55	For All Sizes of Drills	5	2.60	\$200.00

**Peirce Tamping Tools**



Cat. No.	Diameter of Bolt, Inches	Std. Pkg.	Wt., Lbs. Each	Price per 100
67	1/4	5	3.4	\$58.20
68	3/8	5	4.9	58.20
69	1/2	5	10.2	58.20

**Diamond N 4-point Drills**



Recommended for use in brick, softer stone and concrete.

Diam. Drill In.	LENGTH, INCHES				Diam. Drill In.	LENGTH, INCHES			
	8	12	18	24		12	18	24	24
1/4	\$8.25	\$8.50	\$11.00	\$13.50	1 1/4	\$30.00	\$35.00	\$40.00	
5/16	8.25	8.50	11.00	13.50	1 3/8	40.00	45.00	50.00	
3/8	8.25	8.50	11.00	13.50	1 1/2	50.00	56.00	62.00	
7/16	8.70	9.00	11.50	14.00	1 5/8	60.00	66.00	72.00	
1/2	9.65	10.00	12.50	15.00	1 3/4	75.00	81.00	87.00	
5/8 & 5/8	11.65	12.00	15.00	17.50	1 7/8	99.00	97.00	104.00	
1 1/2 " 3/4	13.70	14.00	17.50	20.00	2	105.00	112.00	120.00	
3/4	15.30	16.00	20.00	22.50	2 1/4	135.00	145.00	165.00	
1	17.00	18.00	22.50	25.00	2 1/2	165.00	175.00	195.00	
1 1/8	24.00	28.00	32.00						

**Diamond N Drill Holders and Points**

**Drill Holders**



The taper shank on the drill is carefully machined to fit the holder. The transverse hole in the handle is to admit a tapered pin which drives out the point when it is to be removed. The advantage of this drill over the one-piece regular drills is that in the smaller sizes a better grip can be had and a harder blow struck. It is also a great convenience in the reduction in weight of tools to be carried to a job where numerous holes are to be drilled. One holder may be used for many drill points. Worn drill points may be replaced with new drill points and the job continued without interruption.

Holder will take drill points from 1/4 to 3/4 inch.

Price.....per dozen \$24.00

**Drill Points**



The points are provided with tapered shanks to fit the tapered hole in the holder and drift pins are provided to eject the point when replacement is necessary.

Size Inches	Length Inches	Price per Dos.	Size Inches	Length Inches	Price per Dos.
1/4	4 1/2	\$8.50	1/2	5	\$10.00
5/8	4	8.50	5/8	6 1/4	12.00
3/4	4 1/2	8.50	3/4	6	14.00
7/8	4	9.00	..	...	.....

**Sets**

Set made up of one holder, one ejector pin and six points assorted of any of the above sizes, put up in a wooden box, making a convenient drill outfit in compact form for those requiring various sizes of holes for different diameter of expansion bolts.

Price, Complete.....per set \$7.50

**Diamond Drop Forge Twist Drills and Drill Holders**



Style B Holder



Style C Holder

The drill is forged from a solid bar of vanadium tool steel. This process produces a tougher and more durable drill than can be had by the machine process. It is intended to be used with a hand or electric hammer and not as a rotating drill.

Drill holders are made of vanadium steel. Type C drill holder is made with a soft rubber grip with flange to protect the hand of the operator.

Diameter of Drill Inches	Length Over All Inches	Depth of Hole Inches	Weight Pounds per Dozen	Price per Dozen
3/16	25/8	1 1/4	1/2	\$10.80
1/4	3 1/8	1 1/2	3/4	10.80
5/16	3 3/8	2	7/8	12.80
3/8	5 1/8	3 1/4	1 1/4	14.80
7/16	5 1/4	3 3/8	1 1/2	18.80
1/2	5 1/2	3 1/2	2	22.80
9/16	5 1/2	3 1/2	2 1/4	26.80

Twist drill kits are put up in sets containing 1 holder and 1 each 3/16, 1/4, 5/16, 3/8, 1/2 and 5/8-inch drill points.

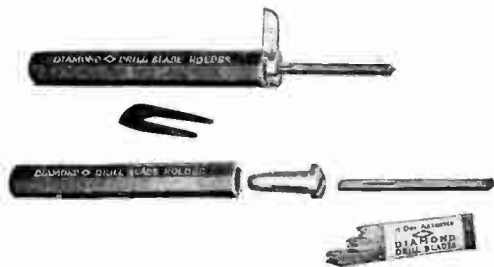
Price, Drill Kit, with Type B Holder.....per set \$7.00

Price, Drill Kit, with Type C Holder.....per set 8.00

Price, Style B Drill Holders.....per dozen 24.00

Price, Style C Drill Holders.....per dozen 48.00

## Diamond Drill Blades and Drill Blade Holders



Diamond Drill Blade is made of vanadium tool steel, accurately tempered for long use in brick, stone or concrete. The blade will not bind in the hole. It is easy to resharpen on a grinding wheel. Put up 6 in a compact container.

Diamond Drill Blade Holder is quick acting. The blade is easily inserted and ejected. Made of high grade carbon tool steel.

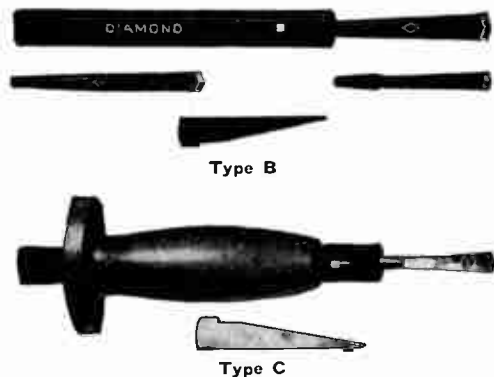
Size Drill Blades, inches.	1/4	5/16	3/8	7/16	1/2
Length Blades Over All, in.	3 3/8	3 3/8	3 3/8	3 3/8	3 7/8
Exposed Length of Drill, in.	2 1/4	2 1/4	2 1/4	2 1/4	2 3/4
Price, Blades, per dozen	\$8.50	8.50	8.50	9.00	10.00
Price, Blade Holders, per dozen	\$24.00				

Price, Set No. 1—6 Assorted Blades, Consisting of 2 Each, 1/4, 5/16 and 3/8 Inch, per set \$4.50

Price, Set No. 2—5 Blades, 1 Each, 1/4, 5/16, 3/8, 7/16 and 1/2 inch, per set 4.50

Price, Set No. 3—Complete Kit Consisting of Holder Ejector and 5 Blades (Set No. 2), per set 6.50

## Diamond Masonry Drill Holders and Points



Diamond Short Masonry Drill Points and Holders are forged and machined of vanadium tool steel. A flat drill in small sizes will cut holes faster than a 4-point drill.

The rubber grip holder protects the operators' hands and gives a comfortable grip making it easy to rotate the drill. Price, Type B Holder, per dozen \$24.00 Price, Type C Holder, Rubber Grip, per dozen 48.00

### Points

Size, in.	3/16	1/4	5/16	3/8	7/16	1/2	5/8
Price, per doz.	\$8.50	8.50	8.50	8.50	9.00	10.00	12.00

## Diamond N-Y Screw Anchors

Made of pure metals accurately mixed.

Packed 100 to a box, without screws.

Size Anchor, inches	3/16x3/4	1/4x1	1/4x1 1/2
For Anchor No.	O/G to 2/0	O/A to 2	3/A to 5
Price, per 100	\$5.00	5.60	8.00



## Diamond Bull Points



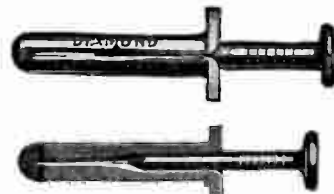
Made of a high grade octagon tool steel.

Size Steel Inches	12-INCH LENGTH		18-INCH LENGTH		24-INCH LENGTH	
	Weight Pounds	Price Each	Weight Pounds	Price Each	Weight Pounds	Price Each
1/2	3/4	\$ .60	...	...	...	...
5/8	1 1/4	.75	...	...	...	...
3/4	1 1/2	1.00	...	...	...	...
7/8	2	1.10	3	\$1.45	4	\$1.75
1	2 3/4	1.25	4 1/4	1.65	5 3/4	2.00
1 1/8	3 1/4	1.45	5 1/4	1.90	7	2.50
1 1/4	4 1/4	1.65	6 1/2	2.40	8 3/4	2.90
1 1/2	6 1/4	2.50	9 1/2	3.25	12 3/4	4.10

The 30 and 36-inch lengths are made to order.

## Diamond D H D Hammer Drive Anchors

For nailing to concrete, brick or stone. Shields are zinc, non-rusting; made of one piece of metal, forming a single unit which cannot become disarranged. Heavily galvanized nails are supplied with shields, packed in the same container.



Diam. and Lgth. of Shield to Use, In.	Diam. Drill to Use, In.	Wt. Lbs. per 100	Price per 100
5/16x2 1/4	5/16	100	\$8.00
5/16x2 3/4	5/16	100	9.00
3/8 x 2	3/8	100	10.00
3/8 x 3 1/4	3/8	100	11.00
1/2 x 2 1/4	1/2	100	14.00
1/2 x 3 1/2	1/2	100	14.00

## Diamond Calking Anchors



Diameter Bolt or Screw, In.	SIZE HOLE, INCHES	Suggested Safe Load Pounds	Std. Pkg.	Weight Pounds per 100	Price per 100
No. 6-32	1/4	80	100	1	\$3.80
No. 8-32	5/16	90	100	1 1/2	4.50
No. 10-24	3/8	175	100	2	4.95
No. 12-24	7/16	320	50	3 1/2	6.50
1/4-20	1/2	400	50	4 1/2	7.20
5/16	5/8	480	50	11	9.75
3/8	3/4	720	50	16	12.00
7/16	7/8	950	50	24	15.00
1/2	7/8	1000	50	24	15.00
5/8	1	1250	50	41	25.00

## Di-En-Key Expansion Bolts With Malleable Iron Expansion Shields



For use in suspension rods for mine hangers, steam and water pipes, sprinkler systems and allied lines. The smaller sizes are adapted to opera chairs and school furniture work. Prices do not include lag screw or machine bolt.

Diam. Screw, Inches	Length, Inches	Outside Diam., Inches	Price per 100	Diam. Screw, Inches	Length, Inches	Outside Diam., Inches	Price per 100
1/4	1	3/8	\$15.00	1/2	2 1/2	3/8	\$38.00
5/16	1 3/4	9/16	18.00	5/8	2 1/2	1	45.00
3/8	2	1 1/16	25.00	3/4	3 3/4	1 1/4	65.00

**Keystone Interlocking Expansion Shields**

Prevents the nut being drawn out of the shield when heavy loads are applied. Guides the mechanic in determining when to stop tightening up the bolt. Prevents the nut being drawn past the point of maximum expansion. Locks the two shields and the nut into a unit of resistance against the load, making it impossible to pull out the nut without extracting the shield, also thus increasing the holding power of the expansion.



Double

Made of malleable iron for durability and strength.

Diam. Screw or Bolt Inches	Length Shield Inches	O. D. and Size Drill to Use Inches	Price Shields Only per 100	Diam. Screw or Bolt Inches	Length Shield Inches	O. D. and Size Drill to Use Inches	Price Shields Only per 100
1/4	1 1/2	1/2	\$15.00	1/2	2 1/2	7/8	\$38.00
5/16	1 3/4	9/16	18.00	5/8	2 7/8	1	45.00
3/8	2	1 1/16	25.00	3/4	3 1/4	1 1/8	65.00
7/16	2 1/2	7/8	32.00	..	..	..	.....

**Diamond Super-grip Expansion Shields For Machine Bolts**



Has cone shaped brass nut and a tubular expansion shield cast of lead and antimony.

Prices do not include machine bolts.

Diameter Bolt Inches	Length Shield Inches	Diameter Hole and Drill, In.	Price per 100	Diameter Bolt Inches	Length Shield Inches	Diameter Hole and Drill In.	Price per 100
3/16	1 1/2	3/8	\$10.00	1/2	2 1/4	3/4	\$38.00
1/4	1 3/8	7/8	15.00	5/8	2 5/8	7/8	45.00
5/16	1 3/4	1 1/2	18.00	3/4	3	1	65.00
3/8	1 3/4	3/8	25.00	..	..	..	.....

**Diamond Super-grip Expansion Shields For Machine Screws**



Has cone shaped brass nut and a tubular expansion shield cast of lead and antimony. Grooves on the side of the shield not cut through, prevent its expansion before it is tightened up in the wall, hold the nut securely in place.

Prices do not include machine screws.

No. Machine Screw	Length Shield Inches	Diameter Hole and Drill, In.	Price per 100
8-32	1 1/2	5/16	\$10.00
10-24	1 1/2	5/16	10.00
12-24	1 3/8	7/16	15.00
14-20	1 1/8	7/16	15.00
18-18	1 1/4	1/2	18.00

**Diamond Super-grip Expansion Shields Complete with Galvanized Bolts Style B**



Size Inches	Price per 100	Size Inches	Price per 100	Size Inches	Price per 100
1/4 x1	\$15.35	3/8 x3 1/2	\$30.75	5/8 x3 1/2	\$78.25
1/4 x1 1/2	15.50	3/8 x4	31.50	5/8 x4	80.00
5/16 x1	22.15	1/2 x3	44.40	5/8 x5	83.80
5/16 x1 1/2	23.00	1/2 x3 1/2	45.65	3/4 x3 1/2	111.90
5/16 x2	23.50	1/2 x4	47.00	3/4 x4	114.60
3/8 x2 1/2	29.25	1/2 x5	48.20	3/4 x5	120.00
3/8 x3	30.00	5/8 x3	76.40	.....	.....

**Diamond Midget Expansion Shields Two Part Malleable**



Round Head Screw



Square Head Screw

For use where shields are required for heavy duty and where conditions will allow the use of only a small expansion. For attaching opera chairs, ornamental iron work, etc.

Prices do not include screws.

Diameter Screw Inches	Outside Diameter Shield Inches	Length Shield Inches	Diameter Drill Required Inches	Price per 100
3/16	3/8	1	3/8	\$15.00
1/4	7/8	1	7/8	15.00
5/16	1 1/2	1	1 1/2	18.00

**Diamond Malleable Iron Expansion Shields**



In ordering specify diameter of screw or bolt to be used and if lag screw shields, specify whether short standard or long standard is wanted.

Prices do not include lag screw or machine bolt.

Diam. Screw Inches	Length Inches	Outside Diam. Inches	Price per 100	Diam. Screw Inches	Length Inches	Outside Diam. Inches	Price per 100
1/4	1 1/2	1/2	\$15.00	5/8	3 1/2	7/8	\$45.00
5/16	1 3/4	9/16	18.00	3/4	3 1/2	1 1/8	65.00
3/8	2 3/4	5/8	25.00	7/8	5	1 3/8	95.00
7/16	2 3/4	1 1/16	32.00	1	5	1 1/2	110.00
1/2	3 1/2	3/4	38.00	..	..	..	.....

**Diamond 1-Part Composition Shields**

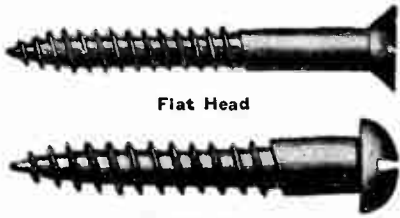


Inside Diameter Shield	Length of Shield	Outside Diameter	Size Screws	Price per 100
1/8	1 1/2	1/4	5-6-7	\$4.40
1/8	5/8	1/4	5-6-7	4.40
1/8	3/4	1/4	5-6-7	4.40
3/16	1 1/2	1/4	8-9-10-11	5.00
3/16	3/4	5/16	8-9-10-11	5.00
3/16	1 Light	5/16	8-9-10-11	5.00
3/16	1 Heavy	3/8	8-9-10-11	5.00
3/16	1 5/8	5/16	8-9-10-11	6.25
1/4	3/4	3/8	12-13-14	5.60
1/4	1	3/8	12-13-14	5.60
1/4	1 1/2	3/8	12-13-14	8.00
1/4	2	3/8	12-13-14	10.00
1/4	2 1/2	3/8	12-13-14	12.00
5/16	3/4	7/16	15-16-17-18	6.25
5/16	1	7/16	15-16-17-18	6.25
5/16	1 3/8	1/2	15-16-17-18	10.00
5/16	1 1/2	1/2	15-16-17-18	10.00
5/16	2	1/2	15-16-17-18	13.00
5/16	1 1/4	9/16	20-22-24	15.00
3/8	2	9/16	20-22-24	15.00
3/8	2	3/4	26-28-30	25.00
5/8	2	7/8	5/8-In. Lag	30.00
5/8	3 1/2	7/8	5/8-In. Lag	50.00

Put up in wooden boxes, 100 to a box.



## Iron and Brass Wood Screws



Flat Head

Round Head

### Price, per Gross

Prices Effective January 3, 1928

1/4-Inch			1-Inch—Cont.			2 1/4-Inch—Cont.		
No.	Iron	Brass	No.	Iron	Brass	No.	Iron	Brass
0	\$.24	\$.26	5	\$.36	\$.70	11	\$.85	\$2.55
1	.24	.28	6	.38	.80	12	.90	3.00
2	.24	.30	7	.40	.90	14	1.20	3.65
3	.24	.32	8	.44	1.00	16	1.40	4.45
4	.24	.34	9	.46	1.10	18	1.60	5.40
			10	.50	1.20	20	2.05	.....
0	\$.26	\$.28	11	.55	1.30			
1	.26	.30	12	.60	1.55	6	2 1/4-Inch	
2	.26	.32	14	.75	1.95	7	\$.65	.....
3	.26	.34	16	.90	.....	8	.70	.....
4	.26	.36				9	.75	.....
5	.26	.40	4	\$.38	.....	10	.80	.....
6	.28	.45	5	.40	.....	11	.85	\$2.55
7	.30	.....	6	.42	\$.90	12	.90	2.80
8	.32	.....	7	.44	1.00	14	1.00	3.25
			8	.46	1.10	16	1.30	4.25
1/2-Inch			9	.50	1.25	18	1.60	5.00
1	\$.28	\$.34	10	.55	1.40	20	1.90	6.00
2	.28	.36	11	.60	1.55			
3	.28	.38	12	.65	1.80	8	2 1/4-Inch	
4	.28	.40	14	.80	2.30	9	\$.75	.....
5	.28	.45	16	1.00	.....	10	.80	.....
6	.30	.50	18	1.15	.....	11	.90	.....
7	.32	.55				12	1.00	.....
8	.34	.65	4	1 1/4-Inch		14	1.10	.....
9	.36	.....	5	\$.40	.....	16	1.45	.....
10	.38	.....	6	.44	.....	18	1.80	.....
			7	.46	\$1.00	20	2.20	.....
1/4-Inch			8	.48	1.20			
2	\$.30	\$.38	9	.50	1.30	8	3-Inch	
3	.30	.40	10	.55	1.40	9	\$.80	.....
4	.30	.45	11	.60	1.65	10	.85	.....
5	.30	.50	12	.65	1.80	11	1.00	.....
6	.32	.55	14	.70	2.10	12	1.15	.....
7	.34	.60	16	.90	2.65	14	1.35	\$3.90
8	.36	.70	18	1.10	.....	16	1.70	4.95
9	.38	.80	20	1.25	.....	18	2.05	5.90
10	.40	.90				20	2.50	7.20
11	.42	.....	6	1 1/4-Inch		24	2.90	.....
12	.46	.....	7	\$.50	.....			
			8	.55	.....	10	4.00	.....
3/4-Inch			9	.60	\$1.45	11	3 1/2-Inch	
2	\$.32	\$.42	10	.65	1.65	12	\$1.25	.....
3	.32	.45	11	.70	1.85	14	1.40	.....
4	.32	.50	12	.75	2.05	16	1.60	\$4.80
5	.32	.55	14	.80	2.30	18	2.00	6.00
6	.34	.60	16	.85	2.70	20	2.40	7.10
7	.36	.70	18	1.00	3.00	24	2.80	8.75
8	.38	.80	20	1.20	.....			
9	.40	.90				10	3.20	.....
10	.42	1.00	6	1.35	.....	12	4.50	.....
11	.46	1.10	7	1.75	.....			
12	.50	1.25	8	2-Inch		12	4-Inch	
14	.65	.....	9	\$.55	.....	14	\$1.90	.....
			10	.60	.....	16	2.30	.....
1/2-Inch			11	.65	\$1.65	18	2.70	.....
3	\$.34	.....	12	.70	1.85	20	3.10	.....
4	.34	\$.55	14	.75	2.05	24	3.60	.....
5	.34	.60	16	.80	2.30			
6	.36	.70	18	.85	2.70	12	4 1/2-Inch	
7	.38	.80	20	1.10	3.45	14	\$2.60	.....
8	.40	.90	14	1.30	4.10	16	3.00	.....
9	.44	1.00	16	1.45	4.80	18	3.50	.....
10	.46	1.10	18	1.95	.....	20	4.10	.....
11	.50	1.20	20	2.15	.....	24	5.60	.....
12	.55	1.40						
14	.70	.....	6	2 1/4-Inch		14	5-Inch	
			7	\$.60	.....	16	\$2.90	.....
1-Inch			8	.65	.....	18	3.30	.....
3	\$.36	.....	9	.70	.....	20	4.00	.....
4	.36	\$.60	10	.75	.....	24	4.70	.....
				.80	\$2.30		6.20	.....

## No. 21 Atkins Metal Cutting Hand Saws



Will cut all classes of ordinary metal with ease. In 18-inch size it is 1 1/2 inches wide at the point and 4 1/2 inches wide at the butt. It is 18 gauge on the toothed edge, 20 gauge on the back and gradually tapers to 23 gauge on the point.

The handle is made of thoroughly seasoned applewood, polished, fastened to the blade by medallion and two brass screws. Packed one-third of a dozen in a box. Saws 18 inches long will be shipped unless otherwise specified.

Length In.	Points per In.	Wt., Lbs. per Doz.	Price per Doz.	Length In.	Points per In.	Wt., Lbs. per Doz.	Price per Doz.
18	15	13	\$29.55	24	15	21	\$38.65
20	15	16	32.40	26	15	25	41.80
22	15	18	36.00	..	..	..	.....

## No. 53 Atkins Hand, Panel and Rip Saws



Handle is of genuine applewood, attractively embossed, and fastened to blade by three brass screws and medallion. Packed in moisture-proof bag, one-third dozen in a box.

Length In.	POINTS PER INCH		Wt., Lbs. per Doz.	Price per Doz.
	Hand	Rip		
16	9, 10	.....	12 3/4	\$29.05
18	9, 10, 11	.....	13 1/4	32.45
20	8, 9, 10, 11	7	15 1/4	36.70
22	8, 9, 10, 11	7	17 3/4	39.55
24	7, 8, 9, 10, 11	5, 5 1/2, 6, 7	19 1/2	42.70
26	5, 6, 7, 8	4 1/2, 5, 5 1/2, 6, 7	24 3/4	44.55
28	5, 6, 7, 8	3 1/2, 4, 4 1/2, 5, 5 1/2, 6	29 3/4	50.45

## No. 9 Atkins Special Interchangeable Compass Saws



Designed specially for the use of electricians. Blade is made from silver, steel and is extra heavy and stiff. Has carved beech handle with a tightening bolt and wing nut that fits in a hole, so that the blade will not pull out of the handle.

Packed one-half dozen in a box.

Length In.	Points per In.	Wt., Lbs. per Doz.	PRICE, PER DOZEN	
			Saws Complete	Blades Only
10	8	6	\$10.40	\$6.35
12	8	6 1/2	10.85	6.80
14	8	7	11.30	7.25
16	8	7 3/4	11.75	7.70
18	8	8 1/2	12.20	8.15

## No. 2 Atkins Keyhole Saws and Pads

Toothed ten points per inch. Put up one dozen in a box.


Weight, per dozen, 2 1/2 pounds.  
 Price, Keyhole Saws.....per dozen \$3.25  
 " Handle....." 2.65  
 " No. 2, Complete....." 5.90

## Atkins Cable Saws



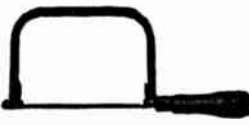
Blade 16 inches long of Atkins high-grade special steel. Beech handle. One edge toothed 10 points to the inch; other edge, 13 points. Packed 1/3 dozen in a box. Weight per dozen, 9 pounds.  
 Price.....per dozen \$15.20

**No. 17 Atkins Forester Pruning Saws**



Length of blade, 26 inches; width at point, 1 1/4 inches; at butt, 3 1/4 inches. Three points to the inch gives large teeth that cut big or small limbs readily. Weight, per dozen, 12 pounds. Packed one-third dozen in a box. Price, No. 17.....per dozen \$24.00

**No. 50 Atkins Coping Saws**




This is a durable and rigid coping saw, as the back is 3/8-inch wide and 3/16-inch thick and made of cold rolled steel, nicked and buffed. Frame, 7 1/4 x 4 3/8 inches deep. Fastened to the handle by malleable iron threaded ferrule.

All parts nicked and buffed. The handle is of hardwood, carved and varnished. Through the use of cap screws into which wires are inserted, the blade may be instantly adjusted to cut sharp or unusual angles with perfect ease and without strain on the blade. Packed two in a box.

Weight, per dozen..... pounds 7  
Price, No. 50 Complete, with Blade.....per dozen \$9.90  
" Blades Only..... " .50

**No. 11 Atkins Cross-cut Saw Handles**



Length, 14 inches. Climax pattern. Reversible. Cast iron face plate and washer. Malleable bolt with lock rivet feature, preventing rivet from becoming detached. Packed 100 pairs in wire-bound box weighing 170 pounds. Price, No. 11.....per pair \$.45

**Atkins Thin-back Tuttle Tooth Cross-cut Saws**



Packed 50 in a case. Prices do not include handles.

Lgth Ft.	Wt., Lbs. Each	PRICE, EACH		
		No. 330 14x16 Gauge	No. 331 14x18 Gauge	No. 332 14x19 Gauge
4	3.56	\$4.25	\$4.85	\$5.20
4 1/2	4.3	4.70	5.60	5.90
5	4.98	5.20	6.10	6.55
5 1/2	5.97	5.75	6.70	7.25
6	6.34	6.25	7.35	7.85
6 1/2	7.65	6.80	7.95	8.45
7	8.42	7.35	8.55	9.20
7 1/2	9.88	7.85	9.20	9.90
8	10.73	8.40	9.80	10.50

**Yankee Pattern Single Bit Felling Axes**

No. 1—36-inch Handle



Soft steel body, crucible steel bit, hand tempered. Gold bronze finish, bit and poll polished.

Packed 1/2 dozen in crate.

Weight Pounds	Price per Dozen	Weight Pounds	Price per Dozen
3 1/2	\$30.00	4 1/2	\$40.00
4	36.00	5	43.00

**No. 13 Graybar Lineman's Double Faced Hammers**

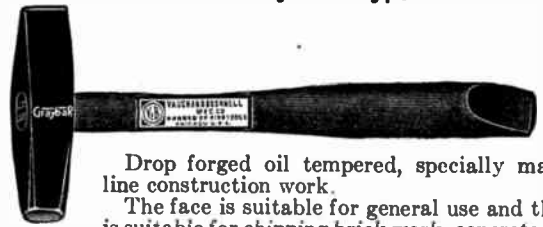
Bell System Type



Drop forged oil tempered head with special short neck designed to strike a heavy accurate blow in a confined space. Length over all, 15 inches. Weight of head, 2 1/4 pounds. Weight of hammer complete, per dozen, 35 pounds. Price, No. 13.....each \$2.85

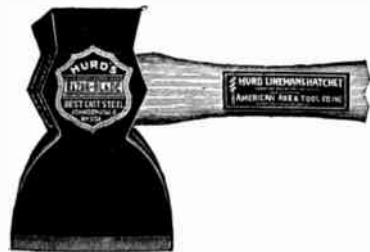
**No. 4638 Graybar Lineman's Chipping Hammers**

Bell System Type



Drop forged oil tempered, specially made for line construction work. The face is suitable for general use and the pein is suitable for chipping brick work, concrete, stone, etc., or for riveting. Length over all, 16 inches. Weight of head, 3 1/2 pounds. Weight of hammer complete, per dozen, 48 pounds. Price, No. 4638.....each \$2.25

**No. 59 Hurd's Linemen's Hatchets**



Gun metal finish. Cutting edge polished. Short strong blade. Heavy hardened head.

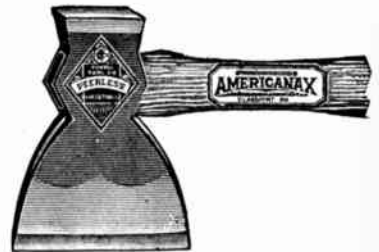
Packed 1/2 dozen in a carton, 4 dozen in a case.

Size No.	Width Cut Inches	Length Handle Inches	Price per Dozen
59	4 1/4	15	\$44.00

**Western Pattern Single Bevel Broad Hatchets**

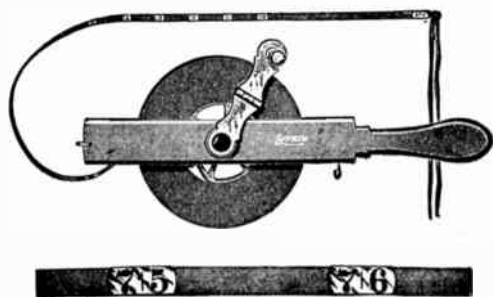
Gold bronze finish, blade and head polished. Second growth hickory handles.

Packed 1/2 dozen in a carton; 4 dozen in a case.



Size No.	Width Cut In.	Length Handle In.	Price per Dozen	Size No.	Width Cut In.	Length Handle In.	Price per Dozen
1	4	14	\$34.75	4	5 1/2	16	\$46.75
2	4 1/2	15	38.75	5	6	17	60.75
3	5	15	42.75	..	..	..	..

## Lufkin Surveyors' Chain Tapes



Etched graduations. Nubian finish; heavy 1/4-inch steel tape.

Hardwood reel with long folding winding handle and large drum. Trimmings nickel-plated.

Wherever graduated, the steel has a bright raised surface, with figures etched in. Steel is tempered and of best quality so that graduations and figures can never be effaced, but will always show clearly and distinctly.

A convenient, strong, durable chain tape for heavy field work.

A pair of rawhide thongs is furnished with each tape, (detachable rings instead if specified).

Tapes in feet are marked feet only every foot, with end feet in 100ths.

### Tapes Complete, with Reel and Thongs

Cat. No.	Lgth. Feet	Wt., Lbs. Each	Price Each	Cat. No.	Lgth. Links	Wt., Lbs. Each	Price Each
5100	100	2 1/4	\$10.50	5300	300	5 1/2	\$25.00

### Tapes without Reel, with Thongs

05100	100	1 1/2	\$7.00	05300	300	4 1/4	\$18.70
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Price, Reels, for 100-foot Tapes.....	each	\$3.50
" " " 300 " " .....	"	6.30

## Lufkin Challenge Junior Steel Tapes



Tape 1/4-inch wide. Genuine leather cases; nickel-plated trimmings and folding flush handle.

Nos. 1260 to 1266 are marked in feet, inches and 16ths, and Nos. 1260D to 1266D are marked in feet, 10ths, and 100ths, one side only.

Packed one in a box.

No.	Length Feet	Wt., Oz. Each	Price Each	No.	Length Feet	Wt., Oz. Each	Price Each
1260	25	4	\$4.70	1260D	25	4	\$4.70
1261	33	5	5.00	1261D	33	5	5.00
1263	50	7	5.70	1263D	50	7	5.70
1264	66	8	7.10	1264D	66	8	7.10
1265	75	9	7.50	1265D	75	9	7.50
1266	100	12	9.60	1266D	100	12	9.60

## Lufkin Rival Steel Tapes

Tape, 3/8-inch wide. Nickel-plated steel case; folding flush handle opened by pressing pin on opposite side. Cases have knurled edges which afford a firm hold when winding in tape. Measurements guaranteed accurate.

Nos. 240 to 246 are marked in feet, inches and 8ths, and Nos. 240D to 246D are marked in feet, 10ths and 100ths, one side only.

Packed 1 in a box.

No.	Length Feet	Wt., Oz. Each	Price Each	No.	Length Feet	Wt., Oz. Each	Price Each
240	25	8	\$4.45	240D	25	8	\$4.45
241	33	9	4.80	241D	33	9	4.80
243	50	11	5.40	243D	50	11	5.40
244	66	14	6.85	244D	66	14	6.85
245	75	15	7.20	245D	75	15	7.20
246	100	20	9.25	246D	100	20	9.25

## Lufkin Engineers' Pattern Steel Tapes



Metal lined, genuine leather cases; nickel-plated trimmings; folding flush handle, opened by pressing pin on opposite side; two detachable rings. Has 1/4-inch Nubian finished tape, which can be readily detached from case, and an extra ring is furnished for other end. The steel is heavier and stronger than used in regular steel tapes, and the cases are thinner.

Nos. 231 to 236 marked in feet, inches and 8ths, one side only.

Nos. 231D to 236D marked in feet, 10ths and 100ths, one side only.

Packed one in a box.

Cat. No.	Length Feet	Wt. Oz. Each	Price Each
231 and 231D	33	13	\$7.50
233 " 233D	50	17	8.75
234 " 234D	66	21	11.30
235 " 235D	75	22	12.50
236 " 236D	100	25	15.60

## No. 1407 Lufkin Special Linen Tapes

Mounted on perforated metal disc reel; nickel-plated finish; folding winding handle. Leather strap handle on back. Tape is 5/8-inch, marked one side only, feet and inches. Length, 150 feet. Packed 1 in box. Weight, 24 ounces. Price, No. 1407 Tape.....each \$15.00  
Price, No. 01407, Refill...each 8.00



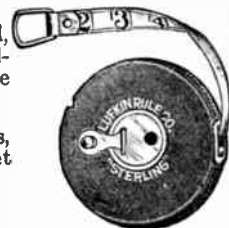
## Lufkin Sterling Linen Tapes

Case of genuine leather, metal lined, with folding flush handle and nickel-plated trimmings. Tape is 5/8 inch wide with leather reinforcement first end.

Series 400 marked feet and inches, one side only; series 400D, marked feet and 10ths, one side only.

Packed one in a box.

Cat. No.	Length Feet	Wt., Oz. Each	Price Each
400 and 400D	25	8	\$3.00
401 " 401D	33	11	3.35
403 " 403D	50	12	4.00
404 " 404D	66	17	4.70
405 " 405D	75	19	5.10
406 " 406D	100	24	6.00

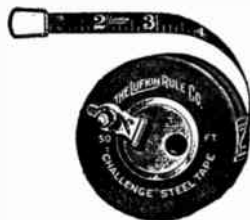


## Lufkin Challenge Steel Tapes

Has Nubian finished 3/8-inch steel tape. Metal lined genuine leather case, nickel-plated trimmings, folding flush handle. Measurements guaranteed accurate.

Nos. 260 to 266 are marked in feet, inches and eighths. Nos. 260D to 266D are marked in feet, 10ths and 100ths, one side only.

Packed one in a box.



No.	Length Feet	Price Each	No.	Length Feet	Price Each
260 and 260D	25	\$4.90	264 and 264D	66	\$7.50
261 and 261D	33	5.30	265 and 265D	75	7.80
263 and 263D	50	6.00	266 and 266D	100	10.20

**Beaver Square End Pipe Cutters**



This pipe cutter cuts like a lathe tool, each turn removing a thin shaving until the pipe is severed. Leaves no burr to be reamed or filed, or to reduce the capacity of the pipe, and threading dies start easily and with less wear.

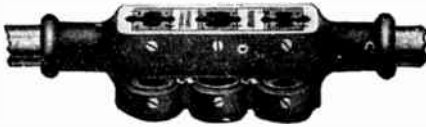
Rigid, simple and fool-proof in construction.

The knives give hundreds of cuts on the hardest pipe, and are easily resharpened

No.	Cap. Pipe In.	Price Each Complete	Knives Price per Set
1	1/8 to 1	\$18.00	\$1.20
5	1/2 " 2	20.00	1.50

**Trio Die Stocks for Pipe**

Bushings can be removed to clear couplings for threading close nipples. Regularly furnished with one stock, three Little Giant Pipe Dies and three bushings.



Briggs standard right-hand taper threads furnished unless otherwise specified. British (Whitworth) standard right-hand taper threads furnished at regular prices. Right and left-hand pipe dies are furnished at same list.

No.	Cutting Size, In.	Length Stock, In.	Weight Pounds	Price Each
200A	1/8, 1/4, 3/8	28	4 1/2	\$8.50
200B	1/4, 3/8, 1/2	28	4 1/2	8.50
210A	3/8, 1/2, 3/4	40	10	11.00
210B	1/2, 3/4, 1	40	10	11.00

**Beaver Self-Contained and Adjustable Die Stocks**

**No. 11 Plain and No. 11-A Ratchet 1 to 2-Inch**



No. 11, Plain

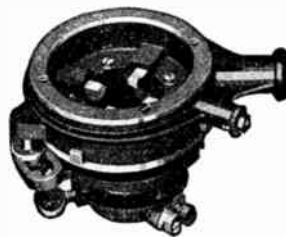
These die stocks pay for themselves by saving time and labor. They are fully self-contained, light in weight, easy working and simple in construction.

One set of dies is quickly set to thread 1, 1 1/4, 1 1/2 or 2 inches, saving time in changing dies. Dies cannot become lost; they are always in the tool. They are quickly adjusted to thread under or over

standard, without affecting length of thread.

Dies are high grade alloy steel, specially heat treated.

These tools accurately center the pipe in the tool for straight threads but the tool can be purposely adjusted to cut drip threads when desired. Two knurled screws are quickly set and held firmly to pipe size, leaving only the thumb screw to be tightened after the die stock is placed on the pipe. They eliminate loose parts. Will grip any size coupling for threading short nipples.



No. 11-A, Ratchet

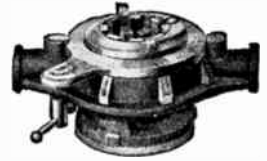
Price, No. 11, Plain Stock Complete.....each \$25.00  
Price, No. 11-A, Ratchet Stock Complete.....each 30.00

Extra dies, \$3.00 per set.

Left-hand tools and dies, add 15 per cent to list prices.

**No. 6 Beaverette Easy Working Die Stocks**

Threads all 4 sizes, 1/4 to 3/4-inch, without changing dies or bushings. A thread may be cut while changing dies in other tools. The 2 sets of dies covering the different thread pitches are held in one plate, instantly adjusted to any size by the single handle.

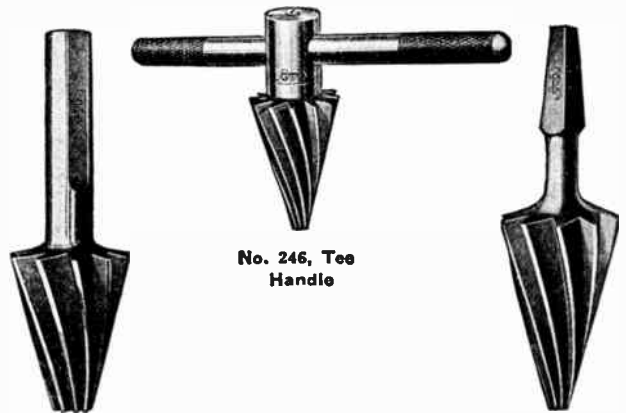


A universal centering device does away with loose bushings.

The No. 6 is a compact tool, complete without loose parts. Right or left hand, as specified.

Price, No. 6, Complete.....each \$15.00  
Price, Extra Lies, R. or L., 1/8 or 1/4x3/8 or 1/2x3/4 Inches.....per set 3.00

**G T D Spiral Fluted Burring Reamers**



No. 243, Half Round Shank

No. 246, Tee Handle

Nos. 241, 242, 242 1/2, 244 Bit Brace Shank

Made of high grade steel and designed for removing burrs caused by cutting pipe, and also for counter-sinking,

Ground to adapt them for use in a variety of materials. Spiral flute reduces chattering.

No.	Style of Shank	Capacity Pipe In.	Price Each	Price per Doz.
241	Bit Brace	1/8 to 1/2	\$1.00	\$12.00
242	Bit Brace	1/8 to 1	1.25	15.00
242 1/2	Bit Brace	1/4 to 1 1/4	1.50	18.00
243	1/2 Round	1/4 to 1 1/4	1.50	18.00
243 1/2	Round	1/4 to 1 1/4	1.50	18.00
244	Bit Brace	1/4 to 2	3.00	36.00
246	T Handle	1/4 to 2	4.00	48.00

**G T D Hinged Pipe Vises**

Made of malleable iron. The holes in the base of this vise are so placed that there is ample room to allow the use of an ordinary pipe wrench when bolting down to bench or post. The base is sufficiently strong to permit the omission of the front apron. Can be fastened back from edge.

Two lugs are cast on base so that frame and hook can be reversed.

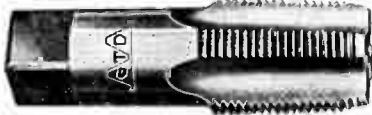
The jaws furnished with these vises are made of excellent tool steel.

Jaws are carefully hardened and tempered.



Cat. No.	Cap. In.	Wt. Lbs.	Price Each	Cat. No.	Cap. In.	Wt. Lbs.	Price Each
0	1/8 to 2	5	\$4.25	2	1/8 to 3 1/2	16	\$7.50
1	1/8 " 2 1/2	10 1/2	5.00	3	1/8 " 4 1/2	24	11.00

## G T D Pipe Taps and Reamers



Briggs standard right hand taper pipe threads furnished unless otherwise specified. British (Whit-

worth) standard furnished at regular prices. High speed steel pipe taps regularly furnished in Briggs standard taper, right hand only. Other high speed steel pipe taps are special and subject to special prices.

Right and left hand pipe taps at same list. Straight (plug) pipe taps at regular prices.

Size Pipe In.	No. OF THREADS TO INCH		Length Thread In.	Length Over All In.	PRICE, EACH TAPS OR REAMERS	
	Briggs Std.	Whitworth Std.			Carbon Steel	High Speed Steel
1/8	27	28	3/4	2 1/8	\$1.10	
1/4	18	19	1 1/8	2 7/16	1.20	1.50
3/8	18	19	1 3/8	2 9/16	1.60	1.95
1/2	14	14	1 3/8	3 1/8	2.00	3.10
5/8	..	14	1 3/8	3 3/16	2.80	**
3/4	14	14	1 3/8	3 1/2	2.80	4.40
7/8	..	14	1 9/16	3 1/2	4.40	**
1	11 1/2	11	1 3/4	3 3/4	4.40	7.80
1 1/4	11 1/2	11	1 3/4	4	5.00	12.10
1 1/2	11 1/2	11	1 3/4	4 1/4	6.60	16.60
1 3/4	..	11	1 3/4	4 3/8	8.00	**
2	11 1/2	11	1 3/4	4 1/2	10.00	27.25
2 1/4	..	11	2 1/8	5	12.00	**

\*\*Prices upon application.

## T & B Lakin Conduit Hickeys

The shank has a bushed hole into which the end of the conduit enters when a short bend is made at its end or a bend is to be worked down.

The bushed opening in the shank fits snugly over the end of the conduit and protects the threads.

This hickey will not slip on the conduit while a bend is being made. It enables a workman to make bends having different curvatures. It will not kink the pipe when making the shortest practical bends.

Made of malleable iron. Japanned finish.



Cat. No.	Size Pipe Inches	Unit Pkg.	Std. Pkg.	Wt., Lbs. per 100	Price Each
335	1/2	1	10	163	\$1.75
336	3/4	1	10	191	2.25
337	1	1	2	520	3.25

## No. 339 T & B Standard Conduit Elbow Formers

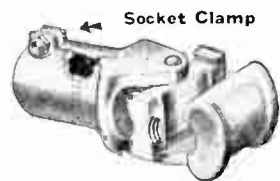
For 1/2 and 3/4-Inch Conduit



Forms standard shaped elbows perfectly and accurately, exactly where desired. Saves time and material by eliminating the waste of pipe. Weight, 31 pounds.

Price, No. 339, Complete....each \$45.00

## No. 625 Latrobe Hand Conduit Benders



Showing Socket Clamp

This bender combines 2 tools in 1. By reversing the movable jaw it can be used for bending either 1/2 or 3/4-inch conduit. It will not slip or kink the pipe. A deep socket, threaded internally at bottom, for 1-inch pipe handle eliminates couplings and insures full strength of handle.

The socket clamp is a new feature to insure tight fit on undersize pipe handle and to prevent handle from unscrewing.

Made of certified malleable iron, guaranteed not to break. Galvanized finish.

Packed in full telescoping carton. Standard package, 15 benders in corrugated case. Weight each, 3 3/4 pounds.

Price, No. 625 Bender.....each \$3.00  
Price, No. 626 Reversible Jaw and Pin for 625...each .50

## Fullman Conduit Benders

Made in 2 forms as listed. Furnished complete with riveted handles. The castings are malleable iron.

Cat. No.	Size In.	Form	Wt. Lbs.	Price Each
900	1/2	90°	8	\$3.20
901	1/2	45°	8	3.20
902	3/4	90°	12	4.30
903	3/4	45°	12	4.30



## Henderson Patent Tubenders

This tubender is designed to bend electrical metallic tubing without kinking, flattening or slipping. The side outlet makes it easy to take out the conduit and check the bends at any time. There are deep, snug-fitting bending grooves on both the front extension and the rear. The rear groove is extended so as to give the conduit proper support during the bending operation. The grooves are shaped and the bending elements are spaced so as to keep the conduit circular in cross section while it is being bent.

Handles are not furnished.



Size, Thread for Pipe Handle.. in.	3/8	1/2	3/4	1
Price.....each	\$1.50	1.75	2.25	3.50

## Henderson Patent OK Elbow Formers



For rapid and accurate bending of conduit elbows, offsets or angles in any combination. Will bend a standard radius conduit elbow in a few seconds.

The patented design of the bending groove prevents slipping, flattening and kinking, while the curve of the groove is the same as a standard conduit elbow.

Prices are for elbow former heads only, and do not include pipe braces or handles. Handles should be about 40 inches long.

Size.....inches	1/2	3/4	1
Threaded for Pipe Brace.....inches	1	1 3/4	1 1/2
Price.....each	\$4.50	6.00	7.50

## Henderson Turnbuckle Pipe and Conduit Benches



Style No. 2

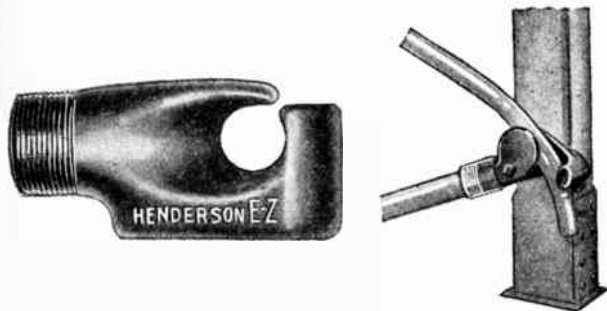
STYLE No. 1.—Furnished with two detachable bending blocks for 1/2 and 3/4-inch conduit; capacity of pipe vise, 2 inches. Height, 45 inches. Weight, 45 pounds.

Price, No. 1.....each \$30.00

STYLE No. 2.—Furnished with five detachable bending blocks for 1/2, 3/4, 1, 1 1/4 and 1 1/2-inch conduit; capacity of pipe vise, 3 1/2 inches. Height, 45 inches. Weight, 170 pounds.

Price, No. 2.....each \$120.00

**Henderson EZ Conduit Benders**



Type EZ is a combination hand hickey and stationary bender in the 1/2, 3/4 and 1-inch sizes, and a stationary bender in the 1 1/4, 1 1/2 and 2-inch sizes. Bends elbows or offsets, or any combination of elbows or offsets. The deep close-fitting bending grooves automatically grip the conduit while bending, entirely preventing kinking, flattening or slipping.

Size Inches	Description	Std. Pkg.	Price Each
1/2	Threaded for Pipe Handle	10	\$2.00
3/4	Threaded for Pipe Handle	5	2.50
1	Threaded for Pipe Handle	3	5.00
1 1/4	Threaded for Pipe Brace	1	10.00
1 1/2	Threaded for Pipe Brace	1	15.00
2	Threaded for Pipe Brace	1	20.00

**Henderson Portable K-D Pipe Benches**

For electricians, gas-fitters, millwrights and all mechanics who cut and thread pipe. The K-D bench can be assembled in a few minutes, saving at least half an hour's time in starting a job as no time is wasted in rigging up a place to mount a pipe vise. When not in use the K-D can be taken apart and stored in a small place.



Height, 39 inches. Top, 33x9 1/2x1 1/2 inches, hardwood, finished.

Weight, 55 pounds.

Price.....each \$30.00

**Henderson XL Conduit Benders**

The Henderson XL Conduit Benders are stationary benders. Fasten with lag screws or bolts through the clearance holes in the base, to any suitable support. Simple, powerful and efficient. Designed for hardest service. Heavy base plate. Side outlet. Deep, close fitting bending grooves.



Style No. 1

Style No. 1

Furnished with 3 detachable bending blocks for 1/2, 3/4 and 1-inch conduit, complete with lag screws.

Weight, 18 pounds.

Price, Style No. 1. ea. \$10.00

**Giant Style No. 2**

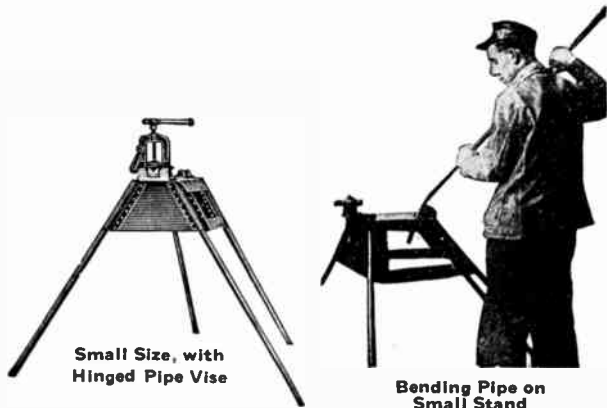
Furnished with 5 detachable bending blocks for 1/2, 3/4, 1, 1 1/4 and 1 1/2-inch conduit, complete with lag screws.

Weight, 100 pounds.

Price, Giant Style No.

2.....each \$45.00

**Martin Portable Vise Stand and Pipe Bender**



Small Size, with Hinged Pipe Vise

Bending Pipe on Small Stand



Large Size, with Hinged Pipe Vise and Rear Support

This apparatus is designed for use wherever pipe must be cut, threaded or bent. It can be picked up at any time and moved from place to place. There are no bolts, screws or braces to remove. It does not have to be fastened to the floor, walls or ceiling. It will not tilt, upset or skid.

It is convenient for cutting and threading pipe. For these operations, the pipe is fastened in the vise and rests in the bending attachment which keeps it rigid and in line.

**Small Size**

Equipped with a special device which will bend pipe from 1/8 to 3/4-inch diameter easily without kinking. Capacity, with chain vise, 2-inch pipe; with hinged vise, 2 1/2-inch pipe.

Weight complete, with hinged vise, 54 pounds; with chain vise, 50 pounds. Rear support not supplied.

Cat. No.	Description	Price Each
1A	Complete with Hinged Vise	\$39.00
1B	Stand with Hinged Vise, Less Legs	35.00
*1C	Stand with Legs, Less Vise	31.00
*1D	Stand Less Legs, Less Vise	27.00
1E	Complete with Chain Vise	39.00
1F	Stand with Chain Vise, Less Legs	35.00
†1G	Stand with Legs, Less Vise	31.00
†1H	Stand Less Legs, Less Vise	27.00

**Large Size**

Capacity with chain vise, 4 inches; with hinged vise, 4 1/2 inches. Bender capacity, one inch. Weight complete, with hinged vise, 175 pounds; with chain vise, 159 pounds.

Cat. No.	Description	Price Each
2A	Complete with Hinged Vise	\$90.00
*2B	Stand with Legs and Rear Support, Less Vise	75.00
2C	Stand with Legs and Hinged Vise, Less Rear Support	71.00
2D	Stand with Hinged Vise, Less Legs and Rear Support	65.00
*2E	Stand with Legs, Less Vise and Rear Support	56.00
*2F	Stand Only, Less Vise Legs and Rear Support	50.00
2G	Complete with Chain Vise	90.00
†2H	Stand with Legs and Rear Support, Less Vise	75.00
2K	Stand with Legs and Chain Vise, Less Rear Support	71.00
2L	Stand with Chain Vise, Less Legs and Rear Support	65.00
†2M	Stand with Legs, Less Vise and Rear Support	56.00
†2N	Stand Only, Less Vise, Legs and Rear Support	50.00

\*Drilled for hinged vise. †Drilled for chain vise.



## Henderson Patent Joist Boring Machines

A portable hand tool, adjustable from 4½ to 12 feet. Will bore a hole straight through an overhead joist.

Ballbearings, with adjustable take-up for wear. Floating chain drive. Universal bit holder, uses standard bits. Positive reverse to back bit out. Weight, 17 pounds. Price, Boring Machine..... each \$25.00

### Boring Machine Parts—Heads Complete

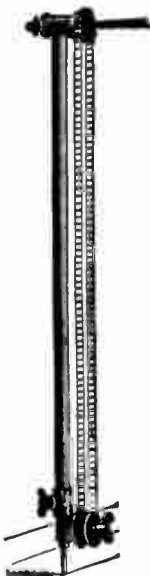
Assembled, mounted in bearing tee, including threaded hollow shaft, sprocket, two cones, two cups, lock washer, jam nut, steel balls, cotter pin, and two-jaw chuck. Price, Head Complete..... each \$12.50

### Head Fittings

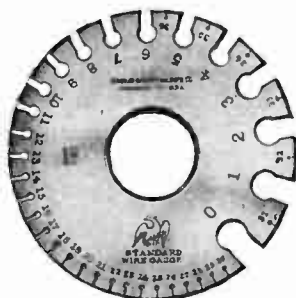
Furnished mounted on hollow shaft, including sprocket, two cones, two cups, lock washer, jam nut, steel balls, cotter pin, and two-jaw chuck. Price, Head Fittings..... each \$8.00

### Miscellaneous Parts

- Price, Bearing Tee, Complete each \$4.50
- " Threaded Hollow Shaft. " 3.00
- " Sprocket..... 2.50
- " Cones..... per pair 1.50
- " Cups..... " 1.50
- " Lock Washer..... each .40
- " Set of 40 Steel Balls..... .80
- " Chuck, Complete..... each .85
- " Cotter Pin..... " .10
- " Tee for Middle Joint... " 2.00
- " Thumb Screw for Middle Joint..... each 1.20
- Price, Nickel Plated Tee for Holding Axle for Fibre Pulley... each 2.00
- Price, Thumb Bolt for Pulley Axle and Tightening Extension... each 1.20
- Price, Fibre Pulley to hold Lower Curve of the Chain..... each 2.00
- Price, Complete Chain..... " 6.00
- " Chain..... per foot .36



## No. 688 Brown & Sharpe American Standard Wire Gauges



Nos. 0 to 36

Adopted by the brass manufacturers, January, 1858.

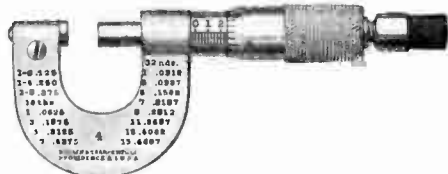
Gauge numbers are stamped on one side and decimal equivalents on the reverse side.

Small sizes are packed 1 dozen in a box; large sizes are packed 6 in a box.

Price, No. 688, for Gauges 0 to 36..... each \$3.00

Price, No. 688, for Gauges 5 to 36..... each 2.50

## No. 4 Brown & Sharpe Micrometer Calipers



Measures all sizes less than one-half inch by thousandths of an inch.

Packed one in a box.

Price, No. 4, Plain without Ratchet Stop..... each \$7.00  
 " " 4RS, with Ratchet Stop..... " 7.50  
 " Leather Case..... " 1.20

## C & L Double Needle Torches

No. 208, 1-Quart Capacity  
 No. 210, 1-Pint Capacity  
 For Gasoline

The improved double needle burner generates from 200 to 300 degrees more heat. Both needles are blunt, which makes it impossible to ruin the burner by enlarging the orifice. The upper needle has a wire tip that cleans the orifice; lower needle regulates the flame. Ideal for cold and windy weather.



No..... 208 210  
 Capacity..... 1 Qt. 1 Pt.  
 Ship. Wt..... lbs. 5½ 4½  
 Price..... each \$19.00 18.00

## C & L Single Needle Torches

No. 32, 1-Quart Capacity  
 No. 38, 1-Pint Capacity  
 For Gasoline

Burner produces a greater degree of heat and is self-cleaning. Valve seat is away from orifice in jet block, hence it is impossible to enlarge orifice by forcing needle into it, thus ruining the burner. Torch burns the lower grades of fuel perfectly. Not affected by wind or cold.



Tank is heavy gauge drawn brass reinforced both inside and out.  
 No..... 32 38  
 Capacity..... 1 Qt. 1 Pt.  
 Ship. Wt..... lbs. 5 4  
 Price..... each \$18.00 17.00

## C & L Single Needle Torches

No. 130, 1-Quart Capacity  
 For Gasoline

This torch has tapered burner tube with undergenerator. The burner is made of bronze metal and produces a steady blue flame. The needle, which is sharp pointed, is fitted with stuffing box to prevent leakage. Hook is removable. The tank is of seamless drawn brass, fitted with automatic brass pump, having patented double spring check valve. Concave bottom serves as a funnel in filling.



No..... 130  
 Capacity..... 1 Qt.  
 Ship. Wt..... lbs. 4¾  
 Price..... each \$17.00

## C & L Everedy Single Needle Torches

No. 158, 1-Quart Capacity  
 For Gasoline

For use in the workshop and around the home.

Burner is of bronze and produces a clear blue flame of intense heat. It is of the under-generator type, the gas being super-heated as it passes through the burner veins. Any standard grade of motor fuel may be used.



Tank is of heavy gauge drawn brass. C & L double-spring automatic type pump.  
 No..... 158  
 Capacity..... quarts 1  
 Shipping Weight..... pounds 4½  
 Price..... each \$11.12

**C & L Single Needle Flat Tank Torches**

**No. 48S, 1-Pint Capacity**

For Gasoline



This torch is especially adapted for close work in corners where the ordinary torch cannot be used, for carrying in the tool box or kit and for electricians and emergency use. It is oblong, 1 1/4 inches thick, 5 inches long and stands 8 1/2 inches high, complete with burner. The pump, which forms part of the handle, is automatic. Hook is removable.

No. .... 48S  
Capacity..... 1 Pt.  
Ship. Wt..... lbs. 4 1/4  
Price..... each \$22.00

**No. 28 C & L Single Needle Fire Pots**

**1-Gallon Capacity**

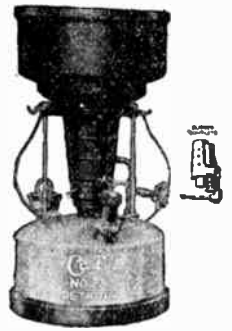
For Kerosene

Burner superheats the kerosene gas before it is burned, producing perfect combustion and the maximum degree of heat. Heavy gauge seamless drawn steel tank, fitted with cushion protection band preventing injury to base of tank. Pump, large funnel and filler plug having dust-proof cap.

Has extra large shield and top plate with extended lugs.

Takes an 8-inch metal pot.

Gasoline jet is also supplied.



No. .... 28  
Capacity..... 1 Gallon  
Shipping Weight... pounds 17 1/4  
Price..... each \$38.60

**No. 91 C & L Single Needle Fire Pots**

For Gasoline

The burner has great generating power and burns either high or low test gasoline. A swivel permits turning the burner up or down. The top section is of steel and can be quickly removed by loosening a set screw, and base with burner used as an open fire.

The heavy gauge drawn steel tank is tinned inside and out, which prevents rust. It is strongly reinforced and fitted at base with patented cushion band. Heats a pair of 12-pound soldering coppers and pot of lead at same time.

No. .... 91  
Shipping Weight... pounds 14 1/2  
Price..... each \$33.00



Capacity 1 Gallon

**No. 70 C & L Firepots**

**1-Gallon Capacity—With Tinner's Hood**

For Gasoline

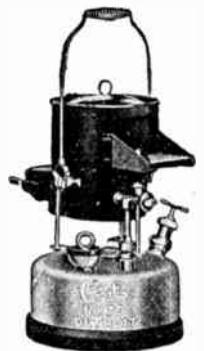
Designed especially for the use of tinner, roofers and cornice workers.

Starts quickly and is ready for use in 90 seconds. Produces a perfect blue flame of intense heat and can be turned up or down at will.

The firepot cannot carbonize even under constant use. It is noiseless in operation and entirely free from smoke or odor.

Will operate at full capacity for 6 hours on a single gallon of fuel.

No. .... 70  
Capacity..... 1 Gallon  
Shipping Weight... pounds 17  
Price..... each \$35.55



**C & L Coil Fire Pots**

**No. 22, Pump Type—No. 12, Bulb Type**  
**1-Gallon Capacity**

For Gasoline

The drawn steel tank is leak-proof and heavily coated with tin inside and out. This prevents rust that works up into the coil and burner, which is a cause of frequent clogging. Pump is extra large and powerful, producing air pressure quickly. Patented three-piece coil cup and shield are of heavy steel. Uprights and fittings are extra heavy.

No. 12 is exactly like No. 22 but fitted with air valve and bulb.

No. .... 22 12  
Capacity..... 1 Gal. 1 Gal.  
Ship. Wt..... lbs. 12 3/4 12 1/2  
Price..... each \$25.00 24.80



No. 22

**No. 3428 Klein's Torches**

**1-Quart Capacity**

For Gasoline

Double length generating channels which quickly vaporize the fuel are a patented feature. Produces an intensely hot flame which can be regulated from minimum to full blast. Will not back generate. Cleaning plugs at all angles. Needle has positive shoulder stop preventing damage to burner by enlarging orifice.

Pump is well made and sturdy.

Tank is heavy gauge copper, capacity, 1 quart.

Weight, 4 1/2 pounds.

Price, No. 3428..... each .....



U.S. PAT. NO. 1676-352

**No. 23 C & L Coil Fire Pots**

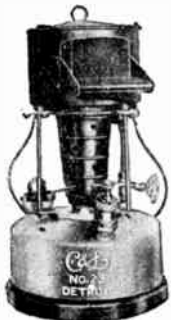
For Gasoline

The No. 23 Coil Fire Pot has all of the latest patented features.

It is fitted with tinner's shield which is of sheet steel, and will quickly heat a pair of large size soldering coppers. The shield is removable, thus making the fire pot excellently adapted to melting metals and various other work.

Pump is extra large and powerful, producing air pressure quickly. Drawn steel tank is leak-proof and heavily coated with tin inside and out.

No. .... 23  
Shipping Weight... pounds 13 1/4  
Price..... each \$30.20



**Klein's Furnaces**

**1-Gallon Capacity**

For Gasoline

Sturdy construction made especially for field use.

Quick starting is ensured by multi-coil burner which is economical and vaporizes the fuel thoroughly producing an intensely hot fire. Simple cleaning device to remove carbon deposit without taking burner apart. Filler cap has needle shut-off valve and check combination; 1-gallon capacity tank formed of heavy gauge steel with bottom rolled in. All fittings are brazed. Shipped complete with shield unless otherwise ordered.

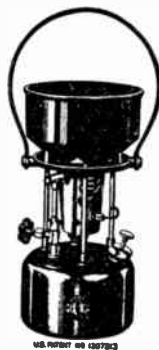
Price, No. 3528-G, with Pump Separator, Weight, 12 1/2 Pounds..... each .....

Price, No. 3529-G, Pump in Fount, Weight, 12 Pounds..... each .....



U.S. PATENT NO. 3272-13

## Klein's Furnaces 1-Gallon Capacity For Kerosene



Sturdily made to stand up to the field requirements of Public Utility Companies. Quick starting is ensured by multi-coil burner which is economical and vaporizes the fuel thoroughly producing an intensely hot fire. Filler cap has needle shut-off valve and check combination. The tank is formed of heavy gauge steel with bottom rolled in. A simple cleaning device is used to remove carbon deposit without taking burner apart.

All fittings are brazed. Shipped complete with shield unless otherwise ordered.  
Price, No. 3530-K, with Pump Separate, Weight, 15½ Pounds. each .....  
Price, No. 3531-K, Pump in Fount, Weight, 15 Pounds. .... each .....

## No. 3000 Pumps for Klein Furnaces

Has brass barrel and plunger. Weight, ½ pound.  
Price, No. 3000. .... each .....



## Shields for Klein Furnaces

Weight No. 3010, 3 pounds; No. 3011, 2½ pounds.  
Price, No. 3010, for Gasoline Furnace. .... each .....  
Price, No. 3011, for Kerosene Furnace. .... each .....

## Metal Melting Pots



These Metal Pots are of the deep pattern and hold sufficient metal or solder for all practical purposes, and fit any make of fire pot or furnace.

The 6-inch pot is the right size to fit the No. 1, large shield of Nos. 22 and 23 coil fire pots, also fire pots Nos. 1, 60, 70, 91, 26 and 27.

Price, 5-Inch. .... each \$1.65  
Price, 6-Inch. .... each 2.00  
Price, 7-Inch. .... each 5.00

## Wrought Steel Melting Ladles Double Lip, Extra Deep



No. ....	10	20	30	40	60	80
Size. .... inches	2½	3	3½	4	5	6
Price. .... each	\$1.00	1.20	1.40	1.60	2.10	2.40

## Soldering Coppers



Furnished without handle but having an iron rod fastened to the head, ready to be driven into a wooden handle. Supplied in all sizes. Prices upon application.

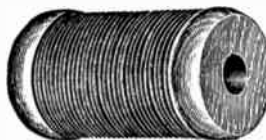
## Bar Solder



An alloy of tin and lead, made up in the form of bars for convenience in handling, for making soldered joints in metals, such as lead piping systems, for cable splices and other heavy work.

Price, Solder in Regular Bars. .... per pound \$1.00

## Wire Solder



This solder is an alloy of tin and lead, and is furnished in the form of thin wire for the convenience of wiremen and other electricians in making small joints in conductors and other apparatus.

Price, Wire Solder. .... per pound \$1.00

## Resin Core Flux Solder



This solder is provided with a core of resin which melts on the application of heat and prevents the formation of oxides, thus permitting the making of a strong bond between the metals.

Price, 1-pound Spools. .... per pound \$1.00  
5 " " and Over ..... per pound 1.00

## Burnley's Soldering Sticks



Price, 3 Dozen to 1 Gross. .... each \$1.15  
" 1-gross Lots. .... " .14  
" 2 or 4-gross Lots. .... " .13  
" 8-gross Lots and Over. .... " .12

## Burnley Soldering Paste

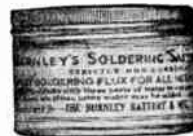


Requires no preparation, always ready for instant use.

Size Can	Price Each	Size Can	Price Each
2-Oz.	\$ .30	5-Pound	\$6.50
4-Oz.	.50	10-Pound	.....
½-Pound	.90	50-Pound	.....
1-Pound	1.40		

## Burnley's Soldering Salts

Size Can Lbs.	PRICE PER POUND			
	QUANTITY, POUNDS			
	1 to 25	25 to 100	100 to 300	300 Lbs. and over
1/2	\$ .56	\$ .50	\$ .46	\$ .42
1	.54	.48	.44	.40
5	.48	.42	.38	.36



## Nokorode Soldering Paste

This paste will flux all metals except aluminum. It takes the place of acid in all soldering jobs. Non-corrosive, safe as resin and rapid as acid. Not affected by heat and does not spatter. The solder will not turn dark after using.



Size Can	Standard Package	Price Each	Price per Carton
2 Oz.	36 to Carton	\$ .15	\$3.60
1 Lb.	6 to Carton	.90	Lb. 4.50
10 Lb.	Any Quantity	.50	Lb. ....
25 Lb.	Any Quantity	.45	Lb. ....
50 Lb.	Any Quantity	.43	Lb. ....
500 Lb.	In Barrel	.40	Lb. ....

**Early's Commutator Cement**



This cement will stand 3200° F. before it will fuse. Its strength is many hundred pounds to the square inch. It resists oil and moisture, and is not affected by gradual expansion and contractions of heat and cold.

Dielectric strength equals that of porcelain.

No special tools or appliances are required. The operation is simple, if directions are followed.

For outside work and damp places give the job a coat of weatherproof insulating paint.

The dryer the cement the better the insulation.

This cement can be used to repair glass, porcelain, metal and all other materials except rubber, vulcanite and black lead.

Price, 1-Pound Package, Size 2½x 5¾ Inches.... each \$2.50  
Price, 7-Pound Package, Size 5 x10½ Inches.... each 10.00

**Allen Commutator Lubricant Sticks**



Prevents sparking and cures it when applied properly. It prevents cutting by lubricating the commutator surfaces.

Description	Price Each
For Copper or Carbon Brushes.....	\$ .30

**Crescent Chatterton Compound**

This is an insulating material used chiefly in submarine cable construction to fill the interstices between the strands of the cable conductors.



No. 1 Domestic..... per lb. \$2.00

**Manson Tape**

Manson Tape is a rubber filled cloth tape for protecting joints against mechanical injury. Easily handled and economical to use.

Color	Width Inches	Weight Pounds per Roll	Price per Pound
Black	¾	½	\$1.10
White	¾	½	1.10



**Okonite Rubber Tape**

A rubber tape of the highest class for making splices or joints which, when properly made, are impervious to moisture.

Color	Width Inches	Lbs. per Roll	Price per Lb.
Black	¾	½	\$1.70



**P & B Waterproof Tape**

A tape especially adapted for hard service. Will not vulcanize with heat, or become defective by exposure or use, will not dry and crack or harden; water, acid and alkali-proof.

Color	Width Inches	Lbs. per Roll	Price per Lb.
Black	¾	½	\$ .75

**Sticka Black Friction Tape**



For all ordinary commercial work. Used to protect the splicing compound on a wire joint from abrasion.

Roll contains ½ pound gross of ¾-inch tape, length 56 feet to a roll.

Price..... per pound \$ .90

**Victor Black Friction Tape**

Protects the splicing compound on wire joints from abrasion. Suitable for ordinary commercial work.

Roll contains ½ pound net of ¾-inch tape, 75 feet to a roll.

Price..... per pound \$1.00



**Amazon Black Friction Tape**

This is a good quality tape and will pass the majority of specifications in use.

Standard rolls contain ½ pound net of ¾-inch tape, which is 84 feet to a roll.

Price..... per pound \$1.25



**Victor Black Rubber Splicing Tape**

A commercial grade, unvulcanized compound. Will fuse into a homogeneous mass at average air temperature under heat of the fingers. Half-pound roll gross, .030 inch thick, 20 feet to a roll. Packed in 50 pound cartons.

Price..... per pound \$1.00



**Amazon Gray Rubber Splicing Tape**

A compound partially vulcanized which increases dielectric and tensile strength. The adjacent layers adhere readily on a joint and after a few minutes become a solid, homogeneous mass. Roll weight ½ pound net, ¾-inch tape, 22½ feet to roll.

Price..... per pound \$1.25



**Grimshaw Tape**

Standard rolls contain ½ pound of ¾-inch tape.

Description	Price per Pound
Black Friction Tape	\$1.00
White "	1.05
Splicing Compound (Rubber Tape)	1.10



**Competition Tape**

This is a good grade of tape furnished in ½-pound rolls in the ¾-inch width.

Description	Price per Pound
Black Friction Tape	\$ .75
White "	.80
Splicing Compound (Rubber Tape)	.85



**Hydr-Proof Tape**

Width of tape is ¾ inch.

Packed in containers of ½-pound rolls.

This tape, as its name indicates, is waterproof and its uses are many.

Price..... per pound \$1.00



## Hope Linen Finished Tape

.007 Thick

Width Inches	CATALOGUE NUMBERS			Light Weight
	Extra	Standard	Special	
3/8		19154		
1/2	23814	13869	27029	11822
5/8	23815	19002		11821
3/4	23816	13870	26661	11820
7/8		15845		
1	23817	13871	26662	14002
1 1/4		14769		
1 1/2		13872	26663	14003
2		17974		

## Linen Finished Tape

CATALOGUE NUMBERS

Width Inches	CATALOGUE NUMBERS		Special 0.5 Thick	Width Inches	Catalogue Numbers Unbleached .0045 Thick
	Standard .005 Thick	Special 0.5 Thick			
1/4	25001			1/4	24931
3/8	8769			3/8	24932
7/16				7/16	24933
1/2			25278	1/2	24934
5/8	25002			5/8	24935
3/4	25003		25284	3/4	24936
7/8	25004			7/8	
1	8844		16061	1	
1 1/4	25005			1 1/4	

## Hope Webbing

Width Inches	CATALOGUE NUMBERS					
	Herring-bone	Medium Twill	Medium Twill Calandered	Fine	Extra Heavy	Heavy
1/4	22386	25006		21787		
1/2	22390	25007		21790		
5/8	22392			21792		18376
3/4	22394	13100	4238	21794	19451	18375
7/8	22396		17339	21796		
1	22398	16628		21798		
1 1/4					7251	8730
1 1/2					11838	9982
1 5/8					1258	1613
1 3/4						9980
1 7/8						17973
2						18185
2 1/2						6352
3						9999
						25301
						25302

Width Inches	CATALOGUE NUMBERS				
	Special Service	Standard Non-Elastic	Special Non-Elastic	Light Twill	Standard Service
1/2		25014			7699
5/8		25015			18460
3/4	19003	25016	25020		5281
1	15618	25018	13238	6291	5224
1 1/4	19004	4096	14671	6290	5298
1 1/2	18146	25019	25021	6289	8870
1 3/4		4097			
2	18486	4098	19006	4544	9058
2 1/4	19750				10449
2 1/2	16139				15859
2 3/4	16130				
3					15861

## Hope Grey Cotton Sleeving

Cat. No.	Covers Size Wire	Approx. Yards per Lb.	Cat. No.	Covers Size Wire	Approx. Yards per Lb.
1	11-12-13	240	9	1-2	105
2	7-8-9	180	10	1-0	65
3	9-10	175	11	1-0	60
4	5-6-7	210	12	2 No. 0	50
5	5	115	13	6-7	160
6	3-4	110	..	..	..

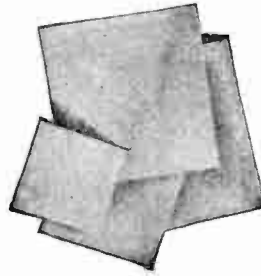
Also furnished in red, blue and black.

Standard package, 5-pound spool.

## Vulcanized Fibre Sheets

Red, Black or Gray

Intermediate sizes at price of next thinner, except that on sizes from 1/8-inch and up a variation of .015 inch or less will not be considered intermediate, and will take the price of the nearest standard thickness. Extra charge for cutting.



Thickness In.	Price per Lb.	Thickness In.	Price per Lb.	Thickness In.	Price per Lb.
.005	\$.50	.075	\$.50	7/8	\$.70
.010	.50	.100	.50	1	.76
.015	.50	1/8	.50	1 1/8	.86
.020	.50	3/8	.51	1 1/4	1.00
.025	.50	1/4	.51	1 3/8	1.15
.030	.50	5/16	.51	1 1/2	1.30
.035	.50	3/8	.53	1 5/8	1.50
.040	.50	1/2	.56	1 3/4	1.80
.045	.50	5/8	.60	1 7/8	2.20
.060	.50	3/4	.66	2	2.60

## Approximate Weight of Sheets

Thickness In.	Wt. Lbs.	Thickness In.	Wt. Lbs.	Thickness In.	Wt. Lbs.	Thickness In.	Wt. Lbs.
.005	8	.035	5.6	1/8	20	5/8	100
.010	1.6	.040	6.4	3/16	30	3/4	120
.015	2.4	.045	7.2	1/4	40	7/8	138
.020	3.2	.060	9.6	5/16	50	1	155
.025	4.	.075	12.	3/8	60	1 1/8	175
.030	4.8	.100	16.	1/2	80	1 1/4	195
						1 1/2	215
						1 3/4	235
						1 5/8	250
						1 7/8	275
						2	290
							315

## Approximate Size of Sheets

.005 to .120 inch thick, 48x80 inches; 1/8 to 3/4 inch thick, 44x70 inches; 5/8 to 2 inches thick, 46x76 inches.

We can also furnish fibre up to .025 inch thick, in rolls about 46 inches wide.

## Vulcanized Fibre Rods

Red, Black or Gray

Diameter Inches	Feet per Pound	Price per Foot	Diameter Inches	Feet per Pound	Price per Foot
3/32	241	\$.34	15/16	2.4	\$2.20
1/8	136	.34	1	2.1	2.60
3/16	60	.34	1 1/8	1.7	3.20
1/4	34	.36	1 1/4	1.4	4.00
5/16	22	.40	1 3/8	1.1	4.80
3/8	15	.44	1 1/2	.94	5.00
7/16	11	.54	1 5/8	.80	7.00
1/2	8.5	.66	1 3/4	.69	9.00
9/16	6.7	.80	1 7/8	.60	13.00
5/8	5.4	.94	2	.53	17.00
1 1/16	4.5	1.12	2 1/8	.47	21.00
3/4	3.8	1.36	2 1/4	.42	25.00
13/16	3.2	1.60	2 3/8	.38	29.00
7/8	2.8	1.88	2 1/2	.34	33.00

## Vulcanized Fibre Tubing

Red, Black or Gray

Inside Diam. In.	PRICE, PER FOOT WALL, INCHES					
	1/16	3/32	1/8	5/32	3/16	7/32
1/4	\$.24	\$.28	\$.36	\$.44	\$.52	..
3/8	.28	.32	.42	.52	.62	..
1/2	.32	.36	.48	.60	.72	\$.84
5/8	.36	.42	.56	.70	.84	.98
3/4	.42	.48	.64	.80	.96	1.12
1	.50	.60	.80	1.00	1.20	1.40
1 1/4	.58	.72	.96	1.20	1.44	1.68
1 1/2	.64	.84	1.12	1.40	1.68	1.96
						2.24

Prices for intermediate and larger sizes quoted on application.

**Nos. 1 and 11 India Micanite Plate  
For Molding**

No. 1 India Micanite Plate has a smooth surface which does not show any detrimental amount of loose laminations. It softens sufficiently at 140 degrees C. or 284 degrees F. to be readily molded to ordinary shapes without chipping, cracking or breaking.

It is carefully milled to specified thickness, allowing a variation of .002-inch in isolated spots on the thin sizes below .060-inch, and from .003-inch to .005-inch on sizes .060-inch and up.

Average puncture voltage per .001-inch runs from 900 volts on the thinner sizes to 800 volts on the thicker sizes. It must not be used for insulation between copper bars of commutators.

No. 11 India Micanite Plate is made of the same quality of mica films and cement that are used in our No. 1 Plate, but it is not as exact to thickness, and is not made in as many thicknesses. It varies in thickness from plus or minus .003-inch in the case of the .010-inch thick; .005-inch in the case of the 1/32-inch; to plus or minus .010-inch in the case of the 1/8-inch thick.

It becomes flexible when heated, is readily formed into shapes, and is suitable for all general purposes where a variation in thickness is permissible, except for commutator segments, for which it is not intended.

Average puncture voltage, 800 to 900 volts per .001-inch.

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1202	.020	0.508	1.05	\$3.00
1203	.025	0.635	1.3	2.55
1204	.030	0.762	1.6	2.10
1205	1/32	0.79	1.7	2.10
1206	.035	0.889	1.85	2.10
1207	.040	1.016	2.1	1.95
1208	.045	1.143	2.35	1.95
1210	.050	1.27	2.65	1.95
1213	1/16	1.58	3.3	1.70
1216	3/32	2.38	5.	1.70
1217	1/8	3.17	6.5	1.70

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1218	.010	0.254	.503	\$3.00
1219	.015	0.381	.748	2.75
1220	.020	0.508	.946	2.40
1223	1/32	0.79	1.64	1.70
1227	3/32	1.185	2.42	1.60
1231	1/16	1.58	3.32	1.45
1234	3/32	2.38	4.92	1.45
1235	1/8	3.17	6.22	1.45

Nos. 1 and 11 Micanite Plate furnished in special thicknesses, sizes and patterns. Prices quoted upon application.

**No. 2 India Micanite Plate  
For Commutator Segment Insulation**

No. 2 Micanite Plate is made of India Mica, as this variety is recognized as standard for electrical insulation where muscovite mica is used.

It is closely milled and the average thickness will not vary more than .0005-inch from specified thickness. Individual plates will not vary more than .001-inch above or .0015-inch below thickness specified in isolated spots. It cannot be molded.

Its average puncture voltage per .001-inch runs from 900 volts on the thinner sizes, to 800 volts on the thicker sizes.

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1238	.020	0.508	1.2	\$2.65
1239	.025	0.635	1.5	2.45
1240	.030	0.762	1.8	2.20
1241	1/32	0.79	1.9	2.20
1242	.035	0.889	2.1	2.20
1243	.040	1.016	2.4	1.90
1244	.045	1.143	2.7	1.90
1245	1/32	1.185	2.85	1.90
1246	.050	1.27	3.	1.90
1248	.060	1.524	3.6	1.90
1249	1/16	1.58	3.8	1.90

No. 2 Micanite Plate can be furnished in special thicknesses, sizes, or patterns. Prices quoted upon application.

**No. 3 Amber Micanite Plate  
For Commutator Segment Insulation**

No. 3 Amber Micanite Plate is made of phlogopite or amber mica, which is softer than the muscovite and presents less liability of failure to wear down evenly with the copper bars.

It is closely milled and the average thickness will not vary more than .0005-inch from the specified thickness. Individual plates will not vary in isolated spots more than .001-inch above or .0015-in. below thickness specified. It cannot be molded.

Its average puncture voltage per .001-inch runs from 850 volts on the thinner sizes to 700 volts on the thicker sizes.

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1272	.020	0.508	1.2	\$4.75
1273	.025	0.635	1.5	4.50
1274	.030	0.762	1.8	4.25
1275	1/32	0.79	1.9	4.25
1276	.035	0.889	2.1	4.25
1277	.040	1.016	2.4	4.00
1278	.045	1.143	2.7	4.00
1279	1/32	1.185	2.85	4.00
1280	.050	1.27	3.	4.00
1282	.060	1.524	3.6	4.00
1283	1/16	1.58	3.8	4.00

No. 3 Micanite Plate can be furnished in special thicknesses, sizes and patterns.

Prices quoted on application.

**No. 4 Micanite Plate  
For Flat Work**

This plate is made for flat work and for purposes where accuracy of thickness is not important. It is not milled or surfaced and therefore has a considerable variation in thickness.

It is suitable for all kinds of bases, round or square washers, and for all kinds of apparatus not subject to high heat.

Its non-liability to fracture under extreme vibration is a valuable feature for marine work. It does not take a screw thread, but can be drilled and turned.

Average puncture voltage, approximately 800 volts per .001-inch.

No. 4 plate is not furnished thinner than 1/16-inch.

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1296	1/16	1.58	3.25	\$1.25
1297	1/32	2.38	4.87	1.25
1298	1/8	3.17	6.5	1.25
1300	1/4	6.34	13.	1.25
1301	3/8	9.52	19.5	1.25
1302	1/2	12.69	26.	1.25

Prices on sheets of No. 4 Micanite Plate, of special size and pattern quoted upon application.

**No. 5 Flexible Micanite Plate  
For Cold Forming**

No. 5 Flexible Micanite is made of very thin films of muscovite mica cemented together with a special insulating cement of great flexibility and adhesiveness. This article in many ways presents mica in its most convenient and economical form for electrical insulation. It can be formed or bent to shape without application of heat.

It is an excellent insulator for armature slots, armature, magnet and commutator cores, transformers, field coils, etc.

No. 5 Flexible Micanite Plate cannot be surfaced like No. 1 No. 2, or No. 3 plate. It is therefore subject to some variation in thickness, running from .002-inch to .003-inch on the thinner sizes; from .005-inch to .007-inch on the 1/32-inch thickness, and from .010-inch to .015-inch on the 1/8-inch thickness.

Its average puncture is approximately 600 volts per .001-inch.

Cat. No.	THICKNESS		Approx. Lbs. per Sheet	Price per Lb.
	Inches	MM.		
1303	.005	0.127	.55	\$3.15
1304	.010	0.254	1.	2.00
1305	.015	0.381	1.45	1.75
1306	.020	0.508	1.9	1.75
1307	.025	0.635	2.3	1.60
1309	1/32	0.79	3.	1.60
1313	1/16	1.58	6.	1.55
1314	1/8	3.17	12.	1.55

Prices on No. 5 Micanite plate of special thickness, size, or pattern, quoted upon application.



## Uncut Sheet Mica

Uncut mica is carefully selected as to quality and sizes it will cut. The different grades will cut assorted sizes as shown in table. All grades are closely trimmed.

Grade No.	India		Price per Pound	
	Will Cut Assorted Sizes			
A1 4	to 6	Inches Wide, 7	to 9	Inches Long \$9.00
1 3	to 5	Inches Wide, 5	to 7	Inches Long 7.00
2 1½	to 3½	Inches Wide, 4½	to 6	Inches Long 5.50
3 1½	to 3	Inches Wide, 3	to 4½	Inches Long 4.25
4 1½	to 2½	Inches Wide, 2½	to 3	Inches Long 3.25
5 1	to 2	Inches Wide, 2	to 2½	Inches Long 1.90

## Amber

A1 4	to 5	Inches Wide, 7	to 9	Inches Long \$5.00
1 3	to 6	Inches Wide, 5	to 7	Inches Long 3.25
2 1½	to 3½	Inches Wide, 4½	to 6	Inches Long 2.50
3 1½	to 3	Inches Wide, 3	to 4	Inches Long 1.80
4 1½	to 2½	Inches Wide, 2½	to 3	Inches Long 1.25
5 1	to 2	Inches Wide, 2	to 2½	Inches Long .65

## Linotape

Linotape is the registered trade mark name under which Empire Oiled Cloth in tape form is sold. Tape is cut in any width from ¾ inch and above, from all grades of yellow Empire, and black Kablak insulating material.

Linotape is an insulating tape of the highest order. Its virtue rests in the multiplication of oxidized oil films on its surfaces. It has come into general use as the insulating medium for cables of all descriptions, and is used extensively in coil winding, cable splicing, bus bars, and all high tension work. Furnished in rolls guaranteed to contain 72 lineal yards, each roll coated on the edges with paraffin to exclude moisture. Linotape is continuous in the roll.

No.	Description	Thickness Inches	PRICE PER GROSS YARDS	1½-inch Width	2-inch Width	1-inch Width
72	Yellow Sewn Seam Bias	.007	\$1.38	\$2.02	\$2.60	
10	" " " "	.010	1.50	2.20	2.85	
71	" Seamless " "	.007	1.80	2.60	3.25	
101	" " " "	.010	1.90	2.85	3.50	
763	Black Sewn Seam " "	.007	1.38	2.02	2.60	
99	" " " "	.010	1.50	2.20	2.85	
74	" Seamless " "	.007	1.80	2.60	3.25	
104	" " " "	.010	1.90	2.85	3.50	
L	Yellow Straight Cut	.007	1.34	1.96	2.56	
B	" " " "	.010	1.47	2.15	2.80	
H	Black " " "	.007	1.30	1.90	2.50	
F	" " " "	.010	1.43	2.10	2.72	

## Empire Oiled Paper

The papers forming the bases all possess the greatest tensile strength consistent with their thickness and have been selected for their uniformity of thickness and freedom from deleterious chemicals. The oil films with which they are coated are of the same nature as the films on Empire Cloth.

The oiled condenser papers, on account of their extreme thinness and high tensile strength, are giving great satisfaction to the manufacturers of induction coils and other delicate work. The thicker papers have been selected for their great tensile strength, density and evenness of texture.

Furnished in rolls 36 inches wide, containing 25 to 50 yards, or in sheets, 36x36 inches.

No.	Thickness Inches	Price per Square Yard	No.	Thickness Inches	Price per Square Yard
101	.0015	\$.22	105	.005	\$.22
102	.002	.22	107	.007	.24
103	.003	.24	109	.009	.32
444	.004	.26	110	.010	.34
555	.005	.31	113	.013	.42
106	.0055	.34	115	.015	.46
104	.004	.20	118	.018	.56
135	.0045	.13	...	...	...

## Empire Oiled Canvas and Duck

No. 16 is made on a fabric base that has been specially finished to ensure smooth and even coating of the oil. Nos. 22 and 32 ducks have great resistance to mechanical wear and imperviousness to moisture but do not have the same smooth surface as other cloths.

Cat. No.	Quality of Fabric	FINISHED THICKNESS Inches	THICKNESS MM.	Approx. Thickness Oil Films Inches	Average Lbs. per Yard	Approx. Dielectric Strength	Price per Yard
16	Canvas	.016	0.406	.008	.80	10000	\$ .92
22	Duck	.022	0.559	.002	1.00	.....	1.04
32	"	.032	0.813	.002	1.30	.....	1.40

## Empire Oiled Silk

Empire Oiled Silk has for a base a closely woven fabric of pure silk. It is an excellent insulation where a material possessing very high insulating qualities combined with extreme thinness and great flexibility is demanded.

Cat. No.	Quality of Fabric	FINISHED THICKNESS Inches	THICKNESS MM.	Approx. Thickness Oil Films Inches	Average Lbs. per Yard	Approx. Dielectric Strength per Yard	Price per Yard
44	Silk	.004	0.102	.00175	.22	5000	\$1.33
55	"	.005	0.127	.00275	.27	6000	1.37
66	"	.006	0.153	.00375	.32	7000	1.41

All the above Empire Cloths, etc., are furnished in standard rolls containing 50 yards. Rolls containing 25 to 100 yards furnished when specified.

Any width cut to order provided order amounts to multiples of 72 square yards.

The dielectric strength in above tables was obtained by placing the insulating material between a 12-inch square copper plate, and copper disc electrodes 1½ inches in diameter using 60 cycle A. C. current.

## No. 20 Micanite Cloth

No. 20 Micanite Cloth is made with 1, 2 or 3 layers of high-grade India Mica films, cemented together with overlapping edges into sheet form, the sheet being faced on one side with cotton cloth and the other side with Japanese paper.

It is an excellent composite insulation, the cloth adding mechanical strength, and is often used in conjunction with Empire Cloth and Paper, fish paper, etc., for transformers, field magnets and armature cores. In strip or tape form No. 20 Micanite Cloth is an efficient insulation for wrapping all sorts of conductors, and can be furnished any width from ½ to 36 inches, in rolls approximately 3¾ inches in diameter.

Cat. No.	THICKNESS Inches	THICKNESS MM.	Layers of Mica	Approx. Lbs per Roll	Price per Lb.
1315	.008	0.203	1	3.3	\$3.50
1316	.011	0.279	2	5.2	3.00
1317	.014	0.356	3	7	2.40

## No. 24 Micanite Paper

No. 24 Micanite paper is of the same nature as No. 20 Micanite Cloth except that the material is faced on both sides with Japanese tissue paper instead of cotton cloth, the object being to supply an insulation thinner than Micanite Cloth, but retaining the same thickness of mica film.

Cat. No.	THICKNESS Inches	THICKNESS MM.	Layers of Mica	Approx. Lbs. per Roll	Price per Lb.
1321	.005	0.127	1	2.4	\$3.50
1322	.008	0.203	2	4.2	3.00
1323	.011	0.279	3	6.	2.50

**Minerallac Insulating Compound**

For Use in Cable Joints, Potheads and Terminal Bells

The various compounds listed are intended to cover the exacting requirements of underground and overhead distribution systems.

**No. 2-A Minerallac**

This is a cable joint or pothead compound. One of its most important characteristics is its ability to remain at practically the same volume during extreme changes of temperature.

A semi-solid compound with high dielectric strength. Melting point, 185° Fahrenheit. Averages 900 volts per mil at 86° Fahrenheit.

Standard case contains twelve 1-gallon cans or six 2-gallon cans.

Price, No. 2-A.....per gallon \$2.00



No. 2-A

**No. 78 Minerallac**



No. 78

Price, No. 78.....per gallon \$2.00

**No. 80 Minerallac**

This is a pothead compound. It is a hard compound for use on 11000 volts and over. Melting point 275° Fahrenheit.

Tests 990 volts per mil at 86° Fahrenheit, and 415 volts per mil at 302° Fahrenheit.

Standard case contains twelve 1-gallon cans or six 2-gallon cans.

Price, No. 80.....per gallon \$2.00



No. 80

**No. 104 Minerallac**



No. 104

Price, No. 104.....per gallon \$2.00

**No. 20 Minerallac**

This is a high melting point compound for low-voltage work; 260° Fahrenheit.

For use in telephone work where a close seal against moisture is desired.

Standard case contains twelve 1-gallon cans. Weight per can, 8 pounds. Also furnished in drums approximately 400 pounds.

Price, No. 20.....per pound \$1.10



No. 20

**Ruberoid P & B Rapid Asphalt Paint**



Dries quickly to a hard, glossy coating, exceedingly tough and durable and with high insulating properties.

Adapted for cables, switch boards, battery boxes, shelving, conduit joints and all insulating requirements. Made in medium brushing consistency.

Size Package	Price per Gallon	Size Package	Price per Gallon
50-gallon	\$1.20	1/4-gallon	\$2.00
5 "	1.40	1/8 "	2.25
1 "	1.60	.....	....

**P & B Black Air-drying Varnish**

A quick drying, acid resisting and moisture proof, insulating varnish, indispensable in the repair shop and in general construction work.

For quick repairs to dynamos and motors. For feed wires, cables, switchboards and all overhead and underground connections.

Size Package	Price per Gallon	Size Package	Price per Gallon
50-gallon	\$1.05	1-gallon	\$1.45
5 "	1.25	1/4 "	1.90

**Mico Insulating Compound**

The 3 grades of Mico Varnishes are composed chiefly of asphaltum and refined linseed oil. They are non-corrosive. Durable and elastic; impervious to moisture and will withstand very high temperatures. A perfect film of compound has a puncture voltage of 900 volts per mil. It can be reduced to any desired density or solution with turpentine, benzol or gasoline.

Can be applied by dipping or with a brush. On cloth, paper, etc., it is advisable to apply them by dipping the material in the varnish. If a heavy coating is required, it is well to apply a number of thin coats, allowing each to dry thoroughly.

No. 151 is a glossy, black, baking varnish generally used for armature coils, field and magnet coils, wires and cables, transformers, for covering cloth, paper asbestos, and hard fibre. Bakes hard, but elastic at 300 degrees F. in 6 hours.

No. 370 is a glossy, black, air drying varnish used for armature, field and magnet coils, generators, etc. Dries quickly.

No. 152 is a glossy black, air drying varnish for core plates, transformer plates, and for all outdoor work such as overhead line construction, etc. Dust dry in 5 hours.

Size of Package	1-Gallon	5-Gallon	50-Gallon
Price, No. 151.....each	\$2.75	\$2.60	\$2.20
Price, No. 370.....each	2.10	1.85	1.50
Price, No. 152.....each	1.80	1.65	1.25

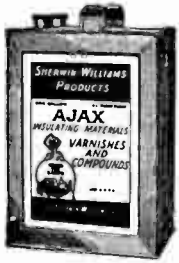
**No. 14 Ajax Clear Quick Elastic Baking Varnish**

A suitable clear varnish for general coil work, also oil-coated transformers. Oil, acid and water-proof.

Has maximum binding and cementing properties. Bakes in from 8 to 10 hours at 100°C. Thin with benzine.

Price, No. 14 in 1-Gallon Cans.....	per gallon \$4.30
Price, No. 14 in 5-Gallon Cans.....	per gallon 4.10
Price, No. 14 in Barrels.....	per gallon 3.80

## No. 16 Ajax Clear Elastic Baking Varnish



An extremely elastic and flexible varnish. Is oil, acid and water-proof.

Has maximum dielectric strength, also longest life under heat. Will bake in from ten to twelve hours at 100° C. (212° F.). Thin with benzine.

Intended for use where extreme flexibility and longest life under heat are required, such as on varnished cloth, large coils, wound and insulated before assembly, etc.

Price, No. 16 in 1-gallon Cans	.....	per gallon	\$4.00
" " 16 " 5 "	" " " " " "	"	3.60
" " 16 " Barrels	.....	"	3.25

## No. 18 Ajax Clear Air Drying and Baking Varnish

Oil, acid and water-proof. Has high dielectric strength. Bakes in 5 to 7 hours at 100° C. (212° F.), or will air dry in 8 to 14 hours. Thin with benzine.

Price, No. 18 in 1-gallon Cans	.....	per gallon	\$3.30
Price, No. 18 in 5-gallon Cans	.....	per gallon	3.10
Price, No. 18 in Barrels	.....	per gallon	2.80

## No. 19 Ajax Clear Air Drying Finishing Varnish

A spirit finishing varnish. Has good insulating properties.

Oil and moisture-proof.

Will air dry to handle in about 20 minutes, but requires more time if used on coil. Thin with denatured alcohol.

For use as a finishing coat to prevent absorption of oils and moisture.

Price, No. 19, in 1/2-gallon Bottles	.....	per gallon	\$3.40
" " 19 " 5 " Cans	.....	"	3.20
" " 19 " Barrels	.....	"	2.90

## No. 20 Ajax Black Elastic Baking Varnish

An extremely elastic, flexible varnish. Oil, acid and water-proof. Has maximum dielectric strength, also longest life under heat. Will bake in 10 to 12 hours at 100° C. (212° F.) Thin with benzine. May be used on cloth, all types of coils, on both large and small armatures.

Price, No. 20 in 1-gallon Cans	.....	per gallon	\$4.00
" " 20 " 5 " " "	" " " " " "	"	3.30
" " 20 " Barrels	.....	"	3.00

## No. 21 Ajax Black Plastic Baking Varnish

A soft plastic varnish. Water and acid-proof, but not oil-proof. Has maximum dielectric strength and long life under heat. Will bake in 10 to 12 hours at 100° C. (212° F.) Thin with benzine. Principal use on large form wound armature and stator coils.

Price, No. 21 in 1-gallon Cans	.....	per gallon	\$2.50
" " 21 " 5 " " "	" " " " " "	"	2.30
" " 21 " Barrels	.....	"	2.00

## No. 23 Ajax Black Quick Baking Varnish

A hard, tough, but elastic varnish which is oil, acid and water-proof. Has maximum dielectric strength and long life under heat. Will bake in from 8 to 10 hours at 100° C. (212° F.) Thin with benzine. For use on field and stator coils, large and small armatures.

Price, No. 23 in 1-gallon Cans	.....	per gallon	\$3.50
" " 23 " 5 " " "	" " " " " "	"	3.30
" " 23 " Barrels	.....	"	3.00

## No. 22 Ajax Black Semi-plastic Baking Varnish



A black varnish which dries with a semi-plastic film. Water-proof acid-proof but only fairly resistant to oils. Has maximum dielectric strength and long life under heat. Will bake in from eight to ten hours at 100° C. (212° F.). Thin with benzine.

Suitable for use on field and stator coils and all types of armatures and armature coils, except very high-speed armatures.

Price, No. 22 in 1-gallon Cans	.....	per gallon	\$2.50
" " 22 " 5 " " "	" " " " " "	"	2.30
" " 22 " Barrels	.....	"	2.00

## No. 25 Ajax Black Air Drying Varnish

Dries with a fairly hard film. Is acid-proof and water-proof, but not oil-proof. Will air dry in about one hour, but requires four to eight hours in the interior of a coil. Thin with benzine. Suitable for field and stator coils and all types of armatures except small high-speed.

Price, No. 25 in 1-gallon cans	.....	per gallon	\$2.10
" " 25 " 5 " " "	" " " " " "	"	1.90
" " 25 " Barrels	.....	"	1.60

## No. 60 Ajax Black Extra Quick Baking Varnish

A quick baking semi-plastic type varnish. Similar to No. 22, but not as long life.

Water-proof and acid-proof, but not oil-proof.

Bakes in from 2 to 4 hours at 100° C. (212°F.).

Thin with benzine.

Used principally on stators of small A.C. motors and other applications, except small high speed armatures, where quick baking is necessary.

Price, No. 60, in 1-gallon Cans	.....	per gallon	\$2.10
" " 60 " 5 " " "	" " " " " "	"	1.90
" " 60 " Barrels	.....	"	1.60

## Nos. 111 and 112 Ajax Pothead Compound

### No. 111

A black, asphaltic solid compound, plastic and adhesive. Possesses high dielectric strength and is chemically inert and thoroughly water-proof. It has a low-coefficient of expansion and contraction and will withstand extremes of heat and cold without cracking. The drip point is 83°C (185°F). May be applied by melting and pouring. For use in extremely cold climates and closed type potheads.

Price, No. 111 in 40-lb. Cans	.....	per pound	\$1.18
" " 111 " 10 " " "	" " " " " "	"	.24
" " 111 " 5 " " "	" " " " " "	"	.30

### No. 112

Same as Pothead Compound No. 111, except that the melting point is higher, 105°C (221°F). Intended for use in inverted type potheads and in very hot climates.

Price, No. 112 in 40-lb. Cans	.....	per pound	\$1.19
" " 112 " 10 " " "	" " " " " "	"	.25
" " 112 " 5 " " "	" " " " " "	"	.31

## Davis System of Emergency Equipments

Phone-kits can be furnished which are similar to the B, C and D kits used by the Bell System Companies with the addition of an eye dressing packet and a few more of the minor dressings. Electric-kits can also be furnished which comply with the recommendations of the Accident Prevention Committee of the N.E.L.A., and gas-kits which are approved by the American Gas Association, for use by public utility customers. Prices upon application.

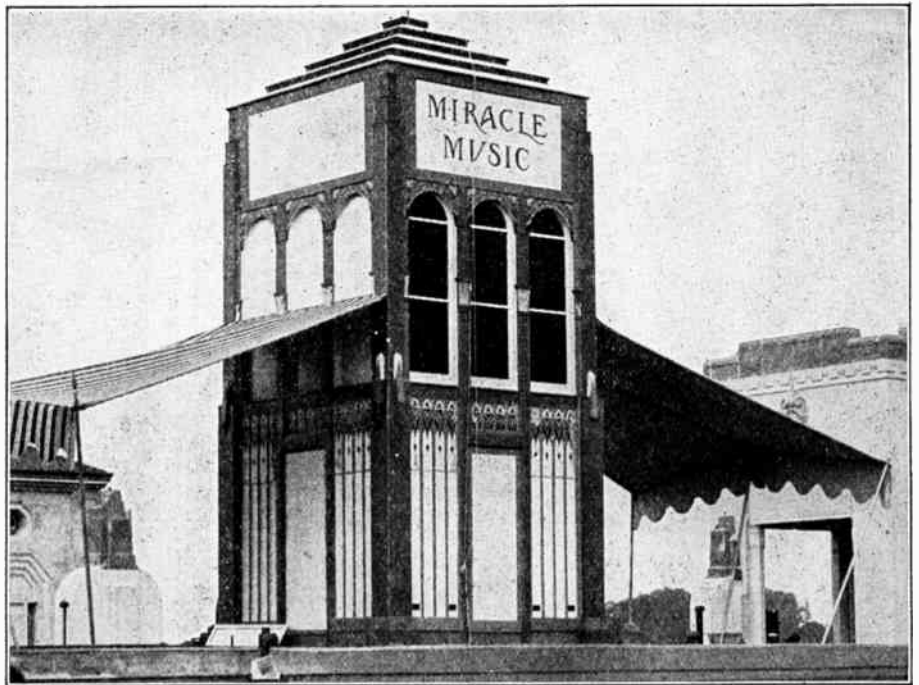
*Western Electric Public Address System, Music Reproducer System  
Radio Distribution System*



**Magnetic Reproducer**



**Microphone**



**Horn Installed in Amusement Park with Artistic Housing**

The Western Electric Public Address System which is distributed by the Graybar Electric Company is essentially a means for reinforcing speech or music so that a large number of people may hear distinctly. It is generally used in large auditoriums, lecture halls, ballrooms and for large outdoor gatherings.

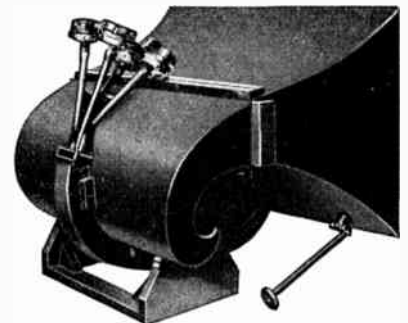
Many sizes of systems are available to meet the most exacting demands. The equipment is made flexible to accommodate any number of microphones and projectors, depending upon the requirements of the specific project. The voice of the speaker reaches the listener with the natural qualities preserved and the audience does not lose the impression of actually hearing the speaker.

The smaller types of systems may be mounted on a truck or carried about in an automobile for setting up for small outdoor gatherings. A radio set may be connected to provide entertainment from broadcast stations. A magnetic pickup will play phonograph records to furnish music at any time.

The Western Electric Music Reproducing System has for its application large outdoor amusement parks, hotel ballrooms, high class restaurants and all places where quality music is essential. The system is so arranged that it can be built up to meet practically any demand for volume or for a multiplicity of projectors to cover large areas. Standard phonograph records are reproduced by a magnetic pickup. Switching arrangements for a microphone and radio set are also provided for making announcements or picking up artists who may be performing, or projecting programs from broadcast stations. The equipment is arranged so that it can be added to from time to time as required. The types of projectors used are of several forms, the usual one being that of the exponential horn with dynamic receivers. The music reproduction system may also be used as a public address system when certain additions are made.



**Amplifier Assembly**



**Exponential Horn with Dynamic Receivers**

**Western Electric Scientific Equipment Instruments****For Testing the Hearing**

The need for a scientifically accurate means for testing the hearing of large numbers of people in physicians' offices, schools and in industry led to the development of the Western Electric Audiometer. Several prominent physicians working with the officers of the American Federation of Leagues for

the Hard of Hearing took their problem to the Bell Telephone Laboratories, an organization well known for its work in the field of sound transmission, amplification and reproduction. The result of this cooperative effort was the Western Electric Audiometer.

**Western Electric 2-A Audiometers**

The 2-A Audiometer is designed primarily for the use of Otologists in testing the hearing of their patients.

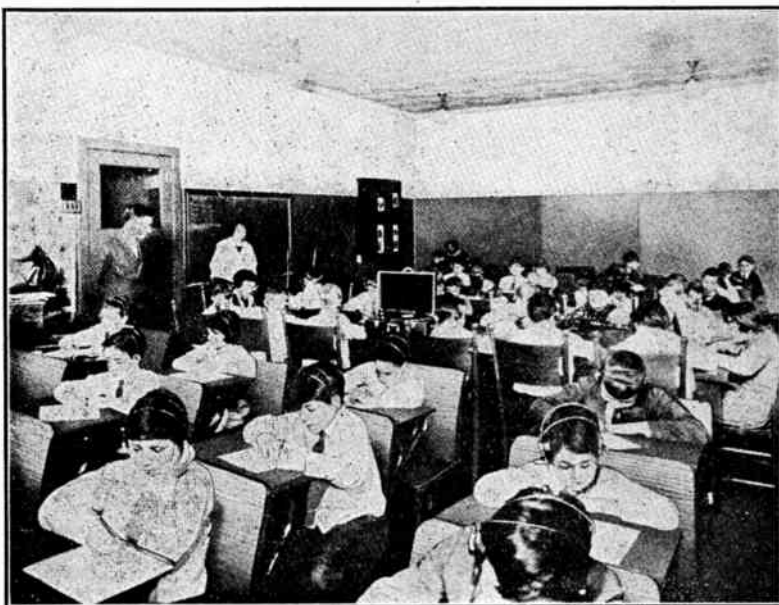
By means of the 2-A Audiometer an Audiogram may be prepared for each patient tested and accurate comparison may be made with future tests of the same patient. The 2-A Audiometer measures the faintest sound heard at each pitch, the oscillator having a frequency range extending from 64 to 8192 double vibrations or cycles per second.

**Western Electric 4-A Audiometers**

The 4-A Audiometer is designed primarily for use in schools. It permits the accurate testing of 40 people at one time (an average class).

Investigation has shown that there are nearly 3,000,000 school children in the United States with impaired hearing. The tremendous task of testing all the school children in the country can be greatly simplified by the use of the 4-A Audiometer. Many schools in all parts of the country are already successfully using it.

The Audiometer assures a quick, accurate and scientific test.

**Western Electric 5-A Audiometers**

Designed primarily for industrial use, the 5-A Audiometer has proved itself an ideal means for testing quickly and economically the acuity of hearing of both employees and applicants. Railroads, public utilities and manufacturing concerns have all used the 5-A Audiometer with marked success in reducing accidents and liability claims.

Complete information regarding either the 2-A, 4-A or 5-A Western Electric Audiometers will be gladly sent upon request to the Graybar Electric Company, Graybar Building, New York City, N.Y., or the nearest Graybar House.

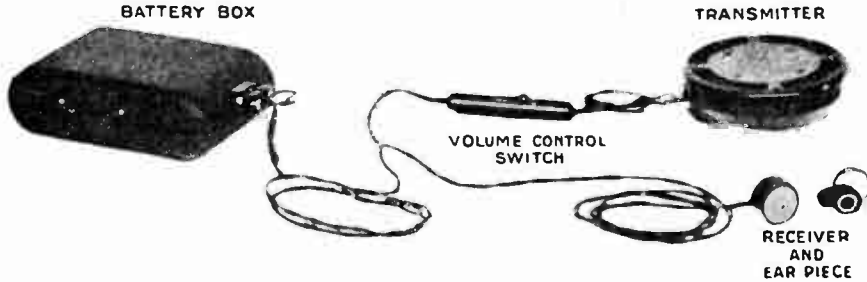
*Western Electric* Scientific Equipment Instruments

A Scientific Hearing Aid

A logical development from producing a means for testing the hearing (the Audiometer) was the development of a means for aiding impaired hearing. The same care was given to producing a scientific, accurate instrument (the Audiphone).

Essentially the Audiphone is a miniature telephone set, light in weight, inconspicuous and extremely efficient. It consists of a transmitter, receiver, volume control, switch and a light weight battery box.

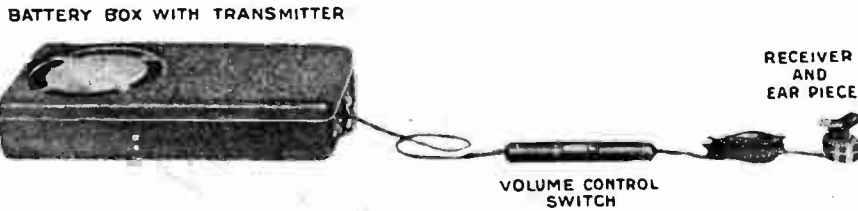
*Western Electric* 6033 Audiphones



The 6033 Audiphone has a highly sensitive transmitter, battery box and connection cord, volume control switch and a miniature receiver with a small,

inconspicuous earpiece. Standard flashlight batteries are used.

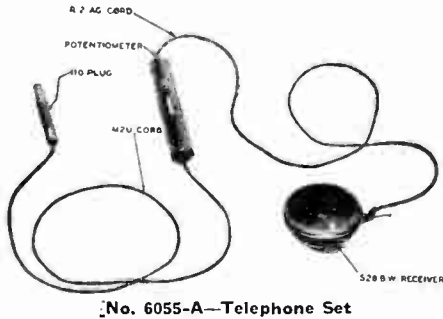
*Western Electric* 6034 Audiphones



The 6034 Audiphone is similar to the 6033 except that the instrument is assembled in an imitation vanity case.

Both the 6033 and 6034 Audiphones are recommended by physicians and have proved a great help in thousands of cases of impaired hearing; both are light in weight and both are noted by the clearness and natural quality of the tones transmitted.

*Western Electric* 6035 Audiphones



No. 6055-A—Telephone Set



D-87413—Microphone

The 6035 Audiphone is designed particularly for use in churches, club rooms and places where the instruments can be placed in permanent locations.

This apparatus is very powerful, simple in design, reasonable in price and easy to install.

D-87413 Microphone for picking up and transmitting the speakers' voice. The 6055-A telephone set is for use by the listener.

Full particulars may be had upon request to the Graybar Electric Company, Graybar Building, New York City, New York, or nearest Graybar House.



**Western Electric Radio Telephone Broadcasting Equipment**

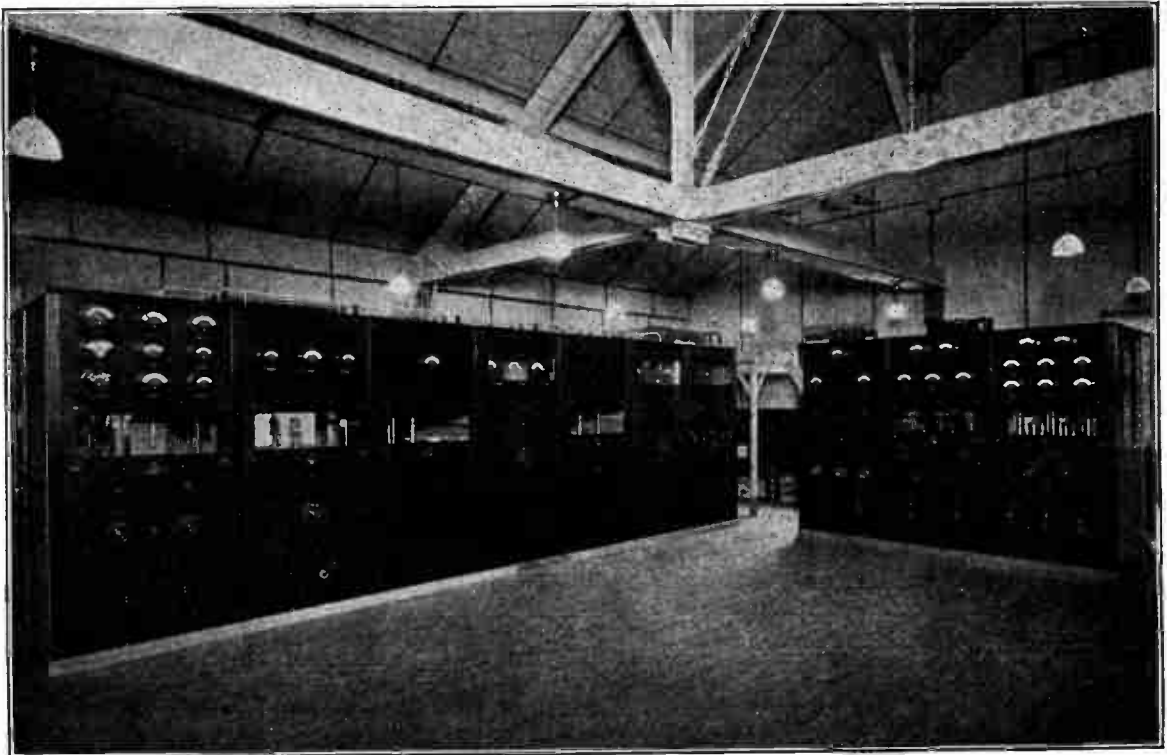
Broadcasting is now a business and as a business the value of the station is determined by the service given. The service depends upon the extent of the area in which the station provides the clearest and least distorted programs, with sufficient volume to operate satisfactorily an average receiving set.

Covering increased area has obvious advantages provided the more powerful equipment needed to bring the programs to a greater number of listeners does so at a lower relative cost per unit.

Realizing this situation, Western Electric offers a 50-Kilowatt (No. 107-A) Radio Telephone Broadcasting Equipment which not only covers ten times the area covered by a 5-kilowatt set, but does so at approximately one-sixth of the cost per square

mile covered. An analysis of the cost of operating a group of 5-kilowatt stations showed the cost to be approximately \$40.00 per square mile per year. A comparable figure for a 50-kilowatt set would be approximately \$7.00.

This equipment is the result of the research and development carried on by Bell Telephone Laboratories, Inc. The scientific resources of the largest research organization in the world and the experience of fifty years of telephone development were employed in developing a 50-kilowatt radio telephone broadcasting equipment that would operate safely, easily and reliably. All of this culminated in an equipment that has been undergoing service tests for over a year at 3XN, the experimental station of Bell Telephone Laboratories at Whippany, N. J.



**No. 7-A Radio Transmitter at Station 3XN**

## Western Electric Broadcasting Stations

Sold and Active as of July 1, 1928

Located in U. S. A.

50,000-Watt Stations		1,000-Watt Stations—Total—49	1,000-Watt Stations—Continued
WLW	Cincinnati, Ohio The Crosley Radio Corporation	KGEF Los Angeles, Cal. Trinity Methodist Church	WADC Akron, Ohio Allen Theatre (Allen T. Simmons)
<b>5,000-Watt Stations—Total—26</b>		KTAB Oakland, Cal. Associated Broadcasters	WHK Cleveland, Ohio Radio Air Service Corporation
KFI	Los Angeles, Cal. Earle C. Anthony, Incorporated	KPSN Pasadena, Cal. Pasadena Star News	KVOO Bristow, Okla. Southwestern Sales Corporation
WORD	Batavia, Ill. (Chicago) Peoples Pulpit Association	KFSD San Diego, Cal. Airfan Radio Corporation	KGW Portland, Oregon Portland Morning Oregonian
WLS	Crete, Ill. (Chicago) Sears, Roebuck and Company	KFRC San Francisco, Cal. Don Lee, Incorporated	WLBW Oil City, Pa. Petroleum Telephone Company
WHT	Deerfield, Ill. (Chicago) Radiophone Broadcasting Corp.	KPO San Francisco, Cal. Hale Brothers and The Chronicle	WNAX Yankton, S. D. Gurney Seed and Nursery Com- pany
WCBD	Zion, Ill. Wilbur G. Voliva	WJAX Jacksonville, Fla. City of Jacksonville	WDAD and WLAC, Nashville, Tenn. Dad's Auto Accessories, Inc. and Life and Casualty Insurance Co.
WOC	Davenport, Iowa Palmer School of Chiropractic	WIOD Miami Beach, Fla. Carl G. Fisher Company	KFQB Fort Worth, Texas Texas Hour Broadcasting Co.
WHO	Des Moines, Iowa Bankers Life Ins. Company	WSB Atlanta, Ga. Atlanta Journal	WRVA Richmond, Va. Larus and Brothers Company
WBAL	Glen Morris, Md. (Baltimore) Consolidated Gas, Electric Light and Power Company	WENR Chicago, Ill. Great Lakes Radio Broadcast- ing Co.	KOMO Seattle, Wash. Fisher's Blend Station (Inc.)
WCX and WJR	Pontiac, Mich. Richards Oakland Co., Inc. and Station WJR	WMAQ Chicago, Ill. Chicago Daily News Company	WTMJ Brookfield, Wis. The Milwaukee Journal
WCCO	St. Paul-Minneapolis, Minnesota (Anoka) Washburn-Crosby Company	WJJD Mooseheart, Ill. Loyal Order of Moose, Supreme Lodge	..... Los Angeles, Cal. Don Lee, Inc.
KMOX	Kirkwood, Mo. (St. Louis) Voice of St. Louis (Inc.)	WRM Urbana, Ill. University of Illinois	WCAN Philadelphia, Pa. Universal Broadcasting Com- pany
WPG	Atlantic City, N. J. Municipality of Atlantic City	KFNF Shenandoah, Iowa Henry Field Seed Company	KFON Long Beach Nichols & Warriner
WOR	Kearny, N. J. L. Bamberger and Company	WREN Lawrence, Kansas Jenny Wren Company	KFWB Los Angeles, Cal. Warner Brothers Roanoke
WEAF	New York City National Broadcasting Co., Inc. (Not in Operation)	WFIW Hopkinsville, Ky. Acme Mills (Inc.)	..... Richmond Development Corpora- tion Seattle
WLWL	New York, N. Y. Missionary Society of St. Paul the Apostle	WMAF Dartmouth, Mass. Round Hills Radio Corporation	..... Louis Wasmer
WABC	Richmond Hill, N. Y. (N.Y.C.) Atlantic Broadcasting Corp. (A. H. Grebe & Co.)	WWJ Detroit, Mich. Detroit News	<b>500-Watt Stations—Total—61</b>
WHAM	Victor Township, N.Y. Stromberg-Carlson Tel. Mfg. Co.	WRHM Minneapolis, Minn. Rosedale Hospital	KTHS Hot Springs, Ark. New Arlington Hotel Company
WLW	Harrison, Ohio (Cincinnati) The Crosley Radio Corporation	WDAF Kansas City, Mo. Kansas City Star	KFWB Hollywood, Cal. Warner Brothers' Pictures, Inc.
WSAI	Mason, Ohio (Cincinnati) The Crosley Radio Corporation	WOQ Kansas City, Mo. Unity School of Christianity	KFSG Los Angeles, Cal. Echo Park Evangelistic Associa- tion
WSM	Nashville, Tenn. National Life and Accident Ins. Co.	KFUO St. Louis, Mo. Concordia Seminary	KHJ Los Angeles, Cal. Times-Mirror Company
WLAC	Nashville, Tenn. Life and Casualty Ins. Co.	KMMJ Clay Center, Neb. M. M. Johnson Company	KMTR Los Angeles, Cal. KMTR Radio Corporation
WMBI	Chicago, Ill. Moody Bible Institute	WOW Omaha, Neb. Woodmen of the World	KNX Los Angeles, Cal. Los Angeles Evening Express
WMAQ	Chicago, Ill. Chicago Daily News	WCAM Camden, N. J. City of Camden	KLX Oakland, Cal. Oakland Tribune
WKBW	Buffalo, N.Y. Churchill Evangelistic	WGL Secaucus, N. J. International Broadcast Corp.	KFWI San Francisco, Cal. Radio Entertainments, Inc.
WRUF	Gainesville, Fla. University of Florida	WKBW Buffalo, N.Y. Churchill Evangelistic Asso. (Replaced by 5000-Watt)	KQW San Jose, Cal. First Baptist Church
KNX	Los Angeles, Cal. Western Broadcasting Co.	WHAP New York, N. Y. Wm H. Taylor Finance Corp.	WICC Bridgeport, Conn. Bridgeport Broadcasting Station
WPAI	Auburn, Ala. Alabama Polytechnic Institute	WBER Rossville, N.Y. Peoples Pulpit Association	WTIC Hartford, Conn. Travelers' Insurance Company
		WWNC Asheville, N. C. Chamber of Commerce	WFLA Clearwater, Fla. Fort Harrison Hotel (Ed. A. Haley)
		WBT Charlotte, N. C. C. C. Coddington	

## Western Electric Broadcasting Stations

Sold and Active as of July 1, 1928

Located in U. S. A.

### 500-Watt Stations—Continued

### 500-Watt Stations—Continued

### 500-Watt Stations—Continued

WQAM Miami, Florida  
Electrical Equipment Co. of Florida

WMBF Miami Beach, Fla.  
Fleetwood Hotel Corporation

WBCN Chicago, Ill.  
Great Lakes Broadcasting Co.

WMBB Chicago, Ill.  
American Bond and Mortgage Co.

WQJ Chicago, Ill.  
Chicago Daily News Company

WCMA Culver, Ind.  
Culver Military Academy

KSO Clarinda, Iowa  
A. A. Berry Seed Company

KOIL Council Bluffs, Iowa  
Mona Motor Oil Company

WSUI Iowa City, Iowa  
State University of Iowa

KMA Shenandoah, Iowa  
May Seed and Nursery Company

KFKU Lawrence, Kansas  
University of Kansas

KSAC Manhattan, Kansas  
Kansas State Agricultural College

KFH Wichita, Kansas  
Hotel Lassen

WHAS Louisville, Ky.  
Courier-Journal & Louisville Times

WSMB New Orleans, La.  
Saenger Theatres, (Inc.) and Maison Blanche Company

WCSH Portland, Me.  
Congress Square Hotel Company

WEEI Boston, Mass.  
Edison Electric Illuminating Co. of Boston

WNAC Boston, Mass.  
Shepard Stores

WTAG Worcester, Mass.  
Worcester Telegram Publishing Co.

WREO Lansing, Mich.  
Reo Motor Car Company

WGMS and WLB, Minneapolis, Minn.  
Washburn-Crosby Company and University of Minnesota

KFRU Columbia, Mo.  
Stephens College

WOS Jefferson City, Mo.  
Missouri State Marketing Bureau

WHB Kansas City, Mo.  
Sweeney School Company

KSD St. Louis, Mo.  
St. Louis Post-Dispatch

WRNY Coteysville, N. J.  
Experimenter Publishing Company

WGBS Astoria, N. Y.  
Gimbel Brothers

WBOQ Richmond Hill, N. Y. (N. Y. C.)  
Atlantic Broadcasting Corporation (A. H. Grebe & Company)

WHAZ Troy, N. Y.  
Rensselaer Polytechnic Institute

WEAR Cleveland, Ohio  
Willard Storage Battery Company

WCAU Philadelphia, Pa.  
Universal Broadcasting Co. (Not in Operation—Replaced by 1 K. W.)

WFI Philadelphia, Pa.  
Strawbridge and Clothier

WIP Philadelphia, Pa.  
Gimbel Brothers

WLIT Philadelphia, Pa.  
Lit Brothers

WOO Philadelphia, Pa.  
John Wanamaker

WCAE Pittsburgh, Pa.  
Gimbel Brothers

WDWF and WLSI, Cranston, R. I.  
Dutec W. Flint and Lincoln Studies, Inc.

WJAR Providence, R. I.  
The Outlet Company

WDOD Chattanooga, Tenn.  
Chattanooga Radio Company

WMC Memphis, Tenn.  
Commercial Appeal

KFDM Beaumont, Texas  
Magnolia Petroleum Company

WFAA Dallas, Texas  
Dallas News and Dallas Journal

WRR Dallas, Texas  
City of Dallas

WBAP Ft. Worth, Texas  
Carter Publications, Inc. (Star-Telegram)

..... Little Rock, Ark.  
Arkansas Broadcasting Corp.

KMO Tacoma, Wash.  
KMO, Incorporated

WSOE Milwaukee, Wis.  
School of Engineering of Milwaukee

..... Washington, D. C.  
Chesapeake & Potomac Tel. Co.  
Discontinued

..... Chicago, Ill.  
Sears, Roebuck & Co.  
Replaced by 5000-Watt Station

..... Detroit, Mich.  
Detroit Police Department  
Discontinued

KFUO St. Louis, Mo.  
Benson Radio Company

..... Omaha, Neb.  
Woodmen of the World  
Replaced by 1000-Watt Station

..... Newark, N. J.  
L. Bamberger and Company  
Replaced by 5000-Watt Station

..... Cincinnati, Ohio  
Crosley Radio Corporation  
Replaced by 5000-Watt Station

..... Columbus, Ohio  
C. A. Entekin (WCAH)  
Formerly Operated by Detroit Free Press.

..... Seattle, Wash.  
Northwest Pacific Educational Society  
Installed. Formerly Operated by Peoples Pulpit Association

..... Pittsburgh, Pa.  
Doubleday Hill Elec. Co.

### 100-Watt Stations—Total—5

WATT Boston, Mass. (Portable)  
Edison Electric Illuminating Company of Boston

WBIS Boston, Mass.  
Shepard Stores

WSSH Gloucester, Mass.  
Tremont Temple Baptist Church

WEPS Gloucester, Mass.  
Nathieson Radio Company

WFBG Altoona, Pa.  
Wm F. Gable Company

..... Dartmouth, Mass.  
Round Hills Radio Corp.  
Discontinued

..... Victor Township, N. Y.  
Stromberg-Carlson Tel. Mfg. Co.  
Replaced by 5000-Watt Station

### 50-Watt Stations—Total—16

KFUS Oakland, Cal.  
Louis L. Sherman

KPPC Pasadena, Cal.  
Pasadena Presbyterian Church

KGTT San Francisco, Cal.  
Glad Tidings Temple and Bible Institute

WASH Grand Rapids, Mich.  
Baxter Laundries, (Inc.)

KFQA St. Louis, Mo.  
The Principia

WLCI Ithaca, N. Y.  
Lutheran Asso. of Ithaca

WMAN Columbus, Ohio  
First Baptist Church (W. E. Heskett)

WMBW Youngstown, Ohio  
Youngstown Broadcasting Co.

KMED Medford, Oregon  
W. J. Virgin

KTBR Portland, Oregon  
Meier & Frank

KWJJ Portland, Oregon  
Wilbur Jerman

WIBG Elkins Park, Pa.  
St. Paul's Protestant Episcopal Church

WPAB Norfolk, Va.  
Radio Corporation of Virginia

KPCB Seattle, Wash.  
Pacific Coast Biscuit Company

..... San Francisco, Cal.  
Don Lee, Inc. (Not in Operation)

KRSC Seattle, Wash.  
Radio Sales Corporation

**Western Electric No. 224-A Vacuum Tubes  
Cathode Ray Oscillograph Tube**

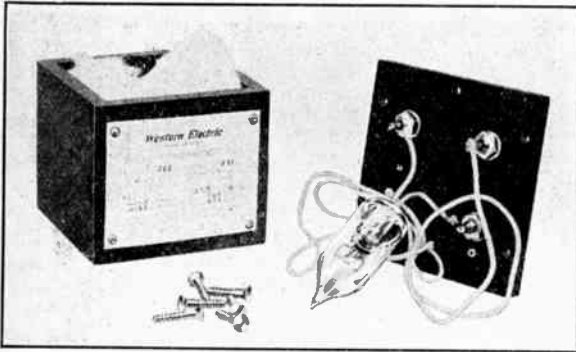


The Western Electric No. 224-A Vacuum Tube is a Cathode Ray Oscillograph Tube which may be used to obtain the performance characteristics of nearly every kind of electrical apparatus. It particularly fills the need for an oscillograph operating at frequencies up to a million or more cycles per second.

The spot of light produced by the cathode ray on a screen within the tube may be moved simultaneously in 2 directions by varying voltages applied to 2 pairs of internal deflector plates, or by current passing through external coils, the resulting trace giving the relation between the 2 currents or voltages. A deflection of one inch is produced by 25 volts on a pair of deflector plates or by 25-ampere turns in suitable coils.

The power equipment required for the tube is a 300-volt B battery and a 6-volt storage battery.

**Western Electric Vacuum Thermocouples**



The Western Electric Vacuum Thermocouple is a hot wire instrument for use in making accurate measurements of the values of feeble alternating currents.

Made in 16 standard types. Each of these types may be assembled in any of 3 different types of containers known as the 20, 21 or 22 types or furnished unmounted in the 23 type. Type 20 container consists of a square mahogany box with binding posts mounted on cover. Type 21 container consists of a cylindrical metal can with hard rubber base through which terminals project and to which leads may be soldered. Type 22 is similar to type 21 except projecting terminals are designed to make contact with springs of a standard vacuum tube socket. Type 23 is unmounted.

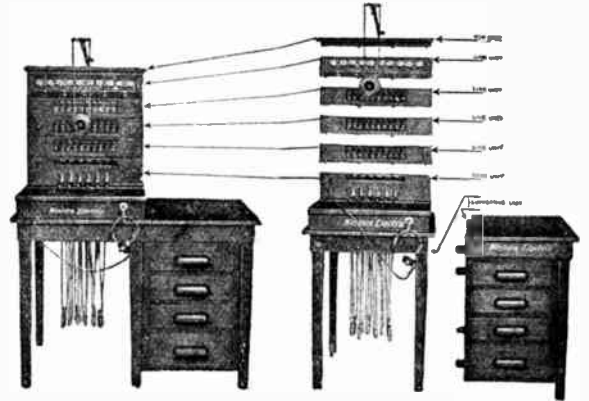
By the proper choice of these instruments used in connection with a 12-ohm galvanometer having a scale length of 130 millimeters and a full scale deflection on a current of 200 microamperes, any current from .0005 to 1 ampere may be measured with an accuracy of plus or minus 1 per cent of the minimum deflection.

Below is a table which shows the principal characteristics of each type of vacuum thermocouple. From these values the range of each vacuum thermocouple with the particular type of galvanometer with which it is associated can be determined by the application of Ohm's law.

Type	Heater Resistance		ELECTROMOTIVE FORCE OF		Type	Heater Resistance		ELECTROMOTIVE FORCE OF	
	Ohms	Ohms	.005 V. Amp.	.015 V. Amp.		Ohms	Ohms	.005 V. Amp.	.015 V. Amp.
A	.3	3	.500	1.00	J	600	12	.002	.005
B	.6	3	.25	.50	K	750	12	.0018	.005
C	5	3	.0375	.075	L	1000	12	.0016	.004
D	35	12	.008	.016	M	1120	12	.0035	.007
E	43	30	.0075	.015	N	46.5	12	.0075	.015
F	46.5	30	.0075	.015	P	600	45	.002	.005
G	200	12	.0065	.015	R	1.3	12	.085	.166
H	400	12	.0035	.007	S	10	12	.017	.035

**Western Electric Magneto Non-Multiple  
Switchboards**

**No. 1800 Sectional Unit Type**



Method of Assembling No. 1800 Switchboard to 35 Line Capacity

The unit or sectional type construction for the small switchboard was introduced by the Western Electric Company a number of years ago, and since that time has been supplying the demand of discriminating buyers for a small switchboard that would meet their traffic requirements and eliminate the necessity of buying an "oversize switchboard."

The capacity of the No. 1800 Unit Type Switchboard is from 10 to 50 lines. While 50 lines has been set as an arbitrary maximum it is safe to assume that with a normally low calling rate as many as 70 or 80 lines can be handled conveniently. While the No. 1800 Unit Type Switchboard is small in size (floor space required only 2 feet x 2½ feet), this does not mean that this board receives less consideration or care in manufacture than a larger switchboard, for the same quality of material, skilled workmanship and rigid inspection are applied to all of the Western Electric products regardless of size. Red oak lumber, which has been kiln-dried, thoroughly seasoned and given a dark rubbed finish, is used in the construction of the units. The inside of the units have been specially treated to preserve wood and prevent warping or cracking.

To meet various requirements, there are different types of base or supporting units, cord units, line units and top units. To assemble a switchboard of 10 lines capacity for example it is only necessary to select units as follows:

- 1 Supporting Unit
- 1 Cord Unit
- 1 Line Unit
- 1 Top Unit

These units are easily assembled into a complete switchboard which presents a neat, compact and serviceable appearance and can be arranged to meet any service condition. Line units can be added at any time.

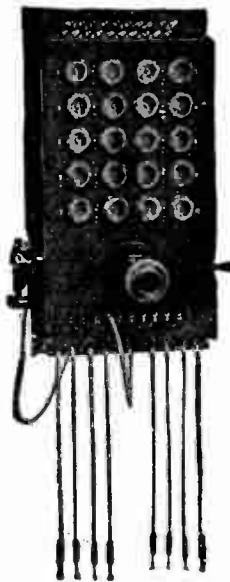
All of the apparatus and terminals associated with the operator's cord and telephone circuits are mounted in the cord unit.

The circuits used are very simple. A diagram of each circuit is pasted to the inside of the rear doors for convenient reference. The back of each unit is hinged and, when open, all of the wiring and equipment are easily accessible.

This switchboard is specially recommended for small, rapidly growing telephone exchanges where the ultimate capacity cannot be definitely determined.

## No. 1012 *Western Electric* Magneto Wall Switchboards

### Ringer Type



This switchboard is intended for use in exchanges having 10 lines or less, and where the number of calls does not warrant having a regular telephone operator in attendance.

It has been installed by numerous rural companies who desire a switching station established in the country in which case it is installed in a farmer's home and the calls are answered by members of the family.

Being equipped with ringers, constant attendance at the switchboard is not necessary as the bells can be heard at some distance from the board.

In addition to this ringer, indicators are supplied with each ringer which gives a visible signal showing which bell has been ringing.

The cabinet is well constructed of thoroughly seasoned, quarter sawed oak, which is given a durable light finish. The front is hinged and the apparatus and wiring is within easy reach for inspection or maintenance.

### Equipment

Each line is provided with a jack and a 1000 ohm ringer, although 1600 or 2500 ohm ringers can be furnished if required. Four-cord circuits, with a listening-in jack bridged across the tip and ring, and a listening cord are provided for handling the calls, no supervisory or ring off signals being provided. A powerful five-bar hand generator is furnished for ringing purposes. The operator's telephone set consists of the regular long distance transmitter and receiver.

### Operation

Subscribers are called by ringing with the hand generator over the listening cord with which the operator answers calls and listens in for supervisory purposes. Connections are made with the other cords, without the use of keys.

## No. 1240-D *Western Electric* Magneto Switchboards

### Non-multiple—Automatically Restored Line Signals

Capacity, 165 Lines 15 Cord Circuits



Front View

as to be within easy reach of the operator, reducing that work to a minimum.

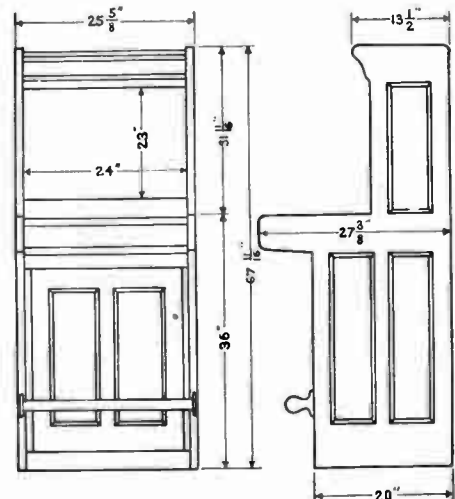
The lumber used in the construction of the cabinet is red oak, thoroughly seasoned and kiln dried to prevent warping or cracking.

The exterior of the cabinet is given a dull golden oak finish which is very serviceable. As an added precaution against warping, cracking or decay the interior surfaces are coated with shellac.

The steel framework which supports the face equipment is copper plated as a protection against corrosion or rust, also insuring a positive ground connection for the apparatus.

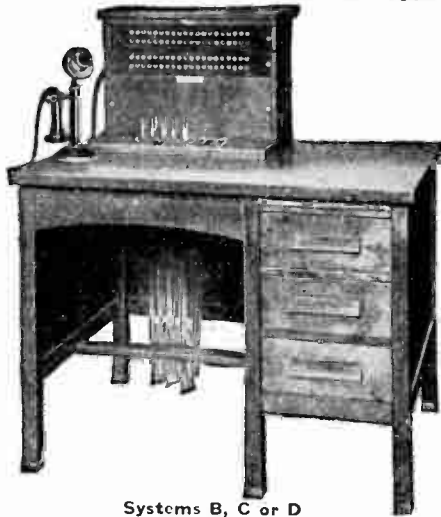
An apparatus and terminal board is mounted in the rear of the switchboard on which are mounted the repeating coils, night alarm bell, and large screw terminals where all power wiring such as power ringing, transmitter battery, night alarm battery, monitor taps, etc., are terminated.

The No. 1240-D non-multiple magneto switchboard is furnished with either single or double supervision cord circuits. Single supervision boards may, if desired, be equipped with five cord circuits having toroidal repeating coils and switching keys. Double supervision boards may be equipped with either the condenser type non-hang-up cord circuits, or the condenser repeating coil type non-hang-up, non-ring-through cord circuits. The present switchboard, if arranged for single supervision, may be changed to a double supervision board simply by installing the necessary additional apparatus.



Dimensions

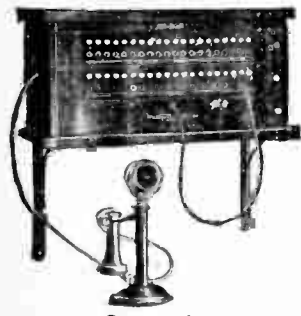
**No. 1801 Western Electric Private Exchange Switchboards**  
 Central Battery—Sectional Unit Type



Systems B, C or D

The No. 1801 sectional unit type switchboard (like the No. 1800) was originated by the Western Electric Co., and introduced to the telephone trade to supply the demand for a small flexible and economical switchboard. Adaptable to many conditions, this switchboard has been installed by small telephone companies, as private branch exchanges, for hotels, factories, public schools and institutions or any place where telephone service was required and the ultimate capacity could not be definitely determined.

Being of the unit type, with construction somewhat similar to the sectional book case, and so arranged that additional units may be readily added when required, this switchboard is adaptable to many line and traffic conditions which are met on the small exchange. The rear of the units is permanently closed. The front panels of all units are held in place with thumb screw locks and are hinged to permit access to the wiring, terminals and apparatus. All connections are made under screw terminals.



System A

used with the systems are listed under heading: Central Battery Telephones.

**SYSTEM A.**—This system provides for communication between the switchboard and stations only. There are no facilities for inter-communication between stations or for connections to a central office.

**SYSTEM B.**—This system embodies all of the features of System "A" and in addition has facilities or intercommunication between stations.

**SYSTEM C.**—This system embodies all of the features of System "B" and in addition two plug ended trunks are provided which may be equipped for connections to either magneto or central battery central offices.

**NOTE.**—Direct current is used for ringing the telephone bells in Systems A, B and C.

**SYSTEM D.**—This system has all of the features of system "C" except that it employs the regular two wire line circuit, and alternating current is used for ringing purposes.

The telephone sets used with this system are the regular central battery sets used with central office systems.

Write our nearest house for particulars. State which system is best suited for your requirements.

**No. 1962 Western Electric Private Branch Exchange Switchboards**  
 Sanitary Type

Capacity: 200 Central Battery Local Lines  
 8 Trunk Lines, 12 Cord Circuits



This switchboard is designed for use as a private branch exchange connecting with a public telephone system. It is of the central battery type, making use of lamp line signals and lamp supervisory signals. The line signal is associated directly with the corresponding line jack. The lamp supervision is

positive as the signal is closely associated with the corresponding cord. This arrangement provides for rapid and reliable operation.

This type of board is furnished with either plug or jack-ended trunks. The plug-ended trunks provide for reducing the number of connecting cords and are an efficient means of providing inter-connections with a city exchange system. The jack-ended trunks afford high-class connections and are somewhat less expensive than plug-ended trunks. They also require the furnishing of a somewhat greater number of connecting cord circuits. These trunks may be supplied for connection to either a magneto or a central battery office. When plug-ended trunks are furnished, holding jack circuits are also supplied to enable an operator to hold the exchange trunks when all four lines happen to be busy.

This type of switchboard is furnished only in a single position section, but two sections can be lined up together to appear as one section and a drawer unit can be supplied at either or both ends of a one or two position line-up. The key-shelf is 30½ inches high, which permits the use of an ordinary office chair, also provides for lining up the switchboard with standard office desks.

The standard wood work is birch with mahogany finish, or quarter sawed oak, light finish.

Built along the lines of modern office furniture it will harmonize with the surroundings in any modern office.

The No. 1962 switchboard being universally wired is adaptable to the varied requirements of private branch exchange service. It is designed to handle all practical service conditions which have arisen since the advent of the private exchange idea.

In addition to including all of the popular features adapted to private branch exchange service the No. 1962 switchboard is of the "Sanitary Desk Type" of construction which represents the Western Electric Company's most recent development and departure from old manufacturing methods. This switchboard is evidence of the continuous efforts being exerted by the Western Electric engineers toward the development of modern switchboards which will meet the exacting demands of discriminating buyers and still retain the simplicity of operation, quality of material, skilled workmanship and low maintenance cost, which have been characteristic of Western Electric products in the past.

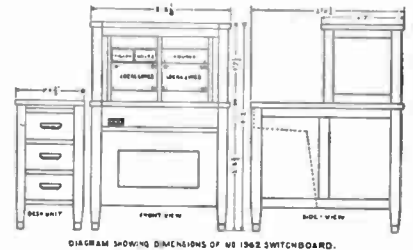


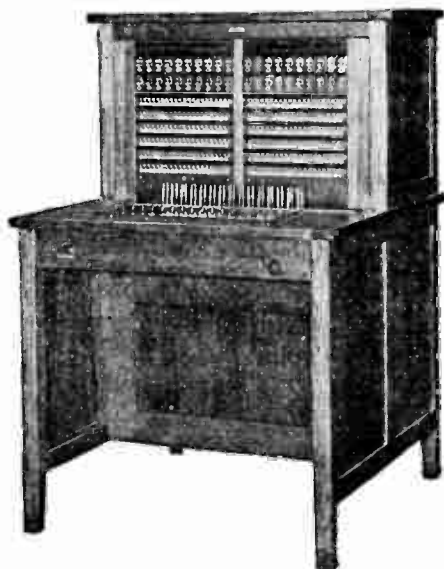
DIAGRAM SHOWING DIMENSIONS OF NO. 1962 SWITCHBOARD.

**Dimensions**



## No. 1948 *Western Electric* Central Battery Non-multiple Switchboards Sanitary Type

Capacity: 240 Central Battery Lines, 40 Toll  
or Rural Lines, 20 Transfer Trunks



The No. 1948 Switchboard is designed to provide the small telephone companies who desire central battery service with modern, efficient and reliable equipment. It is built along the lines of the modern office desk, having square lines generally, square legs (metal capped at bottom) and a clearance underneath for cleaning purposes, hence the term "Sanitary Type" and is the Western Electric Company's latest departure from old methods of small switchboard manufacture. Meeting the demands of exacting buyers as it does is evidence of the confidence enjoyed by this company in the development of a much needed small central battery switchboard which is easy to operate, economical to maintain and constructed of the same materials which enter into the construction of the larger boards upon which the Western Electric Company's reputation for quality products is built and maintained.

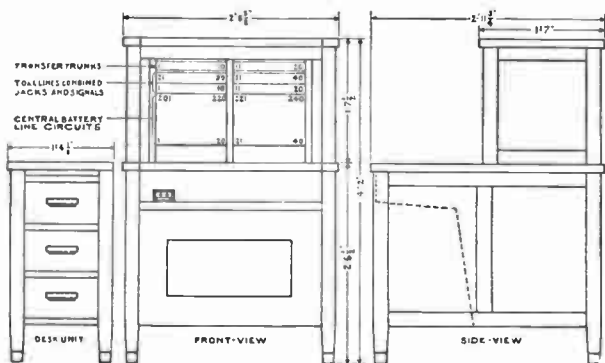


DIAGRAM SHOWING DIMENSIONS OF NO. 1948 SWITCHBOARD.

### Dimensions

Cord circuits are arranged with lamp supervisory signals, giving positive supervision. Any or all cord circuits can be arranged to operate as straight central battery or full universal.

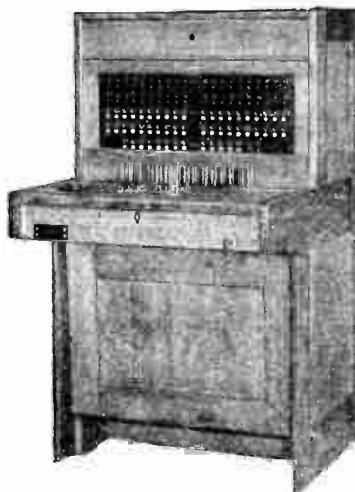
In the universal circuits, toroidal type repeating coils will be furnished if specified. When these are furnished, cutout key may be used so that if two magneto lines are connected, the repeating coil may be either cut in or out of circuit. When a magneto and central battery line are connected, the repeating coil equipment will serve to minimize noise.

Various ringing combinations are available. To provide for any of these, universal wiring is installed.

Suspended type transmitters are usually furnished, but chest type transmitters will be supplied, if ordered.

Write our nearest house for particulars.

## No. 551 Type *Western Electric* Private Branch Exchange Switchboards



This switchboard has the distinction of being a pioneer in the private branch exchange field since the adoption of the modern flat type relays, it being the first private branch exchange switchboard in which the new relays were used. The No. 551B switchboard in both the 30 and 80-line capacities makes an ideal installation in any city or town where the present equipment of the main central office is of the manual central battery type.

The compact cabinet presents a neat appearance and compares favorably with the furniture in any modern office.

If there is a possibility of a change from manual to machine switching telephone equipment the purchase of the No. 551C switchboard, which has trunks arranged for connection to machine switching offices, including the necessary dialing features, is recommended.

### Types and Capacity

Type	551A (40)	551B (80)	551B (320)
Station Lines Total	40	80	320
*Station Lines Wired for			
Relays	10	20	20
Trunk Lines	10	15	15
Cord Circuits	10	15	15

\*Certain lines are wired for relays to be used on lines where the telephone is located considerable distance (800 feet) from the switchboard. Relays are not provided unless specified.

Red oak lumber with a dark finish or birch with a mahogany finish is used for all exposed woodwork parts. The lumber is kiln dried and thoroughly seasoned to prevent warping and cracking. Iron reinforcing brackets are placed on the inside of the cabinet at the corners giving added strength. The keyshelves and fronts of the 551-P.B.X.'s have been faced with phenol fibre rubbed a dull black which not only results in a pleasing rich appearance but provides a hard and durable surface.

The stile strips which hold the line jacks and lamp sockets in place as well as the key mounting strips in the keyshelf consist of cold drawn galvanized steel. This insures alignment of the face and keyboard equipment also prevents damage from moisture.

All apparatus inside the section, except hand generator and ringing resistance lamp, is mounted upon a relay gate which makes equipment immediately available for adjustment while gate is closed and leaves wiring fully exposed when gate is open. Cord-weight protection panel is mounted on the relay gate rather than being fixed in the section so that when gate is open and work is being done on cords or hand generator the gate wiring is still protected from damage.

Gate is equipped with mounting clips and screws. The mounting clips hold the relay mounting plates on the relay gate and permit the use of the one-piece relay gate.

The cabinet is compact and all parts are easily accessible. Switchboards in the 80 line capacity are equipped with removable end panels. This permits lining up of 2 boards and makes an ideal installation where several positions are required.

The line circuits are simple and terminate on terminal strips which are easily accessible.

**No. 551 Type Western Electric Private Branch Exchange Switchboards**

Continued

Certain lines are arranged for use with relays and intended to be used for the stations located considerable distance (800 feet) from the switchboard. The latest standard flat type relays are used throughout which permits placing the maximum amount of equipment in a small place.

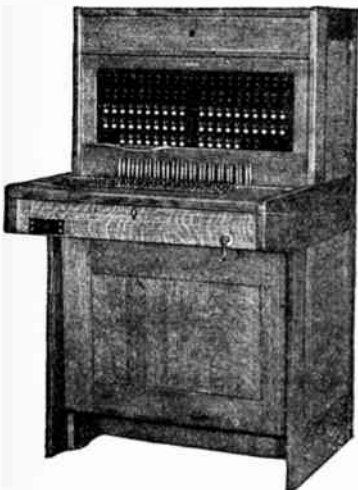
Strip line jacks and associated lamp sockets are used in all boards on the line circuits. The number of jacks and lamps required are equipped and the remaining jack and lamp positions plugged with apparatus blanks. The blanks can be removed and jacks and lamps installed at any time. The panels upon which the individual jack and lamp sockets are mounted consist of one piece of dull finished black faced fibre which does not reflect the light. A designation strip is provided above each row of jacks for convenience in numbering. The black faced fibre panel presents a neat appearance and insures perfect alignment of the face equipment.

Jack ended trunks are used on all No. 551 type boards. The jacks and lamp sockets are individually mounted.

The cord circuits embody all of the features required for the successful operation of the private branch exchange. Connections between stations and from stations to trunks are easily established. Each cord circuit is arranged for dialing by the operator from the board and through dialing from any station on the private branch exchange to the machine switching exchange. This through dialing is accomplished by the operator throwing the night key and through dialing key in the proper position after putting up the night connections. The function of the night key is to cut out all the equipment from the circuit which is not required for night service.

The dial may or may not be used as desired it being easily installed when needed. It is connected to the local cable by means of a flexible cord and the dial itself held in place by a spring clip which is screwed to the keyboard. When the dial is not equipped the hole for the cord is suitably covered with an apparatus blank.

**No. 2062 P. B. X. Switchboards**



Designed to meet the demand for a private branch exchange switchboard of 80 lines capacity, incorporating the circuits used in the 1962 switchboard. Sixty of the lines may be equipped with relays and trunk circuits may be equipped for service to common battery, magneto and machine switching central offices. The circuits are of the same simple character as those used in the 1962 switchboard, which is famous for its low maintenance.

The framework is of the same size as the

550-80 line switchboard and the boards are carried in stock equipped with 40 lines less relays, 6 trunks to common battery central office and 10 cord circuits. Boards are made of oak and arranged for the following circuits:

Local Line Circuits.....	80
Relays for Local Line Circuits.....	60
Cord Circuits.....	12
Jack Ended Trunk Circuits to Machine Switching Office.....	6
Jack Ended Trunk Circuits to Common Battery or Magneto Office.....	9
Operator's Telephone Circuit.....	1
Ringing Circuit.....	1
Night Alarm Circuit.....	1

**Western Electric Magneto Telephones**

No. 1317 Type

General Description



2-Cell, Closed View

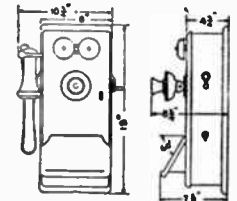
The No. 1317 type telephone represents the highest development attained in magneto telephone design and construction. It has been standard with the Western Electric Company for more than a decade, and its high efficiency, reliability and long life has been thoroughly proven by the hundreds of thousands in service.

**2 and 3-Cell Types**

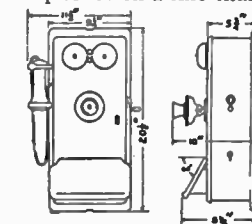
No. 1317 telephones are made in two styles, namely, the "2-cell" and the "3-cell." The talking circuits of these two types are identical, i.e., they employ the same transmitters, receivers and induction coils. The battery compartment of the "3-cell" type is suf-

ficiently large to take three standard dry cells, whereas only two dry cells can be placed in the "2-cell" type. The larger cabinet of the "3-cell" type also permits the mounting of the No. 48 type (5-bar) generator, while the "2-cell" type employs the No. 50 type (large 3-bar) generator.

The 3-cell set is the more powerful and the better set from a transmission standpoint but where a smaller set is desired the 2-cell sets can be used. The 50 type generator is exceptionally powerful for a 3-bar generator. This generator will ring thirty 2500 ohms ringers connected to a No. 12BB iron metallic telephone line 15 miles in length (provided, of course, that the line is properly installed and in good condition).



2-Cell Dimensions



3-Cell Dimensions

It will operate more telephones on a line than many 4 or 5-bar generators.

**WOODWORK AND FINISH.—**

The cabinet is made of quarter sawed oak and given three coats of high-grade varnish rubbed down by hand. Unexposed surfaces of the telephone are also given a protective finish so as to prevent warping.

**WIRING.—**All terminals including those for the transmitter, receiver, cord, line wires, etc., are plainly marked so that

there can be no possible mistake when making connections. The various cords, such as those of the transmitter and receiver and the flexible leads running to the condenser are all furnished with cord tips.

A complete and explanatory circuit label is pasted on the inside of the door of each telephone, in addition to which a booklet is furnished giving complete instructions for installation and maintenance.

**METAL FINISH.—**The transmitter bracket, gongs, switch hook, generator, crank and lock escutcheon are given an extremely durable and pleasing black finish.

**ADJUSTMENT.—**These telephones are carefully adjusted in the factory, and should, therefore, be satisfactory for service as received by the customer unless unusual service conditions should be encountered, in which case only the ringer will require readjustment. The adjustment of the ringer is a very simple matter and instructions furnished in the booklet are so clear that no difficulty will be encountered.

## Western Electric Magneto Telephones

### No. 1317 Type—Continued



No. 1317, 2-Cell, Open View

### No. 1317 3-Cell Type

The 3-cell set is the more powerful and the better set from a transmission standpoint but where a smaller set is desired, the 2-cell sets can be used. The 50 type generator is exceptionally powerful for a 3 bar generator.

Code No.	RINGER		GENERATOR	
	Code No.	Res. (Ohms)	Code No.	Condenser
1317-AH	38-AG	1000	22-A	.....
1317-N	38-FG	1600	48-A	.....
1317-R	38-FG	1600	48-A	21-W
1317-P	38-BG	2500	48-A	.....
1317-S	38-BG	2500	48-A	21-W
1317-BA	38-FG	1600	48-A	.....

Code No.	CLASS OF SIGNAL SERVICE		Line Conditions as Regards Load
	Telephones to Cent. Office	Cent. Office to Telephones	
1317-AH	Code	Code	Light
1317-N	Code	Code	Medium
1317-R	Code	Code	Medium
1317-P	Code	Code	Heavy
1317-S	Code	Code	Heavy
1317-BA	Selective	Code	Medium

### No. 1317C 2-Cell Type

Code No.	RINGER		GENERATOR	
	Code No.	Res. (Ohms)	Code No.	Condenser
1317-CH	53-AG	1000	22-BA	.....
1317-CN	53-FG	1600	50-F	.....
1317-CR	53-FG	1600	50-F	21-W
1317-CP	53-BG	2500	50-F	.....
1317-CS	53-BG	2500	50-F	21-W

Code No.	CLASS OF SIGNAL SERVICE		Line Conditions as Regards Load
	Telephones to Cent. Office	Cent. Office to Telephones	
1317-CH	Code	Code	Light
1317-CN	Code	Code	Medium
1317-CR	Code	Code	Medium
1317-CP	Code	Code	Heavy
1317-CS	Code	Code	Heavy

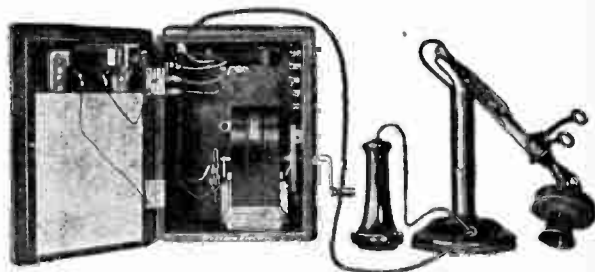
In addition to the above-mentioned apparatus all of these telephones are equipped with the following apparatus:

- No. 13 Induction Coil.
- No. 323-BW Transmitter.
- No. 8A Transmitter Bracket.
- No. 143-AW Receiver.
- No. 143Y Switchhook.

\*Equipped with No. 1006A push button, Telephone user can signal central office secretly or not as desired and can signal other parties on same line by code ringing.

## Western Electric Magneto Telephones

### Nos. 6003 and 6004 Desk Types

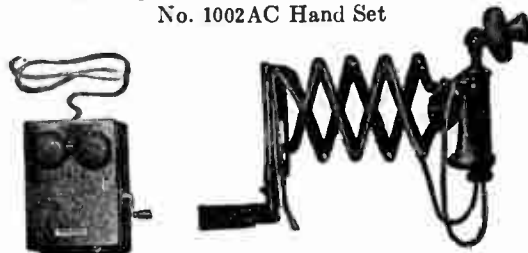


Interior View of No. 6004D

The Nos. 6003 and 6004 type desk telephones consist of a No. 1040 AL Desk Stand and a No. 300 or 315 type Desk Set Box. These telephones comprise the combinations of desk stands and desk set boxes that are most used, and therefore for convenience in ordering, are covered by a single code number.

Combinations of apparatus differing from those covered by these code numbers listed may be obtained by ordering the separate items that will make up the desk telephone desired. The following items of apparatus are the electrical equivalent of the No. 1040 AL Desk Stand and may therefore be used in connection with any of the desk set boxes listed below.

- No. 1048AA Telephone Arm
- No. 1048AC Telephone Arm
- No. 1048AB Telephone Arm
- No. 1001C and H Hand Sets
- No. 1002AC Hand Set



No. 300 Type Desk Set Box and No. 1048 AA Telephone Arm

Code No.	Desk Stand	Desk Set Box	CONTENTS OF DESK SET BOX			Line Condition as Regards Load
			Generator	RINGER Code No.	Resistance (Ohms)	
6003B	1040AL	315H	22A	51AG	1020	None
6003C	1040AL	315J	22E	49BG	2500	Spring and Screws
6004B	1040AL	300K	48A	51BG	2500	None
6004C	1040AL	300L	48A	51FG	1620	None
6004D	1040AL	300AA	50A	51BG	2500	None
6004E	1040AL	300AB	50A	51FG	1620	None

Code No.	DESK SET BOX (CONTINUED) Con-denser Coil	CLASS OF SIGNAL SERVICE		Line Condition as Regards Load
		Telephones to Central Office	Central Office to Telephones	
6003B	None 13	Code Ringing Can Only Signal Central	Code Ringing 2 or 4 Party Selective	Lightly Loaded
6003C	None 13	Code Ringing Can Only Signal Central	Code Ringing 2 or 4 Party Selective	Lightly Loaded
6004B	None 13	Code Ringing	Code Ringing	Heavily Loaded
6004C	None 13	Code Ringing	Code Ringing	Medium Loaded
6004D	None 13	Code Ringing	Code Ringing	Heavily Loaded
6004E	None 13	Code Ringing	Code Ringing	Medium Loaded

NOTE.—In the case of the Nos. 300AA, 301AB, 315H, and 315J Desk Set Boxes provision is made for inserting a one microfarad condenser (see No. 21W condenser) in series with the receiver. However, condensers are not furnished unless so ordered.

**Western Electric Central Battery Telephones**

**Nos. 1533 and 6054 Types**

Telephones representing the highest and most modern development in central battery telephone design are found in the Nos. 1533 and 6054 types.

In addition to the superior features represented by the individual pieces of apparatus and circuits, these telephones embody a number of features that are particularly worthy of note, namely:

Ringer and gongs are enclosed within the case thereby preventing tampering, reducing maintenance and greatly improving the appearance.

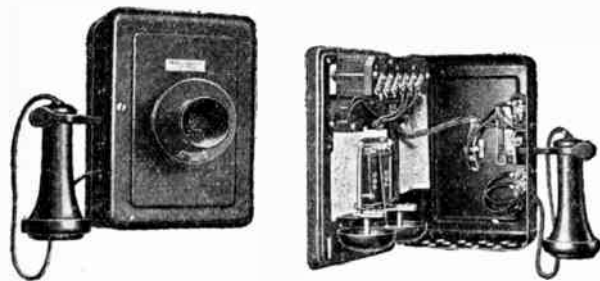
Case is made of heavy sheet steel, copper plated and finished with two coats of extremely durable black enamel (baked on) especially developed for this particular purpose.

The case is constructed so that every part of the interior is easily accessible when the cover is opened.

The base is flanged thereby giving greater rigidity and preventing base from cutting into plastered surfaces.

Unit type of construction and universal terminal block employed. This permits of the telephone being readily converted from one class of service to another. This also permits of a desk set box being converted into a wall telephone or vice versa by a substitution of covers.

**No. 1533 Type Telephones**



No. 1533A			No. 1533A—Interior		
Telephone Code No.	Transmitter	Receivers	Code No.	RINGER Res. (Ohms)	Con-denser
1533A	323BW	143AW	8AG	*1400	21BU
1533K	323BW	171W	8AG	*1400	21F
1533Y	323BW	143AW	8AG	*1400	21BU
1533AR	323BW	143AW	42AG	.....	21AP
			41SG		
1533E	323BW	143AW	33½ cycles		
1533F			41TG		
1533G			50 cycles		
1533H			41UG		
			66½ cycles		
			41RG		
			16½ cycles		
Telephone Code No.	Relay	Induction Coil	Talking Circuit	Kind of Ringing	Ring-ing Current
1533A	...	46	Standard	2 Party Selective or 4 Party Semi-Selective	
1533K	...	None	Series Central Battery	Single Party	
1533Y	...	13	Central Battery Signalling Local Battery Talking	2 Party Selective	A.C.
1533AR	85J	46	Standard	4 Party Selective	P.C.
1533E	...	..	Standard	Harmonic	H'rm'nic
1533F				4 & 8 Party	
1533G					
1533H				Selective	

All of these telephones are equipped with the No. 7A transmitter bracket, two T1-A cords, 6-inch transmitter cords and a 30-inch No. 521 receiver cord.

NOTE.—The No. 8AG ringers were formerly wound to 1000 ohms instead of 1400 ohms. The 1000 and 1400 ohms ringers have the same impedance and may be used interchangeably in service.

See separate listing for "Central Battery Telephones for Use with No. 1801 Switchboards," and for protectors.

The No. 323BW transmitters have a black finish.

**Western Electric Central Battery Telephones**

**No. 6054 Desk Type**



**No. 6054 Desk Telephone—No. 1040AL Desk Stand Partially Dismantled**

The No. 6054 desk type telephones consist of a No. 1040 type desk stand and a desk set box. These telephones comprise the combinations of desk stand and desk set boxes that are most used and, therefore, for convenience in ordering are covered by a single code number.

Combinations of apparatus differing from those covered by the No. 6054 series of code numbers may be obtained by ordering a desk stand and a desk set box as separate items, also a telephone arm or a hand set may be used in place of the desk stand if desired.

For example, any of the desk set boxes that will function with the No. 1040AL desk stand will also function with the following:

- No. 1048AA Telephone Arm
- No. 1048AB Telephone Arm
- No. 1048AC Telephone Arm
- No. 1001C and H Hand Sets (See Hand Set Hangers)
- No. 1002AC Hand Set

Telephone Code No.	TELEPHONE CODE No.—COVERS		CONTENTS OF DESK SET BOX		
	Desk Stand	Desk Set Box Code No.	RINGER Code No.	Res. (Ohms)	Con-denser
6054A	1040AL	534A	8AG	*1400	21BW
6054AR	1040AL	534AR	42AG	{ 1000 and 3000 }	21BW
6054E	1040AL	534E	41SG	.....	21F
6054F		534F	33½ cycles		
6054G		534G	41TG		
6054H		534H	50 cycles		
6054K	1040AH	534K	66½ cycles		
			41RG		
			16½ cycles	*1400	21F
			8AG		
DESK SET BOX (CONTINUED)					
Code No.	Relay	Induction Coil	Talking Circuit	Kind of Ringing	Ring-ing Current
6054A	...	46	Std. C.B.	{ Single party and 2 party selective.. }	A.C.
6054AR	85J	46	Std. C.B.	4 party selective	P.C. (Pulsating current)
6054E	...	..	Std. C.B.	{ Harmonic 4 party selective or 8 party semi-selective..... }	Harmonic
6054F					
6054G					
6054H					
6054K	...	None	Series Central Battery	{ Single party and 2 party selective... }	A.C.

NOTE.—See listings of No. 534 type desk set boxes, No. 1040 desk stands and protectors.

\*The No. 8AG ringers were formerly wound up to 1000 ohms instead of 1400 ohms. The 1000 ohm and 1400 ohm ringers have the same impedance and may be used interchangeably in service.

## Western Electric Central Battery Telephones

For Use with No. 1801 Switchboard



No. 6000AE



No. 1539A

### Systems A and B

The telephones for No. 1801 Switchboard Systems A and B are of the series talking circuit type and equipped with 140 ohm vibrating bells which operate on direct current.

Code No.	Case and Finish	Mounting	Receiver
1527A	Metal, Black	Surface Wall	Watch Case Type
1539A	Metal, Black	Flush Wall	Watch Case Type
1533N	Metal, Black	Surface Wall	Hand Receiver
6034AU	No. 1020BJ	Stand Desk	Watch Case Type

NOTE.—Information on hand set type telephones and desk telephones equipped with hand receivers will be furnished on application.

### System C

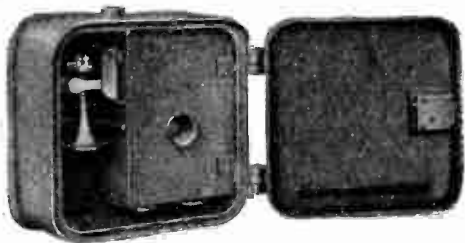
The telephones for No. 1801 Switchboard System C may be of the same types as used for Systems A and B, but in case the system is connected to an outside exchange, telephones equipped with standard central battery induction coil talking circuit should be used in order to obtain satisfactory transmission, as follows:

Code No.	Case and Finish	Mounting
1533M	Metal, Black	Surface Wall
6000AE	No. 1120CN	Stand No. 295AU

### System D

Any standard central battery telephone with ringers operated by alternating current either induction coil or series types can be used with System D. The No. 1533A wall type and No. 6054A desk type telephones may be selected for this system.

### No. 1320 Type Telephones for Police Service



No. 1320A Outer Door Open

The No. 1320 type is a metal case weatherproof telephone for central battery service. It was designed primarily for the Police Patrol Service but will be found very satisfactory for general central battery service where a weatherproof telephone is required.

The apparatus is mounted on a metal frame which is removable as a unit from the case. An inner door protects the apparatus from the weather when the outer door is open. The overall dimensions are 6 $\frac{1}{8}$  inches deep by 13 $\frac{1}{8}$  inches high by 12 $\frac{3}{4}$  inches wide.

A loud ringing extension bell may be connected in multiple with the ringer of this telephone thereby providing means of signaling a patrolman from a distance (see extension bells).

A tapped hole is provided in each end of the case for receiving conduit. Four holes are drilled in the back of the case for receiving mounting screws or mounting clamps. The lock on the outer door is designed so that the key cannot be removed until the door is closed.

Outer door is not marked. Standard finish, gray paint.

Special No. 1320A telephones may be obtained with outer doors marked (raised characters cast on door) in accordance with customer's requirements; color of finish, as specified.

## Western Electric Magneto Mine Telephones



No. 1336 with Outer Door Open

Code No.	Transmitter	Receiver	Receiver Cord	Condenser	RINGER Code No.	Resistance
1336A	312W	144AW	384	None	None	2500
1336E				None	45BG	
1336J				10 $\frac{1}{2}$ in.	21W	
1336K	312W	558W	R2AD	21W	45BG	1600
1536E				21F	63BG	

Code No.	Ringer Operating On	GENERATOR Code No.	Current	Signalling Service	For Line Load
1336A	A.C.	48C	A.C.	Code Ringing	Heavily Loaded
1336E				Code Ringing	
1336J	A.C.	48C	A.C.	Code Ringing	Medium Loaded
1336K	A.C.	48C	A.C.	Code Ringing	Heavily Loaded
1536E	A.C.	51A	A.C.	Code Ringing	

A reliable telephone system in a mine permits instant communication throughout the plant. Routine business can be easily handled with such a system. In cases of power suspension, shut downs, or emergencies involving possible loss of life or of property the telephone is of inestimable value.

GENERAL—There are three classes of location must be considered for mine telephones. 1. Dry locations above ground or in protected parts of the workings such as the Superintendent's office and the engine room. In such locations the standard wall or desk magneto telephones are recommended. 2. Exposed locations above ground or in mines in which methane or other explosive gases or coal dust are not likely to be present in dangerous proportions. In such locations No. 1336 type telephones are recommended. 3. Mines or other locations in which methane or other explosive gases or coal dust are likely to be present in dangerous proportions. The No. 1536 type telephone is recommended for such locations.

### No. 1336 Type Telephones

Briefly these are metal case magneto telephones in which the apparatus has been especially treated to provide resistance to moisture, acid fumes, and non-inflammable gas. All parts are enclosed in a cast iron case which provides protection against damage from water and falling objects. The top of the case is rounded so that water will readily drain off and any objects falling on the top will slide off to the ground. An outer door totally encloses all parts including the transmitter receiver and generator crank.



**Western Electric Magneto Mine Telephones**

Continued

**No. 1336 Type Telephones**

The sets are primarily designed for use on lines to which a large number of telephones are connected and where code ringing is used. Although intended chiefly for mine service they are also recommended for out-of-door use as in railway service, police alarm, etc.

Equipped with a No. 143J switchhook and a No. 31 induction coil.

Special No. 1336 type telephones equipped with a heavy brass padlock with 2 keys are obtainable. The padlock is attached to chain in place of latch pin. Orders for these telephones must state that padlocks are desired.

No. 1336A telephone is not equipped with a ringer. Intended for use where an extension bell is preferred to the regular telephone ringer, also for service where all the calls will be outgoing.

No. 1336E differs from the No. 1336A in that it is equipped with a ringer and an iron hood for protecting the gongs.

No. 1336J differs from the No. 1336E only in that a condenser is provided to permit the ringers of this telephone as well as others on the same line, being rung even though its receiver may have been left off the switchhook.

To add a condenser to a No. 1336 type telephone that was not originally so equipped the following apparatus and parts should be ordered: No. 21W condenser, one condenser strap P-43065, and two round head machine screws P-110187.

**Dry Cells**

Two standard size dry cells are required for each telephone to furnish current for talking. Western Electric Blue Bell Dry Cells are specially designed for telephone service and are recommended because they last longer and are more efficient for this class of service than other dry cells.

Two special Blue Bell Dry Cell cartons, impregnated with moisture-proofing compound, are furnished with each No. 1336 type telephone. These are to be substituted for the standard cartons furnished on the dry cells. These cartons resist the action of any moisture that may form on the inside of the case and prevent current leakage and rapid deterioration.

**Case**

The box, outer door, inner door and gong hood are of cast iron heavily coated with a rust-resisting finish. When the outer door is closed only the metal transmitter mouthpiece, receiver, receiver cord and the generator handle are exposed. When the outer door is closed these parts are protected from mechanical injury. When using this telephone it is, of course, evident that only the outer door need be opened.

**Entrance for Line Wires**

The line wires may be brought in either at the top or the bottom of the case. A short length of pipe is screwed into the top of the case and is covered with a pipe cap. This cap prevents water running into the set by following the line wires. In case the line wire is to be run to the telephone in pipe (conduit) no difficulty will be encountered in joining the conduit to the telephone as the wire entrance hole at bottom as well as the top of the case is tapped.

**Mounting**

Wrought iron mounting bars are secured to the back of the case. The upper end of these have pear shaped holes, and with this arrangement the telephone can be readily mounted by one man and without any danger of damaging it. This is accomplished by driving two lag screws into the mounting surface until their heads project about  $\frac{1}{2}$  inch. The telephone may then be hung upon these mounting screws (the heads of the lag screws will pass through the large end of the pear shaped holes) after which the lower mounting screws may be driven into place through the holes in the lower end of the mounting bars. Wrought iron mounting bars are employed as they are less subject to breakage than if lugs were cast on the case.

**Western Electric Magneto Mine Telephones**

Continued

**No. 1536 Type Telephones**

Designed especially for use in mines and other locations subject to the hazard of explosive gases or coal dust and have been declared by the United States Bureau of Mines permissible for use in mines or other locations where methane or other explosive gases or coal dust are likely to be present in dangerous proportions.

No. 1536E telephone is the same as the 1336E except that protective features are incorporated in the electrical contacts of the switchhook, generator, ringer.

No. 1536E has a 149A switchhook, a 31 induction coil and is furnished without condenser unless the condenser is called for in the order. The outer door is omitted. Projecting hood over the door protects the transmitter, receiver and generator crank. Line wires are brought in either top or bottom, when from the top an angle fixture is provided so moisture cannot enter. Holes in the bottom of the set drain off any accumulation of moisture. Special cordage adapter is provided at the receiver connection of the cord. Unusually hard usage and hoisting will not fray the insulation. Internal mechanism, batteries, line connection, etc. in the housing are inaccessible without unlocking the door and removing the cap screws around the side of the door. Switch hook, generator and ringer are separately removable so they can be carried away for repairs.

Two Blue Bell dry cells with screw terminals are furnished as part of the set. Cartons P-201339 are furnished with sets, but new cells can be ordered without cartons as one carton has a longer life than the cell. Wrought iron bars are secured to the back of the set for mounting. Two lag screws are needed (but not furnished) to mount set. Set as furnished is permissible, any change automatically voids the approval of the Bureau of Mines.

**Systems**

For a system in which all the telephones are connected to a party line, the set should be of such a design that all the stations can be clearly signaled, for example: No. 1336J telephone set for service below ground or exposed locations above ground and the 1536E for gaseous locations. No. 1317S wall telephone set for service above ground in unexposed locations or No. 6004-B desk type telephone set.

It is preferable, in cases where the size of the system warrants, to use a number of lines connected to a switchboard rather than to depend on one party line. Any of the lines may be a party line but it is much better to have the important stations such as engine room and superintendent's office connected to the switchboard by individual lines. With a switchboard and individual lines the 1336E or the 1536E telephones should be used below ground and in exposed locations. For the lightly loaded lines above ground and not exposed the 1317AH wall telephone set or the 6003B desk telephone set can be used.

**Ringers and Extension Bells**

The ringers used in these telephones may be readily adjusted if necessary with a screwdriver. The gongs emit a loud distinct ring, which can be heard a long distance, particularly so underground. However it is often desired to provide loud ringing extension bells in connection with mine telephones and for this purpose the No. 392 and No. 342 type extension bells are recommended as they are designed to withstand the severe conditions encountered in mine service.

**Protectors**

The telephone installed above ground should be equipped with protectors consisting of open space cut outs (for example the No. 60AP protector) to prevent damage to the telephone by lightning. In case there is a chance of contact between the telephone line and a power circuit protectors consisting of open space cut outs and fuses (for example the No. 58AP protector) should be used.



## Western Electric Street Railway Telephones

### Magneto and Battery Types



No. 1278 type telephones employ weatherproof iron boxes and are provided with insulated circuits. They are intended principally for exterior use by street railway companies operating telephone lines on which there is a chance of crosses with low voltage power circuits. This type telephone is arranged so that its circuit is cut off from the line except when its door is opened. When the telephone is in use a repeating coil is interposed between the line and telephone circuit proper, so as to protect the user, as far

as possible, from the chance of injury should the line become crossed with a low voltage circuit. When the door is opened, a line switch is released which connects one winding of the repeating coil across the line and connects two fuses and two open space cut-outs into this circuit. The telephone circuit proper is connected to the second winding of the repeating coil and has no direct contact with the line circuit. The fact that a repeating coil is interposed between the line circuit and the telephone circuit reduces the efficiency of the telephone to some extent and, therefore, the use of these telephones is not recommended on heavily loaded lines, except where the protective feature is essential. See No. 1336 type telephones. In case a car is held up awaiting orders from the dispatcher the door of the telephone is left open so as to permit of the telephone being signalled. (It is impossible for the telephone to be signalled when its door is closed.) As the talking circuit is only closed when the push button in the hand set is depressed, the battery in the telephone is not wasted under the above condition. The apparatus of this telephone is mounted on an iron shelf, which may be removed as a unit from the telephone for inspection. The connection between the apparatus on the shelf and the line and ground terminals is made through the medium of clips which register with contacts mounted on a terminal block secured to the back of the case. The case and door are of cast iron and have a galvanized finish. Both the top and bottom ends of the case are tapped for receiving 1/2 inch conduit.

The F, G and J telephones are equipped with a lock which is arranged so that the key cannot be removed until the door of the telephone is closed. The No. 1278H is equipped with a hasp, staple and pin similar to that used on No. 1336 type telephones, but padlock is not included.

### For Magneto Service

Code No.	Hand Set	RINGER Resistance No. (Ohms)	Generator	Ind. C. Coil	Repeating Coil	Lock	Class of Service	For Line Load
1278F	1001H	51AG 1000	48C	13	25E	5B	†Code	Medium
1278G						5B		
1278H						*None		

### For Local Battery Talking and Central Battery Signalling

1278J	1001H	51AG 1000	None	13	25E	5B	†Code	Medium
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Designed for medium line load.

In addition to the apparatus listed above these telephones are each equipped with: A special door switch. A special protector.

- 2 D. & W. No. 5001 Type C fuses—500 volt 1 ampere.
  - 2 No. 2 protector blocks.
  - 2 No. 1 protector blocks.
  - 2 No. 3 protector micas.
- Dry cells must be ordered as a separate item.

\*Equipped with hasp, staple and pin the same as No. 1336 type telephones. Ringer is disconnected from the line when door of telephone is closed.

†Generators have special mounting brackets.

## Western Electric Portable Magneto Telephones



No. 1330E Closed



No. 1330E Open

### Nos. 1330 and 1331 Types

These are complete magneto telephones mounted in substantial wooden cases. They are primarily for use in railway service and are designed to withstand the jarring and rough handling incident to train service. In addition to railway service these telephones are suitable for any service where a substantial type of portable telephone is required. While these telephones are not waterproof they are designed to withstand ordinary weather conditions.

The Nos. 1330F and 1331F telephones are equipped with a six-foot waterproof cord and No. 146 plug for connecting them to a telephone line through a No. 186 pole jack.

The Nos. 1330E and 1331E telephones are intended primarily for use where connection to the line will be made with a line pole.

### No. 1375 Type

The No. 1375B is especially adapted for use in cases where the telephone user must carry the telephone considerable distances. While it is primarily intended for use on moderately loaded lines, the design of the generator is such that it may be satisfactorily operated on heavily loaded lines.

The generator, induction, coil buzzer and terminal block are mounted on an aluminum frame and secured in the case by means of machine screws.

The case is made of high grade leather and is designed to withstand considerable rough handling.

Code No.	Hand Set	Plug	Cord for Plug	RINGER OR BUZZER Code No.	Buzzer Resistance (Ohms)
1330E	1001C	None	None	32B Ringer (A.C.)	2500
1330F		No. 146	No. 509 6-ft.		
1331E		None	None	3B Buzzer (A.C.)	2500
1331F		No. 146	No. 509 6-ft.		
1375B	1001H	.....	.....	D-21141 Buzzer (A.C.)	2150

Code No.	GENERATORS Code No.	Current	Ind. Coil	Con-denser	Battery Used*	Approx. Wt.Lbs.
1330E	48A	A.C.	29	21F	2 Blue Bell Dry Cells*	28
1330F						
1331E	22A	A.C.	29	21F	2 No. 790 Eveready batteries*	17
1331F						
1375B	29E	A.C.	D-17624	None	One No. 703 Eveready Battery*	10 1/2

Code No.	Over All Dimensions In.	Line Conditions as Regards Load	Signalling
1330E	12 1/2 x 13 1/2 x 5 1/4	For heavily loaded lines	Telephone signals and is signalled by code ringing
1330F			
1331E		11 1/2 x 10 1/2 x 4 3/4	
1331F			
1375B	9 3/4 x 7 1/4 x 4 1/4	{ Medium and heavily loaded	Telephone signals and is signalled by code ringing

\*Batteries are not included in the price of the telephone and are furnished only when specified in the order.

**Gray Telephone Pay Stations**

**Non-Electrical—For Local or Central Battery Service**



**No. 7 Mounted on a Central Battery Telephone**

**No. 11 Mounted on a No. 1317 Wall Telephone**



**No. 14 Mounted with a No. 1020 Desk Stand**

The operation of these pay stations is accomplished without the aid of moving parts or electrical connections, the signals being produced by the coins striking gongs or chimes, the sound of which is transmitted to the central office operator through the transmitter of the telephone at which the pay station is located. In view of the simplicity and reliability of these pay stations, their maintenance cost is extremely low.

(These pay stations cannot be used for pre-payment service, as the coin is not under the control of the central office operator, as in the Western Electric No. 7 and No. 50 type Coin Collectors.)

**No. 7**

This will be drilled to take standard transmitter arms.

Gray Code No.	Type of Telephone Used On	Coins Arranged For	Approx. Size In.
7	Wall	Nickels, Dimes and Quarters	9x4½x3

This pay station will not be provided with a mounting bracket unless specifically so ordered.

8A	Wall	Nickels	7x3¾x3½
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Bracket for No. 8A Pay Station. In ordering this bracket, specify the make and code number of the telephone on which the pay station is to be used in order that the proper form of bracket may be furnished.

**No. 11**

A mounting plate is included with this pay station for mounting it at the side of a telephone, as shown in cut.

11	Wall	Nickels, Dimes and Quarters	9x4½x3
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**No. 13A**

This equipped with two clamps of such size as to fit the stem of a standard desk telephone. In ordering, specify type and make of desk telephone with which it is intended for use.

13A	Desk	Nickels	9½x3½x3¼
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**No. 14**

Fittings will be furnished with this pay-station to permit of attachment to standard types of desk telephones. In ordering, specify the type and make of desk telephone with which it is intended for use.

14	Desk	Nickels, Dimes and Quarters	11x4½x3½
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**No. 20**

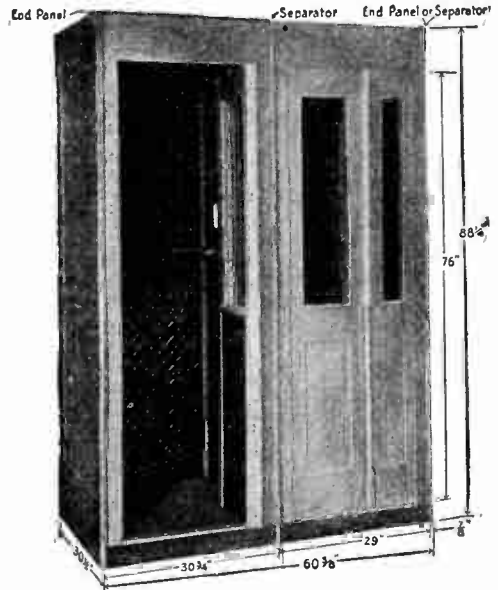
This pay station will be equipped with fittings to permit of its being attached to a standard type of desk telephone. Fittings are arranged so that the unit thus formed may be fastened to a counter or telephone booth shelf. In ordering, specify the type and make of desk telephone with which it is intended for use.

20	Desk	Nickels, Dimes and Quarters	10¾x4¼x3¼
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The above code numbers cover pay station boxes only.

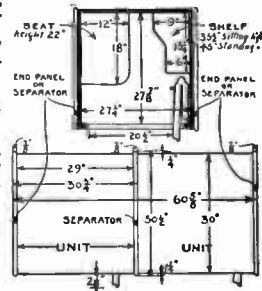
**Telephone Booths**

**No. 1 Type Folding Door**



Designed for installation in groups being built in units with unfinished sides. They are placed with separators between adjacent units and assembled with panels at either end of the group of compartments. The backs of the units are finished as indicated in the code listings.

The folding door construction makes these booths particularly desirable for use in narrow hallways or passages as the door opens and closes in a space only three inches beyond the front surface of the booth. This door will remain as placed in any position. The sides, ceiling and the lower panel of the door on the inside are lined with sheet metal. The floor and front base-board are covered with linoleum and the threshold is protected with a safety tread.



The ceiling of the booth is 4½ inches below the roof and the intervening space may be used as a wiring chamber and to house an electric light relay or door switch equipment when these features are required.

These booths are strong and substantial in construction.

The special folding door design not only economizes space but protects the user.

**Standard No. 1 Type Booths**

No. Code	Description
1-A	Light Mahogany Booth Unit with Hardwood Back
1-B	Light Mahogany Booth Unit with Softwood Back
1-C	Quartered Oak Booth Unit with Hardwood Back
1-D	Quartered Oak Booth Unit with Softwood Back
1-E	Dark Mahogany Booth Unit with Hardwood Back
1-F	Dark Mahogany Booth Unit with Softwood Back
1	Walnut Booth Unit with Hardwood Back
1	Walnut Booth Unit with Softwood Back
1	Gumwood Booth Unit with Hardwood Back
1	Gumwood Booth Unit with Softwood Back
1	Birch Booth Unit with Hardwood Back
1	Birch Booth Unit with Softwood Back

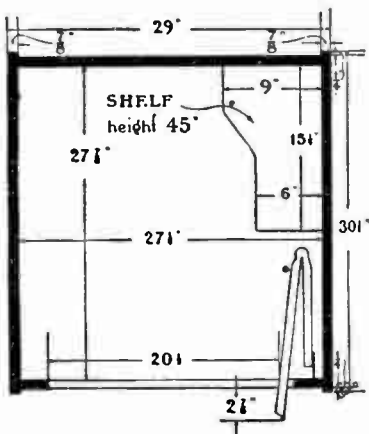
The above listings of No. 1 type booths do not include end panels, separators, seats, locks, keys and lighting equipment. These items must be ordered separately.

Telephone Booths

No. 2 Type Folding Door



Booth Half Closed



Over All Height, 88 1/4 Inches

The No. 2 type booth is built as a single unit and presents a neat and pleasing appearance from all points of view. Several of these booths may be placed next to each other to form a group, such booths being ordered without glass panels in the sides, that is, they would have glass panels in the doors only.

The following points should be noted in considering the advantages of this form of booth construction.

The movement of the Folding Door takes but 3 inches of space beyond the front of the booth, making it possible to use this type of booth in narrow passageways.

Door is open at all times when booth is not in use. This is the only practical plan for booth ventilation. The point where the 2 leaves of the Folding Door meet is of such design as to prevent any chance of injuring the fingers or hand. Can be both closed and opened by pulling on the handle.

The Folding Door does not require the use of tracks in the floor. The design of the Folding Door is such that it will remain open or closed without the use of latches or catches.

The Folding Door folds within the booth.

Standard No. 2 Type Booths

Code No.	Material	Finish	Description
2A	Oak	Plain Medium	2 Glasses in Door, 2 in Left Side, 1 in Right Side.
2B	Birch	Dark Mahogany	2 Glasses in Door, 2 in Left Side, 1 in Right Side.
2C	Birch	Light Mahogany	2 Glasses in Door, 2 in Left Side, 1 in Right Side.
2	Walnut	Walnut Finish	2 Glasses in Door, 2 in Left Side, 1 in Right Side.
2	Gumwood	Gumwood Finish	2 Glasses in Door, 2 in Left Side, 1 in Right Side.
2G	Oak	Plain Medium	2 Glasses in Door Only.
2H	Birch	Dark Mahogany	2 Glasses in Door Only.
2J	Birch	Light Mahogany	2 Glasses in Door Only.
2	Walnut	Walnut Finish	2 Glasses in Door Only.
2	Gumwood	Gumwood	2 Glasses in Door Only.

Equipment

INTERIOR.—Sides, back and ceiling lined with sheet metal.

FLOOR.—Hardwood flooring.

THRESHOLD.—Protected with safety tread.

DOOR.—Always hinged on right-hand side (facing booth).

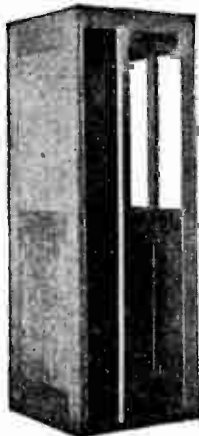
SHLELF.—Furnished with each booth. Shelf is intended only as an elbow rest.

WIRING.—Space between ceiling and roof (27 1/4 inches wide, 27 1/4 inches deep, 4 1/2 inches high) is provided as a wiring chamber, and as a housing for electric light relay or door switch equipment. A wiring slot is provided back of inside corner moulding. Ceiling of booth is bored for electric light fixture, and to receive a door switch designed to operate an electric light by movement of the door.

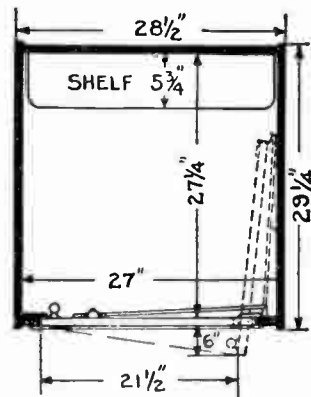
SEAT.—Made of oak or birch.

Telephone Booths

No. 3 Receding Door



Booth Half Closed



Dimensions Over All Height, 83 1/2 Inches

The No. 3 type receding (or sliding) door telephone booth is built as a single unit and is especially characteristic in its design. It is made throughout of genuine kiln dried selected plain white oak or birch equipped with a reinforced back panel for mounting a wall telephone or coin collector set. It also has a writing-shelf. This receding door booth construction makes these booths especially desirable for use in narrow hallways or passages as the door only extends a maximum of six inches beyond the front surface of the booth when open. The No. 3 type has no grooves in the floor where dirt can accumulate and interfere with the operation of the door and it is provided with mechanical devices to permit the door being opened and closed in a smooth and easy manner. When the door is in closed position, it is only necessary to push on the right-hand side of the door. This feature from a user's standpoint is important.

Several of these booths may be placed adjoining each other to form a group or battery, such booths being ordered without glass panels in sides.

OUTSIDE DIMENSIONS.—(Booth assembled). 83 1/2 inches high, 28 1/2 inches wide and 29 1/4 inches deep.

INSIDE DIMENSIONS.—80 1/2 inches high, 27 inches wide and 27 1/4 inches deep.

DOOR OPENING.—77 1/4 inches high, 23 inches wide.

DOOR EQUIPMENT.—The door is equipped with patented steel, nickel-plated hardware consisting of:

1 swivel roller guide and track on top of door, 1 sliding guide on bottom of door which operates on outside edge of tread, 2 roller hinges on back edge of door which operate on tracks fastened to side of cabinet, 1 handle for inside of door, 1 lead aluminum tread at front edge of bottom.

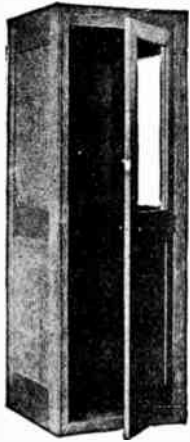
FINISH.—The booth is thoroughly finished inside and out in following manner:

The sides and front are stained, filled, then given one coat of shellac and a final coat of flat varnish, producing a smooth satin finish. The back and top are stained, filled and given one coat of varnish. The floor is thoroughly oiled.

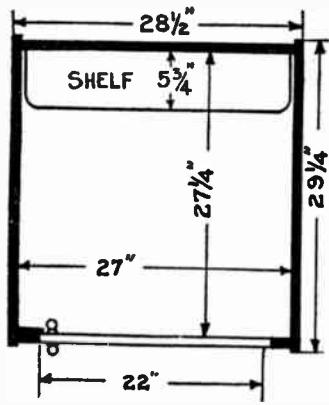
SHIPPING.—The booths are shipped "knocked down" in a substantial crate, ready for assembly, upon receipt at destination. Orders for this type of booth should specify the following code and descriptive information.

Code No.	Material	Finish	Description
3A	Plain Oak	Medium Oak	1 Glass Panel in Door, 1 Glass in Right Side.
3B	Birch	Dark Mahogany	1 Glass Panel in Door, 1 Glass in Right Side.
3C	Birch	Light Mahogany	1 Glass Panel in Door, 1 Glass in Right Side.
3D	Plain Oak	Medium Oak	1 Glass in Door, 1 in Right Side, 1 in Left Side.
3E	Birch	Dark Mahogany	1 Glass in Door, 1 in Right Side, 1 in Left Side.
3F	Birch	Light Mahogany	1 Glass in Door, 1 in Right Side, 1 in Left Side.
3G	Plain Oak	Medium Oak	1 Glass Panel in Door Only.
3H	Birch	Dark Mahogany	1 Glass Panel in Door Only.
3J	Birch	Light Mahogany	1 Glass Panel in Door Only.

**Telephone Booths  
No. 4 Swinging Door**



Booth Half Closed



Dimensions Overall Height, 83 1/2 Inches

**BOOTH CONSTRUCTION.**—The No. 4 type telephone booth is made throughout of genuine kiln dried plain white oak (with medium oak finish) or birch (with a light or dark mahogany finish). All sides are framed and paneled 3-ply. The door is equipped with a glass upper panel. The right or left sides of the booth are interchangeable and can also be equipped with glass upper panel if desired.

This booth is equipped with a reinforced back for mounting either a wall telephone or coin collector set. A writing-shelf 5 3/4 inches wide is also supplied which affords means for mounting a desk telephone.

**OUTSIDE DIMENSIONS.**—(Booth assembled). 83 1/2 inches high, 28 1/2 inches wide and 29 1/4 inches deep.

**INSIDE DIMENSIONS.**—80 1/2 inches high, 27 inches wide and 27 1/4 inches deep.

**DOOR OPENING.**—77 inches high and 23 inches wide.

**DOOR EQUIPMENT.**—The door is attached to the door-frame with three substantial hinges, finished in black japan and the mortise lock with knob on each side is finished in japan.

A lead alunalun door tread is supplied on this booth.

**FINISH.**—The booth is thoroughly finished inside and out in the following manner:

The sides and front are stained, filled, then given one coat of first coat shellac and finished in flat varnish producing a smooth satin finish. The back and top are stained, filled, and given one coat of varnish.

The floor is thoroughly oiled.

**SHIPPING.**—The booth is shipped "knocked down" in a substantial crate, ready for assembly upon receipt at destination. A card giving full instructions for the assembly of the booth is packed with each unit.

**ORDERS** for this type of booth should specify the following code and descriptive information:

Code No.	Material	Finish	Description
4A	Plain Oak	Medium Oak	1 Glass Panel in Door, 1 Glass in Right Side.
4B	Birch	Dark Mahogany	1 Glass Panel in Door, 1 Glass in Right Side.
4C	Birch	Light Mahogany	1 Glass Panel in Door, 1 Glass in Right Side.
4D	Plain Oak	Medium Oak	1 Glass in Door, 1 in Right Side, 1 in Left Side.
4E	Birch	Dark Mahogany	1 Glass in Door, 1 in Right Side, 1 in Left Side.
4F	Birch	Light Mahogany	1 Glass in Door, 1 in Right Side, 1 in Left Side.
4G	Plain Oak	Medium Oak	1 Glass in Door Only.
4H	Birch	Dark Mahogany	1 Glass in Door Only.
4J	Birch	Light Mahogany	1 Glass in Door Only.

**Type C Western Electric Cable Terminals**



A No. 22 B.&S. gauge cable stub 6 1/2 feet long will be furnished on Nos. C-10 and C-16 unless otherwise specified. A 7-foot, No. 22 B.&S. gauge cable stub will be furnished with No. C-26 unless otherwise specified.

Code No.	No. of Pairs	Height Inches	Replaces
C-10	10	12 3/4	8A
C-16	16	14 5/8	8B & 8D
C-26	26	17 3/4	8C & 8E

**No. 14 Type Western Electric Cable Terminals**

**Without Protectors**

This is for open wire distribution from lead-covered aerial cable, and is intended to be mounted on poles or buildings. No arrangement is made for protective devices. A six-foot No. 22 B.&S. gauge cable stub is standard.

Code No.	Capacity Pairs	Length Including Nipples	Width of Cover In.
14B	11	10 3/32	7 1/16
14C	16	12 21/32	7 1/16
14D	26	17 23/32	7 1/16



**No. 18 Type Western Electric Cable Terminals**

**With Protectors**

This is a protected terminal for open wire distribution from lead-covered aerial and underground cable. Inclosed in a black finished galvanized iron cover approximately 8 1/16 inches in diameter, provided with a safety chain fastened to the mounting base.

Arranged for mounting on poles. Equipped with: No. 7A fuses (7 ampere unless otherwise specified). No. 1 protector blocks. No. 2 protector blocks. No. 3 protector micas.

A six-foot No. 22 B.&S. gauge cable stub is standard.

Code No.	Capacity Pairs	Length Inches	Code No.	Capacity Pairs	Length Inches
18A	10	19 9/32	18D	30	33 1/32
18B	15	22 1/32	18E	50	46 23/32
18C	25	28 23/32	18F	60	53 21/32



**Western Electric Unmounted Condensers**

Used in on party lines where ringing trouble occurs due to "listening in" or leaving receivers off hook.

Telephones equipped with one of these condensers wired in series with the receiver overcome this difficulty, and it is possible to ring satisfactorily on a line with several receivers off.

Code No.	Capacity Micro Farads	Tested on Voltage	Use
21D	2	500 D.C.	Telephone Sets
21E	2	500 D.C.	General
21F	1	500 D.C.	Telephone Sets
21L	2	500 D.C.	Coil Racks
21BW	1	500 D.C.	Coil Racks
21W	1	350 D.C.	Magneto Receiver Sets
23A	1	1000 A.C.	Railway Sets
21K	1	500 D.C.	General
21AA	1	1000 A.C.	Railway Sets
21AC	0.5	500 D.C.	Used with No. 1200 Type Switchboard
21AK	0.5	1000 A.C.	Telegraph
21Y	0.25	1200 A.C.	Telegraph
21H	0.1	1200 A.C.	Used with No. 84 Type Interrupter
21R	0.1	500 D.C.	General
21U	0.05	1200 A.C.	Railway Sets

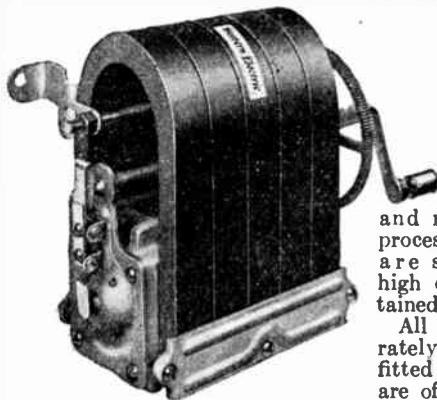
**NOTE.**—In addition to the 21W condenser, a condenser strap P-43065 and two 8x1 1/2-inch round head wood screws should be ordered separately in case it is desired to mount this condenser in a wooden telephone set box.







**Western Electric Hand Generators**



No. 48A

Western Electric hand generators are correct in both mechanical and electrical design and the materials used and manufacturing processes employed are such that their high efficiency is retained indefinitely.

All parts are accurately machined and fitted and the bearings are of such size that no trouble due to the armature scraping on the pole pieces will be encountered even after years of service. The gears are accurately cut.

All metal parts are given a protective finish and the armature winding is moistureproofed. The magnets are made from steel which was developed especially for this purpose.

**No. 22 Type Generators**

The No. 22 type generator is used on lightly loaded magneto lines and may be obtained for alternating or pulsating current.

These generators have three magnets except the No. 22E, which has only two.

**No. 29 Type Generators**

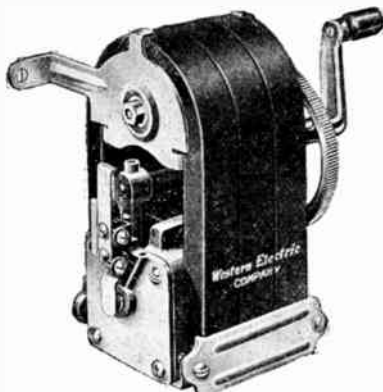
The No. 29 type generators are used where light weight is essential as in linemen's test sets, and portable telephones.

**No. 48 Type Generators**

The No. 48 is our most powerful hand generator and is used in telephone for heavily loaded line service.

**No. 50 Type Generators**

The No. 50 type generator was designed for use on moderately loaded lines and while it only has three magnets, it is considerably more powerful than a good many five-bar generators on the market, and will be found satisfactory for use on all but the very heaviest loaded lines. On a line of 12000 ohms, the No. 50 generator will operate six 2500 ohms Western Electric ringers and will operate thirty-five 2500 ohms Western Electric ringers on a line of about 1000 ohms.



No. 50A

The No. 50 generator is approximately 75% as powerful as the No. 48 type.

**Western Electric Hand Generator Boxes**



A hand generator box consists of a generator mounted in an oak cabinet having a hinged cover.

The leads from the generator are connected to terminals mounted close to the inside edge of the box.

Code No.	Generator	Current	DIMENSIONS OF BOX, INCHES		
			Width	Depth	Length
299F	48A	A. C.	8	6	9
299G	48B	A. C. and P. C.	8	6	9
303G	50A	A. C.	7 <sup>29</sup> / <sub>32</sub>	4 <sup>13</sup> / <sub>32</sub>	8 <sup>1</sup> / <sub>8</sub>

**No. 1001 Type Western Electric Hand Sets**



No. 1001A

The No. 1001 type hand sets have been manufactured for over fifteen years. They were originally intended for the use of linemen and are designed to withstand the rough handling, incidental to such service.

This design proved to be so satisfactory that it is now used extensively for a number of different purposes, as described below.

The handles are made of brass tubing with drawn brass end pieces and the transmitters and receivers are provided with drawn brass cases equipped with screw clamping rings, thereby making an instrument that is extremely rugged.

The No. 1001-C, and H hand sets are provided with a push button switch which is connected so that these hand sets function the same as the No. 1020-AL desk stand. In view of this, they may be used in connection with our regular magneto and central battery desk set boxes in place of a desk stand, in cases where the service conditions are such that a hand set is required. These hand sets have a nickel-plated finish.

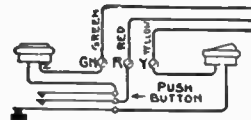
**No. 1001A**

Used by linemen as a test set on central battery lines. The cord is equipped with spring connection clips.



Code No.	Transmitter	Receiver	CORDS		Push Button Spring Combination
			Code No.	Length	
1001A	244W	131W	243	8 in.	None
			2-574	3 ft.	
			(Waterproof)		

**Nos. 1001C and 1001H**



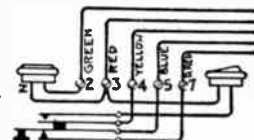
No. 1001C is used with Nos. 1330 and 1331 portable magneto telephones.

No. 1001H is used with No. 1375B portable magneto telephone.

Code No.	Transmitter	Receiver	CORDS		Push Button Spring Combination
			Code No.	Length	
1001C	285W	131W	366	6 ft.	2 Make
1001H	244W	131W	422	5 ft. 2 in.	2 Make
			(Waterproof)		

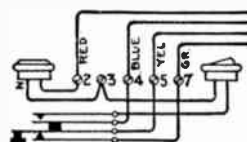
**No. 1001E**

Used with desk type Inter-phones where 5-conductor cord is required.



Code No.	Transmitter	Receiver	CORDS		Push Button Spring Combination
			Code No.	Length	
1001E	244W	131W	398	6 ft.	1 Make and 1 Break

**No. 1001J**



No. 1001J is used with desk type Inter-phones.

Code No.	Transmitter	Receiver	CORDS		Push Button Spring Combination
			Code No.	Length	
1001J	144W	244W	502	6 ft.	1 Make and 1 Break

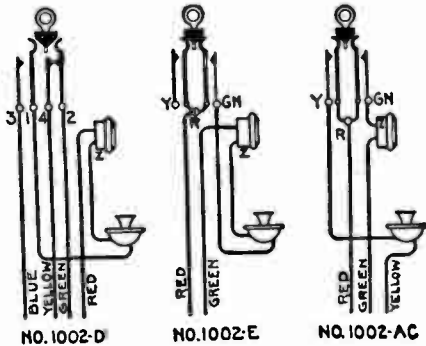


## No. 1002 Type Western Electric Hand Sets



No. 1002AC

The transmitter and receiver of the No. 1002 type hand sets are mounted on a nickel plated tubular brass frame, equipped with a hard rubber handle. A switch mounted within the frame is actuated by a plunger which terminates in a ring by which the hand set is suspended, when not in use. When the hand set is removed from the hook, the switch is automatically closed. These hand sets function the same as certain desk stands, and, therefore, may be used in place of desk stands, if required. A hook (No. 141A switch-hook) is furnished with each hand set.



No. 1002D

Used in place of desk stands and telephone arms in connection with Interphones. Also for general use.

Code No.	Transmitter	Receiver	Cords		Switch Combination
			Code No.	Length	
1002D	267W	141W	336	14 ins.	1 make and 1 break (4 conductors)
			402	8½ ins.	
			429	4 ft. 6 ins.	

No. 1002E

Used in connection with a janitor's switchboard in apartment house equipment. Also for general use.

1002E	267W	141W	402	8½ ins.	1 make contact
			336	14 ins.	
			430	4 ft. 6 ins.	

No. 1002AC

Used in place of local battery bridging or central battery desk stands. Functions same as No. 1040AL desk stand. Also No. 1801 swbd.

1002AC	267W	141W	318	4 ft.	2 make
			414	4¼ ins.	
			415	9½ ins.	

## No. 1003 Type Hand Sets

NOTE.—The No. 1003 type hand sets are listed under Interphones.

## Western Electric Hand Set Hangers

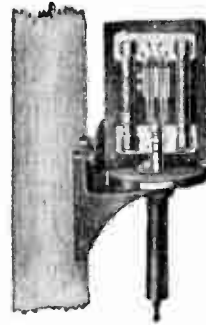
No. 1B mounts on a vertical surface for holding a No. 1001 type hand set when not in use. The hand set is suspended by its receiver, which fits into a recess in the hanger. Cast brass; black finish. Overall dimensions, 3¼ inches wide, 2½ inches deep and 3¾ inches high.

No. 1C is the same as the No. 1B, except that it is equipped with rubber studs and a spring, so arranged as to prevent the hand set from swaying. Used principally on steamships.



No. 1B

## No. 186 Western Electric Weatherproof Telephone Jacks



Weatherproof jack designed for mounting poles; affords a means of connecting a portable telephone to the line. Contains protective apparatus.

Lock will be furnished if specified in order.

## Western Electric Telephone Protectors

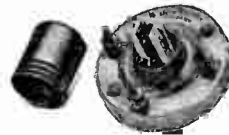
No. 58AP



Designed for protection against lightning and crosses with electric circuits.

Consists of 2 No. 11C-7 ampere fuses, 2 each Nos. 26 and 27 protectors and Nos. 16, 29 and 48 mountings.

No. 60AP



Designed for protection against lightning. Consists of 2 each Nos. 26 and 27 blocks and mounting No. 49.

NOTE.—The No. 58AP is recommended in all cases except where the entire telephone system is entirely removed from all other electric lines. In these cases the No. 60AP can be used.

## Western Electric Telephone Protector Blocks

Nos. 1 and 2



No. 1



No. 2

Code No.	Description	USED WITH		Protectors, Nos.
		Protector Blocks, No.	Protector Micas, No.	
1	Plain Carbon Block with Fuse Metal	2	3	12A, 58A, 60A,
2	Grooved Carbon Block without Fuse Metal	1	3	12A, 58A, and 60AP.

**Western Electric Telephone Protector Blocks**

Nos. 19 and 20



No. 19



No. 20

Code No.	Description	USED WITH		
		Protector Blocks, No.	Protector Micas, No.	Protectors, Nos.
19	Plain Copper Block with Two Pins Grooved Copper Block with Two Bushings	20	10	58B, 60B
20		19	10	58B, 60B

Nos. 26 and 27



No. 26



No. 27

Provides better telephone service through fewer interruptions of operation. They are used together without a separator (protector mica) and form an open space cutout which will afford the highest grade of protection against high potentials due to lightning.

The No. 26 protector block is a solid piece of hard non-dusting carbon. The face of the block is especially ground to present a smooth surface. The No. 26 protector block is mounted on the ground side of the protector mounting.

The No. 27 protector block consists of a porcelain frame with a countersunk hard carbon plug which is fastened in place with low temperature fusing cement. The surface of the frame which bears against the No. 26 block, when assembled in a mounting, is finished by grinding. The air gap between the carbon insert in the No. 27 block and the face of the No. 26 block is held to close limits by this grinding process and the consistent operation of the cutouts at the proper voltage is thereby insured.

Ordinary lightning discharges will cause an arc across the air gap between the carbon blocks but will not heat them sufficiently to melt the cement used for holding the carbon plug in place. A cross with an electric light or power line, however, will cause a discharge or repeated discharges, of such duration that the heating of the carbon insert of the No. 27 protector will melt the cement holding it in place and allow the mounting spring to push it into direct contact with the No. 26 block, thus permanently grounding the line.

Code No.	Description	Used with Protectors, Nos.
26	Carbon Block	12AP, 58AP, 60AP, 76AP, 1268A and 1269A
27	Porcelain Frame with Carbon Insert	

The new blocks are interchangeable with the old combinations of No. 1 protector block, No. 2 protector blocks and No. 3 protector mica in all subscribers' set protector mountings and are therefore available for improving protective equipment already in service, during the normal replacements. All orders for replacements of Nos. 1 and 2 blocks and No. 3 micas in subscribers' telephone station protectors should specify the Nos. 26 and 27 protector blocks; no separator (protector mica) is needed with the new design of block.

**Protector Micas**



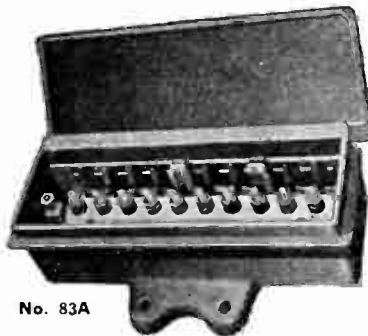
No. 3



No. 10

Code No.	Protector Blocks, Nos.	USED WITH	
		Protectors Nos.	Protectors Nos.
3	1 and 2	12A, 58A, and 60A	
10	19, 20 and 21	58B and 60B	

**Western Electric Telephone Protector Mountings**

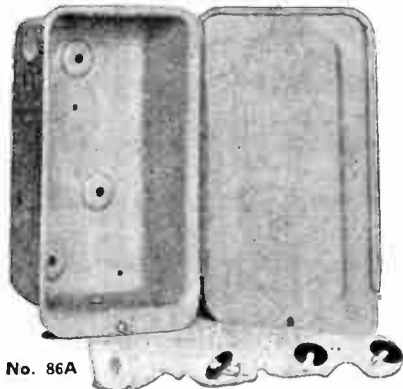


No. 83A

No. 83A is designed to protect drop wires between the overhead lines and the subscribers telephone set from lightning. This protector mounting consists of an iron box approximately 8 1/16 x 5 x 2 3/4 inches deep with a cover and having a No. 84A protector mounted within it. Arranged to mount 10 pairs of No. 26 and 30 protector blocks. This

protector mounting provides for the protection of 5 pairs of wires. The box mounts directly underneath the crossarms on the poles. Two mounting lugs are provided for this purpose.

No. 86A is for housing the 58 type protector where outside installation is desired. Consists of a galvanized iron metal box having a sliding cover with locking screws. Three screws are furnished for mounting the protector in the box. Size, 10 inches long, 5 1/2 inches wide, 3 1/4 inches deep.



No. 86A

**Western Electric Hand Receivers**

\*No. 143AW

Concealed binding post hand receiver, composition case. Used with telephone sets, desk stands, telephone arms, etc.

\*No. 144AW

With hard rubber case. \*Cord not included; ordered separately.



**Western Electric Head**

**Receivers**

No. 528BW

Standard bipolar head receiver, brass case with improved wire type headband.

Used with operator's telephone set and all switchboards.



**Western Electric Ringers**

Have gong posts suitable for 5/8-inch woodwork; spacers can be furnished to adapt the No. 53 type to 3/8-inch woodwork and the No. 38 to either 3/8 or 1/2-inch woodwork. Black finish gongs are furnished as standard, but nickel finish gongs can be supplied.

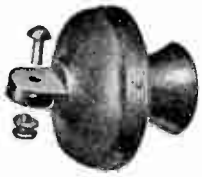
Used with central battery (magneto) telephones.



No. 53 Type

Code No.	Approx. Resistance Ohms	Gongs		Mounts In Woodwork Inches
		Code No.	Diam. Inches	
38AG	1020	26A	3	5/8
38BG	2500	26A	3	5/8
38FG	1620	26A	3	5/8
53AG	1020	29A	2 1/2	5/8
53BG	2500	29A	2 1/2	5/8
53FG	1620	29A	2 1/2	5/8

## Western Electric Transmitters



No. 323BW

High resistance, insulated transmitter. Provided with mounting lug and clamping bolt. Black finish.  
Designed for use on magneto and central battery desk stands and telephone arms

No. 353BW

High resistance, insulated, bracket type transmitter. Black finished all over.  
Designed for use on magneto and central battery wall telephones, requiring a bracket type transmitter.



## Western Electric Testing Sets

Type 90500

Each set consists of a hand generator and a ringer, wired in series, and inclosed in a wooden case.



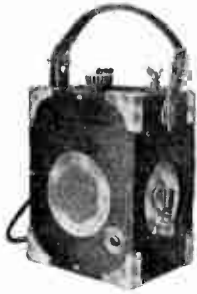
No. 90530

Code No.	Will Ring Through Ohms	Consists of
90530	10000	1 No. 22K Generator 1 No. 19B Ringer
90510	35000	1 No. 22K Generator 1 Special No. 19 Ringer
90511	50000	1 No. 22N Generator 1 No. 19A Ringer
90512	100000	1 No. 22N Generator 1 No. 19B Ringer

Size of case is  $5\frac{3}{4} \times 6\frac{5}{8} \times 5\frac{1}{4}$  inches.  
It is finished in birch.

## No. 1017 Type Western Electric Test Sets

No. 1017 Type



No. 1017B

A wooden box telephone test set equipped with a regular local battery talking circuit consisting of a No. 266BW transmitter, No. 13 induction coil, No. 189W receiver and a special three-cell dry battery unit.

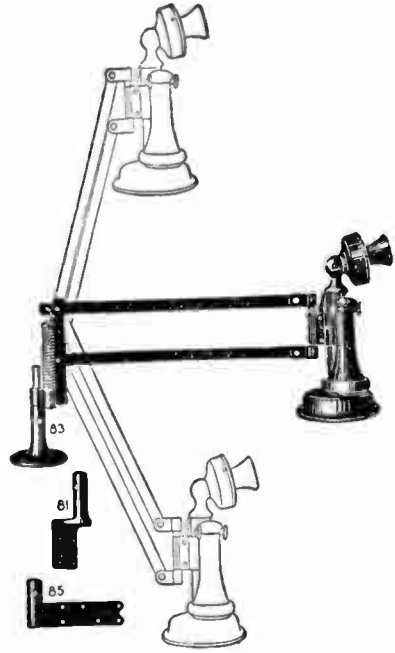
NOTE.—The No. 1017C test set differs from the No. 1017B only in that it is equipped with a specially designed high efficiency generator. The No. 1017B will, under ordinary conditions, be found entirely satisfactory, but in case a more powerful set is required to meet unusual conditions, the No. 1017C set has been developed.

No. 1017B. For lightly loaded lines—it will ring 15, 2500 ohm bells over a 15 mile No. 12BB iron metallic line.

Code No.	Weight Including Battery Pounds	Size of Case Inches	Finish
1017B	8	$4\frac{27}{32} \times 6\frac{3}{32} \times 7\frac{27}{32}$	{ Birch { Mahogany
1017C	8	$4\frac{27}{32} \times 6\frac{3}{32} \times 7\frac{27}{32}$	{ Birch { Mahogany

No. 1017C. For moderately loaded lines—it will ring 33 2500 ohm bells over a 15 mile No. 12BB iron metallic line.

## E. Z. Type Telephone Brackets



Brackets

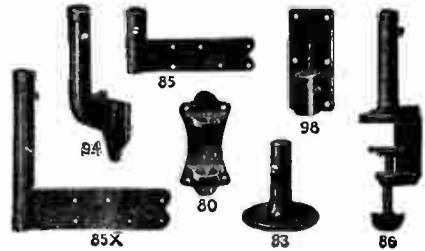
This is a substantial and serviceable telephone arm. With this bracket the telephone can be lowered below the base as well as raised above it.

Has nickel-plated finish with black enamel trim. Can be had in all black finish when so desired. Furnished in 24-inch length only.

Bracket is complete with Nos. 83, 84, 85, 85X, 88 or 94 mounting and any style clamp.

Add 50 cents to price when No. 86 mounting is wanted. Price, No. 95.....each \$3.50

## Mountings and Clamps



No.	Use	Price, if Furnished Separate.....each
80	Used on Wall, Post, Window Frame, etc.	
83	" " Top of Flat Top Desk.	
85	" " Side " Roll " " "	
85X	" " " " " " "	
86	Clamps on Edge of Desk.	
94	Used on Desk or Wall	
98	" " Window Ledge, Railing, etc.	
	Price, if Furnished Separate.....each	\$ .75
	" No. 86.....each	1.25

## Clamps

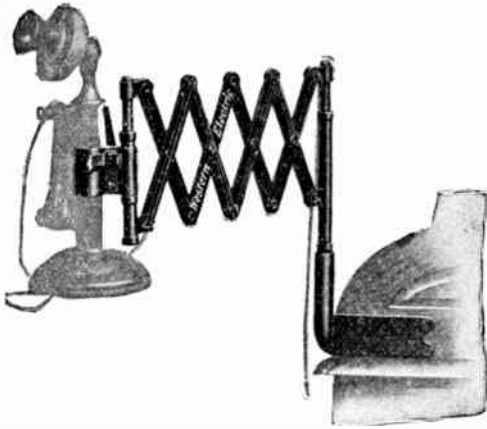


Letter	Use	Price, if Furnished Separate.....each
B	For Any Desk Telephone with Straight Stem.	
G	" Old Style Automatic Stand with Bulging Stem.	
H	Clamp for Box Telephone or for Attaching to Flat Surface.	
	Price, if Furnished Separate.....each	\$ .35

## Receiver Forks

Auxiliary receiver hook furnished with telephone arms free. Price, if Furnished Separate.....each \$1.00

**Telephone Brackets  
S Type**



Equipped with No. 1 Mounting and No. 20 Clamp Brackets

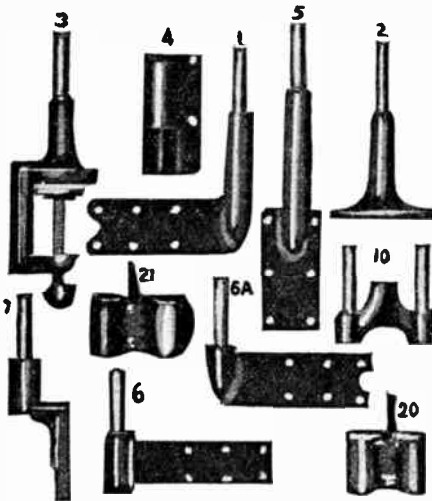
This bracket is of the "folding gate" type, and is arranged so as to revolve on its base. Furnished in 24 and 36-inch lengths. The desk stand swivels on the front rod. The bracket will be furnished with any of the mountings described below and with either of the clamps listed.

When ordering specify the letter of the clamp and mounting that is wanted in addition to the code number of the telephone bracket.

Complete equipment consists of bracket, one mounting, one receiver hook, one telephone clamp, one set of eyelets for holding cord, but does not include desk stand.

Code No.	Length of Bracket Extended, Inches	Approximate Shpg. Wt., Lbs.
S-8	24	5
S-14	36	6½

**Mountings**

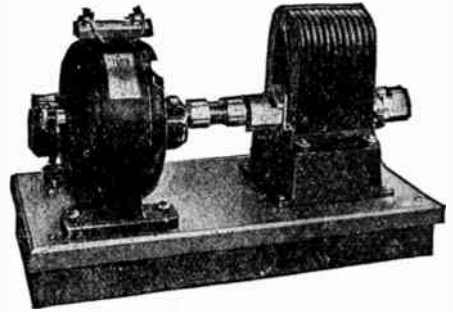


- | Code No. | Use   |
|----------|---|
| 1        | For use on side of flat or roll top desk.             |
| 2        | For use on top of flat top desk.                      |
| 3        | *Clamps on edge of flat top desk.                     |
| 4        | For use on wall or partition.                         |
| 5        | *For use on side of flat top desk.                    |
| 6        | *For use on side of roll top desk.                    |
| 6A       | *For use on side of flat or roll top desk.            |
| 7        | *For use on side of flat top desk.                    |
| 10       | *Attachment fits any mounting and holds two brackets. |

**Clamps**

- | Code No. | Use  |
|----------|--|
| 20       | { Fits Telephones with a Cylindrical Stem Such as the No. 1040 Type. |
| 21       | { Fits Telephones with Convex Shaped Stems.                          |
|          | *Not stocked. Furnished on order only.                               |

**Magneto Motor Generator Ringing Sets**



Motor generator ringing sets consist of d.c. or single-phase 60-cycle a.c. motors direct connected to magneto ringing generators. These sets furnish alternating ringing current only at 80 volts, 19 cycles.

An attachment for obtaining positive and negative pulsating current is, however, available.

List No.	Volts Motor	Output Watts	Type
310087	110	15	Motor—S. P. 60 Cycles A. C., 1150 R.P.M.
310088	220	15	Generator—80 Volts, 19 Cycles, S. P.
310093	110	15	Motor—S. P. 25 Cycles A. C., 1400 R.P.M.
310094	220	15	*Generator—110 Volts, 23 Cycles, S.P.
310081	115	15	Motor—D. C., 1150 R.P.M.
310082	230	15	Generator—80 Volts, 19 Cycles, S. P.
310110	†12	15	Magneto Generator—80 Volts, 19 Cycles S. P., 1150 R.P.M. Belt Tightening Sub-base and 2½x1½ Inches Play Pulley.

\*This higher voltage is advisable on account of the higher frequency produced by the necessary excess speed of the 25-cycle over the 60-cycle. †Twelve bars.

**No. 21-RA Ringing Machines**

No. 21-RA Ringing Machine uses 115-volt, 60-cycle a.c. and furnishes 20-cycle ringing current.

Used with two 12-volt automobile storage batteries (furnished by customer) which operate machine and insure continued operation for some time, even though outside power fails.

**No. 7-A Frequency Converters**

No. 7-A Frequency Converter uses 115-volt, 60-cycle a.c. and furnishes 20-cycle ringing current.

**No. 27 Harmonic Ringing Machines**

No. 27 Harmonic Ringing Machine uses 115-volt, 60-cycle a.c. and furnishes 16⅔, 33⅓, 50 and 66⅔ cycle ringing current.

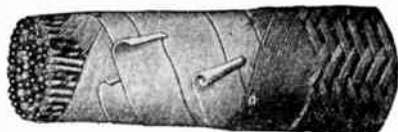
Used with two 12-volt automobile storage batteries (furnished by customer) which operate machine and insure continued operation for some time, even though outside power fails.

**No. 121-R Ringing Machines**

No. 121-R Ringing Machine uses 115-volt, 60-cycle a.c. and furnishes 20-cycle ringing current. Used with two 12-volt automobile storage batteries (furnished by customer) which operate machine and insure continued operation for some time, even though outside power fails.

Mounted in steel cabinet, complying with Underwriters' requirements.

## Western Electric Inter-phone Cable



For Interior Use



For Outside Use

The conductors are provided with single silk and single cotton insulation, which is colored in such a way that each pair and each single wire can be identified. The cable is then impregnated with a wax compound and is covered with servings of paper and a heavy braiding, which is given a heavy coat of fireproofing paint.

The impregnation with wax prevents the insulation from fraying when the cables are installed. It also serves to protect the formed ends against moisture.

Three general types of cable are provided. Each type has its particular use, and care should be taken to order the proper cable for any desired purpose. These types are as follows:

1. Interior Cable with outside braiding treated with gray fireproofing paint. Use only in dry places.
2. Interior cable with green glazed cotton outside braiding. Use only in dry places where exposed to view.
3. Outside cable, lead covered. Always use this cable outside, and inside in every case where there is apt to be moisture even in a small degree. In conduit installations lead covered cable should be used.

Lead-covered cables are not listed with separate Code Nos. Any fireproofed type of cable may be ordered with a lead sheath.

All cables are provided with a standard color scheme, so that each pair can be distinguished from any other. The pairs are properly twisted to prevent inductive disturbances.

## Western Electric Lead Covered Telephone Cable



The outside plant is a very important part of any telephone system. Unless satisfactory material is used in its construction, it is impossible for a telephone company to furnish satisfactory service even though the central office and sub-station equipment is of the best. Lead covered cable represents not only a large part of the capital invested in the outside plant, but also a most important part of the construction due to its function of being the transmitting medium for telephone messages.

These are certain characteristics which lead covered cable must possess in order to properly and efficiently function in a telephone system:—

1. It must be so constructed that it will have long life and thereby reduce depreciation to a minimum.
2. It must be designed to transmit telephone messages with a minimum transmission loss.

The Western Electric Company manufactures cable designed to conform to the above requirements and by virtue of the fact that its experience in this field covers the entire period since the first successful installation of lead cable for telephone use, its product is as nearly perfect as present day knowledge of the telephone art permits.

The Western Electric Company occupies an important position in the manufacture of lead covered cable for telephone use by virtue of the following facts:

1. It is the largest manufacturer of this commodity.
2. It has specialized on, and developed this product since its origin.
3. It manufactures for the largest users.
4. It is responsible for practically every important development and improvement.
5. Conscientious careful inspection and testing make sure that specifications are rigidly adhered to.
6. The design and development work is done by the largest force of telephone experts in the world.

Cable for aerial and underground telephone use is composed of copper conductors, insulated with paper, twisted into pairs and enclosed in a lead sheath. In general, cable with single wrapped conductors is recommended, since its electrical and mechanical characteristics are perfectly satisfactory for most conditions, and the cost is less than cable with double wrapped conductors.

Cable for interior construction usually has the conductors insulated with two servings of silk and one of cotton.

The sheath is made of pure lead, lead antimony alloy or lead tin alloy. Experience has shown that while either lead antimony or lead tin is satisfactory for aerial or underground cable, the former alloy, being somewhat cheaper, is more generally used. While pure lead cannot be recommended where the cable is subjected to vibration, it is satisfactory for use within buildings.

### Extra Pairs

Extra pairs are placed in all cables containing conductors smaller than No. 16 to take care of any pairs which may become defective in manufacture. In the majority of cables all or part of the extra pairs will often be found good and may be used for additional circuits. All pairs of No. 16 A.W.G. and larger except in submarine cable are guaranteed to meet the specification requirements when the cable leaves our factory.

The coding of all cables is on the basis of the actual number of pairs. Actual and guaranteed number of pairs in the various sizes of standard cables containing conductors smaller than No. 16 A.W.G. are as follows:

Code No.	CONDUCTORS, B. & S. GAUGE		Covering	Approx. Outside Diam., In.
	No. 22	No. 18		
185B	4 singles	.....	Fireproofed braid	1/4
161B	8 "	.....	"	5/16
161B (Lead)	8 "	.....	Lead sheath	5/16
142B	8 "	.....	Green cotton braid	5/16
162B	12 "	.....	Fireproofed braid	3/8
162B (Lead)	12 "	.....	Lead sheath	3/8
164B	6 "	2 pair	Fireproofed braid	1/2
164B (Lead)	6 "	2 "	Lead sheath	1/2
134B	6 pair	2 "	Fireproofed braid	1/2
134B (Lead)	6 "	2 "	Lead sheath	1/2
155B	6 "	2 "	Green cotton braid	1/2
141B	12 "	2 "	Fireproofed braid	7/16
141B (Lead)	12 "	2 "	Lead sheath	1/2
156B	12 "	2 "	Green cotton braid	7/16
157B	16 "	2 "	Fireproofed braid	17/32
157B (Lead)	16 "	2 "	Lead sheath	9/16
158B	20 "	2 "	Fireproofed braid	9/16
158B (Lead)	20 "	2 "	Lead sheath	13/32
136B	24 "	2 "	Fireproofed braid	11/16
136B (Lead)	24 "	2 "	Lead sheath	5/8
140B	31 "	2 "	Fireproofed braid	5/8
140B (Lead)	31 "	2 "	Lead sheath	11/8

### No. 19 Type Cable Terminals

The No. 19 type cable terminal is admirably suited for interior distributing work. It was designed after a great deal of study, and is thought to be the best of its kind on the market. Made of hard wood, numbered and shellacked, and equipped with a japanned sheet metal cover.

Code No.	Capacity in Pairs	Length in.	Width in.	Depth in.
19A	14	8	5 1/8	2 1/2
19B	26	14	5 1/8	2 1/2

Actual Pairs	Guaranteed Pairs
6 to 121	Actual pairs less one
152 " 242	" " " two
253 " 333	" " " three
364 " 444	" " " four
485 " 505	" " " five
606	" " " six
909	" " " nine
1212	" " " twelve





## Western Electric Lead Covered Telephone Cable Type BSA Cable

For Aerial or Underground Use

**SHEATH.**—Lead antimony.

**CONDUCTORS.**—No. 22 A.W.G., single dry paper insulation, with color groups depending upon size.

**MUTUAL CAPACITANCE.**—A.C. resting, .090 microfarad per mile of cable.

**CONDUCTOR RESISTANCE.**—Not exceeding 92 ohms per mile of cable at 68 degrees Fahrenheit.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

**DIELECTRIC STRENGTH.**—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 500 volts.

**ATTENUATION.**—1.8 transmission units per mile at 1000 cycles.

Code No. and No. of Pairs	No. of Pairs Guaranteed	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reel
BSA- 11	10	.070	.44	.45	3500
BSA- 16	15	.070	.48	.52	3500
BSA- 26	25	.070	.58	.67	3500
BSA- 51	50	.070	.73	.95	3000
BSA- 76	75	.075	.87	1.27	2500
BSA-101	100	.080	.99	1.58	2500
BSA-152	150	.080	1.16	2.03	1600
BSA-202	200	.085	1.33	2.55	1600
BSA-303	300	.095	1.60	3.58	1400
BSA-404	400	.095	1.78	4.28	1200
BSA-455	450	.105	1.90	4.93	1100
BSA-606	600	.105	2.15	6.02	900
BSA-909	900	.115	2.61	8.50	650

### Type ASM Cable

For Aerial or Underground Use

**SHEATH.**—Lead antimony.

**CONDUCTORS.**—No. 24 A.W.G., single dry paper tape insulation, with color groups depending upon size.

**MUTUAL CAPACITANCE.**—A.C. testing, .085 microfarad per mile of cable.

**CONDUCTOR RESISTANCE.**—Not exceeding 145 ohms per mile of cable, at 68 degrees Fahrenheit.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

**DIELECTRIC STRENGTH.**—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 500 volts.

**ATTENUATION.**—2.2 transmission units per mile at 1000 cycles.

Code No. and No. of Pairs	No. of Pairs Guaranteed	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
ASM- 11	10	.070	.39	.38	3500
ASM- 16	15	.070	.44	.45	3500
ASM- 26	25	.070	.52	.56	3500
ASM- 51	50	.070	.64	.77	3000
ASM- 76	75	.075	.76	1.02	2500
ASM- 101	100	.075	.85	1.20	2500
ASM- 152	150	.080	1.00	1.59	2500
ASM- 202	200	.080	1.14	1.91	1800
ASM- 303	300	.085	1.36	2.56	1600
ASM- 404	400	.090	1.56	3.22	1400
ASM- 606	600	.105	1.90	4.69	1100
ASM- 909	900	.105	2.21	6.06	900
ASM-1212	1200	.115	2.61	7.97	650

### Type CNB Cable

For Aerial or Underground Use

**SHEATH.**—Lead antimony.

**CONDUCTORS.**—No. 19 A.W.G. single dry paper tape insulation, with color groups depending upon size.

**MUTUAL CAPACITANCE.**—A.C. testing, .090 microfarad per mile of cable.

**CONDUCTOR RESISTANCE.**—Not exceeding 46 ohms per mile of cable, at 68 degrees Fahrenheit.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

**DIELECTRIC STRENGTH.**—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

**ATTENUATION.**—1.3 transmission units per mile at 1000 cycles.

## Western Electric Lead Covered Telephone Cable

### Type CNB Cable—Continued

For Aerial or Underground Use

Code No. and No. of Pairs	No. of Pairs Guaranteed	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
CNB- 6	5	.070	.44	.45	3500
CNB- 11	10	.070	.53	.60	3500
CNB- 16	15	.070	.61	.72	3500
CNB- 26	25	.070	.72	.93	3000
CNB- 51	50	.075	.95	1.46	2500
CNB- 76	75	.080	1.14	1.98	1800
CNB-101	100	.085	1.30	2.48	1600
CNB-152	150	.090	1.56	3.37	1400
CNB-202	200	.095	1.78	4.25	1200
CNB-303	300	.105	2.15	5.98	900
CNB-404	400	.115	2.48	7.77	700
CNB-455	450	.115	2.61	8.46	650

### Type TH Cable

For Aerial or Underground Use

**SHEATH.**—Lead antimony.

**CONDUCTORS.**—No. 16 A.W.G. single dry paper tape insulation. Blue orange pairs alternating with green orange pairs, except for 2 orange white tracer pairs, one in the center and one in the outside layer and a red orange pair in each layer containing an odd number of pairs.

**MUTUAL CAPACITANCE.**—A.C. testing, .071 microfarad per mile of cable.

**CONDUCTOR RESISTANCE.**—Not exceeding 23 ohms per mile of cable, at 68 degrees Fahrenheit.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

**DIELECTRIC STRENGTH.**—Insulation of each conductor capable of withstanding a test potential of 500 volts d.c.

**ATTENUATION.**—80 transmission units per mile at 1000 cycles. All pairs guaranteed good.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
TH- 11	.125	.94	1.77	2000
TH- 16	.125	1.06	2.11	1500
TH- 26	.125	1.25	2.66	1500
TH- 51	.125	1.59	3.78	1200
TH-101	.125	2.16	5.80	800
TH-152	.125	2.53	7.48	600

### Type TJ Cable

For Aerial or Underground Use

**SHEATH.**—Lead antimony.

**CONDUCTORS.**—No. 13 A.W.G. single dry paper tape insulation. Blue white pairs alternating with green white pairs, except for 2 orange white tracer pairs, one in the center and one in the outside layer, and a red white pair in each layer containing an odd number of pairs.

**MUTUAL CAPACITANCE.**—A.C. testing, .071 microfarad per mile of cable.

**CONDUCTOR RESISTANCE.**—Not exceeding 11¼ ohms per mile of cable, at 68 degrees Fahrenheit.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

**DIELECTRIC STRENGTH.**—Insulation of each conductor capable of withstanding a test potential of 500 volts d.c.

**ATTENUATION.**—57 transmission units per mile at 1000 cycles. All pairs guaranteed good.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
TJ-11	.125	1.19	2.45	1500
TJ-16	.125	1.31	2.94	1200
TJ-26	.125	1.66	3.91	1200
TJ-51	.125	2.19	5.85	900
TJ-76	.125	2.63	7.62	600

### Type FA Cable

For Inside Construction

**SHEATH.**—Pure lead.

**CONDUCTORS.**—No. 22 A.W.G. tinned, double silk and single cotton insulation, covering on each pair colored white and red white.

**TRACER PAIR.**—One in outer layer colored blue and white.

**INSULATION RESISTANCE.**—Not less than 500 megohm miles.

### Western Electric Lead Covered Telephone Cable

#### Type FA Cable

Continued

For Inside Construction

CONDUCTOR RESISTANCE.—Not exceeding 96 ohms per mile of cable, at 68 degrees Fahrenheit.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

Code No. and No. of Pairs	No. of Pairs Guaranteed	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
FA- 6	6	.047	.34	.25	3500
FA- 11	11	.047	.41	.32	3500
FA- 16	16	.047	.47	.39	3500
FA- 26	26	.047	.56	.51	3500
FA- 51	51	.047	.73	.75	3000
FA- 76	76	.063	.89	1.19	2500
FA-101	101	.063	1.00	1.42	2500
FA-152	151	.063	1.19	1.86	1600
FA-202	201	.063	1.34	2.26	1600
FA-303	302	.094	1.69	3.85	1400
FA-404	403	.125	1.97	5.62	1100
FA-606	605	.125	2.38	7.45	700

#### Type GA Cable

For Inside Construction

SHEATH.—Pure lead.

CONDUCTORS.—No. 22 A. W. G. tinned, double silk and single cotton insulation, colored in accordance with a standard color scheme so that each pair is distinguishable from other pairs in the cable.

CONDUCTOR RESISTANCE.—Not exceeding 96 ohms per mile of cable at 68 degrees Fahrenheit.

INSULATION RESISTANCE.—Not less than 500 megohm miles.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
GA- 6	.047	.34	.25	3500
GA-11	.047	.41	.32	3500
GA-16	.047	.47	.39	3500
GA-21	.047	.52	.45	3500
GA-26	.047	.56	.51	3500
GA-31	.047	.59	.56	3500
GA-41	.047	.67	.67	3000
GA-51	.047	.73	.75	3000

#### Type UA Cable

For Inside Construction

SHEATH.—Pure lead.

CONDUCTORS.—No. 22 A. W. G. tinned, double silk and single cotton insulation, colored in accordance with a standard color scheme so that each pair is distinguishable from other pairs in the cable.

CONDUCTOR RESISTANCE.—Not exceeding 96 ohms per mile of cable, at 68 degrees Fahrenheit.

INSULATION RESISTANCE.—Not less than 500 megohm miles.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

The core of this cable is impregnated.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
UA- 6	.047	.34	.25	3500
UA-11	.047	.41	.32	3500
UA-16	.047	.47	.39	3500
UA-21	.047	.52	.45	3500
UA-26	.047	.56	.51	3500
UA-31	.047	.59	.56	3500
UA-41	.047	.67	.67	3000
UA-51	.047	.73	.75	3000

### Western Electric Lead Covered Telephone Cable

#### Type MFA Cable For Inside Construction

SHEATH.—Pure lead.

CONDUCTORS.—No. 22 A. W. G. tinned, black enamel, double silk and cotton insulation, covering on each pair colored white and red white.

TRACER PAIR.—One in outer layer colored blue and white.

INSULATION RESISTANCE.—Not less than 500 megohm miles.

CONDUCTOR RESISTANCE.—Not exceeding 105 ohms per mile of cable, at 68 degrees Fahrenheit.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

Code No. and No. of Pairs	No. of Pairs Guaranteed	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
MFA- 6	6	.047	.34	.25	3500
MFA- 11	11	.047	.41	.32	3500
MFA- 16	16	.047	.47	.39	3500
MFA- 26	26	.047	.56	.51	3500
MFA- 51	51	.047	.73	.75	3000
MFA- 76	76	.063	.89	1.19	2500
MFA-101	101	.063	1.00	1.42	2500
MFA-152	151	.063	1.19	1.86	1600
MFA-202	201	.063	1.34	2.26	1600
MFA-303	302	.094	1.69	3.85	1400
MFA-404	403	.125	1.97	5.62	1100
MFA-606	605	.125	2.38	7.45	700

#### Type MGA Cable For Inside Construction

SHEATH.—Pure lead.

CONDUCTORS.—No. 22 A. W. G. tinned, black enamel, double silk and single cotton insulation, colored in accordance with a standard color scheme so that each pair is distinguishable from other pairs in the cable.

CONDUCTOR RESISTANCE.—Not exceeding 105 ohms per mile of cable, at 68 degrees Fahrenheit.

INSULATION RESISTANCE.—Not less than 500 megohm miles.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
MGA- 6	.047	.34	.25	3500
MGA-11	.047	.41	.32	3500
MGA-16	.047	.47	.39	3500
MGA-21	.047	.52	.45	3500
MGA-26	.047	.56	.51	3500
MGA-31	.047	.59	.56	3500
MGA-41	.047	.67	.67	3000
MGA-51	.047	.73	.75	3000

#### Type MUA Cable For Inside Construction

SHEATH.—Pure lead.

CONDUCTORS.—No. 22 A. W. G. tinned, black enamel, double silk and single cotton insulation, colored in accordance with standard color scheme so that each pair is distinguishable from other pairs in the cable.

CONDUCTOR RESISTANCE.—Not exceeding 105 ohms per mile of cable, at 68 degrees Fahrenheit.

INSULATION RESISTANCE.—Not less than 500 megohm miles.

DIELECTRIC STRENGTH.—Insulation of each conductor capable of withstanding an a.c. test potential whose maximum instantaneous value is 700 volts.

The core of the cable is impregnated.

Code No. and Guaranteed No. of Pairs	Thickness Sheath Inches	Mean Outside Diameter Inches	Approx. Weight Pounds per Foot	Convenient No. of Feet on Reels
MUA- 6	.047	.34	.25	3500
MUA-11	.047	.41	.32	3500
MUA-16	.047	.47	.39	3500
MUA-21	.047	.52	.45	3500
MUA-26	.047	.56	.51	3500
MUA-31	.047	.59	.56	3500
MUA-41	.047	.67	.67	3000
MUA-51	.047	.73	.75	3000

1928 "National Electrical Code"

## Regulations of the National Board of Fire Underwriters

For Electric Wiring and Apparatus as Recommended  
by the National Fire Protection Association

Edition of 1928

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## ARTICLE 1. DEFINITIONS.

**Accessible:** (As applied to wiring methods) Not permanently closed in by the structure or finish of the building; capable of being removed without disturbing the building structure or finish. (As applied to equipment) Admitting close approach because not guarded by locked doors, elevation or other effective means. (See also "Readily Accessible.")

**Adjustable-Speed Motor:** One in which the speed can be varied gradually over a considerable range, but when once adjusted remains practically unaffected by the load, such as shunt motors designed for a variation of field strength.

**Approved:** Acceptable to the authority enforcing this Code. In order to avoid the necessity for repetition of examinations by different examiners, frequently with inadequate facilities for such work, and to avoid the confusion which would result from conflicting reports as to the suitability of devices and materials examined for a given purpose, it is necessary that such examinations should be made under standard conditions, and the record made generally available through promulgation by organizations properly equipped and qualified for experimental testing, inspections of the run of goods at factories, and service-value determinations through field inspections.

**Automatic Door:** One which closes automatically by means of a device operated by heat.

**Branch Circuit:** That portion of a wiring system extending beyond the final automatic overload protective device of the circuit.

**Lighting Branch Circuits** are circuits supplying energy to lighting outlets only.

**Appliance Branch Circuits** are circuits supplying energy either to permanently wired appliances or to attachment plug receptacles, that is, appliance or convenience outlets, or to a combination of permanently wired appliances and additional attachment plug outlets on the same circuit; such circuits to have no permanently connected lighting fixtures. (For Medium-Duty and Heavy-Duty Appliance, Branch Circuits see Section 1602 of Article 16.)

**Combination Lighting and Appliance Branch Circuits** are circuits supplying energy to both lighting outlets and appliance outlets.

**Building:** A structure which stands alone or which is cut out from adjoining structures by unpierced fire walls.

**Cabinet:** An enclosure designed either for surface or flush mounting, and provided with a frame, matt or trim in which swinging doors are hung. (See cutout box.)

**Cable:** A stranded conductor (single-conductor cable) or a combination of conductors insulated from one another (multiple-conductor cable).

**Circuit-Breaker:** A device designed to open under abnormal conditions a current-carrying circuit without injury to itself. The term as used in this Code applies only to the automatic type designed to trip on a predetermined overload of current.

**Concealed:** Rendered inaccessible by the structure or finish of the building. Wires in concealed raceways are considered concealed, even though they may become accessible by withdrawing them.

**Conductor:** A wire or cable or other form of metal suitable for carrying current.

**Controller:** A device, or group of devices, which serve to govern, in some predetermined manner, electric power delivered to the device governed.

**Cutout Box:** An enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper. (See cabinet.)

**D. C. Neutral Grid:** A well grounded network of neutral conductors formed by connecting together within a given area all of the neutral conductors of a low-voltage direct-current supply system.

**Demand Factor:** The demand factor of any system or part of a system, is the ratio of the maximum demand of the system, or part of a system, to the total connected load of the system, or of the part of the system under consideration.

**Disconnecting Switch—Disconnecter:** A switch which is intended to be operated only when the circuit has been opened by some other means.

**Diversity Factor:** The diversity factor of any system, or part of a system, is the ratio of the sum of the maximum power demands of the subdivisions of the system, or part of a system, to the maximum demand of the whole system, or part of the system under consideration, measured at the point of supply.

**Dustproof:** So constructed or protected that an accumulation of dust will not interfere with its successful operation.

**Dust-tight:** So constructed that dust will not enter the enclosing case.

**Enclosed:** Surrounded by a case which will prevent accidental contact of a person with live parts.

**Exposed:** Accessible; not concealed.

**Factory Yard:** A plot containing an assemblage of buildings served by an isolated plant, or by a substation, or by a master service, and permitting access from building to building within the yard.

**Guarded:** Covered, shielded, fenced, enclosed or otherwise protected, by means of suitable covers or casings, barriers, walls or screens, mats or platforms, to remove the liability of dangerous contact or approach by persons or objects to a point of danger.

**Hazardous Location:** Premises, locations, rooms or portions thereof in which (1) highly flammable gases, flammable volatile liquids, mixtures or other highly flammable substances are manufactured or used or are stored in other than original containers; or (2) where combustible dust or flyings are likely to be present in quantities sufficient to produce an explosive or combustible mixture; or (3) where it is impracticable to prevent dust from collecting in such quantities on or in motors, lamps or other electrical devices that they are likely to become overheated because normal radiation is prevented; or (4) where easily ignitable fibres or materials producing combustible flyings are handled, manufactured, stored or used.

**Hoistway:** A hoistway is any shaftway, hatchway, well-hole, or other vertical opening or space in which an elevator or dumbwaiter is designed to operate.

**Isolated:** Not readily accessible to persons unless special means for access are used.

**Isolated Plant:** A private electrical installation deriving energy from its own generator driven by a prime mover.

**Master Service:** The service conductors supplying a group of buildings under one management.

**Motion-Picture Studio:** Any building or portion of a building in which motion-picture films are manufactured, developed, printed, re-wound, repaired, stored or otherwise exposed.

**Motor-Circuit Switch:** A switch used to stop a motor when at full running current, but not intended to open the motor circuit with stalled-rotor current flowing. The switch may also serve to disconnect the motor and its controller when necessary for repairs, etc.

**Outlet:** A point on the wiring system at which current is taken to supply fixtures, lamps, heaters, motors and current-consuming devices generally.

**Panelboard:** A single panel, or a group of panel units designed for assembly in the form of a single panel; including buses and with or without switches and or automatic overload protective devices for the control of light, heat, or power circuits of small individual as well as

aggregate capacity designed to be placed in a cabinet or cutout box placed in or against a wall, or partition and accessible only from the front. (See switchboard.)

**Portable Appliance:** An appliance capable of being readily moved where established practice or the conditions of use make it necessary or convenient for it to be detached from its source of current by means of flexible cord and attachment plug.

**Qualified Person:** One familiar with the construction and operation of the apparatus and the hazards involved.

**Readily Accessible:** Capable of being reached quickly, for operation, renewal, or inspection, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc.

**Secondary Neutral Grid:** A well grounded network of neutral conductors formed by connecting together within a given area all the neutral conductors of individual transformer secondaries of the supply system.

**Service:** That portion of the supply conductors which extends from the street main or duct or transformers to the service switch, switches, or switchboard of the building supply.

**Special Permission:** The written consent of the authorities enforcing this Code.

**Switchboard:** A large single panel, frame, or assembly of panels, on which are mounted, on the face or back or both, switches, overload and other protective devices, buses, and usually instruments. Switchboards are generally accessible from the rear as well as from the front and are not intended to be installed in cabinets. (See Panelboard.)

**System Ground Conductor:** An auxiliary, well grounded conductor used for connecting together the individual grounding conductors throughout a given area, but which is not a part of a circuit wire.

**Totally Enclosed Motor:** A motor which is so completely enclosed by integral or auxiliary covers as to practically prevent the circulation of air through the interior. Such a motor is not necessarily air-tight.

**Vaportight:** So enclosed that vapor will not enter the enclosure.

**Ventilated:** Provided with a means to permit circulation of the air sufficiently to remove an excess of heat, fumes or vapors.

**Voltage to Ground:** The voltage between the given conductor and that conductor of the circuit which is grounded; in ungrounded circuits, the greatest voltage between the given conductor and any other conductor of the circuit.

**Waterproof:** So constructed or protected that moisture will not interfere with its successful operation.

**Watertight:** So constructed that moisture will not enter the enclosing case.

## ARTICLE 2. GENERAL.

Throughout this Code the word "shall" is used to indicate requirements, while the word "should" is used to indicate recommendations, or that which is advised but not required. In general, recommendations have the form of fine-print notes or paragraphs supplementing the preceding text. The following general recommendations, therefore, as well as other recommendations throughout this Code, shall be considered advisory, but not mandatory.

It is recommended that in all wiring special attention be paid to the mechanical execution of the work. Careful and neat running, connecting, soldering, taping of conductors, and securing and attaching of fittings, are especially conducive to security and efficiency.

It is recommended that in laying out an installation, except for constant-current systems, every reasonable effort be made to secure distribution centers located in easily accessible places, at which points the cutouts and switches controlling the several branch circuits can be grouped for convenience and safety of operation. The load should be divided as evenly as possible among the branches, and all complicated and unnecessary wiring avoided.

It is recommended that wire-ways be used for rendering concealed wiring permanently accessible. It is recommended that architects when drawing plans and specifications make provision for the channeling and pocketing of buildings for electric light or power wires, and also, for telephone, district messenger and other signal system wiring.

It is elsewhere provided in this Code that the number of wires and circuits confined in a single enclosure be variously restricted. It is strongly recommended that architects and others provide similar restrictions wherever practicable, to the end that the effects of break-downs from short-circuits or grounds, even though resulting fire and similar damage is confined to wires, their insulation and enclosures, may not involve entire services to premises nor interruptions of essential and independent services.

### 201. Gages.

- a. All wire sizes are given in the American (B & S) gage.

### 202. Voltages.

- a. Low potential shall mean 600 volts or less.
- b. High potential shall mean between 601 volts and 5000 volts.
- c. Extra high potential shall mean above 5000 volts.
- d. In the preceding paragraphs the potential considered is that at which the circuit operates, whether it is supplied by a generator or by a transformer.
- e. Throughout this code, unless otherwise specifically stipulated, the requirements shall be considered to be based upon the use of low-potential wiring devices, apparatus and appliances. High-potential and extra-high-potential systems are considered in articles 3 and 50.

### 203. Wire Terminals, Splices and Joints.

a. Terminal parts by which wire connections are made shall insure thoroughly good connections even under hard usage. For currents above 30 amperes, lugs into which the connecting wires may be soldered, or approved solderless connectors, shall be provided. For currents of 30 amperes or less the parts to which wiring connections are made shall securely grip the conductors. Heavy clamps or screws with terminal plates having upturned lugs, or solderless connectors, may be used.

Lugs or clamps are not required when leads are provided as part of the device.

b. Wires shall be so spliced or joined as to be mechanically and electrically secure without solder. The joints shall then be soldered, unless made with a splicing device, and shall be covered with an insulation equal to that on the wires.

c. Stranded wires, other than those used in flexible cords, shall be soldered together before being fastened under clamps or binding screws.

### 204. Railway Systems.

a. Lighting and power from railway wires shall not be permitted under any pretense from a system to which are connected trolley wires with a ground return, except in electric railway cars, electric car houses, power houses, passenger and freight stations connected with the operation of electric railways.

### 205. Approved Material, etc.

a. This Code shall be understood to treat only of approved materials, devices, fittings, appliances, machinery, apparatus and methods.

### 206. General Plan of Investigations.

a. Materials, devices, fittings, apparatus and appliances designed for use under this Code shall be judged chiefly with reference to the following five considerations which also determine the classification by types, sizes, voltages, current capacities and specific uses:

1. Suitability for installation and use in conformity with the requirements of this Code.

2. Mechanical strength and durability, including, for appliances designed to enclose and protect other equipment, the adequacy of the protection thus provided.

3. Electrical insulation.

4. Heating effects under normal conditions of use and also under abnormal conditions liable to arise in service.

5. Arcing effects.

b. Bases for the mounting of live parts shall be composed of approved non-combustible, non-absorptive insulating material, and the design shall be such that, considering the material used, the base will withstand the most severe conditions liable to arise in service. Holes for supporting screws shall be so located or countersunk that there will be at least 1/2 inch, measured over the surface, between the screw head or washer and the nearest live metal part, and in all cases, where between parts of opposite polarity, the screw head or washer shall be countersunk. Holes for supporting screws in link fuse cutout bases shall be kept outside the area included by the outside edges of the fuse terminals. Nuts or screw heads on the under side of the base shall be countersunk and sealed with a waterproof compound.

c. The set-screw form of contact shall not be used.

d. All devices provided with terminals for the attachment of wires and intended for connection to more than one side of the circuit shall, unless specifically excepted, have a pair of connecting terminals properly marked for identification, unless the electrical connection between the pair of terminals intended to be connected to the grounded conductor is clearly evident.

e. The terminals of devices having a normal current rating of over 30 amperes need not be marked for identification.

f. The terminals of utilization devices need not be marked to indicate the proper connection to the grounded conductor. If the terminals on utilization devices, including single-pole switches are marked, the switch shall not be placed in the identified side of the circuit.

g. The terminals of portable devices need not be marked for identification.

h. Devices, to the terminals of which only one side of the line is connected, need not have terminals marked for identification.

i. Two-wire attachment plug receptacles without screw shells, and two-wire attachment plug caps, unless of the polarity type, need not have their terminals marked for identification. 2-wire polarized receptacles for attachment plugs and polarized attachment plug caps shall have the terminal intended for connection to the grounded wire marked for identification.

j. Three-wire attachment plug receptacles and three-wire attachment plug caps in which one terminal may be used for the connection of a grounding conductor, shall have such terminal identified in a manner differing from that specified in paragraph 1 of this section. The other terminals need not be marked for identification.

k. In the case of devices with Edison screw shells, the identified terminal shall be the one connected to the screw shell. This does not apply to screw shells which serve as plug fuse receptacles.

l. The marking of terminals shall be done by means of a metallic plated coating substantially white in color, as nickel or zinc, or the terminals may be of material substantially white in color. The other terminals shall be of a readily distinguishable different color.

m. In the case of screw-shell devices with attached leads the wire attached to the screw shell shall have white or natural gray finish. The finish of the braid on the other conductor shall be of a solid color that will not be confused with the white or natural gray finish which is to indicate the grounded conductor.

n. The maker's name, trademark or other identification symbol shall be placed on fittings and materials, together with such other markings giving voltage, current, wattage or other appropriate ratings as are prescribed elsewhere in this Code.

## ARTICLE 3. OUTSIDE SUPPLY CONDUCTORS.

The requirements of this article apply to overhead supply conductors run between buildings, upon building walls, or as line conductors which connect with interior wiring systems, or which may come in contact with such wires.

It is fully understood that it is impracticable to include in this Code rules which will cover in detail all conceivable cases that may arise in overhead line work of such an extended and varied nature, and it is recommended that the inspection department be freely consulted as to the specific methods to be followed in any case of doubt, and that the rules of the National Electrical Safety Code, part 2, be followed.

### 301. General.

Accidental crosses between different conductors on the same or different pole lines may allow the higher-voltage currents concerned to enter buildings over the lower-voltage conductors over a large section of adjoining territory.

Overhead conductors, if carried too close to buildings, tend to hamper the work of firemen in case of fire in the buildings if the raising of ladders is a part of the fire-fighting methods employed. With the higher-voltage lines this hampering effect is greater.

a. In arranging routes for overhead conductors every reasonable precaution shall be taken to secure locations likely to be permanently useful for the circuits concerned and for necessary developments, including the limitation of present and future proximity to other electrical circuits or other pole lines and the appropriate strength, clearances and separations for the proximity concerned.

b. When separate pole lines are carried in nearer proximity than a distance equal to the height of the taller pole line, or where joint poles are used, the appropriate precautions to limit liability of contact shall include the use of wires, cross-arms, pins, insulators, conductor fastenings and poles of appropriate strength. In each such case the minimum clearances and strength shall be those required by the construction rules of the National Electrical Safety Code, Part 2.

### 302. Joint Lines.

a. The same cross-arm shall not be used for supporting both electric light or power wires and telephone, telegraph or other signal wires which enter any building. An exception is made for signal wires used for operating purposes by an operating utility and entering buildings used for such purposes.

b. When both electric light or power wires and telephone, telegraph or other signal wires are placed on the same pole, the distance between the two inside pins of each crossarm shall be not less than 24 inches for circuits operating at a potential to ground not exceeding 300 volts, and shall be not less than 30 inches for higher potentials.

### 303. Clearances.

a. Conductors shall be at least eight feet above the nearest point of buildings over which they pass, and if attached to roofs the roof structures shall be substantially constructed. Wherever feasible, wires crossing over buildings shall be supported on structures which are independent of the buildings.

b. Open wires of less than 7500 volts between conductors shall be at least three feet horizontally from buildings unless 3 feet higher than the roof. Open wires 7500 volts or more between conductors shall not be installed over buildings other than central stations, substations and transformer vaults. Open wires of voltages between 7500 and 15,000 volts between conductors shall be kept at least 8 feet horizontally, and open wires of more than 15,000 volts between conductors shall be kept at least 10 feet horizontally, from all buildings except those which they serve or central stations, substations and transformer vaults.

c. Where buildings exceed three stories, or 50 feet in height, overhead lines shall be arranged where practicable so that a clear space (or zone) at least 6 feet wide will be left either adjacent to the buildings or beginning not over 8 feet from them, to facilitate the raising of ladders when necessary for fire fighting.

### 304. Insulation.

a. Conductors shall be so placed that moisture is not liable to form a cross connection between them. They shall not be in contact with anything but their supports. They shall be not less than one foot apart except when in conduit or multiple-conductor cable or on approved racks or brackets.

### 305. Grounding Cable Sheaths.

a. Metallic sheaths of cables shall be grounded in conformity with the requirements of Article 9.

### 306. Yard Wiring.

For wiring and lamps on series circuits of constant-current systems, see section 5001.

a. All wiring on exterior of building walls shall comply with the requirements for services in section 403. For circuits exceeding 600 volts, it shall be in rigid conduit or metal-sheathed cable.

b. Conduit work on the exterior of buildings shall be waterproof and shall comply with the requirements of Article 5 for interior conduit work.

c. Open wires on exterior building walls shall be kept at least 6 inches from conductors of other supply or signal circuits not in conduit.

d. Wires strung above alleys, driveways and other open spaces shall have a clearance above ground of not less than 18 feet and if of more than 600 volts, 20 feet.

### 307. Festoon Lighting.

a. Supply shall be taken only from such points on the wiring system so that correct fusing can be provided for. Conductors shall be protected by fuses not larger than the values given in Column C of Table 1, section 612.

b. The conductors of festoon streamers shall not be smaller than No. 14, and shall have an approved rubber covering. When the span of any string of lamps exceeds 40 feet, the string shall be supported by a suitable messenger wire substantially fastened at each end.

c. Festoon lighting strings or messengers shall not be attached to any fire escape or downspout. They shall be supported by secure attachments to buildings, poles or other adequate supports by means of approved strain insulators.

d. Sockets and receptacles shall be of approved moulded composition weatherproof type, and when they are attached as pendants shall have the connections to the circuit wires staggered. All joints shall be made mechanically secure, soldered, covered with both rubber and friction tape, and painted with an insulating paint.

### 308. Trolley Wires.

a. Trolley wires shall be doubly insulated from the ground, wooden poles being considered as one insulation.

b. Trolley wires and feeders shall be provided with switches which will either disconnect them from the power station, or will so sectionalize them that they may be rendered dead in case of fire along the route.

## ARTICLE 4. SERVICES AND SERVICE EQUIPMENT (Not Over 600 Volts).

For Services and Service Equipment for more than 600 volts see Article 50.

For other outside and entrance conductors see Articles 3, 5, 37, 38.

### 401. General.

a. The wiring in any building or group of buildings, including the service connections thereto, shall be so arranged as not to serve as a shunt around any street fuse or switch.

b. No overhead service, no underground service, and no service from an isolated plant shall supply one building through another, except when such buildings are under single occupancy or management. Conductors

in conduit or duct placed under 2 inches of concrete beneath a building, or buried in 2 inches of brick or concrete within a wall, shall be considered outside the building.

c. No building shall be supplied from the same exterior distribution system through more than one set of service conductors, unless a separate service is required for fire pumps, or for emergency lights, as required by Section 3902, or unless capacity or emergency requirements make multiple services desirable, or unless there are different transformers or sets of multiphase transformers.

d. If supplied by more than one set of service leads at the same side of a building, the service equipments shall be grouped (except for fire-pump service, which may be isolated) and the type of service separately indicated.

### 402. Overhead, From Main to Building.

a. Approved weatherproof or approved rubber covering, shall be employed on single wires, and approved rubber covering on multiple-conductor cables. Wires shall not be smaller than No. 10 if of soft copper, or smaller than No. 12 if of medium or hard-drawn copper.

b. Wires or cables shall not approach nearer than 8 feet to buildings over which they pass, and, if attached to roofs thereof, shall be supported on substantial structures.

It is recommended that wires passing over a building be supported on structures which are independent of the building.

c. When a service from overhead supply wires to a building is carried underground, the portion of the wires underground and running up the pole to a point at least 8 feet above the ground shall be suitably protected from mechanical injury and shall be protected from moisture by a covering of lead or other means approved for the purpose.

d. Multiple-conductor cables shall be kept at least 6 inches from adjacent woodwork and at least 12 inches from overhanging projections of combustible material, unless fittings approved for the purpose are used.

### 403. On Exterior of Building.

a. Wires or cables which are liable to contact with awnings, swinging signs, shutters or other movable objects, shall be enclosed in approved conduit. All conduit systems on exterior of buildings shall be made weatherproof.

b. Open wires shall not be within 8 feet from the ground, shall not be readily accessible and shall not be subject to mechanical disturbance. If exposed to the weather they shall be supported on approved insulators, racks, brackets, or other supports approved for the purpose. Such supports shall be placed at intervals not exceeding 9 feet and shall separate the wires at least 6 inches from each other and at least 2 inches from the surface wired over; provided, however, that supports may be placed at intervals not exceeding 15 feet if they hold the wires at least 12 inches apart. Open wires if not exposed to the weather may be supported on glass or porcelain knobs placed at intervals not exceeding 4½ feet and maintaining the wires at least 1 inch from the surface wired over.

c. Multiple-conductor cables run on the exterior of building walls shall not be within 8 feet from the ground, shall not be readily accessible, and shall not be subject to mechanical disturbance. They shall be supported at intervals not exceeding 15 feet. Unless provided with metal sheath or armor they shall be mounted upon insulating supports so as to be separated at least 2 inches from the surface wired over.

d. Open wires on exterior of buildings shall have approved rubber or weatherproof coverings for single wires and approved rubber covering for multiple-conductor cables.

e. Rigid conduit systems made weatherproof shall be used for wiring on exterior of buildings where open wiring cannot readily comply with the above requirements or where the voltage exceeds 600, and may be used in lieu of such open wiring under any conditions.

### 404. Entrance.

a. All service wires shall enter the building at a point as near as practicable to the location of the service switch. Service conductors may be run through but shall not be run within a building wall unless in conduit embedded in brick, tile, concrete, or other fire resistive construction, or unless protected by fuses at the outer end of the service conduit.

b. Wires entering building shall be rubber-covered from the point of support on the outside of the building nearest the entrance to the building. The service wires shall be not smaller than No. 8.

c. Where a run of grounded rigid service conduit is interrupted by metallic flexible conduit, the two ends of rigid conduit thus interrupted or the end of the rigid conduit and the service entrance cabinet if the flexible conduit shall be connected thereto shall be bonded together by a copper wire not smaller than No. 8 using approved clamps or other approved means, and both the bonding devices and bonding wire shall, if exposed to mechanical injury be effectively protected therefrom.

d. Overhead wires shall enter buildings only in rigid conduit or as separate individual wires. Where open wires are used, drip loops shall be formed on the individual wires which shall then pass upward and inward through slanting, non-combustible, non-absorbent insulating tubes. Where rigid conduit is used it shall have weatherproof threaded joints and be equipped with approved service head.

Where service switch is inside building, it is recommended that conductors entering the building from overhead lines be encased in approved rigid metal conduit.

e. Where a conduit enters from an underground distribution system, the end within the building shall be sealed with suitable compound so as to prevent the entrance of moisture and gases.

f. Where conduit is used to contain service conductors, the inner end of the service conduit shall enter a terminal box or service switch cabinet or be made up directly to an equivalent device, enclosing all live metal parts, and shall be electrically connected to the box or equivalent device unless isolated from conducting surfaces and unexposed to contact by persons or materials which may be in contact also with other conducting surfaces, including the terminal box or equivalent device.

g. Service conduit shall be grounded unless isolated from grounded surfaces, and unexposed to contact by persons or materials which may be in contact with other conducting surfaces, and containing no wire of more than 150 volts to ground and no wire of an ungrounded circuit exposed to or connected to other circuits of more than 150 volts to ground. Conduit and metal pipe if not electrically connected to an interior conduit system shall be considered sufficiently grounded if containing lead-sheathed cable bonded to a continuous underground lead-sheathed cable system.



It is sometimes advisable to insulate interior conduit or sheathing from service conduit or sheathing to prevent burnouts of small interior conduit, armored cable sheaths, or metal moulding by large currents which might flow from exterior conduit to interior conduit and waterpipes.

#### 405. Service Equipment.

a. In this section the word "switch" shall be construed as including a circuit-breaker that is capable of manual operation.

b. A service switch shall be provided for each set of service conductors and shall indicate plainly whether it is open or closed. The switch or switches shall be placed at the nearest readily accessible point to the entrance of the service, either inside or outside the building wall and shall be of a type approved for the prevailing conditions such as exposure to the weather. This switch shall be installed in one of the following ways:

1. As an air-break or oil-immersed switch enclosed in a metal case;

2. As an air-break or oil-immersed switch mounted on a switchboard or panelboard which is accessible to qualified persons only.

c. A service switch shall simultaneously interrupt all conductors of the circuit in which it is inserted and disconnect the meter and overload protective devices, except that

1. Where the switch, fuses and meter are combined in an approved device or compact combination of such devices having no live parts or wiring exposed, and capable of being sealed or locked, the switch may be so connected that it will not disconnect the fuses or the meter from the supply line; and the potential coils of the meter may be connected on the supply side of the service cutout;

2. Where the switch and fuses are mounted in an approved cabinet having no live parts or wiring exposed and capable of being sealed or locked, the switch blade may be omitted in any grounded conductor of a direct-current or single-phase circuit or any grounded neutral if other approved means is provided within the cabinet for disconnecting such conductor.

3. Where a service switch is mounted on a switchboard, the switch blade in the grounded conductor may be omitted if other approved means is provided on the switchboard to disconnect the grounded conductor.

4. In buildings served through 2, 3, or 4 meters from a single set of service conductors not exceeding 150 volts to ground, the service conductors may be run to a separate switch and cutout for each meter if grouped at the point of entrance. The service run shall be continuous to the last service switch and cutout or to the bus on a switchboard, but taps may be made to the individual service switches. In installations involving more than 4 meters the entire current shall be taken through one main entrance switch.

5. A switch controlling a 3-wire direct-current or a 3-wire single-phase system may be so designed that one outside conductor can be opened without opening the other.

d. A service switch shall be enclosed and externally operable unless made inaccessible to other than qualified persons. A service switch shall be readily accessible and externally operable unless additional switches are provided for control of all individual feeders and circuits supplied through it, as recommended below.

It is recommended that where the current of a single circuit, or group of circuits, is separately metered, as in apartment-house installations, a switch and cutout be installed to control each separately metered installation, the switch and cutout being enclosed and the switch being externally operable. The location of this switch and cutout may, or may not, be close to the meter.

e. The service switch shall have sufficient capacity to rupture a current equal to the capacity of the cutout base or to the rating of other type of protective device in series with it.

f. Each ungrounded service conductor shall be protected by a fuse or automatic overload circuit-breaker arranged to cut off the current from all circuits fed through it, and from all devices in such circuits other than the service switch and, under the conditions specified in paragraph (c) 1, of this section, the meter. Fuses, where used, shall be controlled by the service switch except where they are located at the outer end of the service conduit or as specified in paragraph (c) 1 of this section. A circuit-breaker, where used, shall be controlled by the service switch unless it is manually operable.

g. When the service fuses are locked or sealed or are located at the outer end of the service conduit, branch fuses connected on load side of meter shall be accessible to persons concerned and shall be enclosed in an approved casing or cabinet. If the installation consists of a single branch circuit, fuses shall be inserted in series with the service fuses and shall be of smaller capacity. These fuses need not be at the meter but shall be accessible.

h. No fuse or automatic overload circuit-breaker shall be placed in a grounded service wire except a circuit-breaker which simultaneously opens all conductors of the circuit.

i. Where not located on a switchboard or panelboard, accessible only to qualified persons, live parts of switches, buses, fuses, cutout bases, and automatic overload circuit-breakers shall be enclosed so that they will not be exposed to accidental contact. The enclosure shall be grounded in accordance with the method for equipment grounding given in Article 9. *Exception:*

Grounding may be omitted where enclosures are isolated from conducting surfaces and unexposed to contact by persons or materials that may be in contact with other conducting surfaces including other enclosures, conduit, etc., and where also the voltage does not exceed 150 volts to ground and no contained live parts are connected to ungrounded circuits exposed to more than 150 volts to ground.

j. A manually operable automatic overload circuit-breaker may be used in place of both service switch and fuse, and shall be of a type approved for this use.

k. In a property comprising more than one building under single management and which has a generating plant or is served by a master service, the conductors running from one building to another shall not be considered as service conductors, in that fuses or automatic overload circuit-breakers will not be required where these supply the wiring installation within any building, provided that the fuses or circuit-breakers next back on these conductors properly protect the conductors within that building, and provided that each such set of conductors is separately controlled by a suitable feeder-control switch which is readily accessible to those persons using that installation. Such switch may be located at the entrance of the conductors to the individual building or farther back on the feeder concerned. This rule includes garages and similar outbuildings of residential installations.

l. When service wires carry a voltage exceeding 600 volts between conductors, the requirements of section 5009 of Article 50 of this Code shall apply.

#### 406. Hazardous Locations.

a. Service entrance equipment shall not be placed in the class I locations defined in paragraph (b) of section 3201 of article 32 of this Code. (See paragraph, (b), section 3233.)

b. When it is necessary to place service entrance equipment in the class II or class III location defined in paragraphs (c) and (d) respectively of section 3201, the provisions of paragraph (b), section 3204, and paragraph (b), section 3205, respectively, shall be observed.

### ARTICLE 5. WIRING METHODS

This article treats only of types of wiring recognized as suitable and of the conditions and methods of installation under which they are suitable. Special types of wiring may be used only where recognized as suitable under this and other articles of this Code. The recognized types of wiring may be installed in any type of building or any type of occupancy except as otherwise provided in any article of this Code.

#### 500. Polarity Identification of Systems and Circuits.

a. Except as otherwise permitted in paragraph c of this section, any interior wiring system shall have such an arrangement of conductors that systematic polarization, protective grounding, and connection to service may be readily accomplished, as in the following recognized systems and circuits.

##### GROUNDING SYSTEMS AND CIRCUITS WITH THE GROUNDED WIRE CONTINUOUSLY IDENTIFIED

1. A two-wire system one wire of which is continuously identified.
2. A three-wire system, Edison three-wire direct current, or three-wire single-phase alternating current, the neutral wire of which is continuously identified.
3. A multi-wire system (more than two wires, but not including an Edison three-wire system), one wire of which is continuously identified.

b. No interior wiring system shall be electrically connected to a supplying system unless the latter contains, for any grounded wire of the interior system, a corresponding wire which is grounded.

c. Interior wiring systems or circuits of other than the above types such as two-wire or multi-wire systems or circuits in which it is not intended to use a continuously identified and grounded wire, may be used as permitted by the authority enforcing this Code, as in the following recognized systems and circuits.

##### GROUNDING SYSTEMS AND CIRCUITS WITHOUT IDENTIFIED WIRE

1. A two-wire system or circuit supplied from the outside wires of an Edison three-wire system having a grounded neutral.
2. A multi-wire polyphase system or circuit with the neutral of one phase grounded.
3. A multi-wire polyphase system or circuit with the neutral wire grounded, but not used as a circuit conductor.

##### UNGROUNDING SYSTEMS AND CIRCUITS

1. Two-wire or multi-wire systems and circuits not intended to be grounded.

d. Every lighting and/or appliance branch circuit shall have one wire continuously identified, grounded and connected to each lamp or appliance on the circuit, except that two-wire branches tapped from the outside wires of a three-wire d.c. or single-phase circuit within the same premises will be permitted if no fuse is omitted and no single pole switches or sockets are used.

Such an identified branch circuit may be supplied only by direct connection from the systems or circuits described in paragraph a of this section.

e. Lighting and/or appliance branch circuits shall not be supplied from auto-transformers used as balance coils.

f. In any of the above systems no continuously identified grounded wire and no unidentified grounded wire shall have placed in it a single pole switch, or an automatic cutout, which operates to open that wire only.

g. Continuous identification of wires of an interior wiring system shall be accomplished for rubber covered wires of No. 6 gauge and less by the use of continuously identified outer covering as specified in paragraph f, of section 602, of article 6, of this Code. For larger wires and wires of other than rubber covering, the continuous identification shall be secured either as for the smaller rubber covered wires or, in process of installation by marking, and testing where necessary, all continuous lengths of wires used for that polarity for which identification is required.

h. Wires having white or natural gray covering shall not be used in identified systems or circuits except as conductors for which identification is required by this section.

The following method of "wiring in" single-pole switches in circuits of armored cable or non-metallic sheathed cable, as suggested, as the ordinary two-wire cable having one wire identified is not permitted for single pole switch loops by the above.

1. The use of two-wire cable, if the identified wire is rendered permanently unidentified by painting, or other effective means at every point where outlets, switch boxes, junction boxes or pull boxes make the wires visible and accessible.
2. The use of a three-wire cable having one identified wire, which identified wire is cut off at each end of the section of cable where the wire emerges, or which is in some manner properly marked at each end to show that the identified wire of this cable is not in the circuit.
3. By so arranging the wiring that both conductors of the circuit coming from the distribution point pass through the switch box to the outlet.

i. Where pendants are attached to a wiring system containing an identified wire, that conductor of the flexible cord which is connected to the identified wire of the system shall itself be continuously identified, as specified in paragraph f, of section 609, of article 6 of this Code. This identified conductor of the cord shall be connected to the screw shell terminal of any lamp holder attached thereto.

It is recommended that flexible cords to portables be similarly identified and connected.

#### 501. Open Wires.

a. Single wires may be installed as open wires upon walls and ceilings, when the provisions of the following paragraphs of this section shall be observed.

b. In dry places wires shall be of approved rubber-covered (R), slow-burning weatherproof (SBW), varnished-cambrie insulated (VC) slow-burning (SB) or asbestos-covered type (A).

c. In damp places or in buildings especially subject to moisture wires shall be of the rubber-covered type.





conductors larger than No. 8 and for all twin, twisted or multiple-conductor cables. Slow-burning insulation (Type SB wire) may, however be used in permanently dry and excessively hot locations by permission of the authority enforcing this Code. All wires of No. 6 or larger shall be stranded. There shall be no splice or tap within the conduit proper. With flexible metallic conduit in wet or damp places wires shall have lead coverings (Type RL).

m. Wires shall not be drawn in until all mechanical work on the building which is liable to injure the wires has been completed, as far as possible.

n. Wires of different systems shall not occupy the same conduit.

Different systems are those which derive their supply from (1) different sources of current, (2) transformers connected to separate primary circuits, or (3) transformers having different secondary voltages.

o. When alternating current is to be employed, all conductors of a circuit shall be placed within one conduit, except as provided in section 510 of this article.

It is recommended that this course be pursued in the case of direct current also, in order to obviate induction troubles if a change is made to alternating current at a later date.

p. Except in the case of stage pocket and border circuits and flasher and carriage-call wires and elevator control wires or by permission of the authority enforcing this Code, one conduit shall not contain more wires than as specified in Table 1 of this section.

q. Size of Conduits for the Installation of Wires and Cables.

The following tables apply only to complete conduit systems, and do not apply to short sections of conduit used for the protection of exposed wiring from mechanical injury.

TABLE 1. TWO-WIRE AND THREE-WIRE SYSTEMS

Size of Wire	Number of Wires in One Conduit								
	1	2	3	4	5	6	7	8	9
No. 14	1/2	1/2	3/4	3/4	3/4	1	1	1	1 1/4
12	1/2	1/2	3/4	3/4	3/4	1	1	1	1 1/4
10	1/2	1/2	3/4	3/4	3/4	1	1 1/4	1 1/4	1 1/4
8	1/2	1/2	3/4	1	1 1/4	1 1/4	2	2	2 1/2
6	1/2	1	1 1/4	1 1/4	1 1/2	2	2	2	2 1/2
5	1/2	1 1/4	1 1/4	1 1/4	2	2	2	2	2 1/2
4	1/2	1 1/4	1 1/4	1 1/2	2	2	2	2	2 1/2
3	1/2	1 1/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	2 1/2
2	1/2	1 1/2	1 1/2	2	2	2 1/2	2 1/2	3	3 1/2
1	1/2	2	2	2	2 1/2	2 1/2	3	3	3 1/2
0	1	2	2	2	2 1/2	2 1/2	3	3	3 1/2
000	1	2	2	2	2 1/2	2 1/2	3	3	3 1/2
0000	1 1/4	2	2 1/2	2 1/2	3	3	3 1/2	3 1/2	4
200000 C.M.	1 1/4	2	2 1/2	2 1/2	3	3	3 1/2	3 1/2	4
225000	1 1/4	2 1/2	2 1/2	3	3	3 1/2	3 1/2	4	4
250000	1 1/4	2 1/2	2 1/2	3	3	3 1/2	3 1/2	4	4
300000	1 1/4	2 1/2	3	3	3 1/2	3 1/2	4	4	4 1/2
350000	1 1/4	2 1/2	3	3	3 1/2	3 1/2	4	4	4 1/2
400000	1 1/4	3	3	3	3 1/2	4	4	4	4 1/2
450000	1 1/4	3	3	3	3 1/2	4	4	4	4 1/2
500000	1 1/2	3	3 1/2	4	4	4 1/2	4 1/2	5	5
550000	1 1/2	3	3 1/2	4	4	4 1/2	4 1/2	5	5
600000	1 1/2	3	3 1/2	4	4	4 1/2	4 1/2	5	5
650000	2	3 1/2	3 1/2	4	4	4 1/2	4 1/2	5	5
700000	2	3 1/2	3 1/2	4 1/2	4 1/2	5	5	5	5
750000	2	3 1/2	3 1/2	4 1/2	4 1/2	5	5	5	5
800000	2	3 1/2	4	4 1/2	4 1/2	5	5	5	5
850000	2	3 1/2	4	4 1/2	4 1/2	5	5	5	5
900000	2	3 1/2	4	4 1/2	4 1/2	5	5	5	5
950000	2	4	4	4 1/2	4 1/2	5	5	5	5
1000000	2	4	4	4 1/2	4 1/2	5	5	5	5
1100000	2 1/2	4	4 1/2	4 1/2	5	5	5	5	5
1200000	2 1/2	4 1/2	4 1/2	5	5	5	5	5	5
1250000	2 1/2	4 1/2	4 1/2	5	5	5	5	5	5
1300000	2 1/2	4 1/2	5	5	5	5	5	5	5
1400000	2 1/2	4 1/2	5	5	5	5	5	5	5
1500000	2 1/2	4 1/2	5	5	5	5	5	5	5
1600000	2 1/2	5	5	5	5	5	5	5	5
1700000	2 1/2	5	5	5	5	5	5	5	5
1750000	3	5	5	5	5	5	5	5	5
1800000	3	5	5	5	5	5	5	5	5
1900000	3	5	5	5	5	5	5	5	5
2000000	3	5	5	5	5	5	5	5	5

Where single conductor, single braid, solid wires only are used, four No. 14 wires may be installed in a 1/2-inch conduit and up to seven No. 14 wires in a 3/4-inch conduit. Three No. 12 wires may be installed in a 1/2-inch conduit, four No. 10 wires in a 3/4-inch conduit and three No. 8 wires in a 1/2-inch conduit.

TABLE 2. THREE-CONDUCTOR CONVERTIBLE SYSTEM

two	Size of Wires		10	Size Conduit Electrical Trade Size, Inches
	14	and one		
"	12	"	8	3/4
"	10	"	6	1
"	8	"	4	1 1/4
"	6	"	2	1 1/2
"	5	"	1	1 3/4
"	4	"	0	2
"	2	"	0000	2 1/2
"	1	"	0000	3
"	0	"	250000	3 1/2
"	00	"	350000	4
"	000	"	400000	4 1/2
"	0000	"	550000	5
"	250000	"	600000	5 1/2
"	300000	"	800000	6
"	400000	"	1000000	6 1/2
"	500000	"	1250000	7
"	600000	"	1500000	7 1/2
"	700000	"	1750000	8
"	800000	"	2000000	8 1/2

TABLE 3. STAGE POCKET AND BORDER CIRCUITS, AND ELSEWHERE BY SPECIAL PERMISSION

Size of Wire	Maximum Number of Wires in Conduit					
	Inch	Inch	Inch	Inch	Inch	Inch
14	1	1 1/4	1 1/2	2	2 1/4	3
12	1	1 1/4	1 1/2	2	2 1/4	3
10	1	1 1/4	1 1/2	2	2 1/4	3
8	1	1 1/4	1 1/2	2	2 1/4	3
6	1	1 1/4	1 1/2	2	2 1/4	3

For groups or combinations not included in the above tables, consult the authority enforcing this Code. For such groups or combinations, it is recommended that the conduit be of such size, that the sum of the cross-sectional areas of the several conductors will not be more than 40 per cent of the interior cross-sectional area of the conduit.

r. Wires in vertical conduits shall be supported at the following intervals:

No. 14	to No. 0	not greater than 100 feet
No. 00	" No. 0000	" " " 80 "
No. 0000	" 350000 C. M.	" " " 60 "
350001 C. M.	" 500000 C. M.	" " " 50 "
500001 C. M.	" 750000 C. M.	" " " 40 "
	above 750000 C. M.	" " " 35 "

The following methods of supporting cables are recommended:

1. By approved clamping devices constructed of or employing insulating wedges inserted in the ends of the conduits.
2. By inserting junction boxes at the required intervals in which insulating supports of approved type are installed and secured in a satisfactory manner to withstand the weight of the conductors attached thereto, the boxes being provided with covers.
3. In approved junction boxes, by deflecting the cables not less than 90 degrees and carrying them horizontally to a distance not less than twice the diameter of the cable, the cables being carried on two or more insulating supports, and additionally secured thereto by the wires if desired.

s. Vertical wires of No. 1 or larger shall not be deflected where they enter or leave a cabinet unless a gutter having a width in accordance with the following table is provided.

Feeder Size (A.W. gauge)	Minimum Width of Gutter in Inches
0-200,000cm.	3
211,600cm. to 500,000cm.	4
600,000cm. to 900,000cm.	6
1,000,000cm. to 1,400,000cm.	8
1,500,000cm. to 2,000,000cm.	12

504. Surface Metal Raceways (Metal Moulding Work).

a. When wires are installed in surface metal raceways (metal moulding work), the provisions of the following paragraphs of this section shall be observed.

b. Raceways shall be of approved types and shall be used only in exposed dry locations and where the maximum difference of potential does not exceed 300 volts between conductors nor 150 volts to ground. They shall not be placed in hoistways nor where they may be subjected to severe mechanical injury nor where corrosive vapors are present. (For use in underplaster extensions see section 510 of this article.)

c. Wires shall be of approved rubber-covered type, and shall be continuous from outlet to outlet, or from fitting to fitting, no joints or taps being located in the raceway proper except that with metal raceway wires exposed to surrounding temperatures exceeding 120° F. (49°C.) shall be type (A) or type (SB).

d. Surface metal raceways shall not be used for wires larger than No. 8 or fused at more than 30 amperes nor for a number of wires greater than that for which the raceway is approved and in no case for more than nine wires.

e. Metal raceways shall be of such construction as will distinguish them from rigid conduit. All surfaces of raceway, elbows, bends and similar fittings shall be suitably protected from corrosion.

f. Metal raceways and their elbows, couplings and similar fittings shall be so designed that the sections can be electrically and mechanically coupled together, while protecting the wires from abrasion. Holes for screws or bolts inside the raceway shall be so designed that when screws or bolts are in place their heads will be flush with the metal surface.

g. Where alternating current is to be employed in connection with metal raceway work, all wires of a circuit shall be placed in one raceway, except as provided in section 510 of this article.

It is recommended that this course be pursued in the case of direct current also, in order to obviate induction troubles if a change is made to alternating current at some later date.

h. A metal raceway shall be continuous from outlet to outlet, or from approved fitting to approved fitting and shall be securely fastened in place. It may be extended through dry walls or dry partitions if in unbroken lengths where passing through; but, where the wall or partition is damp, or where the raceway passes through a floor, an iron pipe sleeve shall be placed over the raceway and shall extend clear of either side of the wall or partition, or from the ceiling below to a point at least 3 inches above the flooring. Where protection from mechanical injury is necessary, the iron pipe sleeve shall extend to a point at least 5 feet above the flooring.

i. Metal raceways shall be grounded as prescribed in article 9 of this Code.

j. When combination metal raceways are used both for signal and for lighting and power circuits, the different systems shall be run in separate compartments, identified by sharply contrasting colors of the interior finish, and the same relative position of compartment shall be maintained throughout the premises, in which case the provisions of paragraph (m), section 503, and of paragraphs (a) to (d) inclusive, section 6003 of this Code, shall be considered as having been observed. When such combination metal raceways are used, ten No. 14 wires shall be permitted in the compartment for light, heat and power circuits. Wires of light and power systems shall enter and leave combination raceways by means of conduit work. In all other respects, the provisions of this section covering single compartment raceways, shall apply.

505. Armored Cable.

a. When armored cable, types AC or ACL, is used as the wiring method, the provisions of the following paragraphs of this section shall be observed.

b. Armored cable shall not be used for systems of more than 600 volts nor where its surrounding temperature will exceed 120° F. (49° C.).

c. Type AC armored cable may be used for open or concealed work in dry locations and may be fished; when run on walls of brick or similar masonry it may be embedded in the plaster finish.

d. Wires of armored cables shall be of rubber-covered type. The armored cable shall carry a distinctive marker throughout its entire length.

e. Approved outlet boxes or fittings shall be installed at all outlets and switch points as required by paragraphs (a) and (b) of section 703. The cable shall be continuous from outlet to outlet, or from fitting to fitting, and the armor shall be mechanically and electrically connected to all fittings in a manner to substantially close the openings at entrance points and to hold the cable securely. The entire cable system shall be secured in place by approved fastenings.

f. When in exposed or concealed wiring, cable is run through bored holes in studs, joists or similar wood members, such holes shall be bored at the approximate center of such timbers and not less than two inches from the nearest edge, if their depth will permit.

g. When the cable is employed in accessible attics or roof spaces, it shall be installed as follows:

1. When run within five feet of the floor or floor joists, through bored holes in rafters or studs, or when run through bored holes in floor joists, cable shall be protected by substantial running boards extending at least one inch on each side of the cable or cables, and be securely fastened in place.

2. When within five feet of floor or joist, across the face of rafters or studding, or across the top or face of floor joists, cable shall be protected by substantial guard strips at least as high as the cable.

3. When carried along the sides of rafters, studs or floor joists, neither guard strips, nor running boards shall be required.

h. All bends shall be so made that the armor of the cable will not be injured, and the radius of the curve of the inner edge of any bend shall be not less than five times the diameter of the cable.

i. At all points where the armor terminates, additional protection shall be afforded to the conductors by approved connectors or clamps so that the conductor will be adequately bushed.

j. Type ACL (having a lead sheath under the armor) shall be used in underground service runs and where other circuits are embedded in masonry, concrete or fill in buildings in course of construction, and elsewhere, if the location is such that the cable will be exposed to the weather or to continuous moisture or dampness.

k. For the use of armored cable in under-plaster extensions, see section 510 of this article.

l. Where alternating current is to be employed, all conductors of a circuit shall be contained within one armor except as provided in section 510 of this article.

It is recommended that in the case of direct current also all conductors of a circuit be placed within one armor, in order to obviate induction troubles if a change is made to alternating current at a later date.

m. The armor shall be grounded as prescribed in Article 9 of this Code.

#### 506. Underfloor Raceways.

a. Underfloor raceways shall be used only in dry locations, free from corrosive, hazardous and extra hazardous conditions, in buildings of fire-resistive construction and where embedded in concrete or concrete fill of floors which are of sufficient thickness to exceed the height of raceways at all points. They shall not be used for circuits of more than 300 volts nor for any wire larger than No. 8 nor any wire protected by an automatic overload protective device exceeding 30 amperes.

b. Underfloor raceways shall be of an approved type and may be placed in the concrete fill between the rough and the finished floor when there is at least 1 inch of concrete placed above the raceway, except that with a duct of approximately round or half round section, or of flat top section not exceeding 1½ inches in width, this may be reduced to ¾ inch. Upper surface of flat top ducts shall not be more than 4 inches wide nor shall be placed side by side without at least ½ inch of intervening concrete, or unless cover depth is increased to 1½ inches. Open-bottom types of underfloor raceways shall not be used in floors of monolithic construction.

c. Open-bottom types of underfloor raceways shall not be used in shallow-floor concrete fills unless proper cover is maintained and a smooth pad of 1 inch concrete having a margin of at least 1 inch on either side of the raceway, or unless approved fittings are used which will protect the wiring from contact with piping, structural steel or other obstructions, except that where transverse conduit is encountered the pad thickness may be reduced to ¼ inch. Open-bottom type shall have under it the above required pad except where approved fittings are so installed as to protect the wiring from contact with and leakages to piping, structural steel or other obstructions below.

d. Underfloor raceways shall be laid so that a straight line from the center of one junction box to the center of the next junction box will coincide with the center line of the raceway. Raceways shall be made mechanically secure to prevent disturbing this alignment during construction.

e. All joints along edges of raceways and between raceways, couplings and junction boxes, and between the junction boxes, cover plate and cover ring shall be filled with an approved waterproof cement, but with metal raceway this shall not interrupt the required electrical continuity of the raceway. Approved fittings may be used to take the place of waterproof cement between junction boxes, cover plate and cover ring. Raceways, with their fittings, should be so arranged that there will be no low points, or traps in the raceway run. Crossing shall be avoided wherever practical.

f. Where raceways are run at other angles, than right angles, special fittings shall be provided, if in the judgment of the authority enforcing this regulation, those are necessary. Connections between raceways and distribution center, or the side wall outlets, shall be by means of conduit or approved fittings. Electrical continuity shall be maintained for metal raceways and fittings. At every end of line of duct, a fitting shall be installed extending through the floor to mark the line of the duct. Where a duct line is interrupted by another duct line, but continues in a straight line beyond, and has junction boxes or outlets on either side of the crossing line, no markers shall be deemed necessary at the interrupting point. Dead ends of ducts shall be closed.

g. Inserts for outlets and junction boxes shall be made in an approved manner, with approved fittings, and shall make a tight contact with the raceway. In the case of metal raceways, inserts and junction boxes shall be of metal, electrically continuous with the raceways. Inserts in fibre raceways shall be screwed into the fibre and shall not be set until floor is laid unless inserts are made mechanically secure by separately grouting them in. All inserts and junction boxes shall be carefully leveled to the floor grade and sealed with an approved watertight plug.

h. Care shall be exercised in setting inserts and when cutting through the raceway wall that chips and other dirt do not fall into the raceway. Special tools designed to eliminate this and to prevent the tools entering the raceway and injuring wires already there, shall be employed.

i. Underfloor metal raceways, and all metal fittings, shall be of a type, and of such material, or protected by such coatings, as shall suitably resist corrosion, and any coating shall be such as will resist removal by ordinary handling.

j. Underfloor metal raceways shall be continuous from outlet to outlet, or from approved fitting to approved fitting.

k. Underfloor raceways of metal shall be electrically continuous and grounded as prescribed for other metal wiring raceways in Article 9 of this Code, and at a point as near as practical to the source of supply.

l. A combination type of underfloor raceway may be used for both signaling, and lighting and power wiring systems provided the different wiring systems are run in separate compartments, and the same relative position of compartments is maintained throughout the premises.

m. Where open-bottom raceways are used approved, double braid rubber-covered wires, type RD, armored cable or non-metallic sheathed cable shall be used. Where it is impossible to install the required pad for crossing conduits or structural steel, only armored cable or non-metallic sheathed cable shall be used. Wherever armored cable is used it shall be grounded in accordance with Article 9 of this Code.

n. For closed-bottom raceways approved rubber-covered wires, type R shall be used, or type RD, armored cable or non-metallic sheathed cable shall be used.

o. Wires used in underfloor raceways, either open or closed bottom shall be continuous from outlet to outlet, or from junction box to junction box, or from junction box to outlet. Wires shall have no joints or taps located in the raceway proper, nor at inserts. Joints or taps shall be made in junction boxes by splicing and soldering, or by use of an approved fitting approved for the purpose. Armored cable and non-metallic sheathed cable shall be secured at the outlets by approved fittings.

When an outlet is discontinued the wires feeding that outlet should be removed from the raceway.

p. Not more than ten wires shall be placed in any one raceway, nor shall the combined cross-sectional area of all conductors exceed 50 per cent of the interior cross-sectional area of the raceway; where only armored cable or non-metallic sheathed cable is contained this shall not apply. Wires or interior wiring systems not electrically connected to each other within the building shall not be contained within the same raceway.

q. Wires shall not be drawn in until all mechanical work on the building which is liable to injure the wires has been completed, so far as practical.

r. Where alternating current is to be employed for wires within a metal raceway the wires and circuits shall be so grouped that the current in one direction is substantially the same as that in the opposite direction.

#### 507. Non-Metallic Sheathed Cable.

a. Cable shall not be used for circuits exceeding 300 volts between conductors nor 150 volts to ground.

b. Cable shall only be used for wiring in residence buildings, and in outbuildings on the same premises, or for the wiring of office or mercantile occupancies in residence neighborhoods, which individual occupancies do not require more than four branch circuits.

c. Cable shall not be installed in masonry, concrete or fill in buildings in course of construction, nor where exposed to the weather, nor in continuously damp or moist locations.

d. Cable shall be of approved type, in sizes 14 to 4 inclusive and in two or three-wire assemblies and in addition shall have an approved size of non-insulated copper conductor laid in next to the insulated conductors to be used only for grounding purposes.

e. When employed for exposed wiring, cable shall be installed as follows:

1. Shall be mounted directly upon and unless substantial running boards are used, shall closely follow the surface of woodwork, plaster, cement, brick or other building finish.

2. Shall be secured between outlets with approved fastenings spaced at intervals not exceeding three feet.

3. Vertical runs shall be protected within five (5) feet of the floor by a rigid conduit or pipe, or a substantial wood or metal protecting strip, placed over the cable and securely fastened in place.

4. Horizontal runs within five (5) feet of the floor shall be protected as specified in paragraph (3) above, unless substantial protection is afforded by fixed furniture.

5. Where passing through floors or within 6 inches of floors, cable shall be protected by a length of rigid conduit or pipe passing through the floor, and extending at least 6 inches above the floor, in addition to the protection specified in sub-paragraph (3) above.

f. When employed in concealed wiring, cable shall be installed as follows:

1. In building under construction, shall be secured between outlets by approved fastenings spaced at intervals of not exceeding 4½ feet.

2. In finished buildings where impracticable to support the cable as specified in the preceding paragraph, cable may be fished from outlet to outlet.

g. Cable, exposed or concealed, shall be run in continuous lengths, without joints, splices, or taps, from outlet box to outlet box, or other approved terminal fittings, and shall be secured thereto by means of approved devices which substantially close the openings. Approved outlet boxes or fittings as required by paragraphs a and b of section 703 shall be installed at all outlets and switch points. The grounding conductor shall be connected to the boxes or fittings by approved means.

h. Bends in cable shall be so made and other handling shall be such that the protective coverings of the cable will not be injured, and no bend shall have a radius less than five times the diameter of the cable.

i. Shall not be buried in walls, floors, or ceilings of plaster, cement, or similar finish.

j. When non-metallic sheathed cable is installed in conduit or in surface or underfloor raceways, the provisions of sections 503, 504, and 506 of this article shall apply as far as practicable.

k. When in exposed or concealed wiring, cable is run through bored holes in studs, joists, or similar wood members, such holes shall be bored at the approximate center of such timbers and not less than two inches from the nearest edge, if their depth will permit.

l. Cable in accessible attics or roof spaces, shall be installed as follows: 1. When run within five feet of the floor or floor joists, through bored holes in rafters or studs, or when run through bored holes in floor joists, cable shall be protected by substantial running boards extending at least one inch on each side of the cable or cables and securely fastened in place.

2. When within five feet of floor or joist, across the face of rafters or studding, or across the top or face of floor joists, cable shall be protected by substantial guard strips at least as high as the cable.

3. When carried along the sides of rafters, studs, or floor joists, neither guard strips, nor running boards shall be required.

m. Cable in unfinished cellars or basements, if not run through bored holes in beams or floor joists, shall be run on the under side of running boards not less than 1/2 inch by 1 3/4 inches when run at angles with floor joists or timbers, or on sides or faces of floor joists or timbers when run parallel with them. 3-wire assemblies of cables larger than No. 8 run at angles with floor joists or timbers need not have the guard rails specified in sub-paragraph 2 of the preceding paragraph.

n. In other places where subject to mechanical injury, cable shall be substantially protected by one of the above methods.

**508. Electrical Metallic Tubing.**

a. When electrical metallic tubing is employed for interior wiring systems or parts of such systems, the provisions of the following paragraphs of this section shall be observed.

b. The tubing, its couplings, elbows, bends, bushings, outlet fittings, etc., shall be of approved types. Connections between lengths of tubing and between tubing and any fitting shall provide adequate mechanical strength and electrical continuity and shall not employ threads in the wall of the tubing.

c. The tubing, and elbows and bends for use with the tubing, shall have a circular cross-section and shall have such a finish or treatment of outer surfaces as will provide a permanent approved means of readily distinguishing it, when installed, from rigid conduit.

d. Unless of a non-corrodible metal, all surfaces of tubing and fittings shall have approved coatings, such as baked enamel, zinc, cadmium or other approved metal finish.

e. Metallic tubing and fittings shall be of the following electrical trade sizes, as determined by the internal diameter of the tubing.

Nominal Electrical Trade Size	Approximate Actual Internal Diameter of Tubing
3/8 Inch	0.493 Inch
1/2 Inch	0.622 Inch
3/4 Inch	0.824 Inch
1 Inch	1.049 Inch

The 3/8-inch size is recognized only when used in under-plaster extensions as provided in Section 510 of this Article.

f. The designs of fittings approved for use with electrical metallic tubing shall provide a passageway free from burrs, shoulders or other projections which reduce the internal area of the passageway or are likely to cause abrasion of wires when being pulled in.

g. Elbows, offsets, bends or field bends in the tubing shall maintain the circular cross-section and shall not cause the inner face of such bends to be of a radius of less than six times the internal diameter of the tubing.

h. Electrical metallic tubing shall not be used for interior wiring systems of more than 300 volts between conductors or of more than 150 volts to ground, nor for wires larger than No. 8 gauge or fused at over 30 amperes.

i. Electric metallic tubing shall be used only in exposed dry locations where during installation or afterwards it will not be subject to severe mechanical injury nor to corrosive vapors.

j. Electrical metallic tubing shall not have more than the equivalent of four quarter-bends between consecutive outlets or outlets and fittings, not including bends at such outlets or fittings.

k. Electrical metallic tubing shall be installed as a complete system before the wires are pulled in. The system shall be continuous from approved fitting to approved fitting and shall be firmly secured in place.

l. Wires used with electrical metallic tubing shall be Type R, unless the surrounding temperature of the wire as installed will exceed 120° F. (49° C.) when types A or SB wires shall be used.

m. Wires shall not be drawn into raceways of electrical metallic tubing until all mechanical work on the building which is liable to injure the wires has been completed, as far as possible. Wires of different systems shall not occupy the same tubing. When alternating current is to be employed, all conductors of a circuit shall be within one tube, except as provided for in under-plaster extensions in Section 510 of this Article.

It is recommended that this course be followed in the case of direct current also, in order to avoid induction troubles, if a change is made to alternating current.

n. The number of wires (none larger than No. 8) contained in any run of electrical metallic tubing shall not exceed that given in the following tables, except when special permission for a larger number is obtained.

**TABLE I.**

**Two-Wire and Three-Wire Systems. No. of Wires in One Metallic Tube.**

Size of Wire	Trade Size of Metallic Tubing, I. D.								
	1	2	3	4	5	6	7	8	9
14	1/2	1/2	3/4	3/4	1	1	1	1	1
12	1/2	3/4	1	1	1	1	1	1	1
10	3/4	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1

Where single, solid conductor, single braid wires only are used, 1/2-inch tubing may contain four No. 14 or three No. 12 wires; 3/4-inch tubing may contain seven No. 14 wires or four wires of No. 10 or three wires of No. 8 gauge.

**TABLE II.**

**Three-Conductor Convertible System.**

Size of Wires.	Trade Size, (I. D.) of Metallic Tubing.
Two No. 14 and one No. 10.	3/4 inch
Two No. 12 and one No. 8.	3/4 inch

For groups or combinations not included in Table II, the authority enforcing this Code may be consulted.

For such groups or combinations, it is recommended that the sum of the cross-sectional area of the several conductors in the group or combination shall not exceed 40 per cent of the area of the tubing to be used.

o. Wires in vertical runs of electrical metallic tubing, exceeding 100 feet shall be supported as is specified for wires in rigid conduits in paragraph g of Section 503 of this Article.

p. Installation of metallic tubing shall be grounded as is specified for other wiring methods in Article 9 of this Code.

509. Reserved for future use.

**510. Underplaster Extensions. (Concealed.)**

a. Lighting Branch Circuits, Combination Lighting and Appliance Branch Circuits, and Ordinary and Medium-Duty Appliance Branch Circuits may be installed as underplaster or concealed extensions of existing similar branch circuits in buildings of fire-resistive construction when the provisions of the following paragraphs of this section are observed.

b. Such extensions shall be run in rigid or flexible conduit, armored cable, metal moldings, or electrical metallic tubing, of approved standard types. Standard sizes of conduit, cable, molding or tubing shall be used except that for single wires only, conduits or tubing may be not smaller than 1/2-inch. Raceways especially approved for this use may also be employed.

c. Such extensions shall be laid on the face of masonry or other material of which the walls and ceilings are composed and shall then be buried in the plaster finish. They shall not be run outside of the floor or suite in which they originate.

d. The methods of installation for such extensions shall be as given in the appropriate sections of this article for the kind of raceway employed, except that raceways may be used for single conductors even when alternating current is employed.

**511. Decorative Lighting Systems.**

a. Temporary installations of approved systems of decorative lighting shall be used only when permission therefor has been granted by the inspection department and where the difference of potential between the wires of any circuit does not exceed 150 volts and where the number of outlets and lamps connected to them is in no case such as to place more than 15 amperes on a branch circuit fuse.

**512. Auto Transformers for Derived Wiring Systems and Circuits.**

Transformers in which a part of the turns are common to both primary and secondary alternating-current circuit, ordinarily known as auto-transformers, shall not be used to supply any interior wiring system, unless the system supplied contains an identified grounded wire which is solidly connected to a similar identified grounded wire of the system supplying the auto-transformer. This rule, however, does not prohibit the use of auto-transformers in auto-starters used for controlling induction motors, nor does it prohibit the use of auto-transformers for supplying motor-starting current to individual motors, nor for the supply circuits, wholly within a device which also contains the auto-transformer.

**513. Insulation Resistance.**

a. A completed installation shall have a resistance between conductors, and between all conductors and ground, not less than:

Up to	Resistance
5 amperes	4,000,000 ohms
10 "	2,000,000 "
25 "	300,000 "
50 "	400,000 "
100 "	200,000 "
200 "	100,000 "
400 "	50,000 "
800 "	25,000 "
1,600 "	12,000 "

b. The above values shall be determined with all cutouts and safety devices in place. If lamp sockets, receptacles, fixtures and other appliances are also connected, the minimum resistance required shall be one half that specified in the table.

**514. Surface Wooden Raceways.**

a. Wooden raceways shall be coated, externally and internally, with 2 layers of waterproofing, or shall be impregnated with a moisture repellent. The raceway shall be composed of two parts, a backing and a capping, and shall afford suitable protection against abrasion of wires. It shall be so constructed as to thoroughly encase the wire, having a barrier of not less than 1/2 inch in thickness between wires, and having exterior walls which under grooves shall be not less than 3/8 inch in thickness and on sides not less than 1/4 inch in thickness.

It is recommended that only hardwood be used.

b. In installing surface wooden raceways the appropriate provisions of paragraphs (b) and (c) of section 504 shall be observed.

c. The entire raceway system shall be securely fastened in place.

**ARTICLE 6. CONDUCTORS.**

**601. Marking.**

a. Wires, cables and cords of all kinds except weatherproof wire shall have a continuous distinctive marking so that their maker may be readily identified. All wires, cables and cords shall also be plainly tagged or marked as follows:

1. The maximum working pressure or voltage for which the wire was tested or approved. This may be omitted for slow-burning, slow-burning weatherproof, weatherproof and asbestos-covered switchboard wires.
2. The words "National Electrical Code Standard."
3. Name of the manufacturing company and, if desired, trade name of the wire.
4. Month and year when manufactured. This may be omitted for slow-burning, slow-burning weatherproof, and weatherproof wires.
5. The proper type letter for the particular style of wire or cable as given in the following sections.

**602. Rubber-covered Wire.**

For installation rules, see article 5 of this code.

**a. Classification.**

R	Rubber-covered for voltages	0-600
R15	Rubber-covered for max. voltage	1500
R25	" " " " "	2600
R35	" " " " "	3500
R50	" " " " "	5000
R70	" " " " "	7000
RL	Rubber-covered, leaded.	
AC	Wires for use in armored cable	
ACL	Leaded wires for use in armored cable.	

b. All National Electrical Code Standard rubber-covered wires shall be examined and tested at the factory and shall be labeled before shipment.

c. Conductors shall be covered for their entire length with a properly applied and properly vulcanized rubber compound. This rubber covering shall be of the nominal thickness given in the following table, the requirements of which vary according to the sizes of conductors and the maximum working pressure.

**Table of Thicknesses of Rubber Insulation for Rubber-Covered Wires and Cables in 64th Inches.**

Size of Conductor American or B. & S. Gauge	Standardized Stranding	Type					
		R 600 Volts	R-15 1500 Volts	R-25 2500 Volts	R-35 3500 Volts	R-50 5000 Volts	R-70 7000 Volts
14 to 2	7/25 to 7/51	3	4	5	6	7	8
7 to 2	7/64 to 7/102	4	5	6	7	8	9
1 to 0000	19/64 to 19/107	5	6	7	8	9	10
225,000 to 500,000 C. M.	19/114 to 37/116	6	7	8	9	10	11
525,000 to 1,000,000 Over	61/102 to 61/128	7	8	9	10	11	12
1,000,000	91/114 to 91/128	8	9	10	11	12	13

The second column above refers to wires and cables having standardized stranding as given in Table II of section 612. The first column refers to solid conductors and to wires and cables stranded otherwise than in Table II.

d. All single rubber-covered wires and cables shall have a covering of fibrous material applied directly to the surface of the insulating wall. For any single-conductor wire there shall be at least one braid for sizes from No. 14 to and including No. 8. For all single-conductor cables larger than No. 8 there shall be at least two braids or a tape and a braid. For twin wires and twisted-pair wires and for all multiple-conductor cables there shall be a fibrous covering on each individual wire and in addition a braid enclosing the bunched conductors. For certain special service conditions, one or more additional coverings of fibrous material or of lead may be required. Fibrous coverings may be either braid or tape, but tape shall not be used for the final outer covering.

e. Lead coverings may be applied to single or multiple conductors. Lead-covered multiple-conductor cable with more than two conductors shall, in all cases, have the conductors helically laid. In all cases, the individual conductors of lead-covered cable shall have a fibrous covering and, except for two-conductor cables with conductors parallel, there shall be a fibrous covering over bunched conductors.

f. Single rubber-covered wires No. 6 and smaller intended for use as identified conductors of circuits shall have the outer covering finished to show a white or natural gray color. Twin and twisted pair wires and three-conductor cables shall have one conductor, and four-conductor cables shall have two conductors identified in this manner. The coverings of the other conductors shall be finished to show solid colors other than white or natural gray.

**603. Varnished-Cambric-Covered Wire. Type VC.**

For installation see Article 5.

This wire is not intended for use where moisture exists.

a. The varnished cambric shall be applied in layers and filled as may be specified, and shall have coverings conforming to the requirements for rubber-covered wire as prescribed in Section 602 of this Article.

b. The thickness of the varnished cambric and filler shall be not less than those given in the following table:

**Table of Thicknesses of Varnished Cambric and Filler in 64th Inches**

Size of Conductor, Gauge	For Working Pressures Not Over					
	600 Volts	1500 Volts	2500 Volts	3500 Volts	5000 Volts	7000 Volts
14-10	3	5	7	8	11	14
8	3	5	7	8	11	14
7-2	4	6	7	8	11	14
1-0000	5	6	7	8	11	14
225,000 to 500,000 C. M.	6	6	8	9	11	14
525,000 to 1,000,000 C. M.	7	7	8	9	11	14
1,000,000 C. M.	8	8	9	9	11	14

c. No individual conductor, whether solid or stranded, shall be less than No. 14 gage. Conductors may be either plain or tinned.

**604. Asbestos-Covered Wire. Type A.**

For asbestos-covered fixture wire see section 608. For installation see Article 5.

This wire is especially useful in hot, dry places where ordinary coverings would perish, and where wires are bunched as on the back of a large switchboard or in a wire tower, so that the accumulations of rubber covering would result in an objectionable large mass of highly inflammable material. It is not suitable for outside work or where moisture exists.

a. Asbestos-covered wire shall be of approved type.

**605. Slow-Burning Wire. Type SB.**

For slow-burning fixture wire see section 608. For installation see Article 5 and sections 1402 and 1503.

This wire is especially useful in hot, dry places where ordinary covering would perish, and where wires are bunched as on the back of a large switchboard or in a wire tower, so that the accumulations of rubber covering would result in an objectionable large mass of highly inflammable material. It is not suitable for outside work or where moisture exists.

a. Slow-burning conductors especially designed and approved for use in fixtures as prescribed in Section 608 of this Code need not necessarily comply with the requirements of paragraphs b and c of this section.

b. The insulation shall consist of three braids of cotton or other thread, all the interstices of which shall be filled with material having fire-resisting and insulating properties. Its surface shall be finished smooth and hard.

c. The thickness of the completed covering shall be not less than that prescribed in Section 602 of this Code for the rubber insulation of 0-600 volt rubber-covered wires.

**606. Slow-Burning Weatherproof Wire. Type SBW.**

For installation see Article 5.

This wire is not suitable for outside work or where moisture exists.

a. The covering shall consist of two layers, one to be weather-resistant, and the other fire-retarding. The fire-retarding coating shall be on the outside and shall comprise about six-tenths of the total thickness of the wall.

b. The thickness of the completed covering shall be not less than that prescribed in Section 602 of this Code for rubber covering of 0-600 volt rubber-covered wires.

**607. Weatherproof Wire. Type WP.**

For installation see Article 5.

This wire is for use outdoors and elsewhere where moisture is certain or corrosive vapors are present, and where fire-retardant qualities are not necessary.

a. The covering shall consist of at least three braids, or their equivalent, all of which shall be thoroughly saturated with a dense moisture-proof compound.

**608. Fixture Wire.**

For installation see Article 14.

a. Fixture wires shall be of the several types given in the following:

Type AF asbestos-covered wire.

Type RF-64 rubber-covered fixture wire— $\frac{1}{4}$  inch insulation.

Type RF-32 rubber-covered fixture wire— $\frac{1}{4}$  inch insulation.

Type RF rubber-covered fixture wire— $\frac{3}{4}$  inch insulation.

Type SBF slow-burning fixture wire.

Type AF fixture wire shall have an approved asbestos covering with or without cotton or silk braid.

b. If stranded conductor is used, the strands shall be braided, laid up concentrically or rope stranded or shall be covered with a tight close wind of fine cotton.

c. The rubber covering of types RF-64, RF-32 and RF fixture wires shall consist of properly applied and properly vulcanized rubber compound. The thickness of this rubber covering shall be not less than  $\frac{1}{4}$  inch for No. 18 wire, not less than  $\frac{1}{4}$  inch for No. 16 wire, and not less than  $\frac{1}{4}$  inch for No. 14 wire. Coverings shall be of braided cotton or silk or of other approved material, and shall be sufficiently tenacious to withstand abrasion when being pulled into fixtures.

d. The covering of type SBF fixture wire shall consist of two braids of cotton or of other thread, all the interstices of which shall be filled with material having fire-resisting and insulating properties. Its surface shall be finished smooth and hard. Outer coverings of braided cotton or silk may be provided.

**609. Flexible Cords.**

For installation see Section 612 of this Article.

a. All National Electrical Code Standard rubber-covered flexible cords shall be examined and tested at the factory and shall be labeled before shipment.

b. The rubber covering, except for heater cord (type H), shall consist of a properly applied and properly vulcanized rubber compound of the nominal thickness given in the following table:

Gauge	Thickness Inches
18 and 16	$\frac{1}{32}$
14 to 8	$\frac{1}{16}$

Exceptions: For types PO-64, P-64, and PWP-64 (with conductors of No. 18 gage), the rubber covering shall be  $\frac{1}{4}$  inch in thickness.

c. Each stranded conductor shall, except for heater cord and hard-service cord, be covered with a tight, close wind of cotton, or some other method shall be employed to prevent a broken strand puncturing the rubber covering. Cords of the several types shall conform to the descriptions given in the following table:

Type Letter	Trade Name	Braid on Each Conductor	Filler	Outer Cover
PO-64	Parallel Cord	Cotton	None	1 Cotton or Silk
PO-32	Lamp Cord	Cotton or Silk	None	None
PO	Twisted Portable	Cotton	None	1 Cotton or Silk
C	Reinforced Cord	Cotton	Rubber Jacket	1 Cotton or Silk
PD,	Reinforced Cord	Cotton	Rubber Jacket	1 Cotton or Silk
P-64	Armored Cord	Cotton	None	1 Standard Armor
P-32	Armored Cord	Cotton	None	2 Cotton & Standard Armor
CA	Armored Reinforced Cord	Cotton	Rubber Jacket	2 Cotton & Standard Armor
PA	Armored Reinforced Cord	Cotton	Rubber Jacket	2 Cotton & Standard Armor

**As Pendants and Portables in Dry Places Where not Subject to Hard Usage**

**Pendants—Damp Places Where not Subject to Hard Usage**

Type	Trade Name	Cotton Moisture-proofed	Filler	Outer Cover
CB	Brewery Cord	Cotton Moisture-proofed	None	None
CC	Canvasite Cord	Cotton Moisture-proofed	None	1 Cotton Moisture-proofed
FWP64 PWP32 PWP	Moisture proof Reinforced Cord	Cotton	Rubber Jacket	1 Cotton Moisture-proofed

**Portable—Damp Places Where Subject to Hard Usage**

Type	Trade Name	Cotton	Filler	Outer Cover
PKWP*	Packing House Cord	Cotton	Jute or Twisted Paper	2° Cotton Moisture-proofed
PAWP	Moisture Proof Armored Reinforced Cord	Cotton	Rubber Jacket	2° Cotton Moisture-proofed Standard Armor
SJ	Jun'r Hard Service Cord	None	Special Rubber Jacket	None
S†	Hard Service Cord	None	Special Rubber Jacket	None

**Theatre Borders**

Type	Trade Name	Cotton Moisture-proofed	Filler	Outer Cover
B	Border Light Cable	Cotton Moisture-proofed	None	2° Cotton Moisture-proofed



Elevator Lighting and Control

Type	Trade Name	Braid on Each Conductor	Filler	Outer Cover
F	Elevator Cable	Cotton	Rubber Jacket	1 Cotton Moisture-proofed
			None	3 Cotton Outer One Moisture-proofed
H	Heater Cord	One Cotton or Silk Braid on Each Conductor or Over All Conductors		

\*Type PKWP is suitable for use on theatre stages.  
 †Type S is suitable for use on theatre stages, for elevator lighting and control and in garages wherever flexible cords except Type H are permitted by this Code.  
 \*Rubber-filled or varnished-cambric tapes may be substituted for the inner braids.  
 Except for types PO-64, PO-32 and PO, individual conductors are twisted together.

d. The cords listed in the table are recognized in sizes of 18 B. & S. Gauge and larger, except that types PO-64, PO-32, P-64, P-32, PWP-64 and PWP-32 are recognized in 18 gauge only, and types PO, P, PWP, and E are recognized in 16 gauge and larger.

e. Other types of flexible cords than those listed in the table shall be submitted for special investigation and shall be approved before being used.

f. One conductor of flexible cords shall have a continuous identifying marker readily distinguishing it from the other conductors. This marker shall be a tracer in the braid of any color contrasting with that of the braid or, in case of cords having no braids, the insulation of one conductor shall be of a white or natural gray color, and the insulation of the other conductor or conductors shall be of a color or colors which may be readily distinguished from white or natural gray.

610. Armored Cable.

For insulation, see Section 505.  
 For armored cord, see Section 609.

a. The conductors shall comply with the requirements for rubber-covered wires of the specific type.

b. The cable shall have a continuous distinctive marking so that the maker may be readily identified.

611. Non-Metallic Sheathed Cable.

For installation see 507.

a. The conductors shall comply with the requirements for rubber-covered wires, except that no braid need be provided directly over the rubber covering.

b. Cable shall be of approved type, in sizes 14 to 4, inclusive, and in two or three-wire assemblies and in addition shall have an approved size of non-insulated copper conductor laid in next to the insulated conductor for grounding purposes.

c. The cable shall have a continuous distinctive marker so that the maker may be readily identified.

612. Carrying Capacity of Conductors.

a. The following tables give the allowable continuous current carrying capacities of copper wires and cables of 98 per cent conductivity, according to the standard adopted by the American Institute of Electrical Engineers.

See following section for Demand Calculations for Feeder Sizes.

TABLE I. ALLOWABLE CARRYING CAPACITIES OF WIRES.

Gauge No.	Diameter of Solid Wires in Mils	Area in Circular Mils	Column A Rubber Insulation Amperes	Column B Varnished Cambric Insulation Amperes	Column C Other Insulation Amperes
18	40.3	1,624	3		5
16	50.8	2,583	6		10
14	64.1	4,107	15	18	20
12	80.8	6,530	20	25	25
10	101.9	10,380	25	30	30
8	128.5	16,510	35	40	50
6	162.0	26,250	50	60	70
5	181.9	33,100	55	65	80
4	204.3	41,740	70	85	90
3	229.4	52,630	80	95	100
2	257.6	66,370	90	110	125
1	289.3	83,690	100	120	150
0	325.	105,500	125	150	200
00	364.8	133,100	150	180	225
000	409.8	167,800	175	210	275
		200,000	200	240	300
0000	460.	211,600	225	270	325
		250,000	250	300	350
		300,000	275	330	400
		350,000	300	360	450
		400,000	325	390	500
		500,000	400	480	600
		600,000	450	540	680
		700,000	500	600	760
		800,000	550	660	840
		900,000	600	720	920
		1,000,000	650	780	1,000
		1,100,000	690	830	1,080
		1,200,000	730	880	1,150
		1,300,000	770	920	1,220
		1,400,000	810	970	1,290
		1,500,000	850	1,020	1,360
		1,600,000	890	1,070	1,430
		1,700,000	930	1,120	1,490
		1,800,000	970	1,160	1,560
		1,900,000	1,010	1,210	1,610
		2,000,000	1,050	1,260	1,670

1 Mil = 0.001 inch.

b. For aluminum wire the allowable carrying capacities shall be taken as 81 per cent of those given in the table for the respective sizes of copper wire with the same kind of covering.

c. Conductors of sizes Nos. 18 and 16 shall be used only for flexible cords and for fixture wires.

d. Conductors may be placed in multiple only by permission of the authority enforcing this Code.

e. Varnished cambric insulated wires smaller than No. 6 shall be used only by permission of the authority enforcing this Code.

TABLE II. STANDARDIZED STRANDING.

No. of Strands	Strands	Mils Dia.	Gauge	Area in Cir. Mils	Allowable Carrying Capacities in Amperes			
					Column A Rubber Insulation	Column B Varnished Cambric Insulation	Column C Other Insulation	Column D Other
7	25	22	4,490	.075	15	18	20	
7	32	20	7,150	.096	20	25	25	
7	40	18	11,370	.120	25	30	35	
7	51	16	18,090	.153	35	40	50	
7	64	14	28,740	.192	50	60	70	
7	81	12	45,710	.253	70	85	90	
7	91	11	58,000	.273	80	95	110	
7	102	10	72,680	.306	90	110	130	
19	64	14	78,030	.320	100	120	150	
19	72	13	98,340	.360	125	150	175	
19	81	12	121,900	.405	150	180	210	
19	91	11	157,300	.455	175	210	250	
19	107	*	217,500	.540	225	270	325	
19	114	9	248,700	.570	250	300	350	
37	91	11	306,400	.637	275	330	400	
37	97	*	347,500	.679	300	360	450	
37	102	10	381,200	.714	325	390	500	
37	128	8	484,300	.798	400	480	600	
61	102	10	683,300	.918	475	565	700	
61	107	*	698,000	.963	500	600	750	
61	114	9	798,300	1.030	550	660	825	
61	121	*	893,100	1.090	600	720	900	
61	128	8	1,007,000	1.150	650	780	1000	
91	114	9	1,191,000	1.250	725	870	1125	
91	128	8	1,502,000	1.410	850	1020	1350	
127	114	9	1,660,000	1.480	900	1100	1460	
127	128	8	2,097,000	1.660	1100	1300	1700	

\*These individual strands are odd sizes not listed in the American Wire Tables.

613. Demand Calculations for Feeder Sizes.

a. General and definitions.

**Demand Factor.** The demand factor of any system, or part of a system, is the ratio of the maximum demand of the system, or part of a system, to the total connected load of the system, or of the part of the system under consideration.

1. This section discusses "estimated or calculated" demand factors rather than measured demand and corresponding demand factors according to the above definition.

2. For conciseness the calculated demand factor will be referred to hereafter in this section as the "demand."

3. The "demand" values given in the following paragraphs of this section are those percentages of the total load upon the conductors as computed on the basis of watts for the area and the occupancy as in the following and which may reasonably be expected under the conditions indicated.

4. The word "Area" means gross area, which shall be determined by the outside dimensions of the building and by the number of floors. Unoccupied cellars, unfinished attics, and open porches need not be included in this computation.

5. All conductors of an interior wiring system, also including overhead service conductors between the service head and the service switch, and underground conductors between buildings under one ownership or management, mains, feeders and sub-feeders, up to the final distributing center, are referred to herein as feeders.

b. Scope and application.

Voltage drop due to length of feeders has not been considered. However, it is recommended that the outside feeder conductors shall be of such size as to cause not more than 3% voltage drop up to the final distributing point on any feeder after the demand, if any, has been applied:

1. This rule applies to an interior wiring system which supplies both lights and appliances on the same circuits, but does not include capacity for industrial or other apparatus requiring special circuits. The calculation of current load for ranges is treated in item 15 of the Table of paragraph d-3 of this section.

2. The values and "demands" set forth in this section are based on average load conditions and may be used safely for all installations which have been adequately designed. However, if at any time after the equipment is put in service it shall be found that conductors are of insufficient capacity to carry the actual load without over-fusing, they shall be increased to comply with the requirements for overload protection applying thereto. In any event the size of feeders shall be sufficient to carry, without overheating, the loads imposed upon them.

It is recommended that a diagram showing contemplated feeder details be furnished the authority enforcing this Code as necessary advance information. This to show:

- Area in square feet
- Computed load
- Demand selected
- Load after applying demand
- Sizes of conductors

c. To determine the size of feeders that supply both light and power loads, the current in amperes for the lighting load shall be determined as specified herein, the current in amperes for the power load as specified in paragraph k of Section 808, of this Code, and the sum of these shall determine the size in accordance with Section 612 of this Article.

d. 1. The current load for lighting and appliances shall be determined in accordance with the following tables and under conditions specified for each, unless the authority enforcing this Code shall decide that conditions require larger sizes and shall specify the sizes to be used.

2. Current-carrying capacities to prevent overheating shall be determined in accordance with Section 612 of this Article.

3. The sizes of feeders shall be not smaller than as determined by the areas supplied, multiplied by the "demand" values tabulated below representing the watts or fractions of a watt per unit of area for each kind of building and occupancy served.

Table of Required Minimum Watts Per Unit Area and Demand Factors Applying Thereto.

1. Buildings constructed and used for single family dwellings:

One watt per square foot, plus 1000 watts for appliances. For area of 2000 or less square feet, demand 100; for all excess over 2000 square feet, 60.

2. Buildings constructed and used for multi-family dwellings (other than hotels):

One watt per square foot, plus 1000 watts per apartment for appliances.

For area of 2000 square feet, or less—demand 100.

For that part of the area in excess of the first 2000 square feet, a demand of 70, provided the number of apartments does not exceed ten. If the number of apartments is between 11 and



40, the second factor (70) shall be 60. For 41 or more apartments, the second factor (70) shall be 50. The demand for each feeder shall be determined in the same manner, i.e., by the area and the number of apartments supplied.

**3. Apartment Hotels (having provision for individual electric cooking):**

One watt per square foot, plus 1000 watts per apartment for appliances.

For area of 2000 square feet or less, demand 100.

For that part of the area in excess of 2000 square feet, a demand of 70, provided the number of apartments does not exceed 10. If the number of apartments is between 11 and 40, the second factor (70) shall be 60. For 41 or more apartments, the second factor (70) shall be 50.

**4. Hotels (having no provision for individual electric cooking):**

One watt per square foot, except for the ballrooms.

For areas 10,000 square feet or less per feeder, demand 100.

For that part of the area in excess of 10,000 square feet and not more than 50,000 square feet per feeder, a demand of 80.

For the excess above 50,000 square feet per feeder, a demand of 70.

**5. Stores and Department Stores (excluding Display Cases and Show-Window Lighting):** Two watts per square foot.

To this shall be added an allowance for special display lighting as follows:

Counter Cases (silent salesmen): 25 watts per linear foot.

Wall or Standing Display Cases: 50 watts per linear foot.

Show Windows: See Item No. 6 below. Demand 100.

**6. Show Windows:** 200 watts per linear foot, measured horizontally along the base of the show window—demand 100.

**7. Office Buildings:** 2 watts per square foot.

For areas 10,000 square feet or less per feeder—demand 100.

For all excess above 10,000 square feet per feeder—demand 70.

**8. Industrial Commercial (Loft) Buildings:** One watt per square foot—demand 100.

For the purpose of this section an industrial commercial building is defined as a building of more than one floor used for manufacturing or merchandising, occupied by more than one tenant.

**9. Garages:** ½ watt per square foot, exclusive of the machine shop or display rooms, if any—demand 100.

**10. Hospitals (except in the operating suite and X-ray department):** ¾ watt per square foot.

For areas of 25,000 square feet or less per feeder—demand 100.

For the excess area above 25,000 square feet per feeder—demand 60.

**11. Schools:** 1½ watts per square foot. For areas of 10,000 square feet or less per feeder—demand 100.

For the excess area above 10,000 square feet per feeder—demand 50.

**12. Storage Warehouses:** ¼ watt per square foot.

For areas of 50,000 square feet or less per feeder—demand 100.

For the excess area above 50,000 square feet per feeder—demand 50.

**13. Factory Buildings:** Feeder sizes shall be based on the specific load which they are to serve.

For the purpose of this section a factory is defined as a building or a portion of a building occupied by one tenant, which is used for manufacturing purposes.

**14. Other Kinds of Buildings and Occupancies:** Theatres, churches, and other places of public assemblage, ballrooms, dance halls, restaurants, club and lodge rooms, community centers, armories, libraries, operating suites and X-ray departments in hospitals, etc., and buildings for special purposes, such as banks, motion picture studios, etc., vary so widely due to geographical location, individual requirements, architectural ornamental treatment, that no standard has been established upon which the watts per square foot may be determined with accuracy. Therefore, the feeders for these and other buildings or occupancies not listed above, shall be determined by the specific load which they are to serve and as ordinarily computed. This applies also to special uses, such as flood and outline lighting, signs, etc.

**15. Electrically Heated Cooking and Baking Appliances:**

The sizes of feeders supplying electrically heated cooking and baking appliances, each rated at more than 1650 watts, may be determined on the basis of the demand values shown in the following table:

Number Ranges	Demand Factor	Number Ranges	Demand Factor
1	100	14	42
2	100	15	40
3	95	16	39
4	90	17	38
5	85	18	37
6	80	19	36
7	75	20	35
8	65	21	34
9	55	22	33
10	52	23	32
11	48	24	31
12	46	25	30
13	44	Over 25	30

The following examples illustrate the application of the table. In these examples the 2-wire system has been used solely for simplicity of illustrations. The same general method of calculation may be applied to other systems of distribution such as 3, 4 or 5-wire.

**EXAMPLE No. 1.**

A dwelling having an area of 4500 square feet, exclusive of unoccupied cellars, unfinished attics, and open porches.  
**AREA IN SQUARE FEET, 4500 x 1 watt—sq. ft. = 4500 watts**  
 Allowance for appliances = 1000 watts

**COMPUTED LOAD = 5500 watts**  
**DEMAND SELECTED FOR THIS OCCUPANCY, first 2000 square feet—demand 100. Excess above 2000 square feet—demand 60.**  
 4500 square feet area = 5500 watts  
 —2000 square feet at 1 watt—sq. ft. x 1 (Demand 100) = 2000 watts

2500 square feet at 1 watt—sq. ft. x 0.6 (Demand 60) = 1500 watts  
 Allowance for appliances = 1000 watts  
**LOAD AFTER APPLYING DEMAND = 4500 watts**

For 110-volt, 2-wire system:  
 4500 watts ÷ 110 volts = 40.9 amperes.  
**SIZE OF CONDUCTORS = 2-No. 6.**  
 (From table No. 612 of allowable carrying capacities of wires.)  
 For 220-volt, 2-wire system:  
 4500 watts ÷ 220 volts = 20.45 amperes.  
**SIZE OF CONDUCTORS = 2-No. 10.**  
 (From table No. 612 of allowable carrying capacities of wires.)  
 For 110-220-volt, 3-wire system:  
 4500 watts ÷ 2 x 110 volts = 20.45 amperes.  
**SIZE OF CONDUCTORS = 3-No. 10.**  
 For 110-220-volt, 4-wire, 3-phase system:  
 4500 ÷ 3 x 110 volts = 13.63 amperes.  
**SIZE OF CONDUCTORS = 4-No. 14.**  
 (From table No. 612 of allowable carrying capacities of wires.)  
 The above calculation does not take account of ranges or other appliances using more than 1650 watts each.

**EXAMPLE No. 2.**

Multi-family dwelling having an area of 30,800 square feet with 44 apartments. Meters in the cellar in two banks of 22 each, and individual sub-feeders to each apartment.

**AREA IN SQ. FT. per apt. = 700 x 1 watt—sq. ft. = 700 watts**  
 Allowance for appliances = 1000  
**COMPUTED LOAD per apt. = 1700 watts**  
**DEMAND 100.**  
 1700 ÷ 110 volts = 15.4 amps., therefore for each apt. feeder from meter bank the **SIZE OF CONDUCTORS IS No. 12** for each of two wires.

**SUB-FEEDS.**

**AREA IN SQ. FT. supplied through each meter bank:**  
 22 apts. of 700 sq. ft. each, 15,400—at 1 watt per sq. ft.  
 Allowance for appliances = 15,400 watts  
**COMPUTED LOAD = 37,400 watts**

**Demand selected for this occupancy:**  
 For first 2000 sq. ft., none—2000 x 1 = 2,000  
 For area in excess of the first 2000 sq. ft., 35,400 x 0.6 = 21,240  
**Load after applying Demand = 23,240**  
 23,240 ÷ 110 volts = 211 amperes; therefore, from service to each meter bank, **SIZE OF CONDUCTORS, from table No. 612, is—No. 4/0** for each wire.

**MAINS**

**AREA IN SQ. FT. 700 x 44 = 30,800 sq. ft. at 1 watt per sq. ft. = 30,800 watts**  
 Allowance for appliances 44 x 1000 = 44,000 watts  
**COMPUTED LOAD = 74,800 watts**

**DEMAND SELECTED for this occupancy for first 2000 sq. ft., none—2000 x 1 = 2,000 watts**  
 For area in excess of first 2000 sq. ft. 72,800 x 0.5 = 36,400 watts  
**LOAD AFTER APPLYING DEMAND = 38,400 watts**  
 38,400 ÷ 110 volts = 349; therefore, from the service supply to the cutout where the main is divided into two feeders, one to each meter bank, the **SIZE OF CONDUCTORS, from table 612, is 450,000 C.M. each.**

The above calculation does not take account of ranges or other appliances using more than 1650 watts each.

**LOAD AFTER APPLYING DEMAND** 38,400 watts  
 38,400 ÷ 110 volts = 349; therefore, from the service supply to the cutout where the main is divided into two feeders, one to each meter bank, the **SIZE OF CONDUCTORS, from table 612, is 450,000 C.M. each.**

**6. One neutral conductor may be employed for three sets of 3-wire or two sets of four or five-wire interior feeders.** Where single two-wire final circuits are run from a meter bank to the premises of individual tenants, the circuits may be balanced on each side of the system and a common neutral be employed for not more than eight circuits, on 3-wire direct-current or single-phase, and 5-wire, 2-phase alternating-current systems, and not more than six circuits on 4-wire, 3-phase systems. All wires of the A.C. systems shall be run in the same conduit. The size of the neutral and the demand applying thereto shall be determined as specified in the previous paragraphs. In addition, the following further demand may be applied:

Type of System	Current Load in Outside Conductors After Applying Demand	Further Demand for Neutral Conductors
3-wire, D.C. or 1-phase and 4-wire, 3-phase	0 to 200 amperes	100
3-wire, D.C. or 1-phase, and 4-wire, 3-phase	above 200 amperes	70
5-wire, 2-phase	0 to 200 amperes	140
5-wire, 2-phase	above 200 amperes	100

**614. Use of Flexible Cords.**

a. Flexible cord shall be used only for pendants, wiring of fixtures and portable devices.

b. For all portable work and pendants which are liable to be moved about sufficiently to come in contact with surrounding objects, flexible wires and cables especially designed to withstand this severe service shall be used; for portable devices, or pendants which are not liable to be so located or to be moved about sufficiently to cause abrasion of the insulation, approved flexible cord of type C may be used.

c. Unless provided with approved metal armor, flexible cords shall not be used in show windows or in show cases, except that approved portable cord may be used for the purpose of supplying current to portable lamps and other devices for exhibition purposes, and flexible cord may be used for chain fixtures.

d. Flexible cords shall be protected by approved insulating bushings where they enter sockets.

e. Flexible cords shall be so connected to all fittings that the strain will be taken from the joints and terminal screws by a knot in the cord, winding with tape, a special fitting for the purpose, or other suitable means.

f. Flexible cords shall, where passing through covers of outlet boxes, be protected by approved bushings especially designed for this purpose; or the cover shall be provided with a smooth, well-rounded surface on which the cord will bear. So-called hard-rubber or composition bushings shall not be used.

g. Flexible cords used where the voltage between any two conductors exceeds 300 shall have insulating covering at least 3/64-inch in thickness for all conductor sizes No. 8 and less, except where type S cord is used.

h. Flexible cords not smaller than No. 18 gauge, and flexible cord of smaller sizes approved for use with specific devices, may be attached to circuits fused at not over 15 amperes for not exceeding 150 volts and not over 10 amperes for not exceeding 300 volts, and shall be considered as protected by such circuit fuses. Flexible cords No. 18 gauge, or larger if required by column 1 of table 1 of section 612, may be approved for use with specific devices on the medium-duty appliance branch circuit described in section 1602 and which are fused at not over 25 amperes.

i. No wire smaller than No. 18 shall be used for fixture work or flexible cords, except as approved for specific devices.

**ARTICLE 7. BOXES, CABINETS, AND OUTLET AND TERMINAL FITTINGS.**

**701. Construction of Outlet, Switch, Junction and Pull Boxes and Outlet and Terminal Fittings.**

a. Boxes and fittings unless of corrosion-resistive metal shall be well galvanized, enameled, or otherwise properly coated, inside and out, to prevent oxidation.

It is recommended that the protective coating of conductive material, such as cadmium, tin or zinc, in order to secure better electrical contact.

b. Boxes and fittings not over 100 cubic inches in size, shall be composed of pressed steel, not less than No. 14 U. S. Sheet Steel Gauge (0.078 inch) in thickness, or of cast metal, having a wall thickness of not less than 1/8 inch.

c. Boxes of over 100 cubic inches in size shall be composed of metal and shall conform to the requirements for cabinets and cutout boxes, except that the covers may consist of single flat sheets secured to the box proper by screws, or bolts instead of hinges. Boxes having covers of this form are for use only for enclosing joints in wires or to facilitate the drawing in of wires or cables. They are not intended to enclose switches, cutouts or other control devices.

d. Covers of boxes and fittings shall be of a thickness at least that specified for the walls of boxes of the same material as that used for the cover and of the size under consideration, or shall be lined with firmly attached insulating material not less than 1/32 inch in thickness. Covers of porcelain or other approved insulating material may be used if of such form and thickness as to afford the requisite protection and strength.

e. Covers of outlet boxes and outlet fittings having holes through which flexible cord pendants may pass, shall be provided with approved bushings or shall have smooth, well-rounded surfaces, upon which the cord may bear. Where wires other than flexible cord may pass through a metal cover, there shall be provided a separate hole for each wire, said hole being equipped with a non-combustible, non-absorptive insulating bushing.

f. Flush switch and receptacle plates, if of metal, shall be not less than 0.04 inch in thickness.

g. A fixture stud which is not an integral part of the outlet box shall be composed of steel, malleable iron or other approved material.

h. Outlet boxes intended for use where gas outlets are present shall be so designed that they may be securely fastened to the gas pipes in an approved manner.

i. Boxes and fittings intended for outdoor use shall be of approved weatherproof type.

**702. Construction of Cabinets and Cutout Boxes.**

a. Metal cabinets and cutout boxes shall be well galvanized, plated with cadmium or other approved metallic finish, enameled or otherwise properly coated, inside and out, to prevent oxidation.

It is recommended that the protective coating be of conductive material, such as cadmium, tin or zinc, in order to secure better electrical contact.

b. The design and construction of cabinets and cutout boxes shall be such as to secure ample strength and rigidity.

c. Wooden and (or) composition cabinets, whether for flush or surface mounting, shall be of rigid and substantial design. Doors shall fit closely. The requirements for spacings, barriers and other details of construction, given elsewhere in this section, shall be followed, so far as they apply. Wooden cabinets shall be composed of well-seasoned material at least 3/4 inch in thickness, thoroughly filled and painted. They shall be lined throughout with a non-combustible material, such as 1/2 inch rigid asbestos board firmly secured in place. Linings of slate, marble or approved composition shall be at least 1/4 inch in thickness. Sheet metal lining shall be at least .063 inch in thickness. (No. 16 U. S. sheet metal gauge.)

d. Composition cabinets shall be submitted for approval prior to installation.

e. The spacing within cabinets and cutout boxes shall be sufficient to provide ample room for the distribution of wires and cables placed in them, and for a separation between metal parts of devices and apparatus inclosed within them as follows:

1. There shall be an air space of at least 1/16 inch, except at points of support, between the case of the device and the wall of any metal cabinet or cutout box, on which the device is mounted.
2. There shall be an air space of at least 1 inch between any live metal part (including live metal parts of enclosed fuses) and the door, unless the door is lined with an approved insulating material or is of a thickness of metal not less than No. 12 U. S. sheet metal gauge (0.103 inch), when the air space shall be not less than 1/2 inch.
3. There shall be a space of at least 2 inches between open link fuses and metal lined walls or metal, metal lined or glass paneled doors.
4. Except as noted above, there shall be an air space of at least 1/2 inch between the walls, back, gutter partition, if of metal, or door of any cabinet or cutout box and the nearest exposed current-carrying part of devices mounted within the cabinet where the potentials do not exceed 250 volts. This spacing shall be increased to at least one inch where the potentials exceed 250 volts.

f. Cabinets and cutout boxes shall be deep enough to allow of the closing of the doors when 30-ampere branch circuit panelboard switches are in any position, or when combination cutout switches are in any position or when other single throw switches are opened as far as their construction will permit.

g. Cabinets and cutout boxes which contain devices or apparatus connected within the cabinet or box to the wires of more than four circuits, including branch circuits, meter loops, sub-feeder circuits, power circuits and similar circuits, but not including the supply circuit or a continuation thereof, shall have back wiring spaces or one or more side wiring spaces, side gutters or wiring compartments, unless the wires leave the cabinet or cutout box directly opposite their terminal connections.

h. Side wiring spaces, side gutters or side wiring compartments of cabinets shall be rendered tight enclosures by means of covers, barriers or partitions extending from the bases of the devices, contained in the cabinet, to the door, frame, or sides of the cabinet, provided, however, that where the enclosure contains only those wires or cables which are led from the cabinet at points directly opposite their terminal connections to devices within the cabinet, such covers, barriers or partitions may be omitted. Partially enclosed back wiring spaces shall be provided with covers to complete the enclosure.

i. Cabinets and cutout boxes intended for outdoor use shall be of approved weatherproof type.

**703. Installation of Boxes, Cabinets, and Outlet and Terminal Fittings.**

a. At each outlet, switch, or junction point of conduit, metal raceway, armored cable or non-metallic sheathed cable, and at each outlet and switch point of concealed knob-and-tube-work, an approved box shall be installed. In completed installations, the box shall be provided with a cover, unless a fixture canopy is present.

b. Outlet boxes for concealed work shall have an internal depth of at least 1 1/2 inches, except that where the installation of such a box will result in injury to the building structure, a box of not less than 1/2 inch internal depth may be installed.

c. An approved outlet or terminal fitting shall be used at ends of conduit, armored cable and metal raceway systems from which wires are run without splice to appliances or to knob-and-tube wiring. The fitting shall provide a bushed hole for each wire. It need not be accessible when in knob-and-tube-work. Such fitting shall not be used at outlets for fixtures.

d. Approved metal supports shall be used in new work for boxes and fittings which are not secured to a stud, joist, or similar fixed structural unit. Blocks of wood at least 3/4 inch in thickness may be used for supports if the blocks are rigidly secured to such structural units. Lath, of wood, metal, or composition, shall not be considered a fixed structural unit.

e. Boxes used to enclose flush devices shall be of such type that the devices will be completely enclosed on back and sides, and that substantial support for the devices will be provided. Screws for supporting the box shall not be used for the attachment of the device contained therein. Floor-outlet boxes shall be so designed as to protect receptacles and attachment plugs from mechanical injury and moisture.

f. Covers of outlet boxes and outlet fittings having holes through which flexible cord pendants pass, shall be provided with approved bushings or shall have smooth, well-rounded surfaces on which the cord may bear. Where wires, other than flexible cord pass through a metal cover, there shall be provided a separate hole for each wire, said hole being equipped with a non-combustible, non-absorptive insulating bushing.

g. Boxes, cabinets and fittings shall be securely fastened in place. Boxes and fittings not over 100 cubic inches in size and which are attached to firmly secured, exposed conduit by threading or other connection approved for the purpose are considered as so fastened.

h. Outlet boxes used where gas outlets are present shall be so fastened to the gas pipes as to be mechanically secure.

i. Junction boxes shall be so installed that the wiring contained in them may be rendered accessible without removing any part of the building.

j. Boxes, cabinets and fittings when installed in walls or ceilings shall be so installed that the front edge of the fitting will not set back of the finished surface more than 1/4 inch. On wooden walls or ceilings, the front edges of the fitting shall be flush with the finished surface, or project therefrom. A plaster surface which is broken or incomplete shall be repaired, so that there will be no gaps or open spaces at the edge of the fitting. These requirements do not apply to walls or ceilings composed of concrete, tile or other non-combustible material.

k. In moist places, boxes, cabinets, and fittings shall be so placed or equipped as to prevent moisture from entering and accumulating within the device.

l. Openings in boxes, cabinets and fittings shall be equipped, either separately or as a part of the fitting, with couplings or bushings which will serve to secure the conduit, raceway, armored cable, non-metallic sheathed cable, or flexible tubing to the fitting, and including open wires shall close the opening adequately, and at the same time protect the wires from abrasion. Where a hardwood cabinet is used, as provided for in section 805-e, each opening shall be equipped with a non-combustible, non-absorptive insulating bushing which shall fit securely in the opening and be so closed by the wire, and tape, if necessary, as to fit tightly. In dry places where open work or knob-and-tube-work is used, approved flexible tubing may be employed as an insulating bushing if it extends from the last insulating support and is firmly secured in place.

m. Unused openings in boxes, cabinets and fittings shall be effectively closed by metal plugs or plates affording protection substantially equivalent to that of the wall of the fitting.

n. Metal boxes, cabinets, and fittings shall be grounded where used with conduit, armored cable or metal raceway, or elsewhere when and in the manner specified in sections 904 and 905 of this Code. Boxes, cabinets and fittings used with grounded conduit, armored cable and metal raceways are considered to be grounded by the connection to the conduit, cable or raceway.

For special provisions in hazardous locations see Article 32.

o. In making a surface extension from an existing outlet of concealed wiring, a box, extension ring or blank cover shall be mounted over the original box and electrically and mechanically secured to it. The extensions shall then be connected to this box in the manner prescribed for the method of wiring employed in making the extension.

**ARTICLE 8. AUTOMATIC OVERLOAD PROTECTION OF CIRCUITS AND APPLIANCES.**

Cutout Bases, Fuses, Thermal Cutouts and Circuit-Breakers; Protection of Wires, Circuits, Motors and Appliances.

**801. Cutout Bases.**

a. The requirements of this article shall not apply to attachment plugs, car-lighting cutouts or protective devices for signal systems. Cutout bases for link fuses shall be approved only in capacities above 300 amperes and their spacing shall be at least as great as those given in the following table, which applies only to plain, open fuse blocks mounted on slate, marble or composition bases. If the fuse tips overhang the edges of the fuse block terminals, the spacings shall be measured between the nearest edge of the tips.

Ampere Capacity Not over 125 Volts	Minimum Separation of Nearest Metal Parts of Opposite Polarity.	Minimum Break Distance.
301-1500	1 1/2	1 1/2
Not over 250 Volts		
301-1500	2 3/4	2

b. A space shall be maintained between the fuse terminals of link fuses of the same polarity of at least 1/4 inch for voltages up to 125 and of at least 3/8 inch for voltages from 126 to 250. This is the minimum distance allowable and greater separation shall be provided when practicable.

c. For 3-wire systems link-fuse cutouts shall have the break-distance required for circuits of the potential of the outside wires, except that in 125-250-volt systems with grounded neutral the cutouts in 2-wire, 125-volt branch circuits may have the spacings specified for not over 125 volts.

d. Except for sealable service and meter cutouts the fuse terminals of enclosed fuse cutout bases, shall be of either the Edison plug, spring-clip, knife-blade or other approved standardized type to take corresponding standard enclosed fuses. They shall be secured to the base by two screws or the equivalent, so as to prevent them from turning, and shall be so made as to secure a thoroughly good contact with the fuse.

e. End stops shall be provided to insure the proper location of the cartridge fuse in the cutout base.

f. Cutout bases for enclosed plug or cartridge fuses shall be classified as regards both current and voltage as given in the following table, and shall be so designed that the bases of one class cannot be used with fuses of another class rated for a higher current or voltage.

### STANDARD PLUG OR CARTRIDGE CUTOUTS

Not over 250 volts		Not over 600 volts	
0-30 amperes		0-30 amperes	
31-60 "		31-60 "	
61-100 "		61-100 "	
101-200 "		101-200 "	
201-400 "		201-400 "	
401-600 "		401-600 "	

### SEALABLE SERVICE AND METER CUTOUTS

Not over 250 volts		Not over 600 volts	
0-30 amperes		0-30 amperes	
31-60 "		31-60 "	
61-100 "		61-100 "	
101-200 "		101-200 "	

### 802. Link Fuses.

a. Link fuses shall not be used when of capacities of 300 amperes or less. When used in capacities of from 301 to 1500 amperes, they shall be rated to correspond to the ratings of cutout bases as given in the table of paragraph a, section 801, of this Code.

b. Contact surfaces or tips of link fuses shall be of copper or aluminum, having good electrical connections with the fusible part of the strip.

c. Link fuses shall be stamped with 80% of the maximum current which they can carry indefinitely, thus allowing about 25% overload before the fuse melts.

d. Link fuses may be used only when mounted on approved bases which, except on switchboards shall be placed in approved cutout boxes or cabinets. A space of at least 2 inches shall be provided between the open-link fuses and metal, or metal-lined walls or metal, metal-lined or glass-paneled doors of cabinets or cutout boxes.

### 803. Enclosed Fuses.

a. The requirements of paragraphs c to g, inclusive, of this section, do not apply to fuses for attachment plugs, car-lighting cutouts, nor to protective devices for signal systems.

b. The casings of enclosed fuses shall be sufficiently tight so that lint and dust cannot collect around the fusible link and become ignited when the fuse is blown. For non-renewable fuses the fusible wire shall be attached to the terminals in such a way as to make it difficult for it to be replaced when melted.

c. Enclosed fuses shall be classified to correspond with the different classes of cutouts, and shall be so designed that it will be impossible to put any fuse of a given class into a cutout which is designed for a current or voltage lower than that of the class to which the fuse belongs.

d. Enclosed fuses shall be marked with the words "N. E. Code Std." All fuses shall be marked with the ampere capacity. On ferrule contact fuses this marking shall be on the tube or ferrules, and on knife blade fuses on the tubes or caps. In addition to the above marking each cartridge enclosed fuse shall be provided with a paper label, red for 600-volt fuses, navy blue for 250-volt fuses, of 15 amperes or less capacity and green for 250-volt fuses of over 15 amperes capacity. The label for cartridge fuses shall bear the following: The name or trademark of the manufacturer and the voltage for which the fuse is designed.

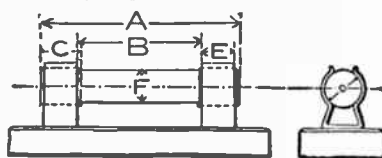
e. Plug fuses of 15 amperes capacity or less shall be distinguished from those of larger capacity as follows: By an hexagonal opening in the cap through which the mica or similar window shows; or by an hexagonal shaped recess in the top of fuses having porcelain or moulded composition tops, and when labels are used with such plug fuses the labels shall also be hexagonal in shape and fill the recess; or on plugs having solid metal caps, by an hexagonal impression either raised or lowered on the caps.

f. The fuse terminals shall be sufficiently heavy to insure mechanical strength and rigidity. The styles of enclosed plug and cartridge fuse terminals, except for use in sealable service and meter cutouts, shall be as follows:

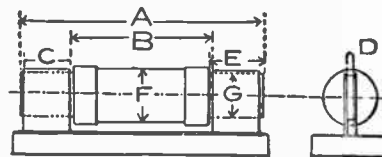
Not over 250 volts.	
0-30 Amps.	A. Cartridge fuse (ferrule contact).
	B. Approved plugs or cartridge fuses in approved casings for Edison plug cutouts not exceeding 125 volts, but including any feeder or circuit of a system having a grounded neutral, if no wire of the feeder or circuit exceeds 125 volts to ground.
	Cartridge fuse (ferrule contact) for use also in approved casings for large size Edison plug type 250-volt cutouts.
	Cartridge fuse (knife-blade contact).
	Cartridge fuse (knife-blade contact).
31-60 "	Cartridge fuse (ferrule contact).
	Cartridge fuse (knife-blade contact).
	Cartridge fuse (knife-blade contact).
	Cartridge fuse (knife-blade contact).
	Cartridge fuse (knife-blade contact).
Not over 600 volts.	0-30 Amps. Cartridge fuse (ferrule contact).
	31-60 "
	61-100 "
	101-200 "
	201-400 "
401-600 "	Cartridge fuse (knife-blade contact).

g. Cartridge enclosed fuses and corresponding cutout bases, except for sealable service and meter cutouts shall conform to the dimensions given in the table following.

### TABLE OF DIMENSIONS OF THE NATIONAL ELECTRICAL CODE STANDARD CARTRIDGE ENCLOSED FUSES



Form 1. CARTRIDGE FUSE—Ferrule Contact.



Form 2. CARTRIDGE FUSE—Knife Blade Contact.

Rated Capacity Amperes	Length Over Term. Inches A	Distance between Contact Clips Inches B	Width of Contact Clips Inches C	Diam. of Min. Lgth. Ferrules or Thick. of Term. Blades Outside Tube, in.			Diam. Tube Inches F	Width Term. Blades Inches G
				Form 1	Form 2	Form 1		
Voltage Not Over 250								
0-30	2	1	1/2	1/16	1/8	1/8	...	...
31-60	3	1 3/4	3/4	3/16	3/8	3/8	...	...
Voltage Not Over 600								
61-100	5 7/8	4	3/4	1/8	1/4	1/4	...	...
101-200	7 1/2	4 1/2	1 1/4	3/16	1/2	1 1/2	...	1 1/2
201-400	8 3/4	5	1 3/4	1/4	1 1/4	2	...	1 3/4
401-600	10 3/4	6	2 1/4	1/2	1 3/4	2 1/2	...	2

### 804. Circuit-Breakers and Thermal Cutouts.

a. Circuit-breakers shall be substantial in construction, and shall have ample metal for stiffness. The contact parts shall be arranged so that thoroughly good bearings are obtained. All circuit-breakers shall be provided with easily accessible means of manual tripping and resetting without injury to the operator.

b. Thermal cutouts shall be approved types and shall be mounted in approved metal enclosures.

c. An air circuit-breaker of 0-15 ampere capacity, used for branch lighting and appliance circuits, shall be of such a design that any alteration of its trip point (calibration) or in the time required for its operation on over-current will be difficult.

### 805. General: Use of Automatic Overload Protective Devices.

a. In general, automatic overload protective devices shall be provided in all constant-potential interior wiring systems, and shall be of such character and so placed as to protect each ungrounded conductor.

b. Nothing in this section shall be considered as prohibiting the use of two single-pole circuit-breakers for the protection of ungrounded 2-wire circuits.

c. In general a conductor shall be considered as properly protected by the automatic overload protective device employed in series with it when the automatic overload protective device is so selected and adjusted as to open and interrupt the circuit at a predetermined overload.

1. When fuses are used they shall be selected so as to have ratings not greater than the allowable carrying capacities of wires, as established in Table 1, section 612, Article 6 of this Code.

2. When time-limit automatic overload protective devices are used, they shall be so selected and adjusted as to operate at not greater than 110% of the allowable carrying capacities of wires as established in Table 1, section 612, Article 6 of this Code.

3. When instantaneous circuit-breakers are used, they shall be so selected and adjusted as to operate at not greater than 160% of the allowable carrying capacities of wires as established in Table 1, section 612, Article 6 of this Code.

Under certain limited conditions as provided for under specific uses and as covered in subsequent sections of this Article of this Code, the above general requirements shall be modified. These cases are covered under special headings, such as Motors and Motor Circuits.

d. Each ungrounded conductor of a circuit shall be protected by an automatic overload protective device inserted in series with said conductor, except when the automatic overload protective device next back in line of the supplying circuit sufficiently protects the supplied conductor or as provided in paragraph p of this section. The automatic overload protective device shall be located at the point where the conductor receives its supply except where specifically permitted by other sections of this Article, to be located elsewhere.

e. No automatic overload protective device shall be placed in any permanently grounded wire, except a circuit-breaker which simultaneously opens all conductors of the circuit and except as provided in sections 807 and 808 of this Article.

f. At the locations in interior wiring systems where the size or capacity of conductors is changed and automatic overload protective devices are inserted to properly protect the smaller conductors, it is understood

that if the circuit contains a grounded conductor the size of the grounded conductor may be changed in proportion to the reduction in size of ungrounded conductors although no protective device is provided for such ungrounded conductor.

It is recommended that the automatic overload protective device employed at any one point of an interior wiring system shall embody the same identical type of protection for each ungrounded conductor of the circuit.

g. Except when placed on switchboards or the equivalent which are located in approved rooms or fireproof electric closets, all cutout bases, circuit-breakers and fused switches shall be enclosed in approved cabinets or cutout boxes or shall be so designed or otherwise protected or located so that live parts will not be exposed to accidental contact. They shall, in all cases, be placed in readily accessible locations.

h. Cutout bases, fused switches and circuit-breakers when installed in locations exposed to moisture shall be mounted in approved weather-proof cutout boxes or cabinets.

i. Cutout bases and circuit-breakers shall not be placed where exposed to mechanical injury nor in the vicinity of easily ignitable material. If the occupancy of the building is such that a suitable location free from exposure to mechanical injury or remote from easily ignitable material cannot be found, an approved metallic enclosure shall be provided.

For equipments in hazardous locations, see Article 32.

j. Cabinets shall in all cases be placed in a vertical position except by special permission and under conditions whereby automatic overload protective devices installed in such cabinets are thoroughly safeguarded from attendant hazards.

k. Except as provided in sections 805, 807 and 808 of this article the rated capacity of fuses shall not exceed the allowable carrying capacity of the wire as given in section 612 of this Code; and the circuit-breakers of the time-limit and of the instantaneous types, shall not be set more than 10 per cent and 60 per cent respectively above the allowable carrying capacity of the wire unless a fuse of a rating which properly protects the wires is also installed on the circuit.

l. For the protection of wires having safe carrying capacities exceeding the rated capacity of the largest approved enclosed-type fuse, approved enclosed fuses arranged in multiple may be used, provided as few fuses as possible are used and the fuses are of equal capacity and provided the cutout terminals are mounted on a single continuous pair of substantial bus bars or have an equivalent arrangement that will eliminate any potential difference between them. The total capacity of the fuses shall not exceed the safe carrying capacity of the wires. This paragraph shall not apply to motor-branch circuits.

m. Fixture wires or flexible cords of No. 16 or No. 18 gauge shall be considered as protected by 15-ampere fuses. Flexible cords of No. 18 gauge or larger, approved for use with specific devices which may be used on the medium-duty appliance branch circuits described in section 1802, shall be considered as protected by the 25-ampere fuses of such circuits.

n. Fused rosettes shall not be used.

o. An automatic circuit-breaker, except as provided for generators in section 1002 of this Code, when installed without other automatic overload protective devices, shall have one pole in each ungrounded conductor.

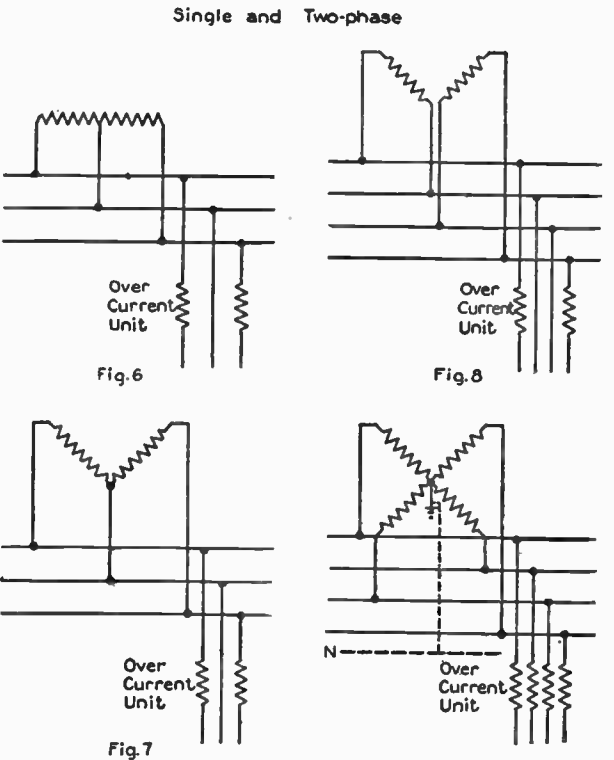
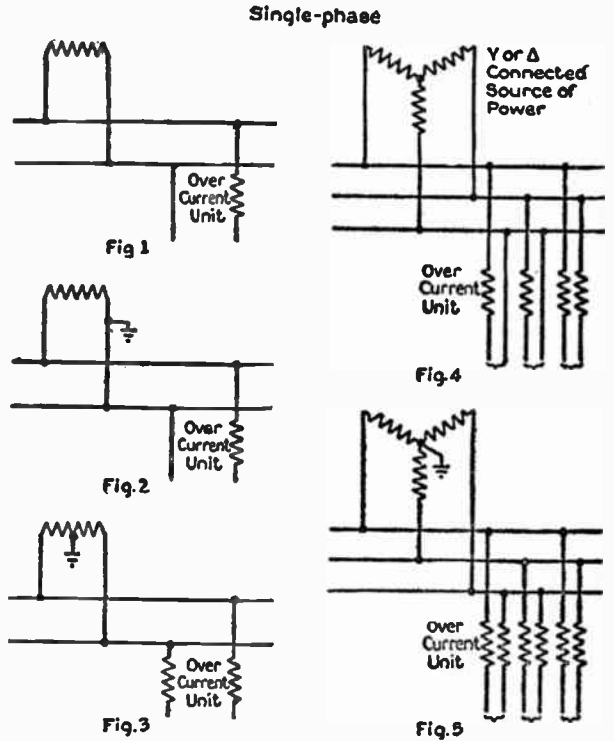
p. The number of over-current units for circuit protection shall not be less than shown in the following table.

(For table of over-current units for motor protection, see paragraph 803 a (6))

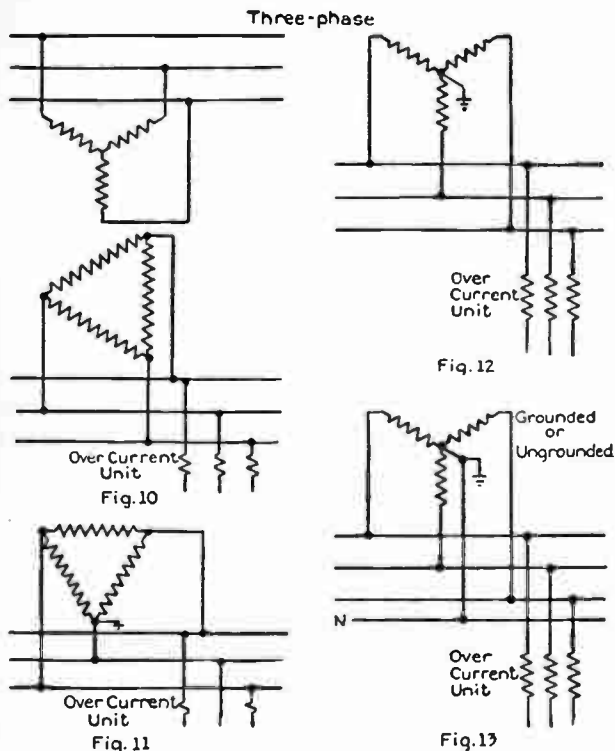
SYSTEM	*Number and Location of over-current units, such as fuses, trip coils, or relays.
2-Wire, Single-phase A.C. or D.C. Ungrounded.	One (in either conductor. Place always in conductors connected to same side of the circuit. Fig. 1.)
2-Wire, Single-phase A.C. or D.C., One Wire Grounded.	One (in ungrounded conductor. Fig. 2.)
2-Wire, Single-phase A.C. or D.C., Mid-point Grounded.	Two (one in each conductor. Fig. 3.)
2-Wire, Single-phase A.C. Derived from 3-Phase, with Ungrounded Neutral.	Where a group of feeders is fed from the three phases of a common three-phase bus, each conductor served by either of two conductors of the three-phase bus must be equipped with one over-current unit. This will result in some circuits being equipped with one unit and other with two units. Fig. 4.
2-Wire, Single-phase Derived from 3-Phase, Grounded Neutral System by Using outside Wires of 3-Phase Circuit.	Two (one in each conductor. Fig. 5.)
3-Wire, Single-phase A.C. or D.C., Neutral Grounded or Ungrounded.	Two (one in each conductor except neutral conductor. Fig. 6.)
3-Wire, 2-Phase, A.C., Common Wire Grounded or Ungrounded.	Two (one in each conductor except common conductor. Fig. 7.)
4-Wire, 2-Phase, Ungrounded, Phases Separate.	Two (one in each phase. Place always in conductors connected to same side of the circuit in each phase. Fig. 8.)
4 or 5-Wire, 2-Phase, Neutral Grounded or Ungrounded.	Four (one in each conductor except neutral conductor. Fig. 9.)
3-Wire, 3-Phase, Ungrounded.	a. Three (one in each conductor if the circuit is served by transformers whose primaries are connected in Y and neutral not connected to system or grounded. Fig. 10). b. Two, under all other conditions. Place always in same phases.
3-Wire, 3-Phase, 1 Wire Grounded.	Two (one in each ungrounded conductor. Fig. 11).
3-Wire, 3-Phase, Grounded Neutral.	Three (one in each conductor. Fig. 12).
4-Wire, 3-Phase, Neutral Grounded or Ungrounded.	Three (one in each conductor except neutral conductor. Fig. 13).

\*1. Where the above table calls for one overload unit, this may consist of one fuse, one series over-current tripping device, or the combination of one current transformer and one secondary over-current tripping device.  
2. Where it calls for two overload units, these may consist of two fuses, two series over-current tripping devices, or the combination of two current transformers and two secondary over-current tripping devices.

- Where it calls for three over-current units, these may consist of three fuses, three series over-current tripping devices, the combination of two or three secondary over-current tripping devices with three current transformers, or two series or secondary over-current tripping devices and one fuse.
- Where it calls for four over-current units, these may consist of four fuses, four series over-current tripping devices, four current transformers with four secondary over-current tripping devices, or two series or secondary over-current tripping devices with two fuses.  
The combination of fuses with series or secondary over-current tripping devices mentioned under (3) and (4) above are to be discouraged for obvious reasons.



Note Neutral Grounded or Ungrounded for 2Phase, 5 Wire System  
Fig. 9



**806. Services.**  
For equipment at services including automatic overload protective devices, see section 405 of Article 4, and section 5009 of Article 50 of this Code.

**807. Lighting and Appliance Branch Circuits.**  
a. For the purpose of this section the terms "Outlets" and "Appliances" shall be defined as follows:

"Outlet"—  
An outlet is that fixed point on a branch circuit at which current is taken to supply lighting fixtures or appliances. An outlet having a fixture with more than one socket attached shall be considered as one outlet. An outlet having a multiple receptacle installed therein shall be considered as one outlet.

"Appliances"—  
Appliances are current consuming devices for domestic or general commercial use, such as heating, cooking and small motor operated devices, etc., suitable for use on the branch circuits described in section 1602 of Article 16.

For definitions of "Branch Circuit," "Lighting Branch Circuits," "Appliance Branch Circuits" and "Combination Lighting and Appliance Branch Circuits" see Article 1 of this Code.

b. All ungrounded wires of a branch circuit shall be protected by fuses or circuit-breakers. When the grounded conductor is identified and properly connected, branch circuits shall be so protected in the ungrounded wires only. In locations where the conditions of grounding or the liability of the reversal of connections warrant, the inspection department may require, on systems having a grounded neutral or having one side grounded that both wires of two-wire branch circuits shall be so protected, even though the grounded conductor is identified and properly connected.

c. Two-wire branch circuits on ungrounded systems shall be protected by a fuse in each wire.

d. Circuit-breakers, if used in lieu of fuses, shall be of a type specifically approved for this purpose.

e. Three-wire branch circuits may be run from direct-current or single-phase alternating-current systems having a grounded neutral, in which case the neutrals of the branch circuits shall not be inter-connected except at the center of distribution.

f. Branch circuits in general, and except as described elsewhere in this Code, shall be protected by fuses of no greater rated capacity than:

- 15 amperes..... at 125 volts or less
- 30 amperes..... at 126 to 250 volts

g. In general, on a two-wire branch circuit and on either side of a three-wire branch circuit the number of outlets shall not exceed 12.

For lighting branch circuits and combination lighting and appliance branch circuits and appliance branch circuits which do not supply floor areas greater than 1200 square feet per circuit, the above outlet restriction may be waived, provided such circuits do not have connected loads greater than 15 amperes for lighting branch circuits nor greater than 10 amperes for combination lighting and appliance branch circuits.

It is understood that by connected load is meant fixed load, exclusive of loads which may be connected to appliance outlets.

h. Branch circuits supplying only sockets or receptacles of the mogul type shall have the wires protected by fuses having a rated capacity not greater than:

- 40 amperes..... at 125 volts or less
- 20 amperes..... at 126 to 250 volts

i. If protected by 40 or 20 ampere fuses as above, wire not smaller than No. 12 shall be used for wiring fixtures with mogul sockets and receptacles and may also be used for taps not over 18 inches long from the circuit wires to the points of suspension of the fixtures.

j. The number of mogul sockets on a 2-wire branch circuit and on either side of a 3-wire branch circuit shall not exceed eight (8) except by permission of the authority enforcing this Code.

## 808. Motors and Motor Circuits.

a. Motors used for continuous duty. Except as otherwise provided in this section, the following tables shall govern the minimum allowable size of the conductors of any individual motor circuit from the main or feeder to the motor, and the maximum allowable rating or setting of the circuit and motor automatic overload protective devices to be used in each ungrounded conductor of any individual motor circuit. These tables are based upon a conductor current-carrying capacity and a rating or setting of motor-running protective device of 125% of the motor full-load current rating, with branch-circuit fuse protection according to the following percentages of the motor full-load current.

Type of Motor	Per Cent Motor Full-Load Current
Single-phase, repulsion or split-phase starting.....	300
Squirrel-cage, full-voltage starting.....	300
Squirrel-cage, reduced-voltage starting (not more than 30 amperes).....	250
High-reactance squirrel-cage (not more than 30 amperes).....	250
Squirrel-cage reduced-voltage starting (more than 30 amperes).....	200
High-reactance squirrel-cage (more than 30 amperes).....	200
Slip-ring A.C. and D.C.....	150

1. For motors having larger full-load current ratings than those given in these tables, calculations for the sizes of conductors and rating or setting of protective devices shall be made on the same basis as the foregoing.

2. The maximum setting of circuit-breakers for such use shall not be in excess of that specified in sub-paragraph 5 of this section.

3. Although it is desirable to keep the branch-circuit protection at as low a rating as is possible, cutout bases for such branch-circuit fuses shall not be of a smaller size than that required to accommodate the branch fuses specified in the following tables for any value of motor full-load current.

4. The rating of a combination cutout and switch used as a motor-controller shall be such that the cutout will accommodate the size of fuse specified in the table for motor-running protection. The rating of a combination cutout and a switch at a service supplying motors or at a tap for a motor branch-circuit shall be such that the cutout will accommodate fuses rated not less than is specified in the table for motor branch-circuit fuses.

5. Where thermal cutouts or thermal relays are used for time-limit automatic overload protection and the values given in Column 6 of Table 1 following do not correspond to standard sizes or ratings, the next higher standard rating or size of thermal cutout or relay may be used. For long runs, it may be necessary, in order to avoid excessive voltage drops, to use conductors of sizes larger than the minimum sizes given in the following tables:

**TABLE 1.**  
**For Selecting Wire and Fuse Sizes for Motor Branch-Circuits.**

Full-load current rating of motor Amperes	Minimum allowable size of copper wire, Am. gauge or str. mils.				For Running Protection of Motors		Maximum Allowable Rating of Branch Circuit Fuses				
	Rubber 2	Var-nished Cam-bric 3	Slow Burning 4	Max. Rating of N.E.C. fuses	Max. Setting of time-limit protective device	Squirrel-cage, full-voltage starting					
						Squirrel-cage, full-voltage starting	Squirrel-cage, reduced-voltage starting	High-reactance squirrel-cage	High-reactance squirrel-cage	Slip-Ring A.C. and D.C.	
1**	14	14	14	2*	1 25*	15	15	15	15	15	
2**	14	14	14	3*	2 50*	15	15	15	15	15	
3**	14	14	14	4*	3 75*	15	15	15	15	15	
4**	14	14	14	6*	5 0 *	15	15	15	15	15	
5**	14	14	14	8*	6 25*	15	15	15	15	15	
6**	14	14	14	8*	7 50*	20	15	15	15	15	
7	14	14	14	10*	8 75*	25	20	15	15	15	
9	14	14	14	10*	10 0 *	25	20	15	15	15	
10	14	14	14	15*	12 50*	30	25	15	15	15	
11	14	14	14	15*	13 75*	35	30	20	20	20	
12	14	14	14	15*	15 00*	40	30	20	20	20	
13	12	14	14	20*	16 25*	40	35	20	20	20	
14	12	14	14	20*	17 50*	45	35	20	20	20	
15	12	12	14	20*	18 75*	45	40	25	25	25	
16	12	12	14	20*	20 00*	50	40	25	25	25	
17	10	12	12	25*	21 25*	60	45	30	30	30	
18	10	12	12	25*	22 50*	60	50	30	30	30	
19	10	12	12	25*	23 75*	60	50	30	30	30	
20	10	12	12	25*	25 0 *	60	50	30	30	30	
22	8	10	10	30	27 50*	70	60	35	35	35	
24	8	10	10	30	30 00	80	60	40	40	40	
26	8	8	8	35	32 50	80	70	40	40	40	
28	8	8	8	35	35 00	90	70	40	40	45	
30	6	8	8	40	37 50	90	80	45	45	45	
32	6	8	8	40	40 00	100	70	50	50	50	
34	6	8	8	45	42 50	110	70	60	60	60	
36	6	8	8	45	45 00	110	80	60	60	60	
38	6	6	8	50	47 50	125	80	60	60	60	
40	6	6	8	50	50 00	125	80	60	60	60	
42	5	6	6	50	52 50	125	90	70	70	70	
44	5	6	6	60	55 0	125	90	70	70	70	
46	4	6	6	60	57 50	150	100	70	70	70	
48	4	6	6	60	60 0	150	100	80	80	80	
50	4	6	6	60	62 50	150	100	80	80	80	
52	4	5	6	70	65 0	175	110	80	80	80	
54	4	4	6	70	67 50	175	110	90	90	90	
56	4	4	6	70	70 00	175	120	90	90	90	
58	3	4	5	70	72 50	175	120	90	90	90	
60	3	4	5	80	75 00	200	125	100	100	100	
62	3	4	5	80	77 50	200	125	100	100	100	
64	3	4	5	80	80 00	200	150	100	100	100	
66	2	4	4	80	82 50	200	150	100	100	100	
68	2	4	4	90	85 00	225	150	110	110	110	
70	2	3	4	90	87 50	225	150	110	110	110	
72	2	3	4	90	90 00	225	150	110	110	110	
74	1	3	3	90	92 50	250	150	120	120	120	
76	1	3	3	100	95 00	250	175	125	125	125	
78	1	2	3	100	97 50	250	175	125	125	125	
80	1	2	3	100	100 00	250	175	125	125	125	
82	0	2	2	110	102 50	250	175	125	125	125	
84	0	2	2	110	105 00	250	175	125	125	125	
86	0	2	2	110	107 50	300	175	150	150	150	



TABLE 1. (continued)  
For Selecting Wire and Fuse Sizes for Motor Branch-Circuits.

Full-load current rating of motor	Minimum allowable size of copper wire, Am. gauge or cir. mils.			For Running Protection of Motors		Max. Allowable Rating of Branch Circuit Fuses				
	Amperes	Rubber 2	Varnished Cambric 3	Slow Burning 4	Max. Rating of M.E.C. fuses	Max. Setting of time-limit protective device	Squirrel-cage, full-voltage starting, single-phase repulsion or split-phase.		Squirrel-cage, reduced-voltage starting, reduced-voltage squirrel-cage** (up to 30k).	Slip-Ring A.C. and D.C.
							Amp. 5	Amperes 6		
88	0	2	2	110	110.00	300	200	150		
90	0	1	2	110	112.50	300	200	150		
92	0	1	2	125	115.00	300	200	150		
94	0	1	2	125	117.50	300	200	150		
96	0	1	2	125	120.00	300	200	150		
98	0	2	2	125	122.50	300	200	150		
100	0	2	2	125	125.00	300	200	150		
105	0	0	1	150	131.5	350	225	175		
110	0	0	1	150	137.5	350	225	175		
115	0	0	1	150	144.0	350	250	175		
120	0	0	1	150	150.0	400	250	200		
125	0	0	0	175	156.5	400	250	200		
130	0	0	0	175	162.5	400	300	200		
135	0	0	0	175	169.0	450	300	225		
140	200,000	0	0	175	175.0	450	300	225		
145	200,000	0	0	200	181.5	450	300	225		
150	200,000	0	0	200	187.5	450	300	225		
155	200,000	0	0	200	194.0	500	350	250		
160	200,000	0	0	200	200.0	500	350	250		
165	0	0	0	225	206.5	500	350	250		
170	0	0	0	225	213.0	500	350	300		
175	0	0	0	225	219.5	600	350	300		
180	0	0	0	225	226.0	600	400	300		
185	250,000	0	0	250	231.5	600	400	300		
190	250,000	0	0	250	238.0	600	400	300		
195	250,000	0	0	250	244.5	600	400	300		
200	250,000	0	0	250	250.0	600	400	300		
210	300,000	0	0	250	233.0	450	350	350		
220	300,000	250,000	0	300	275.0	450	350	350		
230	350,000	250,000	200,000	300	281.5	500	350	350		
240	350,000	250,000	200,000	300	300.0	500	400	400		
250	400,000	300,000	0	300	313.0	500	400	400		
260	400,000	300,000	0	350	325.5	600	400	400		
270	500,000	350,000	250,000	350	338.0	600	450	450		
280	500,000	350,000	250,000	350	350.0	600	450	450		
290	500,000	350,000	250,000	350	362.5	600	450	450		
300	500,000	400,000	300,000	400	375.0	600	450	450		
320	500,000	500,000	300,000	400	400.0	600	500	500		
340	600,000	500,000	350,000	450	425.5	600	500	500		
360	600,000	500,000	350,000	450	450.0	600	500	500		
380	700,000	500,000	400,000	500	475.0	600	500	500		
400	700,000	500,000	400,000	500	500.0	600	500	500		
420	800,000	600,000	500,000	600	500.0	600	500	500		
440	800,000	700,000	500,000	600	550.0	600	500	500		
460	900,000	700,000	500,000	600	575.0	600	500	500		
480	900,000	700,000	500,000	600	600.0	600	500	500		
500	1,000,000	800,000	600,000	625.0	625.0	600	500	500		
520	1,000,000	800,000	600,000	650.0	650.0	600	500	500		
540	1,100,000	900,000	600,000	675.0	675.0	600	500	500		
560	1,200,000	900,000	700,000	700.0	700.0	600	500	500		
580	1,200,000	1,000,000	700,000	725.0	725.0	600	500	500		
600	1,300,000	1,000,000	700,000	750.0	750.0	600	500	500		
625	1,400,000	1,000,000	800,000	782.0	782.0	600	500	500		

FULL-LOAD MOTOR CURRENTS.

TABLE 2.

Two-Phase A.C. Motors (4-wire).†

HP	Squirrel-Cage Induction-Type Amperes				Wound-Rotor and High-Reactance Squirrel-Cage Type Amperes			
	110V	220V	440V	550V 2200V	110V	220V	440V	550V 2200V
1/4	4.3	2.2	1.1	.9	—	—	—	—
3/8	4.7	2.4	1.2	1.0	—	—	—	—
1/2	5.7	2.9	1.4	1.2	6.8	3.4	1.7	1.3
3/4	7.7	4.0	2.0	1.6	—	—	—	—
1	10.4	5.3	2.7	2.0	12.5	6.2	3.1	2.5
1 1/2	—	7.3	3.7	3.0	17.3	8.7	4.3	3.4
2	—	10.4	5.3	4.0	—	—	—	—
3	—	13.5	6.8	5.0	—	—	—	—
4	—	16.6	8.4	6.0	—	—	—	—
5	—	19.7	10.0	7.0	—	—	—	—
7 1/2	—	26.3	13.4	9.0	—	—	—	—
10	—	32.9	16.5	11.0	—	—	—	—
15	—	49.4	24.7	16.5	—	—	—	—
20	—	65.8	32.9	22.0	—	—	—	—
25	—	82.2	41.1	27.5	—	—	—	—
30	—	98.6	49.4	33.0	—	—	—	—
40	—	131.5	65.8	44.0	—	—	—	—
50	—	164.4	82.2	55.0	—	—	—	—
60	—	197.3	98.6	66.0	—	—	—	—
75	—	263.1	131.5	88.0	—	—	—	—
100	—	357.5	177.0	116.0	—	—	—	—
125	—	451.9	222.5	144.0	—	—	—	—
150	—	546.3	268.0	172.0	—	—	—	—
200	—	728.8	362.5	229.0	—	—	—	—

TABLE 3.

Single-Phase A.C. Motors.

HP	AMPERES			HP	AMPERES		
	110V	220V	440V		110V	220V	440V
1/4	3.34	1.67	—	2	20	10	—
3/8	4.8	2.4	—	3	28	14	—
1/2	7	3.5	—	5	46	23	—
3/4	9.4	4.7	—	7 1/2	68	34	17
1	11	5.5	—	10	86	43	21.5
1 1/2	15.2	7.6	—	—	—	—	—

†Values of current in common wire of 2-phase 3-wire system will be 1.41 times values given.  
‡These values of full-load currents are average for all speeds and frequencies.  
\*For the running protection of motors of 2 H.P. and less see sub-paragraph 1 below.  
\*\*For the fusing of small motors under the protection of a single-set of fuses see sub-paragraph 2 below.  
\*\*\*High reactance squirrel-cage motors are those designed to limit the starting current by means of deep-slot-secondaries or double-wound secondaries.

TABLE 4.  
Three-Phase A.C. Motors

HP	Squirrel-Cage Induction-Type Amperes					Wound-Rotor and High-Reactance Squirrel-Cage Type Amperes			
	110V	220V	440V	550V	2200V	110V	220V	440V	550V 2200V
1/4	5.4	2.5	1.3	1.1	—	—	—	—	—
3/8	6.6	2.8	1.4	1.1	—	—	—	—	—
1/2	8.4	3.3	1.7	1.3	—	7.8	3.9	2	1.6
3/4	10.4	4.7	2.4	2.0	—	—	—	—	—
1	12	6	3	2.4	—	14.4	7.2	3.6	2.9
1 1/2	—	9	4.5	4	—	20.0	10	5	4
2	—	15	7.5	6	—	—	15	7.5	6
3	—	22	11	9	—	—	25	13	10
4	—	27	14	11	—	—	28	14	11
5	—	31	15	12	—	—	32	16	12
7 1/2	—	38	19	15	—	—	45	23	18
10	—	44	22	18	—	—	56	28	22
15	—	66	33	27	—	—	84	42	33
20	—	88	44	36	—	—	112	56	44
25	—	110	55	45	—	—	144	72	55
30	—	132	66	54	—	—	168	84	66
40	—	176	88	72	—	—	224	112	88
50	—	220	110	90	—	—	280	140	110
60	—	264	132	108	—	—	336	168	132
75	—	330	165	135	—	—	420	210	165
100	—	440	220	180	—	—	560	280	220
125	—	550	275	225	—	—	700	350	275
150	—	660	330	270	—	—	840	420	330
200	—	880	440	360	—	—	1120	560	440

TABLE 5.

Direct-Current Motors.

HP	AMPERES				HP	AMPERES			
	115V	230V	550V	—		115V	230V	550V	—
1/4	4.5	2.3	—	—	25	185	92	38	—
3/8	6.5	3.3	1.4	—	30	220	110	45	—
1/2	8.4	4.2	1.7	—	40	294	146	61	—
3/4	12.5	6.3	2.6	—	50	364	180	75	—
1	16.1	8.3	3.4	—	60	438	215	90	—
1 1/2	23.0	12.3	5.0	—	75	540	268	111	—
2	40	19.8	8.2	—	100	—	357	146	—
3	58	28.7	12.0	—	125	—	443	184	—
4	75	38	16.0	—	150	—	—	220	—
5	112	56	23.0	—	200	—	—	295	—
7 1/2	140	74	30	—	—	—	—	—	—

The following exceptions to the foregoing tables shall be recognized  
1. Motors of 2 H.P. or less shall be considered as being sufficiently protected by the automatic overload protective devices used to protect the conductors of the motor circuits as specified in the foregoing tables.

It is recommended that the running protection specified in the tables be provided for all such small motors when they are located out of sight of the operator.

2. Two or more small motors grouped under the protection of a single set of fuses and with or without other current-consuming devices in the circuit shall be considered as being sufficiently protected if the rating of the fuses does not exceed 15 amperes and the total wattage of the circuit does not exceed 1320 or by the 25 ampere fuses of the medium-duty appliance branch circuits, described in section 1602 of Article 16. No individual motor of such a group shall have a full-load rated current of more than 6 amperes.  
3. Automatic overload protective devices may be omitted at the point where the conductors carrying the current of only one motor are connected to the mains, provided either that, (a) conductors having a carrying capacity equal to that of the remains are carried to the motor running protective devices, or that (b) the carrying capacity of these conductors is at least 1/3 of that of the mains to which they are connected, the length of such conductors to the motor running protective devices is not greater than 25 feet and they are suitably protected from mechanical injury. In such cases consideration should be given to the interrupting capacity of the motor running protective device. When thermal cutouts are used this will require the installation of National Electrical Code fuses for the protection of these mains, the fuses to have a rating not exceeding that indicated on the smallest thermal cutout in the group protected.

4. For the protection of motors used on cranes and hoists see section 3006 of this Code.

5. Except for the protection of thermal cutouts, automatic overload circuit-breakers of the time-limit type may be used for A.C. or D.C. motor branch-circuit protection and automatic overload circuit-breakers of the instantaneous type may be used for D.C. motor branch-circuit protection under the conditions specified in paragraph d, provided the settings are not greater than those given in the following table:

Type of Motor	Circuit-Breaker Setting Per Cent. of Motor Full-Load Current	Instantaneous Type	Time-Limit Type
Single-phase, repulsion or split-phase starting.	—	—	250
Squirrel-cage, full-voltage starting	—	—	250
Squirrel-cage, reduced-voltage starting (not more than 30 amperes)	—	—	200
Squirrel-cage, reduced-voltage starting (more than 30 amperes)	—	—	200
High-reactance squirrel-cage (more than 30 amperes)	—	—	200
Slip-Ring	—	—	



Kind of Motor	Supply System	Number and location of over-load units, such as trip coils, relays or thermal cutouts
2-phase A.C.	3-wire, 2-phase A.C., one conductor grounded	2 in ungrounded conductors
2-phase A.C.	4-wire, 2-phase A.C., grounded or ungrounded	2, one per phase in ungrounded conductors
2-phase A.C.	5-wire, 2-phase A.C., grounded neutral or ungrounded	2, one per phase in any ungrounded phase wire
3-phase A.C.	3-wire, 3-phase A.C., ungrounded	2 in any 2 conductors
3-phase A.C.	3-wire, 3-phase A.C., one conductor grounded	2 in ungrounded conductors
3-phase A.C.	3-wire, 3-phase A.C., grounded-neutral	2 in any 2 conductors
3-phase A.C.	4-wire, 3-phase A.C., grounded-neutral or ungrounded	2 in any 2 conductors, except the neutral

b. Motors used for short time duty. When motors are used in classes of service having short time duty (A.I.E.E. Standard) conductors having carrying capacities differing from those given in the tables in paragraph (a) will be required in motor circuit. In the majority of cases the carrying capacity need not exceed the percentages of the motor name-plate current ratings given in the following table. Motors of this class are considered as being sufficiently protected by the branch-circuit protective devices.

Classification of Service	Percentage of Name-Plate Current Rating				
	5- Minute Rating	10 & 15 Minute Rating	30 & 60 Minute Rating	2-Hour Rating	Continuous Rating
Operating valves raising or lowering rolls.....	110	120	150	200	250
Rolling tables.....	110	120	135	180	200
Hoists, rolls, ore and coal-handling machines.....	110	115	120	150	170
Freight and passenger elevators, shop cranes, tool hoists, pumps, etc.....	110	110	110	120	140

c. The secondary conductors of a wound-rotor A.C. motor between the slip rings and the controller shall have a carrying capacity which is not less than 125% of the full-load secondary current of the motor and between the controller and resistor a carrying capacity which is not less than that given in the following table:

Resistor Duty Classification (NEMA Apparatus Division)	Carrying Capacity of Wire in Per Cent. of Full-Load Secondary Current
Light starting duty.....	35
Heavy starting duty.....	45
Extra heavy starting duty.....	55
Light intermittent duty.....	65
Medium intermittent duty.....	75
Heavy intermittent duty.....	85
Continuous duty.....	110

d. Fuses shall not be required in series with automatic overload protective devices (except thermal cutouts) of other types (a) on main switchboards, (b) where otherwise subject to competent supervision, (c) where next back on the line there are fuses rated or a time-limit circuit-breaker set at not more than 500%, or an instantaneous-type circuit-breaker set at not more than 700% of the motor name-plate current rating.

e. Automatic overload protective devices other than fuses, used for either motor or motor-circuit protection, shall have a continuous current-carrying capacity of at least 115% of the full-load current rating of the motor.

f. A controller for a D.C. motor, which has an overload-release device operative during the starting as well as the running period, may also serve as the running overload protective device.

g. The controller for an A.C. motor may also serve as the running overload protective device if it is equipped with the number of overload units (trip coils, relays or thermal cutouts) called for in the table of sub-paragraph a-6 of this section, and if it is operative when in the running position to open all of the ungrounded conductors automatically under overload.

h. Motor running protective devices may be shunted or cut out during the period for starting the motor, and the motor and its circuit shall be considered sufficiently protected during this starting period, provided that next back on the line there are fuses rated or a time-limit circuit breaker set at not more than 500% or an instantaneous-type circuit-breaker set at not more than 700% of the motor name-plate current rating.

i. When a switch is used to shunt the motor running protective device during the starting period, it shall be of a type that cannot be left in the starting position.

j. The control circuits of a magnetic controller shall be considered as being sufficiently protected by the motor-circuit protective device, provided they are suitably protected from mechanical injury and do not extend beyond the machine on which the controller may be installed.

k. In many cases conductors of a feeder or main circuit supplying a group of motors need not have a carrying capacity equal to the sum of the full-load current ratings of the motors supplied. A diversity factor may be permitted by the authority enforcing these regulations to be used in determining the carrying capacity of these feeders or main circuits, the value of this factor depending on the size and number of the motors supplied and the character of the load.

809. Protection of Generators.

See section 1002 of article 10 of this Code.

810. Protection of Electrically Heated Appliances.

See article 16 of this Code.

811. Protection of Theatre Footlights and Border Lights.

a. Theatre footlights and border lights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than 15 amperes on a branch circuit fuse.

812. Protection of Signs and Outline Lighting.

a. Circuits shall be so arranged that the number of outlets and the lamps connected to them shall in no case be such as to place more than 15 amperes on the branch-circuit fuse.

813. Protection of Switchboard Instruments.

a. Enclosed fuses shall be used to protect instruments and pilot lights on switchboards. N. E. Code standard enclosed fuses are preferred, but other types may be used provided the rating of such fuses does not exceed two amperes.

814. Protection of Feeders at Supply Stations.

a. Each constant-potential circuit entering or leaving a supply station, except grounded neutral conductors of three-wire systems, shall be protected from excessive current by an approved automatic overload circuit-breaker or by an equivalent device of approved design. Such protective devices shall be located as near as practicable to point where conductors enter or leave the building. For outgoing circuits not connected with other sources of power, however, the protective devices may be placed on the supply side of transformers or similar devices.

ARTICLE 9. GROUNDING.

NOTE: The whole subject of grounding of equipment and appliances in interior wiring systems including methods of grounding by means of auxiliary conductors, what fixed equipment should be grounded and whether portables in domestic establishments need be grounded and if so how, is to be submitted to a general conference during 1923 with a view to a special report to the next meeting of the Electric Committee—N.F.P.A., and appropriate action for the next edition of this Code.

901. General.

a. Where low-potential circuits, arresters, equipment, conduit, armored cable, metal raceways and the like are grounded as a protective measure, they shall be so arranged that there will be no objectionable passage of current over the grounding conductors. The temporary currents, which are set up under accidental conditions while the grounding conductors are performing their intended functions, are not to be considered as objectionable. Where an objectionable flow of current occurs over a grounding conductor, due to the use of multiple grounds, (1) one or more of such grounds shall be abandoned, or (2) their location shall be changed, or (3) the continuity of the conductor connecting the grounding connections shall be suitably interrupted, or (4) other means shall be taken to limit the current.

b. The grounding connection, including electrode and grounding conductor, shall be permanent and effective and shall always be made on a continuous-metallic underground water piping system if one is available. The protective grounding of electrical circuits and equipment to water piping systems, when done in accordance with this article, is essential since such grounding offers the most efficient protection to life and property and is not injurious to the piping system. In the absence of such a water piping system, a system ground conductor or a secondary neutral grid shall be used if available.

c. Where such a water piping system, a system ground conductor, or a secondary neutral grid is not available the grounding connection shall be made in a manner to secure the most suitable ground and, by one of the following methods:

1. A continuous metallic underground steam piping system;
2. A continuous metallic underground gas piping system;
3. The metal frame of the building;
4. A local metallic underground piping system, metal well casing and the like;
5. An artificial ground whose electrode consists of driven pipe, driven rod, buried plate, or other devices approved for the purpose.

d. Where artificial grounds are used they shall, as far as practicable, be embedded below permanent moisture level. Each electrode shall present not less than 2 square feet of surface to exterior soil. Electrodes of plate copper shall be at least .06 inch in thickness. Electrodes of iron or steel plates shall be at least ¼ inch in thickness. Electrodes of iron or steel pipe shall be galvanized and not less than ¾ inch internal diameter. Electrodes of rods of steel or iron shall be at least ¾ inch minimum cross-section dimension. Approved non-ferrous rods used for electrodes shall be not less than ½ inch in diameter. Driven electrodes of pipe or rods, when of less than standard commercial length, shall preferably be of one piece and shall be driven, except where rock bottom is encountered, to a depth of at least eight feet regardless of size or number of pipes or rods used.

e. The combined resistance of an individual grounding conductor and its connection with the ground shall not exceed 3 ohms for water-pipe or other continuous underground metallic-piping electrodes, nor 25 ohms for artificial grounds. Where resort must be had to artificial grounds the number of electrodes shall be determined as follows: not more than one is required for lightning arresters except where for large current capacity. Not more than one is required for conduit, equipment and other non-current carrying parts. Not more than one is required for grounding low-voltage alternating-current distribution circuits where such ground connection constitutes one of a multiplicity of grounds on the same circuit; but otherwise at least two electrodes shall be provided and shall be at least 6 feet apart and at least 6 feet from other grounding electrodes. The combined area in contact with exterior soil shall be not less than four square feet. If the resistance to ground is in excess of 3 ohms the grounding conductor, except in rural districts, shall be protected and guarded by being enclosed in insulating conduit or moulding to protect persons from injury by coming in contact with it.

It is recommended that ground connections when installed be tested for resistance unless multiple grounding to water piping system is used.

f. Where a system ground conductor or secondary neutral grid is employed it shall be effectively grounded at intervals which will satisfy the requirements as to current-carrying capacity and resistance prescribed in this article.

902. Grounding for Distribution Systems and Interior Wiring.

a. Two-wire direct current systems supplying interior wiring systems and operating at not to exceed 300 volts between wires shall be grounded on one conductor and at the supply station but not at individual services.

It is recommended that 2-wire direct-current systems be grounded if a neutral point can be established and if the maximum difference of potential between the neutral point and any other point on the circuit does not exceed 300 volts. It is recommended that 2-wire direct-current systems be not grounded if the potential to ground of either conductor would exceed 300 volts after grounding.

b. Three-wire direct-current systems supplying interior wiring systems shall be grounded on the neutral at one or more supply stations but shall not be grounded at individual service entrances.

c. Secondary alternating-current distribution systems supplying interior wiring systems shall be grounded on one conductor if they can be so grounded that the maximum voltage to ground does not exceed 150. Similar systems operating with the voltage to ground exceeding 150 volts may be grounded.

It is recommended that such systems be grounded as provided herein, if the difference of potential exceeds 150 volts, but does not exceed 300 volts.

d. The ground connection for a grounded-secondary alternating-current distribution system shall be made, except as provided below, on every individual service. Additional ground connections may be made on the leads of the transformer or transformers or at one or more points on the system. By permission of the authority enforcing this Code (1) any individual ground connection may be omitted provided there are other good ground connections or (2) transformer or system grounding solely may be used.

e. Electric furnace circuits need not be grounded.

f. Where transformers supply a common set of distribution mains, such fuses as are installed shall be so placed as not to leave any portion of the secondary system without ground protection after they have been blown.

g. For alternating-current interior wiring systems the conductor to be grounded shall be as follows:

1. Single-phase, 2-wire: the identified conductor.
2. Single-phase, 3-wire: the identified neutral conductor.
3. Multiphase systems having one wire common to all others; the identified common conductor.

### 903. Method of Grounding Circuits.

a. Where a grounding connection is made on an interior wiring system, it shall be made on the line side of the service switch, and before the interior wiring system is put in use. It shall always be made upon the identified wire, commonly known as "the white wire."

b. The grounded conductor of an interior wiring system shall be connected from one point only within building to the grounding electrode or electrodes.

### 904. Grounding for Metal Enclosures, Coverings and Fixed Equipment.

a. Exposed non-current carrying metal parts of fixed equipment, such as the frames and metal exteriors of generators, motors, transformers, controllers, fixed appliances, lighting fixtures, conduit, armor of cable, metal raceways, and the like but not including lined covers of surface type snap switches nor lined shells of standard sockets, shall be grounded and the point of attachment of the grounding conductor for service conduit systems, devices and appliances shall be accessible. The point of attachment of the grounding conductors for conduit, armored cable, metal raceways and the like shall be such that no part is grounded through a run of smaller size.

b. The following exceptions are permitted where the voltage of contained conductors does not exceed 150 to ground, and the contained conductors are on grounded circuits or on circuits unexposed to voltages above 150 to ground, and the installation is not in an industrial establishment, nor in a moist, corrosive, hazardous, or conductive location, the following need not be grounded, but in all cases may be grounded.

1. Service runs of conduit, under the further conditions stated in Section 404, paragraph g, of Article 4.
2. Runs of less than 25 feet of conduit, armor of cable, metal raceways, etc., when these runs are free from metallic contact with the ground and from adjacent grounded metal and are guarded when within reach from grounded surfaces.
3. Boxes, cabinets, outlets and terminal fittings.
4. Objects exempted from grounding by other rules of this Code.

Conductive Locations are defined as

1. Any room, all or part of which is below normal ground level.
2. Laundries, kitchens, bath rooms.
3. Ground floors of garages, stables and outbuildings with earth or concrete floor.
4. Rooms having floors, walls, or ceilings containing metal lath, metal reinforcement or metal covering.
5. Any particular location so designated by the authority having jurisdiction.

### 905. Method of Grounding Metal Enclosures, Coverings and Fixed Equipment.

For the purpose of this section, fixed equipment devices and appliances shall include all motors, heaters, ranges, fixtures, pendant sockets and all other similar devices which have a metallic exterior and which are connected to the circuit by permanent wires, i. e., without attachment plugs.

a. Where the service conduit or service cable sheath is grounded, its grounding conductor shall be run from it directly to the ground, no portion of the service switch box, or house conduit being interposed in the grounding circuit. The following exceptions are permitted: Where the service switch box or house conduit is grounded, and is installed in dry, non-corrosive locations, the service switch box may be interposed in the grounding circuit of the service conduit provided that bonding jumpers or ground clamps or lugs or devices approved for the purpose are used.

b. Where sections of conduit, armored cable, metal raceways and equipment are grounded they shall be either bonded together and grounded or each section or piece grounded separately.

c. The service conduit, service cable sheath, equipment and the like may use the conductor which grounds the system and its electrode for grounding provided that the system is grounded at two or more locations not in the same building to a continuous metallic underground piping system, otherwise where grounded they shall each have a separate grounding conductor and where artificial grounds are used they shall each have a separate electrode.

d. Metal enclosures and coverings for conductors, and separate grounding wires run in wire assemblies with the circuit conductors, are considered as suitable grounding conductors for protective grounding of fixed equipment, devices and appliances, when installed and used in compliance with the requirements of Article 5 of this Code.

### 906. Grounding Conductors.

a. The conductor for grounding a copper conductor of an interior wiring system shall be of copper and shall be without joint or splice. The conductor for grounding conduit, equipment and other non-current carrying parts may be of copper, or may be a metal pipe or rigid electric conduit, except that under conditions favorable to corrosion, copper only shall be used.

b. On all service-entrance conduit and where an interior wiring system operates at over 150 volts to ground and pipe, conduit or raceway is used as the grounding conductor for fixed equipment, conduits, raceways and fittings, approved bonding jumpers, or other approved devices shall be used. Such bonding jumpers shall not be required with properly cleaned threaded joints, made up tight, on pipe, conduit or fittings, nor, except for service conduit, when approved threadless joints, made up tight to pipe, conduit or fittings, or when two lock-nuts are used.

c. No automatic cutout, or switch for interior wiring systems shall be placed in a grounding conductor, unless the opening of the cutout or switch disconnects all sources of energy.

d. The installation of the grounding conductor for systems, when not consisting of or enclosed in metallic piping, and the insulating covering of the conductor shall comply with all requirements of this Code applying to wires of the voltage of the circuit to which the grounding conductor is attached. Where a wire for grounding an interior wiring system is installed in metallic piping and is bonded to it at both ends a bare copper conductor may be used.

e. Approved ground clamps or other approved fittings shall be used and unless approved for general use without protection they shall be protected from ordinary mechanical injury by being placed where they are not liable to be damaged or by being enclosed in metal, wood or equivalent protective covering. Grounding wires smaller than No. 4, within five (5) feet from the floor, shall be protected from ordinary mechanical injury by being enclosed in metal, wood, or equivalent protective covering. Lightning-arrester grounding wires shall be protected by non-magnetic material, unless the grounding conductor is electrically connected to both ends of the protective covering.

f. The path to ground provided by a system grounding conductor shall, in general, have current-carrying capacity sufficient to insure the continuity and continued effectiveness of the path under conditions of excess current caused by accidental grounding of any normally ungrounded conductor of the circuit or the system to which it is electrically connected.

g. The grounding conductor for a direct-current system shall have a current-carrying capacity not less than that of the largest feeder of the same system leaving the station. In no case shall the grounding conductor be smaller than No. 8.

h. The grounding conductor for an alternating-current circuit or system shall have a current-carrying capacity not less than one-fifth that of the conductor to which it is attached. In no case shall the grounding conductor be smaller than No. 8.

i. The grounding conductor for a lightning arrester shall not be connected to an artificial ground electrode which is used for circuits or equipment and the like, but shall be kept at a distance of at least 20 feet where practicable. The grounding conductor shall have a current-carrying capacity sufficient to insure the continuity and continued effectiveness of the path to ground under conditions of excess current caused by or following the discharge of the arrester. No individual grounding conductor shall be smaller than No. 6.

j. For grounding service conduit of size not larger than 1½ inches, the grounding wire shall be not smaller than No. 8; for two-inch conduit the grounding wire shall be not smaller than No. 4; for larger conduits not smaller than No. 2.

k. The size of the wire or the pipe used for grounding interior conduit, armored cable, metal raceway, equipment and the like, shall be not less than that given in the following table:

Capacity of nearest cutout protecting conductor in conduit, armored cable, metal raceway, equipment and the like.	Size of copper wire.	Nominal size of pipe.
	Not less than two sizes smaller than that of current-carrying conductors.	½ inch.
0 to 30 amperes	No. 10	½ inch
31 to 100 amperes	No. 6	½ inch
101 to 200 amperes	No. 4	¾ inch
201 to 500 amperes	No. 2	1 inch
over 500 amperes		

l. For grounding portable or pendant equipment the conductors to which are protected by fuses or circuit-breakers not greater than 15 amperes, No. 18 copper wire may be used. For grounding fixtures No. 14 or larger shall be used except that a smaller wire may be permitted for the grounding conductor of non-metallic sheathed cable. For grounding portable equipment fused for more than 15 amperes, the above table shall be followed.

m. The grounding conductors for circuits, conduit, equipment, and the like shall not be connected to lightning rods.

n. Instruments, meters, or relays which operate with windings or working parts at 300 volts or more to ground shall have the cases and other exposed bare metal parts grounded unless isolated by elevation or protected by suitable insulating barriers or guards, except where inaccessible to other than qualified persons, in which case this requirement is made only when the voltage to ground exceeds 750. Where instruments, meters or relays are operated from current or potential instrument transformers, on circuits of 300 volts or more to ground, having ungrounded secondary circuits and ungrounded primary circuits, the cases and other exposed bare metal parts shall be grounded. The grounding conductor for cases and for secondary circuits of instrument transformers shall be not smaller than No. 12.

For exception, see paragraph g of section 1302, of Article 13 of this Code.

o. Secondaries of current and potential instrument transformers and the cases of instruments connected to such circuits shall, when grounded, have separate grounding conductors, and shall not be connected with a grounding conductor used for other circuits or for conduit, equipment and the like, except where a general ground bus is provided.

### 907. Grounding Connections.

a. Where a non-conductive protective coating such as paint or enamel is used to protect the equipment, conduit-couplings and fittings, such coating shall be completely removed from threads and other surfaces in order to insure a good contact between ground clamp and equipment. Pipes and rods used as ground electrodes shall have clean metal surfaces, and shall not be covered with paint, enamel, or other poorly conducting materials.

b. At supply stations, grounding conductors for circuits, equipment and lightning arresters shall be permanently and effectively connected to all available active, continuous, metallic underground piping systems between which no appreciable difference of potential normally exists; otherwise to one system only. Elsewhere than at supply stations, the grounding conductor shall be connected to at least one such piping system, if available. (Gas piping shall be avoided wherever practicable,

except as provided in paragraph e of this section.) Where underground metallic piping systems are not available, other grounds which will provide the desired permanence and conductance may be permitted.

e. The point of connection to the water piping system shall be located on the street side of the water meter or at a water pipe near the equipment to be grounded, in which case the connection with the piping system shall be made continuous and permanent, by bonding all parts of the piping system which are liable to become physically disconnected, such as at meters and service unions, by means of a suitable shunt whose joints, current-carrying capacity, and mechanical protection shall be not less than that required for the grounding conductor. Where practicable the point of connection shall be readily accessible.

d. The grounding conductor shall be attached to the pipe or rod (1) by means of an approved bolted clamp to which the conductor is soldered or otherwise connected in an approved manner or (2) by means of a brass plug screwed into the pipe and provided with a lug to receive the conductor or (3) by other approved means.

e. Gas piping systems within buildings connected to continuous-metallic underground exterior systems may be used as a ground electrode but only when water piping is not available. Gas piping, however, may serve as the sole ground for small fixtures located at a considerable distance from water piping. Where gas piping on the house side of the meter is utilized for grounding small fixtures it shall be bonded to the water piping system at their points of entrance. If no water piping is available a bonding jumper around the gas meter shall be used. Where grounding connection is made to gas piping, except for such small fixtures, it shall follow the same requirements as for water piping in paragraph e, of this section, except that the connection shall always be made on the street side of the meter. Gas piping need not be insulated from otherwise well-grounded fixtures.

f. Rails or other grounded conductors of electric railway circuits shall not be used as a ground for other than railway lightning arresters and railway equipment, conduit, armored cable, metal raceway and the like, when other effective grounds are available and in no case shall such rails or other grounded conductors of railway circuits be used for grounding electrode for interior wiring systems other than those supplied from the railway circuit itself.

#### 908. Method of Grounding Portable Equipment in Industrial Establishments.

For the purpose of this section an industrial establishment is defined as a building or part of a building (other than office or exhibit space) where persons are employed in manufacturing processes or material handling as distinguished from dwellings, offices, public utilities and like occupancies.

a. In industrial establishments portable devices, having exposed metal parts, used in industrial operations shall

1. be equipped with a cord containing an additional insulated conductor to be used for grounding purposes only and easily distinguishable from the circuit conductors, or with metal armor such as type CA, PA, etc.;
2. be equipped with non-reversible polarized attachment plug properly fastened to the terminals of the cord;
3. have the grounding conductor (wire or metal armor) connected to the frame or casing of the appliance and to the grounding pole of the plug, and
4. shall have the grounding pole of the receptacle grounded as required in this article.

Appliances to which this rule applies are those which are electrically operated or motor-driven, and are of a portable nature, such as drills, grinders, glue pots, heaters, soldering irons, pumps, air compressors, hammers, conveyors, elevators, hand and stand lamps, and other similar portable hand tools and devices. Exempted are fan motors, pressing irons, and those appliances which are so located as to be ordinarily out of reach, infrequently handled during manufacturing operations or regularly employed in non-conductive locations.

The use of portable devices on circuits operating in excess of 300 volts to ground, is not recommended.

#### ARTICLE 10. ROTATING MACHINERY AND ITS CONTROL APPARATUS

For special provisions for hazardous locations see Article 32.

##### 1001. General.

a. Machines shall be provided with suitable drip pans if required by the authority enforcing this Code.

b. Live parts of rotating equipment of more than 150 volts to ground, except slip rings and brush rigging which do not extend beyond the frames of induction motors, shall not be exposed to accidental contact where accessible to unqualified persons. For the purpose of this rule ungrounded circuits fed from transformers or overhead supply circuits are considered as being more than 150 volts to ground.

c. If terminal blocks are used they shall be composed of approved non-combustible, non-absorptive insulating material, such as slate, marble or porcelain.

d. Where the wiring to fixed motors is accessible to unqualified persons and is in conduit, armored cable, metal raceways or similar construction, terminal enclosures or housings of substantial metal construction shall be provided at the motor terminals. The conduit, armored cable or metal raceways shall be mechanically and electrically connected to the terminal enclosures or housings. The terminal enclosures or housings shall be of ample size to properly make connections.

e. Soft rubber bushings may be used to protect lead wires where they pass through the frame, provided they will not be exposed to oils, grease, oily vapors or other substances having a deleterious effect on rubber. Where so exposed, bushings composed of porcelain, micanite or hardwood treated with a preservative shall be used.

##### 1002. Generators (Other than in Central Stations).

a. Generators shall be located in dry places. They shall not be placed in a room where any hazardous process is carried on, nor where they will be exposed to inflammable gases or flogings of combustible materials.

It is recommended that waterproof covers be provided for use in an emergency.

b. Constant-potential generators, except alternating-current machines and their exciters, shall be protected from excessive currents by automatic circuit-breakers or fuses. Single-pole protective shall be accepted for 2-wire direct-current generators if the protective device is actuated by the entire current generated, except that in the shunt field. The protective device shall not open the shunt field.

c. If a generator not electrically driven supplies a 2-wire grounded system, the protective device shall be so placed as to disconnect the generator from all wires of the circuit.

d. Two-wire, direct-current generators, used in conjunction with balancer sets to obtain neutrals for 3-wire systems, shall be equipped with protective devices which will disconnect the 3-wire systems in the case of excessive unbalancing of voltages.

e. Three-wire, direct-current generators, whether compound or shunt wound, shall be equipped with protective devices, one in each armature lead and so connected as to be actuated by the entire current from the armature. Such protective device shall consist either of a double-pole, double-coil, overload circuit-breaker, or of a 4-pole circuit-breaker connected in the main and equalizer leads and tripped by two overload devices, one in each armature lead. Such protective devices shall be so interlocked that no one pole can be opened without simultaneously disconnecting both leads of the armature from the system.

f. The frame shall be grounded in the manner prescribed in Article 9 if the generator operates at a voltage in excess of 150 volts and is accessible to other than qualified persons. Where the frame is not grounded, it shall be permanently and effectively insulated from ground; and rubber mats or other suitable floor insulation shall be provided for the operator if the voltage to ground exceeds 150.

g. Each generator shall be provided with a name-plate giving the maker's name, the rating in kilowatts, if direct current, or kilovolt-amperes, if alternating current, the normal volts and amperes corresponding to the rating, and the revolutions per minute.

##### 1003. Motors.

a. Motors shall not be operated in series-multiple or multiple-series except on constant-potential systems where permission has been granted by the authority enforcing this Code.

b. For installation of motors in hazardous and extrahazardous places, see Article 32.

c. Each motor with its controller shall be provided with a separate disconnecting means, except as provided below. The disconnecting means shall be of such design and so installed that when it is in the open position it will disconnect both the controller and the motor from all ungrounded supply wires.

In the following cases a single disconnecting means may serve a group of motors.

1. Motors which drive the several parts of a single machine or apparatus, such as cranes, hoists, metal and woodworking machines, etc. See Article 30.
2. Groups of small motors under the protection of one set of automatic overload protective devices, as permitted elsewhere in the Code.
3. Groups of motors in a single room within sight of the disconnecting means.

4. Motors which are each controlled by a knife or snap switch alone.

d. For connected loads of 50 H.P. and less, and also where the controller does not open all ungrounded main leads to a motor, a motor-circuit switch shall be used as the disconnecting means, except that a plug connector may be used with portable apparatus. For larger loads, where the controller opens all the ungrounded wires and all auxiliary circuits are fused, a disconnecting switch may be used. For a small motor, where permitted by the authority enforcing this Code, plug fuses may serve as the disconnecting means. For motors controlled solely by a knife or snap switch the disconnecting means may be at the distribution center.

By main leads to the motor is meant all armature circuits (not including shunt-field circuits) in the case of D.C. motors, and all primary leads (not including the secondary leads of slip-ring motors or the field leads of synchronous motors) in the case of A.C. motors.

e. The disconnecting means shall be of the indicating type, and in its open position make all ungrounded conductors of the controllers and motor "dead." One pole of the motor controller and one pole of the disconnecting means may be placed in a permanently grounded conductor of circuits supplying current to motor, provided these devices are so designed that the pole in the grounded conductors cannot be opened without opening simultaneously all of the conductors of the circuit. The disconnecting means shall be a continuous duty rating of at least 115% of the name-plate current rating of the motor and be located within sight of the controller or arranged to be locked in the open position.

f. A single-pole switch may be used as a controller in an ungrounded wire of a 2-wire motor not larger than ¼ H.P. operating at not more than 300 volts.

g. A motor and its driven machinery shall be within sight of the point where the motor is controlled, unless permission to locate the control point elsewhere is given by the authority enforcing this Code. For exception see Article 32.

h. A double-throw switch used to shunt the motor protective device during the starting period shall be of such type that it cannot be left in the starting position.

i. Adjustable-speed motors, if controlled by means of a field regulation shall be so equipped and connected that they cannot be started under weakened field, unless this safeguard is incorporated in the design of the machine.

j. The control circuits of electrically operated speed-limiting devices and remote-control switches shall be in conduit.

k. Alternating-current motors operating freight or passenger elevators or cranes that are dependent on phase relation for the direction of rotation shall be protected by approved automatic circuit-breakers (or reverse-phase relays) operative in the event of any phase reversal that would cause a reverse motor rotation, or in the event of the motor being connected to the line single-phase.

l. The frame, except for portable motors, shall be grounded unless the motor is inaccessible to other than qualified persons, by reason of guarding or isolation. Where the frame is not grounded, owing to the motor being inaccessible to unqualified persons, it shall be permanently and effectively insulated from ground; and rubber mats, or other suitable floor insulation, shall be provided for the operator if the voltage to ground exceeds 150 volts. The frames of portable motors which operate at more than 150 volts shall be guarded or grounded.

m. Each motor shall be provided with a name plate giving the maker's name, the rating in volts and amperes, including those for the secondary of a slip-ring-type motor, the normal full-load speed and the interval during which it can operate, starting cold. The time interval given shall be either 5, 10, 15, 30, 60 or 120 minutes, or continuous.

##### 1004. Control Apparatus.

a. Control apparatus, other than auto-transformers, shall conform to the requirements of Articles 12 and 17 of this Code.

b. The control apparatus shall have a continuous-duty rating of no less than 115% of the name-plate current rating of the motor.

**1005. Auto-Transformer Starters.**

a. Auto-transformer starters shall have no exposed live parts unless in suitable separate enclosures.

b. Cases for coils or switches shall afford access to the interior for inspection and oil renewal, and shall be so constructed that when mounted on a plane surface the case will make contact with such surface only at points of support. An air space of at least 1/4 inch shall be maintained between case and surface.

c. The oil tank shall be marked in a suitable manner to indicate the proper oil level. When such device carries a visual oil indicator, the marking shall be for the proper oil level with the starter assembled. If the visual indicator is not used, markings shall indicate the oil level prior to assembling.

d. The switch shall provide an off position, a running position and at least one starting position. It shall be so designed that it cannot rest in a starting position, or in any position which will render inoperative the overload protective devices in the circuit.

e. Cases for coils and switches of auto-transformer starters shall be grounded as required in sections 904 and 905 of Article 9 of this Code.

**ARTICLE 11. TRANSFORMERS AND CAPACITORS (STATIC CONDENSERS) NOT OVER 600 VOLTS. No winding of which is connected to a System operating at over 600 volts between Wires or from Wire to Ground.**

**1101. Exception.**

a. Nothing in this article shall be construed to apply to radio (See Article 37) nor to apparatus or fittings, the operation of which depends either wholly or in part upon special air-cooled transformers or capacitors used in connection with apparatus or fittings, but such apparatus or fittings shall satisfy the provisions of Article 17 of this Code.

**1102. General.**

a. Oil-filled transformers may be installed in, outside and adjacent to, or attached to buildings by permission of the inspection department. When installed in, or outside and adjacent to a building they shall be contained in an enclosure of fire-resistive material not communicating with the building except through openings closed by means of approved tight-fitting fire doors. When attached to a building they shall be separated therefrom by substantial supports. This paragraph shall not apply to transformers in central stations and substations.

b. The construction of an air-cooled transformer shall be such that when mounted on a plane surface the casing will make contact with such surface only at the points of support, providing elsewhere an air space of at least 1/4 inch between casing and surface. If the surface is composed of combustible material, the air space shall be increased to at least 1 foot, unless a slab of non-combustible, non-absorptive insulating material is interposed.

This will require a slab of slate, marble or soapstone, somewhat larger than the transformer.

c. The foregoing paragraph b shall not be construed to apply to bell-ringing and other signaling transformers which operate at a primary voltage not exceeding 250 volts.

d. Oil-filled capacitors for not over 600 volts shall comply with the requirements of section 5008 of Article 50 of this Code.

e. Transformer and capacitor cases shall be grounded as provided in Article 9 of this Code.

**ARTICLE 12. SWITCHES.**

**1201. Open Knife Switches.**

a. The spacing given in Tables 1 and 2 below, shall be considered standard and as the minimum allowable, except as otherwise provided for in this Article.

Table 1.

Spacings between Parts of Opposite Polarity and Break Distances within the area bounded by contact parts of the switch mechanism.

Voltage	Amps.	Spacing—Inches		Fuses	Marking
		Opposite Polarity	Break Distance		
I. 125V. D.C. or A.C.	30	1	3/4	With or Without	-A.125V.
I. For Switchboards and Panelboards only	60	1 1/4	1		
	30	1 1/4	1		
	60	1 1/2	1 1/4		
	100	1 1/2	1 1/4		
II. 125V. D.C. or A.C.	200 and *300	2 1/4	2	With or Without	-A.125V.
	400 and 600	2 3/4	2 1/2		
	800 to 6000 incl.	3	2 3/4		
III. 250V. D.C. or A.C.	30	1 3/4	1 1/2		
	60	2 1/4	2		
	100	2 1/4	2		
	200 and *300	2 1/2	2 1/4	With or Without	-A.250V.
	400 and 600	2 3/4	2 1/2		
	800 to 6000 incl.	3	2 3/4		
IV. For both 250V. D.C. and 500V. A.C.	30	2 1/4	2	Without	-A.250V.
	60	2 1/4	2		
	100	2 1/4	2		
	200 and *300	2 1/2	2 1/4	See also paragraph 270	-A.250V. D.C., 500 V. A.C.
	400 and 600	2 3/4	2 1/2		
	800 to 6000 incl.	3	2 3/4		
V. 500V. A.C.	Same as in IV			With	-A.500V. A.C.
VI. 600V. D.C. or A.C.	30	4	3 1/2	With or Without	-A.600V.
	60	4	3 1/2		
	100 to 6000 incl.	4 1/2	4		

\*The 300-ampere switches, with spacings of the 200-ampere switches, may be used only on switchboards.

Triple-pole switches with 125-volt spacings between blades for use on three-wire systems having 125 volts between adjacent wires and not over 250 volts between outside wires shall be spaced as in II and be marked — A. 125V.

Triple-pole switches with 250-volt spacings between blades, for use on three-wire systems having 250 volts between adjacent wires and not over 500 volts between outside wires, shall be spaced as in III, except 30-ampere fused switches to be spaced as in IV; they shall be marked — A. 250V. and if equipped with fuses, fuses shall be of the 600-volt classification.

Table 2.

Spacing between Parts of Opposite Polarity outside the area bounded by the contact parts of the switch mechanism (except for Link Fuses). When Mounted on Same Surface. When Clear of Surface.

Not over 125 V.	3/4 inch	1/2 inch
Not over 250 V.	1 1/4 inch	3/4 inch
Not over 600 V.	2 inch	1 inch

It is recommended that switches above 1070 amperes capacity be not used to break currents, but only as disconnecting switches.

b. Cutout bases shall satisfy the appropriate provisions of Article 8 of this Code.

c. Switches rated above 600 amperes at 600 volts and 600 amperes at 250 volts, and therefore exceeding the capacities of standard sizes of cartridge enclosed fuses, may be arranged for fuses in multiple, provided as few fuses as possible are used, and the fuses are of equal capacity, and the multiple terminals for each pole are mounted in common.

d. Switches marked with the combined rating, 250 volts, D.C. or 500 volts, A.C. shall not be provided with fuse terminals.

e. Switches having fuse terminals and intended for use in ungrounded branch circuits shall have fuse terminals in each pole.

f. Auxiliary contacts of a renewable or quick-break type or the equivalent shall be provided on all 600-volt switches designed for use in breaking currents from 200 to 1000 amperes, inclusive.

It is recommended that such auxiliary contacts be provided on all direct current switches rated at over 250 volts.

**1202. Installation of Switches—General.**

For hazardous locations see Article 32 of this Code.

a. Switches or manual circuit-breakers shall not be placed where exposed to mechanical injury, nor in the immediate vicinity of easily ignitable material. When the above conditions cannot be complied with, switches, circuit-breakers, and similar devices, unless of the oil-immersed type, shall be enclosed in approved metal boxes or cabinets, and shall be of the externally operable type.

b. Except as provided in paragraph d of this section, switches or manually operated circuit-breakers shall be placed only in dry, accessible places, and be grouped as far as possible.

c. Switches or manually operated circuit-breakers, when located where exposed to moisture, as in basements and in similar places, shall be mounted in approved boxes or cabinets, and when located in wet places or outside buildings, shall be mounted in approved weatherproof switch boxes or cabinets.

d. Enclosures for switches or circuit-breakers on circuits, any wire of which operates at over 150 volts to ground, except where accessible only to qualified operators, shall be grounded as provided in Article 9 of this Code.

e. Switches operating at over 150 volts to ground shall be of the enclosed type externally operable, except where accessible only to qualified persons.

**1203. Position and Connection of Knife Switches.**

a. Single-throw knife switches shall be so placed that gravity will not tend to close them. Double-throw knife switches may be mounted so that the throw will be either vertical or horizontal as preferred, but if the throw be vertical a locking device shall be provided, so constructed as to insure the blades remaining in the open position when so set.

b. When practicable, exposed knife switches shall be so wired that blades will be dead when the switch is open.

**1204. Number of Poles Required for Switches and Circuit-Breakers.**

a. Switches, when installed, shall disconnect all ungrounded wires of the circuit which they control.

b. Three-way and four-way switches shall be classed single pole switches and shall be so wired that only one pole of the circuit will be carried to the switch.

c. On constant-potential circuits, all service switches and all switches controlling circuits supplying current to motors or heating devices, unless otherwise provided in this Code, shall be so arranged that the opening of the switch will disconnect all the ungrounded wires.

d. Where a circuit-breaker serves as a switch, it shall conform to the requirements of this section as to the number of poles.

**1205. Mounting of Snap Switches.**

a. Sub-bases of non-combustible, non-absorptive insulating material, which will separate the wires at least 1/2 inch from the surface wired over, shall be installed under all snap switches used in open work. Sub-bases shall also be used in wooden raceway work; but they may be made of hardwood or they may be omitted if the switch is approved for mounting directly on the moulding.

**1206. Special Types of Switches.**

a. Time switches, sign flashers and similar appliances shall be of approved design and enclosed in approved cabinets.

**1207. Marking.**

a. Switches shall be marked with the current and voltage for which they are designed.

**ARTICLE 13. SWITCHBOARDS AND PANELBOARDS.**

This Article does not apply to switchboards or portions thereof used exclusively to control signal circuits operated by batteries, but does apply to the charging panels where current is taken from light or power circuits. For special provisions for hazardous locations see Article 32.

**1301. Switchboards: Location and Accessibility.**

a. Switchboards shall be so placed as to reduce to a minimum the danger of communicating fire to adjacent combustible material.

b. Switchboards shall not be built up to a non-fireproof ceiling, a space of 3 feet being left, if possible, between the ceiling and the board. The space back of the board shall be kept clear of rubbish and shall not be used for storage.

c. Switchboards shall be accessible from all sides when the connections are on the back.



It is recommended that all switchboards be set out from the wall, but they may be placed against a brick or stone wall when the wiring is entirely on the face.

d. Switchboards shall be so located that they will not be exposed to moisture.

e. Switchboard frames and structures supporting switching equipment shall be grounded, except that the frames for d-c single-polarity switchboards may be insulated for the full voltage of the circuit in lieu of grounding.

### 1302. Switchboards; Material and Wiring.

a. The bases of switchboards shall be made of non-combustible material.

b. Busbars, if rigidly mounted, may be of bare metal.

c. If the wiring is on the back, there shall be a clear space of at least 18 inches between the wall and the apparatus on the rear of board.

d. Insulated conductors where closely grouped as in rear of switchboards shall each have a substantial flameproof outer covering.

e. Flameproofing shall be stripped back on all conductors a sufficient distance from the terminals to give the necessary insulation for the voltage of the circuit on which the conductor is used.

f. Instruments, pilot lights, potential transformers, and other switchboard devices with potential coils (except where the operation of the protective device might introduce a hazard in the operation of devices, or when the switchboard is inaccessible to other than qualified persons) shall be supplied by a circuit that is protected by standard automatic overload protective devices of a rating not larger than 15 amperes except that for ratings of two amperes or less special enclosed types of fuses may be used.

g. Instruments, meters and relays mounted on switchboards, shall comply with the requirements of section 935, paragraph n, unless inaccessible to other than qualified persons, in which case the following requirements may be followed in lieu thereof:

For alternating-current circuits:

1. The secondary circuits of current and potential instrument transformers shall be grounded.

2. Instrument, meter and relay cases (whether operated from current and potential transformers, or connected directly in the primary circuit) on switchboards having no live parts on the front of the panels shall be grounded, where operating with current-carrying parts not exceeding 750 volts to ground.

3. Instrument, meter and relay cases (whether operated from current and potential transformers or connected directly in the primary circuit) on switchboards having live parts on the front of panels shall not be grounded where operating with current-carrying parts not exceeding 750 volts to ground. Rubber mats, or other suitable floor insulation, shall be provided for the operator if the voltage to ground exceeds 150.

4. Instrument, meter and relay cases on circuits, exceeding 750 volts to ground shall be isolated by elevation or protected by suitable barriers, grounded metal or insulating covers or guards.

For direct-current circuits:

Instrument, meter and relay cases shall not be grounded. If the voltage of the circuit is less than 750 volts but above 150 volts to ground, rubber mats or other suitable floor insulation shall be provided for the operator. If the voltage to ground exceeds 750 volts, cases shall be isolated by elevation or protected by suitable barriers, grounded metal or insulating covers, or by guards.

h. The conductors of remote-control switch circuits will be considered as suitably protected by fuses rated at not more than 750% of the same carrying capacity of the conductors as given in section 612 of Article 6.

i. Switchboards which have any exposed live parts above 150 volts to ground (or live parts on ungrounded circuits exposed to a higher voltage to ground) shall be located only where under competent supervision and accessible only to qualified persons.

For switchboards having exposed live parts of lower voltages, see sections 405, 805 and 1202.

### 1303. Panelboards.

a. The requirements of this section shall apply to all panel and distributing boards used for the control of light and power circuits, but not to such switchboards in central stations, substations or isolated plants as directly control energy derived from generators or transforming devices.

b. Switches, fuses and cutout bases used on panelboards, shall conform to the requirements of Articles 12 and 8, respectively, of this Code, so far as they apply.

c. In the relative arrangement of cartridge fuses and switches the fuses shall be placed on the load side of the switches except in the case of service switches, where the requirements of Article 4 shall be observed. Branch switches shall be so arranged that the blades, if exposed during operation, will be dead when the switches are open.

d. When there are exposed live metal parts on the back of board, a space of at least ½ inch shall be provided between such live metal parts and the cabinet in which the board is mounted.

e. The following minimum distances between bare live metal parts (busbars, etc.) shall be maintained:

When mounted on the same surface	When held free in air
Not over 125 volts ¾ inch	½ inch
Not over 250 volts 1¼ inch	¾ inch
Not over 600 volts 2 inch	1 inch

At switches, enclosed fuses, etc., parts of the same polarity may be placed as close together as convenience in handling will allow.

It should be noted that the above distances are the minimum allowable, and it is recommended that greater distances be adopted wherever the conditions will permit.

f. Panelboards so installed as to be exposed to excessive moisture shall be enclosed in approved weatherproof cabinets.

## ARTICLE 14. FIXTURES, LAMP-HOLDING DEVICES, PLUG RECEPTACLES AND OTHER OUTLET DEVICES.

For special provisions for hazardous locations see Article 32.

### 1401. Construction of Lighting Fixtures.

a. Fixtures shall be composed of metal or wood, or such other material as may have been submitted for examination and approved. Materials other than metal shall be re-enforced by metal or the fixtures shall be otherwise constructed to secure the requisite mechanical strength

b. In all fixtures not made entirely of metal wire-ways shall be lined with metal unless approved armored conductors with suitable fittings are used. This requirement shall not apply to wire-ways in glass, marble or similar non-absorptive non-combustible insulating material.

c. All methods of fastening arms, sockets, bodies, supports and receptacles by threading, soldering, brazing or otherwise, shall be such as to secure in every case ample strength and reliability, and to prevent turning. Screw joints shall have not less than five threads engaging. Tubing used in making threaded arms and stems shall be composed of metal having a thickness not less than .040 inch. It shall not be kinked, flattened or cracked.

d. All burrs and fins in wire-ways shall be removed and all sharp edges rounded, where practicable, so that wires may be drawn in and withdrawn without injury. Fittings having smooth, rounded edges shall be placed at entrance to casings of fixture stems.

e. Fixtures exposed to moisture, whether located indoors or outdoors, shall be so constructed that water cannot enter or accumulate in the wire-ways, lamp holders or other electrical parts.

f. Fixture studs which are not parts of outlet boxes, hickies, tripods, and crowfeet shall be made of steel, malleable iron or other approved material.

g. All fixtures shall, where practicable, be sufficiently ventilated. All forms of fixtures in which the wiring is liable to be exposed to temperatures in excess of 120° F. (49° C.) shall be so designed or ventilated and installed as to operate at temperatures which will not cause deterioration of the wiring.

h. Canopies and outlet boxes shall, taken together, provide ample space for the reception of the wires and their connecting devices.

i. Receptacles having exposed terminals shall not be placed in canopies unless completely enclosed in metal.

j. Canopy insulators, used where insulating joints are required, shall be of approved type and shall be securely fastened in place, so as to separate the canopies effectively and permanently from the conducting surfaces from which they are intended to be insulated.

A strip of a good grade of hard fiber 1/16-inch in thickness, securely attached to the canopy at the ends and at intermediate points in such a manner that the strip will extend at least 3/16-inch beyond the upper edge of the canopy rim, will be accepted. Where this is impracticable, a flat sheet of such fiber, cut to conform to the general outline of the canopy and having the edges of the sheet at least flush with the edges of the canopy, may be employed, if permanently attached to the canopy.

k. Insulating joints shall be composed of materials especially approved for the purpose. Those which are not designed to be mounted with screws or bolts shall have a substantial exterior metal casing, insulated from both screw connections.

### 1402. Wiring of Lighting Fixtures

a. No conductor shall be smaller than No. 18. On chains or other movable parts stranded conductors shall be used, unless the wires are completely enclosed in metal. Where the fixture is externally wired, wires shall be secured in a manner which will not tend to cut or abrade the insulation, and shall be protected from abrasion where they pass through sheet-metal pans, canopies, etc. No splice or tap shall be located within an arm or a stem.

It is recommended that approved splicing devices or approved plug connections be used for attaching the fixture wires to the circuit wires.

b. Each fixture shall be so wired that all screw shells of lamp holders are connected to the same fixture stem wire or supply wire or terminal. A fixture stem wire or supply wire connected to the screw shells of lamp holders shall be identified by means of a white or natural gray covering, or by means of a tracer thread contrasting with the color of the covering. In fixtures having wire-ways of such size that it is impracticable to pull in separate conductors without injury to the insulation, the identification may consist of a band of paint contrasting with the color of the covering and located as near as possible to the point where the wire leaves the fixture. If a white or natural gray covering is employed the covering of all other fixture stem or supply wires in the fixture shall be of a contrasting color. If a tracer thread is employed there shall be no such thread in the covering of any other fixture stem or supply wire. A terminal attached to the screw shells of sockets shall be marked in the manner specified in paragraphs d to m of section 206 of article 2 of this code.

c. Chain fixtures shall be wired with flexible conductors so arranged that the weight of the fixture will not put tension on the conductor.

d. Approved fixture wire, approved flexible cord or approved rubber covered wire shall be employed, unless the wiring is exposed to temperatures in excess of 120° F. (49° C.) in which case conductors having slow-burning or other heat-resisting covering shall be used. All fixtures in dry places designed for or used with Mogul base lamps shall be considered as being exposed to these high temperatures. Fixtures intended for outdoor use shall be wired with approved rubber-covered conductors. Wire shall always be so disposed as to avoid exposure to high temperatures as far as practicable. Fixtures intended for use in rooms where inflammable gases may exist shall consist of rigid stems, internally wired with approved rubber-covered conductors, soldered directly to the circuit wires, and shall be equipped with vapor-tight globes.

e. Fixture wires, or the individual conductors of flexible cords used where the voltage between any two conductors or between any conductor and the ground is over 300 volts, shall have insulation at least 3/64 inch in thickness for sizes No. 8 and smaller unless type S cord is used.

f. Wires of different systems shall not be contained in or attached to a fixture.

g. All wiring shall be free from short-circuits and grounds, and shall be tested for these defects prior to being connected to the circuit.

h. Fixtures, including lamp holders and lamp bases if within reach of grounded surfaces, shall be so designed and installed that no current-carrying parts will normally be exposed externally.

### 1403. Installation of Lighting Fixtures.

a. Fixtures on circuits above 150 volts to ground and all electrical fixtures used with conduit, armored cable or metal raceways, not exempt from grounding elsewhere in this Code, shall be grounded.

b. Fixtures used with knob-and-tube work, non-metallic sheathed cable or wooden raceways shall be grounded except as described below:

1. Fixtures mounted on metal or metal lath ceilings or side walls may be insulated from their supports, and from the metal lath by the use of approved insulating joints or fixture supports and approved canopy insulators.

2. Fixtures not mounted on metal or metal lath ceilings or side walls need be neither insulated nor grounded.

c. Gas piping to which fixtures are attached shall be grounded as provided for in Article 9, unless the fixtures are insulated therefrom or are grounded by one of the other means specified in the following paragraph. Gas piping need not be insulated from otherwise well-grounded fixtures. Combination gas and electric fixtures shall not be installed.

d. Fixtures shall be considered as grounded when mechanically connected in a permanent and effective manner to metal conduit, tubing, armored cable, a metal-raceway system, the grounding conductor of non-metallic sheathed cable, a separate grounding wire not smaller than No. 14, or to gas piping, which are grounded in the manner specified in article 9 of this code.

e. No externally wired fixtures shall be located in the immediate vicinity of specially inflammable material; nor shall any externally wired fixture other than of the chain type be placed in a show window. Armored-cord pendants shall be considered to be internally wired fixtures.

f. Where a gas pipe, outlet box or other fitting which will provide proper support is required by this code or is present, the fixture shall be attached thereto; otherwise the fixture shall be attached to a wooden base block not less than 3/4 inch in thickness supported independently of the screws supporting the fixtures.

g. Gas pipes shall be covered with insulating tubing back of an insulating joint or blind hickey. Where outlet tubes are used they shall be of sufficient length to extend beyond the joint or hickey, and shall be firmly secured in place.

h. Fixtures shall be so installed that the connections between the fixtures, and the branch circuit wires will be easily accessible for inspection without requiring the disconnecting of any portion of the wiring, unless the fixture is attached by an approved plugging device.

**1404. Construction of Lamp-Holding Devices and Plug Receptacles.**

a. Lamp-holding devices shall be classed according to diameters of lamp bases, as Candelabra, Intermediate, Medium and Mogul base, to be known respectively as 1/2 inch, 21/32 inch, 1 inch, and 1 1/2 inch nominal sizes, with ratings, as specified in the table following this paragraph. Switched lamp-holders shall be of such construction that the switching mechanism interrupts the electrical connection to the center contact. The switching mechanism shall not interrupt the electrical connection to the screw shell unless connection to the center contact is simultaneously interrupted.

Class	Nominal Diam.	Watts		Volts	Ratings		Keyless Amp. at Any Voltage
		Min.	Max.		Key Max. Amp. at any Voltage	Keyless Max. Amp. at Any Voltage	
Candelabra	1/2 in.	75	125	125	3/4	75	125
Intermediate	21/32 in.	75	125	125	3/4	75	250
Medium	1 in.	250	250	250	2 1/2	660	250
Mogul	1 1/2 in.	(a)	660	250	6	660	600
		(b)				1500	250
						1500	600

(a) This rating may be given only to sockets having a switch mechanism which produces both a quick "make" and a quick "break" action.

(b) Ratings to be assigned later, pending further discussion with manufacturers.

Miniature Sockets and Receptacles having screw shells smaller than the Candelabra size may be used for decorative lighting systems, Christmas-tree Lighting Outfits and similar purposes.

For exceptions for Medium-Base Key Sockets and Receptacles see Article 10, Small Isolated Plants.

Receptacles for Attachment Plugs (Appliances and Convenience Outlets) are strongly recommended in order to facilitate the use of electrical appliances which, otherwise, must be connected to sockets designed primarily only for lamp holders.

If lamp holders must be used for the attachment of flexible cords they should be rated at 600 watts.

b. The inside of metal shells shall be lined with insulating material, which shall absolutely prevent the shell from becoming a part of the circuit, even though the wires inside the sockets should become loosened or detached from their position under the terminal screws.

c. The lining shall not extend beyond the metal shell more than 1/4 inch, but shall prevent any current-carrying part of the lamp base from being exposed when a lamp is in the socket.

d. The cap also shall be lined.

In sockets and receptacles of standard forms a ring of any material inserted between an outer metal shell of the device, and the inner screw shell for insulating purposes and separable from the device as a whole, is considered an undesirable form of construction. This does not apply to the use of rings in lamp clusters or in devices where the outer shell is of porcelain or of moulded composition, where such rings serve to hold the several porcelain or composition parts together, and are thus a necessary part of the whole structure of the device.

e. The socket as a whole shall be so put together that parts will not rattle loose or fall apart under the most severe conditions they are likely to meet in practice. The base of the socket shall be secured or held in the shell in such a manner as to prevent turning or displacement relative to the shell.

f. Lead wires furnished as a part of weatherproof sockets and intended to be exposed after installation shall be of approved stranded, rubber-covered wire, not less than No. 14 gauge (No. 18 gauge for candelabra sockets), and shall be sealed in place.

g. If the socket is not attached to a fixture, the inlet shall be equipped with an approved insulating bushing which, if threaded, shall not be smaller than 3/8 inch in size. The edges of bushings shall be rounded and all inside fins removed in order to provide a smooth bearing surface for the wire.

It is recommended that bushings having holes 9/32 inch in diameter be employed with plain pendant cord, and holes 13/32 inch in diameter with re-enforced cord.

**1405. Installation of Lamp-Holding Devices and Plug Receptacles.**

a. Sockets and receptacles installed over specially inflammable material shall be of the keyless type and, unless individual switches are provided, shall be located at least 7 1/2 feet, above the floor, or shall be otherwise so located or guarded that the lamps cannot readily be backed out by hand.

b. When necessary to prevent portable lamps from coming into contact with inflammable material, or to protect them from breakage, their flexible cord leads shall be equipped with handle, socket and substantial guard, the guard being securely attached to socket or handle.

c. Weatherproof sockets, especially approved for the location, shall be employed in damp or wet places or where corrosive vapors exist. If

not attached to fixtures, they shall be hung from separate stranded wires not less than No. 14, which are soldered directly to the circuit wires, but supported independently thereof.

It is recommended that these wires be twisted together if the pendant is longer than 3 feet.

d. Receptacles shall be supported in the same manner as specified for fixtures in section 1403-g of this code.

e. Flush receptacles shall be enclosed in approved metal boxes in addition to the insulating enclosure of the receptacle mechanism.

f. Attachment plugs and receptacles located in floors shall be enclosed in approved metal boxes especially designed for the purpose. Where the location is free from mechanical injury or moisture, a departure from this requirement may be permitted by the authority enforcing this code.

g. Receptacles of the Edison-base type shall be installed only for use as lamp holders. Receptacles installed for the attachment of portable cords shall be of a type not suitable for use with Edison-base screw shells.

**1406. Rosettes.**

a. When designed for use with exposed wiring, rosettes shall be provided with bases which shall have at least two holes for supporting screws, shall be high enough to keep the wires and terminals at least 1/2 inch from the surface wired over, and shall have a porcelain lug under each terminal to prevent the rosette being placed over projections which would reduce the separation to less than 1/2 inch.

b. When designed for use with conduit boxes or wire raceways, rosette bases shall be high enough to keep wires and terminals at least 3/8 inch from the surface wired over.

c. Fuseless rosettes shall be rated at 600 watts, 250 volts, with a maximum current rating of 6 amperes.

d. Fused rosettes shall not be installed.

**ARTICLE 15. LAMPS.**

**1501. General.**

a. The provisions of this article shall apply to lamps used on constant potential interior wiring systems and such outside lamps as may be connected thereto.

b. When installed in hazardous locations the appropriate provisions of Article 32 shall be observed.

**1502. Arc Lamps.**

a. Arc lamps shall be equipped only with such resistances or regulators as are enclosed in non-combustible cases, said resistances or regulators being treated as sources of heat. An incandescent lamp shall not be used as resistance or regulator. Economy and compensator coils shall be mounted on non-combustible, non-absorptive insulating supports, such as glass or porcelain, providing an air space of at least 1 inch between frame and support. Such coils shall generally be treated as sources of heat.

b. Arc lamps, except on grounded circuits of which no part exceeds 150 volts to ground, shall be effectively isolated or suitably guarded and all exposed metal parts grounded.

Isolation will ordinarily be deemed sufficient when a vertical clearance of 8 feet is provided from floors or other accessible places within buildings, of 10 feet from footways outside buildings, and of 15 feet from roadways. Horizontal clearance from windows, porches and other spaces accessible to the general public should be not less than 3 feet.

c. Leads subject to movement in raising or lowering of lamps shall have stranded conductors.

d. An automatic overload protective device and a manually operable switch shall be provided for each ungrounded conductor supplying a lamp or series of lamps. A manually operable automatic overload circuit-breaker may be used in place of both the protective device and the switch

**1503. Mercury-Vapor Lamps.**

a. Enclosed mercury-vapor lamps shall be equipped with only such resistances or regulators as are enclosed in non-combustible cases, such resistances or regulators being treated as sources of heat.

b. Except as covered below, branch circuits supplying mercury-vapor lamps shall conform to requirements of paragraph f of section 807 of this code.

c. A group of mercury-vapor lamps wired in parallel and mounted on a single frame, the total capacity of which does not exceed 4000 watts, may be used, if supplied by a separate branch circuit, and if protected by a suitable automatic overload protective device in each ungrounded conductor.

d. Exposed metal parts of such lamps or fixtures shall be grounded, as provided for equipment in article 9, of this code, if located where persons may easily touch grounded surfaces, at the same time as the exposed metal parts of lamps or fixtures.

**1504. Incandescent Lamps.**

a. Incandescent lamps shall not be equipped with medium bases if above 250 watts rating, nor with mogul bases if above 1500 watts. Above 1500 watts special approved bases or other devices shall be used.

b. Gas-filled incandescent lamps shall not be located in show windows, nor where liable to contact with inflammable material, unless installed in approved fixtures equipped with shades or guards, or suitably designed to operate at a safe temperature.

**1505. Wiring to Lamps.**

Wires connected to lamps shall have approved insulating coverings with heat-resisting qualities consistent with the temperature to be encountered. (See article 6 of this code.)

**ARTICLE 16. ELECTRICAL APPLIANCES.**

**1601. General.**

a. This article shall be construed to apply only to electrical appliances designed for domestic or general commercial use.

b. Each electrical appliance shall be provided with a nameplate, giving the maker's name and the normal rating in volts and amperes, or in volts and watts.

It is recommended that the manufacture of portable appliances operating in excess of 150 volts for domestic purposes be discontinued, except for appliances rated at more than 1650 watts and for use on heavy-duty appliance branch circuits.



**1602. Special Provisions for Branch Circuits.**

For the purposes of this section, the several types of branch circuits serving electrical appliances are further defined as follows:

**Lighting Branch Circuits** are circuits supplying energy to lighting outlets only.

**Combination Lighting and Appliance Branch Circuits** are circuits supplying energy to both lighting outlets and appliance outlets.

**Ordinary Appliance Branch Circuits** are circuits supplying energy to either permanently wired appliances or to attachment plug outlets, i.e., appliances or convenience outlets, or to a combination of permanently wired appliances and attachment plug outlets on the same circuit; such circuits to have no permanently connected lighting fixtures. These circuits are equipped with attachment plug receptacles and plugs rated at not over 15 amperes, 125 volts; 10 amperes, 250 volts; and may have wire of No. 14 gauge and be fused at 15 amperes.

**Medium-Duty Appliance Branch Circuits** are similar to Ordinary Appliance Branch Circuits but are wired with No. 10 wire and fused at 25 amperes. They are limited to 125 volts.

**Heavy-Duty Appliance Branch Circuits** are 2-wire branch circuits derived from a 125-250 volt grounded-neutral interior wiring system supplying energy to fixed or portable electrical appliances. They consist of No. 10 wire and are fused at 25 amperes. Where attachment plug receptacles and plugs are used for connecting devices to such circuits they must be rated at not less than 20 amperes, 250 volts.

a. Branch circuits, other than lighting branch circuits and except as the provisions of section 803 of article 8 or other special sections of this code apply, shall be of a type and number competent to supply electrical appliances according to the following sub-paragraphs, 1-5 inclusive.

1. One or more portable electrical appliances, each rated at 6 amperes or 660 watts or less, may be used on lighting branch circuits or on combination lighting and appliance branch circuits.

2. One or more fixed or portable electrical appliances, each rated at not over 1320 watts, may be supplied by an ordinary appliance branch circuit.

3. One or more fixed or portable electrical appliances, each rated at not over 15 amperes or 1650 watts and not over 125 volts, may be supplied by a medium-duty appliance branch circuit.

4. One or more fixed or portable electrical appliances, each rated at not less than 15 amperes or 1650 watts and at not more than 20 amperes, may be supplied by a heavy-duty appliance branch circuit.

5. Each fixed or portable electrical appliance rated at more than 20 amperes shall be supplied by an individual branch circuit and shall be controlled as provided in paragraph a of section 1603 of this article. Sub-division of the load by units within an appliance shall not be taken as a basis for determining the character of the circuit supplying a multi-unit appliance.

For number of outlets on circuits according to Nos. 1-4, inclusive, above see paragraph g of section 807 of article 8 of this code.

In locations where appliances larger than 6 amperes capacity are likely to be used, as in working spaces, it is recommended that Medium-Duty Appliance Branch Circuits shall be installed.

It is recommended that each room be provided with at least two attachment plug receptacles located at different points in order to render unnecessary use of long extension cords and the plugging of portables into lamp holders.

b. Conductors of branch circuits which supply only cooking and baking appliances rated at over 1650 watts may be of capacities determined according to sub-paragraph 3-15 of paragraph d of section 613 of article 6 of this code.

**1603. Switch or Control Methods.**

a. Each appliance rated at over 1650 watts shall be controlled by an indicating switch, not a part of the appliance, and which shall disconnect from the appliance all ungrounded conductors of its supply circuit or a single approved attachment plug and connector receptacle of appropriate rating may be used in lieu of a switch. The location of such control means shall be as follows:

1. It shall be readily accessible to the operator of the appliance.

2. In other than dwelling occupancies it shall control only the appliance.

3. In multi-family (more than two) dwellings a switch shall be within the apartment or on the same floor as the apartment in which the appliance is installed and may control lights and other appliances.

4. In two-family dwellings a switch may be outside of the apartment in which the appliance is installed but must be readily accessible. This will permit an individual service switch for the apartment to be used provided it is accessible to the user of the appliance.

5. In single family dwellings the service switch may be used for this purpose.

b. Where the switch controls a motor-operated appliance, it shall be within sight of the appliance.

c. Switches controlling the individual units of electrical appliances shall not be considered as taking the place of the indicating controlling switch required in paragraph a of this section.

d. Each portable electrical appliance shall be equipped with an approved plug connector so designed that the plug may be pulled out to open the circuit without leaving any live parts so exposed as to render likely accidental contact therewith. The connector may be located at either end of the flexible conductor or inserted in the conductor itself.

See article 32 for special types required in hazardous locations.

**1604. Wires Supplying Electrically Heated Appliances.**

a. Wires supplying stationary electrically heated appliances shall, if not in conduit, be so located as to be protected from mechanical injury and moisture.

b. Where the surrounding temperature of fixed wires exceeds 120° F. (49° C.) types A or SB wires shall be used. In all other cases the type of insulation on fixed wires shall be that specified elsewhere in this code for the conditions which prevail.

c. Wires supplying smoothing irons and all other portable electrical heating appliances which are rated at more than 50 watts and which produce temperatures in excess of 250° F. (121° C.) on surfaces with which the wire is liable to be in contact, shall be approved heater cord, Type H. For other portable electrical heating appliances approved lamp cord, Type C, or other cord specially approved for the purpose may be used.

**1605. Special Provisions for Electrically Heated Appliances.**

a. Each electrically heated appliance which is obviously intended by size, weight and service to be secured in a fixed position shall be so placed as to furnish ample protection between the appliance and adjacent combustible material.

b. Each smoothing iron and other portable electrically heated appliance, which is intended to be applied to combustible material, shall be equipped and used with an approved stand, which may be a separate device or may be a part of the appliance.

c. In other than residence occupancies each such electrically heated appliance or group of such electrically heated appliances shall be used with an approved signal, unless the appliance is provided with approved integral temperature-limiting device.

d. Subdivided circuits of electrically heated appliances need not be separately fused, but individual heating elements of such electrically heated appliances shall be fused if they are rated at more than 30 amperes.

**1606. Grounding.**

a. Appliances shall be grounded if and as specified in article 9 of this code.

**ARTICLE 17. RESISTORS, REACTORS AND CAPACITORS (Static Condensers).**

For hazardous locations, see article 32 of this Code.

**1701. Construction.**

a. Rheostats, resistance boxes and equalizers shall be of approved types.

b. Reactance coils shall be composed of non-combustible material, mounted on non-combustible bases and treated generally as sources of heat.

c. Capacitors shall be provided with non-combustible cases and supports, and shall be installed in the manner provided for other apparatus operating with equivalent voltages and currents.

d. Resistance devices shall be so constructed that when mounted on a plane surface the casing will make contact with such surface only at the points of support, an air space of at least ¼ inch being maintained between the casing and the surface.

e. The terminals of motor-starting rheostats shall be marked to indicate the part of the circuit to which each terminal is to be connected, as "line," "armature" and "field."

f. Fixed and movable contacts shall be so designed and so connected to the resistive conductor that there will be a minimum of arcing and consequent roughening of the contacts, even with careless handling or in the presence of dirt. In motor-starting rheostats, the point or plate on which the arm rests when in the starting position shall have no electrical connection with the resistive conductor.

g. Motor-starting rheostats shall be so designed that the contact arm cannot be left on intermediate segments. Such rheostats, if intended for use on direct-current circuits, shall be equipped with automatic devices which will interrupt the supply before the speed of the motor has fallen to less than one third its normal value.

h. Where insulated wire is used for connections between resistance elements and the contact device of a rheostat, except for motor-starting service, the insulation shall be of the slow-burning type. For large rheostats and similar resistances where the contact devices are not mounted upon them the connecting wires having slow-burning insulation may be so arranged in groups that the maximum difference of potential between any two wires in any group shall not exceed 75 volts. Each group of wires shall either be mounted on non-combustible, non-absorptive insulators giving at least ½ inch separation from the surface wired over, or, especially where it is necessary to protect the wires from mechanical injury, each group of wires may be encased in flexible tubing and placed in approved conduit, the flexible tubing extending at least 1 inch beyond the ends of the conduit.

**1702. Installation.**

a. Resistance devices shall be placed on a switchboard, or at a distance of at least 1 foot from combustible material, or shall be separated therefrom by a slab or panel of non-combustible, non-absorptive material, such as slate, soapstone or marble. This slab shall be somewhat larger in area than the resistance device and shall be secured in position by its own supports which shall be independent of those fastening the resistance device to the slab. Bolts which support the resistance device shall be countersunk at least ¼ inch below the rear surface of the slab and shall be covered with insulating material. The slab shall have a thickness proportioned to the size and weight of the resistance device, in order to provide proper mechanical strength, and this thickness shall be not less than ½ inch.

b. Resistors, reactors and capacitors shall not be placed where exposed to mechanical injury or in the immediate vicinity of easily ignitable material. When these conditions cannot be complied with, the devices, unless of the oil-immersed type, shall be enclosed in approved metal boxes or cabinets.

**1703. Lamp Resistances.**

a. Where protective resistances are necessary in connection with automatic rheostats, incandescent lamps may be used, provided they do not carry or control the main current nor constitute the regulating resistance of the device.

b. When used as resistance, lamps shall be mounted in porcelain receptacles attached to non-combustible supports and shall be so arranged that they cannot have impressed upon them a voltage greater than that for which they are rated. They shall in all cases be provided with a name-plate, which shall be permanently attached beside the porcelain receptacle or receptacles and stamped with the wattage and voltage of the lamp or lamps to be used in each receptacle.

c. Incandescent lamps may be used for the purpose of resistances in series with other devices, by permission of the authority enforcing this code and when mounted in porcelain receptacles upon non-combustible supports and when so arranged that they cannot have impressed upon them a voltage greater than that for which they are rated.

**ARTICLE 18. STORAGE BATTERIES.****1801. General.**

a. Wiring and appliances supplied by storage batteries shall be subject to the general requirements of this code which apply to wiring and appliances fed from generators developing the same difference of potential.

For battery installations for small isolated plants of less than 50 volts, see article 40 of this code.

### 1802. Special Requirements.

- The battery room shall be thoroughly ventilated.
- Wiring shall be enclosed in a non-corrodible or suitably protected conduit system or shall be exposed and installed in accordance with the requirements of section 501 of this code, except that in battery rooms, varnished cloth or tape insulations on conductors shall not be permitted.
- Storage batteries shall be mounted on non-absorptive, non-combustible insulators, such as glass or thoroughly vitrified glazed porcelain.
- Metal susceptible to corrosion unless suitably protected against attack from acid or acid spray, shall not be employed in the cell connections of storage batteries.

## ARTICLE 19. LIGHTNING ARRESTERS.

### 1901. In Stations.

- A lightning arrester shall be connected to each overhead wire entering a station.
- Lightning arresters shall be located in readily accessible places, away from combustible materials and as near as practicable to the point where the wires enter the station.
- Lightning arresters shall be well isolated from other equipment and, if of the oil-filled type, shall be placed in a fireproof room or compartment.
- Lightning arresters shall be grounded as provided in article 9 of this code.
- All choke coils, or other attachments inherent to the lightning-protection equipment, shall have an insulation from the ground or other conductors at least equal to the insulation required at the points of the circuit in the station.
- Kinks, coils and sharp bends in the wires between arresters and outdoor lines shall be avoided as far as practicable.

### 1902. Radio Equipment.

See article 37 of this code.

### 1903. Signal Systems.

See article 60 of this code.

### 1904. Grounding.

See article 9 of this code.

## ARTICLE 30. CRANES AND HOISTS.

### 3001. General.

- The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this code.

### 3002. Wires.

- Wires, other than bare collector wires, shall be of approved rubber-covered or of approved slow-burning type.
- Rubber-covered wire shall be no smaller than No. 12.
- Slow-burning wire shall be employed only between resistance and contact plates of rheostats or where exposed to severe external heat. Wires between resistances and contact plates shall conform to the requirements of section 1701, paragraph h, of this code except that such wires, if exposed to moisture, shall be of the rubber-covered type.

### 3003. Installation of Wires.

- Exposed wiring, other than collector wires, shall be supported 1 inch from the surface wired over, 2½ inches apart for voltages up to 300, and 4 inches apart for voltages between 331 and 603; provided, however, that in dry places where space is limited each wire may be separately encased in approved flexible tubing securely fastened in place.
- Wiring not in conduit, other than collector wires, and whether on crane or hoist, shall be isolated beyond normal reach of operators or other persons and out of normal reach of tools and materials being handled.

### 3004. Collector Wires.

- Collector wires shall be secured at the ends by means of approved strain insulators, and shall be so mounted on approved insulators that the extreme limit of displacement of the wire will not bring the latter within less than 1½ inches from the surface wired over.
- Main collector wires carried along runways shall be supported on insulating supports placed at intervals not exceeding 20 feet. When run horizontally, such wires shall be separated not less than six inches; when run otherwise, not less than eight inches. Where necessary, intervals between insulating supports may be increased up to 40 feet, the separation between wires being increased proportionally.
- Bridge collector wires shall be kept at least 2½ inches apart and, where the span exceeds 80 feet, insulating saddles shall be placed at intervals not exceeding 50 feet.

It is recommended that the distance between wires be greater than 2½ inches, where practicable.

- Sizes of collector wire shall conform to the following table:

Distance between rigid supports	Size of wire
0—30 feet	No. 6
31—60 feet	No. 4
over 60 feet	No. 2

### 3005. Collectors.

- Collectors shall be so designed as to reduce to a minimum the sparking between them and the collector wire. See also paragraph l of section 3205 of this code.

### 3006. Switches and Cutouts.

- The main collector wires shall be protected by a cutout and the circuit shall be controlled by a switch. The switch shall be located within sight of the collector wires and shall be readily operable from the floor or ground.
- Where cranes are operated from cabs a circuit breaker or switch, capable of interrupting the circuit under heavy loads, and readily controlled by the operator, shall be provided in the leads from the main collector wires unless the current collectors can be safely removed, under heavy loads, from the trolley or third rail.

- Where more than one motor is employed on a crane, each motor with its leads shall be separately protected by a cutout in accordance with the provisions of articles 8 and 10 of this code; provided, however, that where two motors operate a single hoist, carriage, truck or bridge and are controlled as a unit by one controller the pair of motors with their leads may be protected by a single cutout. This cutout shall be located in the cab if there is one.

### 3007. Controllers.

- If the crane operates over readily combustible material, the resistances shall be placed in a well ventilated cabinet composed of non-combustible material, so constructed that it will not emit flame or molten metal.

If the resistances are located in a cab, this requirement may be met by constructing the cabinet of non-combustible material enclosing the sides of the cab from the floor to a point at least 6 inches above the tops of the resistances.

### 3008. Grounding.

- Motor frames, tracks and the entire frame of the crane shall be grounded as prescribed in article 9 of this code.

## ARTICLE 31. ELEVATORS.

### 3101. General.

- The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this code.
- The maximum voltage permitted on the push buttons of elevator signaling circuits shall be 300 volts to ground.
- The maximum voltage permitted in the operating devices of electric elevators shall be 300 volts to ground for automatic control elevators having operating devices in the car and at the landings.
- No part of any electric circuit having a voltage in excess of 750 volts shall be used on any car control system. Circuits of higher voltage may, however, be used in machine rooms or pent houses for the operation of motors and brakes, provided that all control and signal wiring is thoroughly insulated from such power circuits and all machine frames and metal, hand-operated ropes are permanently grounded.

### 3102. Wires and Cables.

- The flexible or traveling cables of the operating control and lighting circuits shall be of approved Type E or Type S cord, as specified in section 609, article 6 of this code. Where attached to the car they shall run in approved rigid or flexible conduit, carefully fastened in place and properly bushed.
- Conductors for lighting and control cables shall not be smaller than No. 16.
- No conductor smaller than No. 14 shall be used for any elevator operating, control, power or car lighting circuit except as provided above for lighting and control cables and as otherwise provided in this code for fixture work.
- No conductor smaller than No. 16 shall be used for any elevator signal circuit except those receiving energy from primary batteries or approved bell-ringing transformers. When No. 16 conductor is used it shall be protected by not larger than 6-ampere fuses.
- Conductors, other than lighting and control cables, where located in hoistways shall be encased in approved rigid conduit provided that flexible conduit or armored cable may be used between riser and limit switch, interlocks, push buttons or similar devices. Split tees and elbows may be used on exposed conduit work except where the pipe contains feeders. For control circuits the number of wires installed in a conduit may be in accordance with Table 3, Section 503.
- No electric conduits or cables, except those used to furnish or control power, light, heat or signals for the elevator or hoistways, shall have an opening, terminal, outlet or junction within the hoistway, but shall be continuous between outlets or terminals situated entirely outside the hoistway. Pipes, conduits and armored cables shall be securely fastened to the hoistway construction.

It is not intended to prohibit the interruption of long runs for the purpose of splicing or pulling in conductors, and pull boxes may be installed for this purpose.

- Elevator circuits, except signal wires receiving energy from primary batteries or approved bell-ringing transformers, shall be installed in approved conduit equipped with approved terminal bushings having an individual outlet hole for each wire; provided that, for more than 8 wires the conduit may be terminated with an insulating bushing and the wires bunched, taped and painted with an insulating paint. The conduit shall terminate as close to the wire terminals as convenience in handling will permit, but in no case closer than six inches to the floor.
- Wires for elevator circuits including operating, control and power wires, and signal wires when an integral part of the wiring system, may be run in the same traveling cable, conduit, pull box or junction box when the supply is from the same source of power although the voltage is altered within the system, provided that all wires are insulated for the maximum voltage found in the conduit system and the equipment is insulated from ground for this maximum voltage.
- Where the current characteristics within the system are changed, the wires shall not be run in the same traveling cable, conduit, junction box or pull box, except on the car, at the controlboards, floor selectors, hatchway junction boxes and at similar points where it is impracticable to separate such wires.
- Wires of car-lighting circuits, and signal systems, when not an integral part of the elevator wiring system, shall be separated and run in separate traveling cables and conduits.
- The wires of motor circuits between motors and control panel may be grouped together without any extra insulation of the separate wires, provided the complete group is either taped or corded and painted in a manner to make same a rigid, self-supporting form, not over three feet long, and not in a position liable to mechanical damage or subject to a temperature in excess of 120° F. (49° C.).
- All wires between main circuit resistances and the back of control panels shall each have a flameproof outer covering, as prescribed in section 1701, paragraph h, of this code. All other wiring on control panels may be of the rubber-covered type, provided the wires are held in such a manner as to be immovable and free from mechanical injury, and are not subjected to a temperature exceeding 120° F. (49° C.).
- Wires having a flameproof outer covering or groups of wires covered with a flameproof tape shall not be used as connections for the operating circuits of elevator controllers.

Flameproof coverings when damp may carry enough current to cause controllers to function incorrectly and this incorrect functioning may be a life hazard.

### 3103. Switches.

a. A manually operated switch disconnecting all ungrounded wires of the motor circuit shall be located within sight of the motor, unless permission to locate it elsewhere is given by the authority enforcing this code. Where the elevator is controlled by controlling the field of a generator this requirement shall be interpreted to apply to the switch in the circuit supplying the motor which drives the generator.

b. In garages, hatch limit switches and other spark-emitting devices shall be placed at least four feet above the line of the lowest floor level.

c. Each electric elevator operated by a polyphase alternating-current motor shall be provided with a device which will prevent starting the motor if:

1. The phase rotation is in the wrong direction, or,
2. There is a failure in any phase.

### 3104. Grounding.

a. For electric elevators, the frames of all motors, elevator machines, controllers, and the metal enclosures for all electrical devices in or on the car or in the hoistway, shall be grounded.

b. For elevators other than electric, where any electrical conductors are attached to the car, the metal frame of the car, if normally accessible to persons, shall be grounded.

c. Conduit or armored cable attached to elevator cars shall be bonded to grounded metal parts of the car with which they came in contact.

d. Motors, motor-generator sets, elevator machines and controllers mounted on metal beams, which form part of the structural metal frame of a building, shall be deemed to be grounded. Metal car frames supported by metal hoisting cables attached to or running over sheaves or drums of elevator machines shall be deemed to be grounded when machine is grounded in accordance with this code.

e. The hand-operated rope (shifting cable) need not be grounded if provided with approved strain insulators.

### 3105. Live Parts.

a. All live parts of electrical apparatus in or on elevator cars or in elevator hoistways shall be suitably enclosed to protect against accidental contact.

b. Unless located in an engine room or other location accessible only to qualified persons the elevator machine and controller shall be installed in a room set aside for that purpose or isolated by elevation or by means of an enclosure or wire grill or the like to prevent accidental contact by persons or objects. This room may also contain other machinery used for the control and signaling of the elevators.

c. If the wiring is on the back of the controller panel there shall be a clear space of at least 24 inches back of the apparatus on the rear of the controller panel and at least 18 inches on the sides of a bank of controller panels, and on at least one side of a single panel. There shall also be at least three feet of clear space in front of the controller.

This rule shall not be interpreted to forbid the enclosing of the rear of control panels in steel cabinets, but when such cabinets are used there must be a clear space of at least 24 inches back of the apparatus on the rear of the controller panel when the back of the steel cabinet is removed.

## ARTICLE 32. HAZARDOUS LOCATIONS.

### 3201. Classification.

a. The provisions of this article are intended to apply to locations in which the authority enforcing this code judges the apparatus and wiring to be subject to the conditions indicated by the following classifications. Where the apparatus and wiring are installed in rooms or sections of the building in which the particular hazardous conditions do not prevail, such wiring and apparatus may be of the type approved for such locations. For garages see article 33.

b. Class I locations are those in which flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled, or stored in other than their original containers.

This class may include such locations as some parts of dry-cleaning and dry-dyeing plants, pyroxylin plastic manufacturing plants, spray painting establishments, gas plants, varnish manufacturing plants, and establishments or industries involving similar hazardous processes or conditions.

c. Class II locations are those in which (1) combustible dust is thrown, or is likely to be thrown, into suspension in the air in sufficient quantities to produce explosive mixtures or (2) those where it is impracticable to prevent dust from collecting in such quantities on or in motors, lamps, or other electrical devices that they are likely to become overheated because normal radiation is prevented.

This class may include such locations as some parts of flour mills, feed mills, grain elevators, starch plants, sugar, cocoa and coal pulverizing plants, and establishments or industries involving similar hazardous processes or conditions.

d. Class III locations are those in which easily ignitable fibres or materials producing combustible flyings are handled, manufactured, stored or used, and which are hazardous through such fibres or flyings collecting on or being ignited by arcing contacts, resistors, lamps or similar apparatus.

This class may include locations such as some parts of cotton and other textile mills, combustible fibre manufacturing plants and warehouses, cotton gins, clothing manufacturing plants, cotton-seed mills, woodworking plants, and establishments or industries involving similar hazardous processes or conditions.

### 3202. General.

a. The requirements of this article shall be considered additional or amendatory to those prescribed in articles 1-19, inclusive, of this code.

### 3203. CLASS I LOCATIONS.

a. In locations judged to be as described for Class I in paragraph b of section 3201 the following provisions shall be observed.

b. Service entrance equipment, and all panelboards and switchboards shall not be installed.

c. Rigid conduit with vapor-tight joints and fittings shall be employed as the type of wiring.

d. Fuses shall not be installed. Circuit-breakers, if used, shall be of the vapor-tight or oil-immersed type approved for use in explosive atmospheres.

e. Motors shall be of types approved for use in explosive atmospheres.

Motors located outside of paint-spray booths and judged by the authority enforcing this code to be outside of the hazardous area may be of any standard totally-enclosed type or of the open induction type having no brushes, make-and-break contacts, collectors, or other arcing or sparking parts.

f. Motor controllers, thermal cutouts, switches, relays, the switches and contactors of auto-transformer starters, resistance or impedance devices or other devices or apparatus, which in their normal operation tend to create arcs, sparks, or high temperatures, shall not be installed unless such devices or apparatus are of the vapor-tight or oil immersed type and approved for use in explosive atmospheres.

It is recommended that motor controllers be of the remote control type with the main contactors located at a point where the hazardous conditions of this class do not prevail, auxiliary control push buttons or switches of the oil immersed or vapor-tight type may then be placed in the most convenient locations.

g. Electric heating appliances shall not be used unless they are of a type approved for the particular location or type of material in or with which they are used.

h. Switches controlling lighting circuits shall not be installed unless of the vapor-tight or oil-immersed type.

i. Lamps in fixed positions shall be enclosed in vapor-tight globes or in other approved enclosures and shall be properly protected by substantial metal guards or other approved means where exposed to breakage. Lamps shall not be of the pendant type unless supported rigidly by conduit hangers. Where rubber covered wire is used it shall have insulation not less than 3/64 inch thick.

j. No lamps or lighting fixtures connected therewith nor in any location where there is a possibility of the spray lodging upon them.

k. The auxiliaries of mercury-vapor lamps shall be offset at least ten feet from spray booth working faces.

l. Sufficient general illumination shall be provided by fixed lighting units to eliminate, so far as possible, the need for portable lamps. When portable lamps are necessary, they shall be enclosed in vapor-tight globes properly protected by substantial metal or other approved types of guards to prevent breakage. Sockets for portable lamps shall be of non-combustible, non-absorptive, moulded composition type with no exposed metal parts, and shall be of the keyless type.

m. When necessary to use portable lamps, or other portable current-consuming devices, approved flexible cord designed for hard usage such as Type S or Type PA shall be used. Such a flexible cord shall contain one extra insulated conductor which shall be properly connected to form a grounding connection for metal lamp guards, motor frames, and all other exposed metal portions of such portable lamps and devices.

n. Connections of portable cords direct to supply conductors shall first be made mechanically secure and shall then be soldered and heavily taped. In addition the cord shall be securely supported so that the probability of a break in the conductors at this point will be minimized.

o. Receptacles and attachment plugs, if used, shall be so connected as a part of a unit device with an explosion proof interlocking switch that the plug cannot be removed while the switch is in the "on" position. Such receptacles and plugs shall be of the polarized type providing a connection for the grounding wire of the portable cord.

p. The exposed non-current carrying metal parts of equipment, such as the frames or metal exteriors of motors, fixed or portable appliances, fixtures, cabinets, cases, and conduit shall be grounded as provided in sections 905 to 908 of article 9 of this code. The locknut-bushing and the double-lock-nut type of contact shall not be depended upon for bonding purposes, bonding jumpers with proper fittings or other approved means being required to assure an effective grounding circuit.

q. There shall be no exposed live parts.

### 3204. CLASS II LOCATIONS.

a. In locations judged to be as described for Class II locations in paragraph c of section 3201 the following provisions shall be observed:

b. Service entrance equipment, and all panelboards and switchboards should not be placed in locations of this class, but, if impracticable to locate elsewhere, all live parts shall be enclosed in dust-tight metal cases or cabinets having provision for external operation only, or shall be located in a separate dust-tight room built of or lined with substantial non-combustible materials and having a self-closing door, so constructed and installed as to adequately exclude dust.

c. Fuses shall not be placed in locations described in this class unless enclosed in dust-tight metal cabinets or cases. Circuit-breakers shall be of the dust-tight or dust-tight oil-immersed type.

d. Rigid conduit shall be the wiring method employed.

e. Where explosive dusty atmospheres are likely to be present, as in (1) of paragraph c of section 3201, motors or generators having brushes or sliding contacts shall have such brushes or sliding contacts enclosed in substantial dust-tight housings or shall be of the totally enclosed, enclosed-fan-ventilated, or enclosed-pipe-ventilated types or shall be enclosed in separate dust-tight rooms or housings built of or lined with substantial non-combustible materials and so constructed as to adequately exclude dust and properly ventilated from a source of clean air.

It is recommended that all motors installed in dusty locations be of the totally enclosed, enclosed-fan-ventilated, or enclosed-pipe-ventilated types.

f. Where it is impracticable to prevent dust from collecting in dangerous quantities on or in motors as in (2) of paragraph c of section 3201, all motors shall be of the totally-enclosed, enclosed-fan-ventilated, or enclosed-pipe-ventilated types, or shall be enclosed in separate dust-tight rooms or housings built of or lined with substantial non-combustible materials and so constructed as to adequately exclude dust and properly ventilated from a source of clean air.

The above conditions often exist in sugar, cocoa and coal pulverizing rooms, cupolas, head-houses, basements and other points in grain elevators, flour-mills and feed-mills where grains are spouted, and in similar locations. Where the installation and maintenance are such that the hazardous conditions do not exist, the foregoing requirements are not called for and are waived.

g. Motor controllers, thermal cutouts, switches, relays, the switches and contactors of auto-transformer starters, resistance or impedance devices, or other devices or apparatus, which in their normal operation tend to create arcs, sparks, or high temperatures, shall not be installed in these locations unless such devices or apparatus are enclosed in dust-tight cases or cabinets or are of the dust-tight or dust-tight oil-immersed type, and so designed that the device may be operated without opening the cabinet or case.

It is recommended that motor control devices be of the remote control type with the main contactors located in separate rooms or compartments built of non-combustible materials so constructed as to exclude dust. The remote control push buttons or switches of the oil immersed or dust-tight type may then be placed in the most convenient locations.

h. Electric heating appliances shall not be used unless of a type approved for installation in dusty atmospheres.

i. Lamps in fixed positions shall be enclosed in approved dust-tight globes, and where exposed to mechanical injury, shall be protected by substantial guards. Heavy fixtures used as pendants shall be supported by conduit hangers or chains to prevent strain on the wires. Where rubber covered wire is used it shall have insulation not less than 3/64 inch thick. Sockets and receptacles shall be of the keyless type, and unless individual switches are provided, shall be located at least 7 1/2 feet above the floor, or shall be otherwise so located or guarded that the lamps cannot readily be backed out by hand.

When light is required for the interior of bins, hoppers, elevators, conveyors and similar equipment or construction, it is recommended that such light shall, whenever practicable, be supplied by means of lamps, enclosed in dust-tight globes properly protected against mechanical injury and mounted flush in the walls or floors of the equipment or construction. No wiring or fixtures should be permitted inside of bins, hoppers, elevators or conveyors.

j. Sufficient general illumination shall be provided by fixed lighting units to eliminate so far as possible the need for portable lamps. When portable lamps are necessary, they shall be enclosed in dust-tight globes properly protected by substantial metal or other approved types of guards to prevent breakage. Sockets for portable lamps shall be of the moulded composition or metal-jacketed porcelain, keyless type.

k. When necessary to use portable lamps, or other portable current consuming devices, approved flexible cord designed for hard usage such as Type S or Type PA shall be used. Such a flexible cord shall contain one extra insulated conductor which shall be properly connected to form a grounding connection for metal lamp guards, motor frames, and all other exposed metal portions of such portable lamps and devices.

l. Receptacles and attachment plugs, if used, shall be so connected, as a part of a unit device with a dust-tight interlocking switch that the plug cannot be removed while the switch is in the "on" position. Such receptacles and plugs shall be of the polarized type providing a connection for the grounding wire of the portable cord.

m. The exposed non-current carrying metal parts of equipment, such as the frames or metal exteriors of motors, fixed or portable appliances, lighting fixtures, cabinets, cases, and conduit, shall be grounded as provided in sections 905 to 908 of article 9 of this code. The locknut-bushing and double-lock-nut type of contact shall not be depended upon for bonding purposes, bonding jumpers with proper fittings or other approved means being required to assure an effective grounding circuit.

n. There shall be no exposed live parts.

### 3205. CLASS III LOCATIONS.

a. In locations judged to be as described for Class III locations in paragraph d of section 3201 the following provisions shall be observed:

b. Service entrance equipment and all switchboards and panelboards should not be placed in locations of this class, but, if impracticable to locate them elsewhere, all live parts shall be enclosed in dust-tight metal cases or cabinets with provision for external operation only, or shall be located in separate dust-tight rooms built of or lined with substantial non-combustible materials and with self-closing doors so constructed and installed as to adequately exclude flyings or lint.

c. All fuses shall be enclosed in dust-tight metal cases or cabinets. Circuit-breakers shall be of the dust-tight oil-immersed type, or shall be enclosed in dust-tight metal cases.

d. Rigid conduit shall be the wiring method employed.

e. If motors or generators having brushes or sliding contacts are used they shall:

1. be of the totally enclosed, enclosed fan ventilated, or enclosed pipe ventilated types, or
2. be enclosed in separate rooms or housings built of non-combustible materials, so constructed as to adequately exclude flyings or lint, and properly ventilated from a source of clean air, or
3. have brushes or sliding contacts enclosed in substantial tight, metal housings, or
4. Have upper half of brush or sliding contact end of motor enclosed by wire screen of not less than No. 14 mesh and lower half enclosed by solid metal covers.

f. Motor controllers, thermal cutouts, switches, relays, the switches and contactors of auto-transformer starters, or other devices or apparatus which in their normal operation tend to create arcs or sparks shall not be installed unless such devices or apparatus are enclosed in dust-tight metal cases or cabinets, or are of the dust-tight oil-immersed type, and are so designed that they may be operated without opening the cabinet or case.

g. Rheostats, resistance boxes, or other resistance devices, shall be enclosed in non-combustible cases, so constructed as to adequately exclude flyings or lint.

h. Electric heating appliances shall not be used unless of a type approved for installation in locations where combustible flyings or lint are present.

i. Where there is a possibility of flyings or lint collecting about lamps in fixed positions, such lamps shall be enclosed in globes of the dust-tight type, and when exposed to mechanical injury, shall be protected by substantial metal or other approved types of guards to prevent breakage. Heavy fixtures, used as pendants, shall be supported by conduit hangers or chains to prevent strain on the wires. Where rubber covered wire is used it shall have insulation not less than 3/64 inch thick. Socket and receptacles shall be of the keyless type and, unless individual switches are provided, shall be located at least 7 1/2 feet above the floor, or shall be otherwise so located or guarded that the lamps cannot readily be backed out by hand.

j. Sufficient general illumination shall be provided by fixed lighting units to eliminate, so far as possible, the need for portable lamps. When portable lamps are necessary, they shall be enclosed in dust-tight globes properly protected by substantial metal or other approved types of guards to prevent breakage. Sockets for portable lamps shall be of non-combustible, non-absorptive moulded composition type with no exposed metal parts, and shall be of the keyless type.

k. When necessary to use portable lamps, or other portable current consuming devices, approved flexible cord designed for hard usage such as Type S or Type PA shall be used. Such a flexible cord shall contain one extra conductor, which shall be properly connected to form a grounding connection for metal lamp guards, motor frames, and all other exposed metal portions of such portable lamps and devices.

l. Bare conductors for cranes operating in rooms used for the storage of combustible fibers shall be protected by suitable barriers so arranged as to prevent any escape of sparks or hot particles, and the moving current collectors shall be so designed as to minimize sparking at the sliding contacts.

It is recommended that where the distance of travel permits, current to the crane be supplied through Type S or PA portable conductors equipped with approved type of reel or take-up device.

m. The exposed non-current carrying metal parts of equipment such as the frames or metal exteriors of motors, fixed or portable appliances, lighting fixtures, cabinets, cases, and conduit shall be grounded as provided in sections 905 to 908 of article 9 of this code. The locknut-bushing and double-lock-nut type of contact shall not be depended upon for bonding purposes, bonding jumpers with proper fittings or other approved means being required to assure an effective grounding circuit.

## ARTICLE 33. GARAGES.

### 3301. General.

a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code.

b. A garage shall be deemed to be a building or portion of a building in which one or more self-propelled vehicles carrying volatile, inflammable liquid for fuel or power are kept for use, sale, storage, rental, repair, exhibition or demonstration purposes, and all that portion of a building which is on or below the floor or floors on which such vehicles are kept and which is not separated therefrom by tight, unpierced fire walls and fire-resistive floors.

### 3302. Wiring.

a. Where floor area is sufficient to permit the storage of more than two vehicles, either conduit work, surface metal raceways, armored cable or electrical metallic tubing, as specified in sections 503, 504, 505 and 508 respectively of Article 5, shall be employed as the wiring method. Where the floor space will accommodate not more than two vehicles, any approved wiring method may be employed.

b. Cutouts, switches, attachment plug receptacles and fixed lamp-holding devices shall be located at least 4 feet above the floor, except in a shower room separated by a partition from the garage proper.

c. Approved reinforced cord shall be used for pendant lamps.

### 3303. Portables.

a. Approved portable cord designed for rough usage, such as hard-service cord, stage cable or packinghouse cord, shall be used to connect portable lamps, motors or other appliances. The portable cord shall carry the male end of an approved pin-plug connector, or equivalent; the female end being of such design or so hung that the connector will break apart readily at any position of the cable. The connector shall be kept at least 4 feet above the floor.

b. Flexible cord leads for portable lamps shall be equipped with handle, socket hook, and substantial guard, the guard being securely attached to the socket or the handle. Approved keyless sockets of moulded composition or metal-sheathed porcelain type or other keyless sockets approved for the purpose shall be used.

### 3304. Charging Cables.

a. Approved Type S cord shall be used for charging purposes.

b. Connectors shall be of approved type and of at least 50 amperes capacity, and shall be so designed or so hung that at least one will break apart readily at any position of the charging cable. Live parts shall be guarded from accidental contact. The fixed, or wall, connector shall be kept at least 4 feet above the floor, and, if not located on a switchboard or charging panel, shall be guarded from accidental contact. Where plugs for direct connection to vehicles are suspended from overhead wiring they shall hang at least 6 inches above the floor and no connector need be placed in the cable or at the outlet.

### 3305. Switchboards and Charging Panels.

a. Where spark-producing devices are not located at least 4 feet above the floor, or placed in vaporproof enclosures, switchboards and charging panels shall be located in a room or inclosure provided for the purpose.

### 3306. Generators, Motors and Control Apparatus.

a. Generators, motors and control apparatus, that embody the use of commutators, collector rings or other make-and-break or sliding contacts shall either be of the totally-enclosed type or be located at least four feet above floor.

b. Generators, motors, control apparatus and the like, having commutators, collector rings, or other make-and-break or sliding contacts located more than four feet above floor shall, unless of the totally-enclosed type, have wire screens of not less than No. 14 mesh placed at commutator or brush ends to prevent the falling of particles.

### 3307. Special Precautions.

a. Cutouts, switches and receptacles shall be placed at least 4 feet above the floor.

b. Live parts of all devices shall be guarded to prevent accidental contact by foreign bodies.

### 3308. Grounding.

a. Conduit, metal sheaths, raceways and exposed metal frames and enclosures of equipments (including portables) and the like shall be grounded when and in the manner prescribed in sections 904 and 905 of article 9 of this Code. This shall apply to all devices, except pendant and portable lamps operating on grounded circuits of not more than 150 volts to ground.

### 3309. Flexible Cords.

a. Flexible cords used to supply pendant or portable lamps or portables which include lamp-holding devices on polarized wiring systems, shall have one conductor identified, and such identified conductor shall be connected to the screw shell of the lamp-holding device. Receptacles, attachment plugs, connectors, and similar devices used with such cord shall be of the polarity type.



**ARTICLE 34. MOTION-PICTURE STUDIOS.****3401. General.**

a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code, but shall not be applied where only approved slow-burning (cellulose acetate or equivalent) film is used.

b. A motion-picture exchange, factory, laboratory or studio shall be deemed to be that building or portion of a building in which motion-picture films are manufactured, exposed, developed, printed, rewound, repaired, stored, etc.

**3402. Wiring.**

a. Approved conduit, metal raceway or armored cable shall be employed as the wiring method.

b. Side wall lamp outlets shall consist of receptacles enclosed in approved outlet boxes equipped with open-end guards riveted to the covers of the boxes.

c. Pendant lamps shall be suspended by means of approved reinforced cords, armored cord or armored cable and shall be protected by substantial wire guards.

d. Each portable lamp shall be composed of approved hard service flexible cord, approved composition or approved metal-sheathed porcelain keyless socket, handle, hook and substantial guard. The cord shall carry the male end of an approved pin plug connector or equivalent, the female end being of such design or so hung that the connector will break apart readily at any position of the cord. The connector shall be kept at least 1 foot above the floor.

e. At patching tables, approved composition or metal-sheathed porcelain keyless sockets shall be employed and shall be equipped with suitable means to guard lamps from mechanical injury.

f. In film-storage vaults lamps shall be installed on rigid fixtures and enclosed in vaporproof globes. Such lamps shall be controlled by a double-pole switch, located outside the vault. Electric motors or portable lamps shall not be placed in the vault.

g. All live parts shall be enclosed to prevent accidental contact by persons and objects. All switches shall be of the externally operable type. Rheostats shall be placed in cabinets which enclose all live parts, having only the operating handles exposed.

h. If motors or generators having brushes or sliding contacts are used they shall:

1. be of the totally-enclosed, enclosed-fan-ventilated, or enclosed pipe-ventilated types, or
2. be enclosed in separate rooms or housings built of non-combustible materials, so constructed as to adequately exclude flyings or lint, and properly ventilated from a source of clean air, or
3. have brush or sliding contact end of motor enclosed by solid metal covers, or
4. have brushes or sliding contacts enclosed in substantial, tight, metal housings, or
5. have the upper half of brush or sliding contact end of the motor enclosed by a wire screen of not less than No. 14 mesh and the lower half enclosed by solid metal covers, or
6. shall have wire screens of not less than No. 14 mesh placed at the commutator or brush ends.

i. All conduit, armored cable or metal raceways, exposed metal frames, and enclosures or equipment shall be grounded as prescribed in Article 9 of this Code. This shall apply to all devices, except pendant and portable lamps operating at not more than 150 volts to ground.

**ARTICLE 35. MOTION-PICTURE PROJECTORS AND EQUIPMENT.****3501. General.**

a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in Articles 1 to 19, inclusive, of this Code.

b. The so-called professional types of projectors, such as are commonly used in theatres and motion picture houses, shall be located in fireproof booths.

The professional projector employs a film which is 1½ inches wide and has on each edge 5.4 perforations per inch.

c. Projectors of the non-professional or miniature type, if employing only approved slow-burning (cellulose acetate or equivalent) film, may be operated without a booth.

d. All live parts shall be enclosed or otherwise guarded to prevent accidental contact of persons or objects.

e. All conduit, armored cable, metal raceways, exposed metal frames and enclosures of equipment shall be grounded as prescribed in article 9 of this Code. This shall apply to all devices except pendant and portable lamps operating at not more than 150 volts to ground.

**3502. Projectors of Professional Type.**

a. The arc-lamp house shall be composed entirely of metal having a thickness not less than No. 24 U. S. sheet metal gauge (.025 inch) except where the use of approved insulating material is necessary. Details of construction shall conform to the requirements of Section 1501 of this Code. An incandescent-lamp enclosure shall conform to the above requirements so far as may be practicable.

b. Wires shall be of sufficient carrying capacity for the current rating of the projector used, but in no case shall wires smaller than No. 10 be employed to supply the projector outlet.

c. Rheostats, transforming devices and any substitute therefor, shall be of types expressly designed and approved for the purpose. They shall be judged as component parts of the projector equipment as to installation and location.

d. Top and bottom magazines shall be so designed in some approved manner as to prevent the entrance of flame. No solder shall be used in their construction. The front side of each magazine shall consist of a door swinging horizontally and equipped with a substantial latch.

e. An automatic shutter shall be provided and permanently attached to the gate frame. The construction of the shutter shall be such as to shield the film from the beam of light whenever the film is not running at operating speed.

f. Motor-driven projectors shall be of a type expressly designed and approved for such operation. Such projectors shall be used only by permission of the inspection department, and when the projector is in charge of a qualified operator.

g. Switches if used shall be of externally operable type.

**3503. Enclosure for Projectors of Professional Type.**

a. The enclosure shall be constructed of suitable fireproof material, shall be properly lighted and shall be large enough to permit the operator to walk freely on either side of or back of the projectors.

b. Ventilation shall be provided by means of a vent pipe having a cross-sectional area of not less than 78 square inches, and such vent pipe shall lead to the outside of the building or to a special non-combustible flue. The vent pipe shall be kept at least 1 inch from combustible material or separated therefrom by approved non-combustible, heat-insulating material not less than ¼ inch in thickness.

c. Draft in vent pipe shall be maintained by an exhaust fan having a capacity of at least 50 cubic feet per minute. The fan motor shall be so installed that fumes passing through the flue cannot come in contact with it, shall be connected to the emergency service and shall not be controlled from the booth.

d. Openings in the enclosure shall be equipped with doors or shutters of fire-resistive material equivalent to that of the enclosure. Such door or shutter shall entirely close its opening, and shall be arranged to be held in the closed position by spring hinges or equivalent devices.

e. Rewinding of films shall be performed in the enclosure if practicable; otherwise in a separate fireproof room provided at a location approved for the purpose. Extra films shall be kept in individual metal boxes having tight-fitting covers and each booth shall be provided with an approved fireproof box for the storage of films not on the projection machine. Reels carrying films under examination or in process of rewinding shall be enclosed in magazine or approved metal boxes similar to those of the projector and not more than 2 feet of film shall be exposed.

f. A motor-generator installed in the projector enclosure shall have the commutator end or ends suitably protected from mechanical injury by wire screens or other suitable means. The measures, described in either of the sub-paragraphs 1-6, inclusive, of paragraph h of section 3402 shall be considered as providing the required protection.

**3504. Projectors of Non-Professional Type.**

a. Motion-picture projecting machines not intended for installation and use in permanent and ventilated booths shall be permitted only for projecting film of an approved slow-burning (cellulose acetate or equivalent) type.

b. All such equipment shall be expressly approved, including current-controlling devices and other essential operating parts.

c. The source of illumination of the projected view shall be an incandescent lamp of a pattern expressly intended for stereopticon use or for motion-picture projection.

d. The slow-burning (cellulose acetate or equivalent) film shall have a permanent distinctive marker for its entire length identifying the manufacturer and the slow-burning character of the film stock.

e. Machines shall be marked with the name or trademark of the maker, and with the voltage and current rating for which they are designed, and shall also be plainly marked, "For use with slow-burning films only."

**ARTICLE 36. ORGANS.****3601. General.**

a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code. They shall be deemed to apply to those electrical circuits and parts of electrically operated organs which are employed for the control of the sounding apparatus and keyboards.

**3602. Source of Energy.**

a. The source of energy shall be either a self-excited generator rated at not over 15 volts, or a primary battery.

b. The generator shall either be permanently and effectively insulated both from ground and from the motor driving it, or both generator and motor frames shall be grounded as prescribed in article 9 of this Code.

**3603. Cables.**

a. All wires, except common return wires and wires inside the organ proper, the organ sections and the organ console, shall be cabled.

b. The separate wires of the cable shall be not smaller than No. 26, and shall have either rubber, cotton or silk insulation. The cotton or silk may be saturated with paraffine, if desired.

c. The separate wires shall be either bunched or cabled. In either event they shall be enclosed in one or more braided outer coverings. A tape may be substituted for an inner braid. The outside covering of a cable not run in conduit shall either be flameproof, or covered with a closely wound fireproof tape.

d. The common return wire shall be not smaller than No. 14, shall be of either the rubber-covered or the slow-burning type and shall not be contained in the cable. It may be run in contact with the cable or placed under an additional covering enclosing both cable and return wire.

**3604. Workmanship and Material.**

a. All wiring and devices within the organ or any of its parts shall be neatly disposed and securely fastened.

It is not found to be either necessary or feasible in organ structures to require the use of non-combustible, non-absorptive insulating material for the supports or enclosures of current carrying parts.

b. Cables between parts of the organ and between the console and the organ shall be installed in a workmanlike manner, shall be securely fastened in position and shall be kept from contact with other wires. Conduit may be used, but shall not be required.

**3605. Fuses.**

a. Feed wires shall be protected at the source by a fuse of suitable capacity, and, except common return wires, shall be so subdivided and protected at the organ sections or distribution points by approved fuses of not over 15 amperes rating that every wire will be protected by one or more such fuses.

**ARTICLE 37. RADIO EQUIPMENT.****3701. General.**

a. The requirements of this article shall neither apply to equipment installed on shipboard, nor to antennas used for coupling carrier current to line conductors; but shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code.

- b. Transformers, voltage reducers, keys and other devices employed shall be of types expressly approved for radio reception or transmission.
- c. Methods of wiring from the source of power to and between devices, related to apparatus connected to interior wiring systems, shall be in accordance with the rules covering permanent or portable fixtures, devices and appliances.

It is recommended that the authority enforcing this code be freely consulted as to the specific methods to be followed in any case of doubt relative to installation of antenna and counterpoise conductors and that the National Electrical Safety Code, Part 5, be followed.

**3702. For Receiving Stations Only.**

- a. Antenna and counterpoise conductor sizes shall be not less than No. 14 if of copper or No. 17 if of bronze or copper-clad steel. Antenna and counterpoise conductors outside buildings shall be kept well away from all electric light or power wires of any circuit of more than 600 volts, and from railway, trolley or feeder wires, so as to avoid the possibility of contact between the antenna or counterpoise and such wires under accidental conditions.
- b. Antenna and counterpoise where placed in proximity to electric light or power wires of less than 600 volts, or signal wires, shall be constructed and installed in a strong and durable manner, and shall be so located and provided with suitable clearances as to prevent accidental contact with such wires by sagging or swinging.
- c. Splices and joints in the antenna span shall be soldered unless made with approved splicing devices.
- d. The preceding paragraphs, a, b, and c, shall not apply to light and power circuits used as receiving antenna, but the devices used to connect the light and power wires to radio receiving sets shall be of approved type.

- e. Lead-in conductors, that is, conductors from antennas to sets, shall be of copper, approved copper-clad steel or other metal which will not corrode excessively, and in no case shall they be smaller than No. 14, except that bronze or copper-clad steel not less than No. 17 may be used.
- f. Lead-in conductors from the antenna to the first building attachment shall conform to the requirements for antennas similarly located. Lead-in conductors from the first building attachment to the building entrance shall, except as specified in the following paragraph, be installed and maintained so that they cannot swing closer to open supply conductors than the following distances:

Supply wires 0 to 600 volts.....	2 feet
Supply wires exceeding 600 volts.....	10 feet

Where all conductors involved are supported so as to insure a permanent separation and the supply wires do not exceed 150 volts to ground, the clearance may be reduced to not less than 4 inches. Lead-in conductors on the outside of buildings shall not come nearer than the clearances specified above to electric light and power wires unless separated therefrom by a continuous and firmly fixed non-conductor which will maintain permanent separation. The non-conductor shall be in addition to any insulating covering on the wire.

g. Each lead-in conductor shall enter the building through a non-combustible, non-absorptive, insulating bushing slanting upward toward the inside or by means of an approved device designed to give equivalent protection. The lead-in conductor from the building entrance to the set shall have rubber insulation approved for voltages 0-600 (Type R).

h. Each lead-in conductor shall be provided with an approved protective device (lightning arrester) which will operate at a voltage of 500 volts or less, properly connected and located either inside the building at some point between the entrance and the set which is convenient to a ground, or outside the building as near as practicable to the point of entrance. The protector shall not be placed in the immediate vicinity of easily ignitable stuff, or where exposed to inflammable gases or dust or flyings of combustible materials.

i. If an antenna grounding switch is employed, it shall in its closed position form a shunt around the protective device. The switch should be placed in the most direct line between the lead-in conductor and the point where the grounding connections are made. Such a switch shall not be used as a substitute for the protective device.

j. If fuses are used, they shall not be placed in the circuit from the antenna through the protective device to ground.

k. The protective grounding conductor may be bare and shall be of copper, bronze or approved copper-clad steel. The protective grounding conductor shall be not smaller nor have less conductance per unit of length, than the lead-in conductor, and in no case shall be smaller than No. 14 if of copper nor smaller than No. 17 if of bronze or copper-clad steel. The protective grounding conductor shall be run in as straight a line as possible from the protective device to a good permanent ground. The ground connections shall be made to a cold-water pipe where such pipe is available and is in service and connected to the street mains. An outlet pipe from a water tank fed from a street main or a well may be used, provided such outlet pipe is adequately bonded to the inlet pipe connected to the street water main or well. If water pipes are not available, ground connections may be made to a grounded steel frame of a building or to an artificial ground such as a galvanized iron pipe or a rod driven into permanently damp earth or to a metal plate or other body of metal buried similarly. Gas piping shall not be used for the ground.

l. The protective grounding conductor shall be guarded where exposed to mechanical injury. An approved ground clamp shall be used where the protective grounding conductor is connected to pipes or piping.

m. The protective grounding conductor may be run either inside or outside the building. The protective grounding conductor and ground, installed as prescribed in the preceding paragraphs k and l, may be used as the operating ground.

It is recommended that in this case the operating grounding conductor be connected to the ground terminal of the protective device.

If desired, a separate operating grounding connection and ground may be used, this operating grounding conductor being either bare or provided with an insulated covering.

n. Wires inside buildings, shall be securely fastened in a workmanlike manner and shall not come nearer than 2 inches to any electric light or power wire not in conduit unless separated therefrom by some continuous and firmly fixed non-conductor, such as porcelain tubes or approved flexible tubing, making a permanent separation. This non-conductor shall be in addition to any regular insulating covering on the wire.

o. Storage-battery leads shall consist of conductors having approved rubber insulation. The circuit from a filament, "A," storage battery of more than 20 ampere-hours capacity, NEMA rating, shall be properly

protected by a fuse or circuit-breaker rated at not more than 15 amperes. The circuit from a plate, "B," storage battery shall be properly protected by a fuse or circuit-breaker rated at not more than 1 ampere in the negative lead. Fuses or circuit-breakers shall be located not more than 18 inches along the wire from a battery terminal.

**3703. For Transmitting Stations Only.**

- a. Antenna and counterpoise conductors outside buildings shall be kept well away from all electric light or power wires of any circuit of more than 600 volts, and from railway trolley or feeder wires, so as to avoid the possibility of contact between the antenna or counterpoise and such wires under accidental conditions. Antenna and counterpoise conductors where placed in proximity to electric light or power wires of less than 600 volts, or signal wires, shall be constructed and installed in a strong and durable manner, and shall be so located and provided with suitable clearances as to prevent accidental contact with such wires by sagging or swinging.
- b. Antenna conductor sizes shall be not less than given in the following table:

Material	Stations to which power supplied is less than 100 watts and where voltage of power is less than 400 volts	Stations to which power supplied is more than 100 watts or voltage of power is more than 400 volts
	Soft copper.....	14
Medium-drawn copper.....	14	8
Hard-drawn copper.....	14	10
Bronze or copper-clad steel.....	14	12

c. Splices and joints in the antenna and counterpoise span shall be soldered unless made with approved splicing devices.

d. Lead-in conductors shall be of copper, bronze, approved copper-clad steel or other metal which will not corrode excessively and in no case shall be smaller than No. 14.

e. Antenna and counterpoise conductors and wires leading therefrom to ground switch, where attached to buildings, shall be firmly mounted 5 inches clear of the surface of the building, on non-absorptive insulating supports such as treated pins or brackets, equipped with insulators having not less than 5 inches creepage and air-gap distance to inflammable or conducting material, except that the creepage and air-gap distance for continuous-wave sets of 1000 watts and less input to the transmitter, shall be not less than 3 inches.

f. In passing the antenna or counterpoise lead-in into the building a tube or bushing of non-absorptive, insulating material, slanting upward toward the inside, shall be used and shall be so insulated as to have a creepage and air-gap distance in the case of continuous wave sets of 1000 watts and less input to the transmitter, not less than 3 inches, and in all other cases not less than 5 inches. If porcelain or other fragile material is used it shall be protected where exposed to mechanical injury. A drilled window pane may be used in place of a bushing provided creepage and air-gap distances as specified above are maintained.

g. A double-throw knife switch having a break distance of at least 4 inches and a blade not less than 1/4 inch by 1/2 inch, or a flexible grounding lead and clamp in place of this switch, shall be used to join the antenna lead-in to the grounding conductor. The switch or flexible grounding lead may be located inside or outside the building. The base of the switch shall be of non-absorptive insulating material. The switch or flexible grounding lead shall be so mounted that its current-carrying parts will be at least 3 inches clear of the building wall or other conductors in the case of continuous-wave sets of 1000 watts and less, and in all other cases at least 5 inches. The conductor from grounding switch or flexible grounding lead to ground shall be securely supported. These provisions shall also apply to the connection of the counterpoise lead-in to its grounding conductor.

It is recommended that the switch be located in the most direct line between the lead-in conductors and the point where grounding connection is made.

h. Antenna and counterpoise conductors shall be effectively and permanently grounded at all times when station is not in actual operation and unattended, by a conductor at least as large as the lead-in and in no case smaller than No. 14 copper, bronze or approved copper-clad steel. This protective grounding conductor need not have an insulated covering or be mounted on insulating supports. The protective grounding conductor shall be run in as straight a line as possible to a good permanent ground. The ground connections shall be made to a cold-water pipe where such pipe is available and is in service and connected to the street mains. An outlet pipe from a water tank fed from a street main, or a well may be used, provided such outlet pipe is adequately bonded to the inlet pipe connected to the street water main or well. If water pipes are not available, ground connections may be made to a grounded steel frame of a building or to an artificial ground such as a galvanized iron pipe or a rod driven into permanently damp earth or to a metal plate or other body of metal buried similarly. The protective grounding conductor shall be protected where exposed to mechanical injury. A suitable approved ground clamp shall be used where the protective grounding conductor is connected to pipes or piping. Gas pipes shall not be used for the ground.

It is recommended that the protective grounding conductor be run outside the building.

i. The operating grounding conductor shall be of copper strip not less than 3/8 inch wide by 1/32 inch thick, or of copper, bronze, or approved copper-clad steel having a periphery, or girth, of at least 3/8 inch, such as a No. 2 wire, and shall be firmly secured in place throughout its length.

j. The operating grounding conductor shall be connected to a good permanent ground. Preference shall be given to water piping. Other permissible grounds are grounded steel frames of buildings or other grounded metal work in the building, and artificial grounding devices such as driven pipes, rods, plates, cones, etc. Gas piping shall not be used for the ground.

k. Where the current supply is obtained directly from lighting or power circuits, the conductors whether or not lead-covered shall be installed in approved metal conduit, armored cable or metal raceways.

l. When necessary to protect the supply system from high-potential surges and kick-backs there shall be installed in the supply line as near as possible to each radio-transformer, rotary spark gap, motor and generator in motor-generator sets and other auxiliary apparatus one of the following:



1. Two condensers (each of not less than 1/10 microfarad capacity and capable of withstanding 600 volts test) in series across the line with mid-point between condensers grounded; across (in parallel with) each of these condensers shall be connected a shunting fixed spark-gap capable of not more than 1/32 inch separation.
2. Two vacuum tube-type-protectors in series across the line with the mid-point grounded.
3. Lightning arresters, such as the aluminum-cell type.

#### ARTICLE 38. SIGNS AND OUTLINE LIGHTING.

##### 3801. General.

- a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code.
- b. Signs and outline lighting which employ vacuum or inert-gas tube systems shall, in addition to requirements of this article, comply with the provisions of Section 5002 of this Code.

##### 3802. Material.

- a. Metal used in the construction of sign boxes, cabinets or outline troughs shall be not less than No. 28 U. S. sheet metal gauge (.0156 inch). It shall be galvanized, treated with at least three coats of anti-corrosive paint, or otherwise suitably protected from corrosion.
- b. With the exception of wood employed for the external decoration of signs and kept at least 2 inches distant from the nearest socket or receptacle, signs shall be constructed entirely of metal or other approved non-combustible material.
- c. The design shall be such as to afford ample strength and rigidity, to enclose all terminals and wiring other than the leads, except as provided in Section 3805 of this article, and for outdoor signs or outline troughs to render the box or trough practically weatherproof and to provide drainage for each compartment by means of one or more holes, each not less than 1/4 inch in diameter.
- d. One or more accessible approved boxes or cabinets shall be provided to contain cutouts, flashers, or other similar devices placed on or within the body or structure of a sign or on or in a building. If outside of a building such boxes and cabinets shall be weatherproof. Non-weatherproof transformers if outside buildings shall be placed in such a box or cabinet.

##### 3803. Sockets and Receptacles.

- a. Sockets and receptacles for sign and outline lighting shall be of the keyless porcelain or moulded composition type, and if for sign use shall be so designed as to afford permanent and reliable means to prevent turning. Terminals of sign receptacles shall be kept at least 1/2 inch from metal of the sign; provided, however, that where open work is employed as the wiring method outside buildings, this separation shall be at least 1 inch. Miniature receptacles shall not be employed for outdoor work.
- b. Electric signs with changeable connections shall be so arranged that the connections can be changed manually only by approved connectors. Approved connectors shall interrupt all ungrounded conductors of the circuit.

##### 3804. Wiring.

- a. Wire of approved rubber-covered type, and not smaller than No. 14, shall be used.
- b. Wires shall be neatly run, and so disposed and fastened as to be mechanically secure.
- c. Wires shall be soldered to terminals of receptacles, and exposed parts of wires and terminals shall be treated to prevent corrosion.
- d. Approved bushings shall be employed to protect wires passing through walls or partitions of the structure. Sign leads not encased in conduit or metal armor may be cabled before passing through non-combustible, non-absorptive bushings.
- e. Wires on outside of sign structure or outline wiring, except as provided in Section 3803 of this article, shall be enclosed in approved conduit, metal armor, or metal troughs. Outside a building where conduit work is used, it shall be made weatherproof, and where armor is employed an approved lead sheath shall be placed over the wire insulation.
- f. Outline lighting shall be protected by its own cutout and controlled by its own switch.
- g. Circuits shall be so arranged that the number of outlets and the lamps connected to them shall in no case be such as to place more than 15 amperes on the branch circuit fuse.
- h. Live parts shall be enclosed or otherwise guarded unless on grounded circuits of not more than 150 volts to ground, and safe from accidental contact by objects or persons.

##### 3805. Open Wiring.

- a. Open work may be employed as the wiring method for outline lighting and for signs on walls, roofs or open ground, where not subject to mechanical injury, and not readily accessible to unauthorized persons and if on grounded circuits of not more than 150 volts to ground.
- b. Where wires are connected to approved receptacles which hold them at least 1 inch from the surface wired over, and which are placed at intervals not exceeding 1 foot, the receptacles themselves shall be considered to afford the necessary support and spacing of the wires. Where the interval between receptacles exceeds 1 foot but is less than 2 feet, an additional non-combustible, non-absorptive insulator maintaining a separation and spacing equivalent to the receptacle shall be used.
- c. Where flexible tubing must be employed in outline lighting, the ends shall be sealed and painted with a moisture repellant and the tubing shall be kept at least 1/2 inch from the surface wired over.

##### 3806. Grounding.

- a. Signs, troughs and other metal frames shall be grounded as provided in Article 9 of this Code, unless these are insulated from ground and from other conducting surfaces and are inaccessible to unauthorized persons.

##### 3807. Switches.

- a. Switches controlling sign or outline wiring shall be externally operable.
- b. Each sign shall be provided with a switch which will open all ungrounded wires supplying the sign. When signs are not within sight of the switch, the switch shall be of the locking type.

#### ARTICLE 39. THEATRES; INCLUDING MOTION-PICTURE HOUSES.

##### 3901. General.

- a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code.
- b. A theatre shall be deemed to be that building, or part of a building, regularly or frequently used for dramatic, operatic, motion picture or other performances or shows, or which has a stage for such performances used with scenery or other stage appliances.
- c. Emergency lights shall be deemed to be exit lights, and all lights necessary to illuminate lobbies, stairways, corridors, passageways, aisles, and other portions of the theatre to which the public has access, which are normally kept lighted during the performance, to enable the public to leave the building safely in case of emergency.
- d. Where conduit, armored-cable or metal-raceway construction is employed, all such conduit, metal sheath, raceways, all exposed metal frames and enclosures of equipment, including borders, shall be grounded as prescribed in article 9 of the Code. This shall apply to all devices, except portable arc lamp standards, portable strips, and similar portable devices containing no wire of a grounded circuit over 150 volts and no wire of an ungrounded circuit exposed to higher voltages.

##### 3902. Services.

- a. Where the supply can be obtained from two street mains, two or more separate and distinct services shall be installed; one service shall be of sufficient capacity to supply current for all emergency lights, and the other service or services shall be of sufficient capacity to supply the normal demand of the theatre equipment and sufficient lights to provide equivalent illumination to that of the emergency lights; or the emergency lights shall be suitably sub-divided between two or more of the services to enable emergency illumination to be maintained in case of interruption of one of the services. Where the supply cannot be obtained from two separate sources, the feed for the emergency lights shall be taken from a point on the street side of the main fuses.
- b. Where the source of supply in an isolated plant located in the building, an auxiliary service of capacity sufficient to supply all emergency lights shall be obtained from some outside source, or from an adequate storage battery installed upon the premises.
- c. Where a source of supply at less than 50 volts is employed for one or more lighting systems in the premises, the installation shall also comply with the appropriate provisions of article 40 of this Code.

##### 3903. Auditorium.

- a. Approved conduit, metal raceway or armored cable shall be employed as the wiring method.
- b. Receptacles shall be enclosed in boxes.
- c. Not more than one set of fuses shall be interposed between service fuses and exit lights.
- d. Emergency lights shall not be connected to or controlled by the stage lighting control, but from the lobby or other convenient place in the front of the theatre.
- e. All fuses shall be enclosed in approved cabinets.

##### 3904. Stage.

- a. Approved conduit or armored cable shall be employed as the wiring method.
- b. The switchboard shall be of the dead-front type, and shall carry a metal hood running the full length of the board and protecting the latter from falling objects. Switchboards having current-carrying parts exposed on back shall be elevated or guarded by suitable railings to prevent accidental contact of persons with live parts.
- c. Dimmers shall be so connected that they will be dead when their respective circuit switches are open.
- d. Footlights shall be wired by either the conduit or the armored cable method, receptacles being enclosed in approved boxes, or the wires shall be encased in metal trough composed of No. 20 U. S. sheet metal gauge (.0375 inch), treated to prevent oxidation. Conductors shall be soldered to receptacle terminals, which shall be kept at least 1/2 inch from the metal of the trough.
- e. Footlights, border lights and proscenium sidelights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than 15 amperes on a branch-circuit fuse.
- f. Borders and proscenium sidelights shall be constructed as prescribed in paragraph d of this section, shall be suitably stayed and supported, and shall be so designed that the flanges of the reflectors or other adequate guards will protect the lamps from mechanical injury and from accidental contact with scenery or other combustible material.
- g. Border cables shall be of approved type and suitably supported. They shall be employed only where flexibility is required.
- h. Approved slow-burning wire shall be used for wiring the border.
- i. Stage and gallery receptacles shall be in approved pockets or enclosures and controlled from, and protected by individual cutouts at, the stage switchboard. Feeds for arc receptacles shall not be smaller than No. 6 and the receptacles shall have a capacity of not less than 35 amperes. Feeds for incandescent receptacles shall not be smaller than No. 12 and the receptacle shall have a capacity of not less than 15 amperes. Plugs for arc and incandescent receptacles shall not be interchangeable.
- j. Lamps installed in scene docks shall be so located and guarded as to be free from mechanical injury.
- k. Curtain motors shall be of the enclosed type.
- l. Where stage flue dampers are released by an electrical device, the circuit operating the latter shall be normally closed, and shall be controlled by at least two approved single-pole switches enclosed in approved iron boxes having self-closing doors without locks or latches, one switch being placed at the electrician's station and the other where designated by the inspection department. The device shall be designed for the full voltage of the circuit to which it is connected, no resistance being inserted. It shall be located in the loft above the scenery and shall be enclosed in a suitable iron box having a tight, self-closing door.

##### 3905. Dressing Rooms.

- a. Approved conduit or armored cable shall be employed as the wiring method.

b. Pendants for lights shall be composed of approved reinforced cord, armored cable or armored cord.

c. Lamps shall be protected by approved guards sealed or locked in place.

#### 3906. Portable Arc Lamps.

a. Arc lamps shall be substantially constructed entirely of metal not less than No. 20 U. S. sheet metal gauge (.0375 inch), except where approved insulating material is necessary. The design shall be such as to provide proper ventilation while retaining sparks, and to prevent carbons or other live parts of lamp from making contact with metal of hood.

b. Hoods for other than lens lamps shall have the front opening equipped with a self-closing hinged door frame carrying either wire gauze or glass. Hoods for lens lamps may have a stationary front, and a solid door on either back or side.

c. Mica shall be used for the insulation of the lamp frame.

d. Arc-lamp frames and standards shall be so installed and guarded as to prevent their becoming grounded.

e. The switch on the standard shall be of such design that accidental contact with any live part will be impossible.

f. Stranded connections in lamp and at switch and rheostat shall be provided with approved lugs.

g. Rheostats shall be enclosed in a substantial, properly ventilated metal case affording a clearance of at least 1 inch between case and resistance element. If the rheostat is mounted on the standard, a clearance of 3 inches above the floor shall be maintained.

h. A qualified operator shall be employed for each lamp, or for each two lamps not more than 10 feet apart and so placed that one operator can properly watch and care for both.

#### 3907. Portable Bunches.

a. Substantial metal shall be employed and the wiring shall not be exposed.

b. Where the cable passes through the metal, an approved bushing shall be employed, and the cable shall be so anchored as to relieve the connections of any mechanical strain.

#### 3908. Portable Strips.

a. Portable strips shall conform to the requirements of paragraphs d, e, and f of section 3904, of this code.

b. Where the cable passes through the metal an approved bushing shall be employed, and the cable shall be so anchored as to relieve the connections of serious mechanical strain.

#### 3909. Portable Plugging Boxes.

a. The construction shall be such that no current-carrying part will be exposed.

b. Each receptacle shall have a current-carrying capacity of 30 amperes, and shall be protected by approved fuses mounted on slate or marble bases enclosed in a fireproof cabinet equipped with self-closing doors.

c. Bus bars shall have a current-carrying capacity equal to the sum of the ampere ratings of all the receptacles. Approved lugs shall be provided for the connection of the master cable.

#### 3910. Portable Conductors.

a. Pin-plug connectors shall be so designed that tension on the cable will not cause serious mechanical strain on the connections. The female half shall be attached to the live end of the cable.

b. Flexible conductors used from receptacles to arc lamps, bunches and other portable equipments shall be approved stage cable except that for the purpose of feeding a stand lamp under conditions where conductors are not liable to severe mechanical injury, an approved reinforced cord may be used, provided cutout designed to protect same is not fused over 15 amperes capacity.

#### 3911. Lights on Scenery.

a. Brackets shall be wired internally, and the fixture stem shall be carried through to the back of the scenery, where a suitable bushing shall be placed on the end of the stem. Fixtures shall be securely fastened in place.

#### 3912. String or Festooned Lights.

a. Joints in wiring shall be staggered where practicable.

b. Lamps enclosed in lanterns or similar devices shall be equipped with approved guards.

#### 3913. Special Electrical Effects.

a. Devices used for simulating lightning, waterfalls, etc., shall be so constructed and located that flames, sparks, etc., cannot come in contact with combustible material.

### ARTICLE 40. ISOLATED PLANTS, 0-50 VOLTS.

#### 4001. General.

a. The requirements of this article shall be deemed to be additional to, or amendatory of, those prescribed in articles 1 to 19, inclusive, of this Code.

b. This article shall be deemed to apply particularly to isolated plants which employ as their prime mover a stationary internal-combustion engine, with its necessary fittings, connected to an electric generator either with or without an auxiliary storage battery with its control devices, and operating at a potential of less than 50 volts.

c. Attention shall be given to the relatively low voltage at which these plants operate, thus requiring a greater current for equivalent energy and making necessary a greater ampere capacity of conductors, fittings, devices and appliances as compared with those of the standard 0-600 volt classification used on commercial circuits.

#### 4002. Sockets and Receptacles.

a. Standard lamp sockets and receptacles of the 660-watt classification shall be used. In designing circuits, each lamp socket or receptacle shall be assumed to have a load of not less than 40 watts.

b. Receptacles of 20 ampere rating shall be provided in kitchens, laundries and similar locations where appliances are likely to be used.

#### 4003. Automatic Cutouts and Circuits.

a. The fuses in the branch circuit shall not exceed 20 amperes rating except for special circuits as in paragraph c of this section.

b. Fuses shall be so placed that no set of small motors, small heating appliances or incandescent lamps, nor more than 8 lamp sockets or receptacles, requiring more than 320 watts, shall be dependent upon one cutout.

c. Wire size shall be not less than No. 12 for any circuits. For special circuits to which appliances or appliance receptacles are attached, as in paragraph b of section 4002 of this article, the wire size shall be not less than No. 10 for supplying more than one appliance or appliance outlet.

#### 4004. Batteries.

a. Batteries shall be located in rooms or spaces having natural means of ventilation.

b. Battery jars and cells, if not composed of insulating material such as glass or hard rubber, shall be mounted on insulating supports of glass or porcelain.

#### 4005. Grounding.

a. The grounding of circuits or frames of engine or generator shall not be required.

### ARTICLE 50. CIRCUITS AND EQUIPMENT OPERATING AT MORE THAN 600 VOLTS BETWEEN CONDUCTORS.

The requirements of this article shall be in addition to, or amendatory of, those prescribed in articles 1, 2, 3, 5 to 19, inclusive, 32 and 38 of this Code.

#### 5001. Series Arc Lighting.

a. Constant-current systems shall not be installed in buildings, and lamps or fixtures shall not be attached to exterior walls of buildings, except by permission of the authority enforcing this code.

#### 5002. Vacuum and Inert-Gas Tube Systems.

a. The tube shall be substantially supported and so installed as to be free from contact with inflammable material or grounded metal objects. It shall not be unduly exposed to mechanical injury. The tube terminals shall (1) project within the sign enclosure, or (2) shall be isolated from combustible material and inaccessible to unauthorized persons, or else (3) shall be installed in separate enclosures approved for the purpose which shall consist of non-combustible, non-absorbent insulating material or of metal of thickness not less than No. 24 U. S. sheet metal gauge. Such sheet metal shall be galvanized, treated with at least three coats of anti-corrosive paint, or otherwise suitably protected from corrosion. Connections at electrodes shall be mechanically and electrically secured and, unless a solderless connector approved for the purpose is used, shall be soldered.

b. The transformers, tubes and other apparatus shall be approved for this use. High-voltage transformers of other than weatherproof type, and other high-voltage equipment shall be installed in approved cabinets unless placed within the metal enclosure provided for the complete assembly. The transformer secondary open-circuit voltage shall not exceed 15,000 volts.

c. High-voltage conductors shall be approved for the purpose and shall be not smaller than No. 14 B. & S. gauge. Outside of the cabinets and tube-terminal enclosures they shall be covered with insulation approved for the purpose. Where within reach from ground, roof or window, they shall be installed in metal conduit. Elsewhere, they shall be run in conduit or on approved insulators which maintain a separation of at least two inches from other objects.

d. Not more than one transformer shall be dependent upon a single automatic overload protective device unless the combined load is less than 1650 volt-amperes. Additional devices for the individual protection and disconnection of transformers in signs may be placed within or outside the sign structure. If exposed to the weather, they shall be of weatherproof type.

e. Enclosures for transformers and regulating coils shall be well ventilated and of such design as to prevent the emission of any flame or sparks in case of burnout of any of the coils. All metal enclosures shall be permanently and effectively grounded in accordance with article 9, except that a No. 14 wire may be used for bonding together isolated tube-terminal boxes or outline systems.

f. Enclosures for transformers, regulating coils and tube terminals shall, for indoor installations having live parts exposed within the cabinet, be arranged so that the door of the enclosure cannot be opened without breaking the primary circuit.

#### 5003. Wiring.

a. Circuits operating at more than 7500 volts between conductors shall not (except as provided in Section 5002) be installed in buildings other than central station, substations, transformer vaults and fire-resistive motor rooms. Industrial substations for such voltages, if not outdoors or in a separate detached building, shall meet the requirements for a transformer vault in Section 5037.

b. Elsewhere than in central stations, substations, generator, transformer, switching, and motor rooms, conduits shall properly enter and be secured to the casing of shields surrounding apparatus or to suitable terminal boxes bolted or otherwise secured to the casing.

c. Elsewhere than in central stations, substations, and generator, transformer, switching and motor rooms and in service runs, all wiring of circuits of more than 600 volts shall consist of approved multiple-conductor, grounded metal-sheathed cable enclosed in approved conduit. Where the cable is not exposed to moisture, the metal sheath may be omitted by permission of the inspection department. Where moisture is absent, the metal sheath need not be continued over splices; but where the metal sheath is required over the rest of the cable the ends of the sheath shall be belled out and bonded around the splices by No. 8 copper wire and ground clamps.

d. Where a cable emerges from its metal sheath, the insulation of the several conductors shall be thoroughly protected from moisture and mechanical injury by a pothead or equivalent device.

e. Open work may be employed in central stations, substations, generator, transformer and switching rooms and in motor rooms provided the wires are rigidly supported on glass or porcelain insulators which will keep them eight inches apart, except at apparatus and devices, and at least two inches from adjacent surfaces in all cases, and three inches where voltage exceeds 2500.

Rigid supporting requires supports about 4½ feet apart when wiring along flat surfaces under ordinary conditions.

f. Overhead service conductors shall be not smaller than No. 6. They shall enter the building only in rigid conduit or as separate individual wires. Open wires shall enter through waterproof insulating tubes or bushings, with drip loops on the outside. Where rigid conduit is used, it shall have weatherproof threaded joints and be equipped with an approved service pothead.

g. Underground service conductors shall be not smaller than No. 8, shall be lead-covered and if exceeding 2500 volts to ground shall terminate in suitable potheads or their equivalent located to conform with Section 5010. The end of underground service conduit shall be sealed with suitable compound.

#### 5004. Motors.

a. Motors operating at more than 7500 volts between conductors shall not be installed elsewhere than in central stations and substations and in fire-resistive motor rooms.

#### 5005. Transformers and Apparatus.

a. Transformers installed in central stations and substations shall be so located that fire and smoke from burning coils or boiling oil will be unlikely to do harm.

It is recommended that air-cooled transformers be isolated as much as possible, and that, if air blast is employed, the ducts be fireproof. It is further recommended that oil-filled transformers be placed in a compartment constructed in accordance with Section 5007 of this Code.

b. Transformers shall not be installed in buildings other than central stations or substations, except by permission of the authority enforcing this Code. Where such permission has been granted, transformers shall be located as near as possible to the point at which the primary wires enter the building and shall be contained in an enclosure of fire-resistive material large enough to provide an air space of at least 6 inches on every side of the transformers. This enclosure shall be securely locked, access being allowed only to authorized persons, and shall be thoroughly ventilated. This shall not apply to the control-circuit transformer furnished with control equipment. These transformers shall be considered as subject to the requirements applying to the equipments with which they are used.

It is recommended that ventilation be secured by means of a chimney or flue leading out of doors.

c. Transformer cases shall be grounded as prescribed for the grounding of equipment in Article 9 of this Code; provided, however, that cases or frames of transformers used exclusively to supply current to switch-board instruments need not be grounded if they are installed and grounded as required for the maximum potential at which they operate.

d. For oil-filled transformers which are not located in central stations or substations, the enclosure required by paragraph b of this section shall consist of fireproof vault construction in accordance with Section 5007 of this article.

e. For transformers in electric furnace rooms the requirements of this section and of Section 5007 of this article shall be followed so far as practicable; provided, however, that by permission of the authority enforcing this Code, oil-filled transformers having a total rating of 75 k.v.a. or less, may be located in electric furnace rooms of fire-resisting construction, if surrounded by concrete curbs not less than 6 inches high and forming a basin of sufficient capacity to retain all the oil used in such transformers.

This is to guard against the possibility of molten metal from the furnace coming in contact with the transformer casing, and also to prevent oil from the transformers reaching the furnace.

#### 5006. Control and Protective Equipment.

a. When operating at more than 600 volts, each motor, each transformer or bank of transformers operating as a unit, and each other operating unit of apparatus, shall be separately controllable and protected by a manually operable circuit-breaker which interrupts all ungrounded circuit wires and which is automatically actuated by excessive overload in any ungrounded wire and the number of over-current units shall be as specified in the table of paragraph p of Section 805; provided, that certain transformers installed in fireproof vaults may be otherwise controlled and protected when and as permitted by Section 5009 of this article. For the purposes of this rule, transformers operating in multiple shall not be considered as operating in bank and shall be separately protected. When a generator and a transformer, or bank of transformers, operate as a unit for stepping up or stepping down the voltage, they may be controlled and protected as an operating unit. Where the motor-starting device does not open all ungrounded leads to the motor, this circuit-breaker shall be installed in sight of the person operating the motor-starting device or else have provision for locking in the open position.

b. Oil circuit-breakers and switches shall be isolated from other switches and electrical apparatus wherever practicable. Where connected to circuits exceeding 2500 volts to ground they shall be placed in separate fireproof cells or closed metal compartments and controlled from outside such closed compartments.

It is recommended that switches of the oil-immersed type used to control transformers be located in a vault, preferably separate from the transformers.

Safety control truck panels and armor-clad switch-gear units on circuits not exceeding 15,000 volts are considered to comply with this rule even though the circuit-breaker is not of the remote-control type.

c. Switches and control apparatus on circuits exceeding 2500 volts to ground shall be installed in a vault complying with section 5007, or in a fire-resistive switch room or motor room.

Safety control truck panels and armor-clad switchgear units are considered to comply with this rule.

d. All switches including disconnectors shall be so located that the point from which they are operated is safely accessible to qualified and authorized persons.

#### 5007. Transformer Vaults.

a. The walls and also the roof shall consist of reinforced concrete not less than six inches in thickness, or of brick not less than eight inches in thickness, or of construction of equivalent ruggedness and equivalent fire rating as determined by tests conducted according to the Standard Fire Test Specification; except that when the total transformer capacity so enclosed is not over 100 kilovolt-amperes the above thickness

may be reduced to four inches provided approved fireproof material is employed and the construction of the vault is specifically approved by the inspection department.

It is recommended that outside walls of the building, if of fireproof construction, constitute one or more of the walls of the vault or enclosure.

b. The enclosure shall be provided with means for ventilation which will prevent the development of room temperatures in excess of those at which the transformers installed therein may be safely operated. Temperatures shall be determined as prescribed in the standards of the American Institute of Electrical Engineers, and temperatures under full load shall not exceed the values there given. All ventilating openings not connected to chimneys or flues shall be provided with automatic or manually controlled dampers made of metal of thickness not less than No. 10 (U. S. standard gauge for sheet steel) to prevent the emission of smoke or fire.

It is recommended that damper controls be arranged to be operated from a point outside the vault.

c. Where practicable, a suitable drain shall be provided which will carry off any accumulation of oil or water that may collect in the vault. Floor and drain shall have a pitch of not less than ¼ inch per foot. In vaults containing transformers having a total capacity of 100 kilovolt-amperes or less the drain may be omitted if the enclosure is so constructed as to retain all the oil used within the vault.

d. Unless access is from outside the building only, the doorway to the vault shall be thoroughly closed by means of tight-fitting fire door approved for Class A openings as defined in the Regulations of the National Board of Fire Underwriters for the Protection of Openings in Walls and Partitions Against Fire. A door sill not less than 4 inches in height shall be provided. In all cases the sill shall be of sufficient height to confine within the vault the oil from the largest transformer installed.

#### 5008. Capacitors (Static Condensers).

a. Capacitors of the type made up of small units, each of which contains less than three gallons of oil, may be installed in power houses or factory buildings if combustibles are kept well away from them. In rooms containing combustible dust or flying material, capacitors shall be enclosed.

If capacitors are accessible to other than qualified persons a non-combustible grille or guard around them may be desirable.

b. Capacitors which have all units in single tanks filled with oil shall be installed as required for transformers in Section 5005.

c. For transformers used with capacitors, the requirements of Section 5005 shall be followed; provided, however, that by permission of the authority enforcing this code, oil-filled transformers intended for and used only with capacitor installations and not subject to lightning disturbances may be installed in rooms of non-combustible construction and occupancy. Such transformers shall be of sufficient capacity to allow for ordinary rises in voltage; they shall be surrounded by concrete curbs not less than 6 inches high which form a basin of sufficient capacity to retain all the oil contained in the transformers; and be protected by an automatic overload circuit-breaker (or other protective device and switch) set to operate at a current corresponding to not over 150% of the rated capacity of the capacitor.

#### 5009. Service Equipment.

Secondary conductors and not primary conductors are regarded as constituting the service wires to the building proper in the following cases, and where any one of the following conditions is satisfied only paragraphs (g), (h), (i) and (j) of this section apply.

1. Where step-down transformers are located outdoors.
2. Where step-down transformers are located in a separate building from the one served.
3. Where step-down transformers are located in a transformer vault conforming to the requirements of Section 5007 and under the sole control of the supply company.

a. In services operating in excess of 600 volts, all ungrounded conductors supplying equipment, except as noted below in paragraphs b and c, shall be controlled and protected by an automatic circuit-breaker of suitable rupturing capacity having an over-current device in each ungrounded conductor so arranged that the operation of any one device will open all ungrounded conductors.

b. On services entering fireproof transformer vaults, where the voltage is less than 7500 and more than 4000 between conductors, and where the transformer capacity does not exceed 50 k.v.a. per phase, the following protective devices shall be provided:

1. An automatic oil circuit-breaker, or
2. A non-automatic oil switch with approved fuses.

When the transformer capacity exceeds 50 k.v.a. per phase, an automatic oil circuit-breaker shall be provided.

c. On services entering fireproof transformer vaults, where the voltage is not more than 4000 between conductors and not more than 2300 between conductors and ground, and the transformer capacity does not exceed 50 k.v.a. per phase, the following protective devices shall be provided:

1. An automatic oil circuit-breaker, or
2. A non-automatic switch with approved fuses, or
3. Approved fuses, or
4. An approved automatic air-break circuit-breaker.

When the transformer capacity exceeds 50 k.v.a. per phase, automatic oil circuit-breakers shall be used.

At the time of adoption of paragraphs b and c preceding, other devices to serve in lieu of oil circuit-breakers were not available. Such devices, if developed and found suitable by the authority enforcing this Code, may be employed in lieu of oil circuit-breakers and will satisfy the intent of this Code.

d. A lightning arrester complying with the requirements of Section 1901 of article 19 of this Code shall be placed on each ungrounded overhead service conductor ahead of the other service equipment, when required by the authority enforcing this Code.

e. Air-break disconnectors shall be installed between oil switches or circuit-breakers used as service switches and the supply wires.

f. Automatic overload circuit-breakers shall be located as near as possible to the point where the service wires enter the building, and shall be manually operable from a point which is readily accessible. Provision shall be made so that the circuit-breaker is free to open in case the circuit is closed on an overload. This can be by trip-free breakers, by multipole breakers having an operating handle per pole, or, for an air circuit-breaker, by a switch in series with each pole of the breaker. They shall indicate clearly whether they are open or closed.

g. Suitable circuit-breakers or switches and fuses shall be provided in the secondaries as required for low-voltage services in article 4 of this Code, except where the secondaries supply but one set of mains, in which case the above required primary protection, where consisting of an oil circuit-breaker manually operable from a point outside of any vault, will be considered as sufficiently protecting and controlling the secondary mains.

h. Air-break disconnectors and fuses shall be accessible to qualified attendants only. Air-break disconnectors required by this article shall be provided with means for grounding on the load side. Such grounding means need not be provided for duplicate disconnectors, if any, installed and maintained by the supply company.

i. No overhead service, no underground service, and no service from an isolated plant shall supply one building through another, except when such buildings are under single occupancy or management. Conductors in conduit or duct placed under two inches of concrete beneath a building, or buried in two inches of brick or concrete within a wall, shall be considered outside the building.

j. For services located in hazardous or extra-hazardous locations, see Article 32 (paragraph b in Sections 3203, 3204, and 3205) of this Code.

#### 5010. Guarding Live Parts.

a. All live parts, including conductors, which are connected to circuits of more than 600 volts between conductors, shall be enclosed or isolated so as to be accessible to qualified persons only.

b. Generator, switching, and motor rooms containing apparatus operated at more than 600 volts shall be securely locked except while a qualified operator is present.

#### 5011. Outdoor Substation.

a. Where step-down transformers are located outdoors they shall be so placed as not to interfere with firemen, and not be accessible to unauthorized persons. Unless isolated by elevation, they shall be surrounded by a grounded metal fence, and placarded with a warning sign which indicates the highest voltage involved. Overflow oil shall drain away from adjacent buildings and combustible material.

#### 5012. X-Ray and High-Frequency Apparatus.

a. Adequate mechanical barriers shall be provided to prevent too close approach to any high-voltage part except the operating tube and its leads, and it is recommended that all other parts be enclosed in a separate room or cabinet. Such barriers may consist of grounded metal or of insulating material such as glass. High-voltage parts enclosed in a wooden cabinet shall have adequate spacing from the wooden walls. If one side of the high-voltage circuit is grounded, the millimeter shall be connected in the grounded lead, and need not be guarded. All operating parts such as spark-gap handles and regulating handles shall be made of suitable insulating material and shall be operative from outside of the barriers.

b. Overhead high-voltage stationary conductors shall be not less than 7 feet 6 inches above the floor where the ceiling height permits and in no case less than 7 feet. The high-voltage leads on tilting tables and fluoroscopes shall be adequately insulated or so surrounded by barriers that inadvertent contact with them is improbable. Tube terminals and high-voltage wires connected thereto should be adequately insulated for a distance of 12 inches from the terminal. Shields for this purpose shall be designed to carry the high-voltage leads away from the patient in a direction at right angles to the long axis of the tube. X-ray tubes used in therapy shall be mounted in a grounded metal enclosure.

c. The low-voltage circuit of a step-up transformer shall contain a manually operable circuit-breaker having no exposed live parts. There shall be an additional switch in this circuit, which for diagnostic work shall be one of the following types:

1. A switch with spring or other mechanism to open automatically except while held closed by the operator.
2. A time switch which will automatically open after a definite time for which it has been set.

d. Where more than one piece of apparatus is operated from the same high-voltage source, each shall be provided with a high-voltage switch so as to give independent control.

e. Low-frequency current-carrying parts of machines of the quenched-gap or open-gap type shall be insulated or guarded so that they cannot be touched during operation. This applies to all parts except the high-frequency circuit proper which delivers high-frequency current normally for therapeutic purposes.

f. Transformers which are a part of an X-ray or high-frequency apparatus, even though they contain oil, are to be considered and treated as a part of the device, and need not conform to the requirements of Section 5005 for power transformers.

g. All tube stands and fluoroscopes shall have their frames, operating handles, and other non-current-carrying metal parts of apparatus grounded in conformity with the requirements of article 9. Non-metallic tables and chairs are recommended, particularly for therapeutic work. Metal or other conducting tables or chairs for supporting patients shall be suitably insulated from ground, and insulating floors, mats or platforms shall be provided for operators. It is recommended that floors of concrete or other conducting material be completely covered with linoleum, rubber tile or other insulating material.

### ARTICLE 60. SIGNAL SYSTEMS.

#### 6001. General.

a. The provisions of this article shall apply to telephone, telegraph (except radio), district messenger and call-bell circuits, fire and burglar alarms, and similar systems.

Such protective measures as are essential to safeguard these systems under the various conditions to which they are subjected are outlined in these rules.

#### 6002. Outside Wires.

a. Outside wires shall be placed in underground ducts or strung on poles. They shall not be run across or attached to roofs except by permission of the authority enforcing this Code.

b. Underground wires shall not be placed in a duct, handhole, or manhole containing electric light or power wires. Where a handhole or a manhole is divided into sections by means of partitions of brick, concrete or tile, each compartment shall be considered as a separate handhole or manhole.

c. Overhead wires shall not be attached to a crossarm carrying electric light or power wires, nor shall they, when on the exterior walls of buildings, be brought closer than four inches to electric light or power wires, unless one system is in conduit or is permanently separated from the other system by a continuous and firmly fixed non-conductor, additional to the insulation on the wires.

d. The metal sheath of aerial cables which are liable to contact with electric light or power wires shall be interrupted close to the entrance to a building by an insulating joint or equivalent device.

e. The distance between the two inside pins of any crossarm of a pole carrying signal and electric light and power wires shall be not less than 24 inches.

It is recommended that signal wires, being smaller and more liable to break and fall, be placed on the lower crossarms.

f. Aerial cables of the metal-sheathed type may have paper or other suitable insulation. If the metal sheath is omitted each wire shall have 1/32 inch rubber insulation and the bunched wires shall be covered with a substantial braid.

g. Wires from the last outdoor support to the protector, and wires attached to buildings shall have 1/32 inch rubber insulation on each wire, and in addition the wires, either individually or bunched, shall be covered with a substantial braid. Where such wires are entirely within a block the insulation on each wire may be less than 1/32 inch, but not less than 1/40 inch in thickness. Where not in conduit, such wires shall be separated from woodwork and supported on glass or porcelain insulators.

h. Wires shall enter buildings either through non-combustible, non-absorptive, insulating bushings, or through approved rigid conduit. Conduit or bushings shall slope upward from the outside, or, where this cannot be done, drip loops shall be formed in the wires immediately outside the point of entrance. The conduit shall be equipped with an approved service head. More than one wire may enter through one conduit or bushing.

i. The preceding paragraphs g and h shall not apply where the wires enter a building in the form of a cable such as is described in paragraph f, of this section, nor where the entire street circuit is run underground, and the circuit within the block is so placed as to be free from chance of accidental contact with electric light or power wires of over 250 volts.

#### 6003. In Buildings; Generally.

a. Wires beyond the protector, or wires inside buildings where no protector is employed, shall be neatly arranged and secured in place in a convenient, workmanlike manner. They shall not approach nearer than two inches to any electric light or power wire unless one system is in conduit or the two systems are permanently separated by a continuous and firmly-fixed non-conductor, additional to the insulation on the wires.

The wires would ordinarily be insulated, but the kind of insulation is not specified, as reliance is placed on the protector to stop all dangerous currents. Porcelain tubes or approved flexible tubing are considered suitable non-conductors.

b. Wires bunched together in a vertical run shall have a fire-resisting covering sufficient to prevent the carrying of fire from floor to floor. This requirement shall not apply if the wires are encased in non-combustible tubing, or are located in a fireproof shaft having firestops at each floor.

c. Signal wires and electric light and power wires may be run in the same shaft, if the two systems are separated at least two inches, or if either system is encased in non-combustible tubing.

d. Signal wires shall not be placed in a tube or compartment containing electric light or power wires, nor in the same outlet box, junction box or similar fitting or compartment unless separated from said electric light and power wires by a suitable partition, except where the power wires are introduced solely for power supply to signaling equipment or for connection to remote control equipment.

e. Transformers or other devices supplying current to signal systems from electric light or power circuits shall be of a type expressly approved for such service. The secondary wiring shall conform to the requirements of this article and the primary or the charging circuit wiring to the requirements of articles 1 to 19, inclusive, of this Code. This transforming device shall be permitted only when the primary thereof is properly grounded as required in article 9 of this Code.

#### 6004. In Building; Where the Distribution System Consists of Aerial Wires.

a. An approved protector shall be placed as near as practicable to the point of entrance to the building. The protector shall be mounted on a non-combustible, non-absorptive insulating base and shall consist of an arrester between each line wire and ground and a fuse in each line wire, the fuses protecting the arrester. The protector terminals shall be plainly marked to indicate "line," "instrument" and "ground."

b. The protector shall not be placed in the immediate vicinity of easily ignitable material or inflammable gases, or dust or flyings of combustible material.

c. Where the entire street circuit is run underground a protector shall not be required unless the circuit within the block is so placed as to be liable to accidental contact with electric light or power wires operating at a potential exceeding 250 volts.

The word "block" as used in these rules means a square or portion of a city, town or village enclosed by streets and includes the alleys so enclosed but not any street.

#### 6005. Grounding.

a. The grounding conductor of the protector shall consist of not less than No. 18 copper, having 1/32 inch rubber insulation, covered with a substantial braid. Where necessary, it shall be guarded from mechanical injury.

b. The grounding conductor shall be run in as straight a line as possible to a permanent and effective ground. Where connection is made to a gas pipe, attachment shall be made between the meter and the street main. In every case the attachment shall be made as close to the earth as practicable.




































A suitable ground may be obtained by connection to either a water or a gas piping system, preferably to the former. In the absence of such piping system a ground rod or pipe driven into permanently damp earth is acceptable.

c. The grounding conductor shall be attached to the pipe by means of an approved bolted clamp to which the conductor is soldered or otherwise connected in an approved manner.

d. Steam or hot-water pipes shall not be employed as a ground for protectors.

## Standard Symbols for Wiring Plans



































As recommended and adopted by the Association of Electricians, International, The American Institute of Architects and the American Institute of Electrical Engineers, and approved by the American Engineering Standards Committee on March 6, 1924. Reprinted by permission.

-  Ceiling outlet.
-  Ceiling outlet (gas and electric).
-  Ceiling lamp receptacle. Specifications to describe type such as key, keyless or pull chain.
-  Ceiling outlet for extensions.
-  Ceiling fan outlet.
-  Pull Switch.
-  Drop cord.
-  Wall bracket.
-  Wall bracket (gas and electric).
-  Wall outlet for extensions.
-  Wall fan outlet.
-  Wall lamp receptacle. Specifications to describe type such as key, keyless or pull chain.
-  Single convenience outlet.
-  Double convenience outlet.
-  Junction box.
-  Special purpose outlet. Lighting, heating and power as described in specifications.
-  Special purpose outlet. Lighting, heating and power as described in specifications.
-  Special purpose outlet. Lighting, heating and power as described in specifications.
-  Exit light.
-  Floor outlet.
-  Floor elbow.
-  Floor tee.
- $S^1$  Local switch—single pole.
- $S^2$  Local switch—double pole.
- $S^3$  Local switch—3 way.
- $S^4$  Local switch—4 way.
- $S^D$  Automatic door switch.
- $S^K$  Key push button switch.
- $S^E$  Electrolier switch.
- $S^P$  Push button switch and pilot.
- $S^R$  Remote control push button switch.
-  Tank switch.
-  Motor.
-  Motor Controller.
-  Lighting panel.
-  Power panel.
-  Heating panel.
-  Pull box.
-  Cable supporting box.
-  Meter.
-  Transformer.
-  Branch circuit, run concealed under floor above
-  Branch circuit, run exposed.
-  Branch circuit, run concealed under floor.

## Standard Symbols for Wiring Plans

Continued

As recommended and adopted by the Association of Electricians, International, The American Institute of Architects and the American Institute of Electrical Engineers, and approved by the American Engineering Standards Committee on March 6, 1924. Reprinted by permission.

- " This character marked on top circuits indicates 2 No. 14 conductors in 1/2-inch conduit.
- " " Indicates 3 No. 14 conductors in 1/2-inch conduit.
- " " " Indicates 4 No. 14 conductors in 3/4-inch conduit unless marked 1/2-inch.
- " " " " Indicates 5 No. 14 conductors in 3/4-inch conduit.
- " " " " " Indicates 6 No. 14 conductors in 1-inch conduit unless marked 3/4 inch.
- " " " " " " Indicates 7 No. 14 conductors in 1-inch conduit.
- " " " " " " " Indicates 8 No. 14 conductors in 1-inch conduit.
- Note.—If larger conductors than number 14 are used, use the same symbols and mark the conductor and conduit size on the run.
-  Feeder run concealed under floor above.
-  Feeder run exposed.
-  Feeder run concealed under floor.
-  Pole line.
-  Push Button.
-  Buzzer.
-  Bell.
-  Annunciator.
-  Interior telephone.
-  Public telephone.
-  Clock (secondary).
-  Clock (master).
-  Time stamp.
-  Electric door opener.
-  Local fire alarm gong.
-  City fire alarm station.
-  Local fire alarm station.
-  Fire alarm central station.
-  Speaking tube.
-  Nurse's signal plug.
-  Maid's plug.
-  Horn outlet.
-  District messenger call.
-  Watchman station.
-  Watchman central station detector.
-  Public telephone—PBX switchboard.
-  Interconnection telephone central switchboard.
-  Interconnection cabinet.
-  Telephone cabinet.
-  Telegraph cabinet.
-  Special outlet for signal system. As described in specifications.
-  Battery.
-  Signal wires in conduit. Concealed under floor.
-  Signal wires in conduit. Concealed under floor above.



**Tables**  
**Units of Measure**

The electrical units are derived from the following mechanical units of the metric system:

**METER.**—A unit of length equal, approximately, to one ten-millionth part of a quadrant of a meridian of the earth taken through Paris; or, approximately, to 39.37 inches.

**GRAMME.**—Unit of weight. Weight of a cubic centimeter of water at a temperature of 4 degrees centigrade.

**SECOND.**—Unit of time. The time of one swing of a pendulum making 86,400 swings in a solar day.

**Electrical Units**

**VOLT.**—Such an electromotive force as would cause a current of one ampere to flow against a resistance of one ohm. Such an electromotive force as would charge a condenser of the capacity of one farad with a quantity of electricity equal to one coulomb.

**OHM.**—The practical unit of electric resistance. Such a resistance as would limit the flow of electricity under an electromotive force of one volt, to a current of one ampere, or one-coulomb-per-second.

**MEGOHM.**—1,000,000 ohms.

**AMPERE.**—The practical unit of electric current. A rate of flow of electricity transmitting one coulomb per second. The current of electricity which would pass through a circuit whose resistance is one ohm, under an electromotive force of one volt.

**COULOMB.**—The practical unit of electric quantity. Such a quantity of electricity as would pass in one second through a circuit conveying one ampere. The quantity of electricity contained in a condenser of one farad capacity, when subjected to the E. M. F. of one volt.

**FARAD.**—The practical unit of electric capacity. Such a capacity of a conductor or condenser that one coulomb of electricity is required to produce therein a difference of potential of one volt.

**MICROFARAD (MFD.).**—One-millionth of a farad.

**WATT.**—A unit of electric power. A volt-ampere. The power developed when 44.25 foot-pounds of work are done in a minute, or 0.7375 foot-pound of work is done in a second.

**JOULE.**—A volt-coulomb or unit of electric energy or work. The amount of electric work required to raise the potential of one coulomb of electricity one volt. Ten million ergs.

**Ohm's Law**

Ohm's law is a method of expressing relationship existing between the electromotive force, current and resistance, and is practically the basis of most electrical computations. It is expressed in various forms, as follows:

$$\text{Current Flow} = \frac{\text{Electromotive Force}}{\text{Resistance}} \text{ or, } I = \frac{E}{R}$$

Electromotive force equals the current flow multiplied by resistance.

Electromotive Force = Current Flow × Resistance, or E = I × R.

Resistance equals the electromotive force divided by the current flow.

$$\text{Resistance} = \frac{\text{Electromotive Force}}{\text{Current Flow}} \text{ or, } R = \frac{E}{I}$$

I = Amperes. E = Volts. R = Ohms.

Electromotive force varies directly as the current and resistance.

Resistance varies directly with the electromotive force and inversely as the current.

Current varies directly with the electromotive force and inversely as the resistance.

**Mil**

The "mil," whose expressed value is  $\frac{\text{One}}{\text{One-Thousandth}}$  (.001) of an inch, is the practical basis for determining the diameters and thereby the area of all wires used as electric conductors. The diameters being given, the area is obtained by the well-known rule, "the area of a circle, in circular units, is equal to the square of its diameter;" hence the square of the diameter of a wire expressed in mils equals the area of its cross section.

D<sup>2</sup>=A, which area is expressed in Circular Mils or CM.; hence D<sup>2</sup>=CM.

**Tables**

**Metric System of Weights and Measures**

Measures of Lengths			
1 Millimeter =	0.001 Meter	=	0.0394 Inch
1 Centimeter =	0.01 Meter	=	0.3937 Inch
1 Decimeter =	0.1 Meter	=	3.937 Inch
1 Meter =	1 Meter	=	39.37 Inch
1 Dekameter =	10 Meters	=	393.7 Inch
1 Hectometer =	100 Meters	=	328 Feet 1 Inch
1 Kilometer =	1000 Meters	=	3280 Feet 10 In.
1 Myriameter =	10000 Meters	=	6.2137 Miles

It will be noticed that 10 Millimeters equal 1 Centimeter 10 Centimeters equal 1 Decimeter and so on.

Measures of Volumes			
1 Milliliter =	0.001 Liter	=	0.061 Cu. In.
1 Centiliter =	0.01 Liter	=	0.6102 Cu. In.
1 Deciliter =	0.1 Liter	=	6.1022 Cu. In.
1 Liter =	1 Liter	=	0.9081 Quart
1 Dekaliter =	10 Liters	=	9.081 Quarts
1 Hectoliter =	100 Liters	=	2 Bu. 3.35 Pks.
1 Kiloliter =	1000 Liters	=	1.308 Cu. Yds.

Weights			
1 Milligrm. =	0.001 Gramme	=	0.0154 Grain
1 Centigrm. =	0.01 Gramme	=	0.1543 Grain
1 Decigrm. =	0.1 Gramme	=	1.5432 Grains
1 Gramme =	1 Gramme	=	15.432 Grains
1 Dekagrme. =	10 Grammes	=	0.3527 Ounce
1 Hectogrme. =	100 Grammes	=	3.5274 Ounces
1 Kilogramme =	1000 Grammes	=	2.2046 Pounds
1 Myriagramme =	10000 Grammes	=	22.046 Pounds

Measures of Surface			
1 Hectare =	10000 Sq. Meters	=	2.471 Acres
1 Are =	100 Sq. Meters	=	119.6 Sq. Yds.
1 Centiare =	1 Sq. Meter	=	1.550 Sq. Ins.

**Metric and English Equivalents**

Inches	=	Millimeters	÷	25
Feet	=	Meters	×	3.2803
Yards	=	"	×	1.09361
Miles	=	Kilometers	÷	1.60935
Square Inches	=	Sq. Millimeters	×	0.0155
Square Feet	=	Square Meters	×	10.7641
Acres	=	Sq. Kilometers	×	247.114
Cubic Inches	=	Cu. Centimeters	÷	16.3870
Cubic Feet	=	Cubic Meters	×	35.3140
Lbs. Avoirdupois	=	Kilogrammes	×	2.40262
Tons (2000 lbs.)	=	Kilogrammes	÷	907.18
Lbs. per foot	=	Kilo per meter	×	.67196
Lbs. per cwt. ft.	=	Kilo per cu. meter	×	0.6243
Square Millimeters	=	Square inches	×	645.137
Square Meter	=	Square Feet	×	.929
Grammes	=	Ounces	×	28.3495
Grammes	=	Pounds	×	453.5926
Kilogrammes	=	Pounds	×	2.2046

**Field Current in D. C. Dynamos**

It has been found that a fair average for the field amperes of different sized dynamos, is as follows:—

K. W.	1	5	10	20	30	50	75	100
Per Cent	8	6	5	4	3.5	3	3	2.75

The field current (expressed as a percentage of full load current on lines) is determined with all of the resistance out, that is, with rheostat on first notch.

**Copper Wire Resistance**

The basis for computation of resistance of copper wires is a wire one foot long and one circular mil of cross section known as a mil-foot, and which has a resistance of 24° C., or 75° F., of about 10.7 Ohms. The resistance of a copper wire varies directly as its length and inversely as its cross section; hence,

The resistance (R) of a copper wire is equal to its length (D) multiplied by the resistance of a mil-foot and divided by the cross section in circular mils (CM).

$$\text{Or, } R = \frac{D \times 10.7}{\text{CM}} \text{ also}$$

The cross section (CM) in circular mils of a wire is equal to its length (D) multiplied by the resistance of a mil-foot, divided by its resistance (R).

$$\text{CM} = \frac{D \times 10.7}{R} \text{ also}$$

The length (D) of a wire is equal to the cross section in circular mils (CM) multiplied by its resistance (R) and divided by the resistance of a mil-foot.

$$D = \frac{\text{CM} \times R}{10.7}$$



## Equivalent Values in Different Units

1 H. P. =	$\left\{ \begin{array}{l} 746 \text{ watts} \\ .746 \text{ K.W.} \\ 33,000 \text{ ft.-lbs. per minute} \\ 550 \text{ ft.-lbs. per second} \\ 2,545 \text{ heat-units per hour} \\ 42.4 \text{ heat units per minute} \\ .707 \text{ heat-units per second} \\ .175 \text{ lb. carbon oxidized per hour} \\ 2.64 \text{ lbs. water evaporated per hour} \\ \text{from and at } 212^{\circ} \text{ F.} \end{array} \right.$
1 H.P. Hour =	$\left\{ \begin{array}{l} 746 \text{ K.W. hours} \\ 1,980,000 \text{ ft.-lbs.} \\ 2,545 \text{ heat-units} \\ 273,740 \text{ k.g.m.} \\ .175 \text{ lb. carbon oxidized with perfect} \\ \text{efficiency} \\ 2.64 \text{ lbs. water evaporated from and at} \\ 212^{\circ} \text{ F.} \\ 17.0 \text{ lbs. water raised from } 62^{\circ} \text{ to } 212^{\circ} \text{ F.} \end{array} \right.$
1 Kilo-watt =	$\left\{ \begin{array}{l} 1,000 \text{ watts} \\ 1.34 \text{ H.P.} \\ 2,654,200 \text{ ft.-lbs. per hour} \\ 44,240 \text{ ft.-lbs. per minute} \\ 737.3 \text{ ft.-lbs. per second} \\ 3,412 \text{ heat-units per hour} \\ 56.9 \text{ heat-units per minute} \\ .948 \text{ heat-units per second} \\ .2275 \text{ lb. carbon oxidized per hour} \\ 3.53 \text{ lbs. water evaporated per hour} \\ \text{from and at } 212^{\circ} \text{ F.} \end{array} \right.$
1 Watt per Sq. In. =	$\left\{ \begin{array}{l} 8.9 \text{ heat-units per sq. ft. per minute} \\ 6,371 \text{ ft.-lbs. per sq. ft. per minute} \\ .193 \text{ H.P. per sq. ft.} \\ 7.233 \text{ ft.-lbs.} \end{array} \right.$
1 Kilo-gram Meter =	$\left\{ \begin{array}{l} .00000365 \text{ H.P. hour} \\ .00000272 \text{ K.W. hour} \\ .0093 \text{ heat-units} \end{array} \right.$
1 Lb. Water Evaporated from and at 212° F. =	$\left\{ \begin{array}{l} .283 \text{ K.W. hour} \\ .379 \text{ H.P. hour} \\ 965.7 \text{ heat-units} \\ 103,900 \text{ k.g.m.} \\ 1,019,000 \text{ joules} \\ 751,300 \text{ ft.-lbs.} \\ .0664 \text{ lb. of carbon oxidized} \end{array} \right.$
1 Heat-Unit =	$\left\{ \begin{array}{l} 1,055 \text{ watt seconds} \\ 778 \text{ ft.-lbs.} \\ 107.6 \text{ kilogram meters} \\ .000293 \text{ K.W. hour} \\ .000373 \text{ H.P. hour} \\ .0000588 \text{ lb. carbon oxidized} \\ .001036 \text{ lb. water evaporated from} \\ \text{and at } 212^{\circ} \text{ F.} \end{array} \right.$
1 Heat-Unit per Sq. Ft. per Min. =	$\left\{ \begin{array}{l} .122 \text{ watt per sq. in.} \\ .0176 \text{ K.W. per sq. ft.} \\ .0236 \text{ H.P. per sq. ft.} \end{array} \right.$

### Wiring Formula

Ohm's law is practically the basis for the various formulae in general use for determining the proper size of wire to use to carry various currents. It is essential to know the amount of current expressed in amperes, the distance, and to decide upon the loss to allow in transmission; the best rule is as follows:

The cross section (CM) of the necessary wire is found by multiplying twice the distance one way (2D) by the amount of current expressed in amperes (C) and this by the resistance of one mil-foot (10.7) and dividing by the loss in transmission expressed in volts (v).

$$\text{or, } CM = \frac{2D \times C \times 10.7}{v} \text{ or } CM = \frac{D \times C \times 21.4}{v}$$

## Equivalent Values in Different Units

Continued

1 Watt =	$\left\{ \begin{array}{l} 1 \text{ joule per second} \\ .00134 \text{ H.P.} \\ 3,412 \text{ heat-units per hour} \\ .7373 \text{ ft.-lbs. per second} \\ .0035 \text{ lb. water evaporated per hour} \\ 44.24 \text{ ft.-lbs. per minute} \end{array} \right.$
1 K.W. Hour =	$\left\{ \begin{array}{l} 1,000 \text{ watt hours} \\ 1.34 \text{ H.P. hours} \\ 2,654,200 \text{ ft.-lbs.} \\ 3,590,000 \text{ joules} \\ 3,412 \text{ heat-units} \\ 367,000 \text{ kilogram meters} \\ .235 \text{ lb. carbon oxidized with perfect} \\ \text{efficiency} \\ 3.53 \text{ lbs. water evaporated from and} \\ \text{at } 212^{\circ} \text{ F.} \\ 22.75 \text{ lbs. of water raised from } 62^{\circ} \text{ to} \\ 212^{\circ} \text{ F.} \end{array} \right.$
1 Joule =	$\left\{ \begin{array}{l} 1 \text{ watt second} \\ .000000278 \text{ K.W. hour} \\ .102 \text{ k.g.m.} \\ .0009477 \text{ heat-units} \\ .7373 \text{ ft.-lb.} \end{array} \right.$
1 Ft.-Lb. =	$\left\{ \begin{array}{l} 1.356 \text{ joules} \\ .1383 \text{ k.g.m.} \\ .000000377 \text{ K.W. hours} \\ .001285 \text{ heat-units} \\ .0000005 \text{ H.P. hour} \end{array} \right.$
1 lb. Carbon Oxidized with Perfect Efficiency =	$\left\{ \begin{array}{l} 14,544 \text{ heat-units} \\ 1.11 \text{ lb. anthracite coal oxidized} \\ 2.5 \text{ lbs. dry wood oxidized} \\ 21 \text{ cu. ft. illuminating gas} \\ 4.26 \text{ K.W. hours} \\ 5.71 \text{ H.P. hours} \\ 11,315,000 \text{ ft.-lbs.} \\ 15 \text{ lbs. of water evaporated from and at} \\ 212^{\circ} \text{ F.} \end{array} \right.$

## Equivalent of Electrical Units

1 H.P. =	$\left\{ \begin{array}{l} 33,000 \text{ foot-pounds per minute} \\ 746 \text{ watts} \\ 42.746 \text{ B.T.U. (British Thermal Unit)} \\ \text{per minute} \\ 2564.76 \text{ B.T.U. per hour} \end{array} \right.$
1 K.W. =	$\left\{ \begin{array}{l} 44,235 \text{ foot-pounds per minute} \\ 1.34 \text{ H.P.} \\ 0.955 \text{ B.T.U. per second} \\ 57.3 \text{ B.T.U. per minute} \\ 3,438 \text{ B.T.U. per hour} \end{array} \right.$
1 B.T.U. =	$\left\{ \begin{array}{l} 772 \text{ foot-pounds} \\ 17,452 \text{ watt minutes} \\ 0.2909 \text{ watt hours} \end{array} \right.$
1 Watt =	$\left\{ \begin{array}{l} 44.236 \text{ foot-pounds per minute} \\ 2,654.16 \text{ foot pounds per hour} \end{array} \right.$

Latent heat of evaporation of water = 966 B.T.U.  
 Latent heat of melting of water = 142 B.T.U.  
 To evaporate 1 lb. water from and at 212° = 16.859 K.W. minutes  
 To evaporate 1 lb. water from and at 212° = 0.281 K.W. hours  
 Weight per cu. ft. of water = 62.42 lbs.  
 Weight per gallon of water = 8.33 lbs.

Physical Data

The equivalent of one B.t.u. of heat=778 foot-pounds.  
 The equivalent of one calorie of heat=426 kg-m.,=3.968 B.t.u.  
 One cubic foot of water weighs 62.355 pounds at 62° Fahr.  
 One cubic foot of air weighs 0.0807 pounds at 32° Fahr. and one atmosphere.  
 One cubic foot of hydrogen weighs 0.00557 pounds.  
 One foot-pound=1.3562×10<sup>7</sup> ergs.  
 One horsepower hour=33,000×60 foot-pounds.  
 One horsepower=33,000 foot-pounds per min.=550 foot-pounds per second=746 watts,=2545 B.t.u. per hour.  
 Acceleration of gravity (g)=32.2 feet per second.  
 =980 mm. per second.  
 One atmosphere=14.7 pounds per square inch.  
 =2116 pounds per square foot.  
 =760 mm. of mercury.  
 Velocity of sound at 0° Cent. in dry air=332.4 meters per sec.  
 =1091 feet per sec.  
 Velocity of light in vacuum=299,853 km. per sec.  
 =186,325 miles per sec.  
 Specific heat of air at constant pressure=0.237.  
 A column of water 2.3 feet high corresponds to a pressure of 1 pound per square inch.  
 Coefficient of expansion of gases= $\frac{1}{273}$ =0.00367.  
 Latent heat of water=79.24.  
 Latent heat of steam=535.9.

Handy Table

Diameter of a circle ×3.1416=circumference.  
 Radius of a circle ×6.283185=circumference.  
 Square of the diameter of a circle ×0.7854=area.  
 Square of the circumference of a circle ×0.07958=area.  
 Half the circumference of a circle × half its diameter=area.  
 Circumference of a circle ×0.159155=radius.  
 Square root of a circle +0.56419=radius.  
 Circumference of a circle ×0.31831=diameter.  
 Square root of the area of a circle ×1.12838=diameter.  
 Diameter of a circle =0.86=side of inscribed equilateral triangle.  
 Diameter of a circle ×0.7071=side of an inscribed square.  
 Circumference of a circle +0.225=side of an inscribed square.  
 Circumference of a circle +0.282=side of an equal square.  
 Diameter of a circle ×0.8862=side of an equal square.  
 Base of a triangle ×  $\frac{1}{2}$  the altitude=area.  
 Multiplying both diameters and .7854 together=area of an ellipse.  
 Surface of a sphere ×  $\frac{1}{6}$  of its diameter=solidity.  
 Circumference of a sphere × its diameter=surface.  
 Square of the diameter of a sphere ×3.1416=surface.  
 Square of the circumference of a sphere ×0.3183=surface.  
 Cube of the diameter of a sphere ×0.5236=solidity.  
 Cube of the radius of a sphere ×4.1888=solidity.  
 Cube of the circumference of a sphere ×0.016887=solidity.  
 Square root of the surface of a sphere ×0.56419=diameter.  
 Square root of the surface of a sphere +1.772454=circumference.  
 Cube root of the solidity of a sphere ×1.2407=diameter.  
 Cube root of the solidity of a sphere ×3.8978=circumference.  
 Radius of a sphere ×1.1547=side of an inscribed cube.  
 Square root of ( $\frac{1}{2}$  of the square of) the diameter of a sphere=side of inscribed cube.  
 Area of its base ×  $\frac{1}{3}$  of its altitude=solidity of a cone or pyramid, whether round, square, or triangular.  
 Area of one of its sides ×6=surface of a cube.  
 Altitude of trapezoid ×  $\frac{1}{2}$  the sum of its parallel sides=area.

Table of Comparison of Centigrade and Fahrenheit Scales

Thermometer Scales							
Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.	Cent.	Fahr.
0	32.0	13	55.4	26	78.8	39	102.2
1	33.8	14	57.2	27	80.6	40	104.0
2	35.6	15	59.0	28	82.4	41	105.8
3	37.4	16	60.8	29	84.2	42	107.6
4	39.2	17	62.6	30	86.0	43	109.4
5	41.0	18	64.4	31	87.8	44	111.2
6	42.8	19	66.2	32	89.6	45	113.0
7	44.6	20	68.0	33	91.4	46	114.8
8	46.4	21	69.8	34	93.2	47	116.6
9	48.2	22	71.6	35	95.0	48	118.4
10	50.0	23	73.4	36	96.8	49	120.2
11	51.8	24	75.2	37	98.6	50	122.0
12	53.6	25	77.0	38	100.4	51	123.8
52	125.6	65	149.0	78	172.4	91	195.8
53	127.4	66	150.8	79	174.2	92	197.6
54	129.2	67	152.6	80	176.0	93	199.4
55	131.0	68	154.4	81	177.8	94	201.2
56	132.8	69	156.2	82	179.6	95	203.0
57	134.6	70	158.0	83	181.4	96	204.8
58	136.4	71	159.8	84	183.2	97	206.6
59	138.2	72	161.6	85	185.0	98	208.4
60	140.0	73	163.4	86	186.8	99	210.2
61	141.8	74	165.2	87	188.6	100	212.0
62	143.6	75	167.0	88	190.4	...	...
63	145.4	76	168.8	89	192.2	...	...
64	147.2	77	170.6	90	194.0	...	...

Seventy-five deg. Fahr., or 23.8 deg. Cent. is the standard temperature for measuring electrical resistances in submarine cable tests.

Sixty deg. Fahr., or 15.5 deg. Cent. is the standard temperature for measuring the electrical resistance of wire for general telegraphic and electric light purposes; it is assumed to be the average temperature of the air.

Nine deg. Fahr.=5 deg. Centigrade=4 deg. Reaumur.

One deg. Fahr.=.5556 deg. Centigrade.

One deg. Centigrade=1.8 deg. Fahr.

To convert Fahr. to Centigrade, subtract 32, multiply by 5 and divide by 9.

To convert Fahr. to Reaumur, subtract 32, multiply by 4 and divide by 9.

To convert Centigrade to Fahr., multiply by 9, divide by 5 and add 32.

To convert Centigrade to Reaumur multiply by 4 and divide by 5.

To convert Reaumur to Fahr., multiply by 9, divide by 4 and add 32.

To convert Reaumur to Centigrade, multiply by 5, divide by 4.

If temperature is below freezing, the above formula should read "subtract from 32" in place of "subtract 32" and "add 32."

Bus Bar Copper Data

Thick-ness In.	Width In.	Wt., per Lin. Ft. Pounds	CARRYING CAPACITY		Thick-ness In.	Width In.	Wt., per Lin. Ft. Pounds	CARRYING CAPACITY	
			@ 1000 Amps.	@ 800 Amps.				@ 1000 Amps.	@ 800 Amps.
1/16	1/2	.121	31	25	1/4	1	.964	250	200
1/16	3/4	.181	47	38	1/4	1 1/4	1.21	313	250
1/16	1	.241	63	50	1/4	1 1/2	1.45	375	300
1/8	1/2	.241	63	50	1/4	1 3/4	1.69	438	350
1/8	3/4	.362	94	75	1/4	2	1.93	500	400
1/8	1	.482	125	100	1/4	2 1/2	2.41	625	500
1/8	1 1/4	.603	156	125	1/4	3	2.89	750	600
1/8	1 1/2	.723	188	150	3/8	1	1.45	375	300
1/8	1 3/4	.844	219	175	3/8	1 1/4	1.81	469	375
1/8	2	.964	250	200	3/8	1 1/2	2.17	563	450
1/8	2 1/2	1.21	313	250	3/8	1 3/4	2.53	657	525
1/8	3	1.45	375	300	3/8	2	2.89	750	600
1/4	1/2	.482	125	100	3/8	2 1/2	3.62	938	750
1/4	3/4	.723	188	150	3/8	3	4.34	1125	900

## Standard Line Construction

## Gauges of Copper Wire

### Spacing of High Tension Transmission Lines

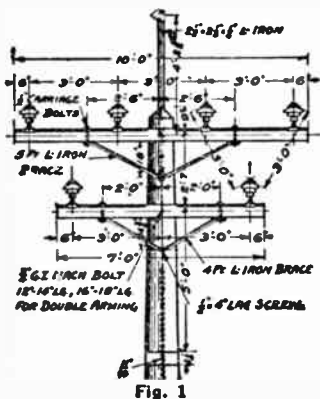


Fig. 1

It is important that the spacing and construction should be such as to prevent lines from swinging together or against the towers or poles when subjected to wind pressure. Careful attention should be given to the fact that with the suspension type of disc insulator the radius of free movement is materially increased.

Excessive spacing distances must be guarded against in order to keep the self-induction of the system at a minimum value. Authorities vary

to some extent and local conditions will govern, but the accompanying values represent good commercial practice.

Operating Voltage	Separation Inches
2200	18 to 24
3300	18 " 24
6600	18 " 24
11000	18 " 24
15000	24 " 30
22000	30 " 36
33000	36 " 48
44000	48 " 60
66000	72
88000	96
110000	120

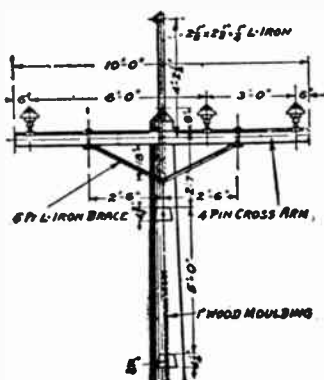


Fig. 2

### 33000-volt 3-phase Pole Construction

The use of 33000-volt 3-phase transmission is highly desirable for supplying large areas, and its reliability and economy are well known. The pole constructions shown have been adopted for some very large systems and can be installed at a reasonable cost. Low voltage or secondary circuits can be run on the same poles by locating cross-arms below the high tension lines.

Figure 1 shows two 33000-volt systems with ground wire at the top of the poles.

Figure 2 shows one 33000-volt

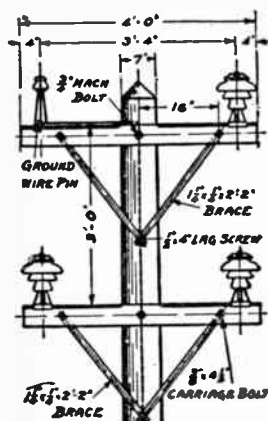


Fig. 3

system with a ground wire at the top.

Figure 3 shows a 33000-volt system with a ground wire on the top cross-arm.

Figure 4 shows a 33000-volt system without the ground wire. This latter type of construction is only recommended where the lowest possible cost line must be installed.

When a ground wire is used, it should be of the same size as the line wire and well grounded at every fifth pole. A 1-inch wooden molding strip can be used below the cross-arms.

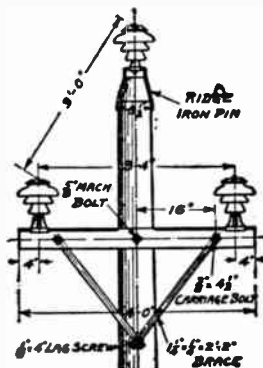


Fig. 4

### Table Showing Difference of Gauges in Decimals of an Inch

No. Wire Gauge	Brown & Sharpe		Roebbling, A. S. & W. Co. or Washburn & Moen	
	Diam. Inches	Weight, Pounds Per 1000 Ft.	Diam. Inches	Weight, Pounds Per 1000 Ft.
6-0	.....	.....	.460	641 20
5-0	.....	.....	.430	560 29
4-0	.46000	641	.393	468 02
3-0	.40964	509	.362	397 09
2-0	.36180	403	.331	332
0	.32486	320	.307	285 60
1	.28930	253	.283	242 69
2	.25763	202	.263	209 60
3	.22942	159	.244	180 41
4	.20431	126	.225	153 39
5	.18194	100	.207	129 84
6	.16202	79	.192	111 71
7	.14428	63	.177	94 93
8	.12849	50	.162	79 52
9	.11443	39	.148	66 37
10	.10189	32	.135	55 22
11	.09074	25	.120	43 63
12	.08081	20	.105	33 41
13	.07196	15.7	.092	25 65
14	.06408	12.4	.080	19 39
15	.05706	9.8	.072	15 71
16	.05082	7.9	.063	12 03
17	.04525	6.1	.054	8 84
18	.04030	4.8	.047	6 69
19	.03589	3.9	.041	5 09
20	.03196	3.1	.035	3 71
21	.02846	2.5	.032	3 10
22	.02534	1.9	.028	2 38
23	.02257	1.5	.025	1 89
24	.02010	1.2	.023	1 60
25	.01790	.97	.020	1 21
26	.01594	.77	.018	.981
27	.01419	.61	.017	.876
28	.01264	.48	.016	.776
29	.01125	.39	.015	.682

### English Legal Standard

No. Wire Gauge	English Legal Standard		Birmingham or Stubbs	
	Diam. Inches	Weight, Pounds Per 1000 Ft.	Diam. Inches	Weight, Pounds Per 1000 Ft.
6-0	.464	652	.....	.....
5-0	.432	565	.....	.....
4-0	.400	484	.454	624
3-0	.372	419	.425	547
2-0	.348	367	.380	437
0	.324	318	.340	350
1	.300	272	.300	272
2	.276	231	.284	244
3	.252	192	.259	203
4	.232	163	.238	171
5	.212	136	.220	146
6	.192	112	.203	125
7	.176	94	.180	98
8	.160	77	.165	82
9	.144	63	.148	66
10	.128	50	.134	54
11	.116	41	.120	44
12	.104	33	.109	36
13	.092	25.6	.095	27.3
14	.080	19.4	.083	20.8
15	.072	15.7	.072	15.7
16	.064	12.4	.065	12.8
17	.056	9.5	.058	10.2
18	.048	7	.049	7.3
19	.040	4.8	.042	5.3
20	.036	3.9	.035	3.7
21	.032	3.1	.032	3.1
22	.028	2.4	.028	2.4
23	.024	1.7	.025	1.9
24	.022	1.5	.022	1.5
25	.020	1.2	.020	1.2
26	.018	.98	.018	.98
27	.0164	.81	.016	.77
28	.0148	.66	.014	.59
29	.0136	.56	.013	.51

**Bare Copper Wire**

**Hard or Soft Drawn**

**Dimensions, Weights and Resistances**

Am. Gauge B. & S. No.	Diam. Mils.	Circular Mils.	Pounds per 1000 Ft.	Pounds per Mile	Feet per Pound
0000	460.	211600.	639.33	3375.7	1.56
000	409.640	167895.	507.01	2677.	1.97
00	364.800	133079.40	402.09	2123.	2.49
0	324.950	105592.50	319.04	1684.5	3.13
1	289.300	83691.20	252.88	1335.2	3.95
2	257.630	66373.	200.54	1058.8	4.99
3	229.420	52634.	159.03	839.68	6.29
4	204.310	41742.	126.12	665.91	7.93
5	181.940	33102.	100.01	528.05	10.
6	162.020	26250.50	79.32	418.81	12.61
7	144.280	20816.	62.90	332.11	15.90
8	128.490	16509.	49.88	263.37	20.05
9	114.430	13094.	39.56	208.88	25.28
10	101.890	10381.	31.37	165.63	31.38
11	90.742	8234.	24.88	137.37	40.20
12	80.808	6529.90	19.73	104.18	50.69
13	71.961	5178.39	15.68	82.792	63.78
14	61.084	4106.76	12.44	65.658	80.42
15	57.068	3256.76	9.86	52.069	101.40
16	50.820	2582.67	7.82	41.292	127.87
17	45.257	2048.20	6.20	32.746	161.24
18	40.303	1624.33	4.92	25.970	203.31
19	35.890	1288.09	3.90	20.594	256.39
20	31.961	1021.44	3.09	16.331	323.32
21	28.462	810.09	2.45	12.952	407.67
22	25.347	642.47	1.95	10.272	514.03
23	22.571	509.45	1.54	8.1450	648.25
24	20.100	404.01	1.22	6.4593	817.43
25	17.900	320.41	.97	5.1227	1030.71
26	15.940	254.08	.77	4.0623	1299.77

Am. Gauge B. & S. No.	Ohms. per 1000 Feet	Ohms per Mile	Feet per Ohm	Ohms per Pound
0000	.04906	.25903	20383.	.000076736
000	.06186	.32664	16165.	.00012039
00	.07801	.41187	12820.	.00019423
0	.09831	.51909	10409.	.00030772
1	.12404	.65490	8062.3	.00048994
2	.15640	.82582	6393.7	.00078045
3	.19723	1.0414	5070.2	.0012406
4	.24869	1.3131	4021.	.0019721
5	.31361	1.6558	3188.7	.0031361
6	.39546	2.0881	2528.7	.0049868
7	.49871	2.6331	2005.2	.0079294
8	.62881	3.3201	1590.3	.012608
9	.79281	4.1860	1261.3	.010042
10	1.	5.2800	1000.	.031380
11	1.2607	6.6568	793.18	.050682
12	1.5898	8.3940	629.02	.080585
13	2.0037	10.5798	499.06	.127788
14	2.5266	13.3405	375.79	.203180
15	3.1860	16.8223	313.87	.323079
16	4.0176	21.2130	248.90	.513737
17	5.0660	26.7485	197.39	.816220
18	6.3880	33.7285	156.54	1.298764
19	8.0555	42.5329	124.14	2.065312
20	10.1584	53.6362	98.44	3.284374
21	12.8088	67.6302	78.07	5.221775
22	16.1504	85.2343	61.92	8.301819
23	20.3674	107.540	49.10	13.20312
24	25.6830	135.606	38.94	20.99405
25	32.3833	170.984	30.88	33.37780
26	40.8377	215.623	24.49	53.07946

**How to Remember the Wire Table**

**SUMMARY.**—The things to be remembered regarding B. & S. gauge copper wire are the following:

A wire which is three sizes larger than another wire has half the resistance, twice the weight and twice the area. A wire which is ten sizes larger than another wire has one-tenth the resistance, ten times the weight and ten times the area.

No. 10 wire is 0.10 inch in diameter (more precisely, 0.102); it has an area of 10,000 circular mils (more precisely, 10,380); it has a resistance of 1 ohm per thousand ft., at 20 degrees Centigrade (68 degrees Fahrenheit), and weighs 32 pounds (more precisely, 31.4 pounds) per thousand feet.

The weight of one thousand feet of No. 5 wire is 100 pounds.

The relative values of resistance (for decreasing sizes) and of weight and area (for increasing sizes) for consecutive sizes are: .50, .63, .80, 1.00, 1.25, 1.60, 2.00.

The relative values of the diameter of alternate sizes of wire are: .50, .63, .80, 1.00, 1.25, 1.60, 2.00.

**CIRCULAR MILS.**—The conductors of large sizes are usually specified in circular mils. For example, 500,000 circular mils, 750,000 circular mils.

To find resistance, drop one cypher from the number of mils; the result is the number of feet per ohm.

To find weight, drop four cyphers from the number of circular mils and multiply by the weight of No. 10 wire.

**Decimal Equivalents**

Of eighths, sixteenths, thirty-seconds and sixty-fourths of an inch.

Fractions of an Inch	Decimals of an Inch	Fractions of an Inch	Decimals of an Inch	Fractions of an Inch	Decimals of an Inch	Fractions of an Inch	Decimals of an Inch
$\frac{1}{8}$	.125	$\frac{1}{16}$	.0625	$\frac{1}{32}$	.03125	$\frac{1}{64}$	.015625
$\frac{3}{8}$	.375	$\frac{3}{16}$	.1875	$\frac{3}{32}$	.09375	$\frac{3}{64}$	.046875
$\frac{5}{8}$	.625	$\frac{5}{16}$	.3125	$\frac{5}{32}$	.15625	$\frac{5}{64}$	.078125
$\frac{7}{8}$	.875	$\frac{7}{16}$	.4375	$\frac{7}{32}$	.21875	$\frac{7}{64}$	.109375
$\frac{1}{4}$	.25	$\frac{1}{8}$	.125	$\frac{1}{16}$	.0625	$\frac{1}{32}$	.03125
$\frac{3}{4}$	.75	$\frac{3}{8}$	.375	$\frac{3}{16}$	.1875	$\frac{3}{32}$	.09375
$\frac{1}{2}$	.5	$\frac{1}{4}$	.25	$\frac{1}{8}$	.125	$\frac{1}{16}$	.0625
$\frac{3}{2}$	1.5	$\frac{3}{4}$	.75	$\frac{3}{8}$	.375	$\frac{3}{16}$	.1875
$\frac{5}{2}$	2.5	$\frac{5}{4}$	1.25	$\frac{5}{8}$	.625	$\frac{5}{16}$	.3125
$\frac{7}{2}$	3.5	$\frac{7}{4}$	1.75	$\frac{7}{8}$	.875	$\frac{7}{16}$	.4375
$\frac{9}{2}$	4.5	$\frac{9}{4}$	2.25	$\frac{9}{8}$	1.125	$\frac{9}{16}$	.5625
$\frac{11}{2}$	5.5	$\frac{11}{4}$	2.75	$\frac{11}{8}$	1.375	$\frac{11}{16}$	.6875
$\frac{13}{2}$	6.5	$\frac{13}{4}$	3.25	$\frac{13}{8}$	1.625	$\frac{13}{16}$	.8125
$\frac{15}{2}$	7.5	$\frac{15}{4}$	3.75	$\frac{15}{8}$	1.875	$\frac{15}{16}$	.9375
$\frac{17}{2}$	8.5	$\frac{17}{4}$	4.25	$\frac{17}{8}$	2.125	$\frac{17}{16}$	.96875
$\frac{19}{2}$	9.5	$\frac{19}{4}$	4.75	$\frac{19}{8}$	2.375	$\frac{19}{16}$	.984375
$\frac{21}{2}$	10.5	$\frac{21}{4}$	5.25	$\frac{21}{8}$	2.625	$\frac{21}{16}$	.996875
$\frac{23}{2}$	11.5	$\frac{23}{4}$	5.75	$\frac{23}{8}$	2.875	$\frac{23}{16}$	.9996875
$\frac{25}{2}$	12.5	$\frac{25}{4}$	6.25	$\frac{25}{8}$	3.125	$\frac{25}{16}$	.9996875

**Feet Expressed in Decimal Parts of a Mile**

	Units	Tens	Hundreds	Thousands
1	.000189	.001893	.01893	.1893
2	.000378	.003787	.03787	.3787
3	.000568	.005681	.05681	.5681
4	.000757	.007574	.07574	.7574
5	.000946	.009468	.09468	.9468
6	.001136	.011362	.11362	.....
7	.001325	.013255	.13255	.....
8	.001514	.015148	.15148	.....
9	.001704	.017042	.17042	.....

## Wiring for D.C. Motor Services

## Wiring for D.C. Motors

### Carrying Capacity Copper Wire

### How to Use Motor Tables

Size B. & S.	Diameter Inches	Pounds Bare Copper per 1000 Feet	Carrying Capacity Rubber Insulation Amperes
14	.064	12.4	15
12	.081	19.7	20
10	.102	31.4	24
8	.128	49.9	33
6	.162	79.4	46
4	.204	126	65
3	.229	159	76
2	.258	201	90
1	.289	253	107
0	.325	319	127
00	.365	402	150
000	.410	507	177
0000	.460	640	210

The table shown on previous page is compiled on a basis of 1 volt loss for convenience in using the table on other percentages of loss. It is usual to allow a loss of more than 1 volt for motor service. In such case, divide the distance by the loss allowed, which will give the number of feet in which a loss of 1 volt will occur. Find this number of feet on the table at the horse power and voltage required and you will have necessary size of wire.

**EXAMPLE.**—A 5-h.p. 220-volt motor, 400 feet from service, at 8 volts loss.

**EXPLANATION.**—A loss of 8 volts for 400 feet would be equal to a loss of 1 volt for 50 feet (400 divided by 8 equals 50). By referring to table we find that to carry a 5 horse power, 220-volt motor, 50 feet with a loss volt, a 6 B.&S. wire is required, which means that the same wire would be required to do the work called for by the example.

### Transmission of Horse Powers with 1 Volt Loss

HORSE POWER AT			Load of Motor Amps.	DISTANCE IN FEET DIFFERENT HORSE POWERS CAN BE TRANSMITTED WITH 1 VOLT LOSS					
110V.	220V.	500V.		192	308	490	778	1232	1920
...	...	1/2	1	192	308	490	778	1232	1920
...	...	1	2	96	154	245	389	616	960
...	1/2	...	2.30	83	135	213	348	535	834
...	...	2	4	48	77	122	194	308	480
1/2	1	...	4.50	43	68	108	173	273	426
...	...	3	6	32	51	81	127	205	320
...	...	4	7.50	25	40	65	104	164	258
1	2	...	9	21	34	54	86	137	213
...	...	9.30	20	33	53	84	132	206	...
...	3	7 1/2	12.50	15	24	40	61	100	153
...	...	10	16.50	...	18	29	47	76	118
2	4	...	18	...	...	27	43	68	106
...	...	21.10	...	...	...	23	37	58	91
3	5	...	25	...	...	20	30	50	76
...	...	15	...	...	...	...	...	...	...
...	7 1/2	...	28.20	...	...	...	27	43	68
4	10	...	33.15	...	...	...	23	37	58
...	...	20	...	...	...	...	...	...	...
...	...	37.60	...	...	...	...	...	32	51
5	...	25	42	...	...	...	...	29	45
...	...	30	49.70	...	...	...	...	...	39
7 1/2	15	...	56.50	...	...	...	...	...	34
...	...	40	66.30	...	...	...	...	...	...

### Minimum Size Wire for Motor Service

H.P.	SIZE OF WIRE, B.&S.			H.P.	SIZE OF WIRE, B.&S.		
	110 Volts	220 Volts	500 Volts		110 Volts	220 Volts	500 Volts
1/2	14	14	14	10	2	5	10
1	14	14	14	15	00	3	8
2	10	14	14	20	000	2	6
3	8	12	14	25	0000	1	5
4	6	10	14	30	...	00	4
5	5	8	14	40	...	000	2
7 1/2	3	6	12	50	...	0000	1

### Amperes per Motor

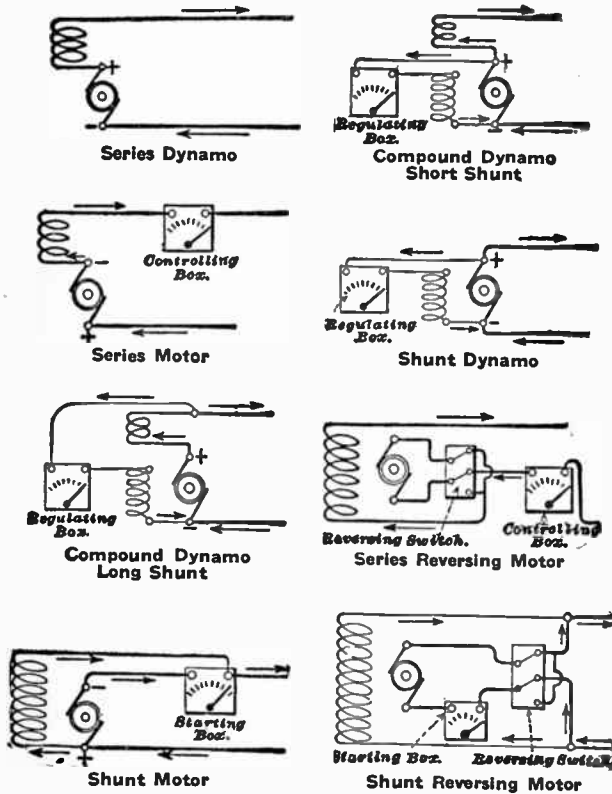
H. P.	Per Cent of Effi- ciency	Watts	OPERATING VOLTAGE			
			110	220	500	600
1/2	75	497	4.5	2.25	1	.83
3/4	75	746	6.78	3.38	1.48	1.24
1	75	995	9	4.5	2	1.66
1 1/2	80	1492	13.56	6.78	2.98	2.48
2	80	1865	16.9	8.5	3.8	3.1
3	80	2797	25.4	12.7	5.59	4.66
4	80	3730	33.8	16.9	7.5	6.2
5	80	4662	42.3	21.1	9.32	7.77
7 1/2	90	6217	56.5	28.2	12.43	10.36
10	90	8288	75.3	37.6	16.57	13.81
15	90	12433	113	56.5	24.86	20.72
20	90	16578	150	75.3	33.15	27.63
25	90	20722	188	94.1	41.6	34.5
30	90	24866	226	113	49.7	41.4
40	90	33155	301	150	66.3	55.2
50	90	41444	376	188	82.8	69
60	90	49733	452	226	99.4	82.8
70	90	58022	527	263	116	96.7
80	90	66311	602	301	132	110
90	90	74599	678	339	149	124
100	90	82888	753	376	165	138
120	90	99459	904	452	198	165
150	90	124312	1131	565	248	207

### Amperes per Horse Power in D.C. Motors

Voltage	Efficiency of Motor			
	75 Per Cent	80 Per Cent	85 Per Cent	90 Per Cent
110	9	8.4	7.9	7.5
220	4.5	4.2	3.95	3.75
500	1.98	1.86	1.75	1.66

HORSE POWER AT			Load of Motor Amps.	DISTANCE IN FEET DIFFERENT HORSE POWERS CAN BE TRANSMITTED WITH 1 VOLT LOSS				
110V.	220V.	500V.		2433	3122	3940	4928	6271
...	...	1/2	1	2433	3122	3940	4928	6271
...	...	1	2	1216	1561	1970	2464	3135
...	1/2	...	2.30	1057	1357	1713	2142	2726
...	...	2	4	608	780	985	1232	1567
1/2	1	...	4.50	540	700	875	1095	1395
...	...	3	6	405	520	656	821	1045
...	...	4	7.50	328	416	525	657	836
1	2	...	9	270	347	438	547	697
...	...	9.30	261	335	423	530	674	...
...	3	7 1/2	12.50	194	250	315	394	501
...	...	10	16.50	147	189	239	298	380
2	4	...	18	135	173	219	273	348
...	...	21.10	115	146	186	233	297	...
3	5	...	25	97	125	157	197	250
...	...	28.20	86	110	140	174	222	...
...	7 1/2	...	33.15	76	94	119	148	189
4	10	...	37.60	64	83	104	131	164
...	...	20	...	...	...	...	...	...
...	...	37.60	...	...	...	...	...	...
5	...	25	42	58	73	93	116	143
...	...	30	49.70	49	64	79	99	126
7 1/2	15	...	56.50	43	55	70	87	111
...	...	40	66.30	36	47	60	79	95
10	20	...	75.30	32	41	52	65	82
...	...	50	82.80	...	37	47	59	75
...	...	94.10	...	...	...	41	52	66
...	...	99.40	...	...	...	39	49	63
15	30	...	113	...	...	...	43	55
...	...	70	116	...	...	...	42	54
...	...	80	132	...	...	...	...	47
20	40	90	150	...	...	...	...	41

## Connections and Data on D.C. Generators and Motors



The various types of direct current motors and generators are known relatively by the field windings, as series, shunt, compound and interpole. They are generally self-exciting but can be separately excited, in which case they are usually supplied with current from an outside source, such as a storage battery or another generator.

**SERIES.**—The field flux increases as the load current increases. In a series wound machine the field winding is in series with the armature. The speed of a series motor varies with the load. Its torque also increases with the increase of load and decreases with speed. The armature is at the highest speed at no load, and minimum speed at full load. Series motors are mostly used for driving exhaust fans, traction work, etc.

**SHUNT.**—The field flux is practically constant at all loads. In a shunt wound machine a small portion of the current is shunted through the field winding. Shunt wound motors run at almost constant speed, with constant E. M. F. even though the load varies. Shunt wound generators are used for storage batteries, or any duty which requires a variation of E. M. F. Shunt wound motors are most suited for general work such as driving counter shafts, and constant speed machinery.

**COMPOUND.**—The field flux increases slightly with the load current. In a compound wound machine the field has two sets of windings, a shunt winding and a series winding. The shunt winding furnishes the initial field strength, while the series winding furnishes a varying field strength, increasing or decreasing with the load. This automatic variation of field excitation maintains a constant voltage if from a generator, and an automatic speed control if used as a motor on constantly varying loads requiring automatic torque variation. Mostly used for elevator service.

**INTERPOLE.**—The interpole motor or generator is sometimes known as "commutating pole type," because of its having an extra set of poles for the purpose of producing sparkless operation under extreme conditions of service. The field windings of the interpole machine are made series, shunt or compound. Highly recommended for all classes of service in preference to other types.

## Alternating Current Generators and Motors

**ALTERNATING CURRENT GENERATORS** are built in two types, known respectively as revolving field and revolving armature. The common names of the two sets of windings are rotor and stator. The revolving field type machine is the most commonly used type, because of the field current having only to pass through the brushes and collector rings and the high tension wires are all stationary. Alternating Current Generators are separately excited. That is, the field current is supplied from an auxiliary D. C. generator, known as an exciter. The current supplied from an A. C. Generator alternates in direction at regular intervals, and from this characteristic is derived the terms "frequency" or "cycles," which always has a numerical value which defines the period of the alternations. The most generally adopted systems operate at either 60 cycles, 7200 alternations, or 25 cycles, 3000 alternations, while there are some Central Stations which supply either 40 cycle, 50 cycle, or 133 cycle current. Alternating current is generated single, two or three phase, two and three phase systems being the most generally used, because of their being better adapted for the operation of large motors.

**ALTERNATING CURRENT MOTORS** are constructed single, two and three phase, and of many different types, and for all frequencies and synchronous speeds.

**SINGLE-PHASE MOTORS.**—Single-phase motors are built in several different types, viz.: Repulsion, Repulsion Induction, and Induction Types, and are for constant or variable speed service. The Repulsion Induction Type is the most generally used of all single-phase motors and furnished for constant and variable speed.

**POLYPHASE INDUCTION MOTORS.**—Polyphase Induction Motors are built in two types viz.: Squirrel Cage and Slip-Ring or Wire Wound Rotor Types. The Squirrel Cage Rotor Type motor has a nearly constant speed (starting torque high), and is the type most generally used for driving machinery. The Slip-ring motor is adapted for speed variation ranging from 50% to 100% and is also used for constant speed service. Both Squirrel Cage and Slip-ring type motors can be supplied for any frequency or voltage and for different speeds.

**STARTING TORQUE.**—The starting torque of a constant speed motor is twice full load torque on full voltage. In general, the torque varies as the square of the applied voltage. The reason for using a reduced E. M. F. at starting is to reduce the sudden shock which may throw off belts or cause mechanical injury, and to reduce the starting current. When 50% voltage is applied to the motor, half full load torque is given.

**SYNCHRONOUS MOTORS** are principally used for power factor correction and are also sometimes called "Synchronous Condensers," because they can be operated at a leading current to raise the power factor of an A. C. system. Synchronous motors for driving power are equipped with an extra starting winding, which will give from 30% to 50% full load torque, and will operate at a constant or synchronous speed with no slip. It is advisable to have one or more synchronous motors on all A. C. systems.

**STARTING OF SYNCHRONOUS MOTORS.**—The starting of synchronous motors differs from the starting of induction motors, due to the fact that they have a field which is supplied from an auxiliary, known as an exciter. Before starting the motor, first see that the field discharge switch is open from the field of the motor, but the motor field must be short circuited through the field discharge resistance. To stop the motor, first turn the rheostat back to the zero power factor position, then open the field switch and throw off the compensator, the switches and rheostat being in position for next starting. If a synchronous motor which has sufficient starting torque to meet the load conditions should fail to start when the current is thrown into the stator windings, it is probably due to the "standing" relation of the field to the stator windings, because of there being an equal number of stator to rotor coils, and should they both be in a central position to each other, the rotor will not have any starting torque. To remedy this move the rotor a slight distance in either direction, and the motor will then start.



## Full Load Currents of Motors

### D.C. Motors

H.P. Motor	VOLTS			H.P. Motor	VOLTS		
	115	230	550		115	230	550
1/2	4.5	2.3	1.4	20	149	71	31
3/4	6.5	3.3	1.4	25	185	92	38
1	8.4	4.2	1.7	30	220	110	45
1 1/2	12.5	6.3	2.6	40	294	146	61
2	16.1	8.3	3.4	50	364	180	75
3	23	12.3	5.0	60	436	215	90
5	40	19.8	8.2	75	540	268	111
7 1/2	58	28.6	12	100	...	357	146
10	75	38	16	125	...	440	184
15	112	56	23	150	...	...	220

### Single-Phase Type SCR Motors

H.P. Motor	VOLTS		H.P. Motor	VOLTS		H.P. Motor	VOLTS	
	110	220		110	220		110	220
1/4	7.6	3.8	1 1/2	15.0	7.5	7 1/2	67.6	33.8
1/2	8.0	4.0	2	20.0	10.0	10	86.0	43.0
3/4	9.6	4.8	3	27.8	13.9	...	...	...
1	11.0	5.5	5	46.6	23.3	...	...	...

## Squirrel-Cage A.C. Induction Motors

### 2-Phase

H.P. Motor	VOLTS				
	110	220	440	550	2200
1/2	4.1	2.1	1.0	0.9	...
3/4	4.8	2.4	1.2	1.0	...
1	5.6	2.8	1.4	1.1	...
1 1/2	7.8	3.9	2.0	1.7	...
2	9.7	4.9	2.4	2.0	...
3	...	7.8	3.9	3.1	...
5	...	13	6.5	5.2	...
7 1/2	...	19	9.5	7.6	...
10	...	24	11.3	9.4	...
15	...	33	16.5	13.2	...
20	...	45	22.5	18.2	5.0
25	...	56	27.7	22.2	6.4
30	...	67	33.5	27.0	7.4
40	...	88	44	35.5	9.5
50	...	109	54	43.5	12.1
60	...	129	65	52	13.5
75	...	156	78	62.5	16.7
100	...	213	107	87	21.7
125	...	270	134	109	27.0
150	...	...	156	125	31.2
200	...	...	217	173	43.3
250	...	...	265	213	54.0
300	...	...	320	255	63.2
400	...	...	440	355	88.5
450	...	...	520	416	95.2
500	...	...	540	433	109
600	...	...	655	525	130
750	...	...	800	640	160

### 3-Phase

1/2	4.8	2.4	1.2	1.0	...
3/4	5.6	2.8	1.4	1.1	...
1	6.4	3.2	1.6	1.3	...
1 1/2	9.0	4.5	2.3	1.9	...
2	11.2	5.6	2.8	2.3	...
3	...	9	4.5	3.6	...
5	...	15	7.5	6.0	...
7 1/2	...	22	11.0	8.8	...
10	...	27	13.5	10.8	...
15	...	38	19.0	15.2	...
20	...	52	26.0	21.0	5.7
25	...	64	32.0	25.6	7.4
30	...	77	38.5	31	8.5
40	...	101	50.5	41	11.0
50	...	125	62.5	50	14.0
60	...	149	74.5	60	15.5
75	...	180	90	72	19.2
100	...	246	123	100	25
125	...	310	155	124	31
150	...	...	180	144	36
200	...	...	250	200	50
250	...	...	305	245	62
300	...	...	368	295	73
400	...	...	508	410	102
450	...	...	600	480	110
500	...	...	625	500	125
600	...	...	756	605	150
750	...	...	925	740	185

## Full Load Currents of Motors

### Slip-Ring A.C. Induction Motors

The following data are approximate full-load currents for motors of various types, frequencies and speeds. They have been compiled from average values for representative motors of their respective classes. Variations of 10 per cent above or below the values given may be expected.

### 2-Phase

H.P. Motor	VOLTS				
	110	220	440	550	2200
1/4	...	...	...	...	...
1/2	...	...	...	...	...
3/4	6.2	3.1	1.6	1.3	...
1	6.7	3.4	1.7	1.4	...
1 1/2	11.7	5.9	3.0	2.3	...
2	12.5	6.3	3.1	2.5	...
3	...	8.7	4.3	3.5	...
5	...	13.0	6.5	5.2	...
7 1/2	...	20.0	10.0	7.6	...
10	...	24.3	12.1	10.0	...
15	...	39	19.5	15.6	...
20	...	49	24.7	19.8	...
25	...	60	30.0	24.0	6.4
30	...	72	36.0	28.8	7.8
40	...	93	46.5	37.3	9.5
50	...	113	57	45	12.1
60	...	135	68	54	14.0
75	...	164	82	65	17.3
100	...	214	108	87	21.7
125	...	267	134	108	27
150	...	315	158	127	32
175	...	...	...	...	...
200	...	430	216	173	44
225	...	...	...	...	...
250	...	535	268	214	55
275	...	...	...	...	...
300	...	654	325	260	65
350	...	...	...	...	...
400	...	...	430	343	85
450	...	...	502	402	100
500	...	...	537	430	109
600	...	...	660	528	132
750	...	...	797	636	150
1000	...	...	1070	852	214

### 3-Phase

H.P. Motor	VOLTS				
	110	220	440	550	2200
1/4	...	...	...	...	...
1/2	...	...	...	...	...
3/4	7.2	3.6	1.8	1.5	...
1	7.8	3.9	2.0	1.6	...
1 1/2	13.6	6.8	3.4	2.7	...
2	14.4	7.2	3.6	2.9	...
3	...	10	5.0	4.0	...
5	...	15	7.5	6.0	...
7 1/2	...	23	11.5	8.8	...
10	...	28	14.0	11.2	...
15	...	45	22.5	18.0	...
20	...	57	28.5	22.8	...
25	...	69	34.5	27.6	7.4
30	...	83	41.5	33.2	9
40	...	107	53.5	43	11
50	...	131	65.5	52	14
60	...	156	78.0	62	16
75	...	189	94.5	75	20
100	...	247	124	100	25
125	...	308	154	123	31
150	...	364	182	146	37
175	...	...	...	...	...
200	...	498	249	200	51
225	...	...	...	...	...
250	...	616	308	246	63
275	...	...	...	...	...
300	...	750	375	300	75
350	...	...	...	...	...
400	...	...	495	396	98
450	...	...	580	465	115
500	...	...	620	496	125
600	...	...	760	608	152
750	...	...	920	735	185
1000	...	...	1230	985	245

**General Information on AC and DC Motors**

The relation of the horsepower (hp.), the volts (E), the amperes (I) and the efficiency in per cent (e) of the electric motor is expressed by the formula

$$hp. = \frac{EIe}{746}$$

This formula contains four quantities indicated by letters; if any three are known or can be assumed, the other one can be found. Efficiencies of industrial motors can be assumed at from 80% to 90%, depending upon the size.

For example, to determine the current required by a 10 hp., 220-volt motor of which the efficiency is unknown, assume 85% as an approximate value and apply the formula:

$$10 = \frac{220 \times I \times .85}{746}$$

$$\text{Therefore } I = \frac{10 \times 746}{220 \times .85} = 40 \text{ Approx.}$$

A rough approximation in determining the current required by direct-current motors is as follows:

- 8 amperes per hp. for 110-115-volt motors.
- 4 amperes per hp. for 220-230-volt motors.
- 1 3/4 amperes per hp. for 500-volt motors.

**HORSEPOWER.**—Is a measure of the time rate of doing work and is defined as the equivalent of raising 33,000 pounds one foot in one minute. 1 hp. is equivalent to 746 watts.

**TORQUE.**—Is the pull or turning moment required in applying power by rotation and varies inversely as the radius at which the power is applied. The torque T is expressed in pounds at one foot radius, sometimes called pound-feet.

**FULL LOAD TORQUE.**—Is the turning moment required to develop full rated output of a motor of given horsepower at a given speed.

The torque T of any motor at any output expressed in pounds at one foot radius can be found by means of the following formula:

$$T = \frac{5250 \times hp.}{rpm.}$$

Conversely if the torque in pounds at one foot radius is known, the horsepower at any given speed can be determined from the formula:

$$H.P. = \frac{T \times RPM.}{5250}$$

**STARTING TORQUE.**—Is the turning moment a motor will develop in starting when impressed with a given starting voltage. Starting torque is usually expressed in terms of full load torque, as 2 times full load torque, etc.

**PULLOUT TORQUE.**—Or maximum running torque, is the maximum turning moment a motor will develop under running conditions. The P.O. torque of a wound rotor induction motor may be 80% of the maximum starting torque, while the P.O. torque of a squirrel cage induction motor will exceed the maximum starting torque, in some cases by as much as 100%. P.O. torque is usually expressed in terms of full load torque.

**EFFICIENCY.**—Is the ratio of the useful "output" of a machine to its total "input."

**APPARENT POWER.**—In an alternating-current circuit is the product of the readings of the voltmeter and ammeter and is ordinarily expressed as kv-a. This value may be greater than the reading at the same time on the wattmeter.

True power in an alternating current circuit is the average value of the products of the coincident instantaneous values of the current and voltages for a complete cycle as indicated by the readings of a wattmeter and is ordinarily expressed in kw.

Power factor is the ratio of the true power (kw. or wattmeter reading) to the apparent power (kv-a. or product of voltmeter and ammeter readings). The ratio is usually expressed in per cent and cannot be greater than 100%.

**General Information on AC and DC Motors**

Continued

If true power is expressed in kilowatts (kw.) and apparent power as the product of kilovolts (1000 volts) and amperes or kv-a.

$$\text{Power factor (P. F.)} = \frac{kw.}{kv-a.}$$

For estimating purposes, power factors can be assumed as follows, except on long transmission lines; incandescent lighting load, no motors, 95%; lighting and motors, 85%; motors only, 80%.

**Measurement of Power.**—If W = watts, E = average volts between line terminals, I = average line current, and P. F. = power factor expressed as a decimal fraction, the following formula represent their relations:

- Single-phase  $W = EI \times P.F.$
- Two-phase  $W = 2EI \times P.F.$
- Three-phase  $W = 1.732 EI \times P.F.$

**Current.**—From the above formula the current can be found as follows:

$$\text{Single-phase } I = \frac{W}{E \times P.F.}$$

$$\text{Two-phase } I = \frac{W}{2E \times P.F.} = \frac{.5 W}{E \times P.F.}$$

$$\text{Three-phase } I = \frac{W}{1.732 E \times P.F.} = \frac{.578 W}{E \times P.F.}$$

**Effect of Changes of Voltage and Frequency**

The starting torque of an induction motor will vary as the square of the voltage applied to the primary: hence, the primary voltage required to produce a given starting torque can be determined by means of the formula:

$$V^1 = V \sqrt{\frac{T^1}{T}}$$

Where V<sup>1</sup> and T<sup>1</sup> signify required voltage and torque respectively, V, the full rated voltage, and T, the starting torque at full voltage. For example: if a squirrel cage induction motor is required to start with full load torque only, and if the starting torque at full voltage is 2.5 times full load torque (2.5 F.L.T.) the starting voltage should be:

$$V^1 = V \sqrt{\frac{1}{2.5}} = .63V; \text{ that is, the starting voltage should be 63\% of full voltage.}$$

The starting current of squirrel cage induction motors depends on the starting voltage applied and is independent of the torque required to start the load; the current falls almost immediately, however, to the value corresponding to the required torque and then decreases more gradually as the motor speed accelerates. From this, it follows that the starting voltage should not be greatly in excess of that required for the torque.

Wound rotor motors when started by means of resistance in the secondary circuits can usually be accelerated to full speed with full load torque with current little in excess of full load current.

A variation in either voltage or frequency not exceeding 10% is generally permissible with any induction motor. Such variations are always accompanied by changes from normal performance with either the voltage or the frequency differing from normal; the following performance change will be obtained:

Character of Change	Power Factor	Effect on		
		Torque	Slip	Efficiency
Voltage higher	Decreased	Increased	Decreased	Decreased
Voltage lower	Increased	Decreased	Increased	Increased
Frequency higher	Increased	Decreased	% slip unchanged	Increased
Frequency lower	Decreased	Increased	% slip unchanged	Decreased

The voltage and frequency should not be varied simultaneously in opposite directions, that is, one increased and the other decreased, if an induction motor must operate on frequency other than standard, the performance will be better if the voltage is changed in proportion to the square root of the frequency. For example: a 220-volt, 60 cycle motor, operating on 50 cycles, will have very nearly its normal performance

$$\text{if the voltage is decreased to } 220 \times \sqrt{\frac{50}{60}} = 200.$$

## Wiring Data for A.C. Motors

### 3-Phase

H.P.	Approx. Full Load Current - Amperes			Starting Fuse - Amperes				Running Fuse - Amperes				Minimum Size Wire B. & S. Gauge) Rubber or Other Insulation				Size of Conduit Underwriters				Capacity of Unfused Switch - Amperes				Capacity of Single Throw Fused Switch - Amperes					
	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	110 V.	220 V.	440 V.	550 V.	
1/4	2.4	1.2	0.6	5	6	5	5	3	2	11	0	14	14	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1/2	4.4	2.2	1.1	9	10	5	5	5	3	21	5	14	14	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
3/4	6.2	3.1	1.6	1	25	15	8	5	5	9	4	3	2	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1	8	4	2	1	6	20	10	5	5	10	6	3	3	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1 1/2	10	5	2.5	2	6	25	15	7	6	15	8	4	3	12	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
2	12	6	3	3	2	30	20	15	10	20	10	6	4	10	12	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
3	18	9	4.5	4	5	30	20	15	10	25	15	10	5	8	10	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
4	24	12	6	6	8	30	20	15	10	35	15	10	6	6	10	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
5	30	15	7.5	6	7	40	25	15	10	40	20	10	6	8	12	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
7 1/2	44	22	11	8	8	50	30	20	15	50	25	15	15	4	6	10	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
10	58	29	14.5	12	120	70	40	30	20	75	40	20	20	2	6	8	10	1/2	1/2	1/2	1/2	60	30	30	30	200	100	60	30
15	82	41	20.5	16	5	170	85	50	40	125	50	30	25	0	4	8	8	2	1 1/2	1	1	100	60	30	30	200	100	60	30
20	110	55	27.5	22	220	110	60	55	150	70	35	30	00	2	6	6	2	1 1/2	1 1/4	1 1/4	200	60	30	30	400	200	60	30	
25	136	68	34	27	270	140	70	65	175	80	40	35	000	1	6	6	2	1 1/2	1 1/4	1 1/4	200	100	60	30	400	200	100	100	
30	160	80	40	32	320	160	80	70	200	100	50	40	*211	0	4	6	2	1 1/2	1 1/4	1 1/4	200	100	60	30	400	200	100	100	
35	188	94	46.5	37	375	190	100	75	225	120	60	45	300	0	2	4	3	2	1 1/2	1 1/4	200	100	60	30	400	200	100	100	
40	212	106	53	42	420	210	110	85	275	140	75	50	350	00	2	4	3	2	1 1/2	1 1/4	400	200	60	30	600	400	200	100	
50	264	132	66	53	520	260	125	110	325	160	90	60	450	000	1	2	3	2	1 1/2	1 1/4	400	200	100	60	600	400	200	100	
60	316	158	79	63	620	310	160	125	400	180	100	70	550	*211	0	2	3	1/2	2 1/2	2	400	200	100	100	800	400	200	200	
75	392	196	98	78	770	390	175	160	475	250	125	90	750	300	0	0	3	1/2	3	2	400	200	100	100	800	400	200	200	
100	524	262	131	100	4	500	250	200	325	160	125	100	400	000	0	0	3	2	2	2	400	200	200	200	600	400	200	200	
125	638	319	159	127	650	310	250	400	200	150	100	600	000	000	000	000	3	1/2	2 1/2	2	400	200	200	200	800	400	200	200	
150	780	390	195	152	730	370	300	450	250	175	100	700	*300	*200	300	300	3	1/2	3	2 1/2	400	200	200	200	800	400	200	200	
175	944	472	236	178	850	440	350	500	275	225	100	900	350	250	400	400	4	3	2 1/2	600	400	200	200	1200	600	400	400		
200	1104	552	276	204	920	480	390	600	300	250	100	900	400	300	400	300	4	3	3	600	400	400	400	1200	600	400	400		
250	1392	696	348	240	1200	600	480	800	400	350	150	1300	500	400	500	400	5	3	3	600	400	400	400	1200	600	400	400		
300	1680	840	420	285	1420	710	570	980	490	400	160	1600	650	500	500	500	5	3 1/2	3	800	400	400	400	1800	900	600	600		

### Single Phase

1/4	4	2	1	8	10	5	5	5	3	2	1	14	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1/2	7.5	3.7	1.8	1.3	20	10	5	5	10	5	2	2	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
3/4	10	5	2.5	2	25	15	8	5	12	6	3	3	12	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1	12	6	3	3	30	20	15	10	15	10	4	3	8	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
1 1/2	18	9	4.5	4.5	40	25	15	10	20	10	5	4	8	12	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
2	24	12	6	6	50	30	20	15	30	15	10	5	6	8	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
3	34	17	8.5	8.5	60	35	25	15	40	20	15	10	4	8	10	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
4	43	22	11	8.6	70	40	30	25	50	25	15	10	4	6	10	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30	
5	55	28	14.6	11.7	80	40	30	25	60	30	20	15	2	6	8	10	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30
7 1/2	80	40	20	16	100	50	35	25	80	40	25	20	0	4	6	8	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30
10	105	53	26.5	21.1	120	60	40	30	100	50	30	25	00	2	6	6	2	1 1/2	1 1/4	1	200	60	30	30	400	200	100	60
15	162	81	40.5	33	160	80	50	35	180	90	45	35	*211	0	4	6	2	1 1/2	1 1/4	1	200	100	60	30	400	200	100	100
20	208	104	52	42.6	200	100	60	45	230	115	60	45	300	0	2	4	2	1 1/2	1 1/4	1 1/4	400	200	60	30	600	400	200	100
25	258	129	64.5	51.6	250	125	75	50	280	140	70	60	400	000	1	2	3	2	1 1/2	1 1/4	400	200	100	60	600	400	200	100
30	304	152	76	61	300	150	75	50	330	165	80	70	500	*200	0	2	3	2	1 1/2	1 1/4	400	200	100	100	600	400	200	100
35	356	178	89	70	350	175	87	50	380	190	90	80	650	300	0	1	3	1/2	2 1/2	1 1/2	400	200	100	100	800	400	200	200
40	400	200	100	80	400	200	100	70	440	220	110	90	750	300	0	0	3	1/2	2 1/2	1 1/2	400	200	100	100	800	400	200	200
50	492	246	123	99	490	245	122	75	540	270	135	110	1000	500	000	0	4	3	2	1 1/2	600	400	200	100	1200	600	400	200

### 2-Phase, 4-Wire

1/4	2	1	.5	.45	5	5	5	5	3	2	1	1	14	14	14	14	3/4	3/4	3/4	3/4	30	30	30	30	30	30	30	30
1/2	3.8	1.9	.95	.72	10	5	5	5	5	3	2	1.5	14	14	14	14	3/4	3/4	3/4	3/4	30	30	30	30	30	30	30	30
3/4	5.5	2.8	1.35	1.1	15	7	5	5	7	4	3	2	14	14	14	14	3/4	3/4	3/4	3/4	30	30	30	30	30	30	30	30
1	7	3.5	1.75	1.4	20	10	5	5	10	5	3	2	14	14	14	14	3/4	3/4	3/4	3/4	30	30	30	30	30	30	30	30
1 1/2	8.8	4.5	2.25	1.8	20	12	6	5	10	7	4	3	14	14	14	14	3/4	3/4	3/4	3/4	30	30	30	30	30	30	30	30
2	11	5.5	2.75	2.2	30	15	10	5	15	10	4	4	10	14	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30
3	15.8	7.9	4	3.2	40	20	15	10	20	10	4	5	8	12	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30
4	21	10.5	5.03	4.25	50	25	15	10	30	15	25	6	6	10	14	14	1/2	1/2	1/2	1/2	30	30	30	30	30	30	30	30
5	26	13.1	6.6	5.25	60	30	20	15	40	20	10	10	6															

**Wiring Data for 3-Phase Motors**

Where two or more motors are installed on one circuit, wire used should be equivalent to that needed for running loads of all motors plus 50 per cent of running load of the largest motor on the circuit.

110 Volts						
H.P. of Motor	Approx. Full Load Current Amperes	Amperes of Starting Fuses	Amperes of Running Fuses	Amperes of Switch	Size of Wire B. & S. Gauge	
1	6	15	10	30	14	
2	12	25	20	30	12	
3	18	35	25	30	8	
5	30	60	40	60	6	
7½	42	80	60	100	4	
10	56	100	75	100	2	
15	84	150	125	200	0	
20	104	200	150	200	00	
30	156	250	200	200	300000 C.M.	

220 Volts						
H.P. of Motor	Approx. Full Load Current Amperes	Amperes of Starting Fuses	Amperes of Running Fuses	Amperes of Switch	Size of Wire B. & S. Gauge	
1	3	10	6	30	14	
2	6	15	10	30	14	
3	9	20	15	30	12	
5	15	30	20	30	10	
7½	21	40	30	60	8	
10	28	60	40	60	6	
15	42	80	60	100	4	
20	52	100	75	100	2	
30	78	150	125	200	0	
40	105	200	150	200	00	
50	133	225	175	200	000	
75	184	300	250	400	300000 C.M.	
100	245	400	350	400	500000 C.M.	

440 Volts						
H.P. of Motor	Approx. Full Load Current Amperes	Amperes of Starting Fuses	Amperes of Running Fuses	Amperes of Switch	Size of Wire B. & S. Gauge	
1	1.5	5	3	30	14	
2	3	10	6	30	14	
3	4.5	10	6	30	14	
5	7.5	15	10	30	14	
7½	10.5	25	15	30	12	
10	14	30	20	30	10	
15	21	40	30	60	8	
20	26	60	40	60	6	
30	39	80	60	100	4	
40	52.5	100	75	100	2	
50	66.5	125	100	100	1	
75	92	150	125	200	00	
100	122.5	225	175	200	000	
150	184	300	250	400	300000 C.M.	
200	236	400	350	400	500000 C.M.	

**Fusing Effects of Currents**

Table Showing the Amperes Required to Fuse Wires of Various Sizes and Materials

Birmingham or Stubs Gauge	Diam. d	d 3/2	Aluminum			
			Copper a=10244	Aluminum a=7585	Platinum a=5172	Lead a=1379
14	.08	.022627	231.8	171.6	117.	
16	.064	.016191	165.8	122.8	83.73	
18	.048	.010516	107.7	79.75	54.37	
20	.036	.006831	69.97	51.18	35.33	
22	.028	.004685	48.	35.53	24.23	
24	.022	.003263	33.43	24.75	16.88	
26	.018	.002415	24.74	18.32	12.49	
28	.0148	.001801	18.44	13.66	9.311	
30	.0124	.001381	14.15	10.47	7.142	
32	.0108	.001122	11.5	8.512	5.805	
Size B. & S.	Diam. d	d 3/2	Nickel Silver a=5230	Iron a=13148	Lead a=1379	
14	.08	.022627	118.3	71.22	31.2	
16	.064	.016191	84.68	50.96	22.32	
18	.048	.010516	54.99	33.1	14.5	
20	.036	.006831	35.72	21.5	9.419	
22	.028	.004685	24.5	14.75	6.461	
24	.022	.003263	17.06	10.27	4.499	
26	.018	.002415	12.63	7.602	3.33	
28	.0148	.001801	9.416	5.667	2.483	
30	.0124	.001381	7.222	4.347	1.904	
32	.0108	.001122	5.87	3.533	1.548	

**Amperes in Alternating Current Circuits**

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The following tables give the amperes per lead wire per kilowatt for single-phase and three-phase balanced loads. The single-phase table can be used for two-phase balanced loads by using a current value corresponding to twice the stated potential of the circuit or by dividing the current value at the potential of the circuit by two. That is, each wire of a two-phase circuit carries one half of the current indicated at the load specified. These tables show the value of the current at power factors varying from unity to 70 per cent. The power of any circuit in kilowatts can, therefore, be computed by dividing the reading of the ammeter by the tabulated value corresponding to the measured power factor and voltage of the circuit. These values are correct only for a balanced load (and there is generally a slight unbalancing of the loads on the phases), but the table is useful in computing the sizes of wire required for transmission purposes.

This table was derived from the following formulas:

For single-phase circuits: Amperes per wire = watts ÷ (volts × power factor).

For three-phase circuits: Amperes per wire = total watts ÷ (volts between wires × power factor × √3).

For two-phase circuits: Amperes per wire = total watts ÷ (volts between wires of one phase × power factor × 2).

In making the computations the number of watts was assumed as 1000, and the amperes were computed for various values of e.m.f. to a sufficient number of decimal places to insure accuracy. The tables were then extended by multiplication and division. If desired, these tables can be further extended to cover voltages outside of their limits by using the tabular values corresponding to potentials of one tenth (or 10 times) the desired potential, care being used to shift the decimal point in the proper direction.

The values for intermediate power factors can be approximated from the tables. For lower power factors, the value of the current for unity power factor can be divided by actual power factor of the circuit or multiplied by the reciprocal of this power factor.

**Single-phase Circuits**

Amperes for One Kilowatt at Different Power Factors

Volts	POWER FACTOR IN PER CENT						
	100	95	90	85	80	75	70
100	10.0000	10.5263	11.1111	11.7647	12.5000	13.3333	14.2850
110	9.0909	9.5693	10.1010	10.6652	11.3636	12.1211	12.9870
115	8.6957	9.1533	9.6619	10.2302	10.8696	11.5942	12.4224
120	8.3333	8.7719	9.2592	9.8040	10.4166	11.1111	11.9049
125	8.0000	8.4211	8.8889	9.4118	10.0000	10.6667	11.4286
130	7.6923	8.0972	8.5470	9.0498	9.6154	10.2564	10.9890
140	7.1429	7.5188	7.9365	8.4034	8.9285	9.5238	10.2040
150	6.6667	7.0176	7.4074	7.8431	8.3333	8.8889	9.5239
160	6.2500	6.5790	6.9444	7.3529	7.8125	8.3333	8.9286
170	5.8824	6.1919	6.5360	6.9205	7.3530	7.8431	8.4034
180	5.5556	5.8480	6.1729	6.5359	6.9445	7.4074	7.9366
190	5.2632	5.5402	5.8480	6.1919	6.5790	7.0176	7.5189
200	5.0000	5.2632	5.5556	5.8824	6.2500	6.6667	7.1429
210	4.7619	5.0125	5.2910	5.6022	5.9524	6.3492	6.8027
220	4.5455	4.7847	5.0505	5.3476	5.6819	6.0606	6.4936
225	4.4444	4.6784	4.9382	5.2288	5.5556	5.9259	6.3492
230	4.3479	4.5766	4.8309	5.1151	5.4349	5.7971	6.2113
240	4.1667	4.3860	4.6296	4.9020	5.2084	5.5556	5.9524
250	4.0000	4.2105	4.4444	4.7059	5.0000	5.3333	5.7143
300	3.3333	3.5088	3.7037	3.9216	4.1666	4.4444	4.7614
330	3.0303	3.1897	3.3670	3.5651	3.7879	4.0404	4.3290
350	2.8572	3.0075	3.1746	3.3613	3.5715	3.8095	4.0817
400	2.5000	2.6316	2.7778	2.9412	3.1250	3.3333	3.5714
440	2.2727	2.3923	2.5252	2.6738	2.8409	3.0303	3.2467
450	2.2222	2.3392	2.4691	2.6144	2.7778	2.9630	3.1746
500	2.0000	2.1053	2.2222	2.3529	2.5000	2.6667	2.8571
550	1.8182	1.9139	2.0202	2.1390	2.2728	2.4242	2.5974
600	1.6667	1.7544	1.8519	1.9608	2.0834	2.2222	2.3810
700	1.4286	1.5037	1.5873	1.6807	1.7857	1.9048	2.0409
800	1.2500	1.3158	1.3889	1.4706	1.5625	1.6667	1.7857

## Amperes in Alternating Current Circuits

*By Permission of the Electrical World*

### Single-phase Circuits—Continued

Amperes for One Kilowatt at Different Power Factors

Volts	POWER FACTOR IN PER CENT							
	100	95	90	85	80	75	70	
900	1.1111	1.1696	1.2345	1.3072	1.3889	1.4815	1.5873	
1000	1.0000	1.0527	1.1111	1.1765	1.2500	1.3333	1.4286	
1100	0.9091	0.9569	1.0101	0.0695	1.1364	1.2121	1.2987	
1200	0.8333	0.8772	0.9259	0.9804	1.0417	1.1111	1.1905	
1300	0.7692	0.8097	0.8547	0.9050	0.9615	1.0256	1.0989	
1400	0.7143	0.7519	0.7936	0.8403	0.8929	0.9524	1.0204	
1500	0.6667	0.7018	0.7407	0.7843	0.8333	0.8889	0.9524	
1600	0.6250	0.6579	0.6944	0.7353	0.7812	0.8333	0.8929	
1700	0.5882	0.6192	0.6536	0.6921	0.7353	0.7843	0.8403	
1800	0.5556	0.5848	0.6173	0.6536	0.6944	0.7407	0.7937	
1900	0.5263	0.5540	0.5848	0.6192	0.6579	0.7018	0.7519	
2000	0.5000	0.5263	0.5556	0.5882	0.6250	0.6667	0.7143	
2100	0.4762	0.5013	0.5291	0.5602	0.5952	0.6349	0.6803	
2200	0.4545	0.4785	0.5050	0.5348	0.5682	0.6061	0.6494	
2300	0.4348	0.4577	0.4831	0.5115	0.5435	0.5797	0.6211	
2400	0.4167	0.4386	0.4630	0.4902	0.5208	0.5556	0.5952	
2500	0.4000	0.4210	0.4444	0.4706	0.5000	0.5333	0.5714	
3000	0.3333	0.3509	0.3704	0.3922	0.4167	0.4444	0.4761	
3300	0.3030	0.3190	0.3367	0.3565	0.3788	0.4040	0.4329	
3500	0.2857	0.3007	0.3175	0.3361	0.3571	0.3809	0.4082	
4000	0.2500	0.2632	0.2778	0.2941	0.3125	0.3333	0.3571	
4500	0.2222	0.2339	0.2469	0.2614	0.2778	0.2963	0.3175	
5000	0.2000	0.2105	0.2222	0.2353	0.2500	0.2667	0.2857	
6000	0.1667	0.1754	0.1852	0.1961	0.2083	0.2222	0.2381	
6600	0.1515	0.1595	0.1684	0.1783	0.1894	0.2020	0.2165	
7000	0.1429	0.1504	0.1587	0.1681	0.1786	0.1905	0.2041	
8000	0.1250	0.1316	0.1389	0.1471	0.1563	0.1667	0.1786	
9000	0.1111	0.1170	0.1234	0.1307	0.1389	0.1481	0.1587	
10000	0.1000	0.1053	0.1111	0.1177	0.1250	0.1333	0.1429	
11000	0.0909	0.0957	0.1010	0.1070	0.1136	0.1212	0.1299	
12000	0.0833	0.0877	0.0926	0.0980	0.1042	0.1111	0.1190	
13000	0.0769	0.0810	0.0855	0.0905	0.0962	0.1026	0.1099	
14000	0.0714	0.0752	0.0794	0.0840	0.0893	0.0952	0.1020	
15000	0.0667	0.0702	0.0741	0.0784	0.0833	0.0889	0.0952	
16000	0.0625	0.0658	0.0694	0.0735	0.0781	0.0833	0.0893	
17000	0.0588	0.0619	0.0654	0.0692	0.0735	0.0784	0.0840	
18000	0.0556	0.0585	0.0617	0.0654	0.0694	0.0741	0.0794	
19000	0.0526	0.0554	0.0585	0.0619	0.0658	0.0702	0.0752	
20000	0.0500	0.0526	0.0556	0.0588	0.0625	0.0667	0.0714	
25000	0.0400	0.0421	0.0444	0.0471	0.0500	0.0533	0.0571	
30000	0.0333	0.0351	0.0370	0.0392	0.0417	0.0444	0.0476	
35000	0.0286	0.0301	0.0317	0.0336	0.0357	0.0381	0.0408	
40000	0.0250	0.0263	0.0278	0.0294	0.0313	0.0333	0.0357	
45000	0.0222	0.0234	0.0247	0.0261	0.0278	0.0296	0.0317	
50000	0.0200	0.0211	0.0222	0.0235	0.0250	0.0267	0.0286	
55000	0.0182	0.0191	0.0202	0.0214	0.0227	0.0242	0.0260	
60000	0.0167	0.0175	0.0185	0.0196	0.0208	0.0222	0.0238	

### Three-phase Circuits

Amperes per Wire for One Kilowatt at Different Power Factors

Volts	POWER FACTOR IN PER CENT							
	100	95	90	85	80	75	70	
100	5.7735	6.0774	6.4150	6.7924	7.2169	7.6980	8.2479	
110	5.2486	5.5249	5.8319	6.1749	6.5608	6.9982	7.4980	
115	5.0204	5.2847	5.5783	5.9064	6.2756	6.6939	7.1721	
120	4.8112	5.0645	5.3458	5.6603	6.0141	6.4150	6.8732	
125	4.6188	4.8619	5.1320	5.4339	5.7735	6.1584	6.5983	
130	4.4411	4.6749	4.9346	5.2249	5.5514	5.9215	6.3445	
140	4.1240	4.3410	4.5821	4.8517	5.1549	5.4986	5.8913	
150	3.8490	4.0516	4.2767	4.5283	4.8112	5.1320	5.4986	
160	3.6084	3.7984	4.0094	4.2453	4.5105	4.8112	5.1549	
170	3.3962	3.5749	3.7735	3.9955	4.2453	4.5282	4.8517	
180	3.2075	3.3763	3.5639	3.7735	4.0094	4.2767	4.5821	
190	3.0387	3.1986	3.3763	3.5749	3.7984	4.0516	4.3410	
200	2.8867	3.0387	3.2075	3.3962	3.6084	3.8490	4.1239	
210	2.7493	2.8940	3.0548	3.2345	3.4366	3.6657	3.9276	
220	2.6243	2.7624	2.9159	3.0874	3.2804	3.4992	3.7490	

## Amperes in Alternating Current Circuits

*By Permission of the Electrical World*

### Three-phase Circuits—Continued

Amperes per Wire for One Kilowatt at Different Power Factors

Volts	POWER FACTOR IN PER CENT							
	100	95	90	85	80	75	70	
225	2.5660	2.7010	2.8511	3.0188	3.2075	3.4213	3.6657	
230	2.5102	2.6423	2.7891	2.9532	3.1378	3.3470	3.5860	
240	2.4056	2.5322	2.6729	2.8301	3.0070	3.2075	3.4366	
250	2.3094	2.4310	2.5660	2.7170	2.8867	3.0792	3.2992	
300	1.9245	2.0258	2.1384	2.2642	2.4056	2.5660	2.7493	
330	1.7495	1.8416	1.9439	2.0583	2.1869	2.3327	2.4960	
350	1.6496	1.7364	1.8328	1.9406	2.0620	2.1994	2.3566	
400	1.4434	1.5194	1.6038	1.6981	1.8042	1.9245	2.0620	
440	1.3122	1.3812	1.4579	1.5437	1.6402	1.7495	1.8745	
450	1.2830	1.3505	1.4256	1.5094	1.6037	1.7107	1.8329	
500	1.1547	1.2155	1.2830	1.3585	1.4434	1.5396	1.6496	
550	1.0497	1.1050	1.1664	1.2350	1.3121	1.3996	1.4996	
600	.9622	1.0129	1.0692	1.1321	1.2028	1.2830	1.3746	
700	.8248	.8682	.9164	.9703	1.0310	1.0997	1.1783	
800	.7217	.7597	.8019	.8491	.9021	.9623	1.0310	
900	.6415	.6753	.7128	.7547	.8019	.8553	.9164	
1000	.5774	.6077	.6415	.6792	.7217	.7698	.8248	
1100	.5249	.5525	.5832	.6175	.6561	.6998	.7498	
1200	.4811	.5064	.5346	.5660	.6014	.6413	.6873	
1300	.4441	.4675	.4935	.5225	.5551	.5922	.6344	
1400	.4124	.4341	.4582	.4852	.5155	.5499	.5891	
1500	.3849	.4052	.4277	.4528	.4811	.5132	.5499	
1600	.3608	.3798	.4009	.4245	.4511	.4811	.5155	
1700	.3396	.3575	.3774	.3996	.4245	.4528	.4852	
1800	.3207	.3376	.3564	.3773	.4009	.4277	.4582	
1900	.3039	.3199	.3376	.3575	.3798	.4052	.4341	
2000	.2807	.3039	.3207	.3396	.3608	.3849	.4124	
2100	.2749	.2894	.3055	.3234	.3437	.3666	.3928	
2200	.2624	.2762	.2916	.3087	.3280	.3499	.3749	
2300	.2510	.2642	.2789	.2953	.3138	.3347	.3586	
2400	.2406	.2532	.2673	.2830	.3007	.3208	.3437	
2500	.2309	.2431	.2566	.2717	.2887	.3079	.3299	
3000	.1924	.2026	.2138	.2264	.2406	.2566	.2749	
3300	.1749	.1842	.1944	.2058	.2187	.2333	.2499	
3500	.1650	.1736	.1833	.1941	.2062	.2199	.2357	
4000	.1443	.1519	.1604	.1698	.1804	.1924	.2062	
4500	.1283	.1350	.1426	.1509	.1604	.1711	.1833	
5000	.1155	.1216	.1283	.1358	.1443	.1540	.1650	
6000	.0962	.1013	.1069	.1132	.1203	.1283	.1375	
6600	.0875	.0921	.0972	.1029	.1093	.1167	.1249	
7000	.0825	.0868	.0916	.0970	.1031	.1100	.1178	
8000	.0722	.0760	.0802	.0849	.0902	.0962	.1031	
9000	.0641	.0675	.0713	.0755	.0802	.0855	.0916	
10000	.0577	.0608	.0642	.0679	.0722	.0770	.0825	
11000	.0525	.0552	.0583	.0617	.0656	.0700	.0750	
12000	.0481	.0506	.0535	.0566	.0601	.0642	.0687	
13000	.0444	.0467	.0493	.0522	.0555	.0592	.0634	
14000	.0412	.0434	.0458	.0485	.0515	.0550	.0589	
15000	.0385	.0405	.0428	.0453	.0481	.0513	.0550	
16000	.0361	.0380	.0401	.0425	.0451	.0481	.0515	
17000	.0340	.0357	.0377	.0399	.0425	.0453	.0485	
18000	.0321	.0338	.0356	.0377	.0401	.0428	.0458	
19000	.0304	.0320	.0338	.0357	.0380	.0405	.0434	
20000	.0289	.0304	.0321	.0340	.0361	.0385	.0412	
25000	.0231	.0243	.0257	.0272	.0289	.0308	.0330	
30000	.0192	.0203	.0214	.0226	.0241	.0257	.0275	
33000	.0175	.0184	.0194	.0206	.0219	.0233	.0250	
35000	.0165	.0174	.0183	.0194	.0206	.0220	.0236	
40000	.0144	.0152	.0160	.0170	.0180	.0192	.0206	
45000	.0128	.0135	.0143	.0151	.0160	.0171	.0183	
50000	.0115	.0122	.0128	.0136	.0144	.0154	.0165	
55000	.0105	.0111	.0117	.0124	.0131	.0140	.0150	
60000	.0096	.0101	.0107	.0113	.0120	.0128	.0137	

Wiring Tables

Two Per Cent Loss on 110 Volts

Wire sizes given are B. & S. gauge.

Capacity Amperes	DISTANCE IN FEET TO CENTER OF DISTRIBUTION								
	20	30	40	50	60	70	80	90	100
1	..	..	..	..	..	..	..	..	..
1.5	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	16	15	15
4	..	..	..	..	16	15	15	14	14
5	..	..	..	16	15	14	14	13	13
6	..	..	16	15	14	14	13	12	12
7	..	16	15	14	14	13	12	12	11
8	..	16	15	14	13	12	12	11	11
9	..	15	14	13	12	12	11	11	10
10	16	15	14	13	12	11	11	10	10
12	16	14	13	12	11	11	10	9	9
14	15	14	12	11	11	10	9	9	8
16	15	13	12	11	10	9	9	8	8
18	14	12	11	10	9	9	8	8	7
20	14	12	11	10	9	8	8	7	7
25	13	11	10	9	8	7	7	6	6
30	12	10	9	8	7	7	6	6	5
35	11	10	8	7	7	6	5	5	4
40	11	9	8	7	6	5	5	4	4
45	10	9	7	6	6	5	4	4	3
50	10	8	7	6	5	4	4	3	3
60	9	7	6	5	4	4	3	3	2
70	8	7	5	4	4	3	2	2	1
80	8	6	5	4	3	2	2	1	1
90	7	6	4	3	3	2	1	1	0
100	7	5	4	3	2	1	1	0	0
120	6	4	3	2	1	1	0	0	00

Capacity Amperes	DISTANCE IN FEET TO CENTER OF DISTRIBUTION								
	120	140	160	180	200	240	280	320	360
1	..	..	..	..	..	16	15	15	14
1.5	..	..	16	15	15	14	14	13	12
2	16	15	15	14	14	13	12	12	11
3	14	14	13	12	12	11	11	10	9
4	13	12	12	11	11	10	9	9	8
5	12	11	11	10	10	9	8	8	7
6	11	11	10	9	9	8	8	7	7
7	11	10	9	9	8	7	7	6	6
8	10	9	9	8	8	7	7	6	5
9	9	9	8	8	7	7	6	5	5
10	9	8	8	7	7	6	5	5	4
12	8	8	7	7	6	5	5	4	4
14	7	7	6	6	5	5	4	3	3
16	7	7	6	5	5	4	3	3	2
18	7	6	5	5	4	4	3	2	2
20	6	5	5	4	4	3	2	2	1
25	5	4	4	3	3	2	1	1	0
30	4	4	3	3	2	1	1	0	0
35	4	3	2	2	1	1	0	00	00
40	3	2	2	1	1	0	00	00	000
45	3	2	1	1	0	00	00	000	000
50	2	1	1	0	0	00	000	000	0000
60	1	1	0	0	00	000	000	0000	0000
70	1	0	00	00	000	000	0000	0000	.....
80	0	00	00	000	0000	0000	.....	.....	.....
90	00	00	000	000	0000	0000	.....	.....	.....
100	00	000	000	0000	0000	.....	.....	.....	.....
120	00	000	0000	0000	.....	.....	.....	.....	.....

Wiring Tables

2 Per Cent Loss on 220 Volts

Wire sizes given are B. & S. gauge.

Cap. Amps.	DISTANCE IN FEET TO CENTER OF DISTRIBUTION								
	20	30	40	50	60	70	80	90	100
1	..	..	..	..	..	..	..	..	..
1.5	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..
5	..	..	..	..	..	..	..	..	16
6	..	..	..	..	..	..	..	16	15
7	..	..	..	..	..	..	16	15	14
8	..	..	..	..	..	16	15	15	14
9	..	..	..	..	16	15	15	14	14
10	..	..	..	16	15	14	14	13	13
12	..	..	16	15	14	14	13	12	12
14	..	16	15	14	14	13	12	12	11
16	..	16	15	14	13	12	12	11	11
18	..	15	14	13	12	12	11	11	10
20	16	15	14	13	12	11	11	10	10
25	16	14	13	12	11	10	10	9	9
30	15	13	12	11	10	10	9	9	8
35	14	13	11	10	10	9	8	8	7
40	14	12	11	10	9	8	8	7	7
45	13	12	10	9	9	8	7	7	6
50	13	11	10	9	8	7	7	6	6
60	12	10	9	8	7	7	6	6	5
70	11	10	8	7	7	6	5	5	4
80	11	9	8	7	6	5	5	4	4
90	10	9	7	6	6	5	4	4	3
100	10	8	7	6	5	4	4	3	3
120	9	7	6	5	4	4	3	3	2

Cap. Amps.	DISTANCE IN FEET TO CENTER OF DISTRIBUTION								
	120	140	160	180	200	240	250	320	360
1	..	..	..	..	..	..	..	..	..
1.5	..	..	..	..	..	..	..	16	15
2	..	..	..	..	..	..	16	15	14
3	..	..	16	15	15	14	14	13	12
4	16	15	15	14	14	13	12	12	11
5	15	14	14	13	13	12	11	11	10
6	14	14	13	12	12	11	11	10	9
7	14	13	12	12	11	11	10	9	9
8	13	12	12	11	11	10	9	9	8
9	12	12	11	11	10	9	9	8	8
10	12	11	11	10	10	9	8	8	7
12	11	11	10	9	9	8	8	7	7
14	11	10	9	9	8	7	7	6	6
16	10	9	9	8	8	7	7	6	5
18	9	9	8	8	7	7	6	5	5
20	9	8	8	7	7	6	5	5	4
25	8	7	7	6	6	5	4	4	3
30	7	7	6	6	5	4	4	3	3
35	7	6	5	5	4	4	3	2	2
40	6	5	5	4	4	3	2	2	1
45	6	5	4	4	3	3	2	1	1
50	5	4	4	3	3	2	1	1	0
60	4	4	3	3	2	1	1	0	0
70	4	3	2	2	1	1	0	00	00
80	3	2	2	1	1	0	00	00	000
90	3	2	1	1	0	00	00	000	000
100	2	1	1	0	0	00	000	000	0000
120	1	1	0	0	00	000	000	0000	0000

Minimum Sized Wire for Motor Services

When Concealed or Partly Concealed Wires are Used

H. P.	SIZE OF WIRE, B. & S.			H. P.	SIZE OF WIRE, B. & S.		
	110 Volts	220 Volts	500 Volts		110 Volts	220 Volts	500 Volts
1/2	14	14	14	25	000	1	6
1	14	14	14	30	0000	0	5
2	12	14	14	40	.....	00	3
3	10	14	14	50	.....	000	2
4	8	12	14	60	.....	0000	1
5	6	10	14	70	.....	.....	0
7 1/2	4	8	14	80	.....	.....	00
10	3	6	12	90	.....	.....	00
15	0	5	10	100	.....	.....	000
20	00	3	8	120	.....	.....	0000



## General Wiring Formula

For A.C. and D.C. Circuits

The following general formula may be used to determine the size of copper conductors, volts loss in lines, current per conductor, and of copper per circuit for any system of electrical distribution.

$$\text{Area of conductor, circular mils} = \frac{D \times W \times K}{P \times E^2}$$

$$\text{Volts loss in lines} = \frac{P \times E \times M}{100}$$

$$\text{Current in main conductors} = \frac{W \times T}{E}$$

$$\text{Pounds copper} = \frac{D \times W \times K \times A}{P \times E \times 1000000}$$

W = Total watts delivered.

D = Distance of transmission (1 way) in feet.

P = Loss in line in per cent of power delivered, that is, of W.

E = Voltage between main conductors at receiving or consumer's end of circuit.

For continuous current K = 2160, T = 1, M = 1, and A = 6.04.

System	Value of A	PER CENT POWER FACTOR				
		VALUE OF K				
		100	95	90	85	80
Single-Phase.....	6.04	2160	2400	2660	3000	3380
Two-Phase (4-Wire) ..	12.08	1080	1200	1330	1500	1690
Three-Phase (3-Wire) .	9.06	1080	1200	1330	1500	1690

System	Value of A	PER CENT POWER FACTOR				
		VALUE OF T				
		100	95	90	85	80
Single-Phase.....	1.00	1.05	1.11	1.17	1.25	
Two-Phase (4-Wire) ..	.50	.53	.55	.59	.62	
Three-Phase (3-Wire) .	.58	.61	.64	.68	.72	

Wire Sizes	PER CENT POWER FACTOR							
	VALUE OF M—WIRES 18 INCHES APART				VALUE OF T			
	25 CYCLES		60 CYCLES		25 CYCLES		60 CYCLES	
	0.95	0.90	0.85	0.80	0.95	0.90	0.85	0.80
0000	1.17	1.16	1.12	1.06	1.53	1.64	1.67	1.66
000	1.12	1.09	1.05	.99	1.41	1.49	1.50	1.47
00	1.08	1.04	.99	.92	1.32	1.36	1.35	1.31
0	1.05	1.00	.94	.87	1.24	1.26	1.24	1.19
1	1.02	.96	.90	.83	1.18	1.17	1.14	1.08
2	1.00	.93	.86	.79	1.12	1.10	1.06	1.00
3	.98	.91	.84	.76	1.08	1.05	.99	.93
4	.96	.89	.81	.74	1.05	1.00	.94	.87
5	.95	.88	.80	.72	1.02	.97	.90	.83
6	.94	.86	.78	.70	1.00	.94	.87	.79
7	.94	.85	.77	.69	.98	.91	.84	.76
8	.93	.85	.76	.68	.97	.89	.82	.74
9	.92	.84	.76	.67	.95	.88	.80	.72
10	.92	.83	.75	.67	.94	.86	.79	.71

The value of K for any particular power factor is obtained by dividing 2160, the value for continuous current, by the square of that power factor for single-phase, and by twice the square of that power factor for 3-wire 3-phase, or 4-wire 2-phase.

The value of M depends on the size of wire, frequency and power factor.

The figures given are for wires 18 inches apart and are sufficiently accurate for all practical purposes provided the displacement in phase between current and E. M. F. at the receiving end is not much greater than that at the generator. For example, the constants should not be applied at 125 cycles if the largest conductors are used and the loss 20 per cent or more of the power delivered. At lower frequencies, however, the constants are reasonably correct even under such extreme conditions. They represent about the true values at 10 per cent line loss, are close enough at all losses less than 10 per cent, and often, at least for frequencies up to 40 cycles, close enough for even much larger losses. Where the conductors of a circuit are nearer each other than 18 inches, the volts loss will be less than given by the formula, and if close together, as with multiple conductor cable, the loss will be only that due to resistance.

The value of T depends on the system and power factor. It is equal to 1 for continuous current and for single-phase current of 100 per cent power factor.

The value of A and the weights of the wires in the table are based on .00000302 pound as the weight of a foot of copper wire of 1 circular mil area.

In using the above formula and constants, it should be particularly observed that P stands for the per cent loss in the line of the delivered power, not for the per cent loss in the line of the power at the generator; and that E is the potential at the end of the line and not at the generator.

When the power factor cannot be more accurately determined, it may be assumed to be as follows for any alternating system operating under average conditions: Incandescent lighting and synchronous motors, 95 per cent; lighting and induction motors together, 85 per cent; induction motors alone, 80 per cent.

In continuous current 3-wire systems, the neutral wire for feeders should be made of 1/2 the section obtained by the formula for either of the outside wires. In both continuous and a.c. systems, the neutral conductor for secondary mains and house wiring should be taken as large as the other conductors. The 3 wires of a 3-phase circuit and the 4 wires of a 2-phase circuit should be made all the same size, and each conductor should be of the cross section given by the first formula.

## General Wiring Formula

For A.C. and D.C. Circuits

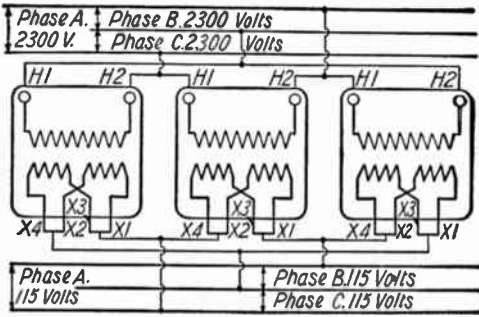
Size of Wire B.&S.	Area Wire Cir. Mils	Wt., Lbs. Bare Wire per 1000 Ft.	Resistance Ohms per 1000 Ft. at 20° C.	VALUE OF B			
				PER CENT POWER FACTOR			
				95	90	85	80
0000	211600	640.73	.04879	1.23	1.29	1.33	1.34
000	167805	508.12	.06154	1.18	1.22	1.24	1.24
00	133079	402.97	.07758	1.14	1.16	1.16	1.16
0	105560	319	.09775	1.10	1.11	1.10	1.09
1	83694	253.43	.1234	1.07	1.07	1.05	1.03
2	66373	200.98	.1536	1.05	1.04	1.02	1
3	52633	159.38	.1962	1.03	1.02	1	1
4	41742	126.40	.2473	1.02	1	1	1
5	33102	100.23	.3120	1	1	1	1
6	26250	79.49	.3934	1	1	1	1
7	20916	63.03	.4959	1	1	1	1
8	16509	49.99	.6250	1	1	1	1
9	13090	39.60	.7886	1	1	1	1
10	10382	31.40	.9940	1	1	1	1

Size of Wire B.&S.	Area Wire Cir. Mils	Wt., Lbs. Bare Wire per 1000 Ft.	Resistance Ohms per 1000 Ft. at 20° C.	VALUE OF B			
				PER CENT POWER FACTOR			
				95	90	85	80
0000	211600	640.73	.04879	1.52	1.53	1.61	1.67
000	167805	508.12	.06154	1.40	1.41	1.48	1.51
00	133079	402.97	.07758	1.25	1.32	1.35	1.73
0	105560	319	.09775	1.19	1.24	1.26	1.26
1	83694	253.43	.1234	1.14	1.17	1.18	1.17
2	66373	200.98	.1536	1.11	1.12	1.12	1.10
3	52633	159.38	.1962	1.07	1.08	1.07	1.05
4	41742	126.40	.2473	1.05	1.06	1.03	1
5	33102	100.23	.3120	1.03	1.01	1	1
6	26250	79.49	.3934	1.02	1	1	1
7	20916	63.03	.4959	1.01	1	1	1
8	16509	49.99	.6250	1	1	1	1
9	13090	39.60	.7886	1	1	1	1
10	10382	31.40	.9940	1	1	1	1

Size of Wire B.&S.	Area Wire Cir. Mils	Wt., Lbs. Bare Wire per 1000 Ft.	Resistance Ohms per 1000 Ft. at 20° C.	VALUE OF B			
				PER CENT POWER FACTOR			
				95	90	85	80
0000	211600	640.73	.04879	1.62	1.84	1.99	2.09
000	167805	508.12	.06154	1.49	1.66	1.77	1.95
00	133079	402.97	.07758	1.34	1.52	1.60	1.66
0	105560	319	.09775	1.31	1.40	1.46	1.49
1	83694	253.43	.1234	1.24	1.30	1.34	1.36
2	66373	200.98	.1536	1.18	1.23	1.25	1.26
3	52633	159.38	.1962	1.14	1.17	1.18	1.17
4	41742	126.40	.2473	1.11	1.12	1.11	1.10
5	33102	100.23	.3120	1.08	1.08	1.06	1.04
6	26250	79.49	.3934	1.05	1.04	1.02	1
7	20916	63.03	.4959	1.03	1.02	1	1
8	16509	49.99	.6250	1.02	1	1	1
9	13090	39.60	.7886	1	1	1	1
10	10382	31.40	.9940	1	1	1	1

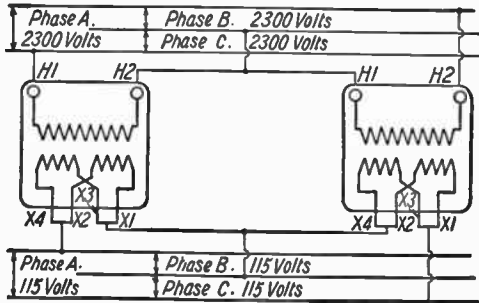
Size of Wire B.&S.	Area Wire Cir. Mils	Wt., Lbs. Bare Wire per 1000 Ft.	Resistance Ohms per 1000 Ft. at 20° C.	VALUE OF B			
				PER CENT POWER FACTOR			
				95	90	85	80
0000	211600	640.73	.04879	2.35	2.86	3.24	3.49
000	167805	508.12	.06154	2.08	2.48	2.77	2.94
00	133079	402.97	.07758	1.86	2.18	2.40	2.57
0	105560	319	.09775	1.71	1.96	2.13	2.25
1	83694	253.43	.1234	1.56	1.75	1.88	1.97
2	66373	200.98	.1536	1.45	1.60	1.70	1.77
3	52633	159.38	.1962	1.35	1.46	1.53	1.57
4	41742	126.40	.2473	1.27	1.35	1.40	1.43
5	33102	100.23	.3120	1.21	1.27	1.30	1.31
6	26250	79.49	.3934	1.16	1.20	1.21	1.21
7	20916	63.03	.4959	1.12	1.14	1.14	1.13
8	16509	49.99	.6250	1.09	1.10	1.09	1.07
9	13090	39.60	.7886	1.06	1.06	1.04	1.02
10	10382	31.40	.9940	1.04	1.03	1	1

**Transformer Connections  
No. 1**



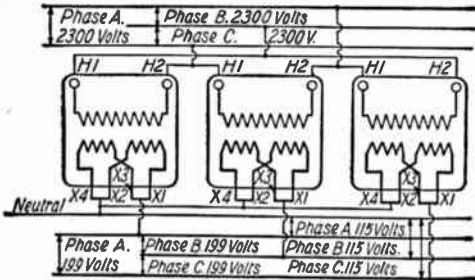
Three phase 3 wire "Closed Delta" primary to three phase 3 wire "Closed Delta" secondary.

**No. 2**



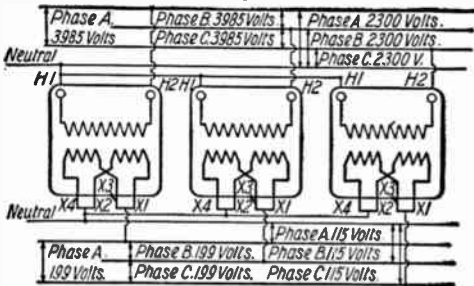
Three phase 3 wire "Open Delta" primary to three phase 3 wire "Open Delta" secondary. "Open Delta" connection, as shown, will deliver only 87 per cent of rated capacity and may cause line disturbances due to unbalancing. Only recommended in cases of emergency.

**No. 3**



Three phase 3 wire "Closed Delta" primary to 3 phase 4 wire "Star" secondary.

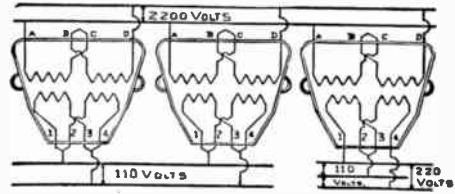
**No. 4**



Three phase 4 wire "Star" primary to three phase 4 wire "Star" secondary.

NOTE.—Connections shown are for 2300 volts primaries, with secondaries arranged for 20 to 1 ratio. To change secondaries for 230 volts or 10 to 1 ratio, connect X2 and X3 together (in series) in each transformer, first disconnecting X2 and X3 from X1 and X4.

**Transformer Connections  
Continued  
No. 5**

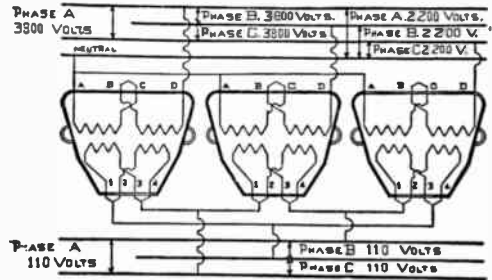


Single-phase 2-wire primary to single-phase 3-wire and also 3-wire secondary.

See note.

Two-phase 4-wire primary to two-phase 4-wire secondary. Connect transformers, one on each phase as per diagram Fig. 5. See note.

**No. 6**



Three-phase 4-wire "Star" primary to three phase 3-wire "Closed Delta" secondary.

See note.

**No. 7**

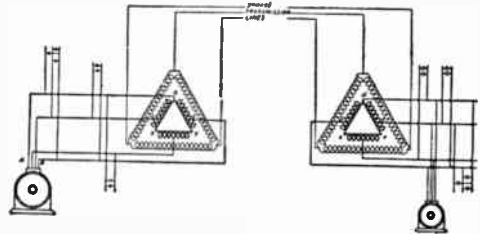


Diagram showing connections of Pittsburgh method of transformation, three-phase 3-wire to two-phase 4-wire and three-phase 3-wire. Transformers are here connected in "Closed Delta," using three single-phase units.

**No. 8**

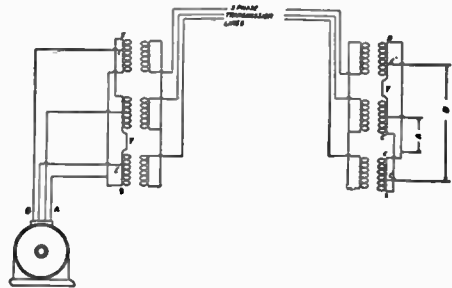


Diagram showing connections of Pittsburgh method of transformation, three-phase 3-wire to two-phase 4-wire. Transformers are here connected in "Star," using three single-phase units.

**Transformer Capacity for Motors**

In selecting proper size transformers for motors for either 1, 2 or three-phase 1-KVA transformer capacity should be allowed for each motor horse power.

NOTE.—Connections shown are for 2200 volts primaries, with secondaries arranged for 20 to 1 ratio. To change secondaries for 220 volts or 10 to 1 ratio, connect 2 and 3 together (in series) in each transformer, first disconnecting 2 and 3 from 1 and 4. To change primaries from 2200 volts line as shown to 1100 volts line, disconnect B and C. and connect B to A and C to D in each transformer.

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A-6..... Gongs.....	88	A-20610Q, A-20610QT Switches.....	408	A-120322, A-120322T Switches.....	408	AT... Gongs.....	88
A-6..... Reels.....	169	A-20611Q, A-20611QT Switches.....	409	A-120330, A-120330T Switches.....	408	AT... Panels.....	408-470
A-7..... Bongs.....	801	A-20620Q, A-20620QT Switches.....	408	A-120332, A-120332T Switches.....	407	AT-4... Gong.....	88
A-7..... Bushings.....	562	A-20622Q, A-20622QT Switches.....	408	A-120333, A-120333T Switches.....	408	AT-5... Bonds.....	801
A-7..... Gongs.....	88	A-20630Q, A-20630QT Switches.....	409	A-120340, A-120340T Switches.....	407	AT-5... Gongs.....	88
A-8..... Bongs.....	801	A-20633Q, A-20633QT Switches.....	409	A-120344, A-120344T Switches.....	408	AT-6... Bonds.....	801
A-8..... Bushings.....	562	A-20640Q, A-20640QT Switches.....	408	A-120533 to A-120544T Switches.....	407	AT-6... Gongs.....	88
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A-23..... Bulbs.....	687	A-40533 to A-40544T Switches.....	407	AE... Caps.....	238	ATLD-3 to ATLD-10 Gongs.....	89
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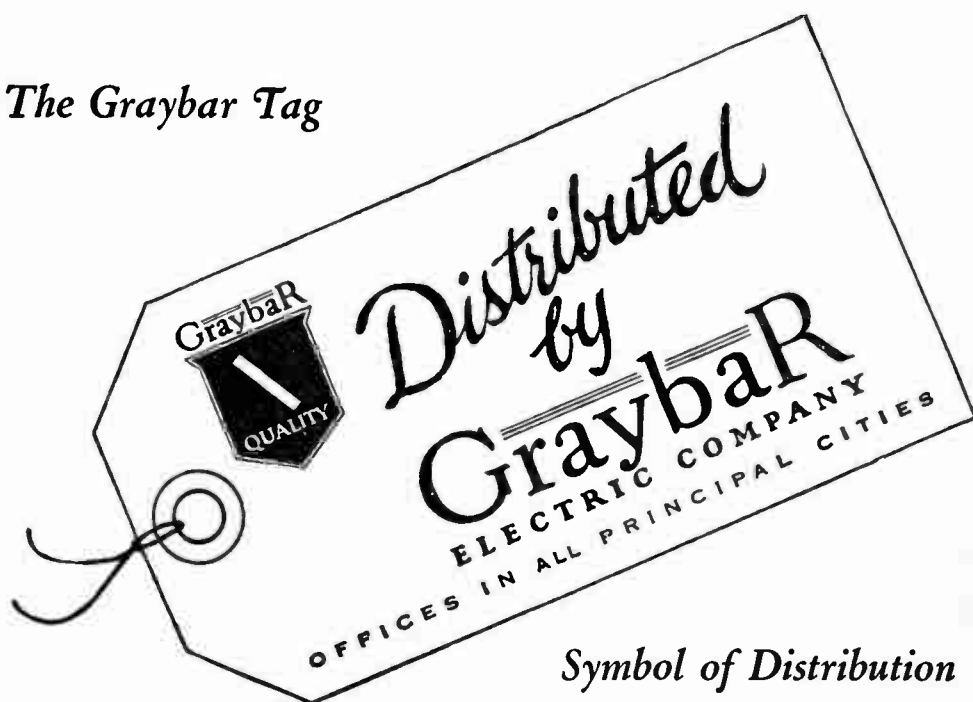
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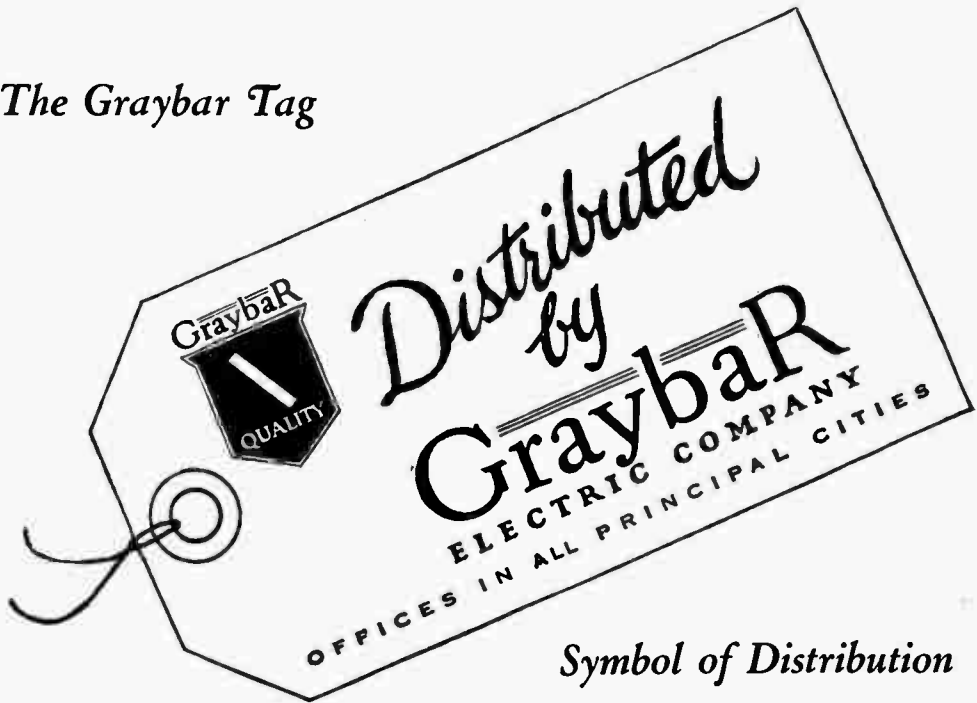
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