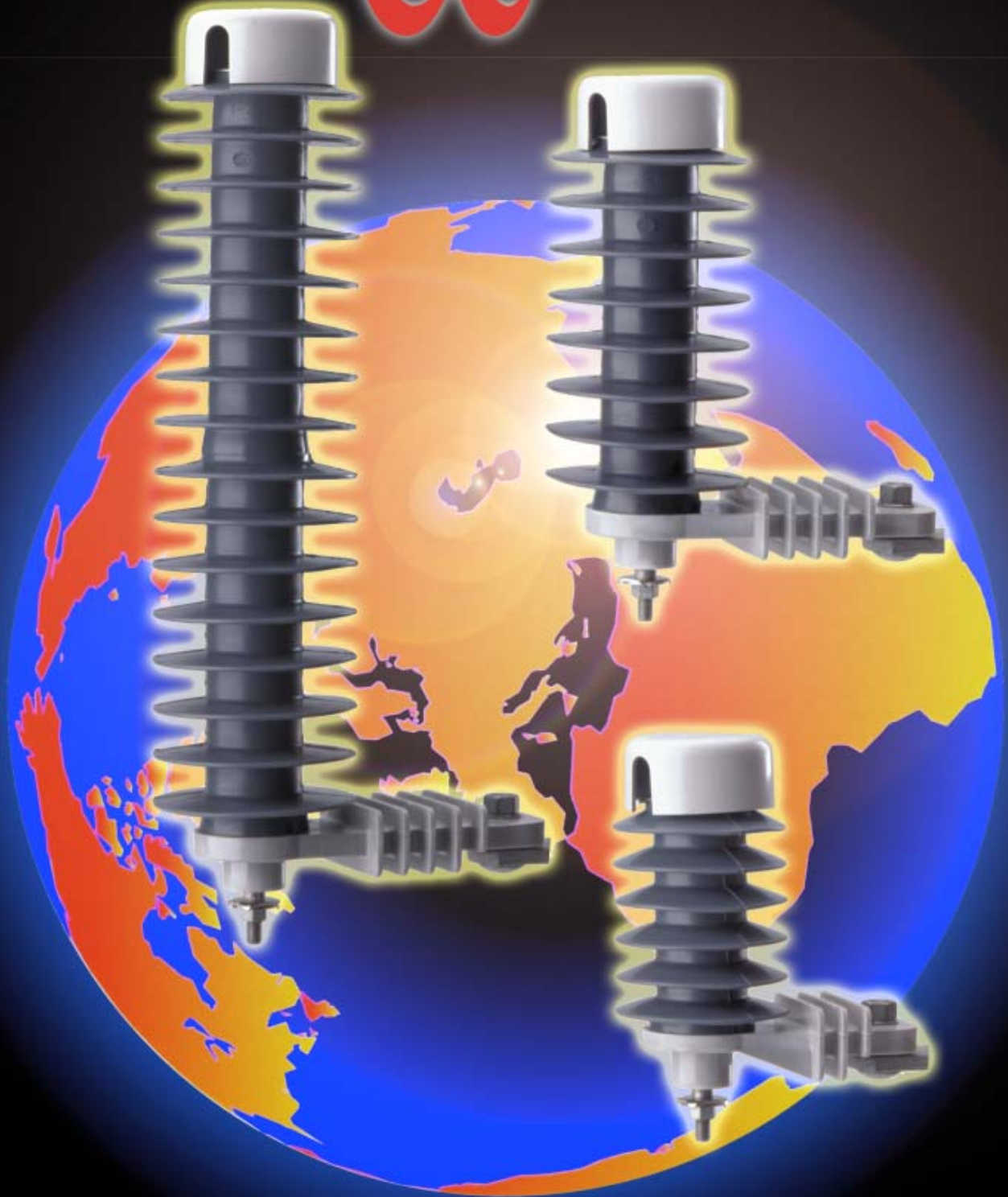


# HUBBELL<sup>®</sup> TIPS & NEWS

Vol. 6 No. 2    MAY 2000

<http://www.hubbellpowersystems.com>



# Using Riser Pole Arresters to Improve URD System Protection



**P**rotection of URD systems presents a unique set of problems to utilities around the globe. While more aesthetically pleasing to end users, URD systems are harder to protect due to possible voltage doubling at an open point.

In response to voltage doubling concerns, utilities use “riser pole” arresters. ANSI Standard C62.11-1999 does not formally recognize riser pole arresters as a class. However, utilities generally do agree on what they expect from riser pole arresters. A riser pole arrester is similar in design and durability to a heavy-duty distribution arrester but with better protective levels than a heavy-duty arrester.

Ohio Brass is constantly working to improve the quality and performance of our arresters. We recently refined the design of our PVR - riser pole arrester for better protection for URD systems. Table 1 shows the electrical performance of the new design.

**Table I**

MCOV	STYLE	PART NO.	.5μSec 10kA-IR	8/20 10kA-IR
7.65	New	221608	26.8	24.5
8.4	New	221609	29.5	27.0
15.3	New	221615	53.4	48.9
22.0	New	221622	78.6	72.0

The protective margins for the new Ohio Brass arresters when applied to the following system voltages are shown in Table II.

— *the smart way to improve distribution system coordination*

**Table II**  
**No Open Point Protection\***  
**Percent Protective Margin**

SYSTEM VOLTAGE kV	SYSTEM BIL	.5 $\mu$ Sec 10kA-IR	8/20 10kV-IR
15	95	-11.2	66.7
25	125	-19.3	24.0
35	150	-26.9	2.0

**Ohio Brass Polymer Distribution Elbow (PDE™) Arrester at Open Point\***  
**Percent Protective Margin\*\***

SYSTEM VOLTAGE kV	SYSTEM BIL	.5 $\mu$ Sec 10kA-IR	8/20 10kV-IR
15	95	26.8	87.9
25	125	15.4	77.1
35	150	4.4	45.8

\* Assumes 3 feet of total line and ground lead (for more information on line and ground lead effects, request a copy of Ohio Brass publication EU-1202-H "Lead Length Revisited"). These assumptions result in 8kV/foot added to the arrester IR for the .5mSec - 10kA-IR and .5kV/foot added for the 8/20 10kV-IR.

\*\* Assumes the maximum cable voltage is 1.4 times the incoming voltage wave. For a more accurate value, a computer study must be performed.

**NOTE: the impact of the lead wire is actually as significant, if not more so, than the arrester clamping voltage itself. This information additionally shows it is very difficult to protect higher system voltages without the use of deadfront surge arresters. The PDE™ arrester fills this need.**

For more information on how to calculate protective margins, see page 13 of Ohio Brass Catalog Section 31 — Distribution and Riser Pole Surge Arresters. The improved design of Ohio Brass riser pole arresters gives users the same pressure relief rating as PDV-100 (20kA) arresters, as well as single unit designs for ratings up to 17kV MCOV.

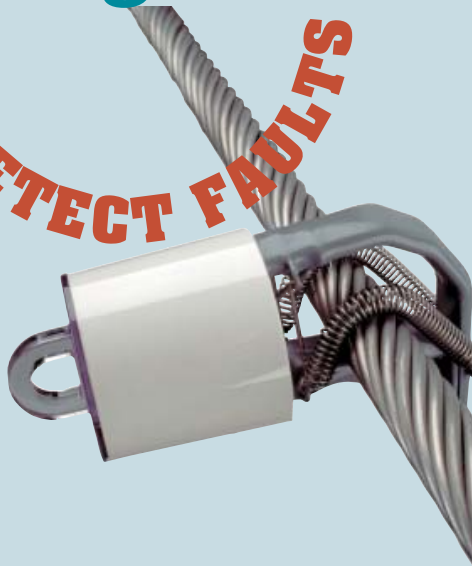
To provide your underground system with the most advanced protection, look to Ohio Brass Riser Arresters. ■

For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).



**THE SMART WAY**  
**Fault Indicator**  
**Works on**  
**Overhead &**  
**Underground**

**TO DETECT FAULTS**



Indicator incorporates a magnetic memory making it immune to false indications due to mechanical shock or rough handling.



**F**ault indication doesn't get any easier than this. Because this is a *current reset* device, it works on any system voltage from 120VAC through 35kV P-P. It can be installed on ACRS or URD cable ranging from 0.3" to 1.1" O.D.

Install with a hot stick and let it do its job. The indicator automatically resets in less than a minute with a minimum of 3 amp line current. Trip response time is 1 ms at the nominal trip rating. Available trip ratings range from 50 amps through 1200 amps (+/- 10%). The Inrush Restraint option prevents false tripping due to recloser operations.

Best of all, as long as the cable diameter is within the range specified above, *no cable diameter needs to be specified when ordering.* This "constant calibration" feature maintains the trip rating tolerance throughout the entire clamping range. ■

**Type 1CRD features large integral display for easy viewing**

For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).



# GLOBAL ESMO 2000

The Power is in Your Hands

**I**t's showtime in Montreal. Hosted by Hydro Quebec, this 9th International Conference on Transmission and Distribution Construction, Operation and Live-Line Maintenance is a must for utilities. More than 2,000 utility professionals from more than 50 countries will attend.

It's hands-on all the way at ESMO with indoor and outdoor exhibitions. Many technical conferences, too.

Visit the indoor and outdoor Hubbell exhibits and our Mont Royal Hospitality Suite 3406 on the 34th floor of the Marriott Chateau Champlain Hotel. The Hubbell Suite opens Sunday October 8th at 7:00 pm and Monday October 9th at 6:30 pm. ■



**Contact Kim Good at the ESMO  
Hot Line Phone: 913-967-7336  
for additional information.**

# *the* **CHOICE IS CLEAR** **ANDERSON & FARGO**

**F**or substation connectors and fittings, the choice is clear. It's Anderson and Fargo. We have the experience, products and tools you need for every substation job. We give you the convenience and cost efficiency of dealing with one trusted source, without having to shop around and waste time running from one supplier to another.

With the Anderson and Fargo connection, you have choices and options that give you the ability to adjust to your special construction needs. Our aluminum and brass foundry capabilities allow us to work with you on specialized products unique to your substation. Our products are designed in house, so we can work with you to deliver the mechanical and electrical integrity you demand. Not what an assembly line dictates.

On higher volume standard copper, aluminum and bronze connectors and fittings, we maintain a wide inventory to meet your requirements on your schedule. This helps us to respond even more quickly as your on-site requirements change.

By using Anderson and Fargo connectors and fittings on new construction, you'll minimize repair and maintenance cost later thanks to the quality standards we gladly place upon ourselves. Competent metallurgical and quality control personnel using statistical process control techniques monitor production. No products leave the factory until we are satisfied our performance standards are met.

With the Anderson and Fargo connection, you are bringing more than 100 years of connection and fitting experience to your side. Call us. ■

**To connect, fit or  
compress**

**in substation**

**applications . .**

**come here!**



## **The Anderson & Fargo Connection**

- Terminals
- Couplers
- Tees
- Bus Supports
- Stud Connectors
- Weldment Connectors
- Compression Connectors
- Ground Clamps



For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).

# SIMPLE GROUNDING SOLUTION

*Ready-made connections for temporary grounding install easily in tight spots*

## DEDICATED TO DIFFICULT SITUATIONS

*and add onto switching equipment lacking proper provisions*

**T**his compact ball-and-socket design delivers a high-current rating usually associated with only large grounding clamps. Adjustable to many angles, it's ideal for restricted-access situations. Often, it can provide a connection point where none is available for the temporary grounding required during de-energized construction and maintenance practices.

### WIDE RANGE OF SWITCHING AND TRUCK APPLICATIONS

Installed as simply as a bolt, the ball stud fits NEMA terminal pads. Therefore, it readily applies to a broad spectrum of switching equipment, including:

- Industrial metal clad switchgear,
- Substations — indoors and outdoors,
- Distribution lines — overhead and underground.

It also can be the key to establishing a grounding practice for a fleet of vehicles. To provide a consistent and convenient connection point, a ball stud may be installed on each truck body.

ASTM Type I, Class A, Grade 5 designation is met by these clamps if associated grounding-cable sets are fitted with  $\frac{5}{8}$ " copper ferrules (as on Chance catalog page 3018). Fault-current ratings are 43,000 amps for 15 cycles and 30,000 amps for 30 cycles.



### TWO STUD LENGTHS FOR STANDARD AND SPECIAL NEEDS

For many applications, the standard ball stud fills the need with its short shank ( $1\frac{13}{16}$ " overall). It accepts only the socket clamp, but affords the basic advantages for multiple approach angles and close-clearance situations.

For additional uses, an alternate ball stud features a longer shank (3" nominal length) to accept most common types of grounding clamps. Of course, the long stud's ball end also accepts the socket clamp for multi-angle connections.

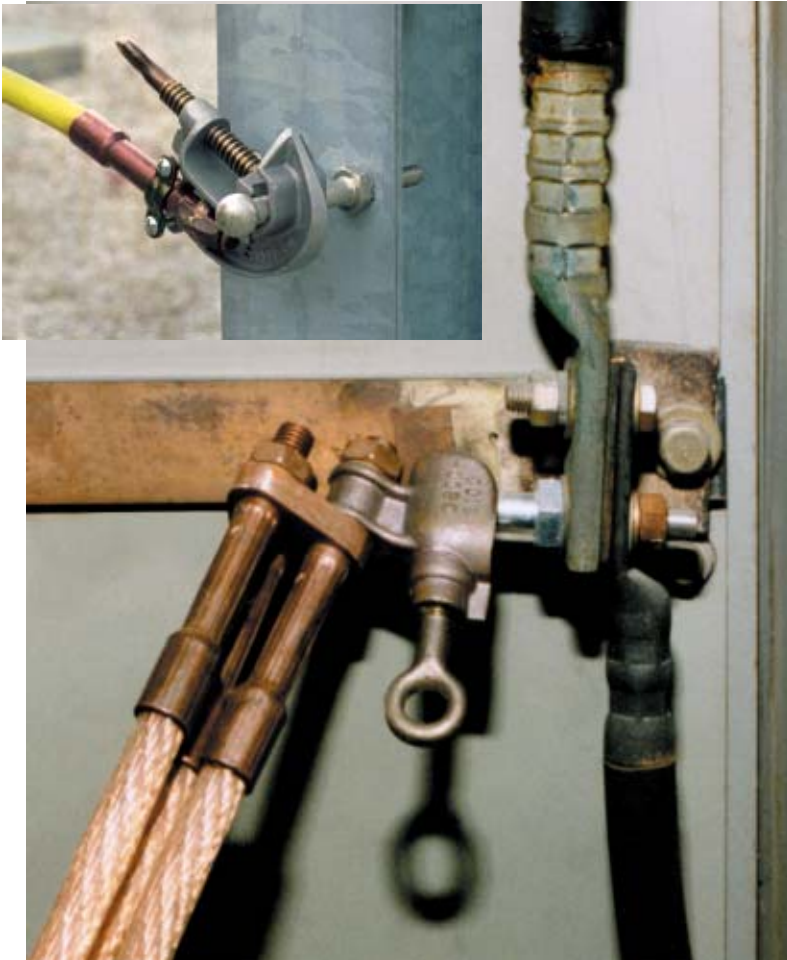
Both ball stud styles are made of tin-plated bronze alloy and each comes with a silicone-bronze lockwasher and nut.

### FOUR CLAMPS FOR SYSTEM-WIDE COMPATIBILITY

To further serve your requirements, even more choices are available from four socket clamp variations. All have clamp bodies and eyescrews of a highly-conductive bronze alloy.

If you prefer plain-plug ferrules on your grounding cable, select the socket clamp with the pressure terminal and plain eyescrew.

If threaded-stud ferrules are your preference, specify any of the three remaining clamps. Two offer a plain



eyescrew and the choice of a drilled or a tapped terminal. The final option features a bronze T-handle and a tapped terminal.

**THREE-PHASE SET FOR LIVE FRONT AND TRANSFORMERS**

Perfect for storage on site or onboard service vehicles, this pre-assembled set fits into an optional protective bag (Cat. No. T600-0865) of bright-yellow double-laminated nylon with a covered plywood bottom.

Ready-made for dedicated use on live-front switches or transformers, the three-phase grounding set comes with four standard ball studs. Cat. No. T600-2246, the set is designated ASTM Type I, Class A, Grade 3 with fault-current ratings of 27,000 amps for 15 cycles and 20,000 amps for 30 cycles. It comprises a copper three-way terminal block, four clamps with eyescrews, and three 6-ft. lengths of 2/0 copper clear-jacket grounding cable with threaded-stud copper ferrules.

**LONG-TERM ENVIRONMENTAL PROTECTION OPTION**

To help prevent corrosion and contamination on the ball stud when energized, there's a special snap-fit flexible cover. Made of the same polymeric elastomer as Chance line hose, the nonconductive cover fits tight on the stud. A loop formed in the top permits hot-line tools to "pop" it on and off with ease.

Providing 400 volts per mil puncture strength, the cover may help prevent flashover on ball studs installed in enclosed switchgear, switchyards or substations, but is not intended for personnel protection and should not be considered as insulative cover-up equipment. ■



**C600-2100**  
with drilled terminal  
**C600-2101**  
with tapped terminal

**C600-2320**  
with tapped terminal

**C600-2300**  
with pressure terminal



For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).

# YOU GET IT ALL IN ONE

*Dual-range tool for overhead and underground construction and maintenance,*

# DISTRIBUTION PHASING TESTER KIT

*includes self-test tester, insulated handles and adapters for specific field uses*



Bushing Adapters



DC Hi-Pot Adapter



Phasing Voltmeter Tester (with battery)



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



Toggle on meter housing switches calibration between scales on the meter. It improves readability of low-end values on the Hi (16kV) scale and deflects the needle more for finite readings on Lo (5kV).

**T**ools ought to be as adaptable to your systems' demands as you and your crews must be. This kit meets those demands for a variety of distribution work in 5kV and 16kV system classes.

## OVER-AND-UNDER KIT FOR DISTRIBUTION SYSTEMS

To help your crews face challenges on both the overhead and underground sectors of your system, this kit is prepared. It includes everything for basic testing functions pertinent to construction and maintenance procedures.

## VERSATILE TO EVERYDAY BUILD-OUT AND UPKEEP FIELD TESTS

On any given day when work practices require certain electrical tests as essential, turn to this kit. Basic functions include identifying phases and reading line-to-line or line-to-ground voltage. Accessories in the kit also permit hi-pot testing of underground cable.

Detailed instructions are covered in the user manuals for the Phasing Tester and the DC Hi-Pot Adapter provided with each kit.

## ALL-IN-ONE KIT INCLUDES INSTRUCTIONS

All as one Catalog Number (T403-2557) you get a full complement of components.

- The carrying/storage case contains
- Voltmeter and reel of 22-ft. cable (each mounted on universal pole)
  - Illustrated instruction manual
  - Two interchangeable probes (shepherd hook and pigtail hook)
  - Two URD bushing adapters
  - DC hi-pot adapter for 16kV (with separate instructions)
  - Phasing voltmeter tester.

Carrying/storage bag contains

- Two 6-ft.-long x 1¼-in.-diameter Epoxiglas® universal handles. ■

# HUBBELL ALUMINUM PLATFORMS

*Regulators, transformers, reclosers and other distribution controls go up fast!*

**E**quipment too heavy for a single pole mounting will find a home on the new range of Hubbell Aluminum Platforms. Among the 32 variations, capacity ratings reach 33,000 lb. (14,850 kg.).

#### ONE SIZE DOES NOT FIT ALL

To serve the variety of needs you have, each platform carries three relative ratings:

- Uniform vertical load
- Single center vertical load
- Three vertical loads.

These criteria give you flexible information to match varying circumstances in the case-by-case process of specifying a platform. Since both weight and dimensions of equipment are factors, the same size you specify for an individual item at one location may serve to support multiple items elsewhere.

Then again, it may not. This is exactly why we offer a large selection. In the following four series, lengths are available at each increment of 2 feet:

- Regular Duty.....12 to 16 feet
- Heavy Duty.....14 to 18 feet
- Extra Heavy Duty.....14 to 22 feet
- Super Extra Heavy Duty.....14 to 22 feet.

#### PRE-ASSEMBLY SAVES YOU TIME AND MONEY

All Hubbell platforms are delivered in an assembled state, ready for mounting. This saves you \$200 to \$300 on average in labor per platform.

#### HIGH-STRENGTH FEATURES COMMON TO ALL SIZES

All our platforms are constructed with 11½" main I-beams (two each for all series but the Super Extra Heavy Duty series, which has four main beams).

All have six adjustable hat-channel crossmembers you can slide to necessary mounting positions and lockbolt in place.

All come with illustrated, detailed mounting instructions.

#### WITH ALL THESE CHOICES, ONLY ONE OPTION

Each unit may be ordered with an optional 41-inch-wide parallel walkway with hand railing and supports for planks you must provide. ■

**4** *Duty Ratings cover  
12 to 22 ft. spans*



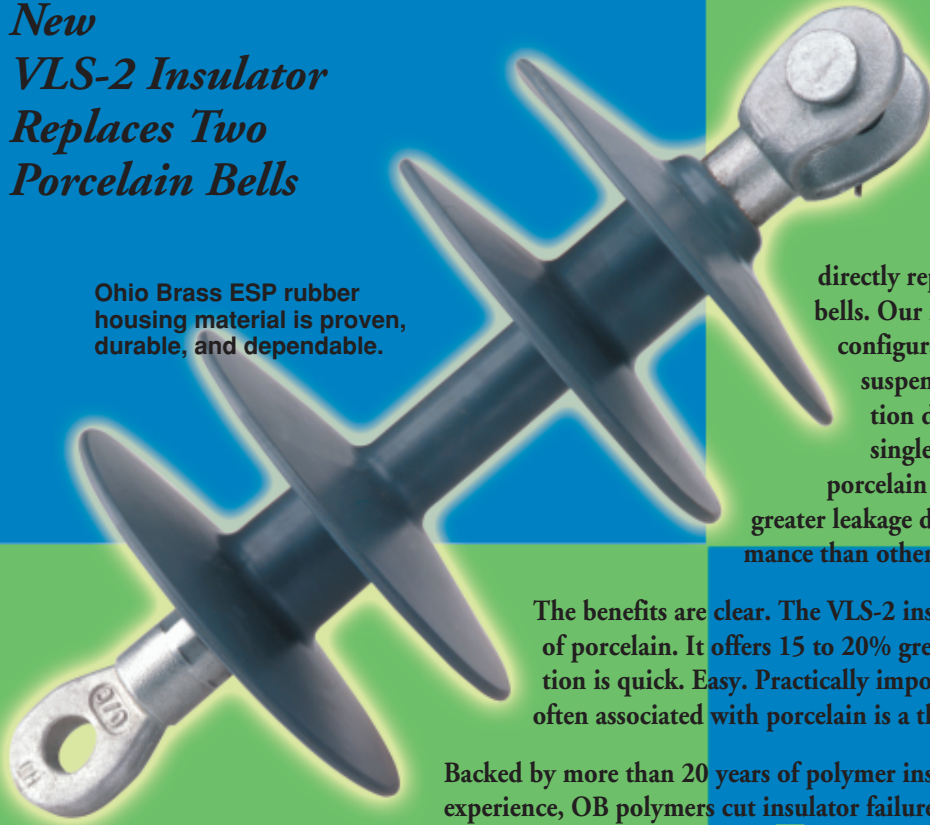
**For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).**

# This Family Just Keeps on Growing

# NEW VLS

## New VLS-2 Insulator Replaces Two Porcelain Bells

Ohio Brass ESP rubber housing material is proven, durable, and dependable.



Ohio Brass (OB) Veri\*Lite Suspension (VLS) Insulators were originally designed to

directly replace existing strings of 3-6 porcelain bells. Our new VLS-2 insulators come in several configurations to replace two porcelain 10" suspension bells or two porcelain distribution deadend bells. Think about it! One single polymer insulator replaces two porcelain bells. And the VLS-2 design offers greater leakage distance and better electrical performance than other polymer insulators of similar length.

The benefits are clear. The VLS-2 insulator is an amazing  $\frac{1}{10}$  the weight of porcelain. It offers 15 to 20% greater leakage than porcelain. Installation is quick. Easy. Practically impossible to break so routine breakage often associated with porcelain is a thing of the past.

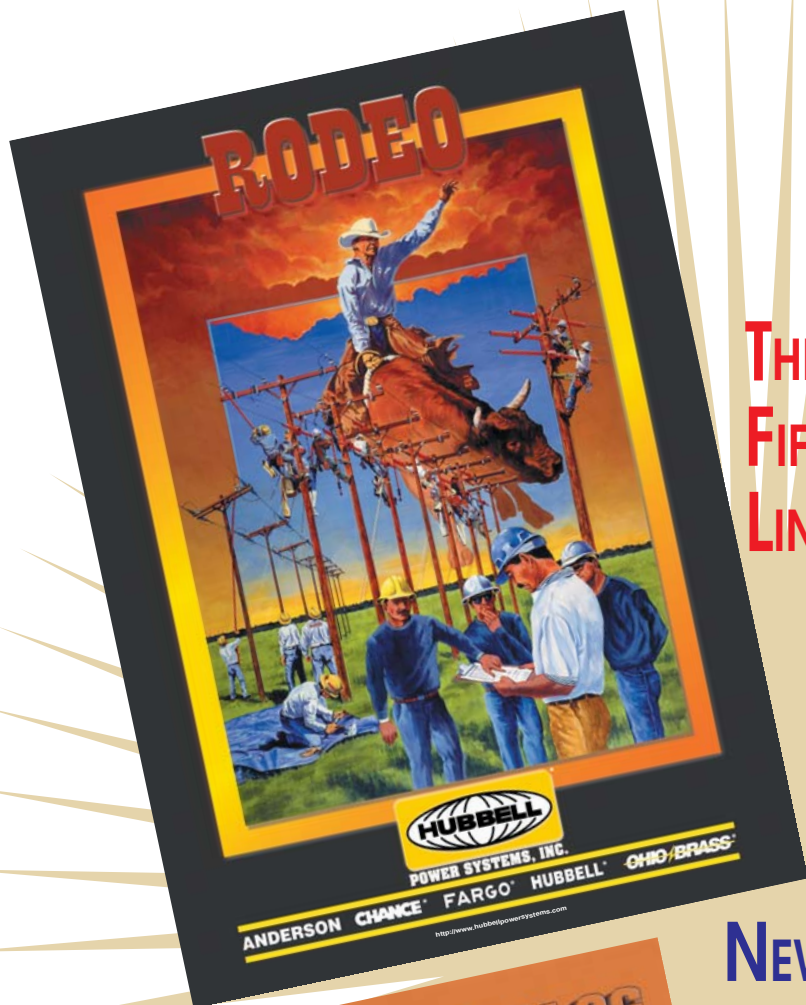
Backed by more than 20 years of polymer insulator manufacturing and field experience, OB polymers cut insulator failure rates and offer **better** contamination resistance than porcelain. ■

Catalog Number	End Fittings	Length in. (mm)	No. of Sheds	Diameter in. (mm)	Leakage Distance in. (mm)	Dry Arc Distance In. (mm)	60 hz Flashover Dry -kV	Wet -KV	Critical Flashov. Pos -kV
405002-1301 *	socket-ball	11.5 (292)	4	5.9 (150)	23 (584)	11.75 (298)	135	110	225
405002-1400 *	clevis-tongue	11.5 (292)	4	5.9 (150)	23 (584)	11.75 (298)	135	110	225
405002-9001 **	socket-ball	12.5 (318)	4	5.9 (150)	23 (584)	11.75 (298)	135	110	225
405002-9002 **	clevis-tongue	12.5 (318)	4	5.9 (150)	23 (584)	11.75 (298)	135	110	225
PDI-15	clevis-tongue	12.5 (318)	4	3.6 (92)	16 (406)	8 (203)	110	75	140
PDI-28	clevis-tongue	17.5 (445)	8	3.0 (76)	26 (660)	12.25 (311)	130	110	200
PDI-25	clevis-tongue	18.75 (475)	8	3.5 (89)	31 (787)	14 (356)	150	130	260

\* replaces two 10" x 5-3/4" suspension bells.

\*\* replaces two 6-1/4" distribution deadend bells

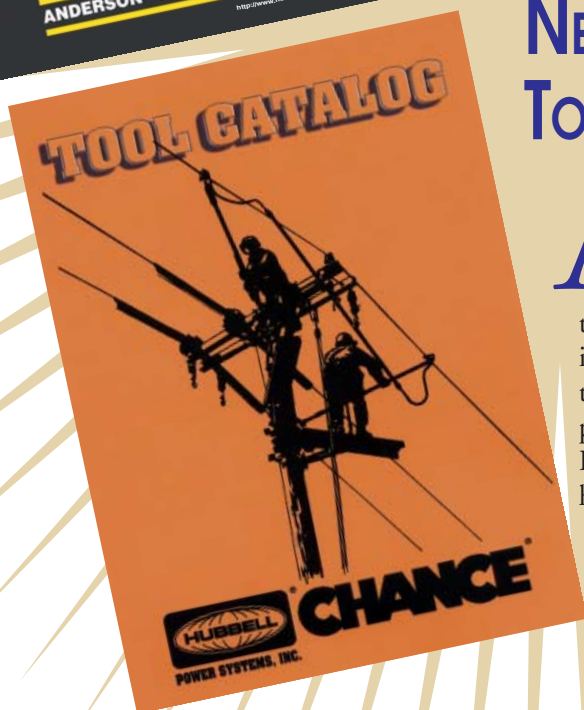
For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).



## THE YEAR OF THE RODEO . . . FIFTH IN A SERIES OF LINEMEN POSTERS

**H**ubbell salutes line personnel with our new poster "Rodeo." The full color 17 x 24-inch poster is ideal for framing. A great collectors item.

Request your copy today. If you need extras for your associates, please let us know. ■



## NEW T2000 PAPERBACK TOOL CATALOG

**A**nyone involved with Hot Line Tools is going to want a personal copy of the Chance T2000 Catalog.

Recently updated, the new catalog has more than 230 pages of tool descriptions and ordering information. It's must reading for those using electrical tools and protective grounding equipment, cover-up products and conductive clothing.

Request your copy today. If you need extras for handout to your associates, please let us know. ■

For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).

# TRUCK HITCH-RECEIVER MOUNT FOR CAPSTAN HOISTS

**F**aster than any other method, this job-ready mount puts a capstan hoist in the right position for pulling, stringing and lifting jobs. With the hoist stored on it, the mount's square tube simply inserts and pins in any 2"-square receiver of a Class III or IV towing hitch. Now capstan hoists can be as universal as this type trailer hitch is to most service vehicles.



**1,000 lb. rating**

**T308-0999  
Mount  
as furnished**



The hitch mount's all-steel construction features a hole pattern specifically designed to fit Swivel-Base Mount C308-0903 as shown above and below with C-Bracket C308-0903. The turntable design permits proper alignment without repositioning the service vehicle. The swivel mount permits pinning at every 15° interval around the circular base for stringing, tensioning, sagging conductors; pulling in cable; hoisting equipment; setting poles; pulling vehicles.



**For more information, contact your Hubbell Power Systems representative, fax 573-682-8714 or e-mail [vjengle@hps.hubbell.com](mailto:vjengle@hps.hubbell.com).**

For simple transport and storage, simply remove the Hitch Mount from the receiver, with mounting brackets and hoist attached. ■

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

Vol. 6 No. 2

MAY 2000

Hubbell TIPS & NEWS magazine is published to inform personnel of electric utilities and associated companies of new ideas and techniques in transmission and distribution practices. The magazine, under different titles and formats, has been published since 1932.

Your suggestions and editorial or photographic contributions are invited and may be submitted to **Hubbell TIPS & NEWS**.

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