

200 AMP 15 kV LOADBREAK PRODUCTS



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<http://www.hubbellpowersystems.com>

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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15 kV LOADBREAK PRODUCTS RATINGS & SPECIFICATIONS

GENERAL INFORMATION

Hubbell 8.3/14.4 kV Underground Connectors provide utilities with products having high reliability and low maintenance expense.

These connectors provide:

- 10,000-amp fault-closing capability
- Piston-operated fault-close action
- Standard elbow and bushing insert loadbreak principle
- Small size for ease of hot-stick handling
- Field replaceable elbow and probe
- Molded shields
- Peroxide-cured EPDM compounds
- Full compliance with IEEE Standard 386

Hubbell Separable Connector bushing inserts and elbows are designed for use with single-conductor, concentric neutral power cable having extruded insulation shielding. With shield adapter products, the elbow can be used with cables having a metallic tape shield, wire shield, or lead sheath with tape or extruded insulation shielding.

All insulating and conducting rubber components are made of a special formulation of an EPDM elastomer using a peroxide curing process. The material and curing process provides superior elastomer stress relaxation characteristics under high ambient temperatures and contributes to reliable, long-time operation in either above-ground or subsurface installations.

Elbow connector/bushing insert combinations are suitable for energized loadmake/loadbreak operations by a qualified lineman using an 8' shotgun-type hot stick.

All elbow/bushing insert combinations are designed for use with subsurface (submersible to 6 feet of water) or pad-mounted installations.

Where to Use

Hubbell 15 kV Loadbreak products are designed for operation on and connection to 15 kV class, 95 kV BIL systems where the voltage ratings listed on this page are not exceeded.

RATINGS

Max. continuous voltage.....	8.3 kV phase-to-ground 14.4 kV phase-to-phase
Continuous current.....	200 amp rms

SHORT-TIME CURRENT RATINGS

0.17-second duration.....	10,000 amp rms symmetrical
3.00 second duration.....	3500 amps rms symmetrical

INSULATION WITHSTAND VOLTAGES

Basic Impulse Level	95 kV crest (1.2 x 50 microsec. wave)
60 Hertz (one minute).....	34 kV rms
Dc (15 minutes)	53 kV
Corona extinction voltage	11 kV (3 picocoulombs)

SWITCHING

1-phase and 3-phase circuits 8.3 kV phase-to-ground, 14.4 kV maximum across the open contacts.	10 loadmake/loadbreak operations at 200 amps with 90% parallel and 10% series resistance — reactance load at 0.8 power factor.
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FAULT CLOSURE

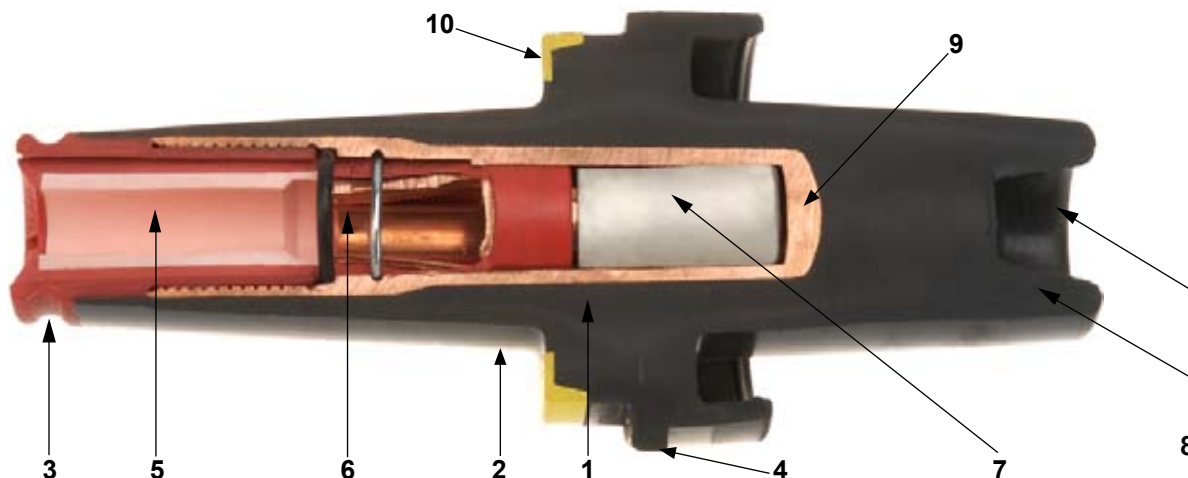
One fault-close operation at 8.3 kV phase-to-ground, or 14.4 kV phase-to-phase; 10,000 amps rms symmetrical, 10 cycles, (0.17 seconds).

PRODUCTION TESTS

100% factory test for partial discharge and either AC Hi-Pot (34kV for 60 seconds) or BIL impulse lightning (95kV 1.2 x 50μ sec.).



15 kV LOADBREAK BUSHING INSERT



ALL COPPER DESIGN

The Hubbell Loadbreak Bushing Insert represents state-of-the-industry design in an All Copper construction. It is designed for installation on transformers or other equipment having a bushing well that meets the requirements of IEEE Standard 386, Fig. 3.

PRODUCT FEATURES

1. EPDM insulation -

cured with peroxide process. Provides superior stress-relaxation characteristics, assuring long life under high ambient temperature.

2. Interface -

conforms to IEEE Standard 386, Figure 5. When a suitable elbow is installed, provides proper creep distance and water-tight joint.

3. Locking groove -

conforms to IEEE Standard 386. Mates with elbow locking ring. Red color for 15kV identification.

4. Molded shield -

conductive, abrasion resistant 1/8 inch thick shield of peroxide cured EPDM. Three molded tabs provide convenient points for external grounding of the shield.

5. Loadbreak assembly -

includes ARC MATE™ ablatives that produce gas when exposed to the loadbreak/loadmake switching arc.

6. Pinch-finger contacts -

are part of loadbreak assembly which has All Copper current path.

7. Piston assembly -

patented concept. Piston movement assists operator under fault-close conditions.

8. Interface - designed to mate with IEEE Standard 386, Figure 3, bushing-well interface.

9. Hex Broach -

accepts 5/16 hexwrench to properly torque insert into bushing well.

10. Seating Indicator -

molded into insert. Provides positive seating indication.

SELECTION AND ORDERING*

215BI	Bushing Insert
9U01AAJ6__	Bushing Insert and Elbow with Capacitance Tap (Long - Bimetal Connector)
9U01ABJ6__	Bushing Insert and Elbow without Capacitance Tap (Long - Bimetal Connector)

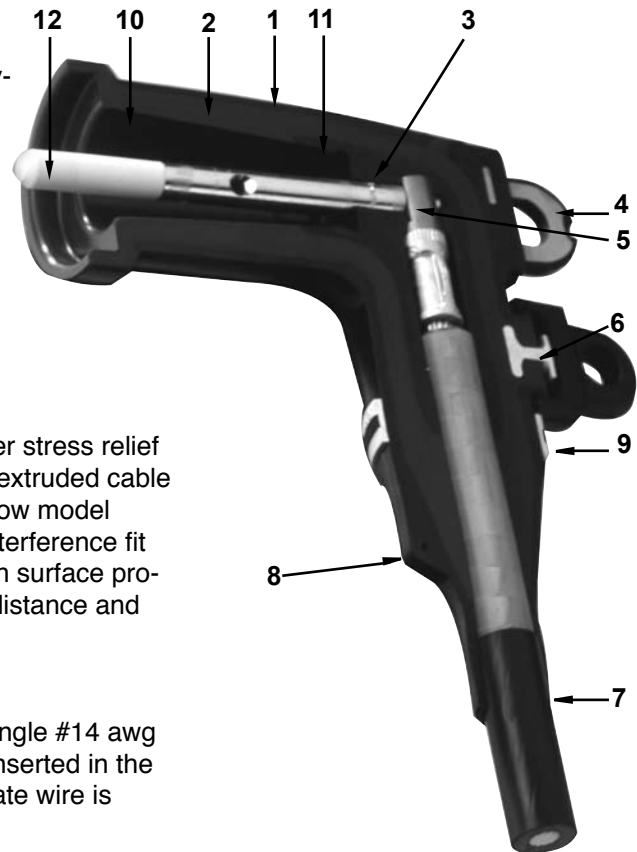
*For the last two digits of catalog number, refer to Selection Table shown on page C1-4.



15 kV LOADBREAK ELBOW

Hubbell Loadbreak Elbows provide utilities with products having high reliability and low maintenance expense.

The elbow, when mated with a loadbreak bushing product meeting the requirement of IEEE Standard 386, is suitable for energized loadmake / loadbreak operations by a qualified lineman using a shotgun-type hot stick.



PRODUCT FEATURES

1. Molded external shield-

conductive, abrasion resistant 1/8-inch thick shield of peroxide cured EPDM.

2. EPDM insulation -

cured with peroxide process provides superior stress-relaxation characteristics and assures long life under high-ambient temperatures. Compatible with polyethylene, crosslink polyethylene and EPR insulations.

3. Molded conductive insert -

guards against high electrical stress from corners of crimped connector.

4. Hot-stick operating eye -

reinforced with stainless steel ring. Withstands 500-pound pull and 10 foot-pound torque, permits energized loadmake-loadbreak operation with hot-stick tool.

5. Compression connector -

meets requirements of ANSI C119.4/NEMA CC3 for Class A connectors.

6. Test point - allows voltage indication when readout is made with suitable high-impedance devices. Elbows are available with or without this feature.

7. Cable entrance -

has conductive rubber stress relief area which contacts extruded cable insulation shield. Elbow model selected to assure interference fit along cable insulation surface providing proper creep distance and water-tight fit.

8. Grounding tab -

designed so that a single #14 awg copper wire can be inserted in the hole. Use of a separate wire is recommended.

9. White-black-white-band -

identifies elbow (and mating bushing insert) as having phase-to-ground and phase-to-phase voltage rating. Both the black and white bands are individually removable.

10. Interface -

to allow interference-fit seal when installed on mating component designed to IEEE Standard 386. Provides proper creep distance and water-tight fit, yet permits unplugging of elbow after years of service.

11. Locking ring -

is a part of IEEE Standard 386 requirement. Provides positive gripping. Initial pull-off force to unseat from mating groove in bushing insert produces fast break necessary for loadbreak switching.

12. Probe -

mates with pinch-finger contacts in bushing insert, or other switch point. Inner end has threads with pilot to aid installation in crimped connector without thread stripping. Outer end is made of ARC-MATE™ ablative material that produces gas when exposed to loadbreak arc, permitting reliable interruption even with close ground spacing.

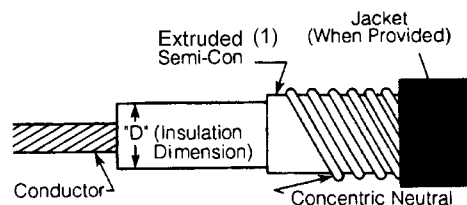


15 kV LOADBREAK ELBOW

SELECTION AND ORDERING

Elbow must be sized to the cable insulation diameter. Cable manufacturers' catalogs show the nominal insulation diameter plus tolerance. Select the elbow so the cable dimension is within the "D" dimension listed in the following tables.

In the event the cable-diameter information is not available, take several insulation measurements along a length of cable to be used with the elbow.



Cable Dimension Reference

(1) If insulation shield is not extruded, an adapter must be used to accommodate elbow.

Cable "D" Dimension (")		Conductor Size Copper or Aluminum		Model Numbers (2)	
Minimum	Maximum	Stranded or Compressed	Solid or Compacted	With Test Point	Without Test Point
0.635	0.830	6	4	9U01AAD621	9U01ABD621
		4	2	9U01AAD622	9U01ABD622
		2	1	9U01AAD623	9U01ABD623
		1	1/0	9U01AAD624	9U01ABD624
		1/0	2/0	9U01AAD625	9U01ABD625
0.705	0.910	4	2	9U01AAD632	9U01ABD632
		2	1	9U01AAD633	9U01ABD633
		1	1/0	9U01AAD634	9U01ABD634
		1/0	2/0	9U01AAD635	9U01ABD635
		2/0	3/0	9U01AAD636	9U01ABD636
0.785	1.005	3/0	4/0	9U01AAD637	9U01ABD637
		2	1	9U01AAD643	9U01ABD643
		1	1/0	9U01AAD644	9U01ABD644
		1/0	2/0	9U01AAD645	9U01ABD645
		2/0	3/0	9U01AAD646	9U01ABD646
0.875	1.115	3/0	4/0	9U01AAD647	9U01ABD647
		4/0	—	9U01AAD648	9U01ABD648
		1	1/0	9U01AAD654	9U01ABD654
		1/0	2/0	9U01AAD655	9U01ABD655
		2/0	3/0	9U01AAD656	9U01ABD656
0.955	1.205	3/0	4/0	9U01AAD657	9U01ABD657
		4/0	—	9U01AAD658	9U01ABD658
		1/0	2/0	9U01AAD665	9U01ABD665
		2/0	3/0	9U01AAD666	9U01ABD666
		3/0	4/0	9U01AAD667	9U01ABD667
		4/0	—	9U01AAD668	9U01ABD668

(2) Model Numbers listed are for elbows with the long bimetal conductor crimp connector. To specify elbow for PROBELOK® CONNECTORS (Catalog page C1-12) add a P before the last 3 numbers - example 9U01AADP668. To specify a copper connector, change the D to an S.



15 kV LOADBREAK JUNCTIONS

JUNCTION DESCRIPTION

Hubbell Junctions are used to sectionalize cables or as feed-thrus for making lateral taps.

They are available in two, three and four tap units and, when connected with loadbreak elbows, have ratings as shown on the 15 kV Loadbreak Product Ratings & Specifications sheet.

Each tap works independently of the others contained on the same unit. Adjacent taps are 3.24 inches center to center, providing improved ease of operation.

Junctions with the corrosion-resistant stainless steel mounting bracket allow back plate mounting angles of 30, 45, or 60 degrees. This bracket can also be adjusted for horizontal mounting to a flat surface. Junctions can also be ordered with only U-straps for horizontal mounting.

Feed-thrus are equipped with a bracket for mounting on the apparatus stand-off brackets. They can be mounted by use of a hot stick, and provide a means to test, ground, or park the elbow connector, or to by-pass a transformer.

Feed-thru SELECTION AND ORDERING

Feed-thru	Horizontal	Vertical
		
Catalog Number	215FT	215FTV

JUNCTION SELECTION AND ORDERING

Junction	With Bracket	With U-straps
		
2-Position	215J2B	215J2U
3-Position	215J3B	215J3U
4-Position	215J4B	215J4U

BRACKET COMPONENT PARTS

215J2BRKT
215J3BRKT
215J4BRKT
200BRKTMF
215US1

Junction Bracket, Stainless Steel w/Adjustable Feet, 2 Position
Junction Bracket, Stainless Steel w/Adjustable Feet, 3 Position
Junction Bracket, Stainless Steel w/Adjustable Feet, 4 Position
Junction Adjustable Mounting Feet Only, Stainless Steel (1 Pair)
Junction U-strap, Stainless Steel w/hardware

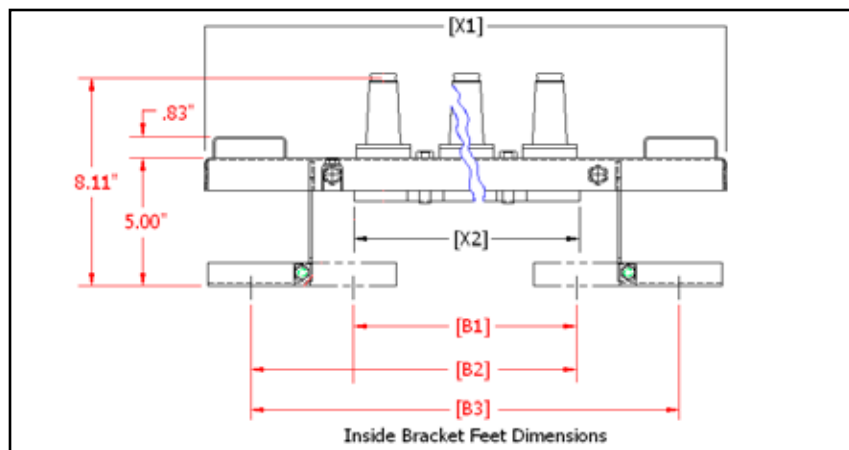
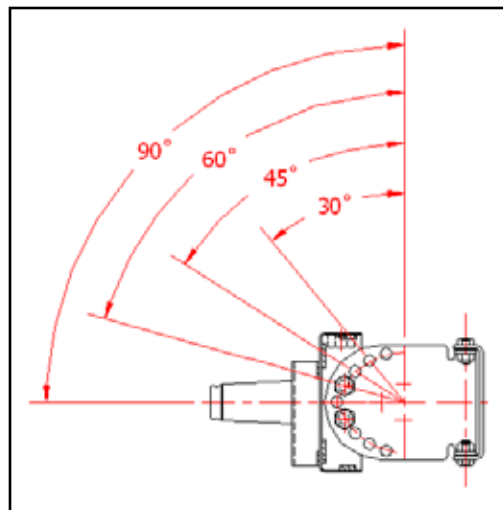


15 kV LOADBREAK JUNCTIONS Bracket & U-strap Dimensions

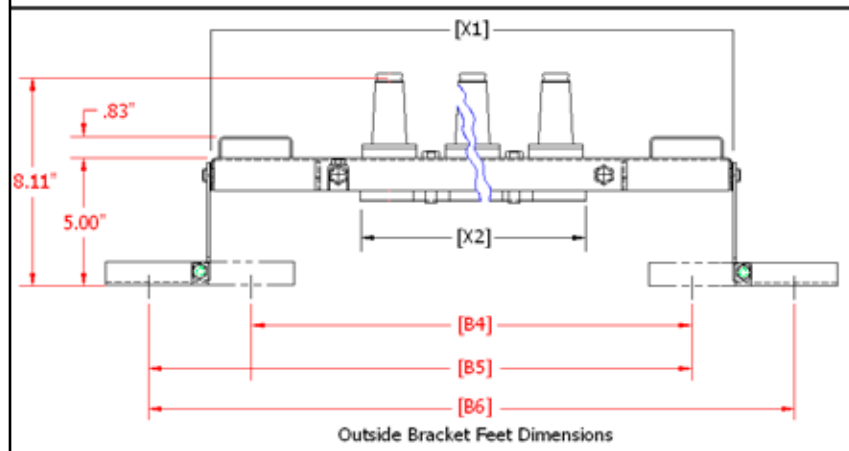
Dimension	Junction Part Number		
	215J2B	215J3B	215J4B
X1	20.40	20.40	23.70
X2	6.10	9.30	12.60
B1	5.35 to 9.23	5.35 to 9.23	8.59 to 12.47
B2	10.03 to 13.91	10.03 to 13.91	13.27 to 17.15
B3	14.70 to 18.58	14.70 to 18.58	17.94 to 21.82
B4	13.61 to 17.49	13.61 to 17.49	16.85 to 20.73
B5	18.28 to 22.16	18.28 to 22.16	21.52 to 25.40
B6	22.95 to 26.83	22.95 to 26.83	26.19 to 30.07

Note: Dimensions in Inches

Bracket Mounting Angles

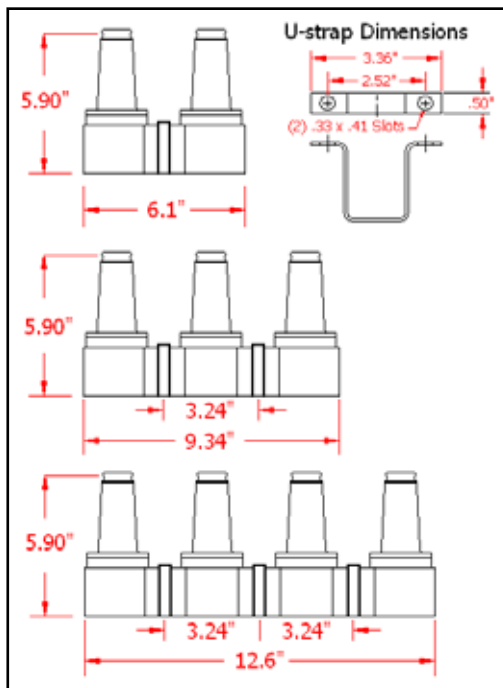


Inside Bracket Feet Dimensions



Outside Bracket Feet Dimensions

U-Strap Dimensions





15 kV LOADBREAK ACCESSORIES

Insulating Cap

For installation on 8.3/14.4 kV loadbreak bushing interfaces designed to Fig. 5 of IEEE Standard 386. It can be used as a temporary or a permanent cover on an energized circuit. To avoid low-energy discharge from the outer conductive shield, the 36-inch long braided lead should be grounded.

Insulated Cuff w/ground lead – 215ICI

Conductive Cuff w/ground lead – 215ICC



215ICI

215ICC

Insulated Parking Bushing

Provides a temporary or permanent parking position for energized 8.3/14.4 kV loadbreak elbows designed to requirements of Fig. 5 of IEEE Standard 386. The bracket permits mounting on the apparatus parking stands.

Insulated Parking Bushing – 215SB



Feed-thru Insert

This device provides the capability to create a tap position in an existing apparatus installation and convert a radial-feed transformer into a loop-feed unit. Its two loadbreak interfaces, when mated with appropriate products, provide a fully shielded, submersible, separable insulated connection designed for energized operation. It is designed for use on apparatus having a 200-amp bushing well interface meeting the requirements of IEEE Standard 386.

Feed-thru Insert – 215FTI





15 kV LOADBREAK GROUNDING ACCESSORIES

Grounded Parking Bushing

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
Order Chance T6003091



Grounding Elbow

Each set includes an orange-jacketed elbow, 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
Order Chance C6000729



Test Rod

Fits into switch modules, multi-taps or other loadbreak bushings and is used with test devices such as statoscope to provide indication of energized or deenergized condition of cable.
Order Test Rod 225TR



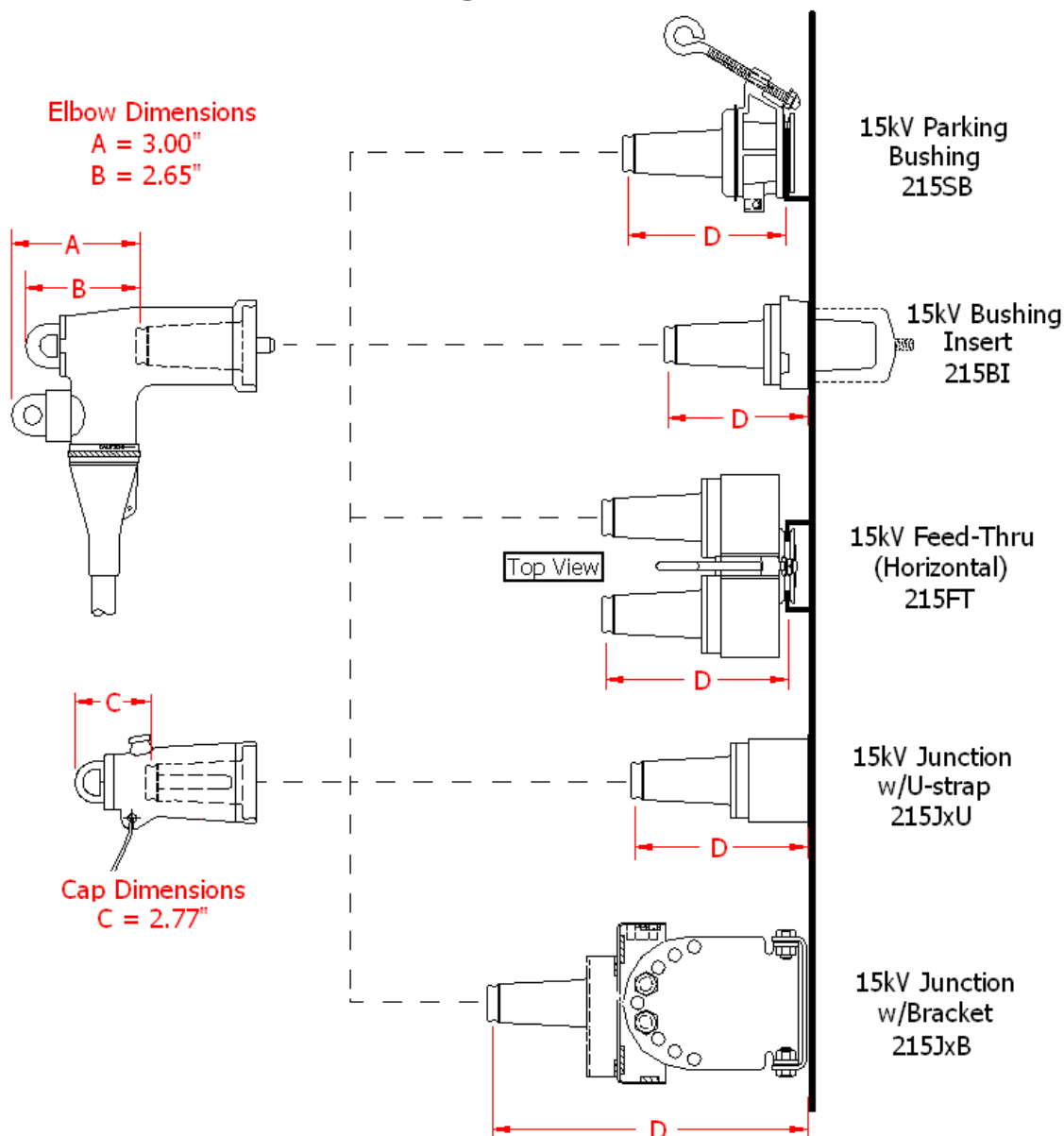
Three-Phase Grounding Elbow Sets for Switches & Transformers

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 elbows.
Fault current rating for each set: 10,000 amps for 10 cycles
Order Chance C6003102





Hubbell 15 kV Cable Accessories Stacking Dimensions



Overall 15kV Product Stacking Dimensions			
Product	Product (D)	Elbow + Product (A + D)	Cap + Product (C + D)
215SB - 15kV Parking Bushing	5.34"	8.34"	8.11"
215BI - 15kV Bushing Insert	4.69"	7.69"	7.46"
215FT - 15kV Feed-Thru (Horizontal)	6.24"	9.24"	9.01"
215JxU - 15kV Junction w/U-strap	5.90"	8.90"	8.67"
215JxB - 15kV Junction w/Bracket	8.11"	11.11"	10.88"
Note: Parking Stand Dimension - 0.75" from apparatus			



15 kV Replacement Parts

Crimp Connectors:

For re-use or re-cabling of loadbreak elbows, long Bimetal, ProbeLok®, or All Copper connectors may be ordered as replacement parts.

<i>Conductor Size Copper or Aluminum</i>		<i>Model Number</i>		
Stranded or Compressed	Solid or Compacted	Bimetal Long	PROBELOK® Long	All Copper (for CU Conductor only)
6	4	200LUGB1	200LUGP1	200LUGC1
4	2	200LUGB2	200LUGP2	200LUGC2
2	1	200LUGB3	200LUGP3	200LUGC3
1	1/0	200LUGB4	200LUGP4	200LUGC4
1/0	2/0	200LUGB5	200LUGP5	200LUGC5
2/0	3/0	200LUGB6	200LUGP6	200LUGC6
3/0	4/0	200LUGB7	200LUGP7	200LUGC7
4/0	—	200LUGB8	200LUGP8	200LUGC8



PROBELOK® Long
Connector

Note: Nominal overall length for standard Bimetal or ProbeLok connector is 2.88". The All Copper connector is 2.12".

Loadbreak Probe

Provides connection between crimp connector (cable) and bushing insert (apparatus).

Order 215LBP

Operating Accessories:

625SK52	Cold Shrink Cable Seal kit for cable with an overall diameter of 0.95" to 1.94"
625SK59	Tape Shield Adapter Kit for cable with an overall diameter of 0.59" to 1.05"
625SK60	Tape Shield Adapter Kit for cable with an overall diameter of 0.83" to 1.64"
SL150	Silicone Lubricant for underground separable connectors 5.3 oz. (150 grams)

Hubbell Cable Accessories Order Notes



**POWER
SYSTEMS, INC.**

PROBELOK® Connector Prevent Elbow from Overheating



Applications

PROBELOK® Connectors prevent elbows from overheating in 15, 25 and 35kV applications. A special insert in the connection holds the threaded connection tight, even if flexing causes it to turn. A conventional elbow uses a simple threaded connection between the cable connector and probe. When a lineman twists an elbow to put it on or pull it off, the connection loosens. Even a slight quarter turn can cause the connection to wobble slightly. The wobble creates hot spots that can cause elbow overheating and failure. PROBELOK® Connectors help stop the problem and unnecessary service calls that can cost hundreds of dollars to repair overheating elbows.

Ordering Information

Modify the standard 15, 25 and 35 kV elbow catalog number by adding a "P" to the number. For example, Catalog Number 9U01AAD623 is ordered as a PROBELOK® Connector by inserting a "P" in the number, 9U01AADP623.



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