TOOLS

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Warranty - Material

Hubbell Power Systems, Inc. warrants all products sold by it to be merchantable (as such term is defined in the Uniform Commercial Code) and to be free from defects in material and workmanship. Buyer must notify the Company promptly of any claim under this warranty. The Buyer's exclusive remedy for breach of this warranty shall be the repair or replacement, F.O.B. factory, at the Company's option, of any product defective under the warranty which is returned to the Company within one year from the date of shipment. NO OTHER WARRANTY, WHETHER EXPRESS OR ARISING BY OPERATION OF LAW, COURSE OF DEALING, USAGE OF TRADE OR OTHERWISE IMPLIED, SHALL EXIST IN CONNECTION WITH THE COMPANY'S PRODUCTS OR ANY SALE OR USE THEREOF. The Company shall in no event be liable for any loss of profits or any consequential or special damages incurred by Buyer. The Company's warranty shall run only to the first Buyer of a product from the Company, from the Company's distributor, or from an original equipment manufacturer reselling the Company's product, and is non-assignable and non-transferable and shall be of no force and effect if asserted by any person other than such first Buyer. This warranty applies only to the use of the product as intended by Seller and does not cover any misapplication or misuse of said product.

Warranty - Application

Hubbell Power Systems, Inc. does not warrant the accuracy of and results from product or system performance recommendations resulting from any engineering analysis or study. This applies regardless of whether a charge is made for the recommendation, or if it is provided free of charge.

Responsibility for selection of the proper product or application rests solely with the purchaser. In the event of errors or inaccuracies determined to be caused by Hubbell Power Systems, Inc. , its liability will be limited to the re-performance of any such analysis or study.

NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

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CHANCE – CENTRALIA, MISSOURI
JULY 2010

HUBBELL Power Systems

Grip-All Clampsticks

New for the 21st Century with black head and *stainless steel components

Tested per OSHA & ASTM F711

Single-Piece Style

The most versatile tool in a lineworker's hands, the Grip-All stick puts an easy-to-control "finger" on an insulated pole. Although primarily designed for installing hot-line and grounding clamps, it serves both overhead and underground circuits with various end fittings.

Commonly called a "shotgun," the operating mechanism incorporates a sliding hand grip that opens the hook to grasp a clamp eyescrew and retract it into the tool head. A thumb latch then must be depressed to release the locked hand grip so it can open the hook. For smooth operation, investment-casting stainless steel components include Jaw, Jaw Holder, Safety Stop, Lockbar and Latch illustrated below.

While the tool head is of Lexan® for close-quarter operations, the worker must maintain recommended working distance solely on the Epoxiglas® pole section of the handle as the hook and its actuator are metal parts.

Easy to care for, Grip-All sticks do not require field stripping to clean. All insulated parts including the operating rod are outside the main pole, readily accessible to wipe dry.

CAUTION: Do not clean the plastic head with solvent.

To accept grounding clamps with long eyescrews, all Grip-All clampsticks feature 6¾ inches of head travel.

Notch in tool head aligns the clamp while the operator places it.

To convert any Grip-All stick to use all Universal Tool Accessories, the M1867 Adapter secures in the clampstick hook and head housing.

M1867

†For metal universal fitting on handle end of any Single-Piece or Hinged Grip-All, add suffix "A" to the Catalog Number.

†Catalog No.	Overall Length	Weight	Storage Bag
C4030291	1¼" x 4' 9"	5¾ lb./2.6 kg.	P6434
C4030292	1¼" x 6' 8"	6½ lb./2.9 kg.	P6436
C4030293	1¼" x 8' 7"	7¼ lb./3.3 kg.	P6438
C4030294	1¼" x 10' 7"	8 lb./3.6 kg.	P64310
C4030295	1¼" x 12' 7"	8¾ lb./3.9 kg.	P64312

For storage bags, see Catalog Section 2500.

Hinged Style

Ideal for troubleshooters with limited tool-storage space in their vehicles, this folding version operates with the same features as the one-piece style.

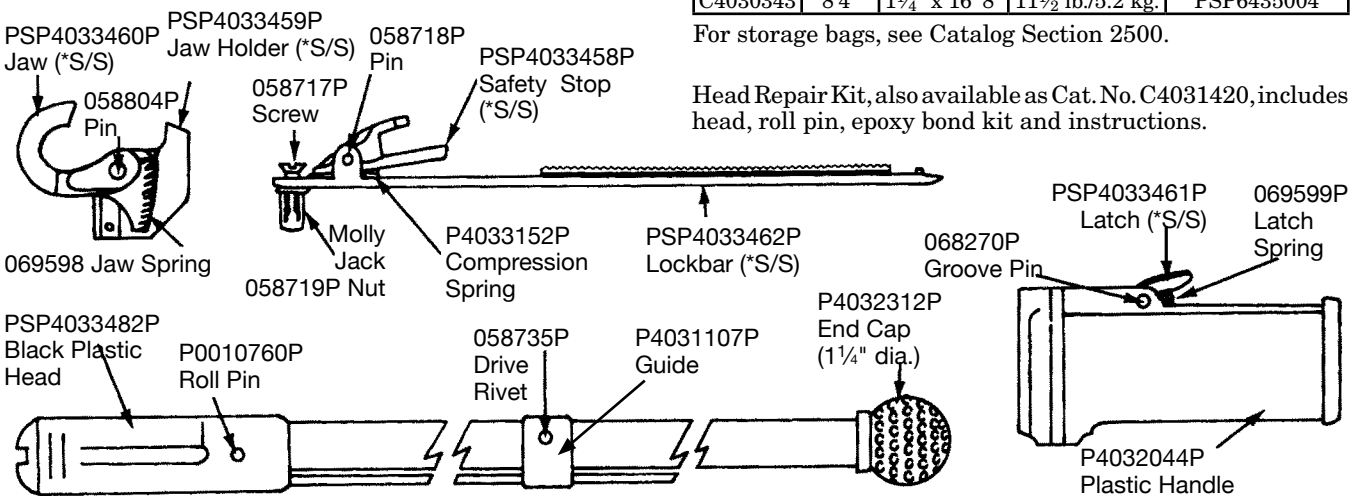
†Catalog No.	Folded	Extended	Weight	Storage Bag
C4030296	3'4"	1¼" x 6' 9"	8 lb./3.6 kg.	P6432
C4030297	4'4"	1¼" x 8' 8"	9 lb./4.1 kg.	P6432
C4030298	5'4"	1¼" x 10' 8"	10 lb./4.5 kg.	P6433
C4030299	6'4"	1¼" x 12' 8"	10½ lb./4.7 kg.	P6435
C4030342	7'4"	1¼" x 14' 8"	11 lb./5.0 kg.	PSP6435005
C4030343	8'4"	1¼" x 16' 8"	11½ lb./5.2 kg.	PSP6435004

For storage bags, see Catalog Section 2500.

Head Repair Kit, also available as Cat. No. C4031420, includes head, roll pin, epoxy bond kit and instructions.

Replacement Parts

for Single-Piece and Hinged Grip-All Clampsticks



Grip-All Clampsticks, Telescoping

Tested per OSHA & ASTM F711

New for the 21st Century with black head

Available in two sizes, each readily locks at variable working lengths.

The design features a rotating coupler and an engineered positive-lock button with safety stop to keep the sections from parting or the hook releasing while in use. The mechanism locks the sections into a solid and rattle-free tool.

Telescoping Style

Our Telescoping Grip-All Stick can replace several conventional clampsticks. With fewer sticks, it still permits linemen to serve their many safe-working distances and positioning needs. This can reduce the number of clampsticks required on a line truck, saving limited storage space.

Engineered interface between sections ensures that tool retracts with full control. Close fit also helps keep out dirt and moisture. Top section is of foam-center Epoxiglas® insulated pole.

Basic clampstick functions of this telescoping style are identical to the fixed-length style. All controls can be manipulated while wearing gloves. Easy to disassemble, the Telescoping Grip-All Stick must be kept clean and dry inside and out for maximum personnel protection.

Catalog No.	Extended Tool can lock at each length:	Retracted Length	Weight
C4031035	5'6¾", 6'9½", 8'	5'2¾"	6 lb./2.7 kg.
C4031036	8'6¾", 10'4½", 12'2¼", 14'	8'2¾"	8 lb./3.6 kg.

For storage bags, see Catalog Section 2500.

Telescoping Style with Universal Fitting on Handle

Catalog No.	Extended Tool can lock at each length:	Retracted Length	Weight
C4033060	5'10½", 7'1¼", 8'3¾"	5'6½"	6 lb./2.7 kg.
C4033061	8'10½", 10'8¼", 12'6", 14'3¾"	8'6½"	8 lb./3.6 kg.

For storage bags, see Catalog Section 2500.

For SAFETYSHIELD™ Hot Stick Barrier to fit tools on this page, see page 2129.

Factory-installed universal fitting on end opposite the clampstick head.

Grip-All Clampstick Assist Ring

Assist Ring provides a suspension midpoint for any Grip-All clampstick. Particularly helpful on longer sticks, the assembly permits a support line to attach at the smaller ring. To help maintain safe-working clearances for hotline procedures, an insulated Strain Link Stick* of proper size should be used in the handline.

Assist Ring halves assemble simply by threaded fasteners. Keyhole shape for operating rod permits clampstick to function as usual.

Catalog No.	Description	Weight
E4032543P	Grip-All Assist Ring	1½ lb./0.68 kg.

*For Strain Link Sticks, see Catalog Section 2250.

Ratchet Cable Cutters

for ACSR or Aluminum & Copper

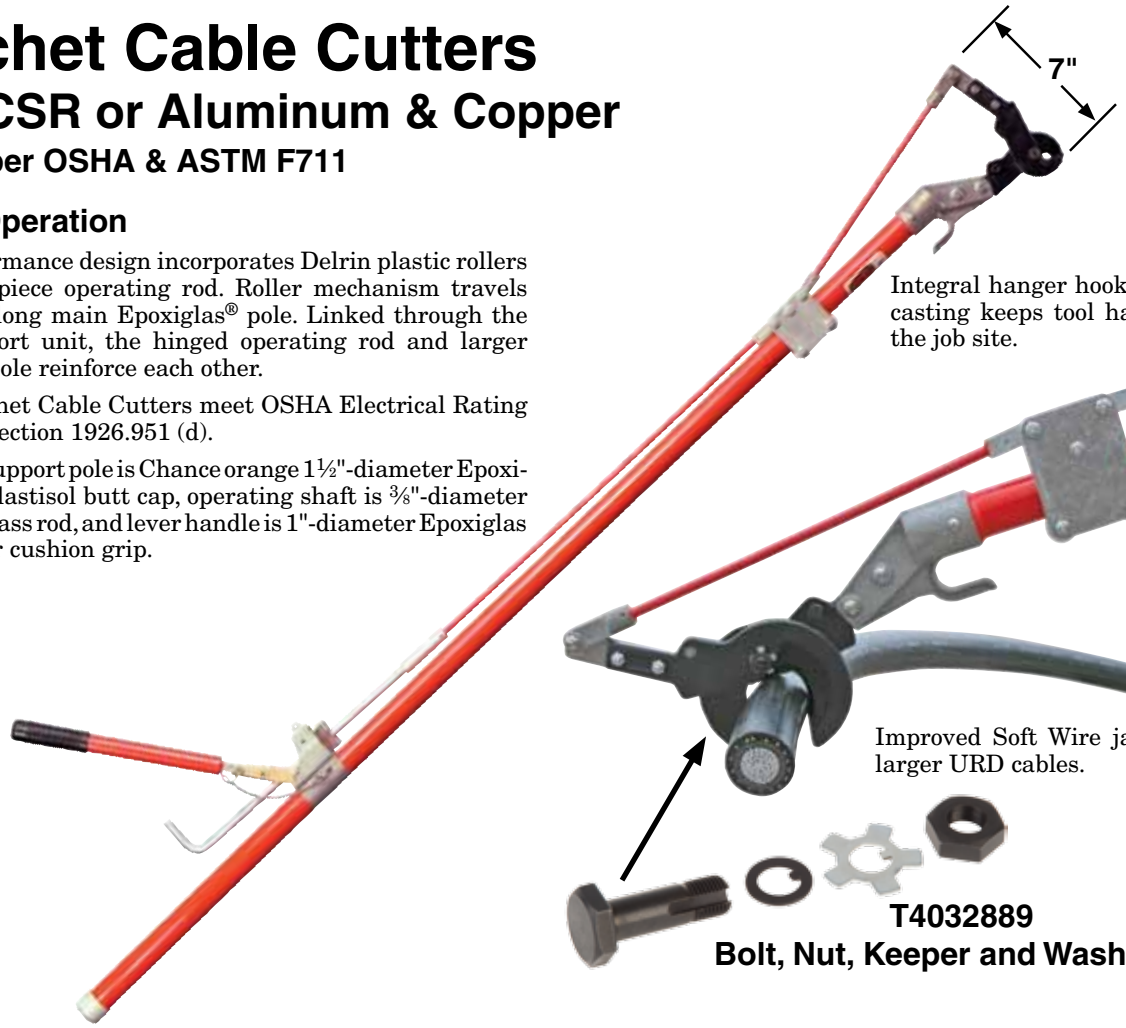
Tested per OSHA & ASTM F711

Easier Operation

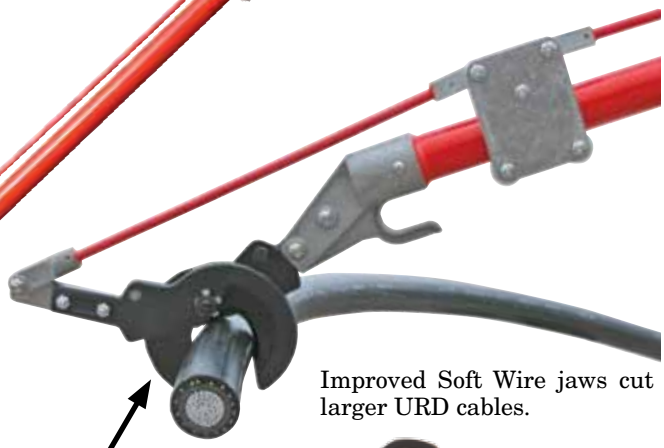
High-performance design incorporates Delrin plastic rollers and a two-piece operating rod. Roller mechanism travels smoothly along main Epoxiglas® pole. Linked through the roller support unit, the hinged operating rod and larger Epoxiglas pole reinforce each other.

These Ratchet Cable Cutters meet OSHA Electrical Rating subpart V-section 1926.951 (d).

Insulated support pole is Chance orange 1½"-diameter Epoxiglas with Plastisol butt cap, operating shaft is ⅜"-diameter solid fiberglass rod, and lever handle is 1"-diameter Epoxiglas with rubber cushion grip.



Integral hanger hook on end casting keeps tool handy on the job site.



Improved Soft Wire jaws cut larger URD cables.

T4032889
Bolt, Nut, Keeper and Washer Kit

Four standard models offer practical 6-foot or 8-foot lengths fitted with choice of cutter heads for soft wire or ACSR. Shear-type steel blades cut without deforming cable. Heads are interchangeable for field changeouts.

Soft-Wire Head cuts cable of Aluminum through 1000 kcmil bare (1.152") or jacketed URD (2.125") and Copper through 500 kcmil (0.813").

Head for ACSR cuts 54/7 multiple-strand ACSR cable through 556 kcmil (1").

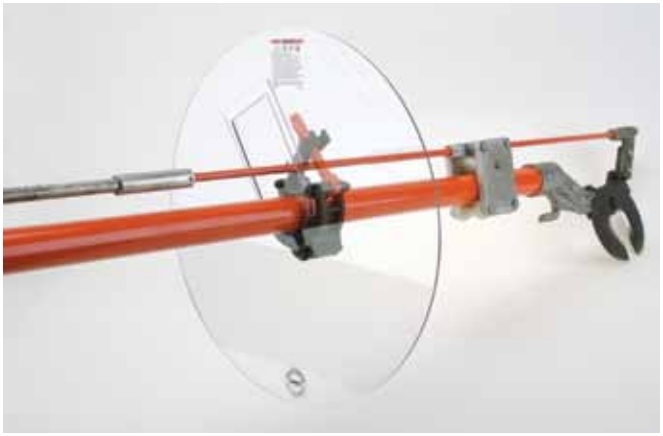
Spare cutter heads may be ordered separately below.

Ratchet Cable Cutters

Catalog Number	Description		Weight
	Length	Head	
C4031381	6 ft.	1000 kcmil A.A. 500 kcmil Cu.	11 lb./4.95 kg.
C4031382	6 ft.	556 kcmil ACSR	11 lb./4.95 kg.
C4031383	8 ft.	1000 kcmil A.A. 500 kcmil Cu.	11½ lb./5.18 kg.
C4031384	8 ft.	556 kcmil ACSR	11½ lb./5.18 kg.

Cutter Heads Only

Catalog Number	Head Description	Weight
P4031387P	1000 kcmil A.A. 500 kcmil Cu.	2¼ lb./1 kg.
P4031388P	556 kcmil ACSR	2¼ lb./1 kg.



Ordering Information
SAFETYSHIELD™ Hot Stick Barrier for Ratchet Wire Cutters†

Catalog No.	Diameter	Weight
PSC4170630	16" (406.4 mm)	1 lb. 6 oz. /0.62 kg.

For more details on SAFETYSHIELD™ Hot Stick Barrier to fit tools above, see page 2130.

CONDUCTOR CUTTERS

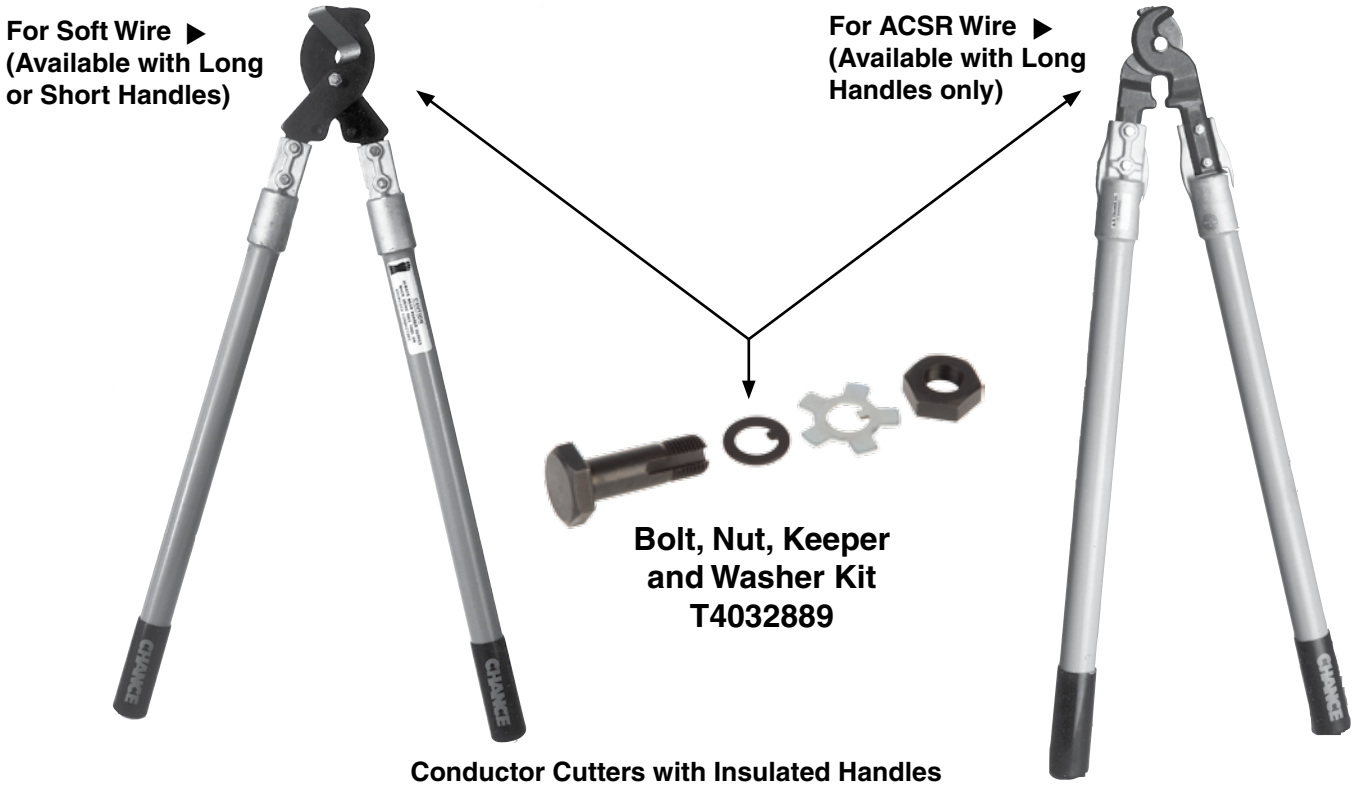
with Insulated Handles for ACSR or Aluminum & Copper

Three standard models offer choice of insulated long or short handles on cutters for soft wire and insulated long handles on cutters for ACSR. Chance orange 1½" dia. Epoxi-glas® handles have black rubber cushion grips.

Shear-type blades cut without deforming cable. These heat-treated tool-steel cutter heads are the same as those for Chance Ratchet Cable Cutters and may be interchanged in the field. Order replacement or spare cutter heads as separate items, below. **Note:** ACSR head is not for use with 15½" handles. Soft-wire head must not be used to cut ACSR as it will damage the cutting edges.

Storage bags to fit the short or long cutters come in heavy-duty yellow vinyl-impregnated nylon cloth. Order as separate items, below.

NOTE: These cutters are designed for energized applications, but users must wear rubber gloves and observe all applicable working clearances when cutting energized conductors.



Conductor Cutters with Insulated Handles

Catalog Number	Length		Maximum Size & Type Conductor	Weight	
	Handles	Overall		lb.	kg.
C4031421	15½"	21½"	600 MCM A.A./350 MCM Cu.	4½	2
C4031422	28½"	35"	1000 MCM A.A./500 MCM Cu.	5½	2.5
C4031423	28½"	33½"	336.4 MCM ACSR	5	2.2

Order Storage Bags and extra Cutter Heads as separate items, below.

Storage Bags Only

Catalog Number	Size	For Cutters, Catalog Numbers	Weight	
			lb.	kg.
C3060023	8" x 23"	C403-1421	½	0.2
C3060000	12" x 38"	C403-1422 or C403-1423	½	0.2

Cutter Heads Only

Catalog Number	Description	Weight	
		lb.	kg.
P4031387P	*1000 MCM A.A./ 500 MCM Cu.	2¼	1
P4031388P	†336.4 MCM ACSR	2¼	1

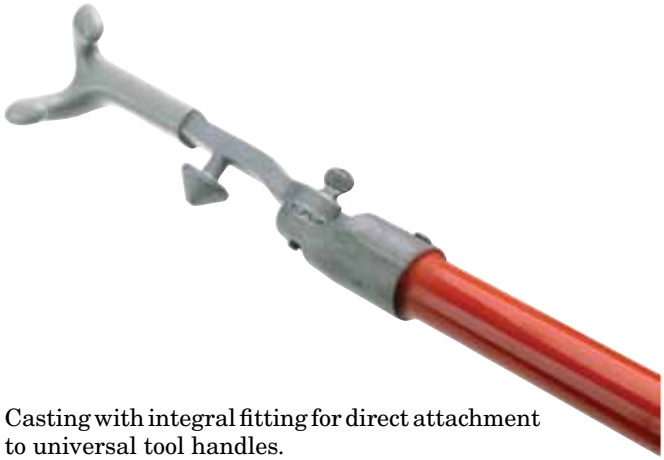
*Rating for P4031387 Head on 28½" Cutter handles. Used on 15½" Cutter handles, rating for P403-1387 Head is 600 MCM A.A./350 MCM Cu. **Do not use to cut ACSR.**

†Rating for P4031388 Head on 28½" Cutter handles. **P4031388 Head is not for use on 15½" Cutter handles to cut ACSR.**

Fuse Grappler Tool

By design, this tool helps remove and install power fuses and barriers in padmounted switchgear. It specifically fits power fuses made by S&C Electric Company with the designations SM-4Z, SM-20, SML-4Z and SML-20.

It is made to be attached to an insulated universal tool. The tool is an aluminum casting with a plastisol coating on the hooks to help avoid scuffing whatever it contacts.



Casting with integral fitting for direct attachment to universal tool handles.

Ordering Information

Catalog No.	Description	Weight
C4033284	Fuse Grappler Tool	½ lb. / 0.23 kg.

Ratcheting Cable Cutters
for ACSR or Aluminum & Copper

Compact size gets into close quarters

These conductor cutters are half the size and weight of standard ratchet cutters. Two styles of the compact cutters ratings match a wide range of overhead and underground conductors. They can get into such confining workspace as manholes and handholes. In practice, they open in less than half the space required for long-handled ratcheting cutters. Their small size also saves on toolbox and warehouse storage.

Single control allows easy switching of direction.

For rapid opening or closing, pushing thumb slide toward head allows handles to open wider. Not for use when cutting, this feature nearly doubles the speed of the "soft" cutters and makes the "hard" cutters open and close about three times faster than normal. For shorter, more powerful strokes while cutting conductor, release thumb slide.

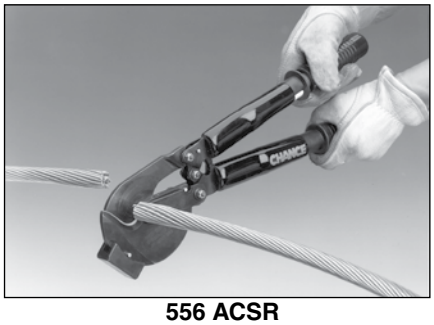
Soft Style C4032979 for only All-Aluminum or Copper up to 1000 kcmil maximum

Max. opening: 2¼" (5.72 cm)
Length: 19½" (49.53 mm)
Weight: 4¼ lb. (1.9 kg.)

1000 kcmil URD cable

Hard Style C4032980 for ACSR up to 556 max. and Aluminum or Copper up to 750 kcmil max.

Max. opening: 2" (5.08 cm)
Length: 18" (45.72 mm)
Weight: 4⅜ lb. (2 kg.)



556 ACSR (aluminum conductor, steel reinforced)

750 kcmil URD cable

Easy operation, rugged construction

To give long service life, the design of these compact cutters is based on a simple ratchet mechanism. Simple controls and sure ratcheting action makes working with them easy.

C-type jaws are heat-treated for lasting strength and sharpness. Stampings on the jaws indicate application limits.

Despite their small size, they are built to take punishing field conditions. The reinforced-fiberglass handles are PVC-coated and protected by a vinyl sleeve. Thick vinyl grips shield the handle ends and help worker keep a steady grasp.

Operating instructions are included with both cutter styles.

⚠ WARNING

These cutters are not insulated hot line tools.

Ordering Information

Catalog No.	Description	Weight
C4032979	Soft Conductor Cutters	4¼ lb. (1.9 kg.)
C4032980	Hard Conductor Cutters	4⅜ lb. (2 kg.)

ELBOW PULLER TOOLS

Grippers are not included with tools on this page. To order grippers interchangeable for 15, 25 and 35 kV, see REPLACEMENT GRIPPERS table, page 2104.

Tested per OSHA & ASTM F711

Application

These tools facilitate removing elbow connectors from bushings of transformers and other apparatus. Elbows that have been installed for a long period of time sometimes are difficult to remove because silicone grease on the interface of the elbow and bushing dries out and hardens.

A special integral hook on the tool heat fits through the rubber eye of an elbow or the metal hook of a bushing cap. Used in this manner, the hook adds extra control and pulling power to the grippers.

IMPACT Elbow-Puller Tools

Design Features

The lightweight tool employs a simple, slide-hammer mechanism to easily disengage and assist in replacing elbows. The tool and grippers help the operator control the elbow and stiff underground cable lead.

For a sure, balanced grip the 5-pound slide hammer is plastisol coated and flared at both ends. Also for secure handling, both front and rear handgrip areas of the pole are coated with Griptread, a grit-filled rubber-base paint.

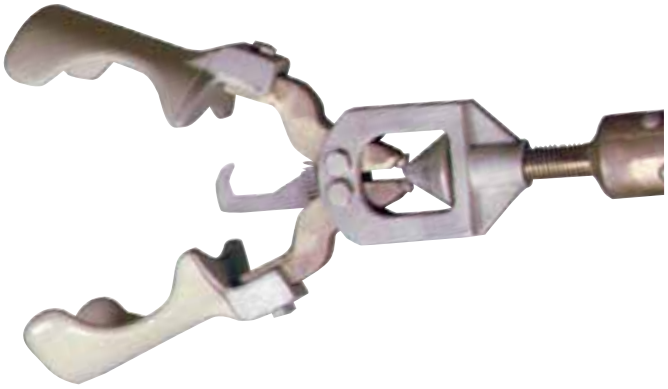
Available in three lengths, the tools are made of 1¼"-diameter orange Epoxiglas® pole. The 6- and 8-foot units meet OSHA requirements with 25 and 48 inches of insulation respectively from the tool end to the handguard (as factory assemble). On the 4½-foot unit (labeled "For Rubber Glove Use Only") insulation length measures 5 inches.

Operation

To pull an elbow connector: Insert hook through eye on elbow. Close down grippers on elbow by rotating pole. Support tool with one hand on front grip behind handguard and other hand on slide hammer. Slam hammer from front to rear anvil. Resulting impact should release elbow with sufficient momentum to withdraw it from the bushing without extended arcing.

To replace an elbow connector: Follow the same procedures for pulling except use slide hammer impact against front anvil to help seat the elbow.

For SAFETYSHIELD™ Hot Stick Barrier to fit tools on this page, see page 2129.



Impact Elbow Pullers
(Grippers not included. Order Grippers separately. See REPLACEMENT GRIPPERS table, page 2104.)

Catalog No.	Description	Weight
C4031822	†6-foot length	12 lb./5.4 kg.
C4031850	†8-foot length	12¼ lb./5.6 kg.
C4031851	*4½-foot length	11½ lb./5.2 kg.

*4½-foot tool labeled "For Rubber Glove Use Only."
†6- and 8-foot tools meet OSHA insulation requirements.

Storage Bags (Yellow vinyl/fabric)

P6436	Bag for 4½' or 6' tool above
P6438	Bag for 8' tool above

ELBOW CONNECTOR TOOL REPLACEMENT GRIPPERS

FOR 15 kV, 25 kV and 34.5 kV ELBOWS

C4030704

The tool provides a sure grip for installing and disconnecting elbow terminators. The tool grabs the elbow and has a special integral hook that fits through the rubber eye of an elbow or the metal hook of a bushing cap so that the lineman has complete, positive control, overcoming the resistance of the stiff underground cable.

ORDERING INFORMATION

REPLACEMENT GRIPPERS (Also required for Elbow Puller Tools, page 2105)

Catalog No.	Description	Weight
C4030704	15 kV Plastic-Coated Grippers	⅝ lb./.3 kg.
C4030613	25 kV Plastic-Coated Grippers	1 lb./.5 kg.
C4030614	25 kV Uncoated Grippers	⅝ lb./.3 kg.
C4030814	34.5 kV Plastic-Coated Grippers. Fits RTE 200 AMP and 600 AMP Elastimold "T" Elbow	1 lb./.5 kg.

Arc Snuffer Removal & Replacement Tools

C4032037

C4032036

Without de-energizing URD bushings, these two hot-line tools permit easy retrieval of broken arc snuffers and installation of replacements.

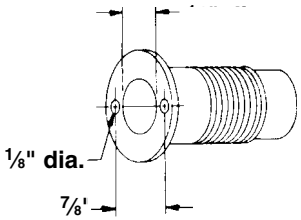
Designed to ensure adequate electrical clearances, both tools are to be used expressly in a Grip All clampstick. Integral ring on each tool retracts into clampstick. Tool bodies are high-impact plastic with steel inserts.

Removal Tool works on the principle of a bolt extractor. Inserted into a damaged arc snuffer, it permits retrieval by unscrewing the broken part.

Replacement Tool controls alignment with a spring-action center post that snaps into the arc snuffer bore. Two steel lugs of the tool engage holes in the snuffer collar to transmit tightening torque.

Tools fit many 15 & 25 kV snuffers.

These tools fit bushing arc snuffers with dimensions given at right.



ORDERING INFORMATION

Catalog No.	Description	Weight
C4032037	Removal Tool	¼ lb./0.1 kg.
C4032036	Replacement Tool	¼ lb./0.1 kg.

For SAFETYSHIELD™ Hot Stick Barrier to fit tools on this page, see page 2129.

Flexible Insulated Wrenches

40 ft.-lb. torque rating

Tested per OSHA & ASTM F711

These wrenches are used for tightening nuts on hardware fittings on high-voltage lines. The coil spring around the universal joint has just the proper degree of flexibility so that the operator has control over the socket at various angles. Spring is easily removed for lubricating. Wrenches are made to fit any ½-inch square-shank socket. All wrenches are mounted on 1½" diameter Epoxiglas® poles.

Catalog Number	Description	Overall Length	Approx. Weight
H18912	w/Flexible ½" Sq. Plug and Fixed ½" Sq. Plug	6'3"	5½ lb./2.5 kg.
H18913	w/Flexible ½" Sq. Plug and Fixed ½" Sq. Plug	8'3"	6½ lb./2.9 kg.
H18915	w/Flexible ½" Sq. Plug and Univ. Head - Hole Through Ferrule for ⅝" Turning Rod	6'3"	5½ lb./2.5 kg.
H18916	w/Flexible ½" Sq. Plug and Univ. Head - Hole Through Ferrule for ⅝" Turning Rod	8'3"	6½ lb./2.9 kg.
066780	Ratchet Wrench		1½ lb./0.7 kg.

Heavy-Duty FLEXIBLE INSULATED WRENCHES — *75 ft.-lb. torque rating*

Tested per OSHA & ASTM F711

Standard square socket in lower end accepts ½" square-shank ratchet or similar hand tools. Square shank on upper end fits any ½"-drive socket.

Mounted on 1½"-diameter Epoxiglas® extensions, these wrenches may be used for tightening nuts on hardware fittings on high-voltage lines.

Coil spring around the universal joint limits flexibility so operator maintains control over the socket at various angles. Spring removes easily for lubrication.

Catalog No.	Overall Length	Weight, each
C4032137	6 ft. 3 in.	5½ lb./2.5 kg.
C4032136	8 ft. 3 in.	6½ lb./2.9 kg.

Epoxiglas® Torque Extension Stick *for hydraulic power tools*

Insulated extension stick permits hot-line work with hydraulic power tools on bucket trucks. Its 7/16"-hexagonal quick-connect fitting couples with a power tool's drive socket. On the other end, its square detent-ball fitting accepts all ½"-drive wrenches. The 1¼" x 4' Epoxiglas pole handguard is 6 inches from the ferrule with hex fitting.

75 ft.-lb. torque rating

Catalog No.	Description	Weight
T4033009	Torque Extension Stick	5 lb./2.25 kg.

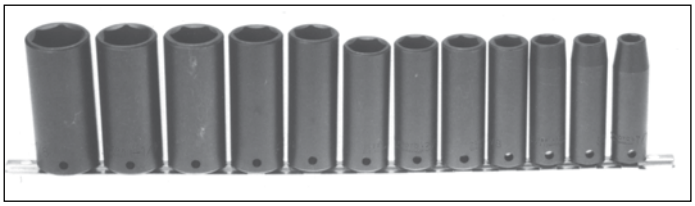
HEX SOCKET SETS

Tested per OSHA & ASTM F711

Available in SAE and Metric sizes, each set includes sockets to fit any ½" (12.17 mm) square-shank drive tool (such as the Chance All-Angle Cog Wrench and Flexible Insulated Wrench).

SAE (in.) Set
Catalog No. C4031085
includes 11 deep-well 6-point sockets
in sizes from 1/2" through 1 1/8"

METRIC Set
Catalog No. C4031085M
includes 10 deep-well 6-point sockets
in sizes from 10mm through 19mm



Rubber Insulating Blankets

• Meet ASTM Standard Specification D-1048 • For Class 4 Type II (ozone-resistant)

Performance-designed material

Chance Class 4 flexible blankets help protect workers from accidental contact with energized components during line maintenance.

Made of ozone/corona-resistant elastomer, these blankets offer excellent performance properties in accordance with ASTM Standard Specification D-1048. The special formulation exhibits superior resistance to long-term aging/checking and will retain its high-visibility orange color.

Versatile protection, maximum rating

Flexible to cover many irregular shapes, rubber blankets typically are used with conductor covers (flexible or rigid) on deadends, apparatus, secondary racks, poletop pins and crossarms.

Because they are Class 4 (highest rating in the industry) and Type II (ozone-resistant), Chance blankets may be used in applications which require lower class or type.

Chance blankets are designed with perimeter eyelets to accept Chance button C4060532 and most other buttons existing in the field. The 1.5"-diameter center hole in Chance slotted blankets will fit easily around common hardware.

Ordering Information

- **Class 4**
- **Proof Tested at 40kV AC rms**
- **Maximum Use: 36kV Ø-Ø**

Solid Blankets

Catalog No.	Description	Weight
C4060346	36" x 36", 6 eyelets	8 1/4 lb. (3.7 kg.)

Slotted Blankets

Catalog No.	Description	Weight
C4060348	36" x 36", 28 eyelets	8 1/4 lb. (3.7 kg.)

Hot Stick Clamp
Catalog No.
C4060531
Eyes and special handle shape for easy placement by clampstick

Rubber Glove Clamp
Cat. No. C4060530
Special handle shape also fits clampstick for easy placement

Cat. No. C4060532

Accessories

Catalog No.	Description	Weight
C4060530	Clamp Pin, Rubber Glove	1 lb. (.45 kg.)
C4060531	Clamp Pin, Hot Stick	1 lb. (.45 kg.)
C4060532	Button, Rubber Blanket	1/8 lb. (.06 kg.)
C4032998	*Storage Cannister, no handle	6 lb. (2.7 kg.)
C4032999	*Storage Cannister w/handle	7 5/8 lb. (3.43 kg.)

**For details, see Catalog Section 2500.*

Arc-Suppression Blankets • for shields against electrical fault blasts

(Not Electrically Insulated)

Heavy-duty protection in lightweight package

Two synthetic fabrics are combined in the ArcSafe™ Suppression Blanket from Workrite (Your Uniform for Life Company). Both space-age fabrics are aramid-fiber types. The inner layer is Kevlar® and the outer is NOMEX ® III.

Kevlar is the same aramid fiber used in combat helmets and body armor. Flame-resistant NOMEX III is used as the cover to protect the Kevlar core from ultraviolet degradation.

Because the blankets consist of thin layers, ArcSafe blankets offer unrivaled portability and are extremely easy to maneuver in confined spaces. They weigh only $^1/_5$ pound per square foot ($^5/_8$ kg. per m^2).

Applications and conforming to OSHA law

When draped or loosely wrapped over a defective cable or splice, ArcSafe provides a protective shield for exposed workers. Velcro® straps sewn on the back help keep ArcSafe where positioned.

ArcSafe blankets meet or exceed OSHA requirements for manhole protection.

Beginning in 1991, OSHA mandates that if cables in manholes appear defective . . .

". . . and cannot be de-energized due to service load conditions, employees may enter the manhole provided they are protected from the possible effects of a failure by shields or other devices that are capable of containing the adverse effects of a fault in the joint." [29 CFR Part 1910.269(t)(7)]

Tested successfully at 42,000 amps fault current

ArcSafe was subjected to fault-current testing at Chance laboratories. ArcSafe was placed over a small section of 2/0 copper cable that was faulted to ground, simulating a cable or splice failure. The maximum fault current generated was 42,432 amps for a duration of 13 cycles.

Other than black deposits, ArcSafe experienced no damage and provided total fault-blast containment.

ArcSafe™ Arc-Suppression Blankets

Catalog No.	Size	Weight
C4060452	4 ft. x 5 ft. (1.2 x 1.5 meters)	4 lb./1.8 kg.
C4060453	4 ft. x 8 ft. (1.2 x 2.4 meters)	6 1/2 lb./2.9 kg.

Kevlar® and NOMEX® are DuPont registered trademarks for its aramid fibers. Only DuPont makes Kevlar and NOMEX.

Warning: The ArcSafe Suppression Blanket has been developed by leading industrial and safety engineers, and Workrite believes it to be the best available for its intended purpose. However, explosions and blasts due to electrical faulting may be erratic and unpredictable, and we do not claim that ArcSafe offers total protection. It improves the chances of a worker's survivability in a life-threatening incident. In addition, ArcSafe is NOT classified as "Electrically Insulated" and must NEVER be used as such. Before using this or any protective product, please avail yourself of all information concerning its use.

Phasing Testers

For convenience on different systems, toggle on dual-range units can switch calibration between the two scales on the meter face. Plus, it can improve readability for low-end values on the Hi scale. Switched to the Lo range, those values deflect the needle more to give more finite readings.

To check instrument before and after each use, test-point jack in front of meter accepts plug from Phasing Voltmeter Tester, next page.

For URD testing, see Hi-Pot Adapters (page 2458) and Adapters for Elbows and Bushings (page 2467).

Extension Resistors, as installed ▼

H18765

• for †Distribution Circuits

Chance Phasing Testers easily determine phase relationships and approximate voltage, line-to-line or line-to-ground.

Each tester consists of two fiberglass poles with end fittings threaded for interchangeable probes. The probe fittings couple with a high-impedance component encased in each pole. To complete the test circuit, a 22-foot length of insulated flexible cable stores on the reel affixed to one pole and connects to the voltmeter on the other pole.

Simple to operate, the tester poles first attach to two 6-foot Epoxiglas® insulating universal handles (included in each kit for proper working clearances). Then the probes can be brought into contact with the conductors appropriate for the meter to read phase-to-phase or phase-to-ground voltage.

Distribution Phasing Testers

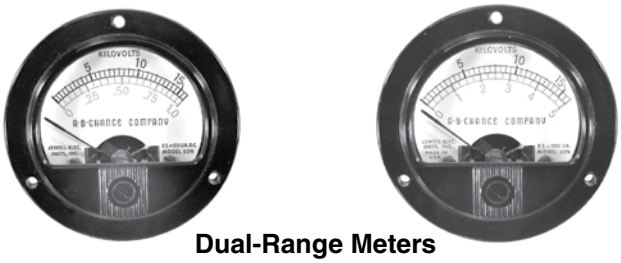
Single-Range Units

Catalog No.	Description	Weight
H1876	†16 kV Tester Kit*	27½ lb./12.4 kg.
H18761	†16 kV Tester Hook Probes, Case and Manual	23 lb./10.4 kg.
T4032261	25 kV Tester Kit*	27½ lb./12.4 kg.
H18767	40 kV Tester, Hook Probes, Case and Manual	23 lb./10.4 kg.

Dual-Range Units

T4030786	1 & †16 kV Tester Kit*	27½ lb./12.4 kg.
T4032311	5 & †16 kV Tester Kit*	27½ lb./12.4 kg.
T4032398	5 & †16 kV Tester Only	23 lb./10.4 kg.

*Each kit includes two 6-ft. x 1¼"-dia. Epoxiglas universal handles with storage bag, tester, hook probes, case and instruction manual.



Dual-Range Meters

1 & 16 kV Unit **5 & 16 kV Unit**

†Extension Resistors

†To extend any Chance 16 kV Phasing Tester for 48 or 80 kV applications, optional Extension Resistors simply thread on in the field.

H18762	Pair of Extension Resistors for up to 80 kV (32" long)	6 lb./2.7 kg.
H18764	Pair of Extension Resistors for up to 48 kV (21" long)	4 lb./1.8 kg.
P6242	Bag for 48 kV Resistors	1 lb./0.45 kg.
P6244	Bag for 80 kV Resistors	1¼ lb./0.56 kg.

Accessories

H17601	Universal Pole 1¼" x 6' — Two Needed	1¾ lb./0.7 kg.
P6436	Bag for Two Poles	1 lb./0.45 kg.
H18763	Case only for Tester	2 lb./0.9 kg.
H18766P	Pigtail Hook Probe	¼ lb./0.1 kg.
H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.
H18765	Angle Probe	⅛ lb./0.05 kg.

Distribution Phasing Tester Kit

for Overhead and Underground Systems Dual Range: 5kV & 16kV Scales

Versatile to popular distribution voltages, convenient Kit facilitates testing both underground and overhead systems. Basic functions include identifying phases and reading line-to-line or line-to-ground voltage. URD accessories in the Kit also permit cable-fault detection.

The main instrument consists of high-impedance components encased in two fiberglass poles with threaded end fittings for overhead probes or URD adapters. A 22-foot-long cable connects to the voltmeter pole and stores on the reel pole.

Complete Kit includes:
Two 6-ft. x 1¼"-dia. Epoxiglas® universal handles with storage bag, tester with instruction manual and two probes (shepherd hook and pigtail hook) in padded carrying case, plus four items below.

URD Accessories in Kit

One DC Hi-Pot Adapter & Instructions

C4031762

Two Bushing Adapters

T4030857

Phasing Voltmeter Tester (with battery) in Kit

C4030838

H17601 Hotstick
P6436 Bag

To detect faults on URD cable, Hi-Pot Adapter converts AC source to DC pulse. Effective field method quickly tests new, repaired or suspect spans.

To check instrument before and after use, Phasing Voltmeter Tester lead plugs into test-point jack by meter. Other lead clips onto each probe. Switch on Voltmeter Tester reverses polarity for thorough, easy field-checking procedure. Complete instructions included.

For convenience on different systems, toggle on meter housing can switch calibration between the two scales on the meter face. Plus, it improves readability for low-end values on the Hi (16kV) scale. Switched to the Lo (5kV) range, those values deflect the needle more to give more finite readings.

Ordering Information

Catalog No.	Description	Weight
T4032557	Phasing Tester Kit with 16kV Hi-Pot Adapter, 2 URD Bushing Adapters, Phasing Voltmeter Tester	31½ lb./14.2 kg.

Digital Phasing Testers

- 16kV and 40kV models, plus 80kV extensions
- For Overhead & Underground

Display with backlight, hold, sleep modes

Large direct-reading display of Chance Digital Phasing Testers easily determine phase relationships and approximate voltage, line-to-line or line-to-ground.

Each tester consists of two fiberglass poles with end fittings threaded for interchangeable probes. The probe fittings couple with a high-impedance component encased in each pole. To complete the test circuit, a 22-foot length of insulated flexible cable stores on the reel affixed to one pole and connects to the electronic display module on the other pole.

Simple to operate, the tester attaches to two 6-foot Epoxiglas® insulating universal handles (included in each kit for proper working clearances). Then the probes can be brought into contact with the conductors appropriate for the tester to display phase-to-phase or phase-to-ground voltage.

Pushbutton controls permit easy selection of options for display Backlight and Hold features. When not in use, the unit's Sleep mode automatically conserves the battery.

Large direct display with backlight and hold features

Hi-pot and higher voltage test accessories

For underground cable hi-pot testing, the 16kV Kit includes a DC Hi-Pot Adapter. Hi-pot testing cannot be done with the 40kV unit. Both the 16kV and 40kV Kits include underground bushing and elbow adapters. For overhead subtransmission systems, Extension Resistors are available as accessories specific to each Digital Phasing Tester.

To detect faults on underground cable, Hi-Pot Adapter converts AC source to pulsating DC. This effective field method quickly tests new, repaired or suspect cables.

Hi-Pot Adapter (on meter pole) and Bushing Adapters (on both poles) simply thread onto the Digital Phasing Tester in the field.

Basic Units:

Each Basic Unit Digital Phasing Tester includes the tester unit with meter and reel poles, a pigtail hook probe, a shepherd hook probe, instruction manual and hard shell padded case.

See next page for Tester Kits.

16kV Digital Phasing Tester Basic Unit
Cat. No. C4033369 (14 lb./6.36 kg.)

40kV Digital Phasing Tester Basic Unit
Cat. No. C4033370 (14½ lb./6.6 kg.)
Hi-pot testing cannot be done with the 40kV unit.

Extension Resistors as installed for testing up to 80kV

Available as accessories, Extension Resistors simply thread onto the Digital Phasing Tester in the field.

Digital Phasing Testers

• For Overhead & Underground

Easy Verification Test

To check instrument before and after use, Phasing Voltmeter Tester lead plugs into test-point jack by meter.

Other lead clips onto each probe. Switch on Voltmeter Tester. Tester reverses polarity for thorough, easy field-checking procedure.

Complete instructions are included with each unit.

16kV Digital Phasing Tester Kit
Cat. No. C4033402 (22½ lb./10.2 kg.)

C403-3369 Digital Phasing Tester

C4031762 DC Hi-Pot Adapter

T4030856 Elbow Adapter

Two T4030857 Bushing Adapters

C4030838 Phasing Voltmeter Tester

Two H17601 6-ft. x 1¼"-dia. Epoxiglas® universal poles in P643-6 Bag

40kV Digital Phasing Tester Kit
Cat. No. C4033403 (21½ lb./9.7 kg.)

Hi-pot testing cannot be done with the 40kV unit.

C4033370 Digital Phasing Tester

T4030856 Elbow Adapter

Two T4030857 Bushing Adapters

C4030838 Phasing Voltmeter Tester

Two H17601 6-ft. x 1¼"-dia. Epoxiglas® universal poles in P6436 Bag

Extension Resistors for 16kV Digital Phasing Tester		
H18762	Pair of Extension Resistors for up to 80 kV (32" long)	6 lb./2.7 kg.
H18764	Pair of Extension Resistors for up to 48 kV (21" long)	4 lb./1.8 kg.
P6242	Bag for 48 kV Resistors	1 lb./0.45 kg.
P6244	Bag for H1876-2 80 kV Resistors	1¼ lb./0.56 kg.

Extension Resistors for 40kV Digital Phasing Tester		
C4033371	Pair of Extension Resistors for up to 80 kV (21" long)	4 lb./1.8 kg.
P6242	Bag for C403-3371 80 kV Resistors	1 lb./0.45 kg.

NOTICE: Use ONLY the Extension Resistors specified for each Digital Phasing Tester as listed on this page. Extension Resistors are NOT interchangeable between 16kV and 40kV Digital Phasing Testers.

Accessories

H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.

Digital Phasing Testers

Two Kits for Transmission Circuits

With digital readout and hold function, otherwise perform the same functions as analog testers on page 2457.

Ordering Information

Catalog No.	Description	Weight
PSC4033465	**10 - 120 kV Phasing Tester Kit:**	**40 lb./18.2 kg.**
	(1) Instruction Manual	
	(1) PSE4033454 Phasing Tester (64" long)	22½ lb.
	(2) C4030459 Handles (96")	10 lb.
	(1) P6218 Bag for Handles (108")	3½ lb.
	(1) C4030460 Bag for Tester	3 lb.
	(1) PSE40333473 Voltmeter Tester	1 lb.
PSC4033466	**40 - 240 kV Phasing Tester Kit:**	**61 lb./27.7 kg.**
	(1) Instruction Manual	
	(1) PSE4033455 Phasing Tester (102" long)	43½ lb.
	(2) C4030459 Handles (96")	10 lb.
	(1) P6218 Bag for Handles (108")	3½ lb.
	(1) C4030464 Bag for Tester	3 lb.
	(1) PSE40333473 Voltmeter Tester	1 lb.

Large direct display with backlight and hold features

10 - 120 kV Digital Transmission Phasing Tester

40 - 240 kV Digital Transmission Phasing Tester

Phasing Voltmeter Tester

for Digital Transmission Phasing Testers above

Exclusively for use with only Digital Phasing Testers above, otherwise the functional equivalent of Phasing Voltmeter Tester on page 2457.

PSE4033473 Phasing Voltmeter Tester for Digital Transmission Phasing Testers

D.C. Hi-Pot URD Test Adapters

For quick, reliable fault detection on underground cables, two units are available for phase-to-phase system voltages up to 16 kV or 35 kV. By converting AC source voltage to a rectified half-wave, these adapters permit testing of cables with a potential level equal to peak source voltage. This field-effective method proves especially beneficial for:

- Testing new cable before initial energizing.
- Testing repaired cable before re-energizing.
- Testing suspect cable spans for faults.

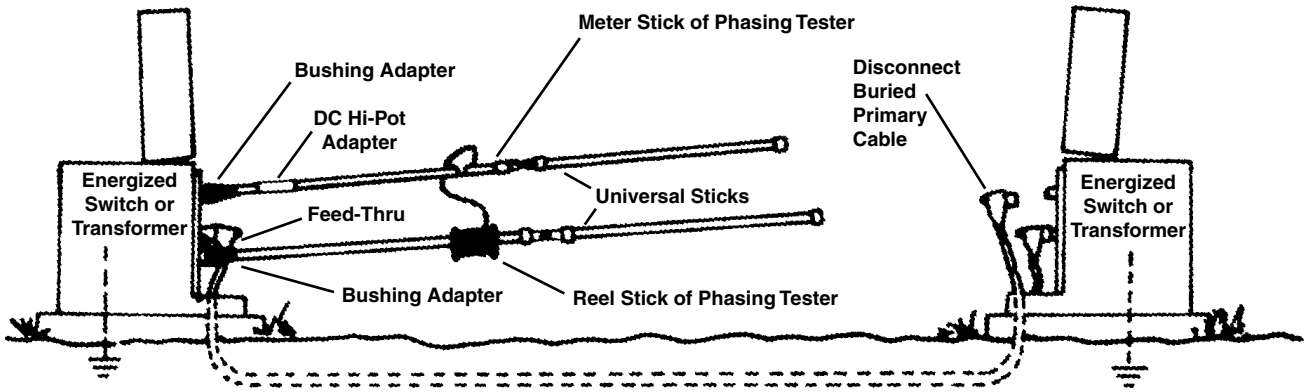
For metered readout, the Hi-Pot Adapters work with Chance Phasing Tool H1876 (page 2452). A brass male fitting inside the larger end threads onto the meter probe of the phasing tool. For testing and subsequent discharging, a brass female fitting at the smaller end accepts either Chance Elbow Adapters or Bushing Adapters for 15 through 35 kV (page 2455).

Illustrated instruction booklet is included. Units contain high-voltage rectifiers encapsulated in Chance orange 1¼" and 1½" diameter Epoxiglas® housings.

Hi-Pot Adapters measure only 13" in length for 35 kV unit, and 10" for 16 kV unit, far right.

Catalog No.	Description	Weight, each
C4031762	*16 kV Hi-Pot Adapter	1 lb./0.45 kg.
C4031763	*35 kV Hi-Pot Adapter	1¼ lb./0.57 kg.

*Maximum phase-to-phase system voltage.



Auto-Ranging Voltage Indicator (ARVI)

Complies with OSHA 1910.269 to Test for Absence of Nominal Voltage

• 600V to 69kV • For Overhead & Underground

Bright display lights indicate voltage class

This smart new-generation instrument makes hot-line voltage testing easier than ever. Its state-of-the-art electronics eliminate the need for a selector switch. Its automatic-ranging function quickly displays the approximate line-to-line voltage class. It provides an easy, yet reliable means for the operator to determine if a line is:

a) De-energized, or
b) Carrying less than normal system voltage from any source or induced charged from an adjacent live circuit, or
c) Energized at full system voltage.

Simple to operate, the tester attaches to an Epoxiglas® insulating universal handle of appropriate length to maintain proper OSHA working clearances. A single pushbutton activates the instrument, then a single light indicates either Power On (by glowing solid) or Low Battery (by blinking). With a good battery condition, the instrument performs a confirming self-test by illuminating each of the six indicator lights in series while emitting an alternating audible signal.

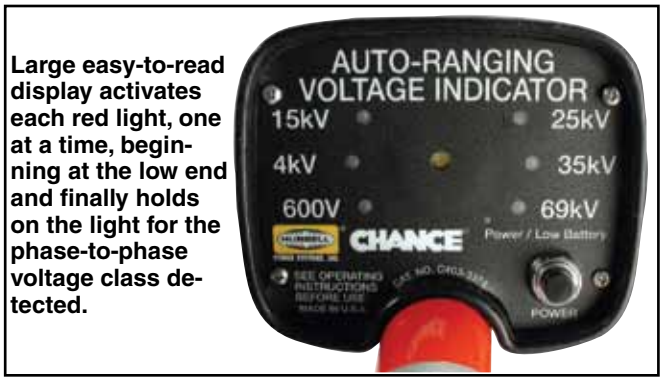
Then the probe can be brought into contact with the conductor. It automatically begins detecting at approximately 480 Volts and holds the display of one of these voltage classes: 600V, 4kV, 15kV, 25kV, 35kV or 69kV phase-to-phase. The audible signal begins as a slow beeping that becomes faster as the final reading is displayed.

When not in use, the unit's energy-saving Sleep mode automatically conserves the battery.

Overhead and Underground capabilities

For overhead testing, a Shepherd Hook probe is included with the Basic ARVI (Auto-Ranging Voltage Indicator).

For underground testing, Elbow Adapter T4030856 and Bushing Adapter T4030857 are included in the ARVI Kit. They simply thread onto the ARVI in the field to check for voltage at switch bushings or elbows on cables, using a feed-thru device.



Large easy-to-read display activates each red light, one at a time, beginning at the low end and finally holds on the light for the phase-to-phase voltage class detected.

ARVI
Auto-Ranging
Voltage Indicator

Elbow Adapter
T4030856
for 15, 25, 35kV

Voltage Indicator
Tester C4033409

Bushing Adapter
T4030857
for 15, 25, 35kV

ARVI Kit
for Overhead and Underground
Catalog No. T4033418 (16¼ lb./7.37 kg.)
Includes the tester unit, shepherd hook probe, elbow adapter, bushing adapter, voltage indicator tester, instruction manual and hard shell padded case.

ARVI
Auto-Ranging
Votage Indicator

Basic ARVI
for Overhead Applications
Catalog No. C4033374 (5½ lb./2.5 kg.)
Includes the tester unit, a shepherd hook probe, instruction manual and hard shell padded case.

Accessories

H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.

Multi-Range Voltage Detector

Lighted-dial model for systems through 40 kV

Light Switch

Overhead Voltage-Presence Test with Hook Probe

Easier-to-read, illuminated dial

The lighted-dial option sets this unit apart from features standard on Multi-Range Voltage Detector (MRVD) C4030979, shown on next page. Powered by the unit's internal battery (included), a long-life bulb gives a glow to the meter face so the scale is easy to read in most conditions.

To conserve the battery, a special switch locks the light off when not in use. Its spring-loaded toggle must be pulled up to move it over the stop between its on and off positions. This helps keep the switch from being flipped on accidentally while the unit is not in use.

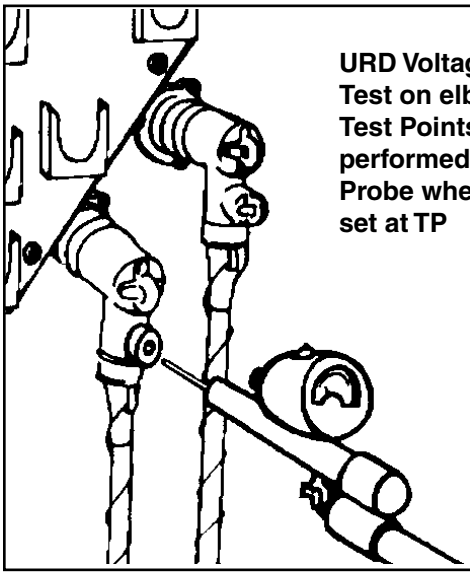
Standard features

To confirm that a line is de-energized prior to performing maintenance on it, the MRVD presents field practicality. Actually a field intensity meter, the MRVD is calibrated to read approximate line-to-line voltage when connected to any phase conductor. It responds to the magnitude of the field gradient between its end probe and floating electrode (at the universal hotstick-attachment fitting). If the universal fitting is close to a ground, another phase or another voltage source, the reading should tend to be high; if it's close to a jumper or equipment of the same phase, the reading should be low.

The MRVD gives metered readout capable of distinguishing actual line voltage from static or feedover from an adjacent line. Readings from an MRVD can be compared with numerical certainty rather than the subjective judgments associated with "fuzz-sticking" or "glow-detecting." Since the MRVD is not a voltmeter, no specific accuracy is claimed by the manufacturer or can be assumed by the user.

Operation

The MRVD must be mounted on proper length hotstick for the voltage class involved. Complete instructions are furnished with easy, illustrated step-by-step procedures. Internal circuit and pushbutton permit check before and after each use to confirm operational condition of instrument and battery.



URD Voltage-Presence Test on elbows with Test Points can be performed with Straight Probe when selector is set at TP

Accessories

H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.

Ordering Information

Includes:
- **Straight probe for URD elbows with test points**
- **Hook probe for overhead uses**
- **Instructions and storage case**

Catalog No.	Scale	Weight
T4033228	1 - 40 kV	5½ lb./2.5 kg.

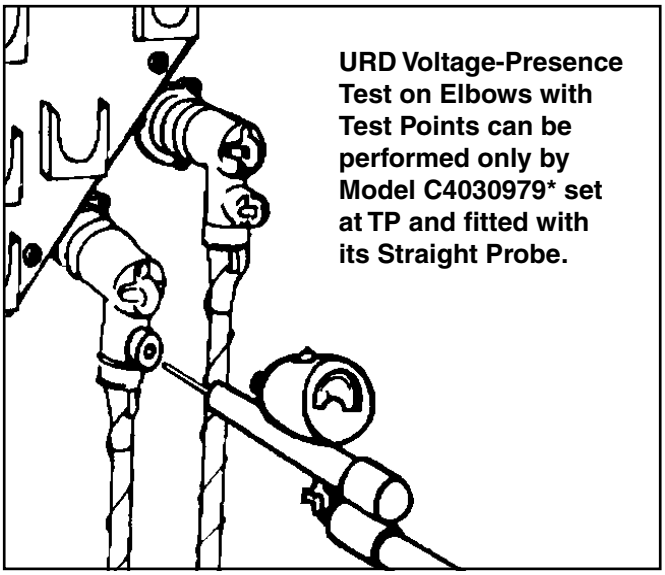
Multi-Range Voltage Detectors

for Overhead Systems to 600 kV and URD Elbow Test Points*

Overhead Voltage-Presence Test can be performed by all models.

Switch on C4030979* includes Test Point.

C4030979*



URD Voltage-Presence Test on Elbows with Test Points can be performed only by Model C4030979* set at TP and fitted with its Straight Probe.

Design Features

To confirm that a line is de-energized prior to performing maintenance on it, the Multi-Range Voltage Detector (MRVD) presents field practicality. Actually a field intensity meter, the MRVD is calibrated to read approximate line-to-line voltage when connected to any phase conductor. It responds to the magnitude of the field gradient between its end probe and floating electrode (at the universal hotstick-attachment fitting). If the universal fitting is close to a ground, another phase or another voltage source, the reading should tend to be high; if it's close to a jumper or equipment of the same phase, the reading should be low.

The MRVD gives metered readout capable of distinguishing actual line voltage from static or feedover from an adjacent line. Readings from an MRVD can be compared with numerical certainty rather than the subjective judgments associated with "fuzz-sticking" or "glow-detecting." Since the MRVD is not a voltmeter, no specific accuracy is claimed by the manufacturer or can be assumed by the user.

Operation

Available in modes for various ranges, the MRVD must be mounted on proper length hotstick for the voltage class involved. Complete instructions are furnished with easy, illustrated step-by-step procedures. Internal circuit and push-button permit check before and after each use to confirm operational condition of instrument and battery.

C4031029 or C4031140

Ordering Information

Distribution and Transmission Multi-Range Voltage Detectors

Catalog No.	Scales	Weight
C4030979*	1 - 40 kV	5½ lb./2.5 kg.
C4031029	16 - 161 kV	5½ lb./2.5 kg.
C4031140	69 - 600 kV	5½ lb./2.5 kg.

*For testing URD elbows with test points, only model C4030979 on this page includes straight probe and "TP" setting on selector switch (as well as hook probe for overhead uses).

For other URD models and Accessories, see next page.

Multi-Range Voltage Detectors
for Overhead & URD Systems to 40 kV

This Multi-Range Voltage Detector (MRVD) tests both overhead and underground distribution systems in voltage classes from 5 through 40 kV. This model provides an easy, yet reliable means for the operator to determine if a line is:

a) De-energized, or

b) Carrying less than normal system voltage from any source or induced charged from an adjacent live circuit, or

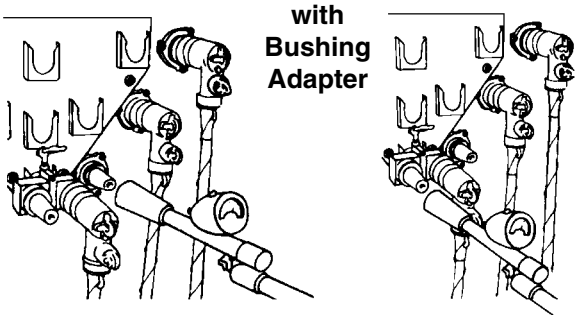
c) Energized at full system voltage.

For this basic function, this model adapts to both overhead lines as well as URD circuits with 200 and 600 Amp load-break elbows, including those with and without capacitance test-points. Interchangeable probes and adapters just thread into the MRVD end fitting and the selector switch dials to the voltage range or test point (T.P.) setting appropriate to each application. Furnished owner's manual illustrates operating details for all models.

T4032271
for Overhead and for URD Loadbreak Elbows

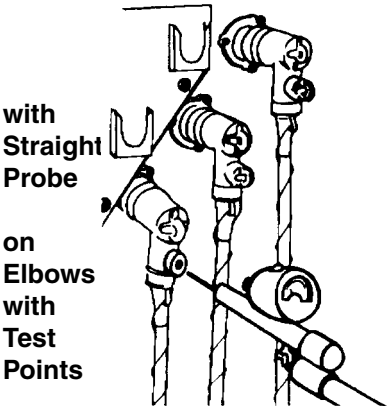
This model is capable of these three tests:

URD Voltage Presence Test

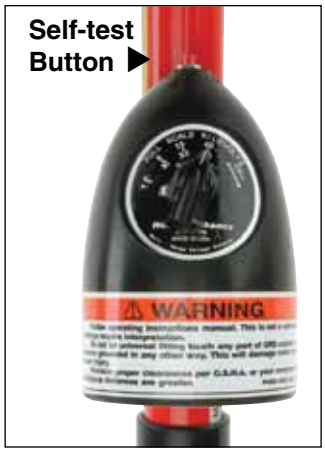


and
your feed-thru device*

URD Voltage Presence Test



Elbow Adapter also furnished to complete test when not using a feed-thru bushing device.



Ordering Information

5-15-25-40 kV Multi-Range Voltage Detector with TP Setting for Test Point on URD Elbows

Catalog No.	Description	Weight
T4032271	MRVD, Hook & Straight Probes, Elbows & Bushing Adapters, Case	6 lb./2.7 kg.

Accessories

H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.

Digital Voltage Indicators

for Distribution and Transmission Systems

• Calibrated to read approximate phase-to-phase voltage

Application

As tools for linework, these two Digital Voltage Indicators (DVI) apply to most system voltages. The Distribution DVI provides 1 to 40 kV readouts; and the Transmission DVI covers 16 to 161 kV. For overhead applications, the hooked probe hangs directly onto the conductor or apparatus. For underground systems, the Distribution DVI can indicate voltage at elbow test points or through bushings and elbows.

For such uses as confirming a "dead" condition before placing temporary grounds for de-energized maintenance, both models provide an easy, yet reliable, means to determine if a line is:

- De-energized…
- Carrying less than normal system voltage from any source or induced charges from an adjacent live circuit…
- Energized at full system voltage.

Special Design Features

Simply by selecting "Peak Hold," the DVI will retain the display of its approximate highest reading for 10-15 seconds.

A built-in self-test function allows for a quick check of the meter before and after each use.

Ordering Information

1 to 40 kV Distribution DVI model includes both types of probe (hook for overhead lines and straight for underground test points).

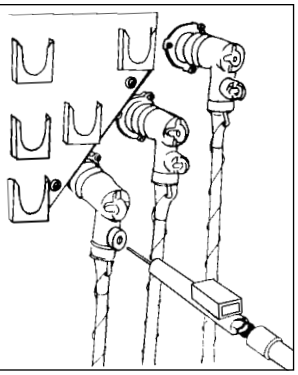
16 to 161 kV Transmission DVI model includes only the hook probe

Both models include a 9-volt battery, carrying case and illustrated operating instructions.

Catalog No.	Description	Kit Weight
C4032794	1 - 40kV Voltage Indicator	7¾ lb./3.5 kg.
C4032588	16 - 161kV Voltage Indicator	7½ lb./3.375 kg.

URD voltage presence test on cable with elbow placed on a feed-thru device can be performed by DVI fitted with Bushing Adapter T4030857. For this test, "Line" must be selected on switch panel of Distribution DVI model. Transmission DVI model does not have Line/ Test Point switch.

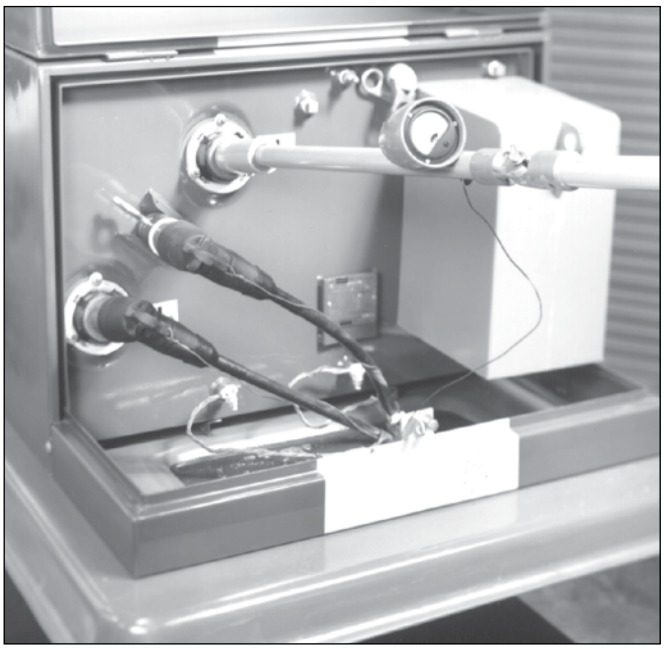
URD voltage presence test on elbows with test points can be performed only by Distribution DVI model C4032794 fitted with straight Probe and "Test Point" selected on switch panel.



Accessories

H18766S	Shepherd Hook Probe	¼ lb./0.1 kg.
H18766	Straight Probe	⅛ lb./0.05 kg.

Voltage Tester for Underground Transformers



The Chance Voltage Tester is a portable device which permits the checking of the AC voltages on Underground Distribution circuits through 20 kV for the purpose of determining the approximate line-to-ground voltage of the circuits.

The basic instrument, C4031369, is designed for reading voltages up to 10 kV on the meter. The resistance units are encapsulated in an epoxy compound to protect them from mechanical damage and to prevent moisture penetration or accumulation around the resistors. No calibration is required, the tool is preset at the factory.

For use on voltages above 10 kV phase-to-ground, an extension resistor, is provided, increasing the voltage range to 20 kV phase-to-ground. (Do not use more than one extension resistor element per tool.)

The ground connection is made to a stud on the stick below the meter housing. This stud MUST be electrically connected to a good ground source.

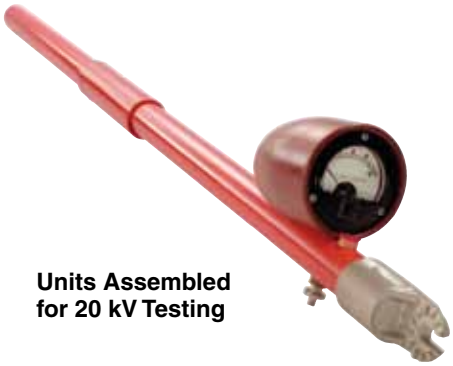
Before the Voltage Tester is used to test elbows or bushings on dead front URD equipment, the proper adapter must be attached to the tool.

Elbow must be controlled or restrained with an insulated hot stick while using Voltage Tester to check elbows. Elbow must be properly parked when bushing is being checked.

C4031369
for Ø - 10 kV

To check tester's condition before and after each use, test-point jack in front of meter accepts plug-in lead of Voltmeter Tester (see page 2453).

C4031367



Units Assembled for 20 kV Testing

Elbow Adapter

Bushing Adapter

Adapters for 15 kV only

T4030602

T4030428

Elbow Adapter

Bushing Adapter

Adapters for 15, 25 and 35 kV only

T4030856

T4030857

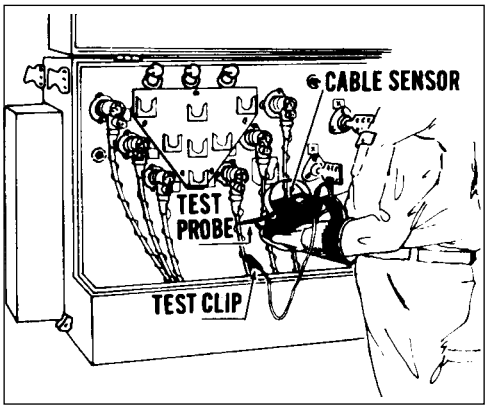
Catalog No.	Description
C4031367	Complete Voltage Tester for 20 kV Ø-G includes Tester, Extension Resistor, Case and Instruction Booklet
C4031368	1 Extension Resistor
C4031369	Voltage Indicator 10 kV Ø-G with Case and Instruction Booklet
T4030602	Elbow Adapter for 8.3/15 kV only
T4030428	Bushing Adapter for 8.3/15 kV only
T4030856	Elbow Adapter for 15, 25 & 35 kV
T4030857	Bushing Adapter for 15, 25 & 35 kV

Energized Cable Sensor

The purpose of the Energized Cable Sensor is to allow the lineman to readily determine whether a URD cable is energized or de-energized.

The sensor consists of an amplifier which is designed to give a meter reading when the small AC voltage between the semi-conductive sheath and the concentric neutral of the energized URD cable is applied to the test probe. The amplifier is housed in a rugged thermoplastic case.

A self-test contact point is located on top of the amplifier housing. By touching the test probe to the test point, the meter operation and condition of the batteries can be verified.



Sensor may be used to check for energized condition on concentric-neutral cable below an elbow without test points (as above).

At cable mid-span (left), hose clamps bridge all strands of concentric neutral at the test location. Sensor's neutral lead clips to one of the hose clamps. Tip on probe lead contacts only semi-conductive cable sheath to test for voltage presence.

Catalog No.	Description	Weight
C4030803	URD Cable Sensor, two leads, two hose clamps, two 9-volt batteries and instructions	5 lb./2.3 kg.

Silicone Lubricant

SL150, a silicone base material, is made for use with loadbreak disconnects and other electrical connecting and terminating devices.

Cat. No.SL150 ..... 5.3 oz. Tube

Line Fault Locator

The device is for use on underground distribution lines, 115 volts through 34.5 kV, with fault location potential up to one megohm.

The Chance Line/Fault Locator consists of four units.

The Line Locator is made of Epoxiglas and is self-standing for free use of both hands. It is used as a "wand", sending a null-out to the audible sound through the unit as an indication of proximity to induced current in a buried cable.

The Fault Locator, also made of Epoxiglas, is designed to receive a signal from the transmitter through the two earth probes, interrupting the signal when the two probes are equidistant from the fault: 90° locations are then established from the handle of the tool to pinpoint the fault.

The Transmitter emits a 90-volt square wave, 115-cycle signal and is complete with one 12-volt battery installed in the carrying case.

The Receiver amplifies the signal of the Transmitter and/or the 60-cycle field around a conductor carrying current; includes six "AA" 1½-volt batteries, volume control and neck strap. Earphones are available for plugging into the receiver, eliminating background noises.

Complete Line/Fault Locator (Cat. No. C4030547)

Locating the buried cable (Cat. No. T4030572)

Locating the fault.

Catalog No.	Description	Approx. Wt.
C4030547	Line/Fault Locator, complete with Batteries	30 lb./13.5 kg.
T4030572	Line Locator and Receiver only	10 lb./4.5 kg.
T4030573	Earphone Head Set	1 lb./.45 kg.

Apparatus Grounding Clamps

Ball-and-socket design for multiple uses

For restricted-space applications and as a truck-grounding system, this compact design delivers a high-current rating usually associated with only large clamps.

It applies to a wide range of switching equipment, including:

Industrial metalclad gear,
Substations — indoors and out,
Distribution — overhead and underground.

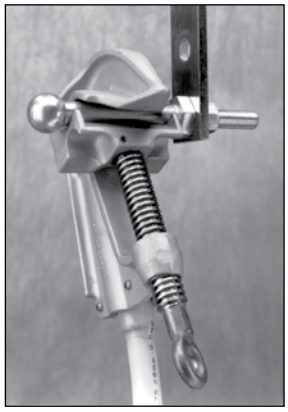
For trucks, a *ball stud permanently mounts on each body. For three-phase livefront set, see page 3015.

Two clamp styles and three ball-stud lengths adapt to many applications. Clamp bodies, eyescrews and *ball-studs are bronze alloy. Tin-plated ball-studs have nominal 1"-diameter ball and stud to fit NEMA terminal pads. Lockwasher and nut are silicone bronze.

ASTM Designation of Type I, Class A, Grade 5 for any of these clamps is met if associated grounding-cable sets are fitted with ⅝" copper ferrules as on page 3019.

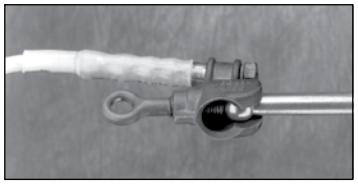
Fault Current Ratings 43,000 Amps — 15 cycles
30,000 Amps — 30 cycles

Recommended Installing Torques:
Eyescrew 250 inch-pounds ***Ball Stud** 300 inch-pounds



Long stud shank accepts most types of grounding clamps

Socket clamps provide multi-angle attachment of grounds



Clamp C6002100
Drilled for ⅝-11 UNC threaded ferrule
or
Clamp C6002101
Tapped for ⅝-11 UNC threaded ferrule

for threaded stud ferrule on #2 to 4/0 grounding cable

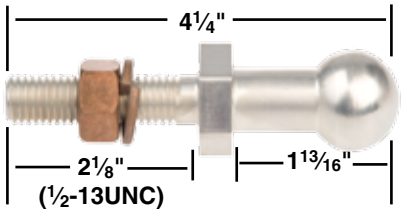
Clamp T6002320
Tapped for ⅝-11 UNC threaded ferrule

for threaded stud ferrule on #2 to 4/0 grounding cable

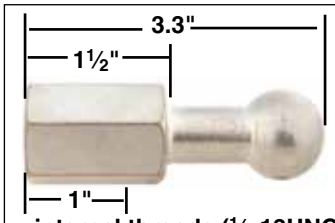
Clamp C6002300
with pressure terminal

for plain-plug ferrule on #2 to 4/0 grounding cable

Weight, each clamp on this page: 1 lb. / 0.45 kg.

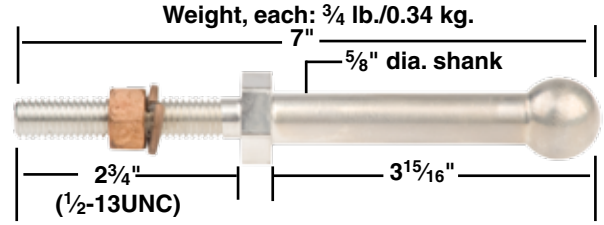


***Standard Ball Stud C6002102**
⅝" dia. shank
Weight, each: ½ lb. / 0.23 kg.



***Female-Thread Ball Stud T6002867**
⅝" dia. shank
Weight, each: ½ lb./0.23 kg.

***Long Ball Stud T6002364** **3" nominal shank length**
Weight, each: ¾ lb./0.34 kg.



*Ball-studs do not interchange with system on page 3014.

Grounding Stud Cover – fits onto 1" ball-studs of Apparatus Grounding Clamps above

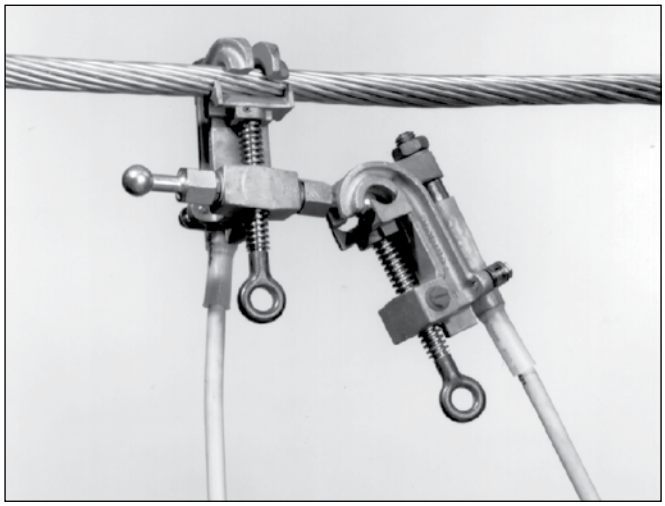
This flexible cover fits only C6002102 or T6002364 ball-studs. Of the same material as Chance line hose, nonconductive cover may help prevent flashover on ball studs installed in enclosed switchgear, switchyards or substations.

An environmental protector to reduce corrosion and contamination on the ball-stud when energized cover is not intended for personnel protection and should not be considered as insulative cover-up equipment. Resilient ozone/corona-resistant thermo-plastic elastomer does not absorb water. Special formulation resists aging/checking and retains high-visibility orange color.

Catalog No.	Description	Weight
C4060416	Grounding Stud Cover	1 oz. (28 g.)

Snap-fit keeps cover in place. The ⅝"-I.D. loop at top permits hot-line tools to "pop" it on and off. Chance silicone lubricant C4002320 or C4170287 may ease installation and removal.

Three-Way Grounding Clamp for *ball-stud, conductors, busbars



By supporting other clamps in three-phase sets, ball studs reduce installation labor. This can contribute to safety and minimize the number of clamp connections per conductor in an overhead grounding scheme.

***Ball -studs mount without furnished washers in holes of lower clamp boss. The tapped holes ship with plastic plugs.**

Clamp terminal is tapped for ⅝"-11 UNC threaded-stud ferrules on grounding cable from #2 through 4/0.

Clamp Main Line Range:

- Bare Conductors from #8 Sol. Cu. through 636 ACSR
- Flat Busbar through ¼" x 1¼" maximum
- Ball-Stud 20mm (0.788") only

Versatile clamp serves such temporary-grounding uses as a truck-grounding system; on industrial metalclad switchgear; substation buswork — indoors and out; overhead, underground and substation switches; and three-phase ground sets with special, multi-angle *ball studs. Compact design delivers a high-current rating usually associated with only large clamps.

For grounding trucks or other equipment, *ball stud permanently mounts on each body with furnished lockwasher, flat washer and nut. Removable stud has recessed-hex end fitting for through-mounting versatility.

Clamp body is aluminum. Acme-threaded eyescrew and *ball-stud are bronze alloy. Tin-plated ball-stud has 20mm (0.788") diameter ball, ⅞"-hex fitting and 1½"-long ½"-13 threads to fit NEMA terminal pads.

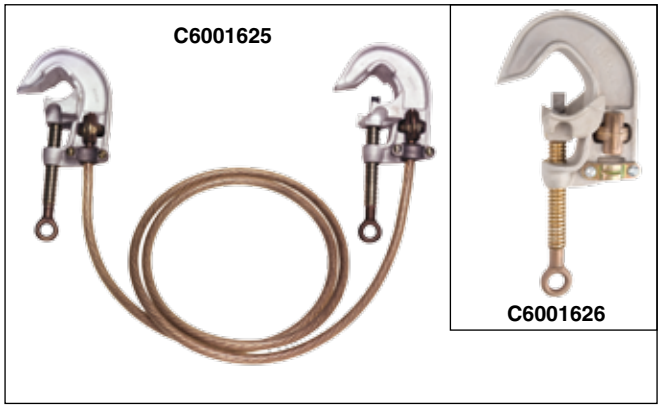
ASTM Designation of Type I, Class A, Grade 5 is met if associated grounding-cable sets are fitted with copper ferrules as on page 3018.

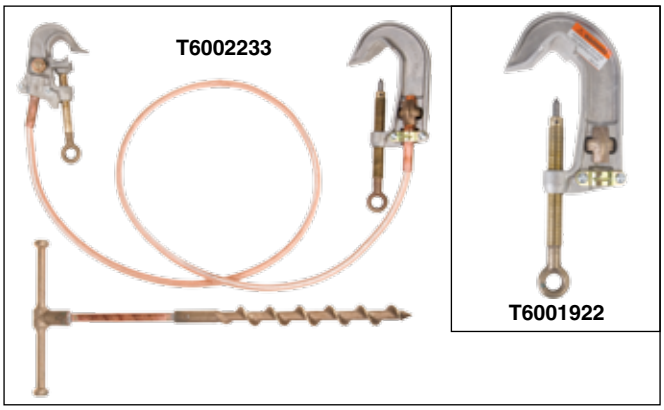
Fault current ratings: 43,000 amps — 15 cycles
30,000 amps — 30 cycles

Recommended Installing Torques:
Eyescrew 250 inch-pounds ***Ball Stud** 300 inch-pounds

Catalog No.	Description	Weight, each
C6002316	Three-Way Clamp Body only	1½ lb./0.68 kg.
C6002317	*20mm (0.788") diameter Ball Stud with flat washer, lockwasher and nut	⅜ lb./0.2 kg.

*Ball-stud does not interchange with system on page 3013.





Penetrator clamps, ground sets for underground cable

For temporary grounding of underground distribution cable with jacket over concentric neutral, special clamps help ensure contact with center conductor.

Chisel-point clamp main-line capacity is 1½". C-Type clamp in Chisel Sets fits conductors from #6 (0.162") to 636 kcmil ACSR (0.998").

Spike-point clamp main-line capacity is 2½". C-type clamp in Spike Set fits conductors from #6 (0.162") to 2" O.D. bus.

Each set includes 6-ft. of #2 copper clear-jacket ground cable and ferrules, a penetrator clamp (choice of hardened-steel ½"-wide chisel or conical spike) and C-type grounding clamp.

Screw-type copper-clad ground rod in sets indicated is 24" long for easy handling. The helix (spiral) and handle are bronze.

Catalog No.	Description	Weight, each
C6001626	Chisel Clamp **only**	1¾ lb./0.8 kg.
P6001623P	Replacement Chisel Point	2 oz./0.09 kg.
T6002234	Chisel Set **with** Ground Rod	9¾ lb./4.4 kg.
C6001625	Chisel Set **without** Ground Rod	4½ lb./2 kg.
T6001922	Spiked Clamp **only**	1¾ lb./0.8 kg.
P6001969P	Replacement Spike Point	2 oz./0.09 kg.
T6002233	Spiked Set **with** Ground Rod	8 lb./3.6 kg.

Underground Distribution Grounding Sets

Grounded Parking Bushing Sets for Single- or Three-Phase Switches & Transformers

This set includes a loadbreak bushing and bronze ground clamp T6000466 connected by a 4-ft. yellow 1/0 cable. A tin-plated copper connector joins the cable to the bushing. A threaded copper ferrule connects the cable to the clamp.

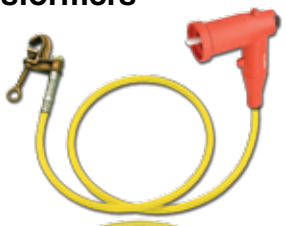
Fault current rating for each set: 10,000 amps for 10 cycles

Catalog No.	*Application	Weight, each
T6003091	15kV	8 lb. / 3.6 kg.
T6003092	25 & 35kV small interface	9 lb. / 4.09 kg.

Grounding Elbow Sets for Single- or Three-Phase Switches & Transformers

Each set includes an orange-jacketed elbow *for the voltage-class indicated below*, 6 feet of 1/0 copper grounding cable with yellow jacket and bronze ground clamp T6000466.

Fault current rating for each set: 10,000 amps for 10 cycles



C6000729	15kV set	4 lb./1.80 kg.
T6002131	25 & 35kV small interface set	6 lb./2.7 kg.
C6001927	35 kV large interface set	8 lb./3.63 kg.

Three-Phase Grounding Elbow Sets for Switches & Transformers

Each of these sets consists of a three-way terminal block assembly, three 6-ft. lengths of 1/0 copper ground cable with yellow jacket, a bronze ground clamp T6000466 and three orange elbows.

Fault current rating for each set: 10,000 amps for 10 cycles

C6003102	15kV set	14.5 lb./6.5 kg.
C6003103	25 & 35kV small interface set	15 lb./6.75 kg.

Replacement Parts: Grounding Elbow ONLY

215GEHSG	15kV - elbow only	1.9 lb./0.88 kg.
225GEHSG	25 & 35kV small interface - elbow only	2.0 lb./0.9 kg.
235GEHSG	35 kV large interface - elbow only	4.0 lb./1.8 kg.

All Copper Connector ONLY

200LUGC6	for 1/0 Grounding Cable	1.8 oz./40 g.
200LUGC7	for 2/0 Grounding Cable	1.8 oz./40 g.

Elbow Probes ONLY

215LBP	15 kV Probe	5.3 oz./150.3 g.
225LBP	25 kV Probe	7.0 oz./198.4 g.
235LBP	35 kV Probe	1.0 lb./0.45 kg.

Temporary Grounding Sets for Live-Front Switches and Transformers

C6000758	C-Clamp Set	15 lb./6.8 kg.

Fault current ratings: 21,000 amps for 15 cycles
or 15,000 amps for 30 cycles

C-clamps are Cat. No. T600-0466.

Each C-Clamp set includes a three-way copper terminal block, four bronze ground clamps and three 6-ft. lengths of 1/0 copper clear-jacket ground cable with threaded-stud ferrules.

C6000758
ASTM Type I, Class A, Grade 2

T6002246	Ball Socket Set	16.5 lb./7.4 kg.

Fault current ratings: 27,000 amps for 15 cycles
or 20,000 amps for 30 cycles

(Ball-studs are included.) Ball-studs and clamps are C6002102 and C6002100.

Each Ball-Stud set includes a three-way copper terminal block, four bronze ground clamps and three 6-ft. lengths of 2/0 copper clear-jacket ground cable with threaded-stud ferrules.

T6002246
ASTM Type I, Class A, Grade 3

T6002375	Flat-Face Clamp Set	15.5 lb./7 kg.

Fault current ratings: 21,000 amps for 15 cycles
or 15,000 amps for 30 cycles

Includes a four-way bronze terminal block, one 6-ft. and three 4-ft. lengths of 1/0 copper clear-jacket ground cable with shrouded plain-plug copper ferrules, three aluminum ground clamps with bronze eyescrews (G33633SJ) and one with bronze T-handle (G3363-4SJ).

T6002375
ASTM Type III, Class B, Grade 2

For storage bag T6000865, see page 3021.

Chance grounding clamps, ferrules and cable meet ASTM F 855.

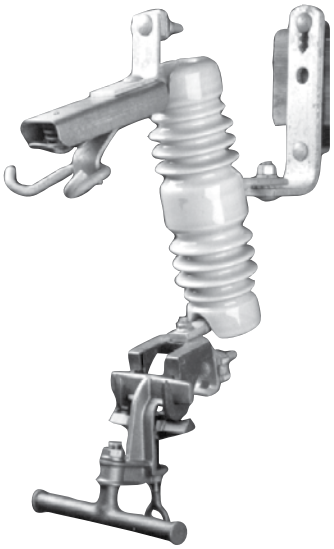
Cutout Grounding Clamps

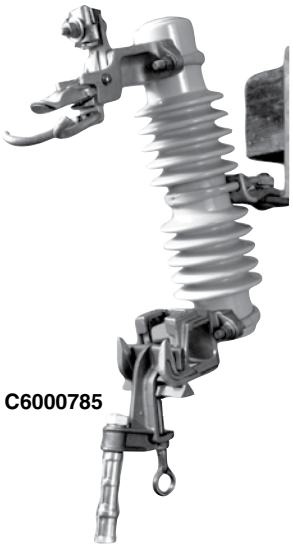
Bronze clamp is used to ground the bottom hinge contact on cutouts used on distribution riser poles or where grounding is required. It fits these cutouts: Chance F2, F3, and C Cutouts; Westinghouse LDX, Southern States B-80; Southern States Series 63; Joslyn; S&C Type SX; McGraw-Edison LMO, and GE Durabute.

Clamp can be installed with or without grounding cable to aid as a warning and possibly avoid accidental closing of cutout.

Clamp's drilled terminal accepts threaded-stud cable ferrules. It also accepts threaded L-Stud and T-Stud Terminals (¾" diameter bronze) for use with conventional ground-clamp cable sets.

Fault Current rating: 20,000 amps for 30 cycles





C6000785

T6002408
T-Stud Terminal

C6000862

C6000841
L-Stud Terminal

Catalog No.	Description	Weight, each
C6000785	Cutout Clamp	2 lb./0.9 kg.
C6000862	Cutout Clamp with L-Stud	3 lb./1.4 kg.
C6000841	L-Stud Terminal only	1 lb./0.5 kg.
T6002408	T-Stud Terminal only	1½ lb./0.68 kg.

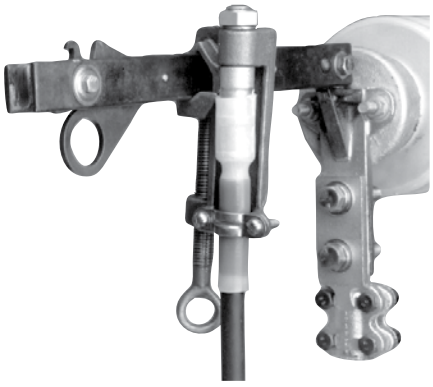
Switch Blade Grounding Clamps

Bronze clamp attaches temporary ground to open switch during de-energized maintenance. Designed to help keep ground lead away from energized switch jaw, clamp is shaped to fit specifically the blades of such switches as Chance Type M3 Disconnect.

Clamp's drilled terminal accepts threaded-stud ferrules on grounding cable from #2 through 4/0. It also accepts threaded L-Stud Terminal (¾" diameter bronze) for use with conventional ground-clamp cable sets.

ASTM Designation: Type I, Class A, Grade 5
Fault Current ratings: 30,000 amps for 30 cycles
43,000 amps for 15 cycles
with L-Stud Terminal: 20,000 amps for 30 cycles
Recommended torque: 250 inch pounds
Main Line Range: ¾" x ⅛" flat through 2½" x ¼" flat

Catalog No.	Description	Weight, each
C6002145	Plain eyescrew Switch Clamp	3½ lb./1.7 kg.
C6002146	T-handle/eyescrew Clamp	3½ lb./1.7 kg.
C6000841	L-Stud Terminal only	1 lb./0.5 kg.



C6002145
Plain Eyescrew

C6002146
T-handle/eyescrew

Standard (Orange) Equi-Mat® Personal Protective Ground Grid

Complies with OSHA 1910.269 for equipotential requirements near vehicles, underground gear, overhead switches and in substations

- **Meets ASTM F2715 Standard**

Portable, lightweight, high performance

The Equi-Mat® Personal Protective Ground Grid provides an easy way to help establish an equipotential zone for a lineworker to stand on during various energized and de-energized work practices. Properly applied, it accomplishes compliance with Occupational Safety and Health Administration (OSHA) 1910.269:

> "Equipotential Zone. Temporary protective grounds SHALL be placed at such locations and arranged in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential."

The Equi-Mat® Personal Protective Ground Grid easily can be taken anywhere needed, is simple to use, maintain and store. It consists of a high-ampacity tinned-copper-braid cable sewn in a grid pattern onto a vinyl/polyester fabric. Cable terminals permit connecting the mat's grid in series with an electrical ground and the subject system component or vehicle. Simply rinsing with water comprises all the care the mat requires. The mat may be folded and stored in a tool bag to help keep it clean and protected. Complete instructions are included with each unit.

. . . continued on the next page . . .

Basic Equi-Mat® Personal Protective Ground Grid
Each Basic Unit includes a Long Ball Stud and illustrated instructions.

Catalog No.	Size	Weight
Single ¼" Perimeter Braid		
PSC6003080* (Bucket)	24" X 24"	5 lb. / 2.3 kg.
C6002850	58" x 58"	8 lb. / 3.6 kg.
C6002851	58" x 120"	13 lb. / 5.9 kg.
C6002852	120" x 120"	20 lb. / 9.1 kg.

*For use in bottom of personnel bucket of lift truck.

Pre-Packaged Kits

Each Pre-Packaged Kit includes Ground Grid (size below with Long Ball Stud and illustrated instructions) plus Ground Set T6002841 and Storage Bag C4170147.

Kit Catalog No.	Equi-Mat® Personal Protective Ground Grid Size	Weight per Kit
C6002989	58" x 58"	19 lb. / 8.6 kg.
C6002990	58" x 120"	27 lb. / 12.2 kg.
C6002991	120" x 120"	30 lb. / 13.6 kg.

Accessory Items

Long Ball Stud T6002364
included with each Basic Equi-Mat® Personal Protective Ground Grid (Catalog page 3013)

Ground Set T6002841 included with Kits only
Consists of 6 ft. long #2 cable with ferrules applied,
Ball Socket clamp (C6002100)
and C-Type clamp (T6000465)

Storage Bag C4170147
included with Kits only
Catalog pages 2512-13

Chance grounding clamps, ferrules and cable meet ASTM F 855.

Standard (Orange) EQUI-MAT®
Personal Protective Ground Grid

Complies with OSHA 1910.269 for equipotential requirements near vehicles, underground gear, overhead switches and in substations

Easy to use, versatile to many applications

• Padmounted Transformers and Switches

Complies with OSHA 1910.269 for protecting workers operating and maintaining padmounted transformers and switchgear. The proper use of EQUI-MAT Personal Protective Ground Grid in these applications creates an equipotential zone just as a cluster bar (chain binder) does in overhead grounding practices.

• Bottom of Personnel Bucket on Lift Truck

Use only 24" x 24" Catalog No. PSC6003080.

• Mechanical Equipment (Vehicles, etc.) Grounding

It also helps provide compliance with OSHA 1910.269 for protecting workers around mechanical equipment which could become energized, such as utility vehicles and portable generators. For proper application, EQUI-MAT Personal Protective Ground Grids are attached to the vehicle (for example) at locations where workers could contact the vehicle. This extends the area of equipotential around the vehicle.

• Overhead Distribution and Transmission Switches

EQUI-MAT Personal Protective Ground Grid can help eliminate step and touch potential. Connect it to the handle of an overhead switch and stand on it when opening or closing the switch.

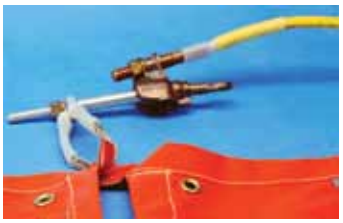
• Line Apparatus Work: Similar uses for installing, maintaining or operating regulators, reclosers, capacitor banks.

• Suspect Substation Grids: If station ground mat integrity is questionable, apply the EQUI-MAT Personal Protective Ground Grid.

Simple to join multiples for larger areas

Cascading (or joining together) two or more mats is easy with the connecting tab and hardware furnished with each mat. So connected in series, the conductive grids become one.

Whenever a larger area is needed, simply place lug connector tabs of two adjacent mats on the supplied bolt or threaded shank of a ball stud and secure with supplied washer and nut.



(Left) To join mats, conductive grids simply connect at tabs with bolt, washer and nut included with each mat. Tabs have shrink tube for stress relief. (Right) Ball stud can join mats and connect to ground set clamps.

Long ball stud accepts various grounding clamps as shown below and at right: Ball/Socket, C Type and Duckbill.

Slip-Resistant (Black) EQUI-MAT® Personal Protective Ground Grid

Complies with OSHA 1910.269 for equipotential requirements near vehicles, underground gear, overhead switches and in substations

• Meets ASTM F2715 Standard

Portable, lightweight, high performance

The EQUI-MAT® Personal Protective Ground Grid provides an easy way to help establish an equipotential zone for a lineworker to stand on during various energized and de-energized work practices. Properly applied, it accomplishes compliance with Occupational Safety and Health Administration (OSHA) 1910.269:

> "Equipotential Zone. Temporary protective grounds SHALL be placed at such locations and arranged in such a manner as to prevent each employee from being exposed to hazardous differences in electrical potential."

The EQUI-MAT® Personal Protective Ground Grid easily can be taken anywhere needed, is simple to use, maintain and store. It consists of a high-ampacity tinned-copper-braid cable sewn in a grid pattern onto a vinyl/polyester fabric. Cable terminals permit connecting the mat's grid in series with an electrical ground and the subject system component or vehicle. Simply rinsing with water comprises all the care the mat requires. The mat may be folded and stored in a tool bag to help keep it clean and protected. Complete instructions are included with each unit.

Slip-Resistant material

For rain, snow and ice conditions, the napped surface of the Slip-Resistant (Black) EQUI-MAT® Personal Protective Ground Grid offers superior footing. For dry conditions, consider the Standard (Orange) EQUI-MAT® Personal Protective Ground Grid, available in the same sizes and kits.

. . . continued on the next page . . .

Slip-Resistant EQUI-MAT® Personal Protective Ground Grid Each Unit includes Ground Grid, Long Ball Stud and illustrated instructions.

Catalog No.	Size	Weight
Single ¼" Perimeter Braid		
PSC6003345	58" x 58"	8 lb. / 3.6 kg.
PSC6003346	58" x 120"	13 lb. / 5.9 kg.
PSC6003347	120" x 120"	20 lb. / 9.1 kg.

Pre-Packaged *Slip-Resistant* EQUI-MAT® Kits Each Kit includes Ground Grid (size below with Long Ball Stud and illustrated instructions) plus Ground Set T6002841 and Storage Bag C4170147.

Kit Catalog No.	EQUI-MAT® Personal Protective Ground Grid Size	Weight per Kit
PSC6003348	58" x 58"	19 lb. / 8.6 kg.
PSC6003349	58" x 120"	27 lb. / 12.2 kg.
PSC6003350	120" x 120"	30 lb. / 13.6 kg.

Accessories

Long Ball Stud T6002364 included with each Basic EQUI-MAT® Personal Protective Ground Grid (Catalog page 3013)

Ground Set T6002841 included with Kits only
Consists of 6 ft. long #2 cable with ferrules applied, Ball Socket clamp (C6002100) and C-Type clamp (T6000465)

Storage Bag C4170147 included with Kits only
Catalog pages 2512-13

Chance grounding clamps, ferrules and cable meet ASTM F 855.

Slip-Resistant (Black) EQUI-MAT® Personal Protective Ground Grid

Complies with OSHA 1910.269 for equipotential requirements near vehicles, underground gear, overhead switches and in substations

Easy to use, versatile to many applications

• Padmounted Transformers and Switches

Complies with OSHA 1910.269 for protecting workers operating and maintaining padmounted transformers and switchgear. The proper use of EQUI-MAT Personal Protective Ground Grid in these applications creates an equipotential zone just as a cluster bar (chain binder) does in overhead grounding practices.

• Mechanical Equipment (Vehicles, etc.) Grounding

It also helps provide compliance with OSHA 1910.269 for protecting workers around mechanical equipment which could become energized, such as utility vehicles and portable generators. For proper application, EQUI-MAT Personal Protective Ground Grids are attached to the vehicle (for example) at locations where workers could contact the vehicle. This extends the area of equipotential around the vehicle.

• Overhead Distribution and Transmission Switches

EQUI-MAT Personal Protective Ground Grid can help eliminate step and touch potential. Connect it to the handle of an overhead switch and stand on it when opening or closing the switch.

• Line Apparatus Work: Similar uses for installing, maintaining or operating regulators, reclosers, capacitor banks.

• Suspect Substation Grids: If station ground mat integrity is questionable, apply the EQUI-MAT Personal Protective Ground Grid.

Simple to join multiples for larger areas

Cascading (or joining together) two or more mats is easy with the connecting tab and hardware furninshed with each mat. So connected in series, the conductive grids become one.

Whenever a larger area is needed, simply place lug connector tabs of two adjacent mats on the supplied bolt or threaded shank of a ball stud and secure with supplied washer and nut.

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Long ball stud accepts various grounding clamps as shown below and at right: Ball/Socket, C Type and Duckbill.

Rotating Ground Adapters for Reels

Tested and Meets ASTM F 855 Standard

Application

This unique system helps provide system protection while conductor is pulled from reels for stringing operations. By design, the system adds conductor grounding but does not replace other grounding practices, including items such as Equi-Mat® personal protective ground grids (Chance Catalog Section 3000). System serves as intended path to ground for static discharge and accidental energizing from downed lines, equipment contact, adjacent conductors and lightning.

Installation

Rotating Ground Adapter slides on reel mandrel and three locking bolts secure it. Its outer collar contact connects to the end of the conductor from inside the reel. Adapter's inner collar contact connects to a permanent or screw-in ground rod (not included, see Chance Catalog Section 3000).

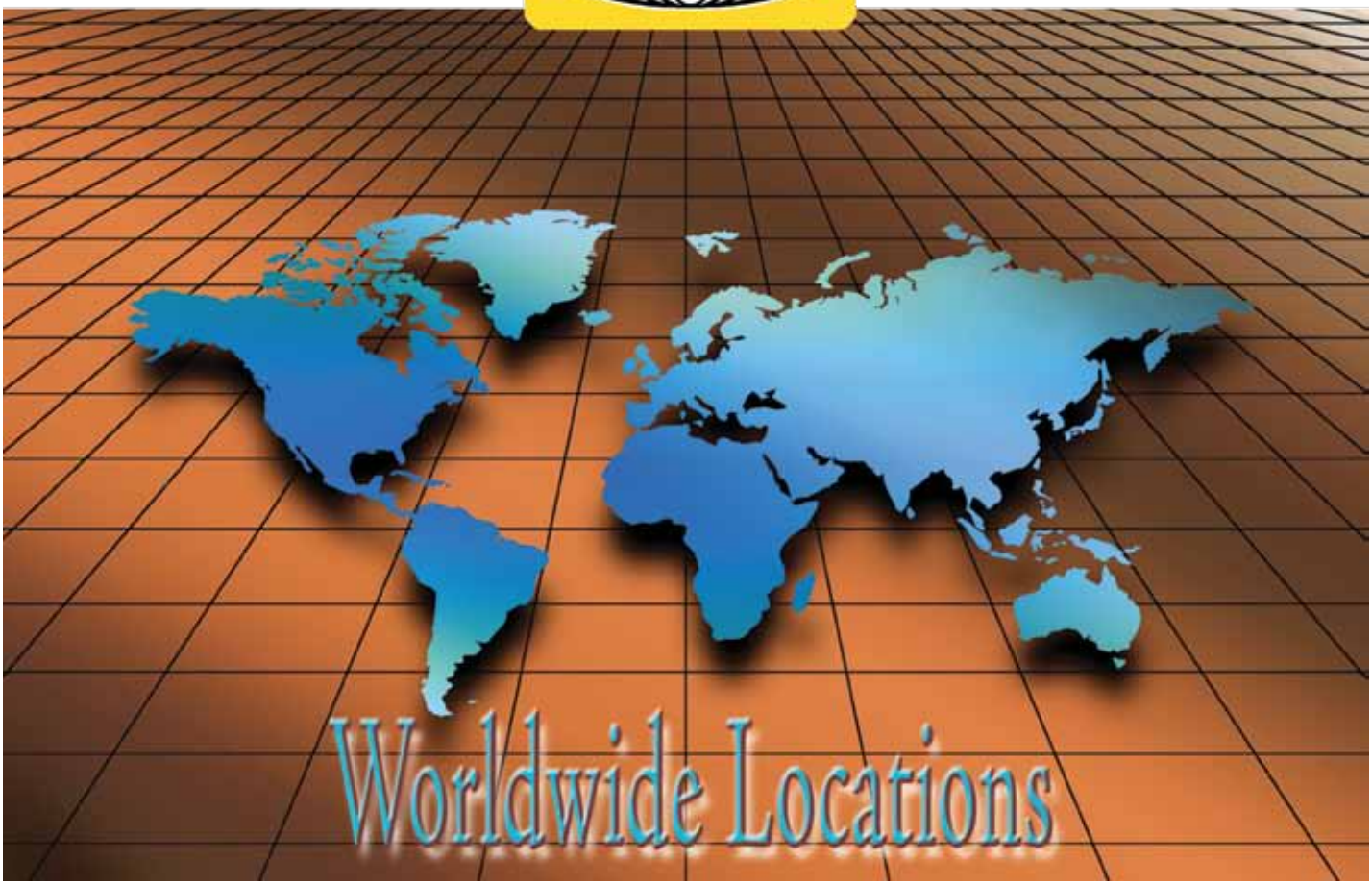
GR253X **GR43BS2**

Rotating Ground Adapters

PST6003438
Single Reel Grounding Set

Rotating Ground Adapters for Reels
Ordering Information

Catalog No.	ASTM Grade: Fault Rating	Pipe Dia. Maximum	Connector Type	Connector Range	Weight
Rotating Grounding Adapters					
GR253X	ASTM Grade 1: 14kA @ 15 cycles 10kA @30 cycles	3-3/16"	Bronze Vise Type	3 Sol. to 4/0 Str.	9.8 lb. (4.4 kg.)
GR43BS2	ASTM Grade 5: 43kA @15 cycles 30kA @30 cycles	2-11/16"	Two 1"-diameter Ball Studs	See Ball Stud Clamp in Chance Cat. Section 3000	12.75 lb. (5.8 kg.)
Single Reel Grounding Set			**Assembled Bill of Materials**		
PST6003438	Grade 3: 27kA @15 cycles 20kA @30 cycles (Ratings for this set are limited to those for the 2/0 grounding cable.)	2-11/16"	4 ea. C6001754 C-type ground clamps, 2 ea. T6002320 ball stud ground clamps, 1 ea. GR43BS2 rotating ground adapter, 6 ea. Ferrules (aluminum), 6 ea. Shrink tubes, 63 ft. S6118 yellow neoprene 2/0 cable (1 @ 50 ft., 1 @ 10 ft., 1 @ 3 ft.)		53.75 lb. (24.4 kg.)



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