

# CABLE ACCESSORIES

Experience & Reliability



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# 200 A Loadbreak

15 kV PRODUCTS





# 15 kV LOADBREAK PRODUCTS

## RATINGS & SPECIFICATIONS

### GENERAL INFORMATION

Hubbell 15 kV, 200 A Separable Connectors are fully shielded, insulated, and submersible products that provide a means to mate or disconnect cable to switchgear, transformers, or sectionalizing equipment on power distribution systems. They are designed for pad-mounted or subsurface applications, where the components may be exposed to direct sunlight or continuously submerged in water up to 6 feet (2m).

All 15 kV loadbreak products and accessories are designed and tested to meet or exceed all applicable requirements of IEEE and ANSI including the following: IEEE Std. 386 for Separable Connectors (Interface 5) IEEE Std. 592 for Exposed Semi-conducting Shields ANSI Std. C119.4 for Electrical Connectors

These devices are suitable for energized loadmake/loadbreak operations when using an 8' shotgun-type hot stick on grounded WYE systems(1). They are also fully interchangeable with other manufacturer's products that conform to the electrical requirements of IEEE Std. 386.

Hubbell 15 kV products are designed for use in ambient temperatures between -40°C and +65°C and can be operated energized between -20°C and +65°C. Loadbreak devices should not be operated, while energized, at elevations over 6,000 feet.

All rubber components are manufactured using peroxide-cured insulating and conductive compounds.

(1) Contact the factory for recommendations for use on ungrounded, resistance grounded, or delta systems.

### RATINGS

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

### SHORT-TIME CURRENT RATINGS

0.17 seconds duration ..... 10,000 A rms symmetrical  
3.00 seconds duration ..... 3,500 A rms symmetrical

### INSULATION WITHSTAND VOLTAGES

Basic Impulse Level ..... 95 kV crest  
(1.2 x 50 µsec. wave)  
60 Hertz (one minute) ..... 34 kV rms  
Corona Extinction Voltage ..... 11 kV rms  
(5 pC)

### 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 A with 70-80% lagging 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 A rms symmetrical, 10 cycles, (0.17 seconds).

### PRODUCTION TESTS

100% factory test for partial discharge and either AC HI-POT (34 kV for 60 seconds) or impulse (BIL) (95 kV 1.2 x 50 µsec. wave).

# Performance



# 15 kV LOADBREAK ELBOWS

Hubbell 15 kV Loadbreak Elbows are designed and tested to meet all requirements of IEEE Std. 386. The operating interface will mate with any product that conforms to IEEE Std. 386, Interface 5.

Elbows can be supplied with a capacitive test point that allows for the installation of faulted circuit indicators and will indicate the presence of voltage when interrogated with a high-impedance meter.

Bi-metal compression lug meets all requirements of ANSI Std. C119.4 for Class A connectors.

The integral seal elbow eliminates the need for a separate sealing kit. The integral seal elbow is supplied with mastic strips to form a barrier around the neutral wires. There are external grip hooks on the integral seal elbow boot for easier installation.



## SELECTION & ORDERING INFORMATION

Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select an elbow size so that the insulation falls within the elbow's range.

Select a connector code that identifies the conductor size and stranding.

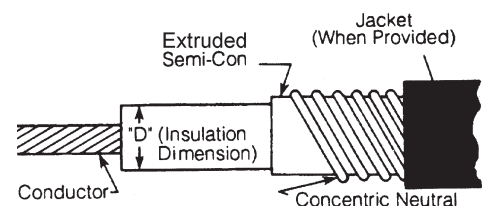
The standard long, bi-metal connector can be replaced with a ProbeLok connector, or an all copper connector for use on copper conductors only.

Decide if a capacitive test point is required.

The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

The standard elbow housing can be supplied as an integral elbow seal housing.

### Cable Dimension Reference



## Components:

215LBP	Probe kit complete with pin wrench
200LUGBx	Standard, long bi-metal lug
200LUGPx	ProbeLok lug
200LUGCx	All copper lug

To have a bushing insert packaged with the elbow, add 'BI' to the end of the part number. For example: 215LEJ45BI.

625SK52	Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.95" to 1.94"
625SK60	Tape Shield Adapter Kit for cable with an overall diameter of 0.83" to 1.95"

# CATALOG NUMBER ORDERING INFORMATION

**Example:** Integral seal elbow for 1/0 stranded, 175 mil cable with a test point is: 215LEJ45T

▶

2

1

5

L

E

Hubbell Product Prefix

J = Integral Seal\*  
Blank = Without

\* Integral seal only available for size 4 & 5 housings

J = Seal Kit  
S = Shield Adapter Kit  
G = Ground Kit for Integral Seal  
Blank = None

Select Housing Code from Column 1

Housing Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
3	0.495 - 0.730	12,5 - 18,5
3 or 4		
4	0.635 - 0.905	16,1 - 23,0
4 or 5		
5	0.760 - 1.135	19,3 - 28,8

T = Test Point  
Blank = Without

C = Copper Lug  
P = ProbeLok Lug  
Blank = Without

Select Connector Code from Column 1, or 0 for without Connector					
Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)
1	#6	Stranded & Compressed	0.527 - 0.622	0.617 - 0.717	
	#4	Compact & Solid	0.557 - 0.652	0.647 - 0.747	
2	#4	Stranded & Compressed	0.575 - 0.670	0.665 - 0.765	
	#3	Compact & Solid	0.579 - 0.671	0.671 - 0.769	
	#3	Stranded & Compressed	0.604 - 0.698	0.694 - 0.793	
	#2	Compact & Solid	0.610 - 0.705	0.700 - 0.800	0.780 - 0.880
3	#2	Stranded & Compressed	0.635 - 0.730	0.725 - 0.825	0.805 - 0.905
	#1	Compact & Solid	0.645 - 0.735	0.735 - 0.830	0.805 - 0.905
4	#1	Stranded & Compressed	0.675 - 0.770	0.765 - 0.855	0.835 - 0.935
	1/0	Compact & Solid	0.680 - 0.775	0.770 - 0.865	0.835 - 0.940
5	1/0	Stranded & Compressed	0.715 - 0.810	0.805 - 0.905	0.875 - 0.980
	2/0	Compact & Solid	0.715 - 0.815	0.805 - 0.905	0.875 - 0.980
6	2/0	Stranded & Compressed	0.760 - 0.855	0.850 - 0.950	0.920 - 1.025
	3/0	Compact & Solid	0.765 - 0.860	0.855 - 0.955	0.925 - 1.030
7	3/0	Stranded & Compressed	0.810 - 0.905	0.900 - 1.000	0.970 - 1.075
	4/0	Compact & Solid	0.815 - 0.910	0.905 - 1.005	0.975 - 1.080
8	4/0	Stranded & Compressed	0.865 - 0.965	0.955 - 1.060	1.025 - 1.135
	250	Compact	0.880 - 0.965	0.970 - 1.060	1.040 - 1.135

\*These ranges are taken from the AEIC/ICEA industry cable standards



# 15 kV LOADBREAK INSERTS

The Hubbell Loadbreak Bushing Insert meets all requirements of IEEE Std. 386. It is designed for installation on transformers, switches or other equipment having a 200 A bushing well that meets the requirements of IEEE Std. 386, Interface 3. When mated with a comparably rated elbow or other accessory, the bushing insert provides a fully shielded and submersible connection. The bushing insert contains an all-copper current path from the female contact to the bushing well and internal connection to the switch or transformer.

## 215BI Bushing Insert

Internal hex broach accepts a 5/16" wrench for proper installation torque.

Yellow seating indicator provides a positive indication that the mating product is fully installed.



## 215FTI Feed-thru Insert

Creates a tap position in an existing apparatus

Converts a radial-feed transformer to a loop-feed unit.

Supplied with an auxiliary hold-down bail.

Contains an internal ratchet mechanism to facilitate proper alignment and torque.



# Experience

# 15 kV LOADBREAK ACCESSORIES

## 215ICI Insulating Cap

and

## 215ICC Insulating Cap with Conductive Cuff

Used as a temporary or permanent cover on an energized operating interface. Standard product has an insulating cuff. An optional conductive cuff is available. Both units are supplied with a 36-inch long lead for grounding.



## 215SB Standoff Bushing

Provides a temporary or permanent parking position for energized loadbreak elbows. The bracket permits mounting on the apparatus parking stand.



## 215FT Feed-thru - Horizontal Bracket

and

## 215FTV Feed-thru - Vertical Bracket

A two-position junction in a bracket that can be installed on the apparatus parking stand. Provides a means to test, phase, ground, or park an energized elbow. They can also be used to by-pass a transformer or to add arrester protection at the open point.



## 225TR Test Rod

Fits into loadbreak bushings, junctions, and other products that contain a loadbreak interface and is used with test meters to determine if the circuit is energized or not.



## SL150 Silicone Lubricant

Silicone lubricant for all separable connectors. Supplied in a 5.3 oz (150 g.) tube. Sold in cartons of 24 tubes.





# 15 kV LOADBREAK GROUNDING ACCESSORIES

## 215GB Grounded Bushing

Provides a temporary ground. Contains a fully functioning loadbreak mechanism and has a fault current rating of 10,000 A for 10 cycles. Can be installed with a hotstick.



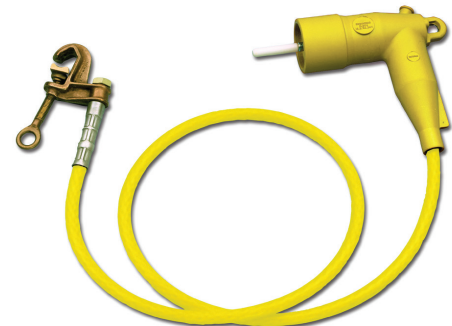
## T6003091 Grounding Bushing with Clamp

This set includes a loadbreak bushing and bronze T6000466 ground clamp 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.



## C6000729 Grounding Elbow

Each set includes a yellow elbow, 6 feet of 1/0 copper grounding cable with yellow jacket, and bronze T6000466 ground clamp. Fault current rating for each set: 10,000 A for 10 cycles.



## C6003102 Three-Phase Grounding Elbow Sets for Switches & Transformers

Each set includes a three-way terminal block assembly, three 6-ft. lengths of 1/0 copper ground cable with yellow jacket, a bronze T6000466 ground clamp and three elbows. Fault current rating for each set: 10,000 A for 10 cycles.



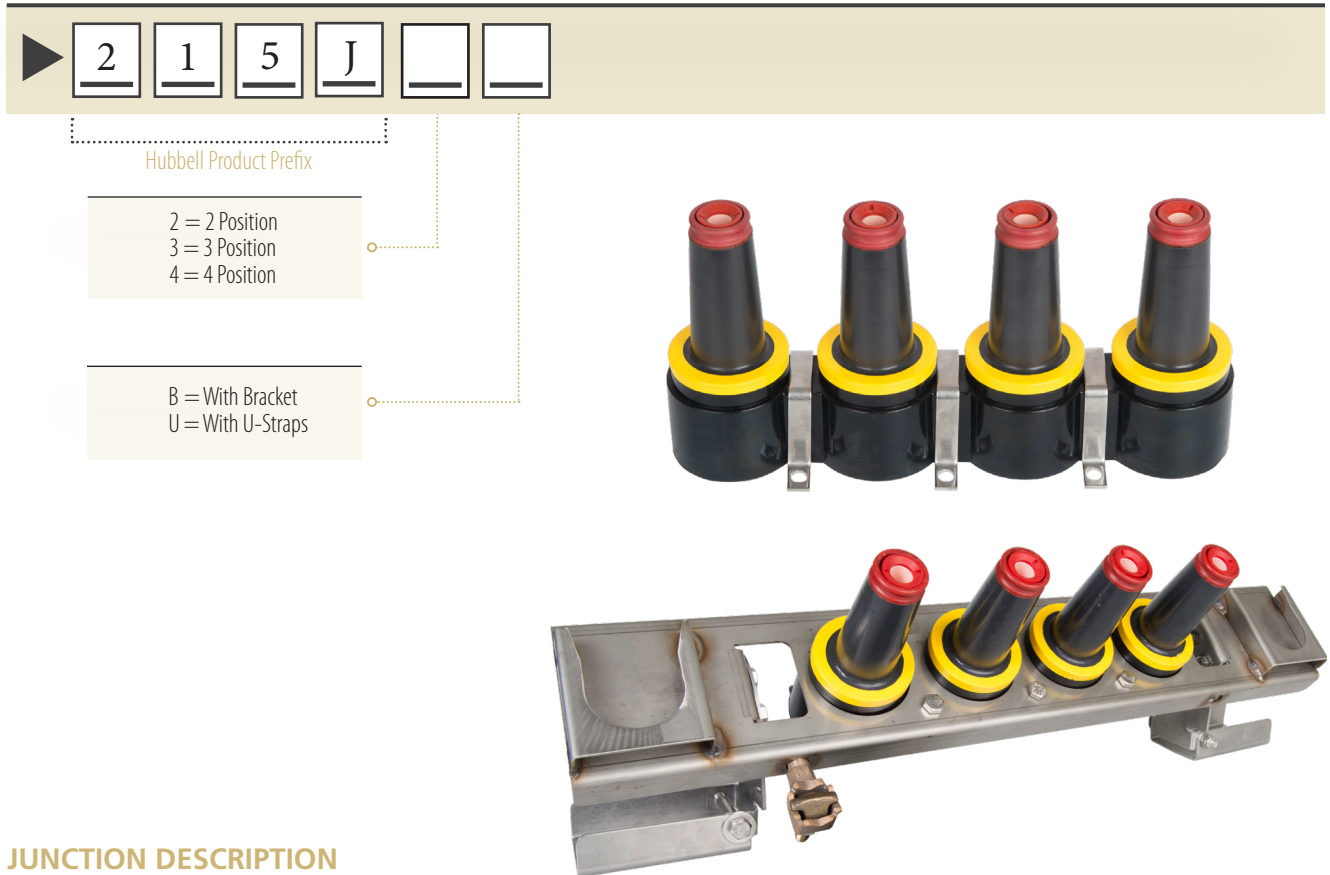
### Grounding Component Parts:

200GB6LUG	1-hole copper lug for 1/0 grounding cable (grounding bushing component)
215GBHSG	200 A 15 kV Grounding Bushing Housing
215GEHSG	200 A 15 kV Grounding Elbow Housing
215LBP	200 A 15 kV Loadbreak Probe
200LUGC6	2/0 all copper lug for use with 1/0 grounding cable
200LUGC7	3/0 all copper lug for use with 2/0 grounding cable

# 15 kV LOADBREAK JUNCTIONS

## JUNCTION SELECTION AND ORDERING

**Example:** 4-point junction, supplied with a SS bracket is: 215J4B



## 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. Yellow seating indicator rings provide a positive indication that the mating product is fully installed.

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

### Junction Component Parts:

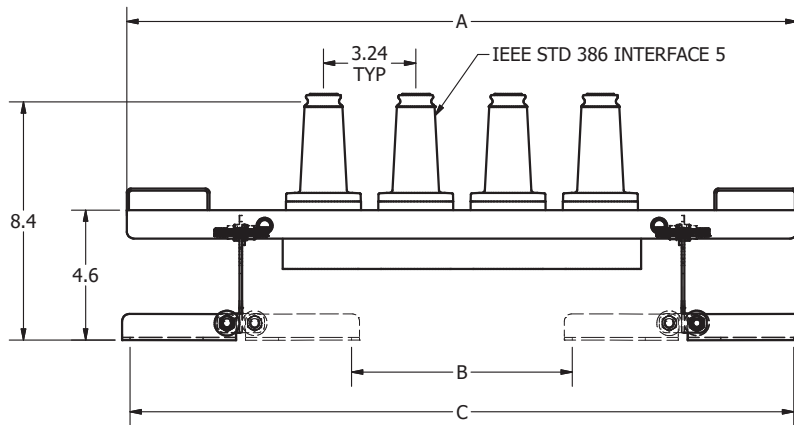
200JUNCMF	Junction Adjustable Mounting Feet Only, Stainless Steel (1 Pair)
215J2BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 2 Position
215J3BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 3 Position
215J4BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 4 Position
215US1	Junction U-strap, Stainless Steel w/Hardware

# Performance

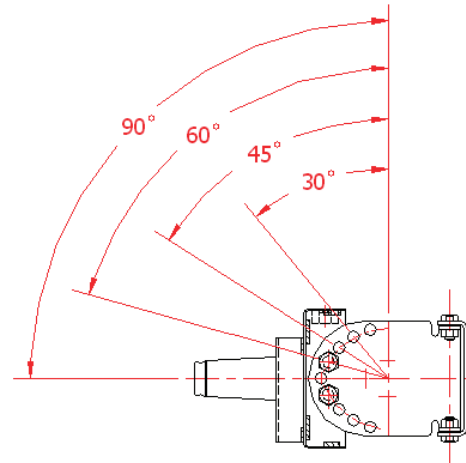


# 15 kV LOADBREAK JUNCTIONS

## Bracket & U-strap Dimensions

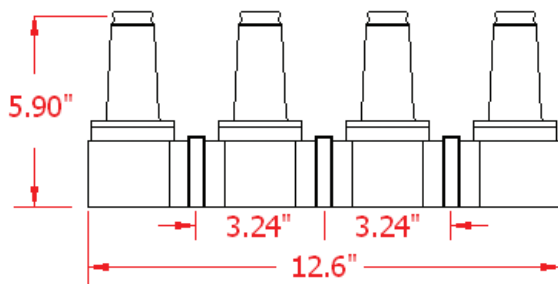
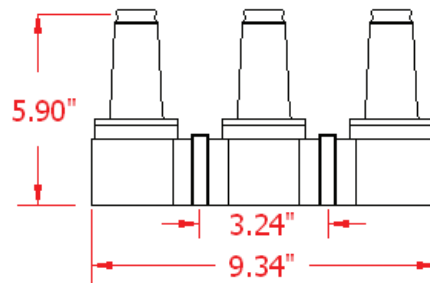
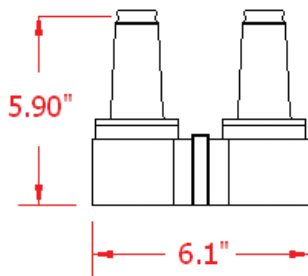


Bracket Mounting Angles

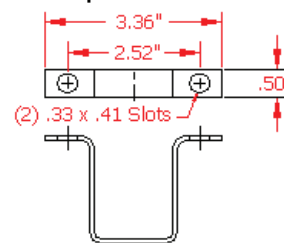


Part Number	No. Positions	A	B	C
215J2B	2	13.9	2.0	16.9
215J3B	3	20.3	4.4	19.7
215J4B	4	23.5	7.7	22.8

## U-Strap Dimensions



## U-strap Dimensions



# 15 kV STACKING DIMENSIONS

**15 kV Elbow**  
215LExx

**15 kV Elbow Arrester**  
215ELAx

**15 kV Insulating Cap**  
215ICI

**15 kV Standoff Bushing**  
215SB

**15 kV Bushing Insert**  
215BI

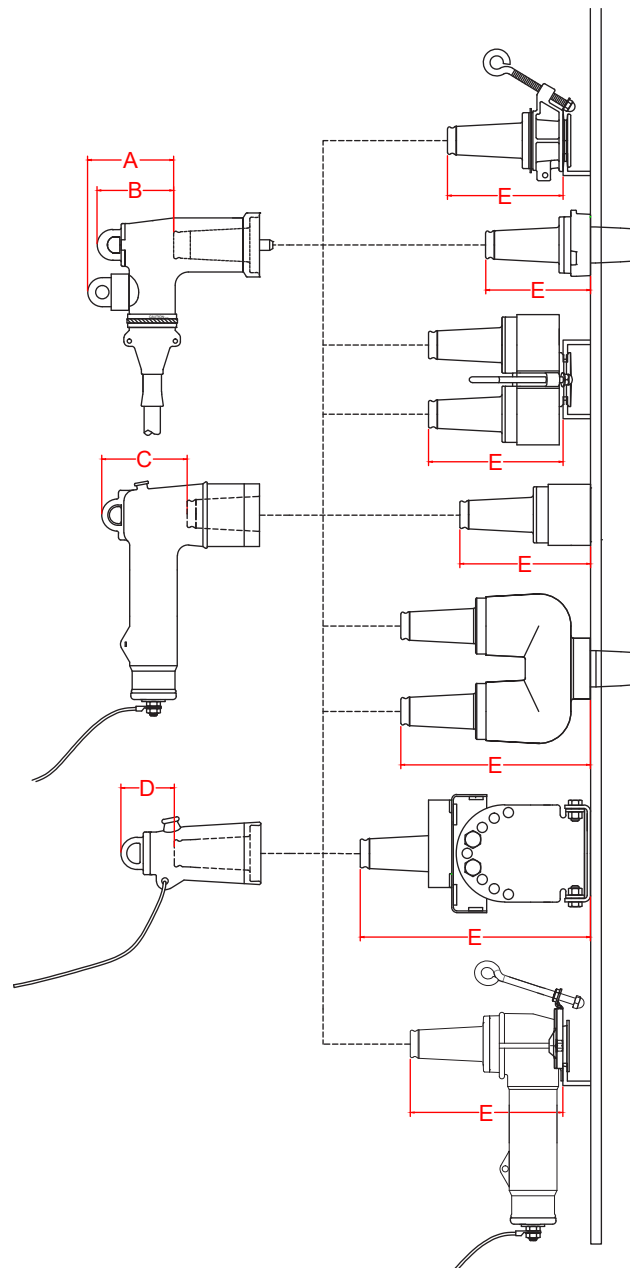
**15 kV Feed-Thru**  
215FTx

**15 kV Junction w/ U-Strap**  
215JxU

**15 kV Feed-Thru Insert**  
215FTI

**15 kV Junction w/ Bracket**  
215JxB

**15 kV Parkingstand Arrester**  
215PLAx



**Overall 15 kV Product Stacking Dimensions**

Product	Product (E)	Elbow + Product (A + E)	Elbow + Product (B + E)	Arrester + Product (C + E)	Cap + Product (D + E)
215SB - 15 kV Standoff Bushing	5.34"	9.54"	9.18"	9.02"	8.11"
215BI - 15 kV Bushing Insert	4.69"	8.89"	8.53"	8.57"	7.46"
215FTx - 15 kV Feed-Thru	6.24"	10.44"	10.08"	9.92"	9.01"
215JxU - 15 kV Junction w/U-strap	5.90"	10.10"	9.74"	9.58"	8.67"
215FTI - 15 kV Feed-Thru Insert	8.95"	13.15"	12.79"	12.63"	11.72"
215JxB - 15 kV Junction w/Bracket	8.11"	12.31"	11.95"	11.79"	10.88"
215PLAx - 15 kV Parkingstand Arrester	7.18"	11.38"	11.02"	N/A	9.95"

# 200 A Loadbreak

25/28 kV PRODUCTS





# 25/28 kV LOADBREAK PRODUCTS

## RATINGS & SPECIFICATIONS

### GENERAL INFORMATION

Hubbell 25/28 kV, 200 A Separable Connectors are fully shielded, insulated, and submersible products that provide a means to mate or disconnect cable to switchgear, transformers, or sectionalizing equipment on power distribution systems. They are designed for pad-mounted or subsurface applications, where the components may be exposed to direct sunlight or continuously submerged in water up to 6 feet (2m).

All 25/28 kV loadbreak products and accessories are designed and tested to meet or exceed all applicable requirements of IEEE and ANSI, including the following: IEEE Std 386 for Separable Connectors (Interface 7A) IEEE Std. 592 for Exposed Semi-conducting Shields ANSI Std. C119.4 for Electrical Connectors

These devices are suitable for energized loadmake/loadbreak operations when using an 8' shotgun-type hot stick on grounded WYE systems(1). They are also fully interchangeable with other manufacturer's products that conform to the electrical requirements of IEEE Std. 386.

Hubbell 25/28 kV products are designed for use in ambient temperatures between -40°C and +65°C and can be operated energized between -20°C and +65°C. Loadbreak devices should not be operated, while energized, at elevations over 6,000 feet.

All rubber components are manufactured using peroxide-cured insulating and conductive compounds.

(1) Contact the factory for recommendations for use on ungrounded, resistance grounded, or delta systems.

### RATINGS

Max. continuous voltage ..... 16.2 kV phase-to-ground  
28.0 kV phase-to-phase  
Continuous current ..... 200 A rms

### SHORT-TIME CURRENT RATINGS

0.17 seconds duration ..... 10,000 A rms symmetrical  
3.00 seconds duration ..... 3,500 A rms symmetrical

### INSULATION WITHSTAND VOLTAGES

Basic Impulse Level ..... 125 kV crest  
(1.2 x 50 µsec. wave)  
60 Hertz (one minute) ..... 45 kV rms  
Corona Extinction Voltage ..... 21.5 kV rms  
(5 pC)

### SWITCHING

1-phase and 3-phase circuits	10 loadmake/loadbreak operations at 200 A with
16.2 kV phase-to-ground, 28.0 kV maximum across the open contacts.	70-80% lagging power factor.

### FAULT CLOSURE

One fault-close operation at 16.2 kV phase-to-ground, or 28.0 kV phase-to-phase; 10,000 A rms symmetrical, 10 cycles, (0.17 seconds).

### PRODUCTION TESTS

100% factory test for partial discharge and either AC HI-POT (45 kV for 60 seconds) or impulse (BIL) (125 kV 1.2 x 50 µsec. wave.)

# Performance



# 25/28 kV LOADBREAK ELBOWS

HUBBELL 25/28 kV Loadbreak Elbows are designed and tested to meet all requirements of IEEE Std. 386. The operating interface will mate with any product that conforms to IEEE Std. 386, Interface 7A.

Elbows can be supplied with a capacitive test point that allows for the installation of faulted circuit indicators and will indicate the presence of voltage when interrogated with a high-impedance meter.

Bi-metal compression lug meets all requirements of ANSI Std. C119.4 for Class A connectors.

The integral seal elbow eliminates the need for a separate sealing kit. The integral seal elbow is supplied with mastic strips to form a barrier around the neutral wires. There are external grip hooks on the integral seal elbow boot for easier installation.



## SELECTION & ORDERING INFORMATION

Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select an elbow size so that the insulation falls within the elbow's range.

Select a connector code that identifies the conductor size and stranding.

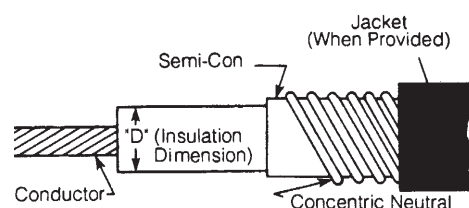
The standard long, bi-metal connector can be replaced with a ProbeLok connector, or an all copper connector for use on copper conductors only.

Decide if a capacitive test point is required.

The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

The standard elbow housing can be supplied as an integral elbow seal housing.

### Cable Dimension Reference



## Components:

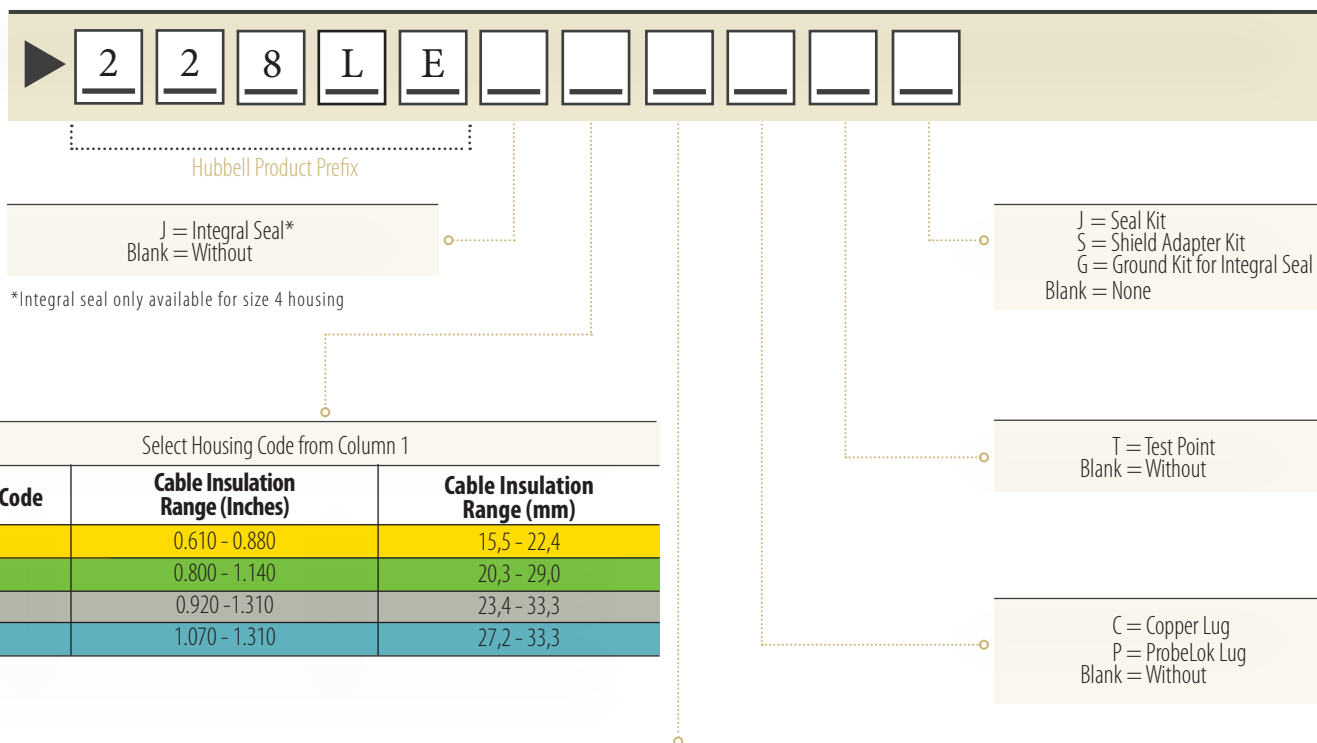
225LBP	Probe kit complete with pin wrench
200LUGBx	Standard, long bi-metal lug
200LUGPx	ProbeLok lug
200LUGCx	All copper lug

To have a bushing insert packaged with the elbow, add 'BI' to the end of the part number. For example: 228LEJ45BI.

625SK52	Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.95" to 1.94"
625SK60	Tape Shield Adapter Kit for cable with an overall diameter of 0.83" to 1.95"

# CATALOG NUMBER ORDERING INFORMATION

**Example:** Integral seal elbow for 1/0 stranded, 260 mil cable with a test point is: 228LEJ45T



Select Housing Code from Column 1		
Housing Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
3	0.610 - 0.880	15,5 - 22,4
4	0.800 - 1.140	20,3 - 29,0
5	0.920 - 1.310	23,4 - 33,3
6	1.070 - 1.310	27,2 - 33,3

Select Connector Code from Column 1, or 0 for without Connector							
Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)	35 kV - 420mil (Inches)
2	#2	Compact & Solid	0.610 - 0.705	0.700 - 0.800	0.780 - 0.880		
3	#2 #1	Stranded & Compressed	0.635 - 0.730	0.725 - 0.825	0.805 - 0.905		
		Compact & Solid	0.645 - 0.735	0.735 - 0.830	0.805 - 0.905		
4	#1 1/0	Stranded & Compressed	0.675 - 0.770	0.765 - 0.855	0.835 - 0.935		
		Compact & Solid	0.680 - 0.775	0.770 - 0.865	0.835 - 0.940	1.010 - 1.120	1.160 - 1.260
5	1/0 2/0	Stranded & Compressed	0.715 - 0.810	0.805 - 0.905	0.875 - 0.980	1.045 - 1.155	1.190 - 1.130
		Compact & Solid	0.715 - 0.815	0.805 - 0.905	0.875 - 0.980	1.045 - 1.160	1.195 - 1.310
6	2/0 3/0	Stranded & Compressed	0.760 - 0.855	0.850 - 0.950	0.920 - 1.025	1.090 - 1.200	1.245 - 1.350
		Compact & Solid	0.765 - 0.860	0.855 - 0.955	0.925 - 1.030	1.095 - 1.205	
7	3/0 4/0	Stranded & Compressed	0.810 - 0.905	0.900 - 1.000	0.970 - 1.075	1.140 - 1.255	
		Compact & Solid	0.815 - 0.910	0.905 - 1.005	0.975 - 1.080	1.145 - 1.260	
8	4/0 250	Stranded & Compressed	0.865 - 0.965	0.955 - 1.060	1.025 - 1.135	1.195 - 1.310	
		Compact	0.880 - 0.965	0.970 - 1.060	1.040 - 1.135	1.210 - 1.315	

\*These ranges are taken from the AEIC/ICEA industry cable standards



# 25/28 kV LOADBREAK INSERTS

The Hubbell Loadbreak Bushing Insert meets all requirements of IEEE Std. 386. It is designed for installation on transformers, switches or other equipment having a 200 A bushing well that meets the requirements of IEEE Std. 386, Interface 3. When mated with a comparably rated elbow or other accessory, the bushing insert provides a fully shielded and submersible connection. The bushing insert contains an all-copper current path from the female contact to the bushing well and internal connection to the switch or transformer.

## **225BI Bushing Insert**

Internal hex broach accepts a 5/16" wrench for proper installation torque.

Vented yellow seating indicator ring provides a positive indication that the mating product is fully installed and assists in minimizing no-load, partial vacuum flashovers.



## **228FTI Feed-thru Insert**

Creates a tap position in an existing apparatus

Converts a radial-feed transformer to a loop-feed unit.

Supplied with an auxiliary hold-down bail.

Contains an internal ratchet mechanism to facilitate proper alignment.



# Experience

# 25/28 kV LOADBREAK ACCESSORIES

## 9U01BEW500 Insulating Cap

Used as a temporary or permanent cover on an energized operating interface. Standard product has an insulating cuff. The insulating cap is supplied with a 36-inch long lead for grounding.



## 228SB Standoff Bushing

Provides a temporary or permanent parking position for energized loadbreak elbows. The bracket permits mounting on the apparatus parking stand.



## 228FT Feed-thru - Horizontal Bracket and

## 228FTV Feed-thru - Vertical Bracket

The feed-thru can be used to test, phase, isolate, or ground a cable, add an arrester at the open point, or by-pass a transformer. The bracket allows it to be assembled into the apparatus parking stand with a hotstick.



## 225TR Test Rod

Fits into loadbreak bushings, junctions, and other products that contain a loadbreak interface and is used with test meters to determine if the circuit is energized or not.



## SL150 Silicone Lubricant

Silicone lubricant for all separable connectors. Supplied in a 5.3 oz (150 g.) tube. Sold in cartons of 24 tubes.





# 25/28 kV LOADBREAK GROUNDING ACCESSORIES

## 225GB

### Grounded Bushing

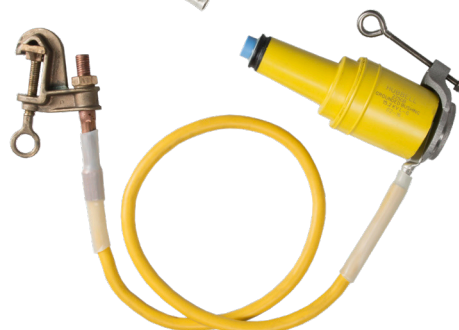
Provides a temporary ground. Contains a fully functioning loadbreak mechanism and is designed to handle one fault-close of up to 10,000 A for 10 cycles. Can be installed with a hotstick.



## T6003092

### Grounding Bushing with Clamp

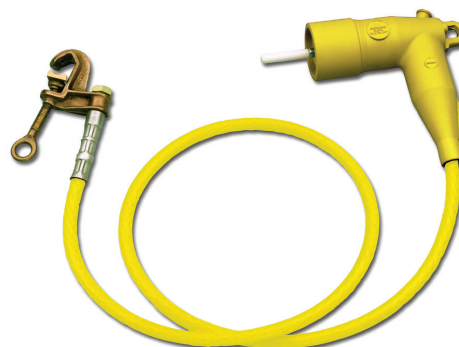
This set includes a loadbreak bushing and bronze T6000466 ground clamp connected by a 4-ft. yellow 1/0 cable. A tin-plated copper connector joins the cable to the bushing. A threaded copper ferrule connects the cable to the clamp. Fault current rating for each set: 10,000 A for 10 cycles.



## T6002131

### Grounding Elbow

Each set includes a yellow elbow, 6 feet of 1/0 copper grounding cable with yellow jacket, and bronze T6000466 ground clamp. Fault current rating for each set: 10,000 A for 10 cycles.



## C6003103

### Three-Phase Grounding Elbow Sets for Switches & Transformers

Each set includes a three-way terminal block assembly, three 6-ft. lengths of 1/0 copper ground cable with yellow jacket, a bronze T6000466 ground clamp and three elbows. Fault current rating for each set: 10,000 A for 10 cycles.



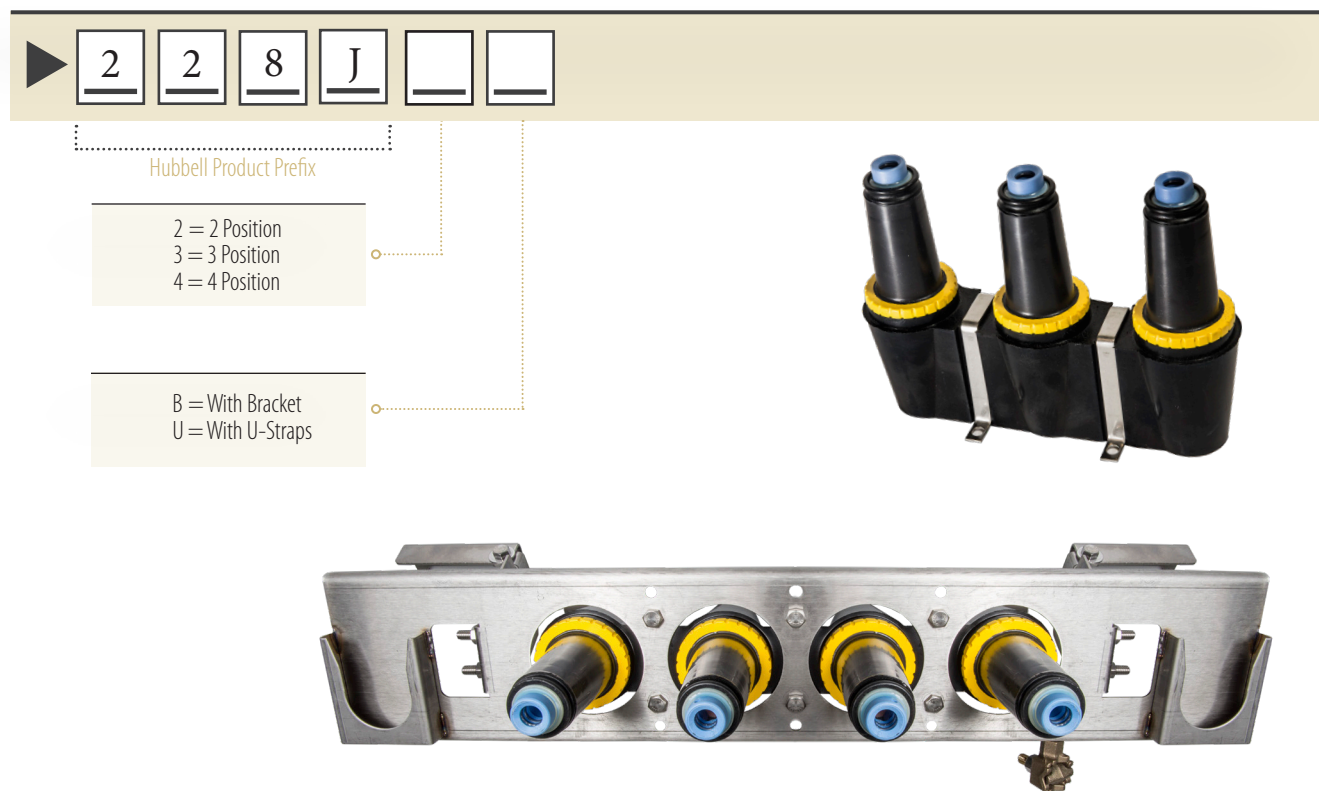
## Grounding Component Parts:

200GB6LUG	1-hole copper lug for 1/0 grounding cable (grounding bushing component)
225GBHSG	200 A 25 kV Grounding Bushing Housing
225GEHSG	200 A 25 kV Grounding Elbow Housing
225LBP	200 A 25 kV Loadbreak Probe
200LUGC6	2/0 all copper lug for use with 1/0 grounding cable
200LUGC7	3/0 all copper lug for use with 2/0 grounding cable

# 25/28 kV LOADBREAK JUNCTIONS

## JUNCTION SELECTION AND ORDERING

**Example:** 4-point junction, supplied with a SS bracket is: 228J4B



## 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 25/28 kV Loadbreak Product Ratings & Specifications sheet.

Adjacent taps are 4.0" center to center. Vented yellow

seating indicator rings provide a positive indication that the mating product is fully installed and assists in minimizing no-load, partial vacuum flashovers.

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

### Junction Component Parts:

200JUNCMF	Junction Adjustable Mounting Feet Only, Stainless Steel (1 Pair)
228J2BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 2 Position
228J3BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 3 Position
228J4BRKT	Junction Bracket, Stainless Steel w/Adjustable Feet, 4 Position
228US1	Junction U-strap, Stainless Steel w/Hardware



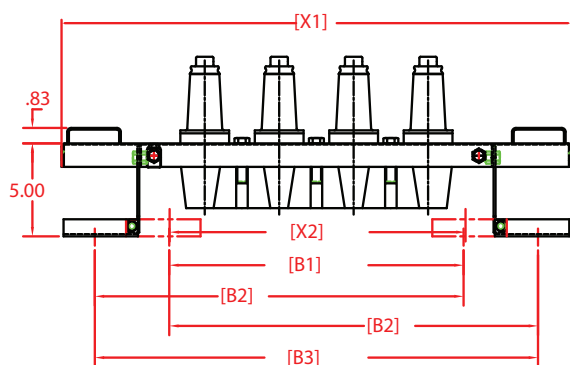
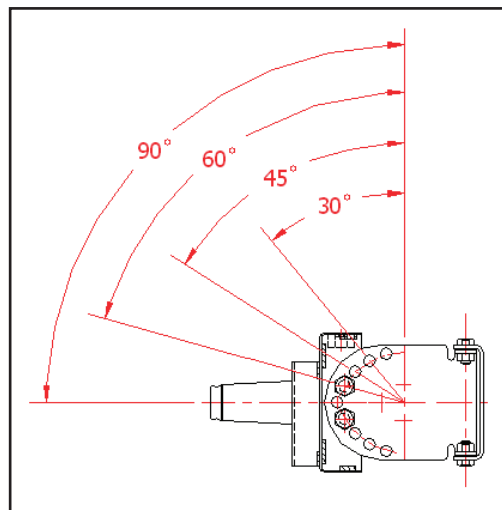
# 25/28 kV LOADBREAK JUNCTIONS

## Bracket & U-strap Dimensions

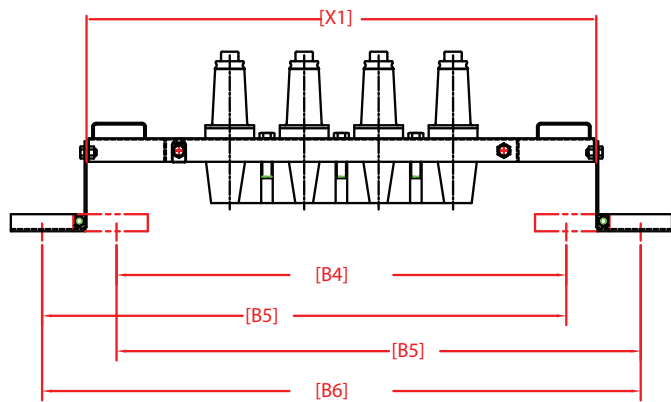
Dimension	Junction Part Number		
	228J2B	228J3B	228J4B
X1	23.45	23.45	23.45
X2	6.86	10.86	14.86
B1	6.55 to 10.55	6.55 to 10.55	10.55 to 14.55
B2	11.22 to 15.22	11.22 to 15.22	15.22 to 19.22
B3	15.89 to 19.89	15.89 to 19.89	19.89 to 23.89
B4	16.40 to 20.40	16.40 to 20.40	20.40 to 24.40
B5	21.07 to 25.07	21.07 to 25.07	25.07 to 29.07
B6	25.74 to 29.74	25.74 to 29.74	29.74 to 33.74

Note: Dimensions in Inches

### Bracket Mounting Angles

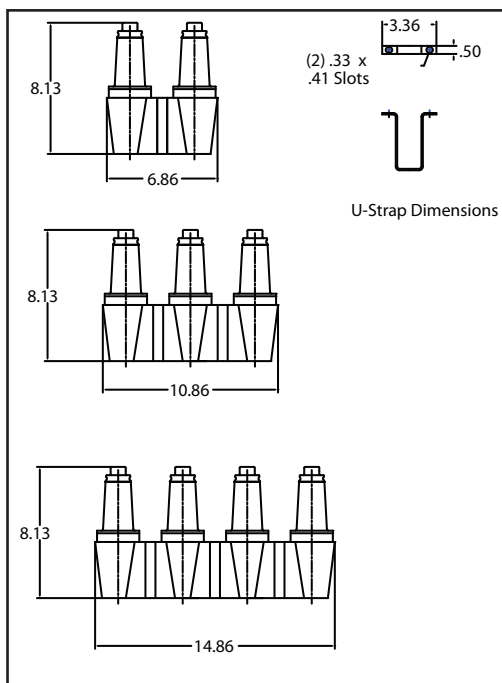


Inside Bracket Feet Dimensions



Outside Bracket Feet Dimensions

### U-Strap Dimensions



U-Strap Dimensions

# 25/28 kV STACKING DIMENSIONS

**25/28 kV Elbow**  
228LExx

**25/28 kV Elbow Arrester**  
225ELAx

**25/28 kV Insulating Cap**  
9U01BEW500

**25/28 kV Standoff Bushing**  
228SB

**25/28 kV Bushing Insert**  
225BI

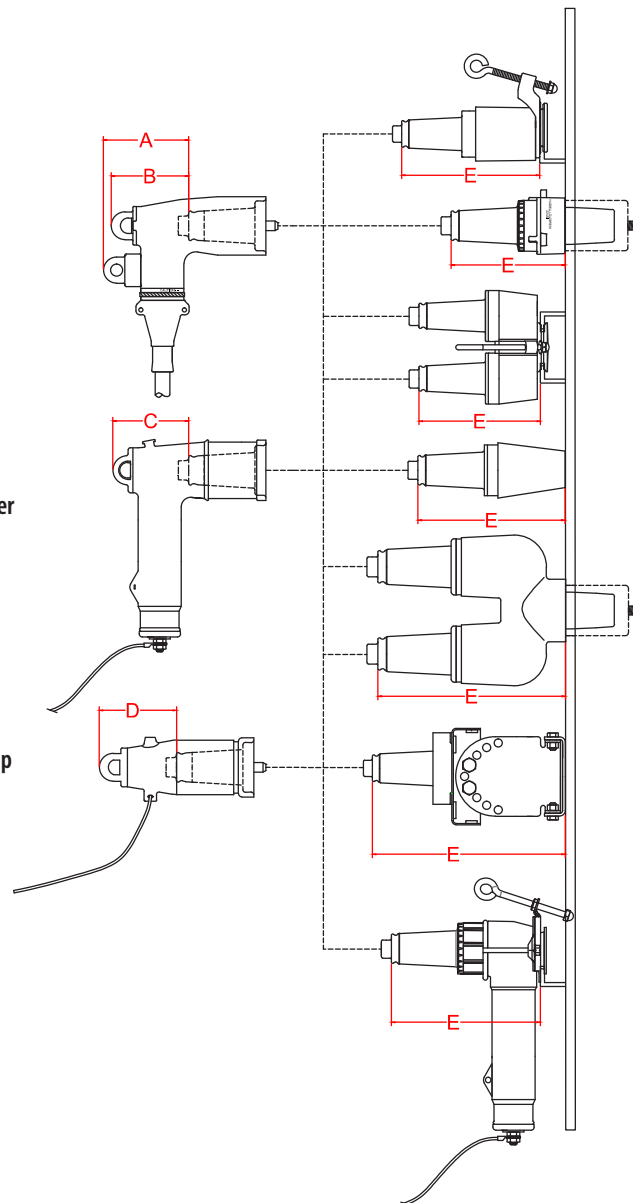
**25/28 kV Feed-Thru**  
228FT

**25/28 kV Junction w/ U-Strap**  
228JxU

**25/28 kV Feed-Thru Insert**  
228FTI

**25/28 kV Junction w/ Bracket**  
228JxB

**25/28 kV Parkingstand Arrester**  
225PLAx



**Overall 25/28 kV Product Stacking Dimensions**

Product	Product (E)	Elbow + Product (A + E)	Elbow + Product (B + E)	Arrester + Product (C + E)	Cap + Product (D + E)
228SB - 25/28 kV Standoff Bushing	7.85"	12.26"	11.85"	11.77"	11.85"
225BI - 25/28 kV Bushing Insert	5.92"	10.33"	9.92"	9.84"	9.92"
228FT - 25/28 kV Feed-Thru	6.22"	10.63"	10.22"	10.14"	10.22"
228JxU - 25/28 kV Junction w/U-strap	7.62"	12.03"	11.62"	11.54"	11.62"
228FTI - 25/28 kV Feed-Thru Insert	8.60"	13.01"	12.60"	12.52"	12.60"
228JxB - 25/28 kV Junction w/Bracket	8.29"	12.70"	12.29"	12.21"	12.29"
225PLAx - 25/28 kV Parkingstand Arrester	7.72"	12.13"	11.72"	N/A	11.72"

# 15/25/28 kV FUSED ELBOWS

Hubbell Fused Elbows are designed for 15 kV or 25/28 kV applications. They combine a fully-shielded and insulated loadbreak elbow with full range current-limiting, non-expulsion fuse protection.

The Hubbell Fused Elbow provides a quick and cost effective solution for adding fused reliability to underground distribution systems. When mated with a comparable loadbreak bushing, or other devices with an interface that conforms to IEEE Std. 386, the Hubbell Fused Elbow provides a fully shielded and submersible connection.

All Hubbell Fused Elbows are designed and tested to meet the requirements of IEEE Std. 386.

Accepts Cooper™ or Hi-Tech® fuses  
NOTE: All fuses sold separately.



## SELECTION & ORDERING INFORMATION

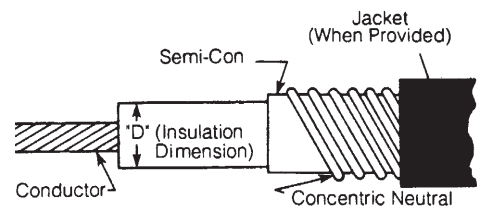
Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select an elbow size so that the insulation falls within the elbow's range.

Determine manufacturer of fuse to be used.

Select a connector code that identifies the conductor size and stranding.

The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

### Cable Dimension Reference



## Components:

- 625SK52 Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.95" to 1.95"
- 625SK60 Tape Shield Adapter Range - 0.83" to 1.95"
- 200FEKITCx To order replacement hardware for installation of a Cooper™ fuse, determine the connector code using chart on the next page
- 200FEKITHx To order replacement hardware for installation of a Hi-Tech® fuse, determine the connector code using chart on the next page



# CATALOG NUMBER ORDERING INFORMATION

**Example:** 28 kV Fused elbow using Hi-Tech® fuse for 1/0 stranded 260mil cable is: 228FEHB5



15 = 15 kV Voltage Class  
28 = 25/28 kV Voltage Class

C = Cooper™ Fuse  
H = Hi-Tech® Fuse

J = Seal Kit  
S = Shield Adapter Kit  
Blank = Neither

Select Housing Code from Column 1

Housing Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
A	0.610 - 0.823	15.5 - 20.9
B	0.720 - 0.985	18.3 - 25.0
B or C		
C	0.920 - 1.185	23.4 - 30.1

Select Connector Code from Column 1, or 0 for without Connector

Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)
2	#2	Compact & Solid	0.610 - 0.705	0.700 - 0.800	0.780 - 0.880	
3	#2	Stranded & Compressed	0.635 - 0.730	0.725 - 0.825	0.805 - 0.905	
	#1	Compact & Solid	0.645 - 0.735	0.735 - 0.830	0.805 - 0.905	
4	#1	Stranded & Compressed	0.675 - 0.770	0.765 - 0.855	0.835 - 0.935	
	1/0	Compact & Solid	0.680 - 0.775	0.770 - 0.865	0.835 - 0.940	1.010 - 1.120
5	1/0	Stranded & Compressed	0.715 - 0.810	0.805 - 0.905	0.875 - 0.980	1.045 - 1.155
	2/0	Compact & Solid	0.715 - 0.815	0.805 - 0.905	0.875 - 0.980	1.045 - 1.160
6	2/0	Stranded & Compressed	0.760 - 0.855	0.850 - 0.950	0.920 - 1.025	1.090 - 1.200
	3/0	Compact & Solid	0.765 - 0.860	0.855 - 0.955	0.925 - 1.030	1.095 - 1.205
7	3/0	Stranded & Compressed	0.810 - 0.905	0.900 - 1.000	0.970 - 1.075	1.140 - 1.255
	4/0	Compact & Solid	0.815 - 0.910	0.905 - 1.005	0.975 - 1.080	1.145 - 1.260
8	4/0	Stranded & Compressed	0.865 - 0.965	0.955 - 1.060	1.025 - 1.135	1.195 - 1.310
	250	Compact	0.880 - 0.965	0.970 - 1.060	1.040 - 1.135	1.210 - 1.315

\*These ranges are taken from the AEIC/ICEA industry cable standards



# 200 A Loadbreak

35 kV PRODUCTS



# 35 kV LOADBREAK PRODUCTS

## RATINGS & SPECIFICATIONS

### GENERAL INFORMATION

Hubbell 35 kV, 200 A Separable Connectors are fully shielded, insulated, and submersible products that provide a means to mate or disconnect cable to switchgear, transformers, or sectionalizing equipment on power distribution systems. They are designed for pad-mounted or subsurface applications, where the components may be exposed to direct sunlight or continuously submerged in water up to 6 feet (2m).

All 35 kV loadbreak elbows are designed and tested to meet or exceed all applicable requirements of IEEE and ANSI, including the following:

IEEE Std. 386 for Separable Connectors (Interface 8)  
IEEE Std. 592 for Exposed Semi-conducting Shields  
ANSI Std. C119.4 for Electrical Connectors

These devices are suitable for energized loadmake/loadbreak operations when using an 8' shotgun-type hot stick on grounded WYE systems(1). They are also fully interchangeable with other manufacturer's products that conform to the electrical requirements of IEEE Std. 386.

Hubbell 35 kV products are designed for use in ambient temperatures between -40°C and +65°C and can be operated energized between -20°C and +65°C. Loadbreak devices should not be operated, while energized, at elevations over 6,000 feet.

All rubber components are manufactured using peroxide-cured insulating and conductive compounds.

(1) Contact the factory for recommendations for use on ungrounded, resistance grounded, or delta systems.

### RATINGS

Max. continuous voltage .....	21.1 kV phase-to-ground 36.6 kV phase-to-phase
Continuous current .....	200 A rms

### SHORT-TIME CURRENT RATINGS

0.17 seconds duration .....	10,000 A rms symmetrical
3.00 seconds duration .....	3,500 A rms symmetrical

### INSULATION WITHSTAND VOLTAGES

Basic Impulse Level .....	150 kV crest (1.2 x 50 µsec. wave)
60 Hertz (one minute) .....	50 kV rms
Corona Extinction Voltage .....	26 kV rms (5 pC)

### SWITCHING

1-phase and 3-phase circuits 21.1 kV phase-to-ground, 36.6 kV maximum across the open contacts.	10 loadmake/loadbreak operations at 200 A with 70- 80% lagging power factor.
--	--

### FAULT CLOSURE

One fault-close operation at 21.1 kV phase-to-ground, or 36.6 kV phase-to-phase; 10,000 A rms symmetrical, 10 cycles, (0.17 seconds).
---

### PRODUCTION TESTS

100% factory test for partial discharge and either AC HI-POT (50 kV for 60 seconds) or impulse (BIL) (150 kV 1.2 x 50 µsec. wave).
--

# Performance



# 35 kV LOADBREAK ELBOWS

HUBBELL 35 kV Loadbreak Elbows are designed and tested to meet all requirements of IEEE Std. 386. The operating interface will mate with any product that conforms to IEEE Std. 386, Interface 8.

Elbows can be supplied with a capacitive test point that allows for the installation of faulted circuit indicators and will indicate the presence of voltage when interrogated with a high-impedance meter.

Bi-metal compression lug meets all requirements of ANSI Std. C119.4 for Class A connectors.



## SELECTION & ORDERING INFORMATION

Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select an elbow size so that the insulation falls within the elbow's range.

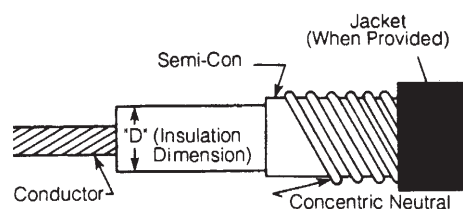
Select a connector code that identifies the conductor size and stranding.

The standard long, bi-metal connector can be replaced with a ProbeLok connector, or an all copper connector for use on all copper conductor only.

Decide if a capacitive test point is required.

The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

### Cable Dimension Reference



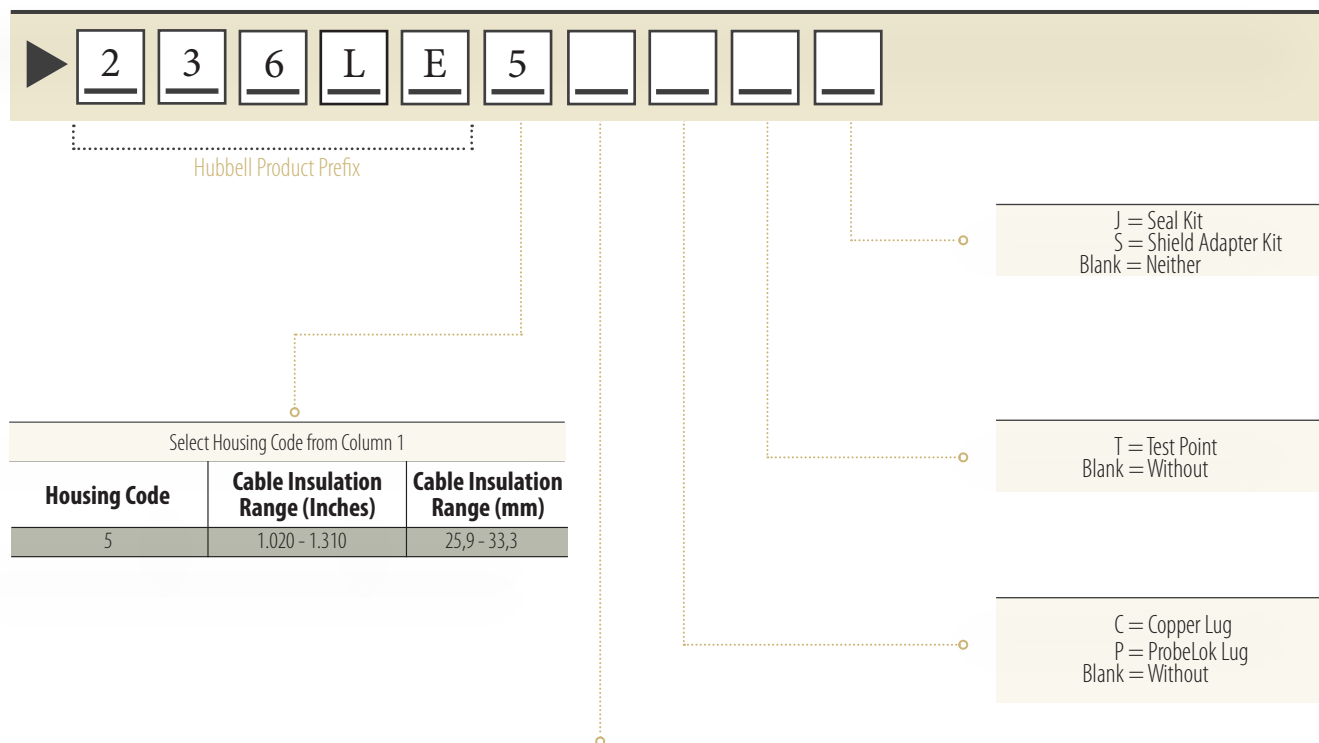
## Components:

236LBP	Probe kit complete with pin wrench
200LUGBx	Standard, long bi-metal lug
200LUGPx	ProbeLok lug
200LUGCx	All copper lug

625SK52	Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.97" to 1.95"
625SK60	Tape Shield Adapter Range - 0.83" to 1.95"

# CATALOG NUMBER ORDERING INFORMATION

**Example:** Loadbreak elbow for 1/0 stranded, 345 mil cable with a test point is: 236LE5T



Select Housing Code from Column 1		
Housing Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
5	1.020 - 1.310	25,9 - 33,3

Select Connector Code from Column 1, or 0 for without Connector				
Connector Code	AWG or kcmil	Stranding	25kV - 260 mil (Inches)	35kV-345mil (Inches)
4	1/0	Compact & Solid	---	1.010 - 1.120
5	1/0 2/0	Stranded & Compressed Compact & Solid	---	1.045 - 1.155 1.045 - 1.160
6	2/0 3/0	Stranded & Compressed Compact & Solid	---	1.090 - 1.200 1.095 - 1.205
7	3/0 4/0	Stranded & Compressed Compact & Solid	---	1.140 - 1.255 1.145 - 1.260
8	4/0 250	Stranded & Compressed Compact	1.025 - 1.135 1.040 - 1.135	1.195 - 1.310 1.210 - 1.315

\*These ranges are taken from the AEIC/ICEA industry cable standards



# 600 A Deadbreak

15/25/28 kV PRODUCTS



# 15/25/28 kV DEADBREAK PRODUCTS

## RATINGS & SPECIFICATIONS

### GENERAL INFORMATION

The Hubbell 600 A 25/28 kV Deadbreak T-body offers an easy and reliable method of terminating and splicing main feeder circuits. The Deadbreak T-Body is a fully shielded, molded rubber connector.

The Deadbreak T-body is designed to terminate power cables with copper or aluminum conductors ranging in size from #2 AWG to 1250 kcmil. It may be installed on any 600 A rated apparatus bushing that meets IEEE Std. 386 Interface 11. Cable adapters accommodate power cable insulation diameters from 0.530 to 1.935 inches.

The Hubbell Deadbreak T-body has been designed and tested to meet the requirement of IEEE Std. 386 and IEEE Std. 592. Conformance to these industry standard ensures mechanical and electrical interchangeability with other products of manufacturers that are also in conformance with these standards.

### RATINGS

Max. continuous voltage ..... 16.2 kV phase-to-ground  
28.0 kV phase-to-phase  
Continuous current ..... 600 A rms  
(Aluminum components)

### SHORT-TIME CURRENT RATINGS

0.17 seconds duration ..... 25,000 A rms symmetrical  
3.00 seconds duration ..... 10,000 A rms symmetrical

### INSULATION WITHSTAND VOLTAGES

Basic Impulse Level ..... 125 kV crest  
(1.2 x 50  $\mu$ sec. wave)  
60 Hertz (one minute) ..... 45 kV rms  
Corona Extinction Voltage ..... 21.5 kV rms  
(5 pC)

### OVERLOAD CURRENT

4 hour rating ..... 900 A rms

### PRODUCTION TESTS

100% factory test for partial discharge and either AC HI-POT  
(45 kV for 60 seconds) or impulse (BIL) (125 kV 1.2 x 50  $\mu$ sec. wave).

# Performance



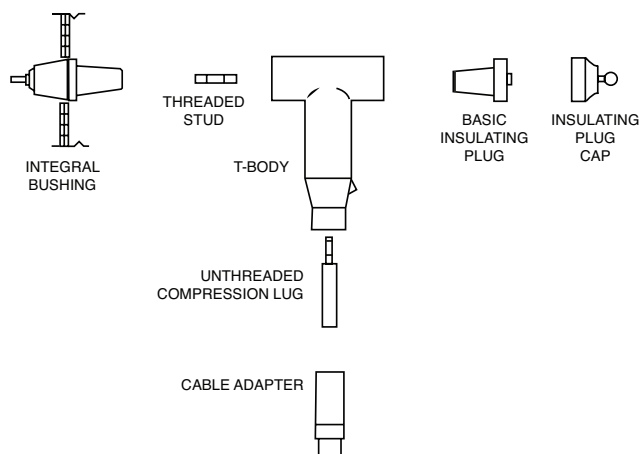
# DEADBREAK BOLTED T-BODY SYSTEM

The Hubbell Power Systems 600 A 25/28 kV rated Deadbreak Bolted T-body System is designed to terminate medium voltage underground distribution cable to switchgear, transformers, sectionalizing cabinets and underground distribution vault applications. The Bolted T-body system is comprised of a standard 600 A T-body, an unthreaded compression lug, a cable adapter and a basic insulating plug with cap.

The T-body can be ordered with or without a capacitive test point.

Bolted T-body systems provide an economical means of terminating cable in applications where the visible open and ground will be achieved through the use of an internal switch and viewing window. In addition, it can be combined with other Bolted T-body kits and/or deadbreak junctions to construct a multi-way separable splice.

## Bolted T-body System



## SELECTION & ORDERING INFORMATION

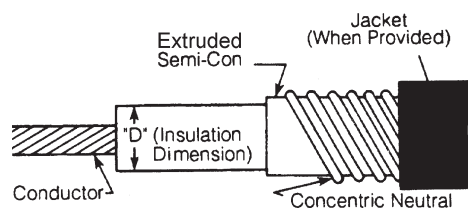
Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select a cable adapter so that the insulation falls within the its range.

Select a connector code that identifies the conductor size and stranding.

Decide if a capacitive test point is required.

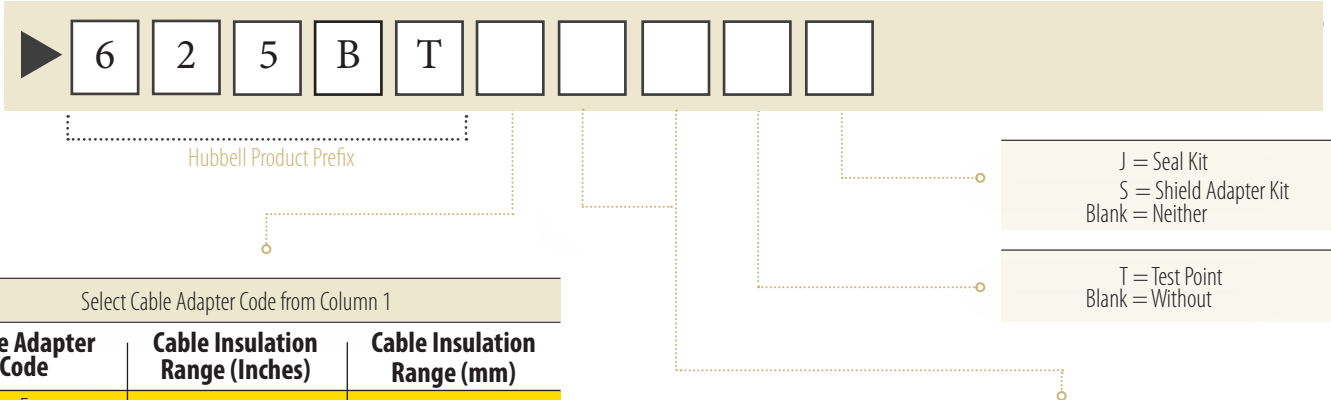
The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

## Cable Dimension Reference



# CATALOG NUMBER ORDERING INFORMATION

**Example:** The part number for 25/28 kV Bolted Elbow kit for 500 stranded, 260 mil cable with an insulation diameter of 1.415" and a test point is: 625BTLM33T



Select Cable Adapter Code from Column 1		
Cable Adapter Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
E	.530 - .680	13,5 - 17,3
F	.640 - .820	16,3 - 20,8
G	.760 - .950	19,3 - 24,1
H	.850 - 1.050	21,6 - 26,7
J	.980 - 1.180	24,9 - 30,0
K	1.090 - 1.310	27,7 - 33,3
L	1.180 - 1.465	30,0 - 37,2
LM	1.280 - 1.430	32,5 - 36,3
M	1.370 - 1.630	34,8 - 41,4
N	1.515 - 1.780	38,5 - 45,2
P	1.725 - 1.935	43,8 - 49,1

## Deadbreak Bolted Elbow Component Parts:

Description	Catalog #
T-Body with Test Point	625BT
T-Body without Test Point	625TB
Aluminum Insulating Plug with Cap	625BIP
5/8" - 11 UNC Threaded Aluminum Stud	625SA
Cable Adapter	625CAx
Compression Connector	625LUGxx
Shear Bolt Connector	625LUGUx
Cable Sizing Kit	625CKxxx

Select Connector Code from Column 1 or 2							
Shear Bolt Connector Code	Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)
U1	22	#2	Stranded & Compressed Compact & Solid	0.635 - 0.730 0.645 - 0.735	0.725 - 0.825 0.735 - 0.830		
	23	#1	Stranded & Compressed Compact & Solid	0.675 - 0.770 0.680 - 0.775	0.765 - 0.855 0.770 - 0.865	0.835 - 0.935 0.835 - 0.940	
	24	1/0	Stranded & Compressed Compact & Solid	0.715 - 0.810 0.715 - 0.815	0.805 - 0.905 0.805 - 0.905	0.875 - 0.980 0.875 - 0.980	1.010 - 1.120
	25	2/0	Stranded & Compressed Compact & Solid	0.760 - 0.855 0.765 - 0.860	0.850 - 0.950 0.855 - 0.955	0.920 - 1.025 0.925 - 1.030	1.090 - 1.200 1.095 - 1.205
	26	3/0	Stranded & Compressed Compact & Solid	0.810 - 0.905 0.815 - 0.910	0.900 - 1.000 0.905 - 1.005	0.970 - 1.075 0.975 - 1.080	1.140 - 1.255 1.145 - 1.260
	27	4/0	Stranded & Compressed Compact & Solid	0.865 - 0.965 0.880 - 0.965	0.955 - 1.060 1.010 - 1.115	1.025 - 1.135 1.025 - 1.135	1.195 - 1.310 1.210 - 1.315
	28	250	Stranded & Compressed	0.920 - 1.020	1.010 - 1.115	1.080 - 1.190	1.250 - 1.370
U2	29	350	Compact	0.980 - 1.065	1.070 - 1.155	1.140 - 1.230	1.310 - 1.410
	30	350	Stranded & Compressed	1.025 - 1.130	1.115 - 1.220	1.185 - 1.295	1.355 - 1.475
	32	500	Compact	1.100 - 1.185	1.190 - 1.275	1.260 - 1.350	1.430 - 1.530
U3	33	500	Stranded & Compressed	1.150 - 1.260	1.240 - 1.355	1.310 - 1.430	1.480 - 1.605
		600	Compact	1.185 - 1.270	1.275 - 1.365	1.345 - 1.440	1.575 - 1.615
	35	600	Stranded & Compressed	1.235 - 1.350	1.325 - 1.445	1.395 - 1.520	1.565 - 1.695
		700	Compact	1.245 - 1.335	1.335 - 1.430	1.405 - 1.500	1.575 - 1.680
U4	36	750	Compact	1.280 - 1.365	1.370 - 1.460	1.440 - 1.535	1.610 - 1.710
	38	700	Stranded & Compressed	1.305 - 1.420	1.395 - 1.515	1.465 - 1.590	1.635 - 1.765
		750	Stranded & Compressed	1.340 - 1.456	1.430 - 1.550	1.500 - 1.625	1.670 - 1.800
		900	Compact	1.370 - 1.455	1.460 - 1.550	1.530 - 1.625	1.700 - 1.800
	39	800	Stranded & Compressed	1.370 - 1.455	1.460 - 1.580	1.530 - 1.655	1.700 - 1.835
	40	900	Stranded & Compressed	1.430 - 1.550	1.520 - 1.645	1.590 - 1.720	1.760 - 1.895
		1000	Compact	1.430 - 1.515	1.520 - 1.610	1.590 - 1.685	1.760 - 1.865
	41	1000	Stranded & Compressed	1.485 - 1.610	1.575 - 1.705	1.645 - 1.775	1.815 - 1.955

### Notes:

Connectors can be used for both aluminum and copper cable conductors.  
Contact representative for conductors not listed above.



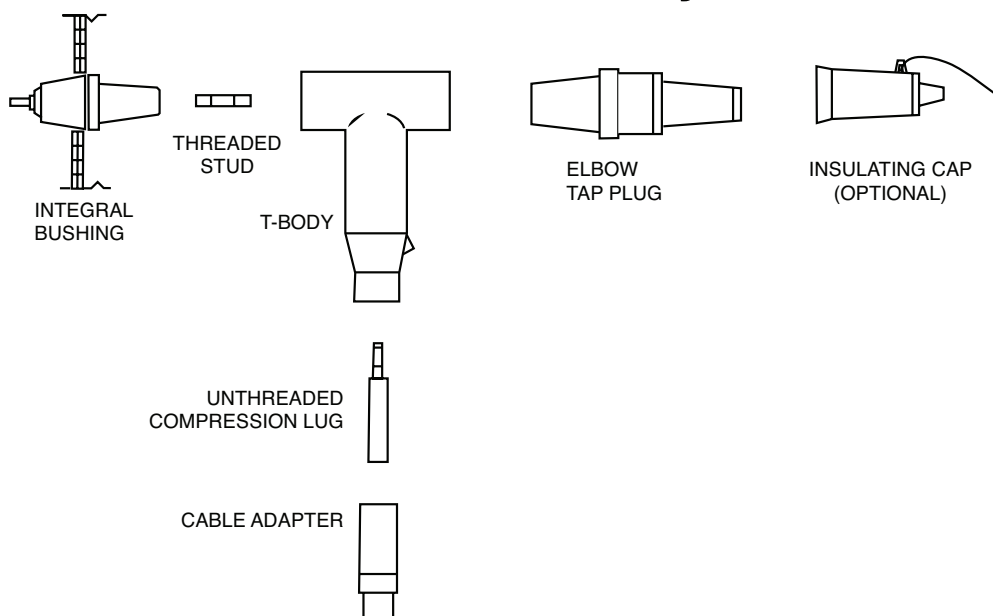
# DEADBREAK ETP ELBOW TERMINATION SYSTEM

The Hubbell Power Systems 600 A 15 kV or 25/28 kV rated Deadbreak ETP (Elbow Tap Plug) Termination System is designed to terminate medium voltage underground distribution cable to switchgear, transformers, sectionalizing cabinets and underground distribution vault applications. The ETP system is comprised of a standard 600 A T-body, an unthreaded compression lug, a cable adapter and the ETP. The T-body can be ordered with or without a capacitive test point.

The ETP system is ideal for applications where a 200 A tap is desired for test or ground purposes, with the visible open achieved through use of an internal switch and a viewing window. The ETP is also ideal for adding a 200 A tap to an existing 600 A elbow termination.

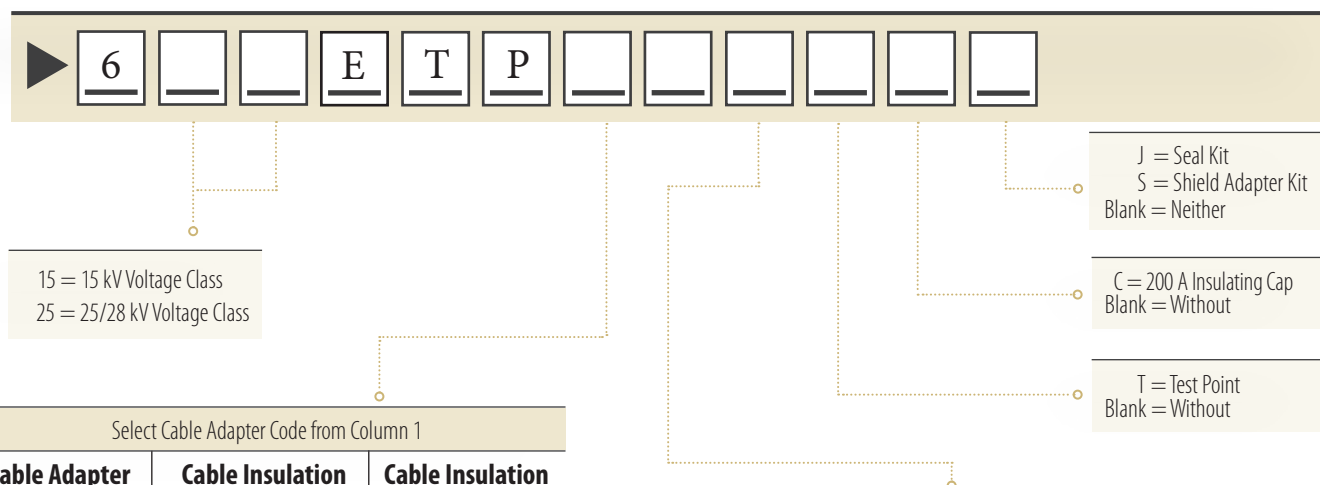
The 200 A loadbreak interface can be either 15 kV or 25/28 kV rated. This interface allows for live test, visible ground, addition of a 200 A tap, or installation of an elbow arrester to protect your underground distribution system from voltage surges.

## ETP Elbow Termination System



# CATALOG NUMBER ORDERING INFORMATION

**Example:** The part number for 25/28 kV ETP kit for 500 stranded, 260 mil cable with an insulation diameter of 1.415" and an insulating cap is: 625ETPLM33C



Select Cable Adapter Code from Column 1		
Cable Adapter Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
E	.530 - .680	13,5 - 17,3
F	.640 - .820	16,3 - 20,8
G	.760 - .950	19,3 - 24,1
H	.850 - 1.050	21,6 - 26,7
J	.980 - 1.180	24,9 - 30,0
K	1.090 - 1.310	27,7 - 33,3
L	1.180 - 1.465	30,0 - 37,2
LM	1.280 - 1.430	32,5 - 36,3
M	1.370 - 1.630	34,8 - 41,4
N	1.515 - 1.780	38,5 - 45,2
P	1.725 - 1.935	43,8 - 49,1

Select Connector Code from Column 1 or 2							
Shear Bolt Connector Code	Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)
U1	22	#2 #1	Stranded & Compressed Compact & Solid	0.635 - 0.730 0.645 - 0.735	0.725 - 0.825 0.735 - 0.830	0.805 - 0.905	
	23	#1 1/0	Stranded & Compressed Compact & Solid	0.675 - 0.770 0.680 - 0.775	0.765 - 0.855 0.770 - 0.865	0.835 - 0.935 0.835 - 0.940	1.010 - 1.120
	24	1/0 2/0	Stranded & Compressed Compact & Solid	0.715 - 0.810 0.715 - 0.815	0.805 - 0.905 0.805 - 0.905	0.875 - 0.980 0.875 - 0.980	1.045 - 1.155 1.045 - 1.160
	25	2/0 3/0	Stranded & Compressed Compact & Solid	0.760 - 0.855 0.765 - 0.860	0.850 - 0.950 0.855 - 0.955	0.920 - 1.025 0.925 - 1.030	1.090 - 1.200 1.095 - 1.205
	26	3/0 4/0	Stranded & Compressed Compact & Solid	0.810 - 0.905 0.815 - 0.910	0.900 - 1.000 0.905 - 1.005	0.970 - 1.075 0.975 - 1.080	1.140 - 1.255 1.145 - 1.260
	27	4/0 250	Stranded & Compressed Compact & Solid	0.865 - 0.965 0.880 - 0.965	0.955 - 1.060 1.010 - 1.115	1.025 - 1.135 1.025 - 1.135	1.195 - 1.310 1.210 - 1.315
U2	28	250	Stranded & Compressed	0.920 - 1.020	1.010 - 1.115	1.080 - 1.190	1.250 - 1.370
	29	350	Compact	0.980 - 1.065	1.070 - 1.155	1.140 - 1.230	1.310 - 1.410
	30	350	Stranded & Compressed	1.025 - 1.130	1.115 - 1.220	1.185 - 1.295	1.355 - 1.475
	32	500	Compact	1.100 - 1.185	1.190 - 1.275	1.260 - 1.350	1.430 - 1.530
U3	33	500 600	Stranded & Compressed Compact	1.150 - 1.260 1.185 - 1.270	1.240 - 1.355 1.275 - 1.365	1.310 - 1.430 1.345 - 1.440	1.480 - 1.605 1.575 - 1.615
	35	600 700	Stranded & Compressed Compact	1.235 - 1.350 1.245 - 1.335	1.325 - 1.445 1.335 - 1.430	1.395 - 1.520 1.405 - 1.500	1.565 - 1.695 1.575 - 1.680
	36	750	Compact	1.280 - 1.365	1.370 - 1.460	1.440 - 1.535	1.610 - 1.710
	38	700 750 900	Stranded & Compressed Stranded & Compressed Compact	1.305 - 1.420 1.340 - 1.456 1.370 - 1.455	1.395 - 1.515 1.430 - 1.550 1.460 - 1.550	1.465 - 1.590 1.500 - 1.625 1.530 - 1.625	1.635 - 1.765 1.670 - 1.800 1.700 - 1.800
	39	800	Stranded & Compressed	1.370 - 1.455	1.460 - 1.580	1.530 - 1.655	1.700 - 1.835
U4	40	900 1000	Stranded & Compressed Compact	1.430 - 1.550 1.430 - 1.515	1.520 - 1.645 1.520 - 1.610	1.590 - 1.720 1.590 - 1.685	1.760 - 1.895 1.760 - 1.865
	41	1000	Stranded & Compressed	1.485 - 1.610	1.575 - 1.705	1.645 - 1.775	1.815 - 1.955

## Deadbreak ETP Elbow Component Items:

Description	Catalog #
T-Body with Test Point	625TBT
T-Body without Test Point	625TB
15 kV Elbow Tap Plug (ETP)	615ETP
25/28 kV Elbow Tap Plug (ETP)	625ETP
5/8" - 11 UNC Threaded Aluminum Stud	625SA
15 kV Insulating Cap	215ICI
25/28 kV Insulating Cap	9U01BEW500
Cable Adapter	625CAx
Compression Connector	625LUGxx
Shear Bolt Connector	625LUGUx
Cable Sizing Kit	625CKxxx

### Notes:

Connectors can be used for both aluminum and copper cable conductors.  
Contact representative for conductors not listed above.



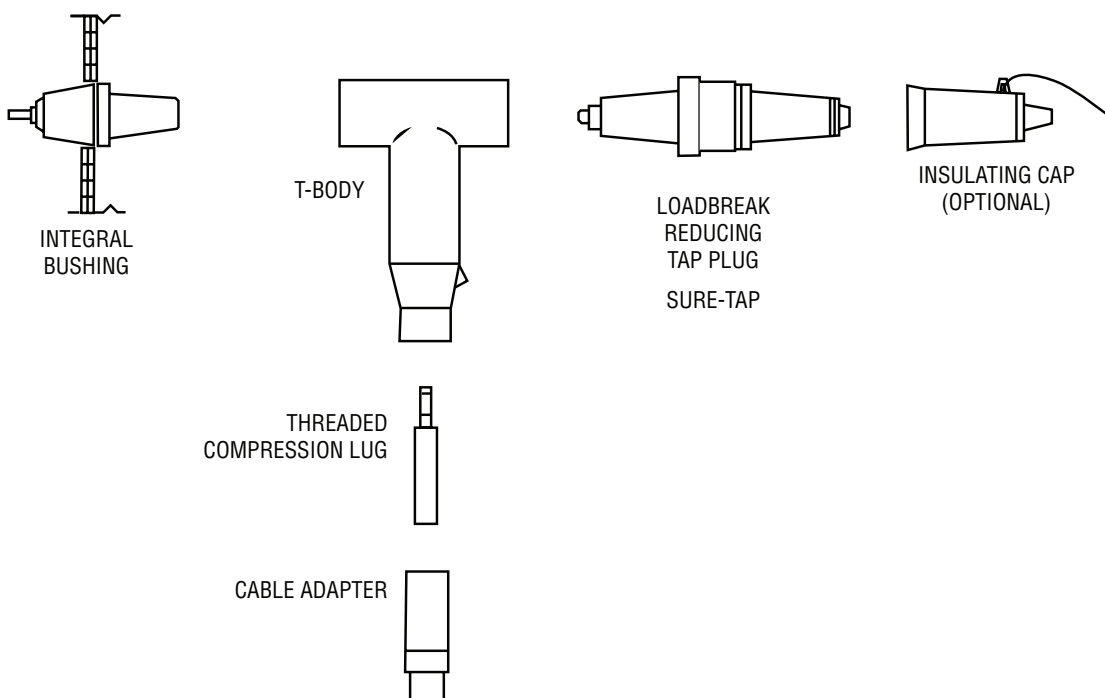
# SURE-TAP ELBOW TERMINATION SYSTEM

- First of its kind design using all aluminum or all copper mating components making for a more reliable electrical connection. Mixed metal current paths thermal cycle poorly and can lead to failure
- Special stud design prevents cross threading and backwards installation
- Wide torque range with 55ft\*lbs as the optimal torque but can be used at 20ft\*lbs if desired
- Internal parts turn freely inside of Sure-Tap (this decreases friction between LRTP and T-body interface giving more accurate torque to the bushing)
- Alignment nose is designed to prevent cross threading and easily breaks free after proper shear torque has been reached, which exposes internal threads to mate with bushing stud

The Sure-Tap™ system is ideal for applications where the deadbreak elbow will be moved to achieve a visible break. T-body and Sure-Tap™ operate as one unit, making it easier to install and remove from the mating bushing interface. The 200A loadbreak interface can be either 15kV or 25kV rated. This interface allows for direct connection test, phasing and a visible ground. In addition, it can be used to add a tap, or install an elbow arrester to protect your underground distribution system from voltage surges.

The LRTP system uses a threaded compression lug allowing the LRTP to be threaded into the T-body forming an integral termination system. The T-body can be ordered with or without a capacitive test point.

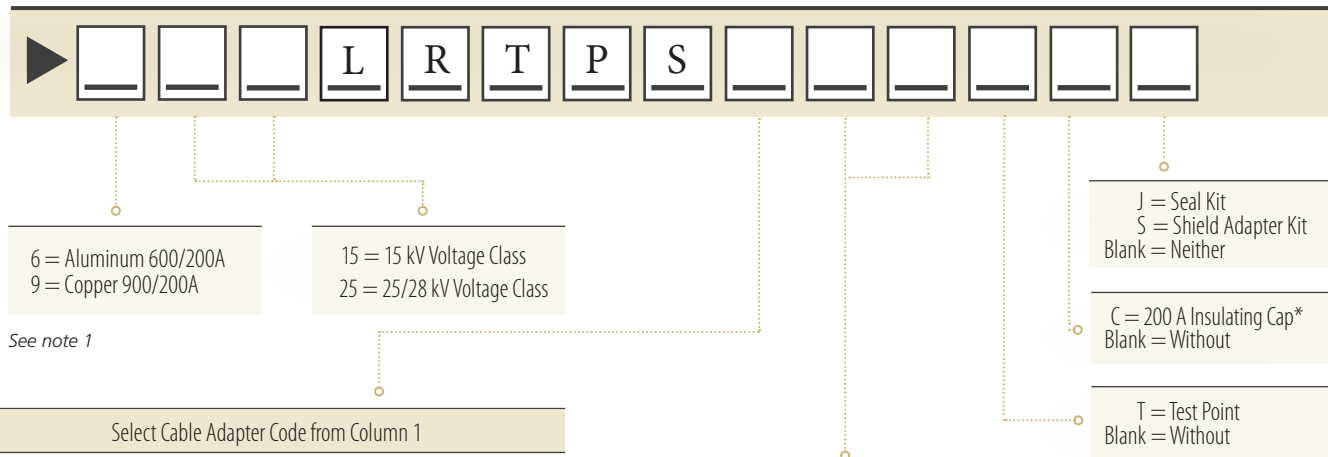
## Sure-Tap LRTP Elbow Termination System





# CATALOG NUMBER ORDERING INFORMATION

**Example:** The part number for 25/28 kV Sure-Tap kit for 500 stranded, 260 mil cable with an insulation diameter of 1.415" and a test point: 625LRTPSLM33T



Cable Adapter Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
E	.530 - .680	13,5 - 17,3
F	.640 - .820	16,3 - 20,8
G	.760 - .950	19,3 - 24,1
H	.850 - 1.050	21,6 - 26,7
J	.980 - 1.180	24,9 - 30,0
K	1.090 - 1.310	27,7 - 33,3
L	1.180 - 1.465	30,0 - 37,2
LM	1.280 - 1.430	32,5 - 36,3
M	1.370 - 1.630	34,8 - 41,4
N	1.515 - 1.780	38,5 - 45,2
P	1.725 - 1.935	43,8 - 49,1

Select Connector Code from Column 1						
Connector Code	AWG or kcmil	Stranding	15 kV - 175mil (Inches)	15 kV - 220mil (Inches)	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)
22	#2 #1	Stranded & Compressed Compact & Solid	0.635 - 0.730 0.645 - 0.735	0.725 - 0.825 0.735 - 0.830	0.805 - 0.905	
23	#1 1/0	Stranded & Compressed Compact & Solid	0.675 - 0.770 0.680 - 0.775	0.765 - 0.855 0.770 - 0.865	0.835 - 0.935 0.835 - 0.940	1.010 - 1.120
24	1/0 2/0	Stranded & Compressed Compact & Solid	0.715 - 0.810 0.715 - 0.815	0.805 - 0.905 0.805 - 0.905	0.875 - 0.980 0.875 - 0.980	1.045 - 1.155 1.045 - 1.160
25	2/0 3/0	Stranded & Compressed Compact & Solid	0.760 - 0.855 0.765 - 0.860	0.850 - 0.950 0.855 - 0.955	0.920 - 1.025 0.925 - 1.030	1.090 - 1.200 1.095 - 1.205
26	3/0 4/0	Stranded & Compressed Compact & Solid	0.810 - 0.905 0.815 - 0.910	0.900 - 1.000 0.905 - 1.005	0.970 - 1.075 0.975 - 1.080	1.140 - 1.255 1.140 - 1.260
27	4/0 250	Stranded & Compressed Compact & Solid	0.865 - 0.965 0.880 - 0.965	0.955 - 1.060 1.010 - 1.115	1.025 - 1.135 1.025 - 1.135	1.195 - 1.310 1.210 - 1.315
28	250	Stranded & Compressed	0.920 - 1.020	1.010 - 1.115	1.080 - 1.190	1.250 - 1.370
29	350	Compact	0.980 - 1.065	1.070 - 1.155	1.140 - 1.230	1.310 - 1.410
30	350	Stranded & Compressed	1.025 - 1.130	1.115 - 1.220	1.185 - 1.295	1.355 - 1.475
32	500	Compact	1.100 - 1.185	1.190 - 1.275	1.260 - 1.350	1.430 - 1.530
33	500 600	Stranded & Compressed Compact	1.150 - 1.260 1.185 - 1.270	1.240 - 1.355 1.275 - 1.365	1.310 - 1.430 1.345 - 1.440	1.480 - 1.605 1.575 - 1.615
35	600 700	Stranded & Compressed Compact	1.235 - 1.350 1.245 - 1.335	1.325 - 1.445 1.335 - 1.430	1.395 - 1.520 1.405 - 1.500	1.565 - 1.695 1.575 - 1.680
36	750	Compact	1.280 - 1.365	1.370 - 1.460	1.440 - 1.535	1.610 - 1.710
38	700 750 900	Stranded & Compressed Stranded & Compressed Compact	1.305 - 1.420 1.340 - 1.456 1.370 - 1.455	1.395 - 1.515 1.430 - 1.550 1.460 - 1.550	1.465 - 1.590 1.500 - 1.625 1.530 - 1.625	1.635 - 1.765 1.670 - 1.800 1.700 - 1.800
39	800	Stranded & Compressed	1.370 - 1.455	1.460 - 1.580	1.530 - 1.655	1.700 - 1.835
40	900 1000	Stranded & Compressed Compact	1.430 - 1.550 1.430 - 1.515	1.520 - 1.645 1.520 - 1.610	1.590 - 1.720 1.590 - 1.685	1.760 - 1.895 1.760 - 1.865
41	1000	Stranded & Compressed	1.485 - 1.610	1.575 - 1.705	1.645 - 1.775	1.815 - 1.955

Connectors can be used for both aluminum and copper cable conductors.  
Contact representative for conductors not listed above.

Note 1: For copper top lug make the first character in the part number a "9" and add a "B" after the connector code.

Example: The part number for a 900 A 25kV Sure-Tap kit for 750 stranded, 260 mil cable with a copper-top connector and test point would be, 925LRTPS38BT

## Deadbreak LRTP Component Items:

Description	Catalog #
T-Body with Test Point	625TBT
T-Body without Test Point	625TB
15 kV Sure-Tap (LRTP) Plug (LRTP)	615LRTPS
25/28 kV Sure-Tap (LRTP) Plug (LRTP)	625LRTPS
15 kV Insulating Cap	215ICI
25/28kV Sure-Break™ insulating cap	228ICS
Cable Adapter	625CAx
Threaded Compression Connector	625LUGxxT
Cable Sizing Kit	625CKxxx
Aluminum Sure-Tap Stud	625SAST
Copper Sure-Tap Stud	925SAST

\* 25kV kits with insulating caps will come with Sure-Break insulating caps



# MODULAR SPLICING KITS



The Hubbell 600 A Deadbreak T-body can also be used to splice power cables by connecting multiple T-bodies using other accessory products.

To order a Modular Splicing Kit, simply build your catalog number using the indicator above.

To order Hubbell Modular Splicing kits you must first specify the splicing application by selecting the Splicing Code that represents your application.

Example: The application requires a separable connector without test point between two 25/28 kV, 500kcmil power cables. Referring to the chart above, the splicing code to be used is "2".

The basic Catalog Number will be 625L\_. By inserting the splice code, "2" immediately following the "L" in the basic catalog number, the catalog number to order is a 625L2. All "non-size" sensitive components will be included in the kit when ordering. You must order "size sensitive" components separately.

Compression connectors can be used for both aluminum and copper cable conductors.

# 15/25/28 kV DEADBREAK ACCESSORIES

## 625CP

### Connecting Plug

The Connecting Plug is exclusively for joining or connecting two or more 600 A T-bodies or bushing extenders. The Connecting Plug incorporates a straight through aluminum bus for the transfer of current between the mating 600 A T-bodies. To tighten, a 3/8" hex wrench is inserted into broached holes in each end of bus bar.



## 625BIP

### Basic Insulating Plug

The Basic Insulating Plug is a key component of every Hubbell 600 A Deadbreak T-body Kit and is required to secure the 600 A T-body in place. The 1" hex located on top of the Basic Insulating Plug doubles as a means of tightening the T-body on to its mating part and also as a capacitive test point.



*Note: To have the stud included in the kit, add "S" to the part number. To have the stud pre-installed add "SP" to the part number.*

# 15/25/28 kV DEADBREAK ACCESSORIES

## 625IC Insulating Cap

The 600 A Insulating Cap isolates unused 600 A interfaces. It is insulated and fully shielded to provide submersible protection for energized 15 kV and 25/28 kV deadbreak interfaces. To avoid low-energy discharge from the outer conductive shield, the 36" long braided lead wire should be grounded.



## 625ICSP Short Insulating Cap

The Short Insulating Cap provides the same function as the standard 625IC but utilizes less space. The stud is also permanently installed.



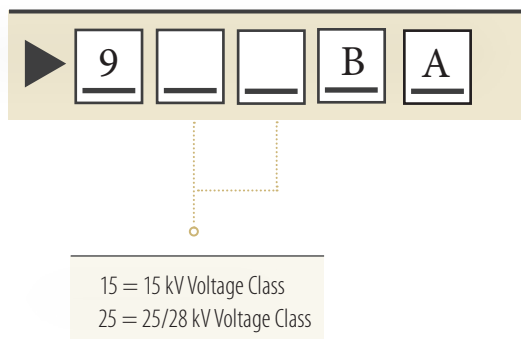
## 625BE Bushing Extender

The bushing extender is used to increase the distance between the 600 A bushing interface and the 600 A T-body. The extender is insulated and shielded to protect deadfront integrity.



## 9\_\_BA Bushing Adapter

The Bushing Adapter provides a means to reduce a 600 A bushing to a 200 A loadbreak interface. The BA is fault close rated for 10,000 A and complies with IEEE Std. 386. The adapter is fault close rated for 10,000 A, complies with IEEE Std. 386, and is available in both 15 kV and 25/28 kV ratings.



# 15/25/28 kV DEADBREAK ACCESSORIES

## 625SB Standoff Bushing

The 25/28 kV Standoff Bushing provides a single deadbreak interface used to isolate and sectionalize an energized cable. The Standoff Bushing is designed to be installed in the parking stand mounted on a transformer or other device. A grounding lug is provided on the bracket for attachment of a ground wire.



## 625GB Grounded Bushing

The 25/28 kV Grounded Bushing provides a single deadbreak interface used to achieve a visible ground on de-energized cables.

*Note: To have the stud included in the kit, add an "S" to the part number. To have the stud pre-installed add an "SP" to the part number.*



## Deadbreak Components:

- 625SK52 Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.97" to 1.95"
- 625SK53 Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 1.25" to 2.65"
- 625SK60 Tape Shield Adapter Kit for cable with an overall diameter of 0.83" to 1.95"
- 625SK61 Tape Shield Adapter Kit for cable with an overall diameter of 1.25" to 2.65"
- 625SK62 Tape Shield Adapter Kit for cable with an overall diameter of 1.63" to 2.67"



# 15/25/28 kV DEADBREAK ACCESSORIES

## 6 \_ \_ ETP Elbow Tap Plug

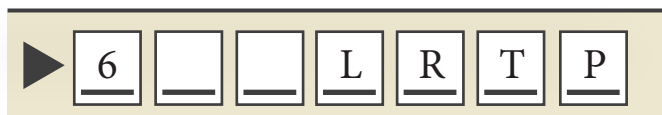
The 600 A Elbow Tap Plug is designed to add a 200 A loadbreak interface to an existing 600 A deadbreak T-Body. It is ideal for retrofitting an existing bolted elbow with a 200 A tap or for new applications. A common application is for testing and grounding 600 A systems. The ETP is fault close rated to 10,000 A, complies with IEEE Std. 386 and is available in both 15 kV and 25/28 kV ratings.



15 = 15 kV Voltage Class  
25 = 25/28 kV Voltage Class

## 6 \_ \_ LRTP Loadbreak Reducing Tap Plug

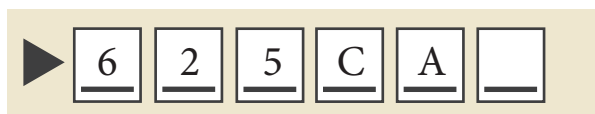
The 600 A Loadbreak Reducing Tap Plug is designed to add a 200 A loadbreak interface device to an existing 600 A deadbreak T-Body using a bolted connection. A common application is for grounding and isolating 600 A systems. The LRTP is fault close rated to 10,000 A, complies with IEEE Std. 386 and is available in both 15 kV and 25/28 kV ratings.



15 = 15 kV Voltage Class  
25 = 25/28 kV Voltage Class

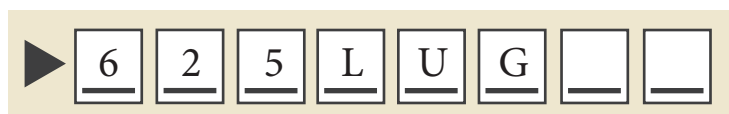


## 625CA\_ Cable Adapter



Cable Adapter Code	Range (Inches)	Range (mm)
E	0.530 - 0.675	13,5 - 17,3
F	0.640 - 0.820	16,3 - 20,8
G	0.760 - 0.950	19,3 - 24,1
H	0.850 - 1.050	21,6 - 26,7
J	0.980 - 1.180	24,9 - 30,0
K	1.090 - 1.310	27,7 - 33,3
L	1.180 - 1.465	30,0 - 37,2
LM	1.280 - 1.430	32,5 - 36,3
M	1.370 - 1.630	34,8 - 41,4
N	1.515 - 1.780	38,5 - 45,2
P	1.725 - 1.935	43,8 - 49,1

## 625LUG\_ Compression/Shear Bolt Connectors



Shear Bolt Connector Code	Connector Code	Concentric Compressed	Contact Solid
U1	22	#2	#1
	23	#1	1/0
	24	1/0	2/0
	25	2/0	3/0
	26	3/0	4/0
	27	4/0	250
U2	28	250	300
	29	300	350
	30	350	400
	31	400	450
	32	450	500/550
U3	33	500	600
	34	550	650
	35	600	700
	36	650	750
	38	700/750	900
U4	39	800	---
	40	900	1000
	41	1000	---
	44	1250	---

\*Connectors can be used for both aluminum and copper cable conductors.



# 25/28 kV DEADBREAK JUNCTIONS

## JUNCTION SELECTION AND ORDERING

**Example:** 4-point junction, supplied with U-straps: 625J4U

▶

6

2

5

J

Hubbell Product Prefix

2 = 2 Position

3 = 3 Position

4 = 4 Position

B = With Bracket

U = With U-straps



## JUNCTION DESCRIPTION

Hubbell junctions sectionalize feeders or provide a lateral tap. They are available in two, three and four point configurations.

Standard 600 A products contain an aluminum bus bar and mate with any 15/25/28 kV rated separable connector.

Junctions are available with a stainless steel mounting bracket which includes two integral parking stands and a ground lug. Junctions can also be ordered with only U-straps for surface mounting.

## Junction Component Parts:

625U51      Junction U-strap, Stainless Steel



# TAPMASTER™ MULTI-POINT JUNCTION

The 25/28 kV TapMaster™ Junction offers a complete change in design approach, addressing the issues of space savings in vaults and enclosures, mounting flexibility and the flexibility of locating parking stands to accept accessory products required to operate and maintain a distribution system.



3, 4, 5, or 6 pt junction with any configuration of 600 A interfaces and 200 A wells needed for any project.

## Product Features

Hubbell TapMaster™ Multi-Point Junctions are designed and tested to meet IEEE Std. 386. They are available with three to six positions and are 'built' to the user's specification utilizing any combination of IEEE 200 A wells and 600 A bushing interfaces. They have all copper current carrying components.

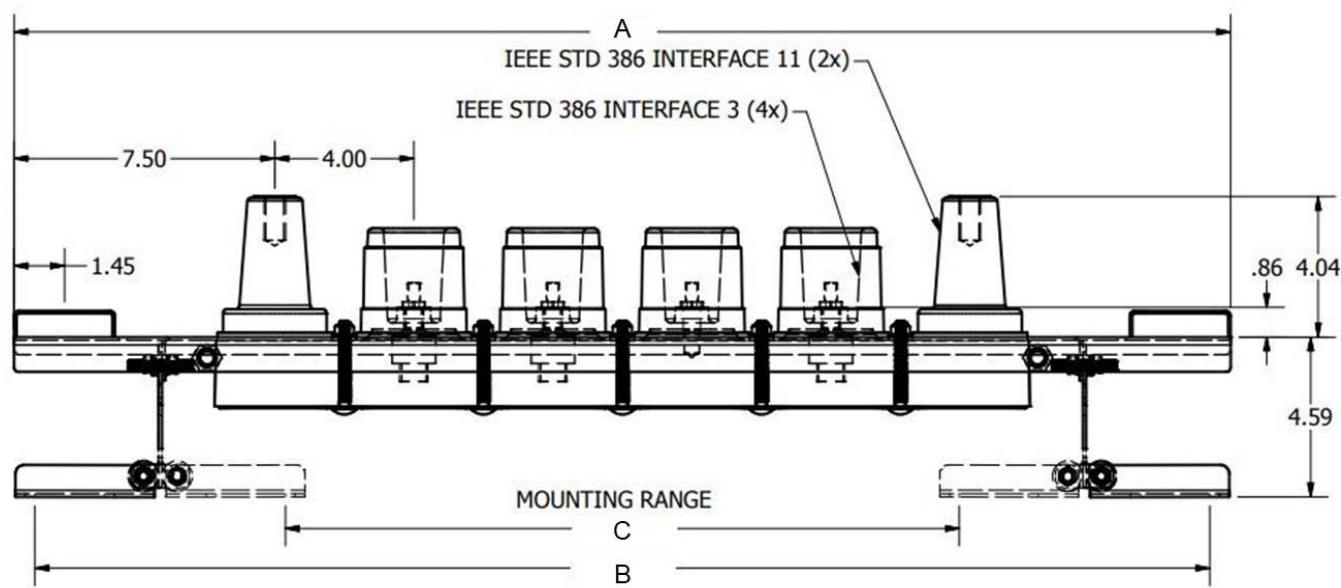
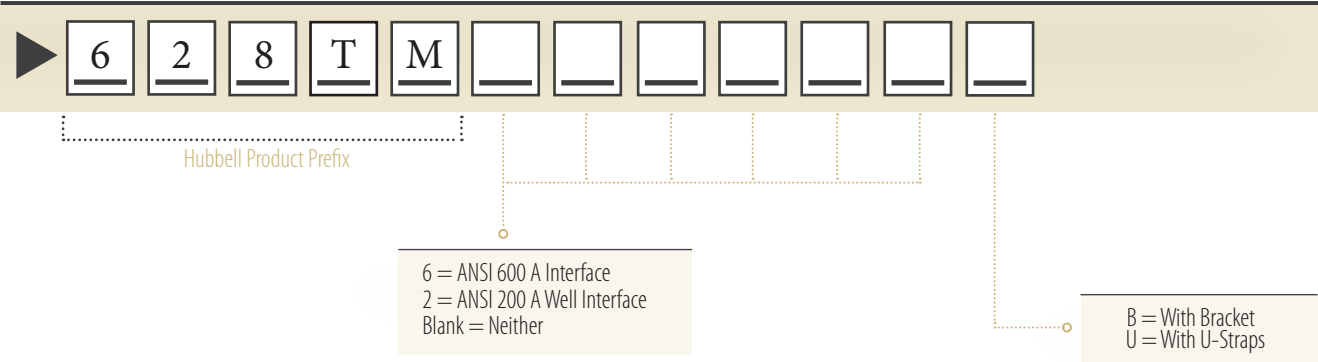
TapMaster™ junctions can be surface mounted in sectionalizing cabinets or are available with a stainless steel adjustable bracket for vault wall mounting.

## Product Benefits

The TapMaster™ Junction provides a simple solution to taking 200 A taps off a 600 A system with increased flexibility to operate and maintain the distribution system. It eliminates the need to stack 200 A taps on a 600 A T-body. It provides both an easy method to disconnect a 600 A elbow from a junction location without moving 200 A cable and the flexibility to design a junction location with provisions for testing and grounding by simply adding a well location where a standard bushing insert and insulating cap can be installed for future use. This location can be used to test and ground without moving cables or "breaking down" the installation. It may also be used as an arrester location.

The modular concept allows the user to easily specify three to six positions with any combinations of 600 A or 200 A interfaces. An adjustable mounting bracket permits positioning upward or downward to accept connecting cables.

# CATALOG NUMBER ORDERING INFORMATION

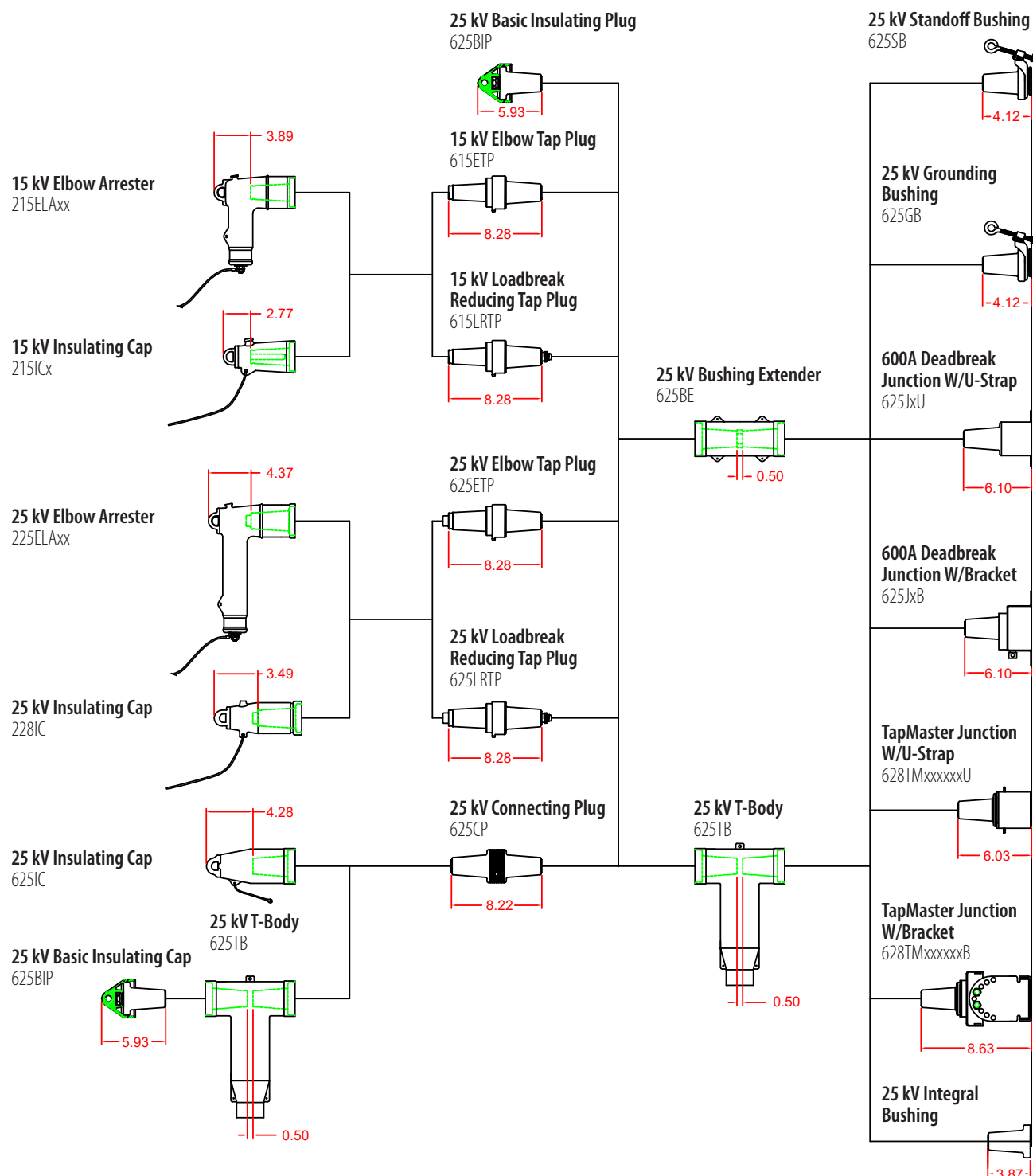


No. Positions	Dimension (A)	Dimension (B)	Dimension (C)
3	23.0 (584)	21.8 (554)	7.4 (188)
4	27.0 (686)	25.8 (655)	11.4 (290)
5	31.0 (787)	29.8 (757)	15.4 (391)
6	35.0 (889)	33.8 (859)	19.4 (493)



# STACKING DIMENSIONS

The diagram below shows typical Cable Accessories combinations and includes the dimensions for each part as they pertain to this diagram. Choose a desired combination and add up the dimensions of each part to obtain the distance the complete unit would extend from the equipment face plate. Example: A 600 A Standoff Bushing with a 600 A T-Body and a 15kV Elbow Tap Plug and a 15 kV Elbow Arrester would have a stacking dimension of 16.79 inches ( $4.12 + 0.50 + 8.28 + 3.89$ ).





# 600 A Deadbreak

35 kV PRODUCTS



# 35 kV DEADBREAK PRODUCTS

## RATINGS & SPECIFICATIONS

### GENERAL INFORMATION

The Hubbell 600 A 35 kV Deadbreak T-body offers an easy and reliable method of terminating and splicing main feeder circuits. The Deadbreak T-Body is a fully shielded, molded rubber connector.

The Deadbreak T-body is designed to terminate power cables with copper or aluminum conductors ranging in size from #2 AWG to 1250 kcmil. It may be installed on any 600 A rated apparatus bushing that meets IEEE Std. 386 Interface 13. Cable adapters accommodate power cable insulation diameters from 0.530 to 1.935 inches.

The Hubbell Deadbreak T-body has been designed and tested to meet the requirement of IEEE Std. 386 and IEEE Std. 592. Conformance to the industry standards ensures mechanical and electrical interchangeability with other manufacturer's products that are also in conformance with these standards.

### RATINGS

Max. continuous voltage ..... 21.1 kV phase-to-ground  
36.6 kV phase-to-phase  
Continuous current ..... 600 A rms  
(Aluminum components)

### SHORT-TIME CURRENT RATINGS

0.17 seconds duration ..... 25,000 A rms symmetrical  
3.00 seconds duration ..... 10,000 A rms symmetrical

### INSULATION WITHSTAND VOLTAGES

Basic Impulse Level ..... 150 kV crest  
(1.2 x 50  $\mu$ sec. wave)  
60 Hertz (one minute) ..... 50 kV rms  
Corona Extinction Voltage ..... 26 kV rms  
(5 pC)

### OVERLOAD CURRENT

4 hour rating ..... 900 A rms

### PRODUCTION TESTS

100% factory test for partial discharge and either AC HI-POT  
(50 kV for 60 seconds) or impulse (BIL) (150 kV 1.2 x 50  $\mu$ sec. wave).

Performance



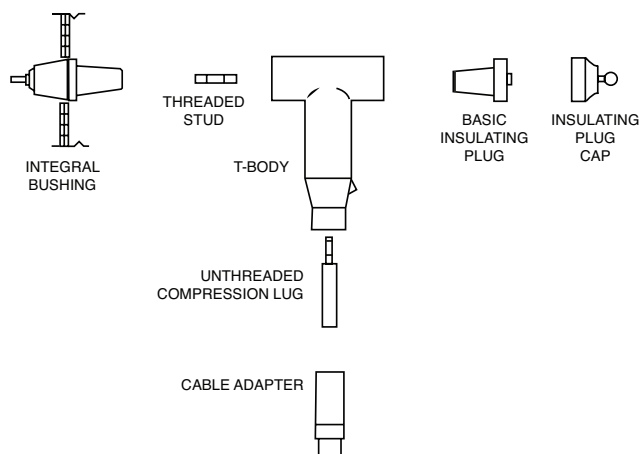
# DEADBREAK BOLTED T-BODY SYSTEM

The Hubbell Power Systems 600 A 35 kV rated Deadbreak Bolted T-body System is designed to terminate medium voltage underground distribution cable to switchgear, transformers, sectionalizing cabinets and underground distribution vault applications. The Bolted T-body system is comprised of a standard 600 A T-body, an unthreaded compression lug, a cable adapter and

a basic insulating plug with cap. The T-body can be ordered with or without a capacitive test point.

Bolted T-body systems provide an economical means of terminating cable in applications where the visible open and ground will be achieved through the use of an internal switch and viewing window. In addition, it can be combined with other Bolted T-body kits and/or deadbreak junctions to construct a multi-way separable splice.

## Bolted T-body System



## SELECTION & ORDERING INFORMATION

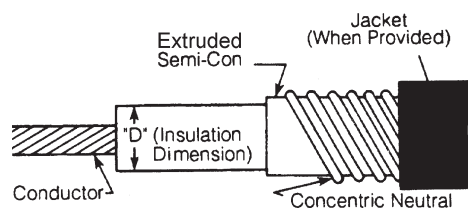
Determine the diameter over the cable's insulation by finding it in the manufacturer's catalog or by measuring it (do not measure over the extruded semi-con). Select a cable adapter so that the insulation falls within the its range.

Select a connector code that identifies the conductor size and stranding.

Decide if a capacitive test point is required.

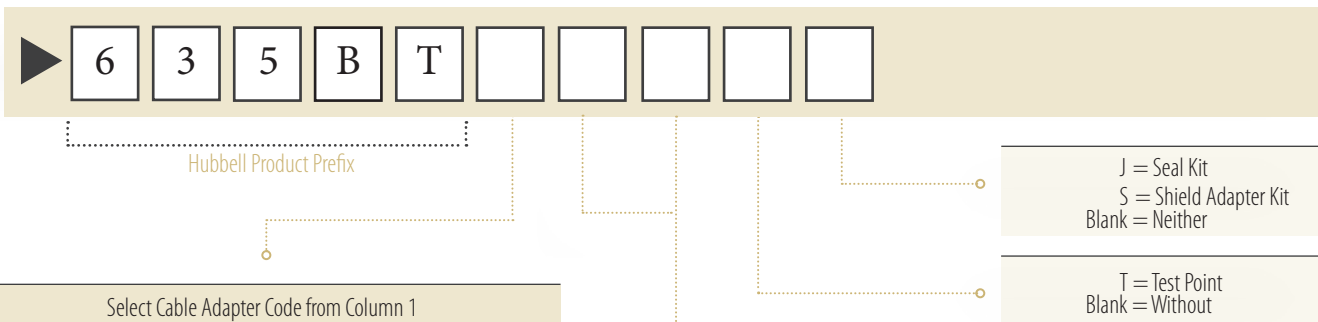
The elbow can be supplied with a separate, cold-shrink seal kit for jacketed concentric neutral cable, or it can be furnished with a separate adapter kit for copper tape shield cables.

## Cable Dimension Reference



# CATALOG NUMBER ORDERING INFORMATION

**Example:** The part number for 35 kV Bolted Elbow kit for 500 stranded, 260 mil cable with an insulation diameter of 1.55" and a test point is: 635BTL33T



Select Cable Adapter Code from Column 1		
Cable Adapter Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
D	.750 - .985	19.05 - 25.0
E	0.930 - 1.040	23.6 - 26.4
F	.980 - 1.115	24.9 - 28.3
G	1.040 - 1.175	26.4 - 29.8
H	1.095 - 1.240	27.8 - 31.5
J	1.160 - 1.305	29.5 - 33.1
K	1.220 - 1.375	31.0 - 34.9
L	1.285 - 1.395	32.6 - 35.4
M	1.355 - 1.520	34.4 - 39.0
N	1.485 - 1.595	37.7 - 40.5
P	1.530 - 1.640	38.9 - 41.7
Q	1.575 - 1.685	40.0 - 42.8
R	1.665 - 1.785	42.3 - 45.3
S	1.755 - 1.875	45.1 - 47.6
T	1.845 - 1.965	46.9 - 50.0
U	1.935 - 2.055	49.1 - 52.2
V	2.025 - 2.145	51.4 - 54.5

Select Connector Code from Column 1 or 2						
Shear Bolt Connector Code	Connector Code	AWG or kcmil	Stranding	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)	35 kV - 420mil (Inches)
U1	22	#1	Comp & Sol	0.805 - 0.905		
	23	#1 1/0	Str & Compr Comp & Sol	0.835 - 0.935 0.835 - 0.940	1.010 - 1.120	1.060 - 1.265
	24	1/0 2/0	Str & Compr Comp & Sol	0.875 - 0.980 0.875 - 0.980	1.045 - 1.155 1.045 - 1.160	1.185 - 1.305 1.200 - 1.305
	25	2/0 3/0	Str & Compr Comp & Sol	0.920 - 1.025 0.925 - 1.030	1.090 - 1.200 1.095 - 1.205	1.230 - 1.350 1.245 - 1.355
	26	3/0 4/0	Str & Compr Comp & Sol	0.970 - 1.075 0.975 - 1.080	1.140 - 1.255 1.160 - 1.255	1.280 - 1.400 1.300 - 1.405
	27	4/0 250	Str & Compr Compact & Sol	1.025 - 1.135 1.025 - 1.135	1.195 - 1.310 1.210 - 1.315	1.335 - 1.460 1.350 - 1.475
	28	250	Str & Compr	1.080 - 1.190	1.250 - 1.370	1.390 - 1.530
U2	29	350	Compact	1.140 - 1.230	1.310 - 1.410	1.450 - 1.570
	30	350	Str & Compr	1.185 - 1.295	1.355 - 1.475	1.495 - 1.635
	32	500	Compact	1.260 - 1.350	1.430 - 1.530	1.570 - 1.690
	33	500 600	Str & Compr Comp	1.310 - 1.430 1.345 - 1.440	1.480 - 1.605 1.575 - 1.615	1.620 - 1.770 1.655 - 1.780
U3	35	600 700	Str & Compr Compact	1.395 - 1.520 1.405 - 1.500	1.565 - 1.695 1.575 - 1.680	1.705 - 1.860 1.715 - 1.870
	36	750	Compact	1.440 - 1.535	1.610 - 1.710	1.750 - 1.875
	38	700 750 900	Str & Compr Str & Compr Compact	1.465 - 1.590 1.500 - 1.625 1.530 - 1.625	1.635 - 1.765 1.670 - 1.800 1.700 - 1.800	1.775 - 1.930 1.810 - 1.965 1.840 - 1.965
	39	800	Str & Compr	1.530 - 1.655	1.700 - 1.835	1.840 - 1.995
U4	40	900 1000	Str & Compr Compact	1.590 - 1.720 1.590 - 1.685	1.760 - 1.895 1.760 - 1.865	1.900 - 2.060 1.900 - 2.025
	41	1000	Str & Compr	1.645 - 1.775	1.815 - 1.955	1.955 - 2.115
	44	1250	Str & Compr			2.100 - 2.265

## Deadbreak Bolted Elbow Component Parts:

Description	Catalog #
T-Body with Test Point	635TBT
T-Body without Test Point	635TB
Aluminum Insulating Plug with Cap	635BIP
5/8" - 11 UNC Threaded Aluminum Stud	635SA
Cable Adapter	635CAx
Compression Connector	625LUGxx
Shear Bolt Connector	625LUGUx
Cable Sizing Kit	635CKxxx

### Notes:

Connectors can be used for both aluminum and copper cable conductors.  
Contact representative for conductors not listed above.



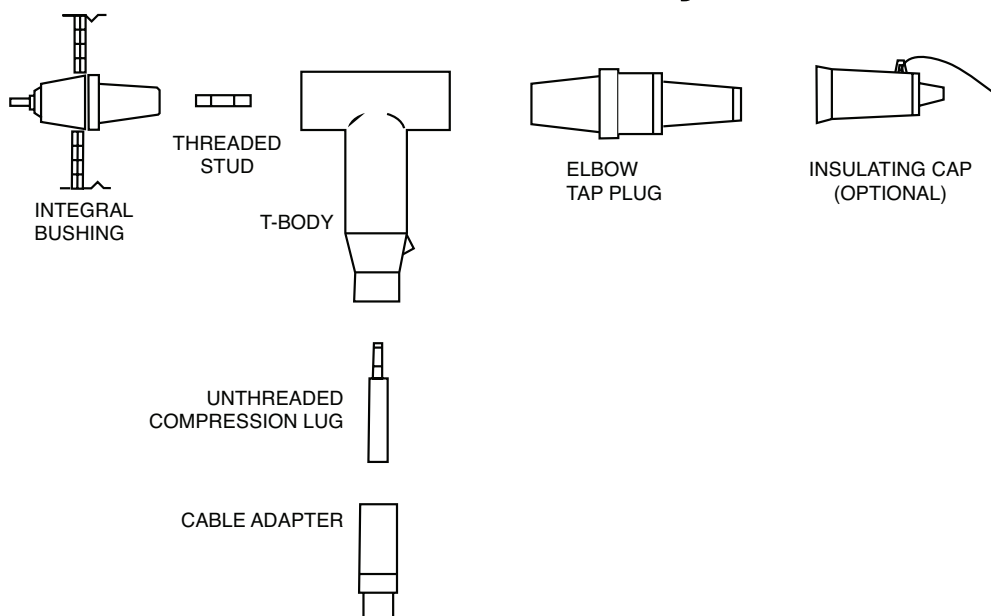
# DEADBREAK ETP ELBOW TERMINATION SYSTEM

The Hubbell Power Systems 600 A 35 kV rated Deadbreak ETP (Elbow Tap Plug) Termination System is designed to terminate medium voltage underground distribution cable to switchgear, transformers, sectionalizing cabinets and underground distribution vault applications. The ETP system is comprised of a standard 600 A T-body, an unthreaded compression lug, a cable adapter and the ETP. The T-body can be ordered with or without a capacitive test point.

The ETP system is ideal for applications where a 200 A tap is desired for test or ground purposes, with the visible open achieved through use of an internal switch and a viewing window. The ETP is also ideal for adding a 200 A tap to an existing 600 A elbow termination.

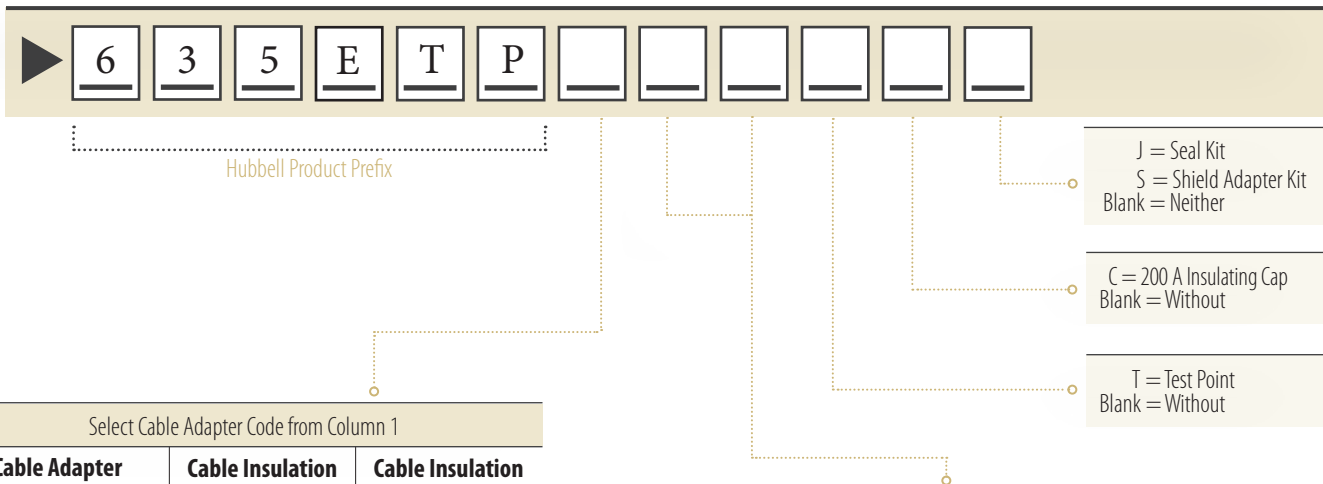
The 200 A loadbreak interface can be either 35 kV rated. This interface allows for live test, visible ground, addition of a 200 A tap, or installation of an elbow arrester to protect your underground distribution system from voltage surges.

## ETP Elbow Termination System



# CATALOG NUMBER ORDERING INFORMATION

**Example:** The part number for a 35 kV ETP kit for 500 stranded 345mil cable with an insulation diameter of 1.55" and an insulating cap is: 635ETPN33C



Select Cable Adapter Code from Column 1		
Cable Adapter Code	Cable Insulation Range (Inches)	Cable Insulation Range (mm)
D	.750 - .985	19.05 - 25.0
E	0.930 - 1.040	23.6 - 26.4
F	.980 - 1.115	24.9 - 28.3
G	1.040 - 1.175	26.4 - 29.8
H	1.095 - 1.240	27.8 - 31.5
J	1.160 - 1.305	29.5 - 33.1
K	1.220 - 1.375	31.0 - 34.9
L	1.285 - 1.395	32.6 - 35.4
M	1.355 - 1.520	34.4 - 39.0
N	1.485 - 1.595	37.7 - 40.5
P	1.530 - 1.640	38.9 - 41.7
Q	1.575 - 1.685	40.0 - 42.8
R	1.665 - 1.785	42.3 - 45.3
S	1.755 - 1.875	45.1 - 47.6
T	1.845 - 1.965	46.9 - 50.0
U	1.935 - 2.055	49.1 - 52.2
V	2.025 - 2.145	51.4 - 54.5

## Deadbreak ETP Elbow Component Items:

Description	Catalog #
T-Body with Test Point	635TBT
T-Body without Test Point	635TB
Elbow Tap Plug (ETP)	635ETP
5/8" - 11 UNC Threaded Aluminum Stud	635SA
Insulating Cap	635IC
Cable Adapter	635CAx
Compression Connector	625LUGxx
Shear Bolt Connector	625LUGUx
Cable Sizing Kit	635CKxxx

Select Connector Code from Column 1 or 2						
Shear Bolt Connector Code	Connector Code	AWG or kcmil	Stranding	25 kV - 260mil (Inches)	35 kV - 345mil (Inches)	35 kV - 420mil (Inches)
U1	22	#1	Comp & Sol	0.805 - 0.905		
	23	#1 1/0	Str & Compr Comp & Sol	0.835 - 0.935		
	24	1/0 2/0	Str & Compr Comp & Sol	0.835 - 0.940	1.010 - 1.120	1.060 - 1.265
				0.875 - 0.980	1.045 - 1.155	1.185 - 1.305
	25	2/0 3/0	Str & Compr Comp & Sol	0.875 - 0.980	1.045 - 1.160	1.200 - 1.305
				0.920 - 1.025	1.090 - 1.200	1.230 - 1.350
	26	3/0 4/0	Str & Compr Comp & Sol	0.925 - 1.030	1.095 - 1.205	1.245 - 1.355
				0.970 - 1.075	1.140 - 1.255	1.280 - 1.400
	27	4/0 250	Str & Compr Compact & Sol	0.975 - 1.080	1.160 - 1.255	1.300 - 1.405
				1.025 - 1.135	1.195 - 1.310	1.335 - 1.460
U2	28	250	Str & Compr	1.025 - 1.135	1.210 - 1.315	1.350 - 1.475
	29	350	Compact	1.080 - 1.190	1.250 - 1.370	1.390 - 1.530
	30	350	Str & Compr	1.140 - 1.230	1.310 - 1.410	1.450 - 1.570
	32	500	Compact	1.185 - 1.295	1.355 - 1.475	1.495 - 1.635
U3	33	500 600	Str & Compr Comp	1.260 - 1.350	1.430 - 1.530	1.570 - 1.690
				1.310 - 1.430	1.480 - 1.605	1.620 - 1.770
	35	600 700	Str & Compr Compact	1.345 - 1.440	1.575 - 1.615	1.655 - 1.780
				1.395 - 1.520	1.565 - 1.695	1.705 - 1.860
	36	750	Compact	1.405 - 1.500	1.575 - 1.680	1.715 - 1.870
				1.440 - 1.535	1.610 - 1.710	1.750 - 1.875
U4	38	700 750 900	Str & Compr Str & Compr Compact	1.465 - 1.590	1.635 - 1.765	1.775 - 1.930
				1.500 - 1.625	1.670 - 1.800	1.810 - 1.965
				1.530 - 1.625	1.700 - 1.800	1.840 - 1.965
				1.530 - 1.655	1.700 - 1.835	1.840 - 1.995
	40	900 1000	Str & Compr Compact	1.590 - 1.720	1.760 - 1.895	1.900 - 2.060
				1.590 - 1.685	1.760 - 1.865	1.900 - 2.025
	41	1000	Str & Compr	1.645 - 1.775	1.815 - 1.955	1.955 - 2.115
	44	1250	Str & Compr			2.100 - 2.265

Notes:  
Connectors can be used for both aluminum and copper cable conductors.  
Contact representative for conductors not listed above.



# 35 KV DEADBREAK ACCESSORIES

## 635BIP Basic Insulating Plug

The Basic Insulating Plug is a key component of every Hubbell 600 A Deadbreak T-body Kit and is required to secure the 600 A T-body in place. The 1" hex located on top of the Basic Insulating Plug doubles as a means of tightening the T-body on to its mating part and also as a capacitive test point.

*Note: To have the stud included in the kit, add an "S" to the part number. To have the stud pre-installed add an "SP" to the part number.*



## 635IC Insulating Cap

The 600 A Insulating Cap isolates unused 600 A interfaces. It is insulated and fully shielded to provide submersible protection for energized 35 kV deadbreak interfaces. To avoid low-energy discharge from the outer conductive shield, the 36" long braided lead wire should be grounded.



## 635BE Bushing Extender

The bushing extender is used to increase the distance between the 600 A bushing interface and the 600 A T-body. The extender is insulated and shielded to protect deadfront integrity.





# 35 KV DEADBREAK ACCESSORIES

## 635ETP Elbow Tap Plug

The 600 A Elbow Tap Plug is designed to add a 200 A loadbreak interface to an existing 600 A deadbreak T-Body. It is ideal for retrofitting an existing bolted elbow with a 200 A tap or for new applications. A common application is for testing and grounding 600 A systems. The ETP is fault close rated to 10,000 A and complies with IEEE Std. 386. The 200 A interface is IEEE Std. 386 Interface 7B (the 35kV small interface).



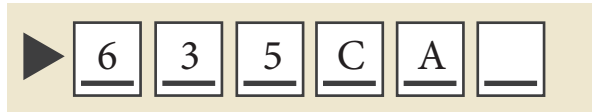
## Deadbreak Components:

- |         |   |
|---------|---|
| 625SK52 | Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 0.97" to 1.94" |
| 625SK53 | Cold Shrink Cable Seal Kit for JCN cable with an overall diameter of 1.25" to 2.65" |
| 625SK60 | Tape Shield Adapter Kit for cable with an overall diameter of 0.83" to 1.95"        |
| 625SK61 | Tape Shield Adapter Kit for cable with an overall diameter of 1.25" to 2.65"        |
| 625SK62 | Tape Shield Adapter Kit for cable with an overall diameter of 1.63" to 3.67"        |



# 35 KV DEADBREAK ACCESSORIES

## 635CA\_ Cable Adapter



Cable Adapter Code	Range (Inches)	Range (mm)
D	0.750 - 0.985	19.05 - 25.0
E	0.930 - 1.040	23.6 - 26.4
F	0.980 - 1.115	24.9 - 28.3
G	1.040 - 1.175	26.4 - 29.8
H	1.095 - 1.240	27.8 - 31.5
J	1.160 - 1.305	29.5 - 33.1
K	1.220 - 1.375	31.0 - 34.9
L	1.285 - 1.395	32.6 - 35.4
M	1.355 - 1.520	34.4 - 39.0
N	1.485 - 1.595	37.7 - 40.5
P	1.530 - 1.640	38.9 - 41.7
Q	1.575 - 1.685	40.0 - 42.8
R	1.665 - 1.785	42.3 - 45.3
S	1.755 - 1.875	45.1 - 47.6
T	1.845 - 1.965	46.9 - 50.0
U	1.935 - 2.055	49.1 - 52.2
V	2.025 - 2.145	51.4 - 54.5

## 625LUG\_ Compression/Shear Bolt Connectors



Shear Bolt Connector Code	Connector Code	Concentric Compressed	Contact Solid
U1	22	#2	#1
	23	#1	1/0
	24	1/0	2/0
	25	2/0	3/0
	26	3/0	4/0
	27	4/0	250
U2	28	250	300
	29	300	350
	30	350	400
	31	400	450
	32	450	500/550
U3	33	500	600
	34	550	650
	35	600	700
	36	650	750
	38	700/750	900
U4	39	800	---
	40	900	1000
	41	1000	---
	44	1250	---

\*Connectors can be used for both aluminum and copper cable conductors.

# 35 KV DEADBREAK JUNCTIONS

## JUNCTION SELECTION AND ORDERING

**Example:** Example: 4- point junction, supplied with U-straps: 635J4U



## JUNCTION DESCRIPTION

Hubbell junctions sectionalize feeders or provide a lateral tap. They are available in two, three and four point configurations.

Standard 600 A products contain an aluminum bus bar and mate with any 35 kV rated separable connector.

Junctions are available with a stainless steel mounting bracket which includes two integral parking stands and a ground lug. Junctions can also be ordered with only U-straps for surface mounting.

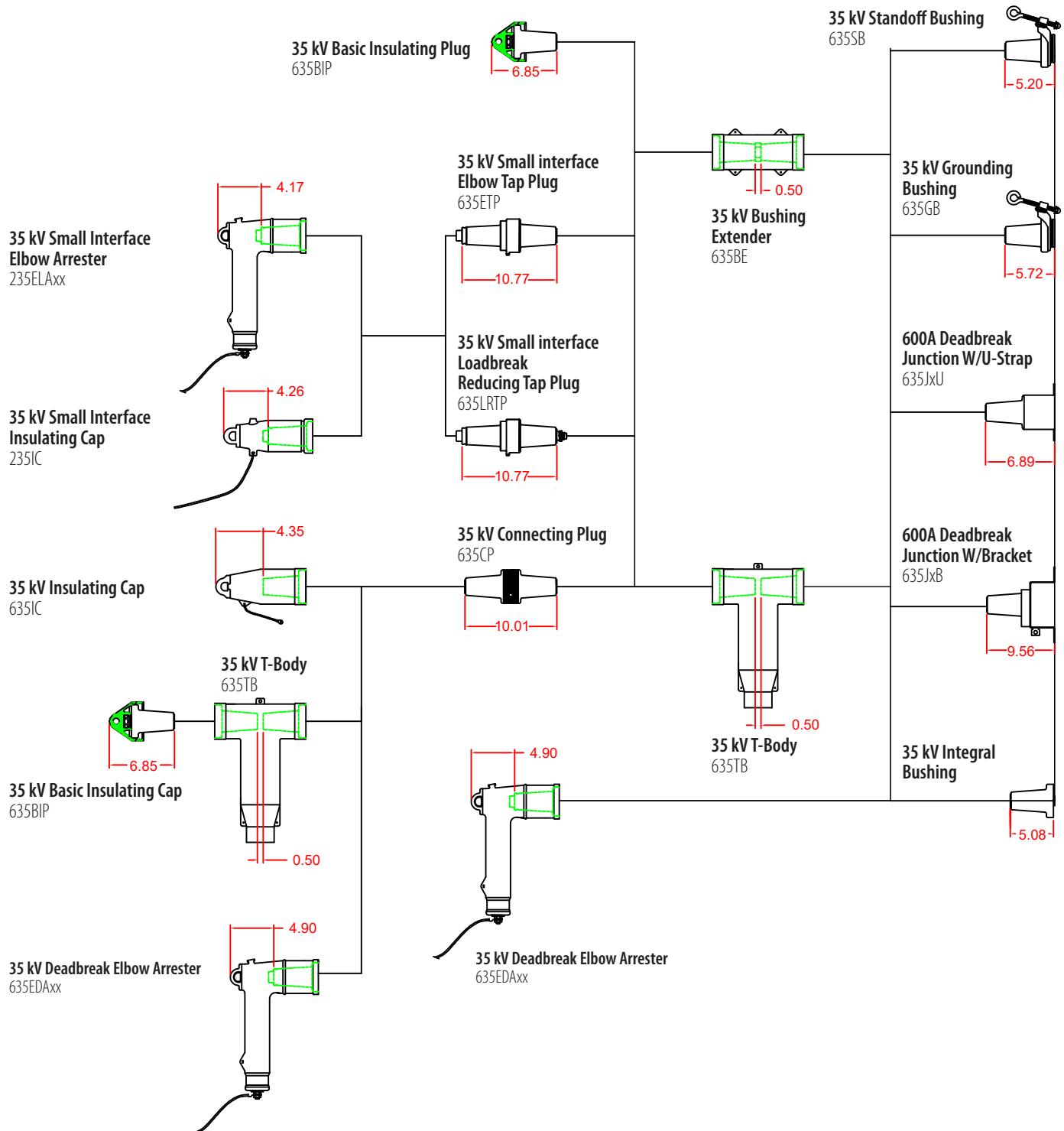
## Junction Component Parts:

635U51      Junction U-strap, Stainless Steel



# 35KV DEADBREAK STACKING DIMENSIONS

The diagram below shows typical Cable Accessories combinations and includes the dimensions for each part as they pertain to this diagram. Choose a desired combination and add up the dimensions of each part to obtain the distance the complete unit would extend from the equipment face plate. Example: A 600 A Standoff Bushing with a 600 A T-Body and a 35kV Elbow Tap Plug and a 35 kV Elbow Arrester would have a stacking dimension of 20.64 inches ( $5.20 + 0.50 + 10.77 + 4.17$ ).





20 horizontal lines for writing.





# Underground Arresters

15/25/28/35 kV PRODUCTS



# UNDERGROUND ARRESTERS

## RATINGS & SPECIFICATIONS

Design Tests	
High Current, Short Duration	2 discharges of 65 kA Crest
Low Current, Long Duration	20 Surges of 75 A for 2,000 $\mu$ sec. duration
Operating Duty Cycle	22 Operations of 5 kA Crest 8 x 20 $\mu$ sec.
Safe Failure Mode	Verify blocks do not breach sidewall

Production Tests Polymer Housing Only per IEEE Std. 386	
Partial Discharge Voltage Level (5 pC sensitivity)	
AC 60 Hz, 1 minute withstand or BIL impulse lightning withstand	
Periodic Fluoroscope Analysis	

Production Tests Complete Unit per IEEE Std. C62.11	
Partial Discharge Voltage Level (10pC sensitivity)	
Reference Voltage	
Power Frequency	

### GENERAL INFORMATION

Hubbell elbow and parkingstand lightning arresters are gapless, metal oxide varistor (MOV) type surge arresters. They are designed to provide shielded, dead-front arrester protection for 15/25/28/35 kV underground systems. The arresters limit over-voltages to acceptable levels, protecting equipment and extending service life.

The critical values for parkingstand and elbow lightning arresters are the discharge voltage (IR) and the IEEE Std. 386 interface class. In general, the lower the discharge voltage, the better the protection margin. Hubbell parkingstand and elbow lightning arresters are non-fragmenting.

Hubbell underground arresters fully conform to the safe-failure mode per IEEE Std. C62.11. The standard requires that should the arrester fail, the blocks will not be ejected through the body or side wall of the housing. The MOV blocks should exit out the bottom, down and away from equipment.

### Application:

Hubbell parkingstand and elbow lightning arresters are designed to mate with 200 A loadbreak interfaces that conform to IEEE Std. 386. The parkingstand lightning arrester contains a defined interface, while the elbow lightning arrester mates with a defined interface.

A Hubbell arrester installed at the end of a radial system or at both ends of an open point in a loop circuit will provide excellent protection against high voltage surges resulting from lightning or switching. When combined with an Ohio Brass PVR (Riser Pole) arrester, optimum protection can be achieved.

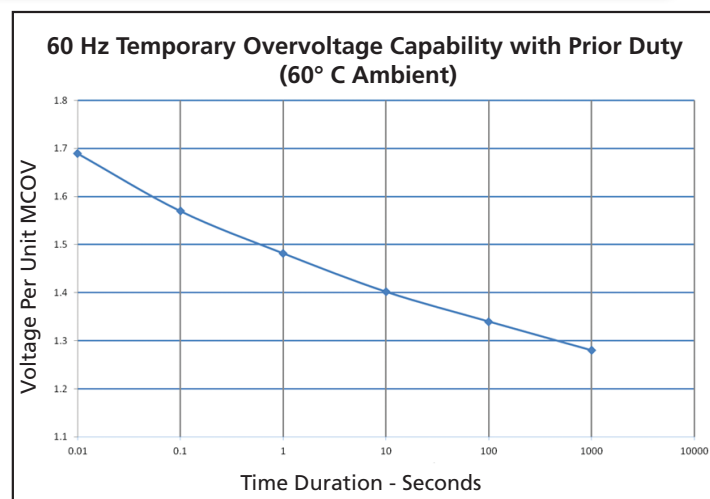
Hubbell arresters are fully shielded and submersible, either continuously or intermittently, to a depth of 6 feet (2m).

### Installation:

The Hubbell arrester should be installed utilizing an 8' shotgun type hotstick.

### Performance Characteristics:

Tests were performed in accordance with applicable sections of IEEE Std. 386 (Separable Insulated Connector Systems for Power Distribution Systems Above 600 V) and IEEE Std. C62.11 (Metal Oxide Surge Arresters for Alternating Current Power Circuits) with test levels chosen that represent typical underground distribution systems.



# UNDERGROUND ARRESTERS

## COMMON TERMS:

**Discharge Voltage:** The voltage the arrester develops while discharging a surge to ground. The lower the voltage, the better the protection

**MCOV:** Maximum Continuous Operating Voltage

**MOV:** Metal Oxide Varistors

**TOV:** Temporary Over-Voltage

## PRODUCT FEATURES:

**Pulling Eye** provides positive hotstick operation. The pulling eye strength exceeds 500 lbs of force.

**Insulation** consists of peroxide-cured EPDM rubber that offers proven, uncompromised reliability and dimensional stability.

**Molded Shield** of conductive peroxide-cured EPDM rubber meets all requirements of IEEE Std. 592 for exposed semi-conducting shields.

**Drain Wire Tab** provides a contact point to attach a #14 ground wire to ensure the shield is at ground potential and maintains deadfront construction.

**Fiberglass Wrap** ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail.

**ID Band** provides clear visual identification of arrester MCOV and duty cycle ratings.

**Flexible Lead** is #4 AWG copper rope lay conductor 595 strand (7 x 85). Ends are soldered to prevent fraying. Standard length is 36" long. Other lead lengths are available.

**MOV Blocks** are the same as used in Ohio Brass overhead arresters.



# ARRESTER SELECTION

## Normally Recommended MCOV for Various System Voltages

### Hubbell Elbow/Parkingstand Lightning Arrester Selection

Selection of the arrester size is based upon the maximum continuous operating voltage (MCOV) line-to-ground that is applied across the arrester in service. For arresters on effectively grounded systems, this is normally the maximum line-to-ground voltage – e.g., 7.65 kV on a 12.47 kV multi-grounded system.

For ungrounded or impedance-grounded systems, the MCOV should be at least 90 percent of maximum phase-to-phase voltage. Smaller arresters than shown may be used; contact your Hubbell Power Systems account representative for details.

System L-L Voltage (kV)		Arrester MCOV (kV)	
Nominal	Maximum	Grounded Neutral	Impedance Grounded or Ungrounded
2.40	2.54	2.55	2.55
4.16	4.37	2.55	5.10
4.80	5.04	5.10	5.10
6.90	7.26	5.10	7.65
12.00	12.70	7.65	12.70
12.47	13.20	7.65	15.30
13.20	13.97	8.40	15.30
13.80	14.52	8.40	15.30
20.78	22.00	12.70	22.00
22.86	24.20	15.30	24.40
23.00	24.34	15.30	24.40
24.94	26.20	15.30	---
27.00	28.00	17.00	---
34.50	36.20	22.00	---

## Protective Characteristics

Catalog Number	MCOV kV	Rating kV	0.5 $\mu$ sec 5 kA Max IR-kV	Maximum Discharge Voltage (kV Crest)				
				1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA
2__LA03	2.55	3	12.5	9.8	10.3	11.0	12.3	14.3
2__LA06	5.1	6	25.0	19.5	20.5	22.0	24.5	28.5
2__LA09	7.65	9	33.5	26.8	28.0	30.0	33.0	39.0
2__LA10	8.4	10	36.0	27.0	29.5	31.5	36.0	41.5
2__LA12	10.2	12	50.0	39.0	41.0	44.0	49.0	57.0
2__LA15	12.7	15	58.5	45.5	48.5	52.0	57.5	67.5
2__LA18	15.3	18	67.0	52.0	56.0	60.0	66.0	78.0
2__LA21	17.0	21	73.0	55.0	60.0	64.0	73.0	84.0
2__LA24	19.5	24	92.0	71.5	76.5	82.0	90.5	106.5
2__LA27	22.0	27	100.5	78.0	84.0	90.0	99.0	117.0
2__LA30	24.4	30	108.0	81.0	88.5	94.5	108.0	131.5

# 15 kV UNDERGROUND ARRESTERS

## PRODUCT FEATURES:

**Fiberglass Wrap** ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail.

**ID Band** provides clear visual identification of arrester MCOV and duty cycle ratings.

**Flexible Lead** is #4 AWG copper rope lay conductor 595 strand (7 x 85). Ends are soldered to prevent fraying. Standard length is 36" long. Other lead lengths are available.

**MOV Blocks** are the same as used in Ohio Brass overhead arresters.



## Protective Characteristics

Catalog Number	MCOV kV	Rating kV	0.5 $\mu$ sec. 5 kA Max IR-kV	Maximum Discharge Voltage (kV Crest) 8x20 $\mu$ sec. Current Wave				
				1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA
215_LA03	2.55	3	12.5	9.8	10.3	11	12.3	14.3
215_LA06	5.1	6	25	19.5	20.5	22	24.5	28.5
215_LA09	7.65	9	33.5	26	28	30	33	39
215_LA10	8.4	10	36	27	29.5	31.5	36	41.5
215_LA12	10.2	12	50	39	41	44	49	57
215_LA15	12.7	15	58.5	45.5	48.5	52.0	57.5	67.5
215_LA18	15.3	18	67.0	52.0	56.0	60.0	66.0	78.0

## Normally Recommended MCOV for Various System Voltages

System L-L Voltage (kV)		Arrester MCOV (kV)	
Nominal	Maximum	Grounded Neutral	Impedance Grounded or Ungrounded
2.40	2.54	2.55	2.55
4.16	4.37	2.55	5.10
4.80	5.04	5.10	5.10
6.90	7.26	5.10	7.65
12.00	12.70	7.65	12.70
12.47	13.20	7.65	15.30
13.20	13.97	8.40	15.30
13.80	14.52	8.40	15.30



## Hubbell URD Arrester Selection

Selection of the arrester size is based upon the maximum continuous operating voltage (MCOV) line-to-ground that is applied across the arrester in service. For arresters on effectively grounded systems, this is normally the maximum line-to-ground voltage – e.g., 7.65 kV on a 12.47 kV multi-grounded system.

For ungrounded or impedance-grounded systems, the MCOV should be at least 90 percent of maximum phase-to-phase voltage. If you need assistance with arrester selection, please contact your Hubbell Power Systems account representative for details.

# 15 kV CATALOG NUMBER ORDERING INFORMATION

**Example:** Elbow arrester for use on a grounded 13.8 kV L-L system is: 215ELA10

2

1

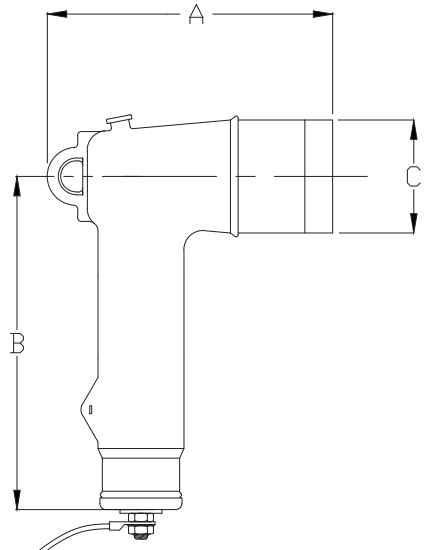
5

L

A

Hubbell Product Prefix

E = Elbow Arrester  
 P = Parkingstand



**215ELA \_ \_**

Select Rating from Column 1	
Rating (kV)	MCOV (kV)
03	2.55
06	5.1
09	7.65
10	8.4
12	10.2
15*	12.7
18*	15.3

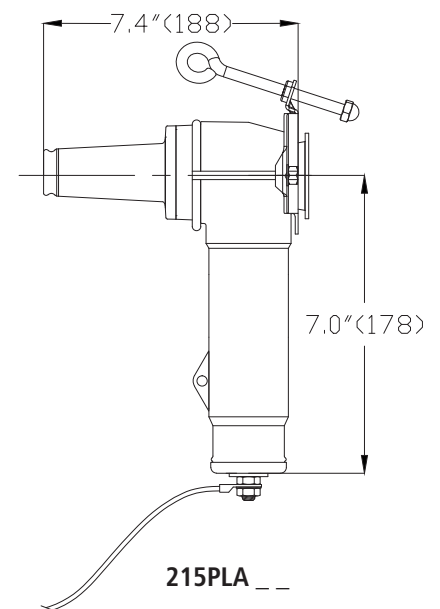
\* Not available in Parkingstand Lightning Arrester

## ELA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Dimensions Inch (mm)			Weight	
				A	B	C	Lbs	(kg)
215ELA03	15 kV Class Interface 5	2.55	3	7.4 (188)	6.6 (168)	2.9 (74)	3.7	1.7
215ELA06		5.1	6					
215ELA09		7.65	9					
215ELA10		8.4	10					
215ELA12		10.2	12					
215ELA15		12.7	15	10.2 (259)			5.2	2.4
215ELA18		15.3	18					

## PLA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Weight	
				Lbs	(kg)
215PLA03	15 kV Class Interface 5	2.55	3	4.6	(2.09)
215PLA06		5.1	6		
215PLA09		7.65	9		
215PLA10		8.4	10		
215PLA12		10.2	12		



# 25/28 kV UNDERGROUND ARRESTERS

## PRODUCT FEATURES:

**Fiberglass Wrap** ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail.

**ID Band** provides clear visual identification of arrester MCOV and duty cycle ratings.

**Flexible Lead** is #4 AWG copper rope lay conductor 595 strand (7 x 85). Ends are soldered to prevent fraying. Standard length is 36" long. Other lead lengths are available.

**MOV Blocks** are the same as used in Ohio Brass overhead arresters.

## Protective Characteristics

Catalog Number	MCOV kV	Rating kV	0.5 $\mu$ sec 5 kA Max IR-kV	Maximum Discharge Voltage (kV Crest) 8x20 $\mu$ sec. Current Wave				
				1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA
225_LA09	7.65	9	33.5	26	28	30	33	39
225_LA10	8.4	10	36	27	29.5	31.5	36	41.5
225_LA12	10.2	12	50	39	41	44	49	57
225_LA15	12.7	15	58.5	45.5	48.5	52	57.5	67.5
225_LA18	15.3	18	67.0	52	56	60	66	78
225_LA21	17.0	21	73	55	60	64	73	84



## Normally Recommended MCOV for Various System Voltages

System L-L Voltage (kV)		Arrester MCOV (kV)	
Nominal	Maximum	Grounded Neutral	Impedance Grounded or Ungrounded
6.9	7.26	5.1	7.65
12.0	12.7	7.65	12.7
12.47	13.2	7.65	15.3
13.2	13.97	8.4	15.3
13.8	14.52	8.4	15.3
20.78	22	12.7	22
22.86	24.2	15.3	24.4
23	24.34	15.3	24.4
24.94	26.2	15.3	-
27	28	17	-
34.5	36.2	22	-



## Hubbell URD Arrester Selection

Selection of the arrester size is based upon the maximum continuous operating voltage (MCOV) line-to-ground that is applied across the arrester in service. For arresters on effectively grounded systems, this is normally the maximum line-to-ground voltage – e.g., 15.3 kV on a 23.0 kV multi-grounded system.

For ungrounded or impedance-grounded systems, the MCOV should be at least 90 percent of maximum phase-to-phase voltage. If you need assistance with arrester selection, please contact your Hubbell Power Systems account representative for details.



# 25 kV CATALOG NUMBER ORDERING INFORMATION

**Example:** Elbow arrester for use on a grounded 23.0 kV L-L system is: 225ELA18

▶

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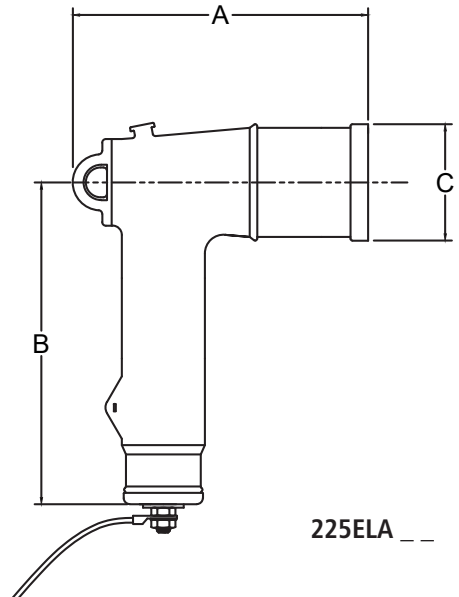
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A

Hubbell Product Prefix

E = Elbow Arrester  
P = Parkingstand

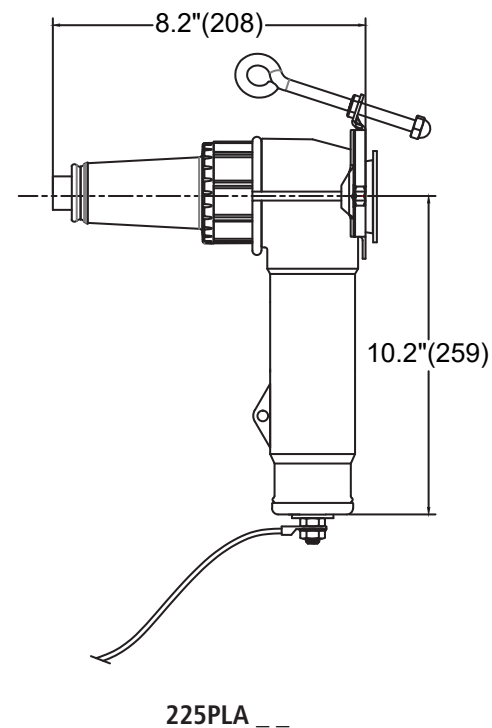
Select Rating from Column 1	
Rating (kV)	MCOV (kV)
09	7.65
10	8.4
12	10.2
15	12.7
18	15.3
21	17.0



225ELA \_ \_

## ELA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Dimensions Inch (mm)			Weight	
				A	B	C	Lbs	(kg)
225ELA09	25/28 kV Class Interface 7A	7.65	9	7.9 (201)	6.6 (168)	3.1 (79)	3.7	1.7
225ELA10		8.4	10					
225ELA12		10.2	12					
225ELA15		12.7	15					
225ELA18		15.3	18				5.2	2.4
225ELA21		17	21					



225PLA \_ \_

## PLA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Weight	
				Lbs	(kg)
225PLA09	25/28 kV Class Interface 7A	7.65	9	4.6	2.09
225PLA10		8.4	10		
225PLA12		10.2	12		
225PLA15		12.7	15		
225PLA18		15.3	18		
225PLA21		17	21		



# 35 KV SMALL INTERFACE UNDERGROUND ARRESTERS

HUBBELL 35 kV Elbow Arresters are designed and tested to meet all requirements of IEEE Std. 386. The operating interface will mate with any product that conforms to IEEE Std. 386, **Interface 7B**.

## PRODUCT FEATURES:

**Fiberglass Wrap** ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail.

**ID Band** provides clear visual identification of arrester MCOV and duty cycle ratings.

**Flexible Lead** is #4 AWG copper rope lay conductor 595 strand (7 x 85). Ends are soldered to prevent fraying. Standard length is 36" long. Other lead lengths are available.

**MOV Blocks** are the same as used in Ohio Brass overhead arresters.

## Protective Characteristics

Catalog Number	MCOV kV	Rating kV	0.5 $\mu$ sec. 5 kA Max IR-kV	Maximum Discharge Voltage (kV Crest) 8x20 $\mu$ sec. Current Wave				
				1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA
235ELA24	19.5	24	92.0	71.5	76.5	82.0	90.5	106.5
235ELA27	22.0	27	100.5	78.0	84.0	90.0	99.0	117.0
235ELA30	24.4	30	108.0	81.0	88.5	94.5	108.0	124.5



## Normally Recommended MCOV for Various System Voltages

System L-L Voltage (kV)		Arrester MCOV (kV)	
Nominal	Maximum	Grounded Neutral	Impedance Grounded or Ungrounded
6.9	7.26	5.1	7.65
12.0	12.7	7.65	12.7
12.47	13.2	7.65	15.3
13.2	13.97	8.4	15.3
13.8	14.52	8.4	15.3
20.78	22	12.7	22
22.86	24.2	15.3	24.4
23	24.34	15.3	24.4
24.94	26.2	15.3	-
27	28	17	-
34.5	36.2	22	-

## Hubbell URD Arrester Selection

Selection of the arrester size is based upon the maximum continuous operating voltage (MCOV) line-to-ground that is applied across the arrester in service. For arresters on effectively grounded systems, this is normally the maximum line-to-ground voltage – e.g., 22.0 kV on a 34.5 kV multi-grounded system.

For ungrounded or impedance-grounded systems, the MCOV should be at least 90 percent of maximum phase-to-phase voltage. If you need assistance with arrester selection, please contact your Hubbell Power Systems account representative for details.

# 35KV SMALL INTERFACE CATALOG NUMBER ORDERING INFORMATION

**Example:** Elbow arrester for use on a grounded 34.5 kV L-L system is: 235ELA27

▶

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Hubbell Product Prefix

Select Rating from Column 1	
Rating (kV)	MCOV (kV)
24	19.5
27	22
30	24.4

235ELA\_\_

## ELA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Dimensions Inch (mm)			Weight	
				A	B	C	Lbs	(kg)
235ELA24	35 kV Class Fig. 7B	19.5	24	7.9 (201)	10.2 (168)	3.1 (79)	5.2	2.4
235ELA27		22	27		13.7 (348)		6.5	2.9
235ELA30		24.4	30					

**Caution**  
This product is only compatible with a 35 kV small interface, Interface 7B of IEEE Std. 386. It is not compatible with a 35 kV large interface, Interface 8 of IEEE Std. 386.

See next page for 35kV Large Interface Arresters



# 35 KV LARGE INTERFACE UNDERGROUND ARRESTERS

HUBBELL 35 kV Large Interface Elbow Arresters are designed and tested to meet all requirements of IEEE Std. 386. The operating interface will mate with any product that conforms to IEEE Std. 386, **Interface 8**.

## PRODUCT FEATURES:

**Fiberglass Wrap** ensures that the MOV block stack remains in one piece and prevents the blocks from breaching the side wall should the arrester fail.

**ID Band** provides clear visual identification of arrester MCOV and duty cycle ratings.

**Flexible Lead** is #4 AWG copper rope lay conductor 595 strand (7 x 85). Ends are soldered to prevent fraying. Standard length is 36" long. Other lead lengths are available.

**MOV Blocks** are the same as used in Ohio Brass overhead arresters.

## Protective Characteristics

Catalog Number	MCOV kV	Rating kV	0.5 $\mu$ sec. 5 kA Max IR-kV	Maximum Discharge Voltage (kV Crest) 8x20 $\mu$ sec. Current Wave					
				1.5 kA	3.0 kA	5.0 kA	10 kA	20 kA	40kA
236ELA27	22.0	27	88	70.8	75.4	80.4	90.5	104.6	130.7
236ELA30	24.4	30	97.8	78.7	83.8	89.3	100.6	116.2	145.2
236ELA33	26.9	33	107.6	86.6	92.2	98.3	110.7	127.9	159.8
236ELA36	29	36	117.4	94.4	100.5	107.2	120.7	139.4	174.3

## Normally Recommended MCOV for Various System Voltages

System L-L Voltage (kV)		Arrester MCOV (kV)	
Nominal	Maximum	Grounded Neutral	Impedance Grounded or Ungrounded
6.9	7.26	5.1	7.65
12.0	12.7	7.65	12.7
12.47	13.2	7.65	15.3
13.2	13.97	8.4	15.3
13.8	14.52	8.4	15.3
20.78	22	12.7	22
22.86	24.2	15.3	24.4
23	24.34	15.3	24.4
24.94	26.2	15.3	-
27	28	17	-
34.5	36.2	22	-

## Hubbell URD Arrester Selection

Selection of the arrester size is based upon the maximum continuous operating voltage (MCOV) line-to-ground that is applied across the arrester in service. For arresters on effectively grounded systems, this is normally the maximum line-to-ground voltage – e.g., 22.0 kV on a 34.5 kV multi-grounded system.

For ungrounded or impedance-grounded systems, the MCOV should be at least 90 percent of maximum phase-to-phase voltage. If you need assistance with arrester selection, please contact your Hubbell Power Systems account representative for details.



# 35 kV LARGE INTERFACE CATALOG NUMBER ORDERING INFORMATION

**Example:** Elbow arrester for use on a grounded 34.5 kV L-L system is: 236ELA27

2

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6

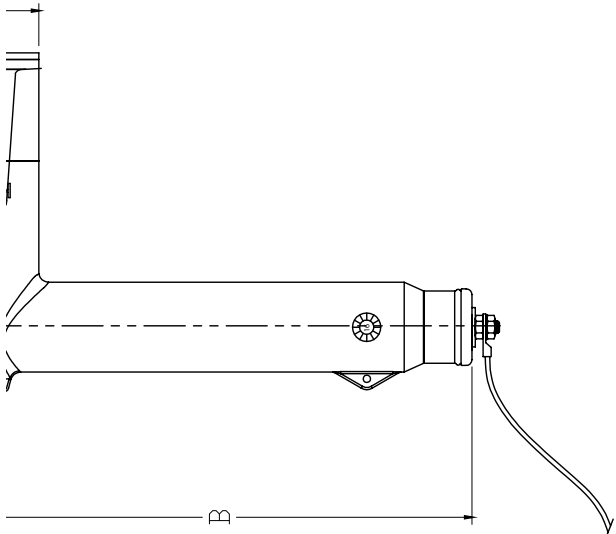
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Hubbell Product Prefix

Select Rating from Column 1	
Rating (kV)	MCOV (kV)
27	22
30	24.4
33	26.9
36	29



236ELA\_\_

## ELA Reference Data:

Catalog Number	IEEE Std. 386 Interface	MCOV (kV)	Rated Voltage (kV)	Dimensions Inch (mm)			Weight	
				A	B	C	Lbs	(kg)
236ELA24	35 kV Class Interface 9	19.5	24	9.2 (233)	13.9 (353)	4.0 (101)	6.5	2.9
236ELA27		22	27					
236ELA30		24.4	30					
236ELA33		27	33					
236ELA36		29	36					

### Caution

This product is only compatible with a 35 kV large interface, Interface 8 of IEEE Std. 386. It is not compatible with a 35 kV small interface, Interface 7B of IEEE Std. 386.

See previous pages for 35 kV Small Interface Arresters



# REFERENCE MATERIAL

AIEC/ICEA Cable Std.			Concentric Stranded		Compressed Stranded		Compact Stranded		Solid	
AWG or kcmil	Insulation Wall Thickness	Voltage Class (kV)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)
#2	.175	15	0.645	0.730	0.635	0.720	0.620	0.705	0.610	0.695
	.220	15	0.735	0.825	0.725	0.815	0.710	0.800	0.700	0.790
	.260	25	---	---	---	---	---	---	---	---
	.345	35	---	---	---	---	---	---	---	---
#1	.175	15	0.685	0.770	0.675	0.760	0.655	0.735	0.645	0.725
	.220	15	0.775	0.865	0.765	0.855	0.745	0.830	0.735	0.820
	.260	25	0.845	0.935	0.835	0.925	0.815	0.905	0.805	0.895
	.345	35	---	---	---	---	---	---	---	---
1/0	.175	15	0.725	0.810	0.715	0.800	0.690	0.775	0.680	0.760
	.220	15	0.815	0.905	0.805	0.895	0.780	0.865	0.770	0.855
	.260	25	0.885	0.980	0.875	0.965	0.850	0.940	0.835	0.925
	.345	35	1.055	1.155	1.045	1.145	1.020	1.120	1.010	1.110
2/0	.175	15	0.775	0.855	0.760	0.845	0.730	0.815	0.715	0.800
	.220	15	0.865	0.950	0.850	0.935	0.820	0.905	0.805	0.895
	.260	25	0.935	1.025	0.920	1.010	0.890	0.980	0.875	0.965
	.345	35	1.105	1.200	1.090	1.190	1.060	1.160	1.045	1.145
3/0	.175	15	0.825	0.905	0.810	0.895	0.775	0.860	0.765	0.845
	.220	15	0.915	1.000	0.900	0.985	0.865	0.955	0.855	0.940
	.260	25	0.985	1.075	0.970	1.060	0.935	1.030	0.925	1.015
	.345	35	1.155	1.255	1.140	1.240	1.105	1.205	1.095	1.195
4/0	.175	15	0.880	0.965	0.865	0.950	0.830	0.910	0.815	0.895
	.220	15	0.970	1.060	0.955	1.045	0.920	1.005	0.905	0.990
	.260	25	1.040	1.135	1.025	1.115	0.990	1.080	0.975	1.065
	.345	35	1.210	1.310	1.195	1.295	1.160	1.260	1.145	1.245
250	.175	15	0.935	1.020	0.920	1.005	0.880	0.965	---	---
	.220	15	1.025	1.115	1.010	1.100	0.970	1.060		
	.260	25	1.095	1.190	1.080	1.175	1.040	1.135		
	.345	35	1.265	1.370	1.250	1.350	1.210	1.315		
350	.175	15	1.045	1.130	1.025	1.110	0.980	1.065	---	---
	.220	15	1.135	1.220	1.115	1.200	1.070	1.155		
	.260	25	1.205	1.295	1.185	1.275	1.140	1.230		
	.345	35	1.375	1.475	1.355	1.455	1.310	1.410		
500	.175	15	1.175	1.260	1.150	1.235	1.100	1.185	---	---
	.220	15	1.265	1.355	1.240	1.330	1.190	1.275		
	.260	25	1.335	1.430	1.310	1.405	1.260	1.350		
	.345	35	1.505	1.605	1.480	1.580	1.430	1.530		



# REFERENCE MATERIAL

AIEC/ICEA Cable Std.			Concentric Stranded		Compressed Stranded		Compact Stranded		Solid	
AWG or kcmil	Insulation Wall Thickness	Voltage Class (kV)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)	Min Dia. (inches)	Max Dia. (inches)
600	.175	15	1.265	1.350	1.235	1.325	1.185	1.270	---	---
	.220	15	1.355	1.445	1.325	1.415	1.275	1.365		
	.260	25	1.425	1.520	1.395	1.490	1.345	1.440		
	.345	35	1.595	1.695	1.565	1.670	1.515	1.615		
700	.175	15	1.335	1.420	1.305	1.390	1.245	1.335	---	---
	.220	15	1.425	1.515	1.395	1.485	1.335	1.430		
	.260	25	1.495	1.590	1.465	1.560	1.405	1.500		
	.345	35	1.665	1.765	1.635	1.740	1.575	1.680		
750	.175	15	1.370	1.455	1.340	1.425	1.280	1.365	---	---
	.220	15	1.460	1.550	1.430	1.520	1.370	1.460		
	.260	25	1.530	1.625	1.500	1.595	1.440	1.535		
	.345	35	1.700	1.800	1.670	1.770	1.610	1.710		
800	.175	15	1.400	1.490	1.370	1.455	1.310	1.395	---	---
	.220	15	1.490	1.580	1.460	1.550	1.400	1.490		
	.260	25	1.560	1.655	1.530	1.625	1.470	1.565		
	.345	35	1.730	1.835	1.700	1.805	1.640	1.740		
900	.175	15	1.465	1.550	1.430	1.520	1.370	1.455	---	---
	.220	15	1.555	1.645	1.520	1.610	1.460	1.550		
	.260	25	1.625	1.720	1.590	1.685	1.530	1.625		
	.345	35	1.795	1.895	1.760	1.865	1.700	1.800		
1000	.175	15	1.520	1.610	1.485	1.575	1.430	1.515	---	---
	.220	15	1.610	1.705	1.575	1.670	1.520	1.610		
	.260	25	1.680	1.775	1.645	1.740	1.590	1.685		
	.345	35	1.850	1.955	1.815	1.920	1.760	1.865		

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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