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Elastimold[®] ***Underground*** ***Cable Accessories***

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Overview

Elastimold® Separable Connectors, Cable Joints, Cable Terminators and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI and other industry standards including:

- IEEE 386™ Standard for Separable Connectors
- IEEE 404™ Standard for Cable Joints and Splices
- IEEE 48™ Standard for Cable Terminations
- IEEE 592™ Standard for Exposed Semiconducting Shields
- ANSI C119.4 Standard for Copper and Aluminum Conductor Connectors
- AEIC CS8 Standards for XLP and EPR Insulated Cables
- ICEA S-94-649-2004 and S-97-682-2000 Standard for Cables Rated 5,000 – 46,000 Volts

Cable Joints And Terminations Ratings

Refer to the pages listed below for rating information:

- PCJ™ Cable Joints, **page 32**
- SFJ Shrink Fit™ Cable Joints, **page 29**
- Cable Terminations, **page 34**

Separable Connector Ratings

The following chart shows voltage and current ratings which apply to all Separable Connectors including 200-Amp Loadbreak, 200-Amp Deadbreak and 600 Series Deadbreak products. The next chart shows switching and fault close ratings which only apply to 200-Amp Load-Break Connectors.

Voltage and Current Ratings

	15kV CLASS RATINGS	25kV CLASS RATINGS	35kV CLASS RATINGS
Operating Voltage			
Maximum line-to-ground (See Application Info Note 1)	8.3kV	15.2kV	21.1kV
BIL			
Impulse withstand 1.2 x 50 microsecond wave	95kV	125kV	150kV
Withstand Voltage			
AC One Minute	34kV	40kV	50kV
DC Fifteen Minute	53kV	78kV	103kV
Corona Extinction Level			
@ 3pC Sensitivity	11kV	19kV	26kV
200-Amp Products			
Continuous Current: Symmetrical	200 Amp		
Momentary Current:	10kA sym, 10 cycle duration*		
600 Series Products Continuous Current			
Symmetrical Momentary Current:	600 and 900 Amp 25kA sym, 10 cycle duration*		

* Designed for 90° C maximum continuous operating temperature.

Switching and Fault Close Ratings

	LOADMAKE/LOADBREAK SWITCHING	FAULT CLOSE
15kV CLASS RATINGS	<ul style="list-style-type: none"> • 1Ø and 3Ø circuits 8.3kV line to ground, 14.4kV max. across open contacts • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor 	1 fault close operation at 8.3kV or 14.4kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations)
25kV CLASS RATINGS	<ul style="list-style-type: none"> • 1Ø and 3Ø circuits 15.2kV line to ground, 26.3kV max. across open contacts • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor 	1 fault close operation at 15.2kV or 26.3kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations.)
35kV CLASS RATINGS	<ul style="list-style-type: none"> • 1Ø and 3Ø circuits 21.1kV line to ground, 36.6kV max. across open contacts. • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor. 	1 fault close operation at 21.1kV or 36.6kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations)








Application Information:

1. Load-Break connectors are designed and rated for use on grounded WYE systems. For application on ungrounded WYE or delta systems, the next higher voltage class product is recommended. Examples: 5kV ungrounded: use 15kV class products; 15kV ungrounded: use 25kV class products; 25kV ungrounded: use 35kV class products.
2. Products are designed and constructed for all applications including padmount, subsurface, vault, indoor, outdoor, direct sunlight, direct buried and continuously submerged in water.
3. Products are designed and rated for ambient temperatures of -40° C to +65° C. It is recommended that loadbreak connectors be hotstick operated at -20° C to +65° C ambient temperature range and at altitudes not exceeding 6000 feet.

Overview

Standard Interfaces for Separable Connectors, Components and Equipment Bushings

IEEE Standard 386 defines the specific interface dimensions that 200 Amp and 600 Series elbows, inserts, junctions, equipment bushings and any mating components must conform to ensure interchangeability. The table below provides information concerning the types of interfaces supplied by Elastimold® for various applications and is useful to ensure proper matching of components.

BUSHING INTERFACE	VOLTAGE CLASS	INTERFACE DESCRIPTION	STANDARD NO. FIGURE NO.
 <p>200-AMP DEEPWELL EQUIPMENT BUSHING</p>	15kV, 25kV and 35kV	200-Amp Bushing Well Interface 8.3kV, 15.2kV and, 21.1kV	A IEEE 386-2001 Fig. 3
 <p>200-AMP LOADBREAK INSERT</p>	15kV	200-Amp Loadbreak 8.3kV and 8.3kV/14.4kV	B IEEE 386-2001 Fig. 5
 <p>200-AMP LOADBREAK INSERT</p>	25kV	200-Amp Loadbreak 15.2kV and 15.2kV/26.3kV	C IEEE 386-2001 Fig. 7, Note 1
 <p>200-AMP LOADBREAK INSERT</p>	35kV	200-Amp Loadbreak Interface No. 2 21.1kV and 21.1kV/36.3kV	D IEEE 386-2001 Fig. 7, Note 1
 <p>200-AMP DEADBREAK INSERT</p>	15kV and 25kV	200-Amp Deadbreak 8.3kV and 15.2kV	E IEEE 386-2001 Fig. 4
 <p>600 SERIES EQUIPMENT BUSHING</p>	15kV and 25kV	600-Amp Deadbreak Interface No.1 8.3kV and 15.2kV	F IEEE 386-2001 Fig.11
 <p>600 SERIES EQUIPMENT BUSHING</p>	35kV	600-Amp Deadbreak Interface No.1 21.1kV	G IEEE 386-2001 Fig.13

Note: 1. Elastimold® uses Fig. 7 interface for both 25 and 35kV applications.

200-Amp Loadbreak Elbows

200-Amp Loadbreak Connectors and Accessories

200-Amp Loadbreak Connectors and Accessories provide a convenient method to connect/disconnect cable and equipment on power distribution systems. Loadbreak elbows include provisions for energized operation using standard hotstick tools, allowing loadmake/break operation and a visible disconnect. Components can be isolated with insulated caps, plugs and parking bushings.

Optional accessories allow system grounding, testing, bypass, surge protection and current limiting fusing. Additional connecting points and taps can be provided by use of junctions or feed-thrus.



Ratings Overview

See page 2 for complete information, including switching and fault close ratings.

Current Ratings

200A Continuous
10kA sym. 10 Cycles

Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

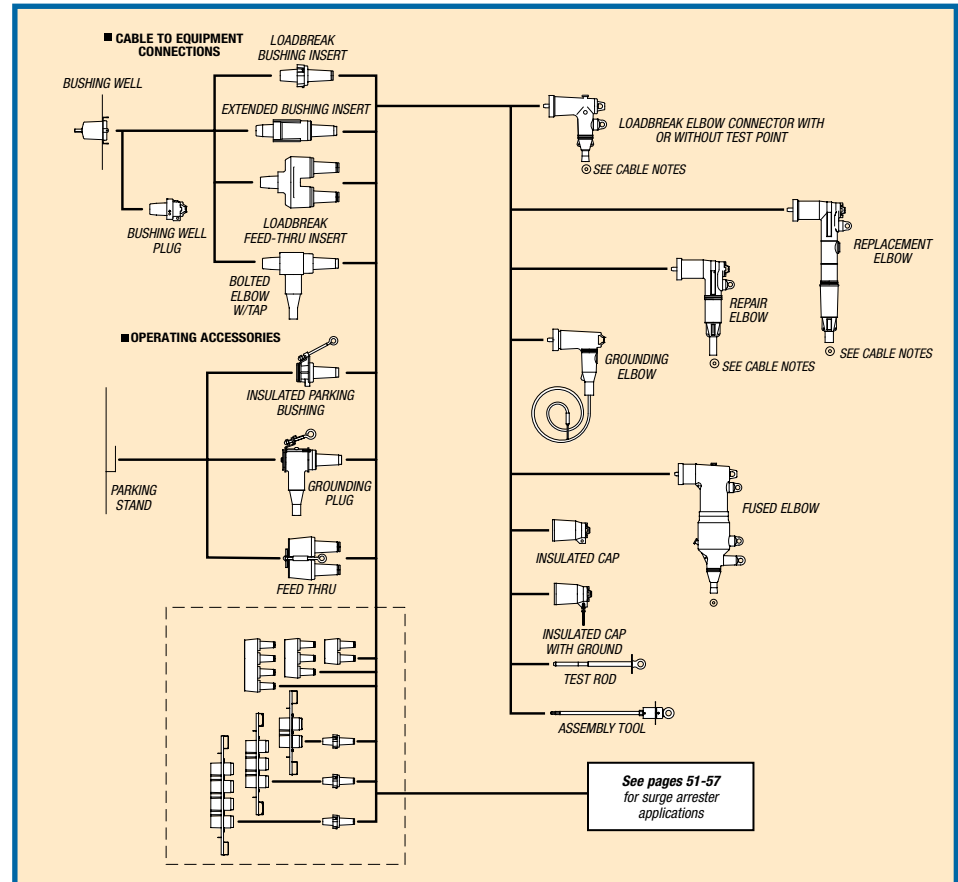
25kV Class

15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class

21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

200-Amp Loadbreak Separable Connector Components



200-Amp Loadbreak Elbows

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Elbow Connector	15kV	165LR-W5X Use Tables W1 and X1	N2, 3, 4, 5
		25kV	275LR-W5X Use Tables W16 and X1	N2, 3, 4, 5
		35kV	375LR-W5X Use Tables W3 and X2	N2, 3, 5
	Elbow Connector w/ Test Point	15kV	166LR-W5X Use Tables W1 and X1	N2, 3, 4, 5, 23
		25kV	276LR-W5X Use Tables W16 and X1	N2, 3, 4, 5, 23
		35kV	376LR-W5X Use Tables W3 and X2	N2, 3, 5, 23
	Jacket Seal Elbow Connector	15kV	165LRJS-W5X Use Tables W1 and X1	N2, 19
		25kV	275LRJS-W5X Use Tables W16 and X1	N2, 19
	Jacket Seal Elbow Connector w/ Test Point	15kV	166LRJS-W5X Use Tables W1 and X1	N2, 19, 23
		25kV	276LRJS-W5X Use Tables W16 and X1	N2, 19, 23
		25kV	376LRJS-W5X Use Tables W16 and X1	N2, 19, 23
	Repair Elbow Connector	15kV	167ELR-W5X Use Tables W5 and X1	N5, 10, 18
		25kV	273ELR-W5X Use Tables W5 and X1	N5, 10, 18
	Repair Elbow Connector w/ Test Point	15kV	168ELR-W5X Use Tables W5 and X1	N5, 10, 18, 23
		25kV	274ELR-W5X Use Tables W5 and X1	N5, 10, 18, 23
	Replacement Elbow	15kV	167RLR-W5X Use Tables W4 and X1	N5, 11, 13
		25kV	273RLR-W5X Use Tables W2 and X1	N5, 11, 13
	Replacement Elbow w/ Test Point	15kV	168RLR-W5X Use Tables W4 and X1	N5, 11, 13, 23
		25kV	274RLR-W5X Use Tables W2 and X1	N5, 11, 13, 23
	Direct Test Elbow Connector	15kV	167DLR-W5X Use Tables W4 and X1	N2, 5, 21
		25kV	273DLR-W5X Use Tables W2 and X1	N2, 5, 21
	Direct Test Repair Elbow Connector	15kV	167DELR-W5X Use Tables W5 and X1	N5, 10, 18, 21
		25kV	273DELR-W5X Use Tables W5 and X1	N5, 10, 18, 21
	Direct Test Repair Elbow Connector w/Test Point	15kV	168DELR-W5X Use Tables W5 and X1	N5, 10, 18, 21, 23
		25kV	274DELR-W5X Use Tables W5 and X1	N5, 10, 18, 21, 23
	Fused Elbow (Full Range Current Limiting)	15kV	168FLR W0X 274FLR W0X	N23
		25kV		N23
	Bolted Elbow w/ Tap	15kV	167LRT-W5X Use Tables W4 and X1	N17
	Bushing Insert	15kV	1601A4 2701A4 3701A4 3701A3	N4, 8
		25kV		N4, 8
		35kV		N6, 20
		35kV		20
	Extended Bushing Insert	15kV	1601EA4 2701EA4	N8
		25kV		N8
	Feed-Thru Insert	15kV	1602A3R 2702A1 3702A1	N16
		25kV		N16
		35kV		N6, 16
	Insulated Cap	15kV	160DR	N9
	Insulated Cap w/ Ground	15kV	160DRG 167DRG 273DRG 375DRG	N9
		15kV		N7, 9
		25kV		N7, 9
		35kV		N7, 9
	Insulated Cap w/ Ground and Test Point	15kV	168DRG 274DRG 376DRG	N7
		25kV		N7
		35kV		N7

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Grounding Plug (1/0 AWG x 6' Ground Lead)	15kV 25kV	161GP 272GP	
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV 25/35kV	160GLR 370GLR	N12
	Feed-Thru	15kV	164FT 274FT 371FT 373FT	N6, N18
		25kV		
		35kV		
		35kV		
	Feed-Thru Vertical	15kV	164FTV 274FTV 373FTV	
		25kV		
		35kV		
	Adjustable Bracket 2-Point Feed-Thru	15kV	164FT2-AB 274FT2-AB 373FT2-AB	N22
		25kV		N22
		35kV		N22
	Adjustable Bracket 3-Point Feed-Thru	15kV	164FT3-AB 274FT3-AB 373FT3-AB	N22
		25kV		N22
		35kV		N22
	Adjustable Bracket 4-Point Feed-Thru	15kV	164FT4-AB 274FT4-AB 373FT4-AB	N22
		25kV		N22
		35kV		N22
	Feed-Thru Well	15/25kV	K1601WFT	
		15/25kV		
	Feed-Thru Well Vertical	15/25kV	K1601WFTV	
		15/25kV		
	Insulated Parking Bushing	15kV	161SOP 272SOP 372SOP	N20
		25kV		
		35kV		
	Insulated Parking Bushing	15kV	164SOP 274SOP	N22
		25kV		
	Test Rod	All	200AT	
	Bushing Well Plug	15/25kV	276BWP M276BWP	
		35kV		
	Assembly Tool	All	370TR	N8

- N1. Copper lug for use on COPPER CONDUCTOR ONLY.
- N2. W5X indicates that the catalog number includes 02500X long bi-metal compression lug as standard. For an all-copper lug, replace W5X with W2X in Table X1 to specify the all-copper 02702X lug.
- N3. Also available as housing only. Specify: 165BLR-W; 275BLR-W; 375BLR-W; 166BLR-W; 276BLR-W; 376BLR-W.
- N4. Also available as elbow/insert combination. Specify: 165A4-WX; 275A4-WX; 166A4-WX; 276A4-WX.
- N5. Also available with 200ECS jacket seal included. Add "S" suffix to catalog number.
- N6. Rated for single-phase applications only.
- N7. Equipped with insulated cuff.
- N8. Includes internal torquing feature using 200AT Assembly Tool.
- N9. Also available without probe. Specify "A" suffix - Example: 273DRGA.
- N10. Repair elbow has extended length contact and elbow housing resulting in a net gain of 3/4" in length.
- N11. Replacement elbow has extended-length contact and elbow housing resulting in a net gain of 8/4" in length.
- N12. Rated for 25kV thru 35kV applications.
- N13. Includes long bi-metal contact 00400X.
- N14. 160CA Cable Size Adapter can only be used with elbow part numbers 165LR/166LR C size only.
- N16. Fully rotatable for 360° positioning. Includes bail assembly to secure feed-thru insert to bushing well.
- N17. Includes 02800X bi-metal contact.
- N18. Includes 02509X long bi-metal contact.
- N19. Includes built-in jacket seal. Also available as housing only — specify: 165BLRJS-W, 166BLRJS-W, 275BLRJS-W or 276LRJS-W. Also available as elbow/insert combination — specify: 165JSA4-W5X, 166JSA4-W5X, 275JSA4-W5X or 276JSA4-W5X.
- N20. Includes a black vent ring.
- N21. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick provide a means for direct conductor voltage testing.
- N22. With stainless steel bracket.
- N23. Test Point Cap catalog number 156-7
- N24. Add suffix "-SS" for stainless steel bracket.

Refer to the **W** and **X** tables on page 50 for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see page 42.

200-Amp Loadbreak Elbows

200-Amp Loadbreak Connectors and Accessories (continued)

Ratings Overview

See **page 2** for complete information, including switching and fault close ratings.

Current Ratings

200A Continuous
10kA sym. 10 Cycles

Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

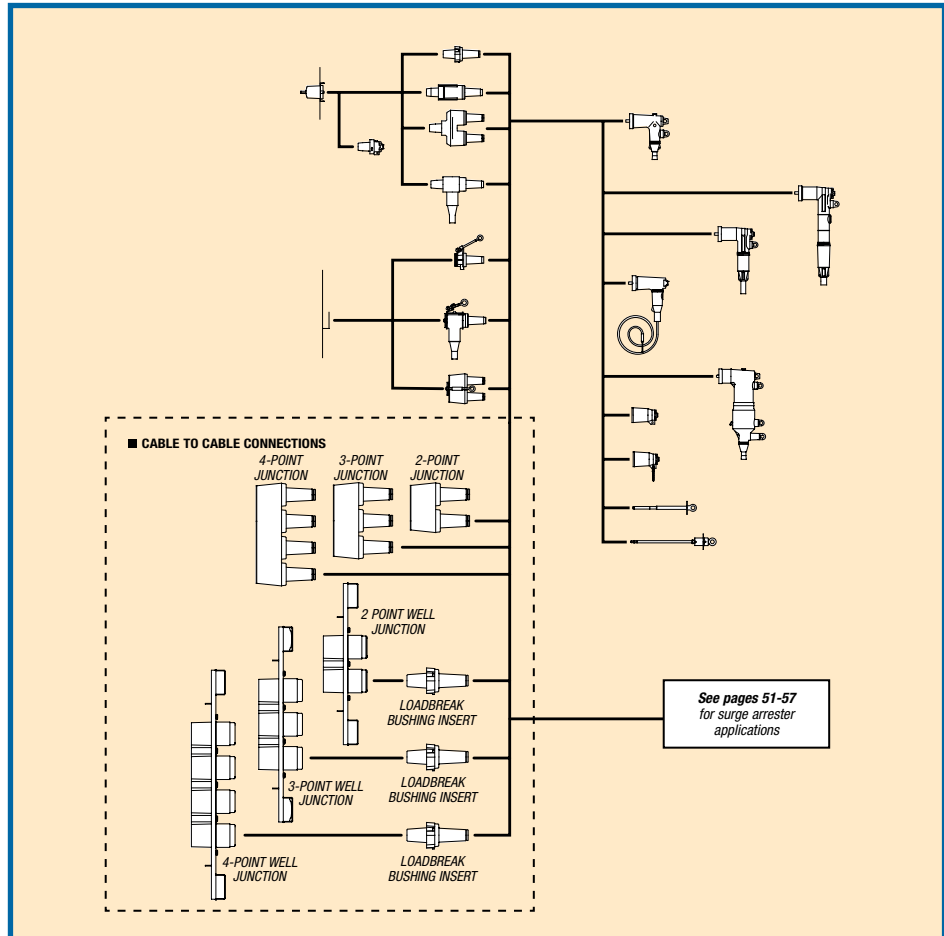
25kV Class

15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class

21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

200-Amp Loadbreak Separable Connector Components



200-Amp Loadbreak Elbows

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Contacts: LR Long Bi-Metal	All	Use Table X1 02500X	N1 N2 N3
	ELR Bi-Metal	15/25kV	02509X	
	LR Copper	All	02702X	
	LRT Contact	15kV	02800X	
	RLR Contact	15/25kV	00400X	
	Elbow Probe	15kV 25kV 35kV	166LRF 274LRF 375LRF	
	Elbow Cable Entrance Insulating Plug	All	10EP-W Use Table W6	
	Cable Size Adapter	15kV	160CA-W Use Table W6 EB-FA Only	N4
	Direct Voltage Test Meter Adapter for: <i>HD Electric Meters</i>	All	200TC-1	N14
	<i>Ross Meters</i>		200TC-2	N14
	<i>Chance Meters</i>		200TC-4	N14
	2-Way Well Junction w/ S.S. Bracket	15/25kV	K1601WJ2	N6
	2-Way Well Junction w/ "U" Straps	15/25kV	K1601WJ2-5	N5, 6, 11
	3-Way Well Junction w/ S.S. Bracket	15/25kV	K1601WJ3	N6
	3-Way Well Junction w/ "U" Straps	15/25kV	K1601WJ3-5	N5, 6, 12
	4-Way Well Junction w/ S.S. Bracket	15/25kV	K1601WJ4	N6
	4-Way Well Junction w/ "U" Straps	15/25kV	K1601WJ4-5	N5, 6, 13
	2-Point Junction with/Stainless Steel Bracket	15kV 25kV 35kV	164J2 274J2 373J2	N7 N7 N7
	2-Point Junction w/"U" Straps	15kV 25kV 35kV	164J2-5 274J2-5 373J2-5	N5, 8 N5, 11 N5, 11
	3-Point Junction with Stainless Steel Bracket	15kV 25kV 35kV	164J3 274J3 373J3	N7 N7 N7
	3-Point Junction w/"U" Straps	15kV 25kV 35kV	164J3-5 274J3-5 373J3-5	N5, 9 N5, 12 N5, 12
	4-Point Junction with Stainless Steel Bracket	15kV 25kV 35kV	164J4 274J4 373J4	N7 N7 N7
	4-Point Junction w/"U" Straps	15kV 25kV 35kV	164J4-5 274J4-5 373J4-5	N5, 10 N5, 13 N5, 13

- N1. Repair elbow has extended-length contact and elbow housing resulting in a net gain of 3/4" in length.
- N2. Copper lug for use on COPPER CONDUCTOR ONLY.
- N3. Replacement elbow has extended-length contact and elbow housing resulting in a net gain of 8/8" in length.
- N4. 160CA Cable Size Adapter can only be used with elbow catalog numbers 165LR/166LR C, H or CC size only.
- N5. Also available as rubber only, without straps. Specify suffix "-4" in place of "-5" in the catalog number.
- N6. Supplied with replaceable stud. Replacement stud available separately. Specify 1000-150.
- N7. Hardware packages, consisting of brackets and straps only, may be ordered separately by specifying "-6" in the catalog number. Example 164J4-6.
- N8. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J2.
- N9. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J3.
- N10. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J4.
- N11. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-68.
- N12. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-61.
- N13. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-70.
- N14. For use with Direct Test Connectors.

Refer to the **W** and **X** tables on **page 50** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page 42**.

200-Amp Deadbreak Elbows

200-Amp Deadbreak Connectors and Accessories

200-Amp Deadbreak Connectors and Accessories provide a quick-disconnect feature for cable and equipment connections on power distribution systems.

All deadbreak connectors must be de-energized before operating and must be mechanically secured with bails when connected. Components can be isolated with insulated caps, plugs and parking bushings.

All deadbreak elbows are equipped with test points as standard. Optional accessories allow system grounding, bypass and lightning surge protection. Additional connecting points and taps can be provided by use of junctions or feed-thrus.



Ratings Overview

See **page 2** for complete information.

Current Ratings

200A Continuous
10kA sym. 10 Cycles

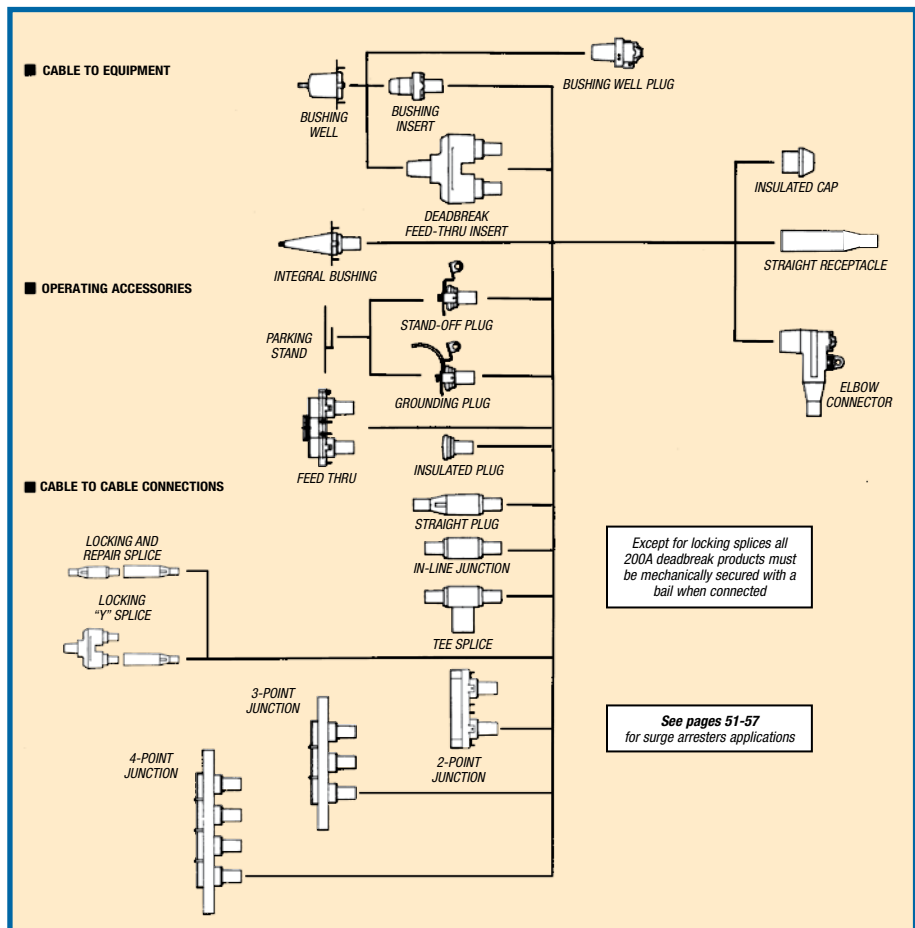
Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class

15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

200-Amp Deadbreak Separable Connector Components



200-Amp Deadbreak Elbows

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Elbow Connector w/ Test Point	15/25kV	156LR-W5X Use Tables W4 and X1	N1, 2
	Direct Test Elbow Connector	15/25kV	156DLR-W5X Use Tables W4 and X1	N1, 2, 22
	Bail Assembly for 156LR Elbow	15/25kV	150BA	
	Bushing Insert	15/25kV	K1501A1	N3
	Feed-Thru Insert	15/25kV	K1502A1	N3, 4
	Insulated Plug	15/25kV	K150DP	N3
	Insulated Cap	15/25kV	K150DR	N3
	Insulated Parking Bushing	15/25kV	K151SOP	N3
	Grounding Plug	15/25kV	151GP	N3
	Feed-Thru	15/25kV	K1501FT	N3, 6
	2-Point Junction	15/25kV	K1501J2-U8	N3, 6
	3-Point Junction	15/25kV	K1501J3-U8	N3, 6
	4-Point Junction	15/25kV	K1501J4-U8	N3, 6
	Elbow Probe	15/25kV	156LRF	
	Straight Receptacle	15/25kV	K151SR-WOX Use Tables W1 and X1	N3, 12, 13, 17, 18
	Straight Plug	15/25kV	K151SP-WOX Use Tables W1 and X1	N3, 12, 13, 19
	Tee Splice	15/25kV	K150T	N3
	In-Line Junction	15/25kV	K150S	N3
	Locking Splice/Repair Splice	15/25kV	K151LS-WOX Use Tables W1 and X1	N8, 9, 13, 15, 16, 17, 20, 23
	Locking "Y" Splice	15/25kV	K151LY-WOX Use Tables W1 and X1	N8, 9, 13, 15, 17, 21
	Bail	15/25kV	150TB1	N5
	Bail	15/25kV	150TB2	N5
	Bail	15/25kV	150TB3	N5

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Bail	15/25kV	150TB4	N5
	Bail	15/25kV	150TB5	N5
	Bail	15/25kV	150TB6	N5
	Contacts: Long Bi-Metal Copper	15/25kV 15/25kV	02500X 02702X	N7
	Elbow Cable Entrance Insulating Plug	15/25kV	10EP-W Use Table W6	N10
	Cable Entrance Insulating Plug	15/25kV	152EA-W Use Table W6	N11
	Cable Size Adapter	15/25kV	160CA-W Use Table W6 EB-FA Only	N14

- N1. Includes bail assembly.
- N2. W5X indicates that the catalog number includes a 02500X bi-metal compression lug, which is rated for either aluminum or copper conductor, as standard. For an all-copper lug, replace W5X with W2X. Use Table X1 to specify the all-copper 02702X lug.
- N3. Bails are required but not included. Order separately. Consult factory for bails not listed for a specific application.
- N4. Fully rotatable for 360° positioning. Includes bail assembly to secure feed-thru insert to bushing well. Elbows bail assemblies are required but not included with the feed-thru insert.
- N5. Refer to factory for application details.
- N6. Center-to-center spacing equals 4 inches.
- N7. Copper lug for copper cable only.
- N8. To order cable legs for different cable sizes, list each leg size "W" and "X". Example: K151LY-A1240-A1240-B1220. See Tables W1 and X1 for sizes.
- N9. To order locking contacts for K151LS and K151LY, order 01401X (Al) or 01402X (Cu) for plug contact. Order 01301X (Al) or 01302X (Cu) for receptacle. See Table X1 for sizes.
- N10. For use with 156LR elbows.
- N11. For use with K151SR, K151SP, K151LS, K151LY receptacles, plugs and splices.
- N12. Also available as housing only. Specify K151BSP-W or K151BSR-W.
- N13. Also available in EB-FA sizes per Table W6 by using 160CA cable adapter with C size plugs and receptacles.
- N14. 160CA cable adapter can only be used with C size plugs and receptacles.
- N15. Bails are not required for locking splices.
- N16. When used as a repair splice, the assembled length allows 4" for cable replacement/repair.
- N17. Straight receptacles are also available with test point. Specify K152SR-WOX catalog number.
- N18. WOX indicates that the catalog number includes a 01500X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace WOX with W2X in Table X1 to specify the all-copper 01602X lug.
- N19. WOX indicates that the catalog number includes a 01600X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace WOX with W2X in Table X1 to specify the all-copper 01602X lug.
- N20. WOX indicates that the catalog number includes a 01400X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace WOX with W2X in Table X1 to specify the all-copper 01402X lug.
- N21. WOX indicates that the catalog number includes a 01300X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace WOX with W2X in Table X1 to specify the all-copper 01302X lug.
- N22. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick provides a means for direct conductor voltage testing. See [page 7](#) for meter adapters.
- N23. Gains approximately 4" of repair length.

Refer to the **W** and **X** tables on [page 50](#) for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see [page 42](#).

600-Amp Elbow Connectors

600 Series Deadbreak Components

600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

De-energized connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, bypass, isolation, dead-ending, grounding and testing as well as adding taps, surge arresters and circuit protection.

Hotstick-operable and separable joint systems are shown on pages 16–19 and 20–21.



Spiking Aid-T

When spiking a medium voltage cable near a stacked T-Body cable joint, the Elastimold® Spiking-T is a specially designed product to reduce outage time and cost. Medium voltage cable is spiked as a means to assure the circuit is de-energized where there is no sectionalizing device, direct testing means or provision for grounding. One leg of stacked T-Body cable joint is spiked/cut with a grounded guillotine type cable cutter, near the T-Body intersection. Once spiked and proved de-energized, the cable is re-prepped and a Spiking-T with a lug extender is assembled and reconnected to the stack. If this stack ever needs to be spiked again, the Spiking-T provides a convenient place to spike, no additional cable prep required, just replace the Spiking-T and the lug extender, reduced outage, reduced cost.



GAD

When your available fault currents exceed 10kA in your underground systems, the Elastimold® GAD may be your answer. The Elastimold® GAD is rated 25kA and installs in the rear interface of a 600 Series elbow connector (T-Body). The GAD is normally covered and insulated with an insulating cap that contains capacitive test and a hot stick operating band. Once the circuit is opened at a disconnecting device, the test point cap is removed with a hot-stick, and then using an appropriate capacitive test point meter the test point is checked for voltage. Then the insulating cap is removed with a hot stick and a high voltage meter is used to confirm the de-energized state before a ground cable is connected. No need to remove basic insulating plug, no need to install temporary grounding adapters, the Elastimold® GAD is there when you need it. Also available in a Ball GAD version.



600-Amp Elbow Connectors

600 Series Deadbreak Components

Ratings Overview

See page 2 for complete information.

Current Ratings

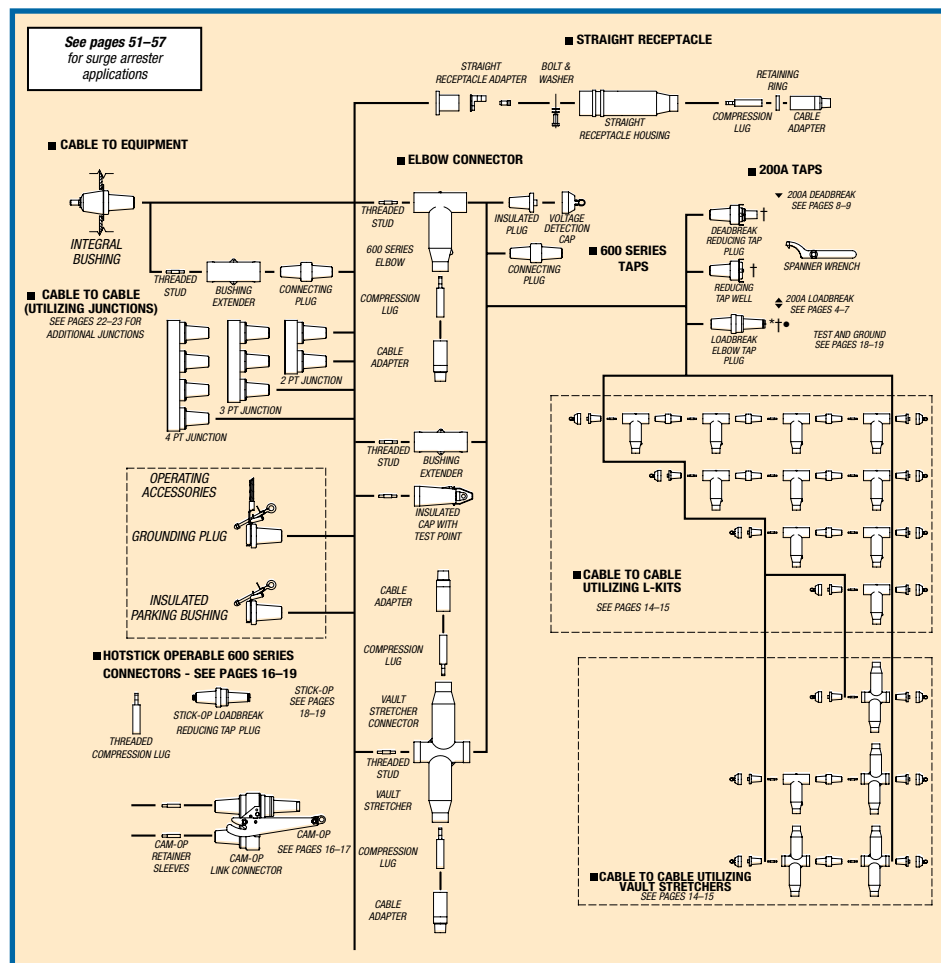
(Prefixes: 650, K650, K651, K655, K656, 750, 755, 756 & 03700)

600 Amp Continuous
25kA sym., 10 cycles

(Prefixes 675, K671, K675, K676, 775, 776 & 03702)

900 Amp Continuous
25kA sym., 10 cycles

Note: 900-amp ratings require copper cable and copper current-carrying components.



Voltage Ratings

15/25kV Class (5kV thru 28kV)

- 16.2kV Phase-to-Ground
- 28kV Phase-to-Phase
- 140kV BIL
- 45kV AC Withstand
- 84kV DC Withstand
- 21.5kV Corona Extinction

35kV Class

- 21.1kV Phase-to-Ground
- 36.6kV Phase-to-Phase
- 150kV BIL
- 50kV AC Withstand
- 103kV DC Withstand
- 26kV Corona Extinction

Note: Elastimold has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.

- * Tested at 8.3/14.9kV
- † Tested at 15.2/26.3kV
- Tested at 21.1/36.6kV

600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	600 Series Elbow (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	K655LR-WOX Use Tables W7 and X6 755LR-WOX Use Tables W9 and X6	N1, 2 N1, 2, 15
	600 Series Direct Test Elbow (w/ Insul. Plug, Cap, Stud Lug and Cable Adapter)	15/25kV 35kV	K655DLR-WOX Use Tables W7 and X6 755DLR-WOX Use Tables W9 and X6	N1, 2, 12 N1, 2, 12, 15
	600 Series Elbow w/ Test Point (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	K656LR-WOX Use Tables W7 and X6 756LR-WOX Use Tables W9 and X6	N1, 2 N1, 2, 15
	600 Series Direct Test Elbow w/ Test Point (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	K656DLR-WOX Use Tables W7 and X6 756DLR-WOX Use Tables W9 and X6	N1, 2, 12 N1, 2, 12, 15
	600 Series Elbow w/o Test Point Housing only (w/ Stud)	15/25kV 35kV	K655BLR 755BLR	N1, 3 N1, 3, 15
	600 Series Elbow w/ Test Point Housing only (w/ Stud)	15/25kV 35kV	K656BLR 756BLR	N1, 3 N1, 3, 15
	600 Series Replacement Elbow Housing only w/o Test Point	15/25kV	K655BRLR	N14
	600 Series Replacement Elbow Housing only w/ Test Point	15/25kV	K656BRLR	N14
	600 Series Spiking Elbow (w/ Spiking Contact)	15/25kV	K656BSELR	
	600 Series Extended Elbow (w/ Extended Contact)	15/25kV	K656BELR	
	600 Series Spiking Elbow (w/ Spiking Contact, Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV	K656SELR-WOX	N2
	600 Series Extended Elbow (w/ Extended Contact, Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV	K656ELR-WOX	N2
	600 Series Straight Receptacle (w/ Cable Adapter, Lug & Retaining Ring)	15/25kV	K655SR-WOX Use Tables W7 and X6	N1, 2, 11
	600 Series Direct Test Straight Receptacle Elbow	15/25kV	K655DSR-WOX Use Tables W7 and X6	N1, 2, 11, 12
	600 Series Straight Receptacle Housing (Lug & Cable Adapter not included)	15/25kV	K655BSR	N1, 11
	Straight Receptacle Adapter	15/25kV	K650SRA	N1, 4
	600 Series Vault Stretcher (Housing only w/ Stud)	15/25kV 35kV	K655BVS 755BVS	N1, 9 N1, 9
	Cable Size Adapter	15/25kV 35kV	655CA-W Use Table W7 755CA-W Use Table W9	
	Compression Lug	All All	03700X Use Table X6 03702X Use Table X6	N5 N6
	600 Series Elbow & Vault Stretcher Size Sensitive Kit (Cable Adapter & Lug)	15/25kV 35kV	655CK-WOX Use Tables W7 and X6 755CK-WOX Use Tables W9 and X6	N2 N2
	Adapter Retaining Ring	ALL	650ARR-X Use Table X6	
	600 Series Straight Receptacle Size Sensitive Kit (Cable Adapter, Retaining Ring & Lug)	15/25kV	655CK-WOX-ARR Use Tables W7 and X6	N2

600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Bushing Extender (w/ Stud)	15/25kV 35kV	K655BE 755BE	N1, 3 N1, 3
	Insulated Cap w/ Test Point (w/ Stud)	15/25kV	K656DR	N3, 7
	Insulated Cap w/ Test Point (w/ Stud) & Ground	15/25kV	K656DRG	N3, 7
	Insulating Plug (w/Cap)	15/25kV 35kV	K650BIP 750BIP	N1, 7, 8 N1, 7, 8
	Grounding Plug (Ground Lead 2/0 AWG x 30")	15/25kV 35kV	650GP 750GP	N1, 7, 8 N1, 7, 8
	600 Series Grounding Device	15/25kV	K671GAD	
	600 Series Grounding Device with Ball	15/25kV	K671BGAD	
	600 Series Insulating Cap for Grounding Device	15/25kV	K676GADDR	
	600 Series Insulating Cap for Grounding Device with Ball	15/25kV	K676BGADDR	
	Insulated Parking Bushing	15/25kV 35kV	K650SOP 750SOP	N7, 8 N7, 8
	Connecting Plug	15/25kV 35kV	K651CP 750CP	N1, 7, 8, 10 N1, 7, 8, 10
	Deadbreak Reducing Tap Plug	15/25kV	K650RTP	N1, 7, 8, 9
	Reducing Tap Well	15/25kV	K650RTW	N1, 7, 8, 9
	Loadbreak Elbow Tap Plug	15kV 25kV 35kV	650ETP K650ETP 750ETP	N1, 7, 8, 10 N1, 7, 8, 10 N1, 7, 8, 10
	Vault Stretcher Threaded Stud	15/25kV 35kV	650VSA 750VSA	N1 N1
	600 Series Elbow Threaded Stud	15/25kV 35kV	650SA 750SA	N1 N1
	Assembly Tool (Window-OP)	All	600ATM	
	Spanner Wrench	All	600SW	N9
	Direct Voltage Test Meter Adapter for: <i>HD Electric Meters</i>	All	200TC-1	N12
	<i>Ross Meters</i>		200TC-2	N12
	<i>Chance Meters</i>		200TC-4	N12

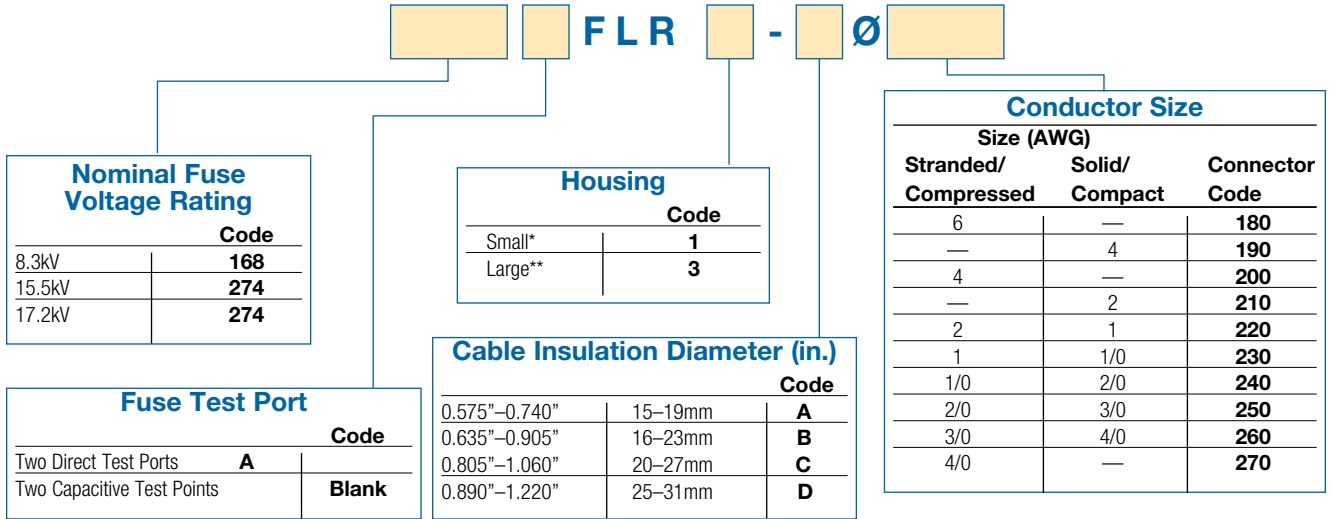
- N1. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K671 for K651; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.
- N2. Add suffix symbol from **page 43** to include cable shield grounding kit and/or cable jacket sealing kit.
- N3. Available without the stud by adding "N" to the catalog number.
- N4. Straight Receptacle Adapter is used to connect Straight Receptacles K655YBSR and K655YSR-WOX (**page 24**) to equipment bushings.
- N5. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.
- N6. Copper lug for use on COPPER CONDUCTOR ONLY. Do not substitute threaded 03602X lug.
- N7. Available with the stud factory-assembled by adding "SP" to the catalog number. 675ETP, K675ETP and 775ETP are available as -SP only. The stud is not field removable.
- N8. Available with a loose stud by adding suffix "S" to the catalog number.
- N9. 600SW spanner wrench is recommended for installation of deadbreak reducing tap plugs and reducing tap wells.
- N10. Use 600ATM Assembly Tool.
- N11. 600 Series Elbows and Straight Receptacles with IEEE Std. 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.
- N12. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick; provides a means for direct conductor voltage testing.
- N13. With stainless steel bracket.
- N14. Replacement Elbow includes an I-Adapter, and Straight Receptacle, resulting in a net gain of 20".
- N15. Available with 200kv BIL adding suffix "-200".

Refer to the **W** and **X** tables on **page 50** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page 42**.

Ordering Information for Elastimold® Fuse Housings

The following diagram shows how to construct a catalog number for Fuse Housings.

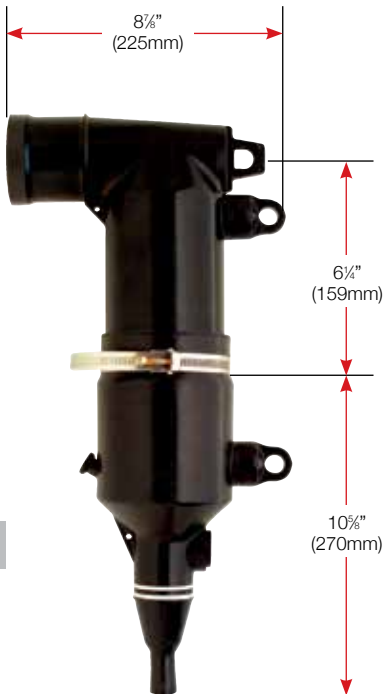
☐ Indicates field that must be filled in to complete order.



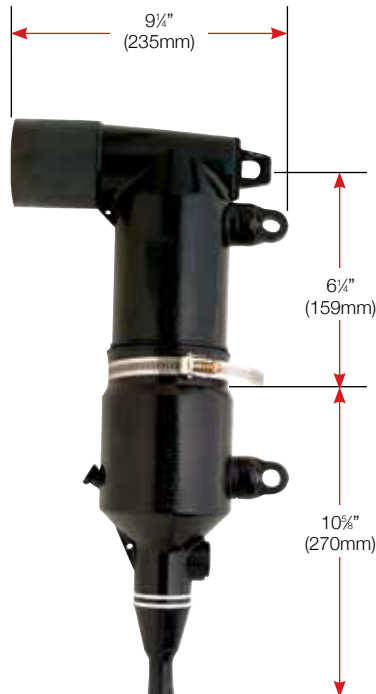
* Small Housing is used with 8.3kV (3–45A) and 15.5kV (6–20A) rated fuses.

** Large Housing is used with 8.3kV (65A and 80A) and 17.2kV (3–45A) rated fuses.

168FLR1



274FLR1



168FLR3 A = 8 7/8" (225mm)

274FLR3 A = 9 1/4" (235mm)



NOTE: 1. All dimensions rounded up to the nearest eighth inch.

- Also available with direct test port.
- Dimensions with Direct Test Port units are 10 1/4" (260mm) or 10 5/8" (270mm).
- 168FLR3 uses a large housing with a 15kV, 200A elbow interface.

600-Amp Elbow Connectors

The following diagram shows how to construct a catalog number for Full-Range Current-Limiting Fuses.

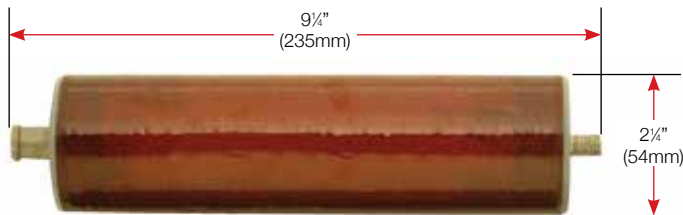
Indicates field that must be filled in to complete order.

EFX - E

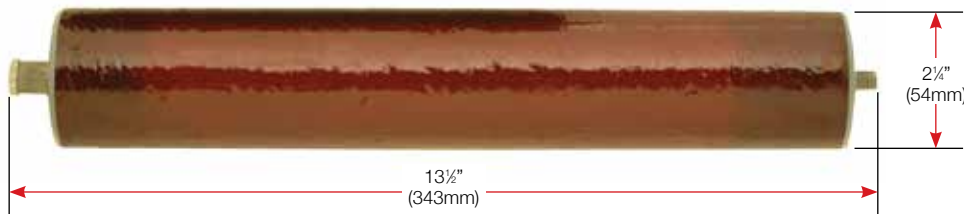
Voltage Rating	
	Code
8.3kV	083
15.5kV	155
17.2kV	172

Amperage Rating		
		Code
3A	8.3/17.2kV	003
6A	8.3/15.5/17.2kV	006
8A	8.3/15.5/17.2kV	008
10A	8.3/15.5/17.2kV	010
12A	8.3/15.5/17.2kV	012
18A	8.3/15.5/17.2kV	018
20A	8.3/15.5/17.2kV	020
25A	8.3/17.2kV	025
30A	8.3/17.2kV	030
40A	8.3/17.2kV	040
45A	8.3/17.2kV	045
65A	8.3kV	065
80A	8.3kV	080

8.3kV (3–45A)/15.5kV (6–20A) Fuse



8.3kV (65–80A)/17.2kV (3–45A) Fuse



NOTE: All dimensions rounded up to the nearest eighth inch.

600-Amp Elbow Connectors

600 Series Deadbreak Components (continued)

600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

De-energized connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, bypass, isolation, dead-ending, grounding and testing as well as adding taps, surge arresters and circuit protection.

Hotstick operable and separable joint systems are shown on **pages 16–19** and **20–21**.



Ratings Overview

See **page H-2** for complete information.

Current Ratings

(Prefixes: **650, K650, K651, K655, K656, 750, 755, 756 & 03700**)

600 Amp Continuous
25kA sym., 10 cycles

(Prefixes **675, K675, K671, K676, 775, 776 & 03702**)

900-Amp Continuous
25kA sym., 10 cycles

Note: 900 Amp ratings require copper cable and copper current-carrying components.

Voltage Ratings

15/25kV Class (5kV thru 28kV)

16.2kV Phase-to-Ground
28kV Phase-to-Phase
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV Class

21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

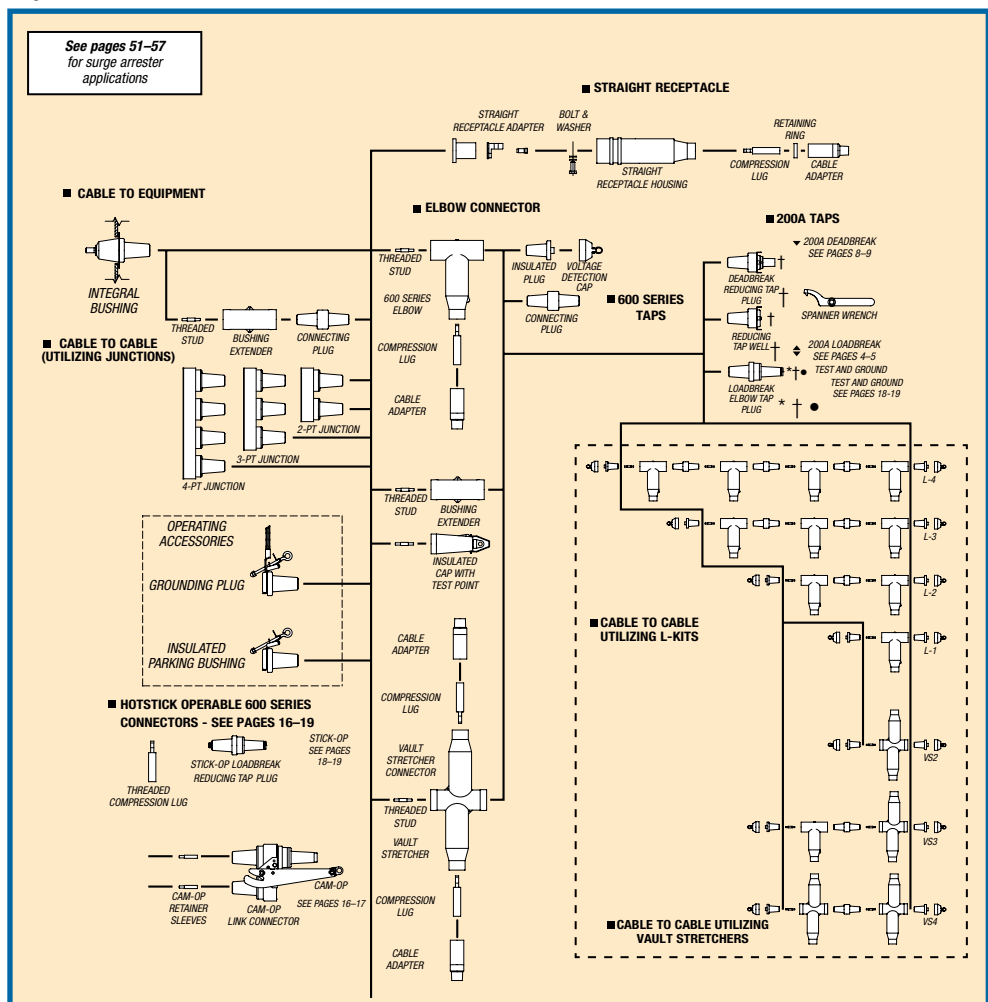
Note: Elastimold has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.

* Tested @ 8.3/14.9kV

† Tested @ 15.2/26.3kV

• Tested @ 21.1/36.6kV

Separable Connectors 600 Series Deadbreak



600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	2-Point Junction	15/25kV 35kV	K650J2 750J2	N1, 7, 8 N1, 7, 8
	3-Point Junction	15/25kV 35kV	K650J3 750J3	N1, 7, 8 N1, 7, 8
	4-Point Junction	15/25kV 35kV	K650J4 750J4	N1, 7, 8 N1, 7, 8
	1-Way L-Kit	15/25kV 35kV	K655L1 755L1	N1, 2, 3, 9, 10 N1, 2, 3
	2-Way L-Kit	15/25kV 35kV	K655L2-WOX 755L2-WOX	N1, 2, 3, 4, 5, 6, 9, 10 N1, 2, 3, 4, 5, 6
	2-Way VS-Kit	15/25kV 35kV	K655VSL2-WOX 755VSL2-WOX	N1, 2, 3, 9, 10 N1, 2, 3
	3-Way L-Kit	15/25kV 35kV	K655L3-WOX 755L3-WOX	N1, 2, 3, 4, 9, 10 N1, 2, 3, 4
	3-Way VS Kit	15/25kV 35kV	K655VSL3-WOX 755VSL3-WOX	N1, 2, 3, 5, 6, 9, 10 N1, 2, 3, 5, 6
	4-Way L-Kit	15/25kV 35kV	K655L4-WOX 755L4-WOX	N1, 2, 3, 4, 9, 10 N1, 2, 3, 4
	4-Way VS-Kit	15/25kV 35kV	K655VSL4-WOX 755VSL4-WOX	N1, 2, 3, 5, 6, 9, 10 N1, 2, 3, 5, 6
	Assembly Tool	ALL	600ATM	

- N1. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for OX in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.
- N2. L-Kits and VS-Kits do not include cable adapters or compression lugs. These items must be ordered separately.
- N3. 600 Series Elbows and Straight Receptacles with IEEE Std. 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.
- N4. 600ATM is recommended for installing K651CP and 750CP.
- N5. Can be used as a repair joint mounting hardware. (Gains 3½" of repair length.)
- N6. Can be used as a reducing joint for different size cables.
- N7. Rubber junction with stainless steel mounting plate and back plate. Add "-U" for rubber junction with stainless steel mounting plate, back plate and adjustable mounting bracket. Add "-4" for rubber junction only. Add "-5" for rubber junction, stainless steel U-straps and back plate. Add "-6" Hardware package consists of brackets and straps only.
- N8. Two - six-position multi-point junctions shown on **pages 22-23**.
- N9. Replace "L" for "E" when connecting to equipment and one BIP is not required (i.e., K655E2, K655E3, K655VSE3).
- N10. Add "G" after "L" to replace a BIP with a GAD + GADDR or "GB" for a BGAD+BGADDR (i.e., K655EG2, K655LGB3, K655VSEG3).

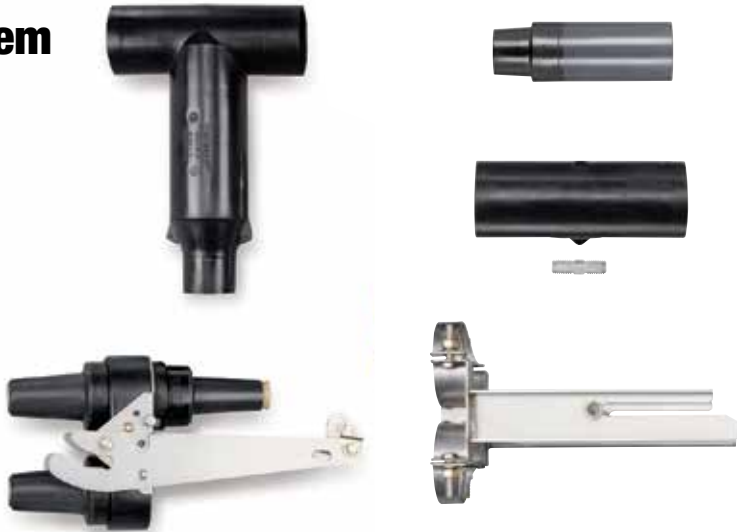
Refer to **page 68** for L-Kits and Vault Stretcher Kits Ordering Information.

600-Amp Elbow Connectors

600 Series Cam-Op™ Deadbreak Connector System

The Elastimold® 600 Series Cam-Op™ deadbreak connector system incorporates provisions for hotstick operation of de-energized primary feeder or network circuits. Configurations allow external visible break, testing, grounding and isolation. Retrofit kits allow upgrading existing equipment.

The Cam-Op™ system utilizes pin and socket connectors and can be retrofitted to existing equipment. The Cam-Op™ connector is easily installed or removed by hotstick operation of the cam action disconnect lever.



Ratings Overview

See page 2 for complete information.

Current Ratings

600 & 900 Amp Continuous
25kA sym., 10 cycles

Note: - 900-Amp ratings require copper cable and copper current-carrying components.

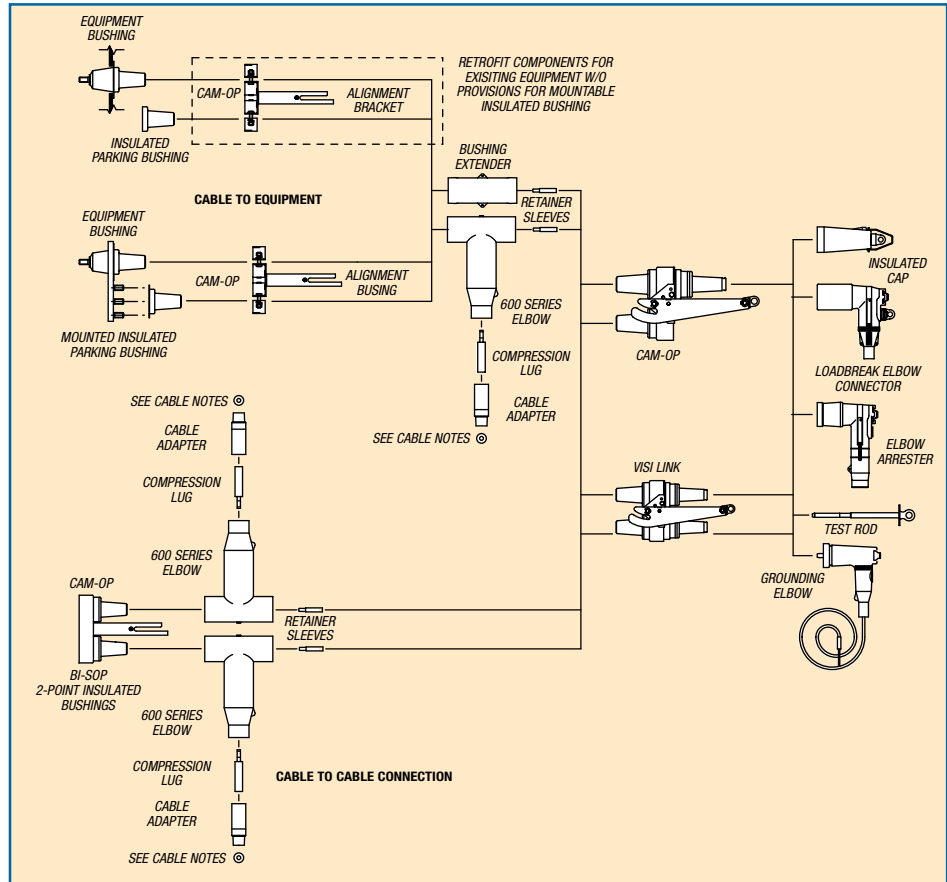
Continuous Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Cam-Op™ System — 600 Series Deadbreak



600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Cam-Op Connector Kit	15kV	655LINK-C-LR-WOX-B-DRG Use Tables W7 and X6	N1, 2, 8, 10, 11, 12
		25kV	K655LINK-C-LR-WOX-B-DRG Use Tables W7 and X6	N1, 2, 8, 10, 11, 12
		35kV	755LINK-C-LR-WOX-B-DRG Use Tables W9 and X6	N1, 2, 8, 10, 11, 12
	Mountable Insulated Bushing	25kV	K650LBM-3	N2
		35kV	750LBM-3	N2
	Retrofit Cam-Op Connector Kit	15kV	655LINK-C-LR-WOX-A-DRG Use Tables W7 and X6	N4, 8, 10, 11, 12
		25kV	K655LINK-C-LR-WOX-A-DRG Use Tables W7 and X6	N4, 8, 10, 11, 12
		35kV	755LINK-C-LR-WOX-A-DRG Use Tables W9 and X6	N4, 8, 10, 11, 12
	Insulating Plug	25kV	K650LB	N3
		35kV	750LB	N3
	Cam-Op Alignment Bracket	15kV	650CAB	—
		25kV	K650CAB	—
		35kV	750CAB	—
	Compression Lug	All	03700X	N5
			Use Table X6	
			03702X	N6
	Cam-Op Size Sensitive Kit (Cable Adapter & Lug)		655CK-WOX	N10
			Use Tables W7 and X6	
			755CK-WOX	N10
	Cam-Op Retaining Sleeve	All	650RSC	N8
	Cam-Op Cable Joint Kit	15kV	655BI-LINK-C-LR-WOX-DRG Use Tables W7 and X6	N7, 8, 10, 11, 12
		25kV	K655BI-LINK-C-LR-WOX-DRG Use Tables W7 and X6	N7, 8, 10, 11, 12
		35kV	755BI-LINK-C-LR-WOX-DRG Use Tables W9 and X6	N7, 8, 10, 11, 12
	Cam-Op Loadbreak Reducing Tap Plugs (Visi-Break)	15kV	650LK-C-VB	—
		25kV	K650LK-C-VB	—
		35kV	750LK-C-VB	—
	Cam-Op Link	15kV	650LK-C	—
		25kV	K650LK-C	—
		35kV	750LK-C	—
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV	160GLR	N 13
		25kV	370GLR	N 13
		35kV	370GLR	N 13
	Test Rod	All	370TR	—

- N1. Cam-Op connector kit includes: (1) Cam-Op link; (1) elbow housing; (1) cable adapter; (1) 0370 style lug; (1) bushing extender; (2) retainer sleeves; (1) insulated cap; (1) mountable insulated bushing and (1) alignment bracket.
- N2. Mountable insulated bushing included with Cam-Op connector kit. Requires three threaded studs on equipment faceplate for installation.
- N3. Use with the Retrofit Cam-Op connector kit.
- N4. Retrofit Cam-Op connector kit includes: (1) link; (1) elbow housing; (1) cable adapter; (1) 0370 style lug; (1) bushing extender; (2) retainer sleeves; (1) insulated cap; (1) insulating plug; and (1) alignment bracket.
- N5. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.
- N6. Copper lug for use on COPPER CONDUCTOR ONLY. DO NOT substitute 03602X threaded lug.
- N7. Cam-Op Cable Joint Kit includes: (1) Cam-Op link; (1) Cam-Op BI-SOP; (2) elbow housings; (2) cable adapters; (2) 0370 style lugs; (2) retainer sleeves; (1) insulated cap.
- N8. 600ATM is recommended for installing Cam-Op retaining sleeves.
- N9. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.
- N10. Add suffix symbol from **page 43** to include cable shield grounding kit and/or cable jacket sealing kit.
- N11. To add elbows or arresters instead of insulating caps, replace the "DRG" with "LR-WX" for elbows (with test point) or "ESA" for elbow arresters.
- N12. 600 Series Elbows with IEEE 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.
- N13. Rated for both 25kV and 35kV applications.

Refer to the **W** and **X** tables on **page 50** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page 42**.

600-Amp Elbow Connectors

600 Series Test and Ground and Stick-Op™ — Deadbreak Connector Systems

The Elastimold® 600 Series Test and Ground and Stick-Op™ deadbreak connector systems incorporate provisions for hotstick operation of de-energized primary feeder or network circuits.

The Test and Ground and Stick-Op™ connectors allow direct testing and grounding with no required cable movement.

Test and Ground is ideal for equipment applications which include viewing windows to provide an internal visible break that does not require hotstick removal of the elbows.

Stick-Op™ provides an external visible break by hotstick removal of the elbow.

Test and Ground and Stick-Op™ connectors are bolted and installed using torque-controlled tools.



Ratings Overview

See **page 2** for complete information.

Current Ratings

600 & 900 Amp Continuous

25kA sym., 10 cycles

Note: 900 Amp ratings require copper cable and copper current-carrying components.

Continuous Voltage Ratings

15kV Class

8.3kV Phase-to-Ground

14.4kV Phase-to-Phase

95kV BIL

34kV AC Withstand

53kV DC Withstand

11kV Corona Extinction

25kV Class

15.2kV Phase-to-Ground

26.3kV Phase-to-Phase

125kV BIL

40kV AC Withstand

78kV DC Withstand

19kV Corona Extinction

35kV Class

21.1kV Phase-to-Ground

36.6kV Phase-to-Phase

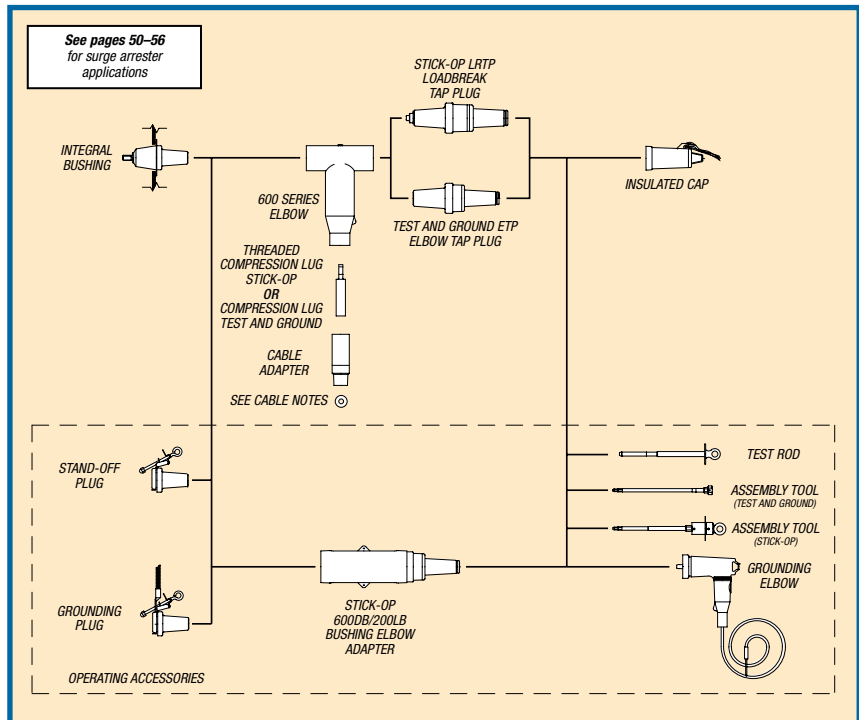
150kV BIL

50kV AC Withstand

103kV DC Withstand

26kV Corona Extinction

Stick-Op™ & Test and Ground System — 600 Series Deadbreak



600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Test and Ground Connector Kit	15kV	655ETP-WOX-DRG	N1, 4, 5, 6, 11, 13
		25kV	K655ETP-WOX-DRG	
		35kV	755ETP-WOX-DRG	
	Test and Ground Replacement Connector Kit	15kV	655RETP	N4, 5, 6, 11, 13, 14
		25kV	K655RETP	
	Stick-Op Connector Kit	15kV	655LRTP-WOX-DRG	N2, 3, 4, 5, 8, 11
		25kV	K655LRTP-WOX-DRG	
		35kV	755LRTP-WOX-DRG	
	Stick-Op Replacement Connector Kit	15kV	655RLRTP	N3, 4, 5, 8, 11, 14
		25kV	K655RLRTP	
	Test and Ground Loadbreak Elbow Tap Plug	15kV	650ETP	N4, 13, 16
		25kV	K650ETP	
		35kV	750ETP	
	Stick-Op Loadbreak Reducing Tap Plug	15kV	650LRTPA3	N3, 4
		25kV	K650LRTPA2	
		35kV	750LRTPA2	
	Stick-Op Bushing Adapter	15kV	655BEA3	N3, 4
		25kV	K655BEA2	
		35kV	755BEA2	
	Compression Lug Test and Ground	All	03700X	N6
		All	03702X	N7
	Threaded Compression Lug Stick-Op	All	03600X	N8, 15
		All	03602X	N9
	Test and Ground Size Sensitive Kit (Cable Adapter & Lug)	15/25kV	655CK-WOX	N4, 5
		35kV	755CK-WOX	
	Stick-Op Size Sensitive Kit (Cable Adapter & Threaded Lug)	15/25kV	655TCK-WOX	N5
		35kV	755TCK-WOX	
	Extraction Tool	All	650ET	N10
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV	160GLR	N12
		25kV	370GLR	
		35kV	370GLR	
	Test Rod	All	370TR	—
	Assembly Tool (Stick-Op)	All	600AT	N3
	Assembly Tool (Test and Ground)	All	600ATM	N13

- N1. Test and Ground Kit includes: insulated cap; Test and Ground reducing tap plug; 600 Series elbow housing; cable adapter; and 0370 style compression lug.
- N2. Stick-Op Kit includes insulated cap; Stick-Op Loadbreak reducing tap plug; 600 Series Elbow Housing; cable adapter; and threaded 0360 style compression lug.
- N3. 600AT assembly tool required for operation and/or installation of Stick-Op.
- N4. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.
- N5. Add suffix symbol from **page 45** to include cable shield grounding kit and/or cable jacket sealing kit.
- N6. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.
- N7. Copper lug for use on COPPER CONDUCTOR ONLY. DO NOT substitute 03602X threaded lug.
- N8. Threaded aluminum lug (Stick-Op only) for use on copper or aluminum conductors. DO NOT substitute unthreaded 03700X lugs. DO NOT use with 675, 676, K675, K676, 775 or 776 catalog numbers.
- N9. Threaded copper lug (Stick-Op only) for use on copper conductors only. DO NOT substitute unthreaded 03702X lugs.
- N10. Required to disassemble Stick-Op loadbreak reducing tap plug from the threaded compression lug and 600 Series elbow after the shear-pin is broken during assembly.
- N11. 600 Series Elbows with IEEE 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.
- N12. Rated for both 25kV and 35kV applications.
- N13. 600ATM assembly tool required for Test and Ground assembly. 50–60 ft./lbs. torque wrench required but not included.
- N14. Replacement Elbow includes: insulated cap; reducing tap plug; 600 series elbow housing; I-Adapter; straight receptacle, resulting in a net gain of 20" in length vs. a standard elbow kit. Compression lugs and cable adapters are ordered separately.
- N15. Retrofit sleeve to convert 03600X Series lug to a 03700X Series lug (catalog number 650-353).
- N16. Add "SP" to the part number to include factory-assembled stud.

Refer to the **W** and **X** tables on **page 50** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page 42**.

600-Amp Separable Cable Joints

600 Series Separable Cable Joints

600 Series Separable Cable Joints are available in 2-, 3- and 4-way versions and include a capacitive test point as standard. Units are interchangeable, featuring bolted connections. Designs are compact and ideally suited for small vaults and manholes.

De-energized joints can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Bus bars can be changed to add or remove cables from the joint.

A Spiking Aid is available on the 2-way (I), 3-way (Y) and the 4-way (H) bus. The Spiking Aid adds a special interface with a replaceable appendage that provides a convenient place to spike the bus to assure that it is de-energized. This also assures that all cables connected to the bus are de-energized. An optional grounding attachment can be threaded onto the special interface for grounding during the outage. This ground also ensures that all connected cables are grounded. When the work is done and the ground removed, a new cap is installed.

Optional accessories include insulating and grounding caps and plugs which allow visible external separation, bypass, isolation, dead-ending, grounding and testing.



Ratings Overview

See page 2 for complete information.

Current Ratings

(Prefixes: 650, K650, K655, K656 & 03700)

600 Amp Continuous
25kA sym., 10 cycles

Voltage Ratings

15/25kV Class (5kV thru 28kV)

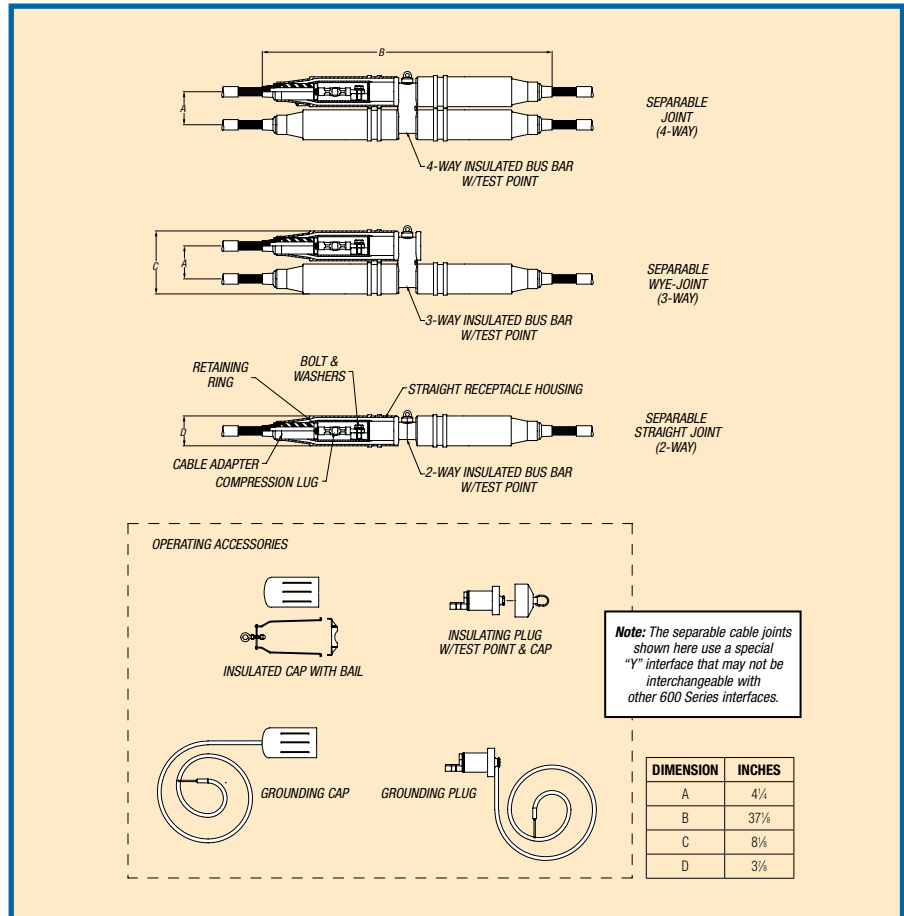
16.2kV Phase-to-Ground
28kV Phase-to-Phase
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV

21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Note: Elastimold® has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.

Separable Cable Joints – 600 Series Deadbreak



600-Amp Separable Cable Joints

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Separable Straight Joint Pkg. (2-Way) w/ Test Point	15/25kV 35kV	K656I-WOX M656I-WOX Use Tables W7 and X6	N1, 8, 12
	Basic Housing Pkg. Straight Joint w/ Test Point	15/25kV 35kV	K656I-HP M656I-HP	N2, 12
	Separable Wye Joint Pkg. (3-Way) w/ Test Point	15/25kV 35kV	K656CY-WOX M656CY-WOX Use Tables W7 and X6	N1, 8, 12
	Basic Housing Pkg. Wye Joint w/ Test point	15/25kV 35kV	K656CY-HP M656CY-HP	N2, 12
	Separable "H" Joint Pkg. (4-Way) w/ Test Point	15/25kV 35kV	K656CWOX M656CWOX Use Tables W7 and X6	N1, 8, 12
	Basic Housing Pkg. "H" Joint w/ Test Point	15/25kV 35kV	K656CH-HP M656CH-HP	N2, 12
	2-Way Insulated Bus Bar w/Test Point	15/25kV 35kV	K656I-BUS M656I-BUS	N3, 12
	3-Way Insulated Bus Bar w/Test Point	15/25kV 35kV	K656CY-BUS M656CY-BUS	N3, 12
	4-Way Insulated Bus Bar w/Test Point	15/25kV 35kV	K656CH-BUS M656CH-BUS	N3, 12
	Straight Receptacle	15/25kV 35kV	K655YSR-WOX K656YBSR M655YSR-WOX Use Tables W7 and X6	N4, 8
	Direct Test Straight Receptacle Elbow	15/25kV 35kV	K655YDSR-WOX M655YDSR-WOX Use Tables W7 and X6	N4, 8, 11
	Direct Test Straight Receptacle Elbow w/ Test Point	15/25kV 35kV	K656YDSR-WOX M656YDSR-WOX Use Tables W7 and X6	N4, 8, 11
	Straight Receptacle Housing Only	15/25kV 35kV	K655YBSR M655YBSR	N5, 10
	Insulated Cap w/ Bail	15/25kV 35kV	K655YDR M655YDR	
	Bail Only	15/25kV 35kV	650BA	
	600 Series Spiking Aid Appendage	15/25kV 35kV	K650SL	N13
	Cable Adapter	15/25kV 35kV	655CA-W Use Table W7	
	Adapter Retaining Ring	15/25kV 35kV	650ARR-X	
	Compression Lug	15/25kV 35kV	03700X 03702X Use Table X6	N7 N9
	Grounding Bar for Spiking Aid	15/25kV 35kV	K650SLGB	

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	600 Series Straight Receptacle Size Sensitive Kit (Cable Adapter, Retaining Ring & Lug)	15/25kV 35kV	655CK-WOX-ARR Use Tables W7 and X6	N8
	Insulating Plug w/ Test Point & Cap	15/25kV 35kV	K650YBIP M650YBIP	
	Grounding Plug (4/0 AWG x 6' Ground Lead)	15/25kV 35kV	650YGP	
	Grounding Cap (4/0 AWG x 6' Ground Lead)	15/25kV 35kV	650YDR	
	Stainless Steel Bolt & Washers	15/25kV 35kV	650BAW	
	Assembly/Disassembly Tool	All	600YADT-2	N6
	Assembly/Disassembly Tool	All	600RRT-2	N6

- N1. Complete Joint Packages consisting of: insulated bus bar, straight receptacle housings, retaining rings, cable size adapters, lugs, bolts and washers.
- N2. Housing Packages consisting of the following non-size sensitive components of the joint: insulated bus bar, straight receptacle housings, bolts and washers.
- N3. Insulated bus bar only.
- N4. Straight Receptacle consisting of: straight receptacle housing, retaining ring, cable adapter, lug, bolt and washers.
- N5. Straight receptacle housing consisting of: straight receptacle housing, bolt and washers.
- N6. Recommended for ease of assembly/disassembly of receptacles to Bus. 600YADT-1 is lever drive and 600RRT is screw drive.
- N7. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.
- N8. Add suffix symbol from **page 43** to include cable shield grounding kit and/or cable jacket sealing kit.
- N9. Copper lug for use with COPPER CONDUCTOR ONLY. DO NOT substitute threaded 03602X lug.
- N10. Available without the bolt and washers by adding "N" to the part number.
- N11. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick, provides a means for direct conductor voltage testing. See **page 13** for meter adapters.
- N12. Available with spiking aid option: K656CHSL, K656CYSL and K656IS L and M series.
- N13. Replaceable Spiking Aid appendage for K656CHSL, K656CYSL and K656IS L and M series.

Refer to the **W** and **X** tables on **page 50** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page 42**.

Multi-Point Junctions

Molded Multi-Point Junctions

Elastimold® multi-point junctions are available in 2-, 3-, 4-, 5- or 6-point configurations with 15, 25/28 or 35kV ratings. Units feature modular design flexibility, allowing selection of any combination of 200-amp deepwell or 600-amp bushing interfaces located on standard 4" or optional 6½" centers. The 6½" center spacing is especially well suited for Distributed Switchgear applications, including fused elbow, MVI fault interrupter, MVS switch, etc.

Designs incorporate lightweight, damage-resistant, EPDM molded rubber construction and corrosion-resistant 304 stainless steel mounting brackets. Junctions are maintenance free, fully shielded, deadfront and submersible. Units are ideally suited for subsurface, padmount, indoor and outdoor vault applications.

Elastimold® multi-point junctions provide a convenient method for connecting, looping and tapping of 200- and 600-amp elbows and other accessories at a common location where utilization of space, cable training, flexibility and operability are important.

Ratings Overview

See **page 2** for complete information

Current Ratings

600 Amp Continuous
25kA sym., 10 cycles
or with 200-amp Bushing Well versions

200 Amp Continuous
10kA sym., 10 cycles

Voltage Ratings

15kV Class

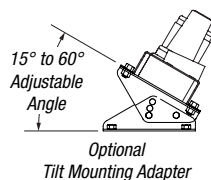
8.3kV Phase-to-Ground
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25/28kV Class

16.2kV Phase-to-Ground
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV Class

21.1kV Phase-to-Ground
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction



Dimensional Information

Figure 1: Multi-Point Junctions with 4" Interface Spacings.

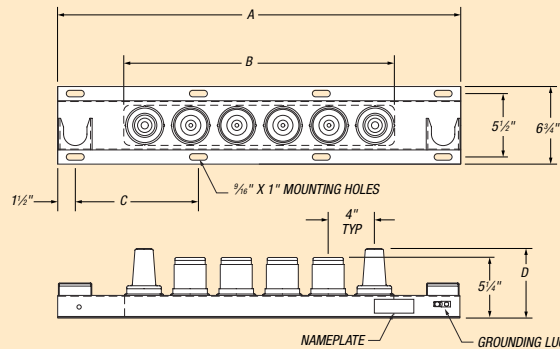
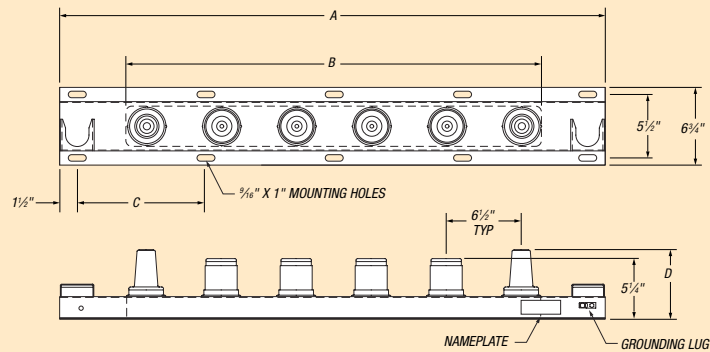


Figure 2: Multi-Point Junctions with 6½" Interface Spacings.



TYPE OF JUNCTION	FIGURE 1			NUMBER OF MOUNTING HOLES	FIGURE 2			NUMBER OF MOUNTING HOLES
	A	B	C		A	B	C	
J2	15"	7 1/2"	6"	6	19 1/2"	10"	8 1/4"	6
J3	19"	11 1/2"	8"	6	26"	16 1/2"	11 1/2"	6
J4	24"	15 1/2"	10"	6	32 1/2"	23"	9 1/4"	8
J5	27"	19 1/2"	12"	6	39"	29 1/2"	12"	8
J6	31"	23 1/2"	9 3/8"	8	45 1/2"	36"	8 1/4"	10

Multi-Point Junctions

Elastimold® multi-point junctions feature modular design flexibility that permits the specifier to determine the positions of the bushing interfaces and bushing well positions.

Base Catalog Numbers

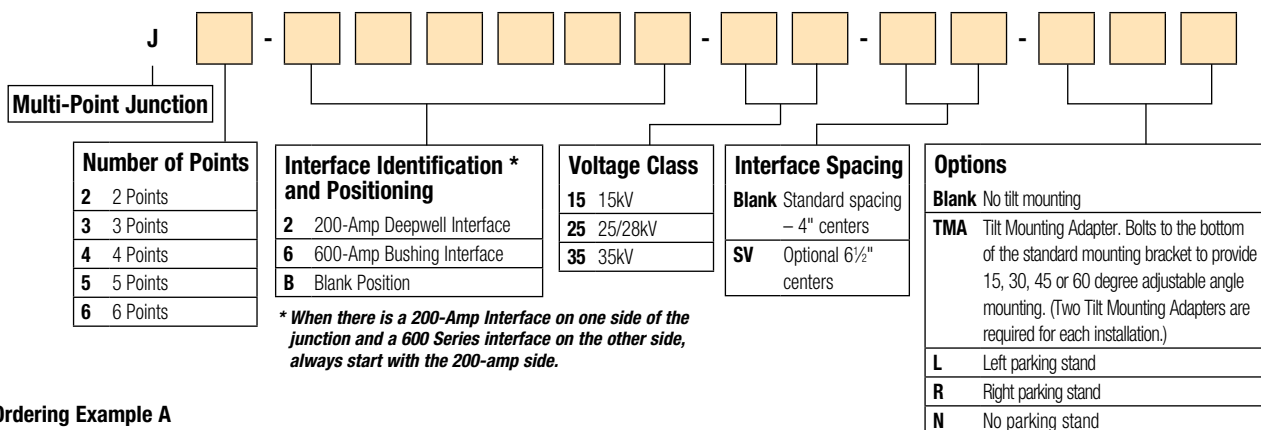
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.		NOTES
			4" SPACING	6½" SPACING	
 (J2-26-15 shown)	2-Point Junction	15kV 25/28kV 35kV	J2 - ___ - 15 J2 - ___ - 25 J2 - ___ - 35	J2 - ___ - 15-SV J2 - ___ - 25-SV J2 - ___ - 35-SV	N1, 2
 (J3-626-35 shown)	3-Point Junction	15kV 25/28kV 35kV	J3 - ____ - 15 J3 - ____ - 25 J3 - ____ - 35	J3 - ____ - 15-SV J3 - ____ - 25-SV J3 - ____ - 35-SV	N1, 2
 (J4-6226-15 shown)	4-Point Junction	15kV 25/28kV 35kV	J4 - _____ - 15 J4 - _____ - 25 J4 - _____ - 35	J4 - _____ - 15-SV J4 - _____ - 25-SV J4 - _____ - 35-SV	N1, 2
 (J5-62226-15 shown)	5-Point Junction	15kV 25/28kV 35kV	J5 - _____ - 15 J5 - _____ - 25 J5 - _____ - 35	J5 - _____ - 15-SV J5 - _____ - 25-SV J5 - _____ - 35-SV	N1, 2
 (J6-622226-15 shown)	6-Point Junction	15kV 25/28kV 35kV	J6 - _____ - 15 J6 - _____ - 25 J6 - _____ - 35	J6 - _____ - 15-SV J6 - _____ - 25-SV J6 - _____ - 35-SV	N1, 2
 (J5-66666-35C shown)	5-Point Junction	25/28kV 35kV	J5 - 66666 - 25CU J5 - 66666 - 35CU	N/A	N2, 3
 (J6-666666-35C shown)	6-Point Junction	25/28kV 35kV	J6 - 666666 - 25CU J6 - 666666 - 35CU	N/A	N2, 3

Ordering Information

To specify and order Elastimold® Multi-Point Junctions:

- Use Table 1 to construct a catalog number describing the required junction.

Table 1. Catalog Number Construction



Ordering Example A

To order a 4-point, 15kV junction with 4" spacings and 600 Series interfaces on the outside ways and 200-amp wells on the inside ways, specify Catalog Number J4-6226-15.

Ordering Example B

To order a 6-point, 25/28kV junction with 6½" spacings and 600 Series interfaces on the ways 1, 3, 4, 6 and 200-amp wells on the ways 2 and 5, specify Catalog Number J6-626626-25-SV.

N1. The 6½" wide spacing is necessary if the junction is to be used to connect with a single-phase MVS Molded Vacuum Switch or MVI Molded Vacuum Interrupter.

N2. Also available with a shorter bracket by reducing the number of parking stands; see R, L, N in Options.

N3. Copper conductor for 900-amp rating. Use suffix "CU" at the end of the part number.

ComboT Integral Separable Connectors

ComboT provides the shortest elbow stack height and the most reliable assembly in the industry.

ComboT Integral Separable Connectors



The Shortest Stack Height in the Industry — Works In Smaller Cabinets and Installs in Tighter Spaces

- **Shortest Stack Height** — Each combination elbow/connecting plug reduces stack height 2.67"
- **Eliminates Blind Assembly** — Simple connection system, reduces the chance of cross threading and is easier to line up and install
- **Fewer Interfaces and Reduced Inventory** — Combination elbow/reducing taps, connecting and bushing well plugs
- **Installs with Your Standard Assembly Tools** — Unique conductive component and uses standard 600 or 900 Series stud
- **Ensures Proper Installation Torque** — Internal hex broach
- **IEEE 386 Color-Coded PBT Interfaces** — Red for 15kV reducing tap and blue for 25kV reducing tap; provide better visibility and seating indication, plus reduces sticking
- **25kV Reducing Tap with Vents** — Prevents partial-vacuum flashover



ComboT CETP installed.



ComboT CCP installed.

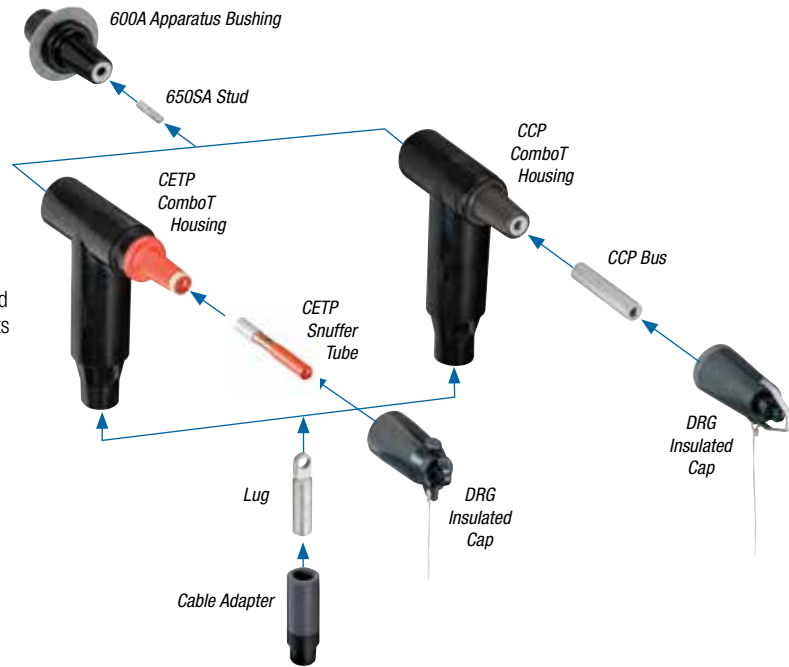


ComboT Integral Separable Connectors

Ratings

Simple Design, Simple Assembly





The 15kV CETP and 15/25kV CCP simple design makes assembly quick and easy, utilizing a standard 3/8"-11 stud that is threaded into the equipment bushing. The hollow bore of the ComboT allows visual validation that the compression lug is positioned properly before the snuffer/bus is inserted and tightened. If preferred, the stud may be first threaded into the snuffer/bus. Again, the hollow bore of the ComboT allows visual validation that the compression lug is correctly positioned before proceeding. This is all accomplished with the same parts in a ComboT kit. There is no need to choose "Male Fastener" or "Female Fastener" when ordering.



RATINGS	DEADBREAK WITH LOADBREAK REDUCING TAP							
BASE CATALOG SERIES SERIES	655/656CETP SERIES 600A DEADBREAK		675/676CETP SERIES 900A DEADBREAK		K655/K656CETP SERIES 600A DEADBREAK		K675/K676CETP SERIES 900A DEADBREAK	
Voltage Class	15kV		15kV		25kV		25kV	
Max. Phase-to-Ground Operating Voltage	8.3kV		8.3kV		15.2kV		15.2kV	
Max. Phase-to-Phase Operating Voltage	14.4kV		14.4kV		26.3kV		26.3kV	
BIL — Impulse Withstand (1.2 x 50 microsecond wave)	95kV		95kV		125kV		125kV	
AC — One-Minute Withstand Voltage	34kV		34kV		40kV		40kV	
DC — Fifteen-Minute Withstand Voltage	53kV		53kV		78kV		78kV	
Corona Extinction Level @ 3.0 pC Sensitivity	11kV		11kV		19kV		19kV	
INTERFACE/CONNECTION	600A DB	200A LB	900A DB	200A LB	600A DB	200A LB	900A DB	200A LB
Continuous Current	600A	200A	900A	200A	600A	200A	900A	200A
Loadmake/Loadbreak Switching Current	N/A	200A	N/A	200A	N/A	200A	N/A	200A
Symmetrical Momentary Current — 10 Cycle	25kA	10kA	25kA	10kA	25kA	10kA	25kA	10kA
Symmetrical One-Time Fault Close Current — 10 Cycle	N/A	10kA	N/A	10kA	N/A	10kA	N/A	10kA
Symmetrical Momentary Current — 3 Second	10kA	3.5kA	10kA	3.5kA	10kA	3.5kA	10kA	3.5kA

RATINGS	DEADBREAK WITH CONNECTING PLUG				DEADBREAK WITH BUSHING WELL			
BASE CATALOG SERIES SERIES	K655K656 CCP SERIES 600A DEADBREAK		K675K676 CCP SERIES 900A DEADBREAK		K655K656 CBW SERIES 600A DEADBREAK		K675K676 CBW SERIES 900A DEADBREAK	
Voltage Class	15/25/28kV		15/25/28kV		15/25/28kV		15/25/28kV	
Max. Phase-to-Ground Operating Voltage	16.2kV		16.2kV		16.2kV		16.2kV	
Max. Phase-to-Phase Operating Voltage	28.0kV		28.0kV		28.0kV		28.0kV	
BIL — Impulse Withstand (1.2 x 50 microsecond wave)	140kV		140kV		140kV		140kV	
AC — One-Minute Withstand Voltage	45kV		45kV		45kV		45kV	
DC — Fifteen-Minute Withstand Voltage	84kV		84kV		84kV		84kV	
Corona Extinction Level @ 3.0 pC Sensitivity	21.5kV		21.5kV		21.5kV		21.5kV	
Continuous Current	600A		900A		600A		900A	
Symmetrical Momentary Current — 10 Cycle	25kA		25kA		25kA		25kA	
Symmetrical Momentary Current — 3 Second	10kA		10kA		10kA		10kA	









ComboT Integral Separable Connectors

	KV CLASS	TEST POINT	CONTINUOUS CURRENT, AMPERES	CONNECTOR: UNIVERSAL ALUM, COPPER OR BI-METAL	BASIC COMBOT ELBOW WITH BUS AND STUD		
					CATALOG NUMBER	NOTES	KIT NOT TO SCALE
COMBOT ELBOW/ REDUCING TAP PLUG	15	No	600	U-AL	655BCETP		 (No Test Point; Aluminum Shown)
			900	CU	675BCETP	1	
			900	BM	675BCETP	1	
		Yes	600	U-AL	656BCETP		
			900	CU	676BCETP	1	
			900	BM	676BCETP	1	
	25	No	600	U-AL	K655BCETP		 (Test Point; Aluminum Shown)
			900	CU	K675BCETP	1	
			900	BM	K675BCETP	1	
		Yes	600	U-AL	K656BCETP		
			900	CU	K676BCETP	1	
			900	BM	K676BCETP	1	
COMBOT ELBOW/ CONNECTING PLUG	15/25	No	600	U-AL	K655BCCP		 (No Test Point; Aluminum Shown)
			900	CU	K675BCCP	1	
			900	BM	K675BCCP	1	
		Yes	600	U-AL	K656BCCP		
			900	CU	K676BCCP	1	
			900	BM	K676BCCP	1	
COMBOT ELBOW/ BUSHING WELL	15/25	No	600	U-AL	K655BCBW		 (Test Point; Aluminum Shown)
			900	CU	K675BCBW	1	
			900	BM	K675BCBW	1	
		Yes	600	U-AL	K656BCBW		
			900	CU	K676BCBW	1	
			900	BM	K676BCBW	1	

Notes: 1. 900 Amperes continuous is based on an all - copper system: bushing, stud, tang of the lug, contact of the plug and a cable of equal rating.

2. W and X vary with medium-voltage cable being used, with W based on the insulation diameter and X on the conduct size and construction. See **page 28** for specifics.

ComboT Integral Separable Connectors

COMBOT ELBOW WITH BUS, STUD, CABLE ADAPTER AND LUG KIT			COMBOT ELBOW WITH BUS, STUD, CABLE ADAPTER, LUG AND INSULATED CAP KIT		
CATALOG NUMBER	NOTES	KIT NOT TO SCALE	CATALOG NUMBER	NOTES	KIT NOT TO SCALE
655CETPW0X	2		655CETPW0XDRG	2	
675CETPW2X	1, 2		675CETPW2XDRG	1, 2	
675CETPW5X	1, 2		675CETPW5XDRG	1, 2	
656CETPW0X	2		656CETPW0XDRG	2	
676CETPW2X	1, 2		676CETPW2XDRG	1, 2	
676CETPW5X	1, 2	(No Test Point; Aluminum Shown)	676CETPW5XDRG	1, 2	(No Test Point; Aluminum Shown)
K655CETPW0X	2		K655CETPW0XDRG	2	
K675CETPW2X	1, 2		K675CETPW2XDRG	1, 2	
K675CETPW5X	1, 2		K675CETPW5XDRG	1, 2	
K656CETPW0X	2		K656CETPW0XDRG	2	
K676CETPW2X	1, 2		K676CETPW2XDRG	1, 2	
K676CETPW5X	1, 2	(Test Point; Aluminum Shown)	K676CETPW5XDRG	1, 2	(Test Point; Aluminum Shown)
K655CCPW0X	2		K655CCPW0XDRG	2	
K675CCPW2X	1, 2		K675CCPW2XDRG	1, 2	
K675CCPW5X	1, 2		K675CCPW5XDRG	1, 2	
K656CCPW0X	2		K656CCPW0XDRG	2	
K676CCPW2X	1, 2		K676CCPW2XDRG	1, 2	
K676CCPW5X	1, 2	(No Test Point; Aluminum Shown)	K676CCPW5XDRG	1, 2	(No Test Point; Aluminum Shown)
K655CBWW0X	2		K655CBWW0XBWP	2	
K675CBWW2X	1, 2		K675CBWW2XBWP	1, 2	
K675CBWW5X	1, 2		K675CBWW5XBWP	1, 2	
K656CBWW0X	2		K656CBWW0XBWP	2	
K676CBWW2X	1, 2		K676CBWW2XBWP	1, 2	
K676CBWW5X	1, 2	(Test Point; Aluminum Shown)	K676CBWW5XBWP	1, 2	(Test Point; Aluminum Shown)

Notes: 1. 900 Amperes continuous is based on an all-copper system: bushing, stud, tang of the lug, contact of the plug and a cable of equal rating.

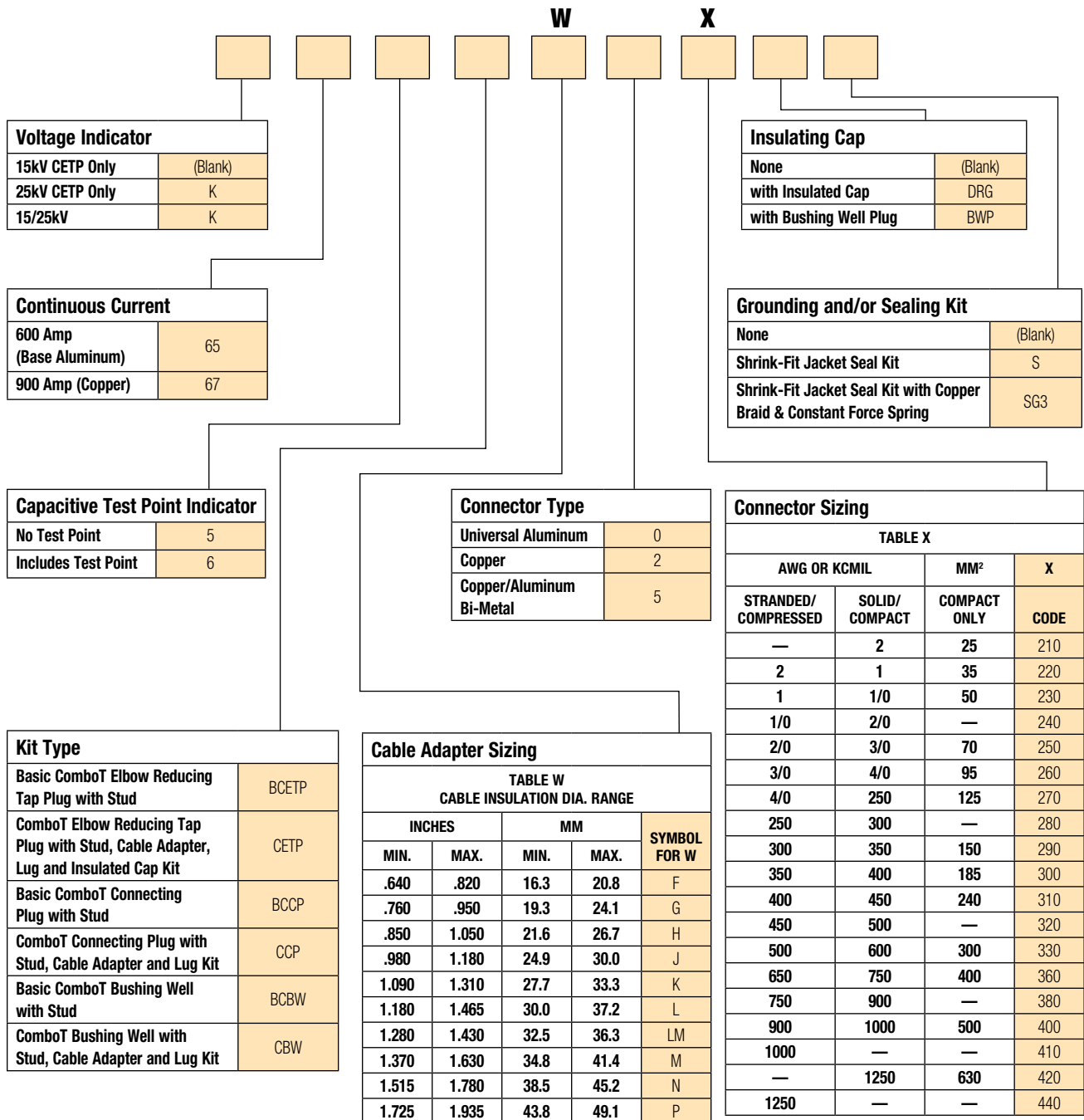
2. W and X vary with medium-voltage cable being used, with W based on the insulation diameter and X on the conduct size and construction. See page 28 for specifics.

ComboT Integral Separable Connectors

Ordering Information

The following diagram shows how to construct a catalog number for a ComboT.

Indicates field that must be filled in to complete order.



Shrink-Fit Cable Joints



SFJ115 Shrink-Fit Cable Joint



SFJ415 Shrink-Fit Cable Joint



Disposable four-piece plastic support core

Splice Medium-Voltage Cables *Fast* — No Ripcords, No Heat!

For over 50 years, the Elastimold® brand has been associated with reliable, high-quality, pre-molded power cable splices that are designed to stand the rigors of the toughest utility applications. These products provide a cost-effective method to splice medium voltage cables using a “puson” motion, and allowing cable neutrals to be solidly connected across the body of the splice without the use of any external braids. For those who prefer a more range-taking solution without the use of any physical force to install, the only options available have been cumbersome heat-shrink products that require multiple steps and the use of an open flame that makes achieving uniform cable coverage tedious and time-consuming or braid/jacket combinations that make achieving a solid neutral connection across the splice a challenge.

Now there’s a faster and easier way to splice medium-voltage cables — one that combines all of the convenience and flexibility of a pre-molded splice, with the range-taking ease of installation offered in a cold- or heat-shrink product, but without the use of ripcords, heat or excessive force. Introducing, the NEW Elastimold® Shrink-Fit Cable Joints from Thomas & Betts!

The Shrink-Fit Cable Joints are made of the same molded EPDM elastomer as our other Elastimold® cable accessories. This high-performance material offers more durability than silicone for direct burial. The joints feature a four-piece plastic support core, which is placed over the cable for installation of the splice. The support core is then easily removed with the supplied tool, allowing the elastomer joint to contour over the spliced cable for a uniform seal every time.

Each Elastimold® Shrink-Fit Cable Joint covers a wide range of cable sizes, features an insulated, semi-conductive shield and can be used with either a standard aluminum or optional copper compression splice. Optional kits are available for neutral, shielding and jacket restoration.

Features

- Automatic core removal without ripcords or heat required for installation
- High-quality molded EPDM elastomer housing withstands the elements in harsh direct-burial, vault, manhole and overhead applications
- Four sizes support a wide range of cable and conductor sizes
- IEEE 404 rated shrink-fit cable joint

Typical Applications

- Direct Burial
- Handhole/Pullbox
- Manhole
- Vault
- Overhead

Shrink-Fit Cable Joints

Installation Sequence



Place Elastimold® Shrink-Fit Joint in position.



Install connector.



Cut fastening straps.



Automatic core detachment begins.



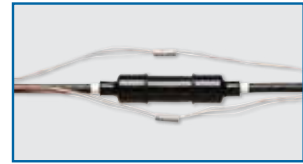
Core pushes itself towards the ends of the Shrink-Fit Joint.



Core automatically detaches from second end.



Last core piece detaches.

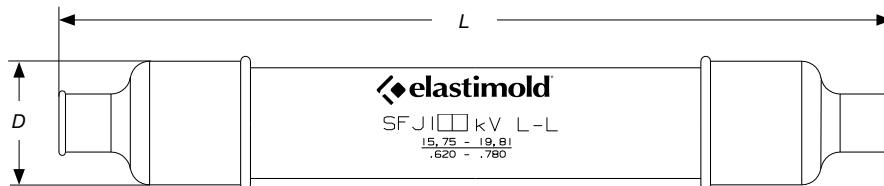


Crimp grounding wires.

Ratings

Voltage Class	15kV	25/28kV	35kV
Max. Phase-to-Ground Operating Voltage	8.7kV	14.4kV	20.2kV
BIL Impulse Withstand (1.2 x 50µsec. wave)	110kV	150kV	200kV
Corona Extinction Level @ 3.0 pC Sensitivity	13kV	22kV	30kV
DC Withstand during Installation	56kV	80kV	100kV
DC Withstand up to 5 yrs.* — XLPE Insulation	18kV	25kV	31kV
DC Withstand up to 5 yrs.* — EPR Insulation	45kV	64kV	80kV
AC Withstand at 60 Hz for 60 sec.	35kV	52kV	69kV
Continuous Current	Equal to that of cable	Equal to that of cable	Equal to that of cable
Short-Term Current	Equal to that of cable up to 35kA	Equal to that of cable up to 35kA	Equal to that of cable up to 35kA

*Reference: AEC CS6 and CS8, section L.2.



Dimensions


Cable Joint Size	D (in.)	L (in.)
1	1.85	11
2	2.12	16
3	2.4	18
4	2.6	18

Insulation Range

Cable Joint Size	Min. (in.)	Max. (in.)	Min. (mm)	Max. (mm)
1	0.610	0.860	15.49	21.84
2	0.805	1.060	20.44	26.92
3	0.935	1.355	23.75	34.41
4	1.210	1.920	30.73	48.76

Shrink-Fit Cable Joints

The following diagram shows how to construct a catalog number for an Elastimold® Shrink-Fit Cable Joint:

 Indicates field that must be filled in to complete the catalog number.

S **F** **J**     

Cable Joint Size			
Size Code	Wall Thickness (mils)	Min. Conductor Size*	Max. Conductor Size*
15kV			
1	175	#2 AWG	3/0 AWG
2	175	4/0 AWG	250 kcmil
3	175	350 kcmil	600 kcmil
4	175	700 kcmil	1000 kcmil
1	220	#2 AWG	1/0 AWG
2	220	2/0 AWG	4/0 AWG
3	220	250 kcmil	500 kcmil
4	220	600 kcmil	1000 kcmil
25/28kV			
2	260	#1 AWG	2/0 AWG
3	260	3/0 AWG	350 kcmil
4	260	500 kcmil	1000 kcmil
35kV			
3	345	1/0 AWG	4/0 AWG
4	345	250 kcmil	1000 kcmil

Voltage Rating	
15	15kV
25	25/28kV
35	35kV

Connector Type	
C	Crimp

Conductor	
1	Aluminum
2	Copper

Connector Size		
X Code	Conductor Size (AWG or kcmil)	
	Stranded/Compressed	Solid/Compact
210	—	#2 AWG
220	#2 AWG	#1 AWG
230	#1 AWG	1/0 AWG
240	1/0 AWG	2/0 AWG
250	2/0 AWG	3/0 AWG
260	3/0 AWG	4/0 AWG
270	4/0 AWG	250 kcmil
280	250 kcmil	300 kcmil
290	300 kcmil	350 kcmil
300	350 kcmil	400 kcmil
310	400 kcmil	500 kcmil
330	500 kcmil	600 kcmil
360	650 kcmil	750 kcmil
380	750 kcmil	900 kcmil
400	900 kcmil	1000 kcmil
410	1000 kcmil	—

* Based on the minimum compact AEIC & ICEA cable insulation diameters.
 Note: Each kit contains shrink-fit housing on removable core, splice connector, lubricant, installation instructions and crimp chart. For ordering information on optional neutral, shielding and jacket restoration kits, please contact Thomas & Betts Customer Service.

Permanent Distribution Cable Joints

PCJ™ Power Cable Joints

PCJ™ Power Cable Joints utilize permanently crimped connectors. PCJ housings are fully insulated, shielded and sealed for direct-burial, vault, submersible and other severe service applications. Units have been designed and tested per IEEE Standard 404 to ensure system matched performance and ratings equal to the cable to which the splice will be installed.

PCJ™ Power Cable Joints are available in two styles:

Style 1 uses a single-piece housing that is sized to accommodate a specific range of cable. Style 1 units are ideally suited for straight splicing of the same or similar cable.

Style 2 designs incorporate a universal housing with separate cable adapters to allow transition splices of different types and sizes of cable.

Style 1



Style 2



Electrical Ratings Summary

The following ratings summary is based on **IEEE 404** and applies to all Elastimold PCJ Power Cable Joints.

Voltage

- A. 15kV Class (8.7kV Phase-to-Ground)
- B. 25kV Class (14.4kV Phase-to-Ground)
- C. 35kV Class (20.2kV Phase-to-Ground)
- **Impulse Withstand:** A = 110kV, B = 150kV, C = 200kV BIL, 1.2 x 50 microsecond wave
- **Corona Extinction Voltage:** A = 13kV, B = 22kV, C = 30kV minimum, 3pC sensitivity
- **DC Withstand:** During installation, A = 56kV, B = 80kV, C = 100kV
- **DC Withstand:** After installation and in service for the first 5 years, A = 18kV, B = 25kV, C = 31kV for XLPE Insulated Cables and A = 45kV, B = 64kV, C = 80kV for EPR Insulated Cables (reference AIEC CS6 and CS8, Section L.2)

Current

- Continuous rating equal to the rating of the cable
- Short-Time rating equal to the rating of the cable up to 35kA

Shield Design

- Meets IEEE 592 for Exposed Semiconducting Shields on Premolded High Voltage Cable Joints and Separable Insulated Connectors

Production tests include 100% tests of the premolded joints to ensure:

- **Corona Extinction Voltage:** A = 13kV, B = 22kV, C = 30kV minimum, 3pC sensitivity
- **AC Withstand:** A = 35kV, B = 52kV, C = 69kV, 60 Hz, 1 minute

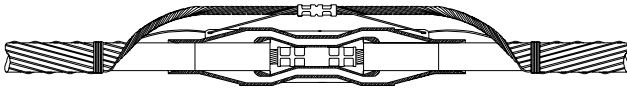
Design tests on production joints demonstrate compliance with IEEE 404 including:

- **Corona Extinction Voltage:** A = 13.0kV, B = 22.0kV, C = 30.0kV minimum, 3pC sensitivity
- **AC Withstand:** A = 35kV, B = 52kV, C = 69kV, 60 Hz 1 minute
- **DC Withstand:** A = 75kV, B = 105kV, C = 140kV negative polarity, 15 minutes
- **Impulse Withstand (BIL):** A = 110kV, B = 150kV, C = 200kV, 10 positive and 10 negative, 1.2 x 50 microsecond wave, at conductor temperatures of 20° and 130° C, nominal
- **Short-Time Current:** Magnitude equal to cable up to 35kA
- **Cyclic Aging:** 30 days at A = 26kV, B = 43kV, C = 61kV AC continuous, load current for 8 hours per day, providing 130° C conductor temperature; joints then subjected to A = 31kV, B = 50kV, C = 71kV for 5 hours followed by A = 39kV, B = 65kV, C = 91kV for 5 min
- **Load Cycle:** Connectors meet requirements of ANSI C119.4, Class A and Class 3 ratings

Permanent Distribution Cable Joints

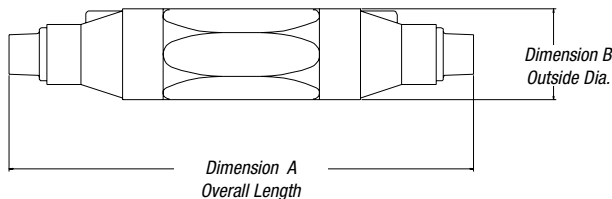
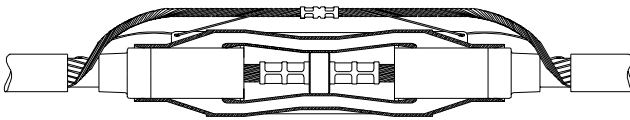
PCJ Style 1

with single-piece housing



PCJ Style 2

with universal housing and separate cable adapters that can be varied with the cable application

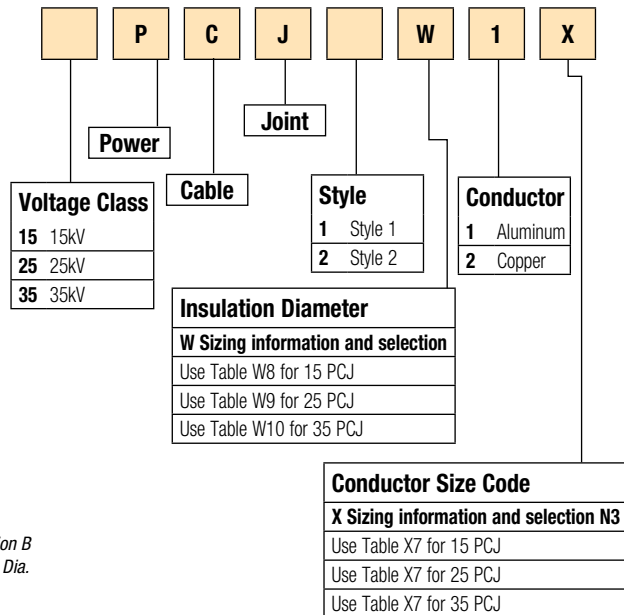


Dimensional Data

STYLE 1 CAT. NO.	A	B
	INCHES	INCHES
15PCJ1FX	10 $\frac{1}{4}$	1 $\frac{3}{4}$
15PCJ1GX	10 $\frac{1}{4}$	1 $\frac{3}{4}$
25PCJ1GX	14 $\frac{5}{8}$	2 $\frac{7}{16}$
15/25/35PCJ1HX	14 $\frac{5}{8}$	2 $\frac{7}{16}$
15/25/35PCJ1JX	14 $\frac{5}{8}$	2 $\frac{7}{16}$
15/25/35PCJ1KX	14 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ1LX	14 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25PCJ1LMX	14 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ1MX	14 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ1NX	15 $\frac{1}{4}$	3 $\frac{3}{16}$
15/25/35PCJ1PX	15 $\frac{1}{4}$	3 $\frac{3}{16}$
15/25/35PCJ1QX	15 $\frac{1}{4}$	3 $\frac{3}{16}$

STYLE 2 CAT. NO.	A	B
	INCHES	INCHES
15PCJ2FX	16 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25PCJ2GX	16 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ2HX	16 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ2JX	16 $\frac{5}{8}$	2 $\frac{5}{32}$
15/25/35PCJ2KX	21	3 $\frac{3}{4}$
15/25/35PCJ2LX	21	3 $\frac{3}{4}$
15/25/35PCJ2MX	21	3 $\frac{3}{4}$
15/25/35PCJ2NX	21	3 $\frac{3}{4}$
15/25/35PCJ2PX	21	3 $\frac{3}{4}$
15/25/35PCJ2QX	21	3 $\frac{3}{4}$

Ordering Information



DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
Power Cable	15kV	15PCJ1W1X	N1
Joint	15kV	15PCJ1W2X	N2
Style 1	25kV	25PCJ1W1X	N1
	25kV	25PCJ1W2X	N2
	35kV	35PCJ1W1X	N1
	35kV	35PCJ1W2X	N2
Power Cable	15kV	15PCJ2W1X	N1
Joint	15kV	15PCJ2W2X	N2
Style 2	25kV	25PCJ2W1X	N1
	25kV	25PCJ2W2X	N2
	35kV	35PCJ2W1X	N1
	35kV	35PCJ2W2X	N2

- N1. Kit includes aluminum compression connector suitable for splicing aluminum conductor to aluminum conductor or aluminum conductor to copper conductor. An all-copper connector is required for copper-to-copper connections.
- N2. Kit includes copper compression connector suitable for splicing copper conductors to copper conductor only. DO NOT use copper connectors on aluminum conductors.
- N3. When constructing a catalog number for a transition (two different-size cables) joint, list the larger connector first and the smaller connector second.

Refer to the **W** and **X** tables on page 50 for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see page 42.

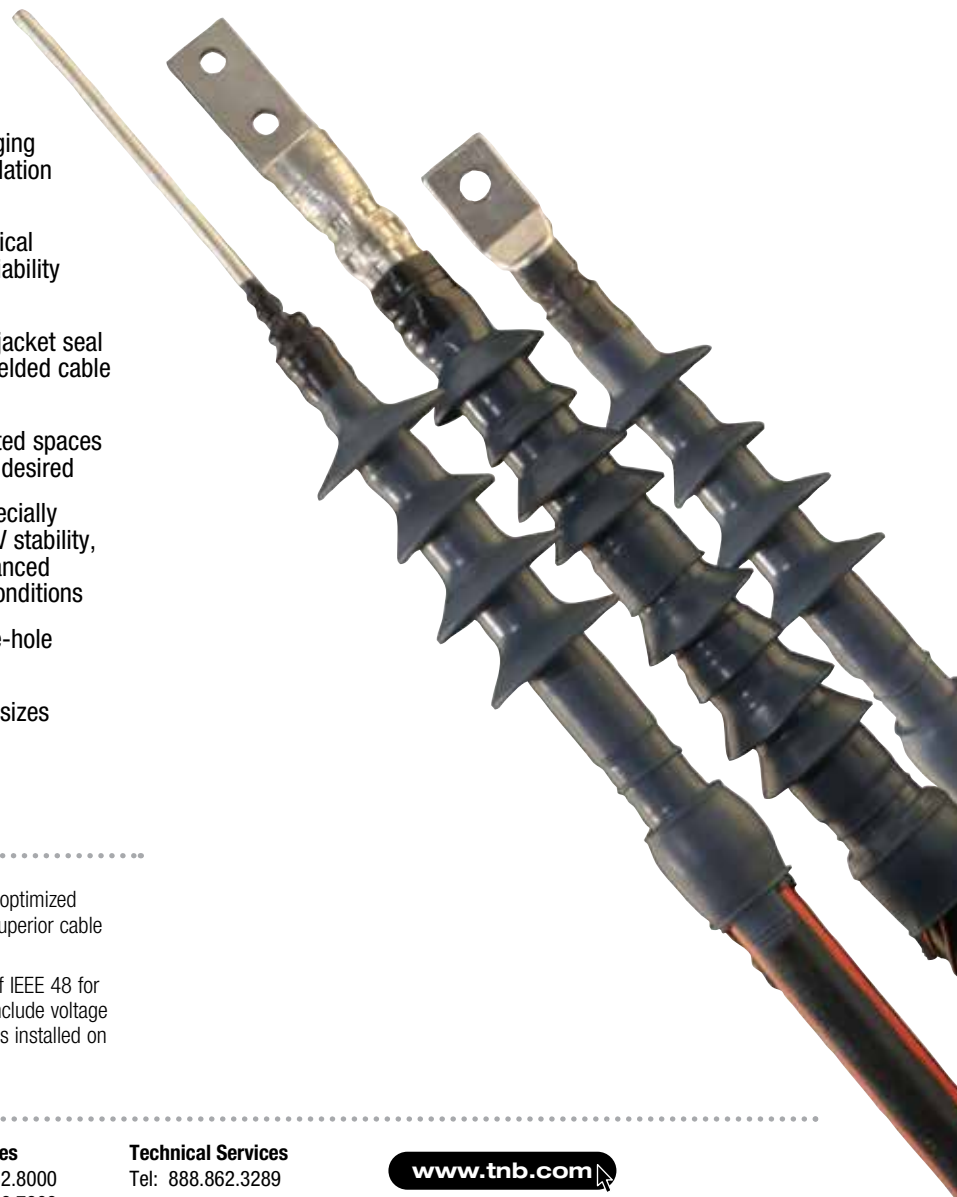
Distribution Shrink-Fit Terminations

Elastimold® Ranger2® Terminations

- Silicone polymer housing provides superior memory and weathering characteristics
- Shrink-fit housing uses common installation procedures and cable preparation dimensions, and field-removable center core allows for easy installation
- Three different shed designs for superior weathering:
 - Four sheds for 15kV outdoor model
 - Six sheds for 25/28kV outdoor model
 - Eight sheds for 35kV outdoor model
- Three sizes cover entire cable range from #2 AWG to 1250 kcmil
- Units accommodate popular XLP and EPR cable types and various shield constructions
- Integral Hi-K Voltage stress-control tube provides uniform voltage grading over the length of the termination and eliminates damaging voltage stress concentrations at the cable insulation shield edge
- Thick wall construction securely maintains critical interface pressure for consistent long-term reliability and performance
- Pull-down tabs for easy installation of built-in jacket seal — accommodate CN, JCN, Tape, Wire or LC shielded cable construction
- Lightweight, compact design installs in restricted spaces and permits application where free hanging is desired
- Dark gray molded silicone insulator utilizes specially formulated silicone materials with improved UV stability, track, erosion and weather resistance for enhanced performance under the worst environmental conditions
- Optional connectors with copper stem and one-hole or two-hole spade
- Optional cable and support bracket with three sizes ranging from .80"–2.40" O.D.

Kit Contents

Every R2T and R2IT comes complete with housing and stress tube preassembled on the core, ready for installation. Easy-to-read installation instructions will take you from cable preparation through installation. All kits include a tube of silicone grease, two plastic gloves and two strips of self-fusing silicone tape. Outdoor kits also include mastic for sealing. Metallic Tape (M) kits include a grounding adapter for Tape Shield, Wire Shield and UniShield cables. LC Shield (L) kits include a high capacity grounding adapter for Longitudinally Corrugated Shield, Tape Shield and Wire over Tape Shield cables.



Silicone Polymer Housings

The R2T and R2IT terminations are manufactured using an optimized weather-resistant silicone formulation. The housing offers superior cable sealing and voltage withstand characteristics.

Elastimold® terminations meet or exceed all requirements of IEEE 48 for Class 1 outdoor or Class 2 indoor terminations. Unit tests include voltage withstand wet and dry, before and after load cycling on units installed on maximum conductor sized cable.

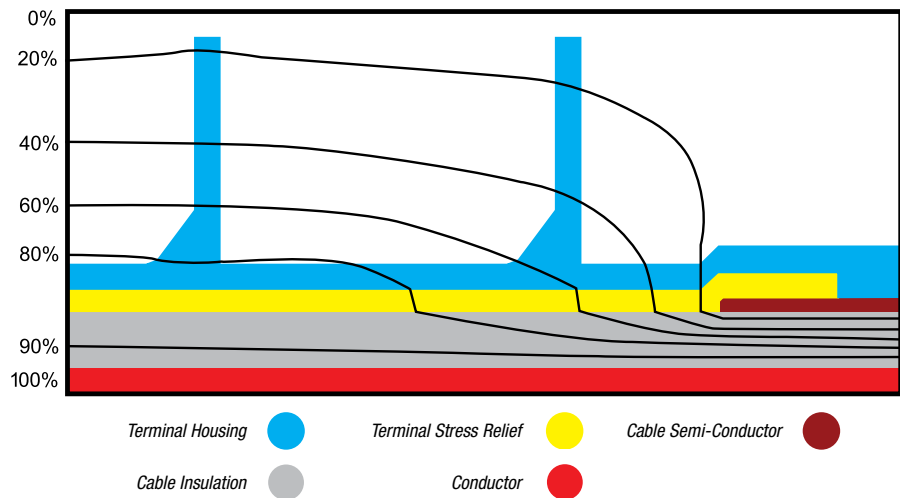
Distribution Shrink-Fit Terminations

Stress Relief

The R2T and R2IT terminations provide electric stress control for the cable by means of a flexible tube with a high permittivity dielectric constant.

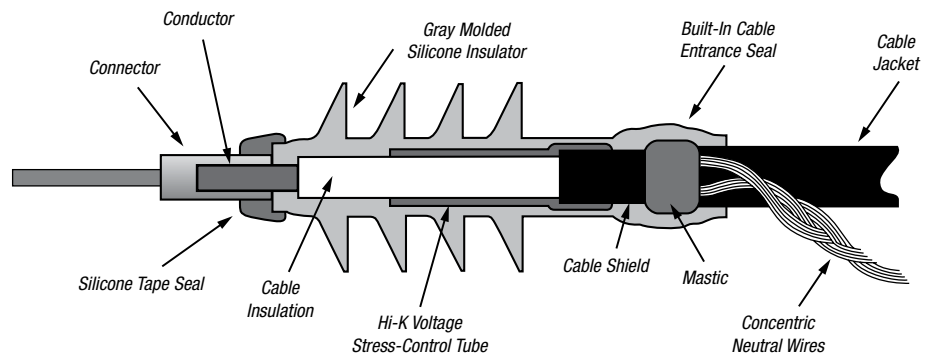
The stress-relief tube is preassembled on the core under the polymer housing. As the core is removed, the stress-relief tube and housing shrink onto the cable at the same time, in exactly the right position. No secondary operations are required during installation. The electrical fields are refracted through the high dielectric constant tube and housing as shown.

Voltage Stress



Installation

Standard cable preparation techniques are used for all R2T Elastimold® Ranger2® Outdoor Terminations and R2IT Elastimold® Ranger2® Indoor Terminations. The Elastimold® shrink-fit terminations are assembled on a removable core. After the termination is placed onto the prepared cable, the core is removed by pulling on the end. The housing then collapses onto the prepared cable. Memory of the material provides the interface solid dielectric and sealing properties required to meet the electrical ratings and prevent the ingress of moisture.



Certified

Elastimold® Ranger2® Terminations have been designed and tested per applicable portions of ANSI, IEEE, AEC, ICEA and other industry standards.

IEEE 48

Standard for indoor and outdoor cable terminations.

ANSI C119.4

Standard for cable connectors for aluminum and copper conductors.

AEC CS8-06 & ANSI/ICEA S-94-649-2004 & S-97-682-2000

Standards for XLP and EPR insulated cables.

Distribution Shrink-Fit Terminations

Ratings

	R2IT15 INDOOR	R2T15 OUTDOOR	R2T28 OUTDOOR	R2T35 OUTDOOR
Sizes Available*	1, 2, 4	1, 2, 4	2, 4	2, 4
Voltage Rating (kV)	15	15	25/28	35
Max. Design Voltage to Ground (kV)	9.5	9.5	16	22
Corona Extinction Voltage (kV) (≤ 3 p.c.) (Partial Discharge)	13	13	22	30
Insulation Withstand Voltage:				
Lightning Impulse (BIL Dry 110 Withstand) (kV Crest)	110	110	150	200
10 Sec. Wet (60 Hz) (kV)	—	45	60	80
1 Minute Dry (60 Hz) (kV)	50	50	65	90
5 Hour Dry (60 Hz) (kV)	35	35	55	75
DC Withstand 15 Min. Dry (kV)	75	75	105	140

Application Information

IEEE 48 Classification	Outdoor = Class 1A, Indoor = Class 2
Ambient Temperature Range	-30° C to 65° C
Power System Frequency	48 to 62 Hz
Altitude Range	3,300 feet max.
Mounting	Free hanging or optional bracket

Dimensions

	R2IT15 INDOOR	R2T15 OUTDOOR	R2T28 OUTDOOR	R2T35 OUTDOOR
Sizes Available*	1, 2, 4	1, 2, 4	2, 4	2, 4
Voltage Rating (kV)	15	15	25/28	35
Number of Sheds	0	4	6	8
Minimum Strike Distance in. (mm)	8.4 (213)	11.6 (295)	14.5 (368)	16.8 (427)
Creepage Distance in. (mm)	8.4 (213)	15.0 (381)	22.8 (579)	30.0 (762)

* See **page 37** for cable insulation diameter ranges.

Distribution Shrink-Fit Terminations

Ranger2® Terminations

The R2T and R2IT termination design couples shrink-fit technology and Elastimold's pull-down jacket seal feature to provide a termination line that covers the widest range of applications with the fewest number of models. Three sizes cover .64" (16mm) to 2.10" (53mm) insulation diameter cables (#2 AWG through 1250 kcmil).




The R2T housings are designed for maximum performance in all field conditions with superior creepage and strike distances for long-term service. Insulating silicone sleeves are also available when more creepage is required or when wildlife protection is needed to insulate the connectors. Contact your Thomas & Betts Sales Representative for further information.

Ranger2® Terminations Base Catalog Numbers

	KV CLASS	TYPE	CABLE RANGE (INSULATION DIAMETER)		CAT. NO.		
			INCHES	MM	CONCENTRIC NEUTRAL & JACKETED CONCENTRIC NEUTRAL CABLE	TAPE SHIELD, WIRE SHIELD & UNISHIELD CABLE	LC SHIELD, WIRE OVER TAPE SHIELD & TAPE SHIELD CABLE
	15	Indoor	.64 to 1.12	16.3 to 28.4	R2IT15J1	R2IT15M1	R2IT15L1
			.84 to 1.38	21.3 to 35.1	R2IT15J2	R2IT15M2	R2IT15L2
			1.30 to 2.10	33.0 to 53.3	R2IT15J4	R2IT15M4	R2IT15L4
	15	Outdoor	.64 to 1.12	16.3 to 28.4	R2T15J1	R2T15M1	R2T15L1
			.84 to 1.38	21.3 to 35.1	R2T15J2	R2T15M2	R2T15L2
			1.30 to 2.10	33.0 to 53.3	R2T15J4	R2T15M4	R2T15L4
	25/28	Outdoor	.84 to 1.38	20.3 to 35.1	R2T28J2	R2T28M2	R2T28L2
			1.30 to 2.10	33.0 to 53.3	R2T28J4	R2T28M4	R2T28L4
	35	Outdoor	.84 to 1.38	20.03 to 35.1	R2T35J2	R2T35M2	R2T35L2
			1.30 to 2.10	33.0 to 53.3	R2T35J4	R2T35M4	R2T35L4

Distribution Shrink-Fit Terminations


Ranger2® Termination Connector Options

	TYPE	MATERIAL	CONDUCTOR	CONDUCTOR SIZE	CONNECTOR PREFIX*
	Stem Compression Connector	Aluminum	Aluminum or Copper	#2 through 4/0 (34–107mm ²)	T0
		Aluminum	Aluminum Only	#2 through 4/0 (34–107mm ²)	T1
	One-Hole Spade Connector	Tinned Aluminum	Aluminum or Copper	#2 through 500 kcmil (34–253mm ²)	H0
	Two-Hole Spade Connector	Tinned Aluminum	Aluminum or Copper	#2 through 1250 kcmil (34–633mm ²)	N0
		Tinned Copper	Copper	#2 through 1250 kcmil (34–633mm ²)	N2

* See page 34 for Conductor Code.



Optional Cable Support Brackets

Ranger2® Terminations are compact, lightweight and frequently allow use of free-hanging mounting methods. Optional cable support brackets are available if required.

	TYPE	CABLE RANGE (OVERALL O.D.)	STAINLESS STEEL	
			CAT. NO.	SUFFIX NUMBER
	Single Clamp	.80"–1.25" (20–32mm)	JB-1	B1
	Single Clamp	1.10"–1.50" (28–38mm)	JB-2	B2
	Double Clamp	1.45"–1.95" (37–50mm)	JB-3	B3
	Double Clamp	1.80"–2.40" (45–61mm)	JB-4	B4

Add-on Grounding Kits

Convert a jacketed concentric neutral "J" kit to an "M" or "L" shield kit.

	CAT. NO.	TYPE	SIZE	USE WITH SERIES
	GMA	Tape Shield/Wire Shield/UniShield	A	R2IT15J1, R2IT15J2, R2T15J1, R2T15J2, R2T28J2, R2T35J2
	GMB	Tape Shield/Wire Shield/UniShield	B	R2IT15J4, R2T15J4, R2T28J4, R2T35J4
	GLA	LC Shield/Wire over Tape Shield	A	R2IT15J1, R2IT15J2, R2T15J1, R2T15J2, R2T28J2, R2T35J2
	GLB	LC Shield/Wire over Tape Shield	B	R2IT15J4, R2T15J4, R2T28J4, R2T35J4

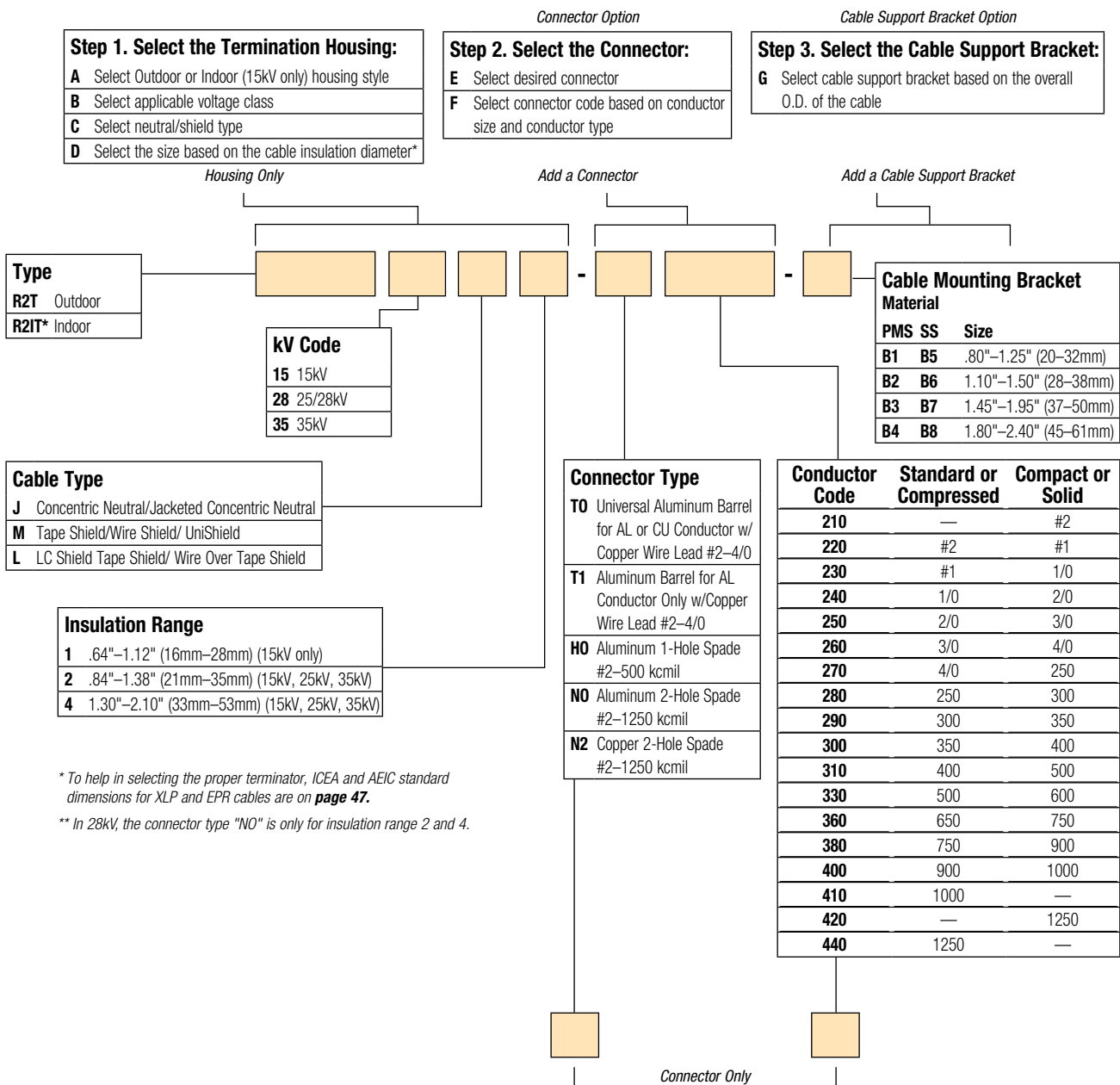
Distribution Shrink-Fit Terminations

Ordering Information for Ranger2® Terminations

Ranger2® Terminations may be ordered in components or as complete kits by following the steps outlined and using the model below to develop the catalog number for your application. Contact your local Thomas & Betts Sales Representative for special requirements.

The following diagram shows how to construct a catalog number for a Ranger2® Termination.

Note: Availability of selected configuration will be verified at quotation time.



* To help in selecting the proper terminator, ICEA and AEIC standard dimensions for XLP and EPR cables are on **page 47**.

** In 28kV, the connector type "NO" is only for insulation range 2 and 4.

Distribution Shrink-Fit Terminations

Typical Installation of Elastimold Shrink-Fit Terminations (R2T — Outdoor and R2IT — Indoor)



1. Train the cable into position and cut to length. Using standard practices, cut back the cable jacket, metallic shield, semi-conductive shield and cable insulation, exposing the conductor.

2. Finish preparing the metallic shield. For concentric neutral or jacketed concentric neutral cables, bend back the neutral wires and seal with mastic strips and vinyl tape. For metallic tape, drain wire, UniShield or LC Shield cables: install the ground braid using the constant force spring and seal with mastic strips and vinyl tape.

3. Clean the exposed conductor, install and crimp the connector.

4. Use mastic and vinyl tape to fill any gap or step between the connector and the cable insulation. Clean the cable.



5. Apply a liberal bead of silicone lubricant to the semi-con shield step.



6. Pull the loose end of the core cord until the core is even with the end of the termination housing.



7. Position the terminator onto the cable.



8. Shrink into place by unwinding the removable core.



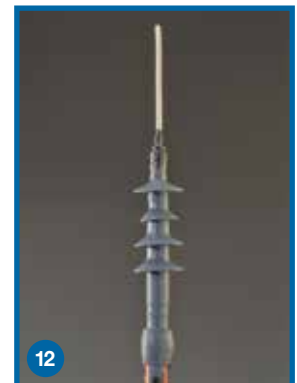
9. Apply silicone lubricant to skirt and mastic area.



10. Fold down the skirt over the mastic to seal the cable entrance.



11. Seal the top of the terminator at the connector area with silicone tape.



12. Attach the neutral wires or optional ground braid to the system ground per local code. Install the optional cable support bracket if required.

Pre-Molded Terminations

Cable Terminations

Elastimold® Cable Terminations are available in a single-piece design. Terminators allow connection and transition from shielded, underground cable to bare overhead conductors and live-front equipment. Units are designed and rated per IEEE 48 for riser pole, padmount, indoor and outdoor applications. PCT1 and PCT2 terminators provide sufficient creep, strike and weather sealing for class 1 outdoor service. PCT1 and PCT2 also include an integral cable jacket seal.

Electrical Ratings Summary

The following ratings summary is based on IEEE Std. 48 and applies to all the terminations on page 24 thru 27. Elastimold® terminations are designed for use on three-phase systems, either 3-wire or 4-wire and the single-phase laterals of these systems.

Voltage Ratings

15kV Class

9.5kV Phase-to-Ground
 110kV BIL 1.2 x 50 microsecond wave
 AC Withstand:
 50kV 1 min. – dry
 35kV 6 hr. – dry
 45kV 10 sec. – wet
 13kV Corona Extinction

25kV Class

16kV Phase-to-Ground
 150kV BIL 1.2 x 50 microsecond wave
 AC Withstand:
 65kV 1 min. – dry
 55kV 6 hr. – dry
 60kV 10 sec. – wet
 21.5kV Corona Extinction



Terminations

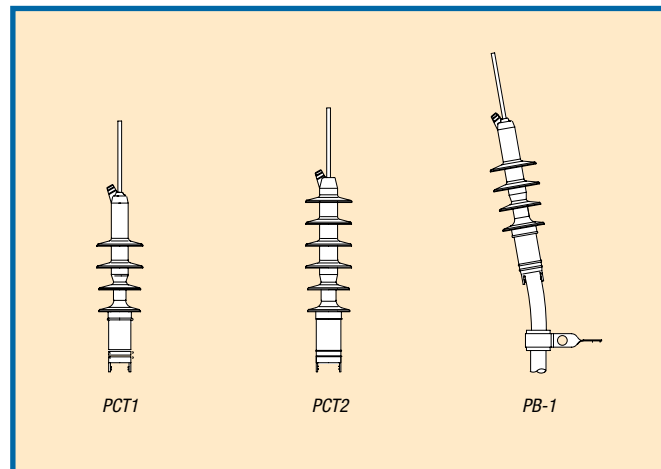


ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Single-Piece Terminator (Class 1)	15kV	PCT1-1X-4 Use Table X9	N2, 3, 4, 5
		25kV	PCT2-1X-4 Use Table X9	N2, 3, 4, 6
	Housing only	15kV	PCT1-4	N5
		25kV	PCT2-4	N6
	Rod Contact for PCT	15/25kV	00700X Use Table X9	N1, 3, 4
	Two-Hole Spade for PCT	All	01000X Use Table X9	N1
	One-Hole Spade for PCT	All	01100X Use Table X9	N1
	PCT Positioning Bracket	All	PB-1	N1, 7

- N1. Use with PCT1 or PCT2 Terminators.
- N2. Includes rod contact as standard. Specify suffix "-3" in place of "-4" for two-hole spade lug. Specify suffix "-5" in place of "-4" for one-hole spade lug.
- N3. Use 1X for an aluminum rod contact for aluminum conductors only.
- N4. Substitute 0X for 1X for a universal aluminum rod contact for aluminum or copper conductors.
- N5. Use for insulation dia. range from .640" thru 1.070".
- N6. Use for insulation dia. range from .830" thru 1.180".
- N7. Fits overall cable O.D. from .750" to 1.625".

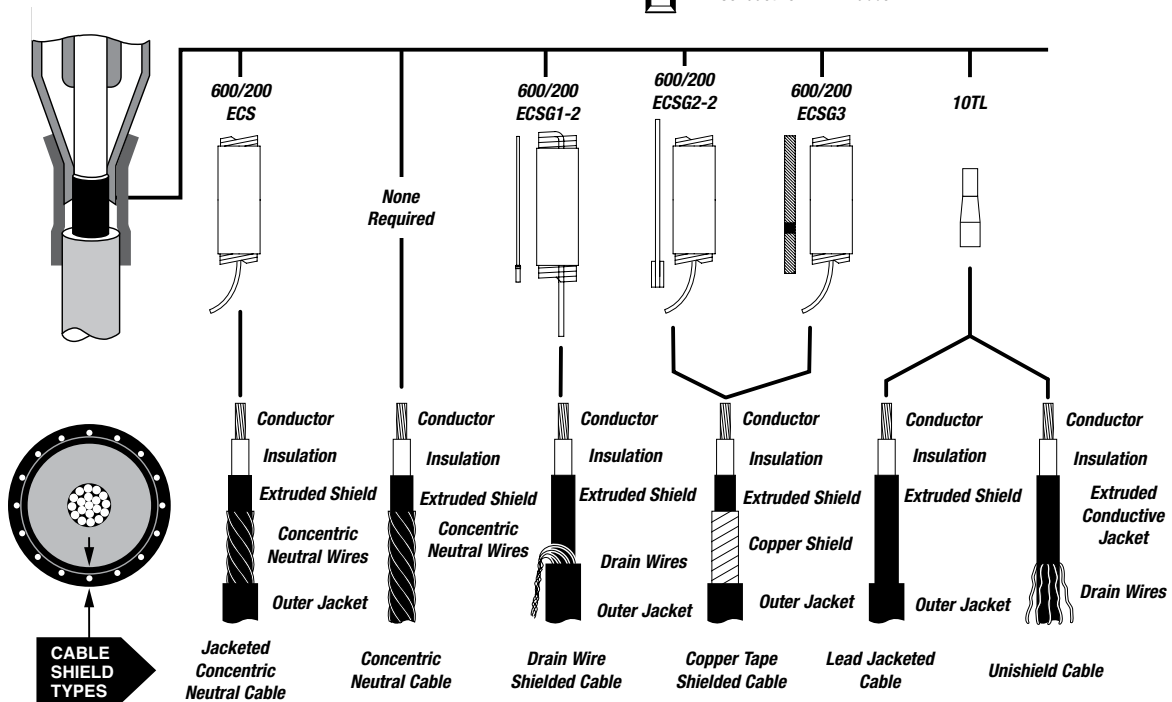
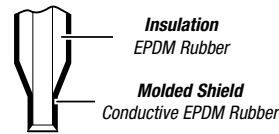
Cable Shield Adapters and Jacket Seals

Cable Shield Adapters and Jacket Seals

Elastimold® elbows, cable joints and terminators have been designed for use on XLP, EPR or similar solid dielectric insulated power cables. These cables are available with a variety of optional shielding and jacket constructions. In order to properly mate and install the cable to an Elastimold® product, the use of a shield adapter, grounding kit or jacket seal may be required. The diagram below provides information concerning the application and selection of various shield adapters, grounding kits and jacket seals for the most popular cable types. Consult the factory for recommendations concerning other cable constructions.



Cable Entrance Detail



Cable Shield Adapters

CABLE INSULATION DIA.	10TL INCHES
Min.	.495
Max.	1.875



Jacket Seals

JACKET O.D.	200ECS INCHES	600ECS INCHES
Min.	.80	1.28
Max.	1.50	2.30

ECS



Cable Shield Adapters and Jacket Seals

Cable Shield Adapters and Jacket Seals (continued)

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	CAT. NO.	SUFFIX	NOTES
	Cold-Shrinkable Jacket Seal	200ECS	-S	N1, 3
	Cold-Shrinkable Jacket Seal	600ECS	-S	N1, 4
	Shield Adapter	10TL-W	-TL	N1, 2
	Cold-Shrinkable Seal w/ Copper Rod & Crimp Connector	200ECSG1-2	-SG1	N1, 3, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Crimp Connector	600ECSG1-2	-SG1	N1, 4, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Constant Force Spring	200ECSG2-2	-SG2	N1, 3, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Constant Force Spring	600ECSG2-2	-SG2	N1, 4, 5, 6
	Cold-Shrinkable Seal w/ Copper Braid & Constant Force Spring	200ECSG3	-SG3	N1, 3, 5, 7
	Cold-Shrinkable Seal w/ Copper Braid & Constant Force Spring	600ECSG3	-SG3	N1, 4, 5, 7

10TL Insulation Sizing

INSULATION INCHES		SYMBOL FOR W
MIN.	MAX.	
.495	.585	EB
.525	.635	EF
.575	.585	FA
.625	.735	FAB
.675	.785	FB
.725	.835	FG
.775	.885	GA
.825	.935	GAB
.875	.985	GB
.930	1.040	GH
.980	1.115	HA
1.040	1.175	HAB
1.095	1.240	HB
1.160	1.305	HJ
1.220	1.375	JA
1.285	1.395	JAB
1.355	1.520	JB
1.485	1.595	KA
1.530	1.640	KAB
1.575	1.685	KB
1.755	1.875	PA

N1. To order the kits as separate items, use the catalog numbers shown in the table. Example: To order a cold-shrinkable tube as a separate item, use catalog number 200ECS.

To order the kits as components of other items, add the suffix to the end of the catalog number. Example: To order a cold-shrinkable jacket seal as a component of an elbow kit, use catalog number 166LR-A5200-S.

N2. Only use this suffix with catalog numbers that designate a "W" housing size. Sizing the main component will also size the suffix adapter.

N3. Size range .80" to 1.50" jacket diameters. Maximum installed diameter is approximately 2".

N4. Size range 1.28" to 2.30" jacket diameters. Maximum installed diameter is approx. 2.75".

N5. Voltage rating equal to Elastimold® product being used.

N6. Copper rod size is No. 6 for sizes FA thru HA and No. 2 for sizes HAB thru JB.

N7. Braid is equivalent to No. 6 copper rod for sizes FA thru HA and No. 2 copper rod for sizes HAB thru JB.

Equipment Bushings

Equipment Bushings

The Thomas & Betts Elastimold® brand offers a complete line of 200-amp deepwell and 600 Series apparatus bushings for use on transformers, switchgear and other equipment applications. The bushings incorporate IEEE 386 standard interfaces (shown on **page 3**) and are constructed of molded epoxy with stainless steel flanges for mounting by welding or gasketed clamp. Bushings are available for use on air, oil or SF6 insulated equipment. Units are rated for submersible, padmount, indoor, outdoor and other applications. Options include hold-down bail tabs and replaceable studs for 200-amp deepwell bushings.

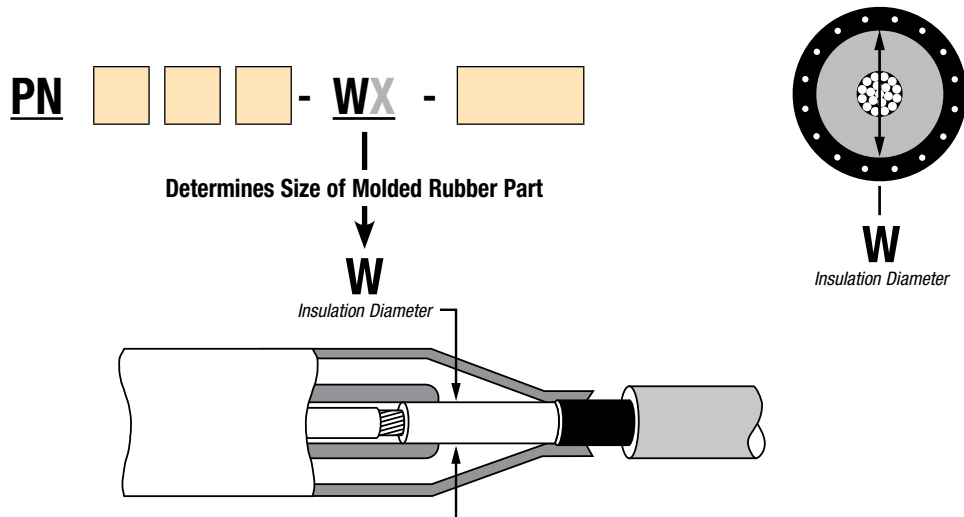
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	BUSHING SHANK LENGTH	NOTES
	Short Shank Well with Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	K1601PC-S1 L1601PC-S1	2¾"	N3, 7, 12 N3, 7, 12, 16
	Short Shank Well with Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	K1601PC-S1-R L1601PC-S1-R	2¾"	N1, 3, 7, 12 N1, 3, 7, 12, 16
	Short Shank Well without Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	K1601PC-S2 L1601PC-S2	2¾"	N3, 7, 12, 15 N3, 7, 12, 15, 16
	Short Shank Well without Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	K1601PC-S2-R L1601PC-S2-R	2¾"	N1, 3, 7, 12, 15 N1, 3, 7, 12, 15, 16
	Long Shank Well with Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	K1601PC-T1 L1601PC-T1	9¼"	N3, 7, 12 N3, 7, 12, 16
	Long Shank Well with Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	K1601PC-T1-R L1601PC-T1-R	9¼"	N1, 3, 7, 12 N1, 3, 7, 12, 16
	Long Shank Well without Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	K1601PC-T2 L1601PC-T2	9¼"	N3, 7, 12, 15 N3, 7, 12, 15, 16
	Long Shank Well without Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	K1601PC-T2-R L1601PC-T2-R	9¼"	N1, 3, 7, 12, 15 N1, 3, 7, 12, 15, 16
	200A Deadbreak Bushing	15/25kV	K180S4	2⅝"	N3, 8, 11
	200A Deadbreak Bushing	15/25kV	K180T4	7½"	
	200A Deadbreak Bushing	15/25kV	K180C4	9¼"	
	600A Short Shank Bushing without/Stud	15/25kV	K650S1	2⅝"	N2, 5, 9, 12, 13, 15, 18
	900A Cu Short Shank Bushing without/Stud	15/25kV	K675S1		N3, 5, 9, 12, 13, 15, 18
	600A Short Shank Bushing without/Stud	35kV	750S1		N2, 5, 10, 12, 14, 15, 16, 18
	600A Long Shank Bushing without/Stud	15/25kV	K650T1	8⅞"	N2, 5, 9, 12, 13, 15, 18
	900A Cu Long Shank Bushing without/Stud	15/25kV	K675T1	8⅞"	N3, 5, 9, 12, 13, 15, 18
	600A Long Shank Bushing without/Stud	35kV	750T1	8⅞"	N2, 5, 10, 12, 14, 15, 16, 18
	600A 12" Long Shank Bushing without/Stud	35kV	750L12	12"	N2, 5, 10, 12, 14, 15, 16, 18
	600A In-Air Long Shank Bushing without/Stud	15/25kV	K650TBC	8⅞"	N2, 4, 9, 6, 12
	900A Cu In-Air Long Shank Bush without/Stud	15/25kV	K675TBC		N3, 5, 9, 6, 12
	Boot & Collars for K600T1 to Use in Air	15/25kV	600BC		N6
	600A bushing & gasket kit	15/25kV 35kV	600CK 600CK	NA NA	
	200A bushing clamp & gasket kit – 3 Holes	15/25kV 35kV	K1601PC-S2-CK3H L1601PC-S2-CK3H	NA NA	17 17
	200A bushing clamp & gasket kit – 4 Holes	15/25kV 35kV	K1601PC-S2-CK4H L1601PC-S2-CK4H	NA NA	17 17

- N1. Replacement stud available separately. Specify 1601RS.
- N2. Equipped with standard aluminum conductor rod.
- N3. Equipped with copper conductor rod.
- N4. Includes ⅝"-11 threaded stud at elbow end.
- N5. Includes ⅝"-11 threaded hole at elbow end.
- N6. Provides increased creep and strike.
- N7. Includes 1601PPC1 shipping cap.
- N8. Includes 180PPC shipping cap.
- N9. Includes 650PPC shipping cap.
- N10. Includes 750PPC1 shipping cap.

- N11. Parking stands for 200A deadbreak applications are available as separate items. Specify 151PS.
- N12. Parking stands for 200A loadbreak and 600A deadbreak applications are available as separate items. Specify 160PS.
- N13. Aluminum stud available separately. Specify 650SA.
- N14. Aluminum stud available separately. Specify 750SA.
- N15. Available as a kit with clamp and gasket adding suffix "K".
- N16. Available for 35kV with 200kV BIL adding suffix "-200".
- N17. For use on bushing well without Bail Tabs only.
- N18. Add suffix "-CLB" for flange with stud clearance for clamping

Medium-Voltage Cable Accessories Technical Information

How to Specify Size-Sensitive Products



Insulation Diameter Selection Guide

Elastimold® elbows, cable joints and terminations are designed for application on XLP, EPR and other solid-dielectric insulated power cables. These components are constructed of molded elastomer and rely on an interference fit with the cable insulation diameter in order to maintain proper dielectric strength, creep path integrity and a water seal. Elastimold® components are available in a wide range of sizes in order to accommodate a variety of cable insulation diameters.

Selection of size-sensitive components requires determining the cable insulation diameter. This can be done in several ways:

- A. Refer to the cable manufacturer's spec sheet for dimensions.
- B. Measure the cable.
- C. If the cable conforms to AEIC or ICEA standards and is:
 1. 15kV, 175-mil wall thickness, use the table on **page 47**.
 2. 15kV, 220-mil wall thickness, use the table on **page 48**.
 3. 25kV, 260-mil wall thickness, use the table on **page 48**.
 4. 35kV, 345-mil wall thickness, use the table on **page 49**.

After the cable insulation diameter minimum and maximum have been determined:

1. Locate the W table indicated in the catalog number selection chart.
2. Complete the ordering information by selecting and inserting the symbol (given in the W table) into the catalog number.

Ordering Examples

AEIC

To complete the information required to order a K655LR-W0X elbow for use on standard AEIC 1000 kcmil compressed stranding aluminum 25kV cable with .260-in-thick insulation wall:

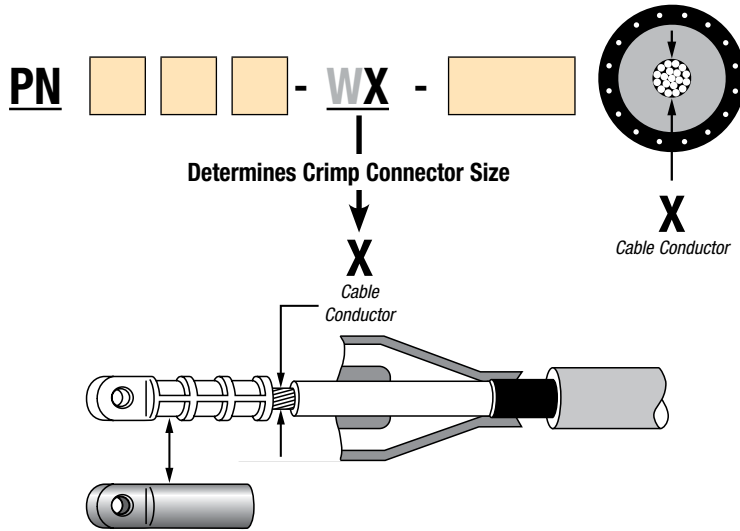
- A. Determine that the insulation diameter (for AEIC cable in the table on **pages 47–49**) is 1.645 – 1.770 inches.
- B. For this elbow, the catalog number selection chart on **page 12** indicates to use Table W7 for elbow sizing and Table X6 for connector sizing.
- C. From Table W7, the symbol for W is **N**.
- D. From Table X6, the symbol for X is **410**.
- E. The completed catalog number therefore is K655LR-**N0410**.

ICEA

To complete the information required to order a K655LR-W0X elbow for use on standard ICEA 1000 kcmil compressed stranding aluminum 25kV cable with .260-in-thick insulation wall:

- A. Determine that the insulation diameter (for ICEA cable in the table on **pages 47–49**) is 1.645 – 1.740 inches.
- B. For this elbow, the catalog number selection chart on **page 12** indicates to use Table W7 for elbow sizing and Table X6 for connector sizing.
- C. From Table W7, the symbol for W is **N**.
- D. From Table X6, the symbol for X is **410**.
- E. The completed catalog number therefore is K655LR-**N0410**.

Medium-Voltage Cable Accessories Technical Information



Connector Selection Guide

Elastimold® elbows, cable joints and terminations are furnished with crimp-style cable connectors. As standard, these connectors are constructed with a tin-plated aluminum barrel filled with an oxide inhibitor. Most aluminum barrel connectors are universal and are designed for use on either aluminum or copper conductor cable.

When specified, all copper crimp-style connectors can be furnished. These connectors are only for use on copper conductor cable and are not for use with aluminum conductor cables. Bi-metallic connectors are constructed with a copper top and an aluminum barrel. Bi-metal connectors can be used on either aluminum or copper conductor cable and are furnished as standard with 200-Amp Loadbreak Elbows and 200-Amp Deadbreak Elbows. PCT and R2T terminators are furnished with rod connectors.

Aluminum connectors used in PCJ Cable Joints are rated as follows:

- Aluminum conductor to aluminum conductor, cable rated
- Aluminum conductor to copper conductor, cable rated equal to the aluminum cable

Copper connectors used in PCJ Cable Joints are rated as follows:

- Copper conductor to copper conductor, cable rated

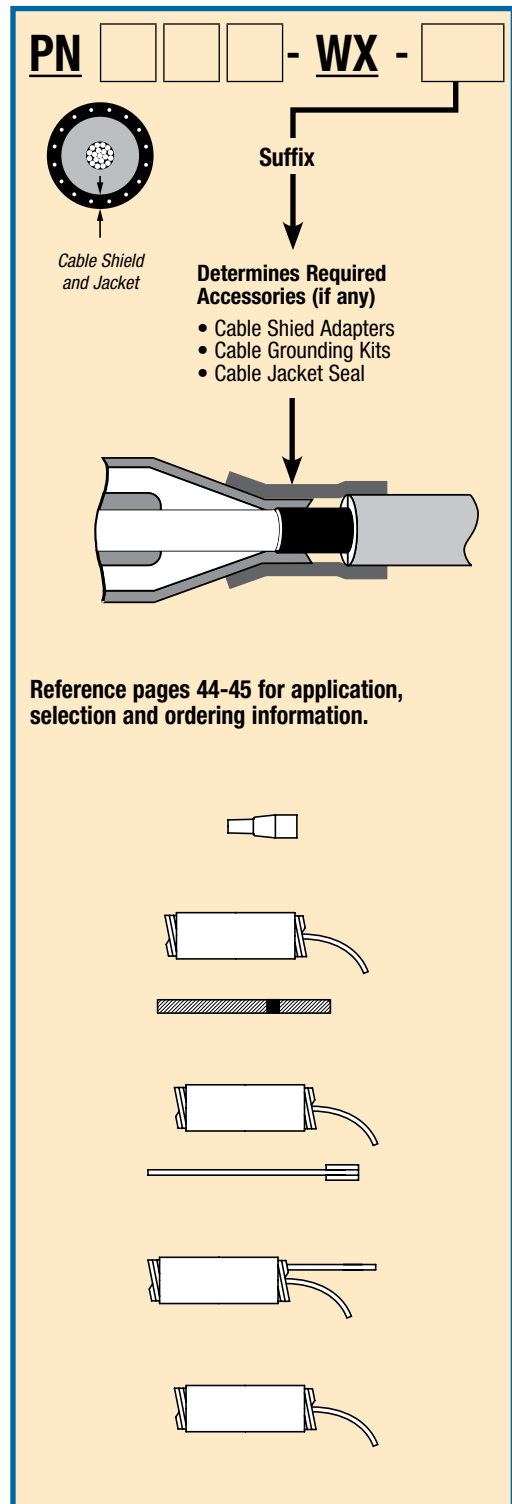
Selection and ordering the proper crimp connector requires determining information relative to the cable conductor as follows:

- Conductor size in AWG or kcmil
- Conductor type (stranded, compressed, compact or solid)
- Conductor material (aluminum or copper)

After the cable conductor information has been determined:

1. Locate the X table indicated in the catalog number selection chart.
2. Complete the ordering information by selecting and inserting the symbol (given in the X table) into the catalog number.

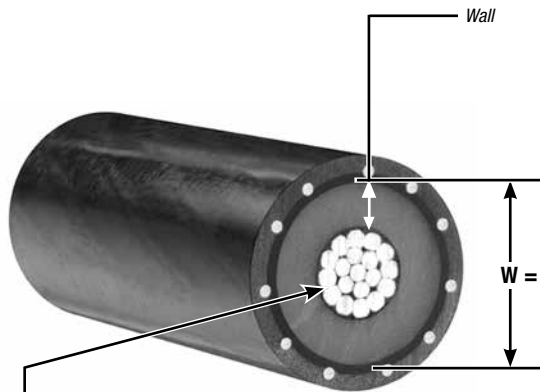
See the Ordering Example on **page 47** for further information.



Medium-Voltage Cable Accessories Technical Information

AEIC and ICEA Cable Insulation Diameter

- 15kV 100% — 175 mil Insulation (.175")
- 15kV 133% — 220 mil Insulation (.220")
- 25kV 100% — 260 mil Insulation (.260")
- 35kV 100% — 345 mil Insulation (.345")



W = Insulation Diameter (Conductor + 2X Conductor Shield + 2X Wall)

15kV Cable (100% Level, 175 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR		STRANDED CONDUCTOR		COMPRESSED CONDUCTOR		COMPACT CONDUCTOR	
		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#2	AEIC	.610	.700	—	—	.635	.725	.620	.710
	ICEA	.610	.695	.645	.730	.635	.720	.620	.705
#1	AEIC	.645	.730	—	—	.675	.765	.655	.740
	ICEA	.645	.725	.685	.770	.675	.760	.655	.735
1/0	AEIC	.680	.770	—	—	.715	.805	.690	.775
	ICEA	.680	.760	.725	.810	.715	.800	.690	.775

AEIC CS8-06

Specification for Extruded Dielectric, Shielded Power Cable Rated 5–46kV

AEIC-Calculated Diameters — Solid and Compressed Stranding from Tables C-4 & C-6 and Compact Stranding from Tables C-5 & C-7

ANSI/ICEA S-94-649-2004 & S-97-682-2000

Standard for Concentric Neutral Cables & Utility Shielded Power Cables Rated 5–46kV

ICEA — Concentric Stranding from Table C-3, Compressed Stranding from Table C-4, Compact Stranding from Table C-5

ICEA Abbreviated — For additional cables, please refer to the standard.

Medium-Voltage Cable Accessories Technical Information

15kV Cable (133% Level, 220 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR		STRANDED CONDUCTOR		COMPRESSED CONDUCTOR		COMPACT CONDUCTOR	
		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#2	AEIC	.700	.790	—	—	.725	.815	.710	.800
	ICEA	.700	.790	.735	.825	.725	.815	.710	.800
#1	AEIC	.735	.820	—	—	.765	.855	.745	.830
	ICEA	.735	.820	.775	.865	.765	.855	.745	.830
1/0	AEIC	.770	.860	—	—	.805	.895	.780	.865
	ICEA	.770	.855	.815	.905	.805	.895	.780	.865

25kV Cable (100% Level, 260 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR		STRANDED CONDUCTOR		COMPRESSED CONDUCTOR		COMPACT CONDUCTOR	
		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#1	AEIC	.805	.900	—	—	.835	.935	.815	.910
	ICEA	.805	.895	.845	.935	.835	.925	.815	.905
1/0	AEIC	.840	.940	—	—	.875	.975	.850	.945
	ICEA	.840	.930	.885	.980	.875	.965	.850	.940

Medium-Voltage Cable Accessories Technical Information

AEIC and ICEA Cable Insulation Diameter (continued)

35kV Cable (100% Level, 345 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR		STRANDED CONDUCTOR		COMPRESSED CONDUCTOR		COMPACT CONDUCTOR	
		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION		DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1/0	AEIC	1.010	1.110	—	—	1.045	1.145	1.020	1.115
	ICEA	1.010	1.110	1.055	1.155	1.045	1.145	1.020	1.120

Conductor Diameters for Copper and Aluminum (Class B) Stranded, Compressed, Compact and Solid Cables



CONDUCTOR SIZE AWG OR KCMIL	NO. OF STRANDS AND THEIR NOM. STRAND DIA. (IN.)	CROSS-SECTIONAL AREA		STRANDED CONDUCTORS (INCHES)	COMPRESSED CONDUCTORS (INCHES)	COMPACT CONDUCTORS (INCHES)	SOLID CONDUCTORS (INCHES)
		SQUARE INCHES	MM ² CONVERSION				
14	7 x .0242	.0032	2.08	.073	—	—	.064
12	7 x .0305	.0051	3.31	.092	—	—	.081
10	7 x .0385	.0082	5.26	.116	—	—	.102
8	7 x .0486	.0130	8.37	.146	—	—	.129
6	7 x .0612	.0206	13.30	.184	—	—	.162
4	7 x .0772	.0328	21.15	.232	—	—	.204
2	7 x .0974	.0521	33.62	.292	.283	.268	.258
1	19 x .0664	.0657	42.41	.332	.322	.299	.289
1/0	19 x .0745	.0829	53.49	.373	.362	.336	.325
2/0	19 x .0837	.1054	67.43	.418	.405	.376	—
3/0	19 x .0940	.1318	85.01	.470	.456	.423	—
4/0	19 x .1055	.1662	107.2	.528	.512	.475	—
250	37 x .0822	.1964	127	.575	.558	.520	—
350	37 x .0973	.2749	177	.681	.661	.616	—
500	37 x .1162	.3924	253	.813	.789	.736	—
600	61 x .0992	.4712	304	.893	.866	.813	—
700	61 x .1071	.5498	355	.964	.935	.877	—
750	61 x .1109	.5890	380	.998	.968	.908	—
800	61 x .1145	.6283	405	1.031	1.000	.938	—
900	61 x .1215	.7069	456	1.094	1.061	.999	—
1000	61 x .1280	.7854	507	1.152	1.117	1.060	—
1100	91 x .1099	.8639	557	1.209	1.173	—	—
1200	91 x .1148	.9425	608	1.263	1.225	—	—
1250	91 x .1172	.9818	633	1.289	1.250	—	—
1300	91 x .1195	1.021	659	1.315	1.276	—	—
1400	91 x .1240	1.100	709	1.364	1.323	—	—
1500	91 x .1284	1.178	760	1.412	1.370	—	—
1600	127 x .1122	1.257	811	1.459	1.415	—	—
1700	127 x .1157	1.335	861	1.504	1.459	—	—
1750	127 x .1174	1.374	887	1.526	1.480	—	—
1800	127 x .1191	1.414	912	1.548	1.502	—	—
1900	127 x .1223	1.492	963	1.590	1.542	—	—
2000	127 x .1225	1.571	1010	1.632	1.583	—	—

Medium-Voltage Cable Accessories Technical Information

Table W

APPLICABLE CAT. NO. USE FOR FOLLOWING PRODUCTS	CABLE INSULATION DIAMETER IN INCHES		SYMBOL FOR W
	MIN.	MAX.	
<i>Table W1</i>			
151SP/SR	.575	.740	A
151LS/LY	.635	.905	B
165/166LR	.805	1.060	C
165/166LRJS	.890	1.220	D
<i>Table W2</i>			
	.760	.950	G
273RLR	.850	1.050	H
274RLR	.980	1.180	J
273DLR	1.090	1.310	K
<i>Table W3</i>			
	.850	1.050	H
375LR	.980	1.180	J
376LR	1.090	1.310	K
	1.235	1.465	L
<i>Table W4</i>			
	.640	.820	F
156LR	.760	.950	G
167/168RLR	.850	1.050	H
167LRT	.980	1.180	J
167DLR	1.090	1.310	K
<i>Table W5</i>			
	.665	.895	6689
167/168ELR	.740	.950	7495
273/274ELR	.880	1.100	88110
167/168DELR	1.090	1.310	K
273/274DELR			
<i>Table W6</i>			
	.495	.585	EB
	.525	.635	EF
	.575	.685	FA
10EP	.625	.735	FAB
152EA	.675	.785	FB
160CA* (*EB-FA ONLY)	.725	.835	FG
	.775	.885	GA
	.825	.935	GAB
	.875	.985	GB
<i>Table W7</i>			
K656I/CY/CH	.420	.660	D
K655/656LR	.530	.680	E
K655/656SR	.850	1.050	H
655/656LINK	.980	1.180	J
K655/656LINK	1.090	1.310	K
655/656ETP	1.180	1.465	L
K655/656ETP	1.280	1.430	LM
655/656RTP	1.370	1.630	M
K655/656L RTP	1.515	1.780	N
655/656BI-LINK	1.725	1.935	P
K655/656BI-LINK			
655CA/CK/TCK			

Table W

APPLICABLE CAT. NO. USE FOR FOLLOWING PRODUCTS	CABLE INSULATION DIAMETER IN INCHES		SYMBOL FOR W
	MIN.	MAX.	
<i>Table W8</i>			
	.640	.820	F
	.760	.950	G
	.850	1.050	H
	.980	1.180	J
	1.090	1.310	K
15PCJ-1	1.180	1.465	L
15PCJ-2	1.280	1.430	LM
	1.370	1.630	M
	1.515	1.780	N
	1.725	1.935	P
	1.900	2.120	Q
<i>Table W9</i>			
	.760	.950	G
25PCJ-1	.850	1.050	H
25PCJ-2	.980	1.180	J
755/756LR	1.090	1.310	K
755/756LINK	1.180	1.465	L
755/756ETP	1.280	1.430	LM
755/756RTP	1.370	1.630	M
755/756BI-LINK	1.515	1.780	N
755CA/CK/TCK	1.725	1.935	P
	1.900	2.120	Q
<i>Table W10</i>			
	.850	1.050	H
	.980	1.180	J
	1.090	1.310	K
35PCJ-1	1.180	1.465	L
35PCJ-2	1.370	1.630	M
	1.515	1.780	N
	1.725	1.935	P
	1.900	2.120	Q
<i>Table W16</i>			
	.635	.905	B
275/276LR	.800	1.060	CC
275/276LRJS	.940	1.170	DD
	1.090	1.310	E

Table X

APPLICABLE CAT. NO. USE FOR FOLLOWING PRODUCTS	CONDUCTOR SIZE AWG OR KCMIL	SYMBOL FOR X	
		STRAND./ COMPR.	COMPT./ SOLID.
<i>Table X1</i>			
167/168ELR/DELRL	#2	220	210
273/274ELR/DELRL	#1	230	220
156LR, 165/166LR	1/0	240	230
275/276LR, 167LRT	2/0	250	240
167/168RLR, 167DLR	3/0	260	250
273/274RLR, 273DLR	4/0	270	260
00400, 02500	250	—	270
02509, 02702			
02800, K151SP/SR			
<i>Table X2</i>			
	1/0	240	230
375/376LR	2/0	250	240
	3/0	260	250
	4/0	270	260
<i>Table X6</i>			
655/656LRTP	#2	220	210
K655/656LRTP	#1	230	220
755/756LRTP	1/0	240	230
K656I/Y/H	2/0	250	240
K655/656LR	3/0	260	250
755/756LR	4/0	270	260
K655/656SR	250	280	270
655/656LINK	350	300	290
K655/656LINK	500	330	320
755/756LINK	750	380	360
655/656ETP	1000	410	400
K655/656ETP	1250	440	420
755/756ETP			
655/656BI-LINK			
K655/656BI-LINK			
755BI-LINK			
655CK, 755CK			
655TCK, 03600			
03602, 03700, 03702			
<i>Table X7</i>			
	#2	220	210
	#1	230	220
	1/0	240	230
15PCJ1	2/0	250	240
25PCJ1	3/0	260	250
35PCJ1	4/0	270	260
15PCJ2	250	280	270
25PCJ2	350	300	290
35PCJ2	500	330	310
	750	380	360
	1000	410	400
	1250	440	420
<i>Table X9</i>			
PCT1	#2	220	210
PCT2	#1	230	220
01000	1/0	240	230
01010	2/0	250	240
	3/0	260	250
	4/0	270	260

Shielded Surge Arresters

Fully shielded, fully submersible for convenient energized connection with 200A loadbreak or deadbreak components up to 35kV.

Metal Oxide Varistor (MOV) Surge Arresters

- IEEE 386 interfaces provide convenient energized connection with other 200A loadbreak or deadbreak components
- EPDM molded rubber construction — fully shielded and fully submersible for a variety of applications
- Compact size enables installation in your existing cabinetry, saving you money
- Three styles of arresters available fit your application and are easy to install
- Direct connection on PSA and BSA versions eliminates the need for additional accessories, saving even more money
- #4 AWG ground lead tethered to the jacket withstands 10,000 amps for 10 cycles without fusing
- Ground lead also controls end plug when ejected, preventing uncontrolled trajectory, and maintains the housing shield ground connection after failure



Voltage surges that exceed the BIL rating of the distribution system components will cause damage to the installed equipment. To protect against these surges, overhead surge arresters are widely used. Their application is understood since overhead lines and equipment are directly affected by voltage surges (e.g. lightning). However, the use of overhead arresters alone will not guarantee proper protection of the insulation in the underground portion of an electrical distribution system. The let-through surge from the riser pole arresters into the underground systems could be enough to cause damage to the aging equipment insulation.

Elastimold® MOV Surge Arresters provide high voltage lightning and switching surge protection of transformers, cable, equipment and other components typically located on underground power distribution systems. Proper placement, voltage selection and coordination with riser pole arresters minimize damaging surge voltages by improving protective margins.

Typical applications include installing an arrester at the end of a radial system or at both ends of an open point on a loop system. Additional arresters can be added at strategic locations upstream from the end point for optimum protection.

Metal Oxide Varistor (MOV) Surge Arresters are available in three styles: Elbow (ESA™), Parking Stand (PSA™) and Bushing (BSA™). The PSA and BSA arresters permit direct connection, eliminating the need for additional accessories. ESA Elbow Arresters are also available with a 200A deadbreak interface for mating with other deadbreak accessories.

The following page highlights the different installation options using Bushing and Parking Stand Arresters where Elbow Arresters are normally used. Using BSAs and PSAs will contribute to saving space inside transformers and improving operability.

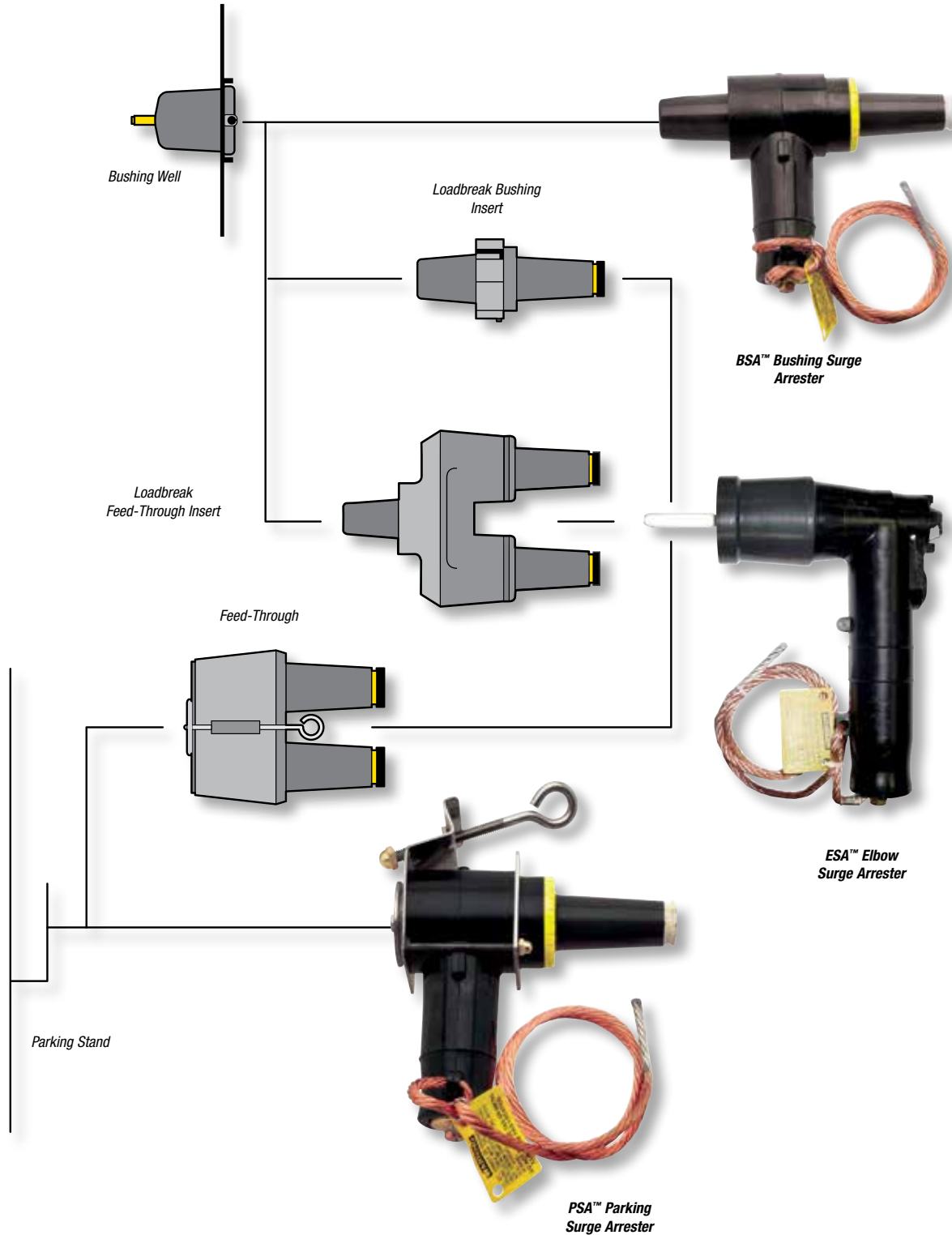
Ratings

High Current, Short Duration	All MOV Arresters withstand two discharges of 40kA crest
Low Current, Long Duration	All MOV Arresters withstand 20 surges of 75A/2,000 microseconds duration
Duty Cycle Test	All MOV Arresters withstand 22 operations of 5kA crest at 8 x 20 microseconds duration while energized at rated voltage for the initial 20 operations and at maximum continuous operating voltage (MCOV) for the final two operations

Following each of the preceding tests, MOV Arresters demonstrate thermal recovery at MCOV.

Shielded Surge Arresters

Installation Options



Shielded Surge Arresters

Loop-Feed Circuit (Type 2 Transformer)

Two Elbow Arresters and a Feed-Through

This is one approach using elbow arresters only. (One of the elbow arresters could be mounted on the H1A bushing if operating procedures permit.)



Elbow Arrester and Parking Stand Arrester

This approach can reduce overcrowding (by eliminating the feed-through device). This is desirable in a mini-pad transformer.



Bushing Arrester and Parking Stand Arrester*

This approach is best for increasing operability and reducing transformer overcrowding.

The bushing arrester enables the source cable to be positioned on H1A, which conforms with some operating practices.

A bushing arrester mounted on H1A can be directed downward without interference. Potential interference between an elbow arrester on H1B and a cable parked on P is eliminated.

The bushing arrester requires significantly less space than an elbow arrester used with a feed-through insert.

Operability is enhanced because the open point can be closed by moving the parked cable to H1B without removing an arrester.



* Transformers must be specified with bushing wells.

Additional Margin of Protection

An additional margin of protection may be gained by adding an arrester at the next transformer upstream on each side of the open point. This application is dependent on the system voltage and condition of the cable.

If an additional arrester is added in the circuit, it can be an elbow arrester in combination with a feed-through insert or it can be a bushing arrester. Use of a bushing arrester will reduce transformer faceplate overcrowding.



Other Configurations

Other configurations are possible, such as specifying a bushing arrester on every transformer. This enables the open point to be quickly and easily moved to any point in the circuit while maintaining the surge protection (without moving all of the portable surge arresters).

The externally mounted bushing arrester provides the surge protection benefits without the negative factors of an under-oil arrester.

Shielded Surge Arresters

Radial-Feed Circuit (End Point)

Single-Bushing Transformer

To add surge protection to a single-bushing transformer, utilize a bushing arrester or an elbow arrester with a feed-through insert.



Two-Bushing Transformer

To add surge protection to a two-bushing transformer at the end point of a radial-feed circuit, add an elbow arrester to the unoccupied bushing or utilize a bushing arrester.



Conversion of a Radial-Feed Transformer to a Loop-Feed, Open-Point Transformer

To convert a single-bushing transformer to a loop-feed, open-point transformer, add a parking stand arrester and an elbow arrester in combination with a feed-through insert.



Shielded Surge Arresters

Protective Characteristics

VOLTAGE CLASS	MCOV (KV RMS)	DUTY CYCLE RATING (KV RMS)	MAXIMUM DISCHARGE VOLTAGE (KV CREST) 8 X 20 MICROSECOND CURRENT WAVE				
			1.5KA	3KA	5KA	10KA	20KA
15kV	2.55	3	8.06	8.48	8.74	9.36	10.4
	5.1	6	16.12	16.95	17.47	18.72	20.8
	8.4	10	28.21	29.66	30.57	32.76	36.4
	10.2	12	32.24	33.9	34.94	37.44	41.6
	12.7	15	40.3	42.38	43.68	46.8	52
	15.3	18	48.36	50.85	52.41	56.16	62.4
25kV	8.4	10	28.21	29.66	30.57	32.76	36.4
	10.2	12	32.24	33.9	34.94	37.44	41.6
	12.7	15	40.3	42.38	43.68	46.8	52
	15.3	18	48.36	50.85	52.41	56.16	62.4
	17	21	56.42	59.32	61.14	65.52	72.8
38kV	19.5	24	64.48	67.8	69.88	74.88	83.2
	22	27	72.54	76.28	78.62	84.24	93.6
	24.4	30	80.6	84.75	87.35	93.6	104
	29	36	96.72	101.7	104.82	112.32	124.8
	32.5	40.5	109.35	114.98	118.5	126.97	141.07

Shielded Surge Arresters

To specify and order an MOV Surge Arrester:

- 1) Determine the appropriate Maximum Continuous Operating Voltage (MCOV) for your system voltage using the Arrester Application Table below.
- 2) Specify the appropriate Elastimold® catalog number from the Selection Chart.

Arrester Application Table

	SYSTEMS LINE-TO-LINE VOLTAGE KVRMS		MCOV* KV RMS	
	NOMINAL	MAXIMUM	SOLIDLY GROUNDED NEUTRAL CIRCUITS	3-WIRE UNGROUNDED CIRCUITS
15kV Class	2.40	2.54	2.55	2.55
	4.16	4.40	2.55	5.10
	4.80	5.08	5.10	5.10
	6.90	7.26	5.10	8.40
	8.32	8.80	5.10	8.40
	12.47	13.20	8.40	15.30
	13.20	13.97	8.40	15.30
	13.80	14.50	8.40**	15.30
	13.80	14.50	10.20	15.30
	25kV Class	6.90	7.26	5.10
8.32		8.80	5.10	8.40
12.47		13.20	8.40	15.30
13.20		13.97	8.40	15.30
13.80		14.50	8.40**	15.30
13.80		14.50	10.20	15.30
20.78		22.00	12.70	—
20.78		22.00	15.30**	—
23.00		24.34	15.30	—
24.94		26.40	15.30	—
24.94	26.40	17.00**	—	
28.00	29.80	17.00	—	

* MCOV = Maximum Continuous Operating Voltage.

** Preferred arrester MCOV for this system voltage.

- Note:**
1. Elastimold® PSA and BSA Arresters are equipped with a fully rated 200A switching and fault-close loadbreak bushing.
 2. Elastimold® Arresters use highstrength, silver epoxy-bonded MOV blocks and shunted spring connections for the best circuit connection.
 3. A 36" #4 AWG ground lead is provided with each unit.
 4. BSA installed by turning internal hex bolt (accessed through the 200A bushing interface) with a 5/16" hex wrench and bent-wire torque wrench supplied with each unit.
 5. For 15kV and 25kV class deadbreak system Elbow Arresters, use catalog number 156ESA with the appropriate duty cycle rating.

Selection Chart

PICTURE	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	MCOV KV RMS
	200 AMP BSA Bushing Surge Arrester (includes assembly tool)	15kV	167BSA-3	2.55
		15kV	167BSA-6	5.10
		15kV	167BSA-10	8.40
		15kV	167BSA-15	12.70
		15kV	167BSA-18	15.30
		25kV	273BSA-10	8.40
		25kV	273BSA-12	10.20
		25kV	273BSA-15	12.70
		25kV	273BSA-18	15.30
		25kV	273BSA-21	17.00
	200 AMP ESA Elbow Surge Arrester	15kV	167ESA-3	2.55
		15kV	167ESA-6	5.10
		15kV	167ESA-10	8.40
		15kV	167ESA-12	10.20
		15kV	167ESA-15	12.70
		15kV	167ESA-18	15.30
		25kV	273ESA-10	8.40
		25kV	273ESA-12	10.20
		25kV	273ESA-15	12.70
		25kV	273ESA-18	15.30
	200 AMP PSA Parking Stand Arrester	25kV	273ESA-21	17.00
		15kV	167PSA-3	2.55
		15kV	167PSA-6	5.10
		15kV	167PSA-10	8.40
		15kV	167PSA-12	10.20
		15kV	167PSA-15	12.70
		15kV	167PSA-18	15.30
		25kV	273PSA-10	8.40
		25kV	273PSA-12	10.20
		25kV	273PSA-15	12.70
25kV	273PSA-18	15.30		
25kV	273PSA-21	17.00		
	600 Amp ESA Elbow Surge Arrester	15 / 28kV	K655ESA-10	8.4
		15 / 28kV	K655ESA-12	10.2
		15 / 28kV	K655ESA-15	12.7
		15 / 28kV	K655ESA-18	15.3
		15 / 28kV	K655ESA-21	17.0

Shielded Surge Arresters

MOV Surge Arresters

To specify and order an MOV Surge Arrester:

- 1) Determine the appropriate Maximum Continuous Operating Voltage (MCOV) for your system voltage using the Arrester Application Table below.
- 2) Specify the appropriate Elastimold® catalog number from the Selection Chart.

Arrester Application Table

35KV CLASS	SYSTEM LINE-TO-LINE VOLTAGE KV RMS		MCOV* KV RMS	
	NOMINAL	MAXIMUM	SOLIDLY GROUNDED NEUTRAL CIRCUITS	3-WIRE UNGROUNDED CIRCUITS
			—	—
23.00	24.34	—	22.00	
34.50	36.51	22.00**	—	
34.50	36.51	24.40	29.00	

* MCOV = Maximum Continuous Operating Voltage.

** Preferred arrester MCOV for this system voltage.

Selection Chart

PICTURE	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	MCOV KV RMS
	200 AMP BSA Bushing Surge Arrester	35kV	375BSA-24	19.50
		35kV	375BSA-27	22.00
		35kV	375BSA-30	24.40
	200 AMP ESA Elbow Surge Arrester	35kV	375ESA-24	19.50
		35kV	375ESA-27	22.00
		35kV	375ESA-30	24.40
	200 AMP PSA Parking Stand Arrester	35kV	375PSA-24	19.50
		35kV	375PSA-27	22.00
		35kV	375PSA-30	24.40
	600 Amp ESA Elbow Surge Arrester	35kV	755ESA-18	15.3
		35kV	755ESA-24	19.5
		35kV	755ESA-27	22.0
		35kV	755ESA-30	24.4
		35kV	755ESA-33	26.8
		35kV	755ESA-36	29.0
		35kV	755ESA-40.5	32.5

Note: 1. Elastimold® PSA and BSA Arresters are equipped with a fully rated 200A switching and fault-close loadbreak bushing.

2. Elastimold® Arresters use high strength, silver epoxy-bonded MOV blocks and shunted spring connections for the best circuit connection.

3. A 36" #4 AWG ground lead is provided with each unit.

4. BSA installed by turning internal hex bolt (accessed through the 200A bushing interface) with a 5/16" hex wrench and bent-wire torque wrench supplied with each unit.

5. For 15kV and 25kV class deadbreak system Elbow Arresters, use catalog number 156ESA with the appropriate duty cycle rating.

Transmission Cable Joints

Factory molded and tested to ensure the highest quality.

Elastimold® TCJ™ Transmission Cable Joints for 46kV through 138kV Class Systems



- Each cable joint is produced exactly per design, producing a quality not possible with field molding equipment or tape
- Electrically tested in the factory to ensure consistent quality
- Molding is done in the factory, reducing on-site time — no penciling of cable insulation required
- Easy-to-learn installation procedure
- Field molds, wrapping machines or pre-stretch not required, and a low-cost assembly tool is available
- Extended shelf life enables instant availability of spares
- Joints may be installed either as a standard shield break or as a non-shield break
- Designed with optimized pre-molded stress control and heat transfer capabilities

TCJ™ Transmission Cable Joints for 46kV through 138kV class systems are designed by Thomas & Betts, the world's leading producer of Elastimold® pre-molded cable accessories.

All TCJ™ Transmission Cable Joints are factory molded and factory tested, providing maximum reliability. Factory molding ensures a level of insulation and shielding system integrity not achievable with field-fabricated insulation systems. Use TCJ™ Transmission Cable Joints in combination with various options for conductor connectors, shielding and environmental sealing, depending on the characteristics of the cable and your installation.

TCJ™ Transmission Cable Joints are designed for use on solid dielectric cables with insulation diameters from 36.5mm to 65.5mm (1.43" to 2.58") for Style 1 (through 69kV) and 57.2mm to 91.96mm (2.25" to 3.62") for Style 4 (through 138kV). When assembled, they provide permanent, fully shielded, fully submersible cable joints for direct-burial or vault applications. A shield break option is provided for cross bonding purposes on Style 4.

Easy-to-learn installation procedures eliminate the need for labor-intensive field molds, tape-wrapping machinery or field expansion. Field assembly is greatly simplified, because all electrical stress-management elements have been provided during the factory-molding process rather than being fabricated in the field.

A TCJ™ Transmission Cable Joint is available for your application. Contact your local Thomas & Betts representative for a specific proposal based on your requirements.

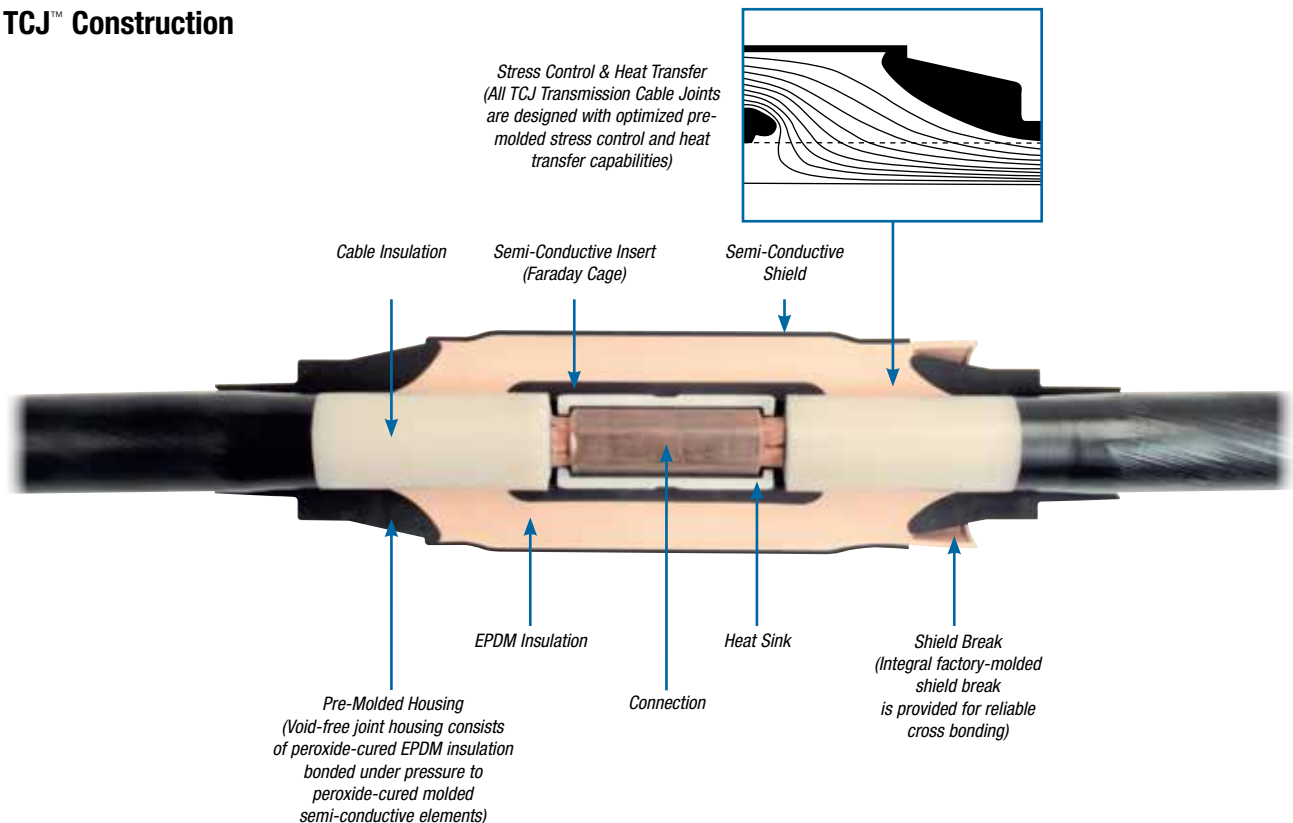
Transmission Cable Joints

Dimensional Information

BASE CAT. NO.	VOLTAGE CLASS NOMINAL	MAXIMUM SYSTEM VOLTAGE*	STYLE	SIZE	INCHES				MILLIMETERS			
					INSULATION DIAMETER RANGE		JOINT HOUSING		INSULATION DIAMETER RANGE		JOINT HOUSING	
					MIN.	MAX.	DIAMETER	LENGTH	MIN.	MAX.	DIAMETER	LENGTH
69TCJS1	69kV	72.5kV	1	M	1.435	1.675	4.16	20.35	36.5	45.6	105.7	516.9
				N	1.585	1.840	4.16	20.35	40.4	46.7	105.7	516.9
				P	1.790	2.090	4.75	22.48	45.5	53.1	120.7	571.0
				Q	1.995	2.300	4.75	22.48	50.7	58.4	120.7	571.0
				R	2.200	2.580	4.75	22.48	55.9	65.5	120.7	571.0
69TCJS3	69kV	72.5kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
69TCJS4	69kV	72.5kV	4	3	2.252	2.607	7.22	32.00	57.2	66.2	183.4	812.8
				4	2.565	2.948	7.22	32.00	65.2	74.9	183.4	812.8
				5	2.900	3.290	7.22	32.00	73.7	83.6	183.4	812.8
				6	3.249	3.620	7.82	32.00	82.5	92.0	198.6	812.8
138TCJS3	138kV	145kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
138TCJS4	138kV	145kV	4	3	2.252	2.607	7.22	32.00	57.2	66.2	183.4	812.8
				4	2.565	2.948	7.22	32.00	65.2	74.9	183.4	812.8
				5	2.900	3.290	7.22	32.00	73.7	83.6	183.4	812.8
				6	3.249	3.620	7.82	32.00	82.5	92.0	198.6	812.8
				7	3.580	3.980	7.82	32.00	90.93	101.10	199.6	812.8

* Maximum System Voltage conforms with AEIC/IEC industry standards.

TCJ™ Construction



Transmission Cable Joints

Ratings for Transmission Cable Joints

Nominal System Voltage (kV)	69	138
Maximum System Voltage: (kV)	72.5	145
BIL: 1.2 x 50µs; 10 Pos., 10 Neg., Impulses (kV)	350	650
DC Withstand: 15 min. (kV)	240	315
Minimum Corona Extinction Voltage (kV) (3pC Sensitivity)	60	120
AC Withstand: 15 min. (kV)	90	190
Current	Continuous Rating Equal to Cable	
Thermal –	90° C	
A. Max. Continuous Conduct. Temp.		
B. Splice Compression Connectors per ANSI C119.4	Class A/Class 2	
Semi-Conductive Shield	Meets Shield Test of IEEE 592	

TYPE Tests for Transmission Cable Joints — per IEC 60840/IEEE 404

Tan delta @ 90° C Conductor	< .5%	< .5%
130° C Heating Cycle Voltage Test (kV)	72	152
BIL: 1.2 x 50µs; 25° C & 90° C 10 Pos., 10 Neg., Impulses (kV)	350	650
AC Withstand: 6 hours (kV)	100	200

Production Tests for Transmission Cable Joints (each unit)

Minimum Corona Extinction Voltage (kV) (3pC Sensitivity)	60	120
AC Withstand: (kV)	160/15 min.	240/30 min.

Transmission Cable Joints

Typical Installation of Transmission Cable Joints



1 Overlap cables, straighten and strip back jacket.



2 Square cut the cable at the center line of the joint.



3 Remove the semi-conductive shield...



4 ...and bare the conductor.



5 Sand semi-conductive shield to provide a smooth transition to the cable insulation.



6 Store the cover-up sleeve on each cable.



7 Pull TCJ joint housing into the storage position on the cable.



8 Join the conductor using a compression, welded or other type of connector.



9 Conductors shown joined using a compression connector.



10 Reposition the assembly tool and pull the TCJ joint housing into the final position on the cable.



11 Seal joint ends with mastic wrap.



12 Connect neutral wires as required.



13 Position and shrink cover-ups.



14 Finished joint.

Transmission Cable Terminations

Class 1 termination for cable systems rated through 69kV.

Elastimold® 69TCT Terminator

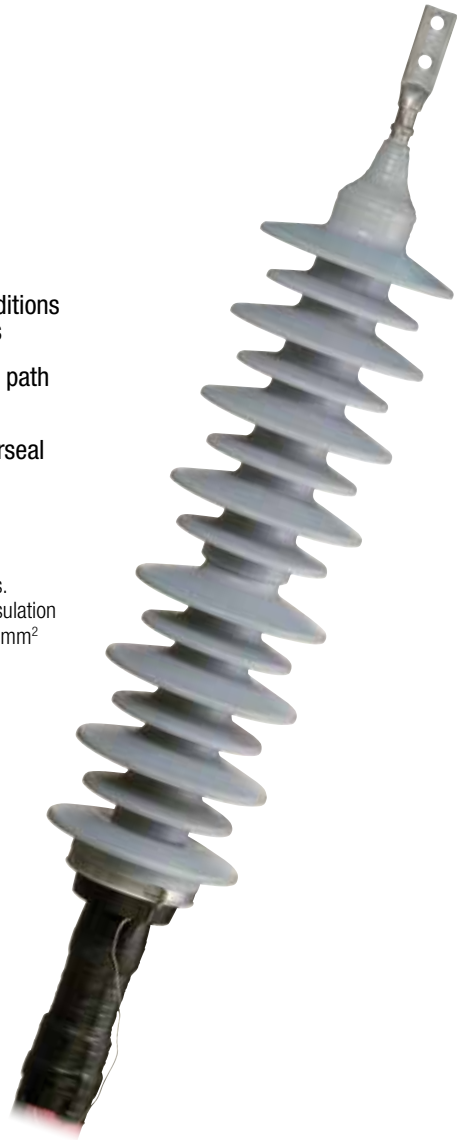
- Molded EPDM elastomer housing is durable under severe environmental conditions and does not require a surface oil/grease to maintain non-tracking properties
- State-of-the-art shed design employs unequal diameters to interrupt the drip path from shed to shed
- Housing slides over cable insulation to provide required creep path and waterseal
- Computer-designed molded stress relief ensures proper stress relief for the terminated cable

The 69TCT Terminator provides a Class 1 termination for cable systems rated through 69kV class. It conforms to IEC 840 and IEEE 48. This terminator is designed for solid dielectric cables with insulation diameters from 36.8mm to 62.2mm (1.45" x 2.45") and accommodates conductor sizes from 90mm² to 1700mm² (4/0 to 3500 kcmil). Various aerial lugs are available for the conductor connection.

The durable elastomer construction eliminates glaze damage failures associated with porcelain. A state-of-the-art shed design ensures a non-continuous drip path and the non-tracking polymer requires no surface oil or grease.

Installation

The 69TCT Terminator is lightweight and easy to handle. It can be assembled horizontally on the ground and then raised to the installation position without a crane. Installation can be accomplished without special training using the Elastimold® TCJ-ATK-U Universal Assembly Tool. The 69TCT can utilize standard cable support systems.

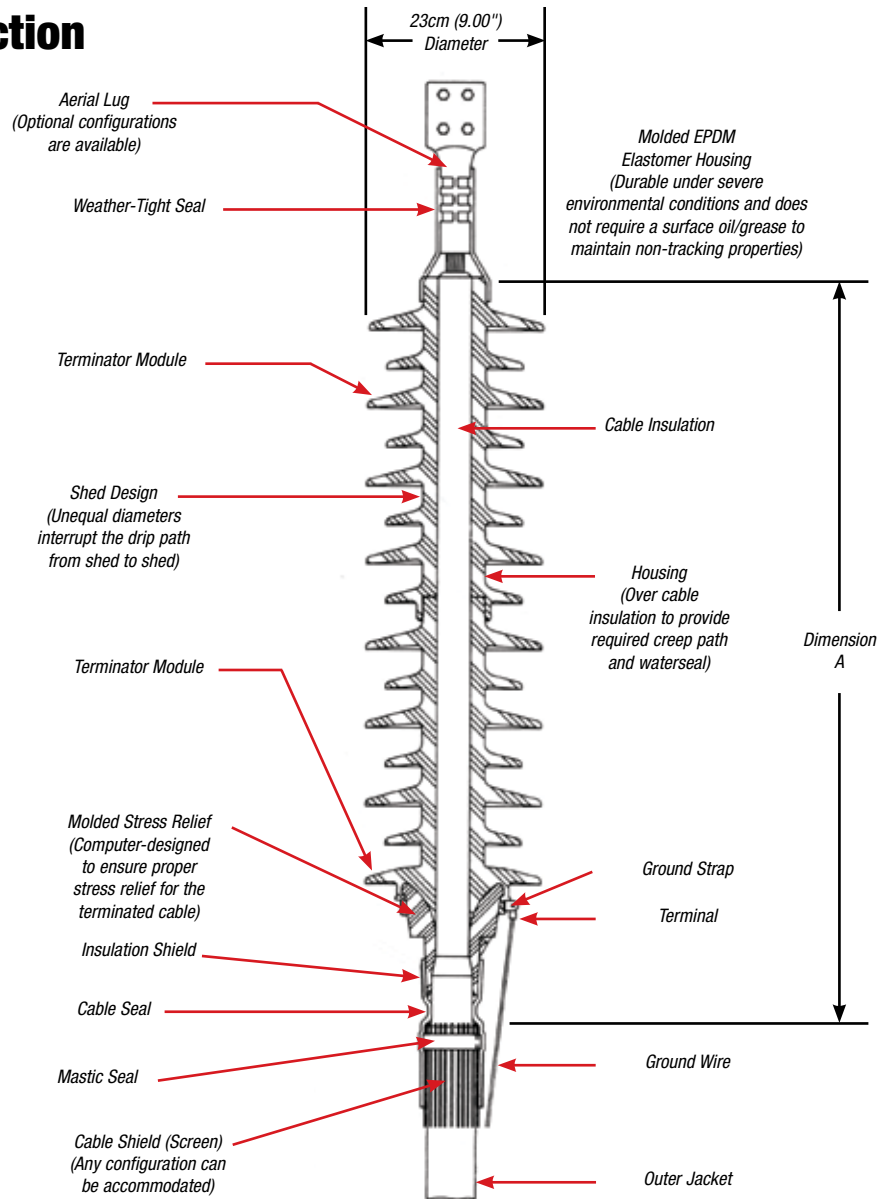


Electrical Data

Nominal Voltage	69kV
Maximum Working Voltage	72.5kV
Partial Discharge	<3pC @ 60kV
BIL (@ 1.2 x 50 microsecond wave) 10 positive, 10 negative	350kV
AC withstand 60 Hz 1 Minute Dry	175kV

Transmission Cable Terminations

TCT Construction



Power & High Voltage — Elastimold® Underground Cable Accessories

Dimensional Information

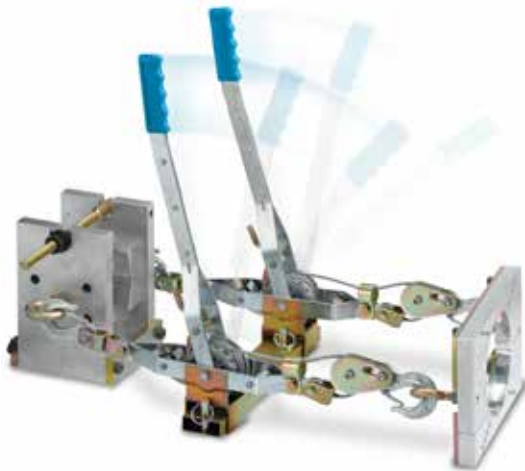
BASE CAT. NO.	VOLTAGE CLASS NOMINAL	MAXIMUM SYSTEM VOLTAGE*	MODULES	INCHES						MILLIMETERS					
				INSULATION RANGE			TERMINATION HEIGHT (A)	STRIKE DISTANCE	CREEP DISTANCE	INSULATION RANGE			TERMINATION HEIGHT (A)	STRIKE DISTANCE	CREEP DISTANCE
				MIN.	MAX.	SIZE				MIN.	MAX.	SIZE			
69TCT	69kV	72.5kV	2	0	1.450	1.700	36.81	32.00	92.25	36.8	43.2	935.0	812.8	2343.2	
				1	1.650	1.900				41.9	48.3				
				2	1.850	2.150				47.0	54.6				
				3	2.100	2.450				53.3	62.2				
69TCT	69kV	72.5kV	3	0	1.450	1.700	53.19	48.38	139.63	36.8	43.2	1351.0	1228.7	3546.5	
				1	1.650	1.900				41.9	48.3				
				2	1.850	2.150				47.0	54.6				
				3	2.100	2.450				53.3	62.2				

* Maximum System Voltage conforms with AIEC/IEC industry standards.

Transmission Cable Accessories Installation Tools

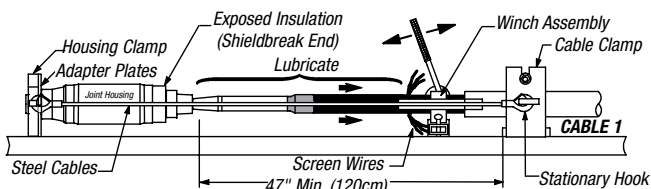
Aids in sliding the joint or termination onto the cable.

Termination and Joint Installation Tool — TCJ-ATK-U



TCJ™ Installation

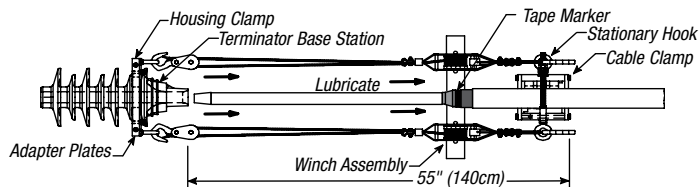
When installing a TCJ™ Transmission Cable Joint, secure the cable clamp to the cable, position the housing clamp on the joint housing and then pull and park the joint on the cable by rotating the winch handles. Connect the conductors of the two cables and reverse the TCJ-ATK-U to slide the joint housing to the center of the splice.



Typical Transmission Cable Joint (TCJ) installation using the TCJ-ATK-U.

TCT Installation

When installing a TCT Transmission Cable Termination, secure the cable clamp to the cable, position the housing clamp on the termination housing and pull the termination into the cable by rotating the winch handles.

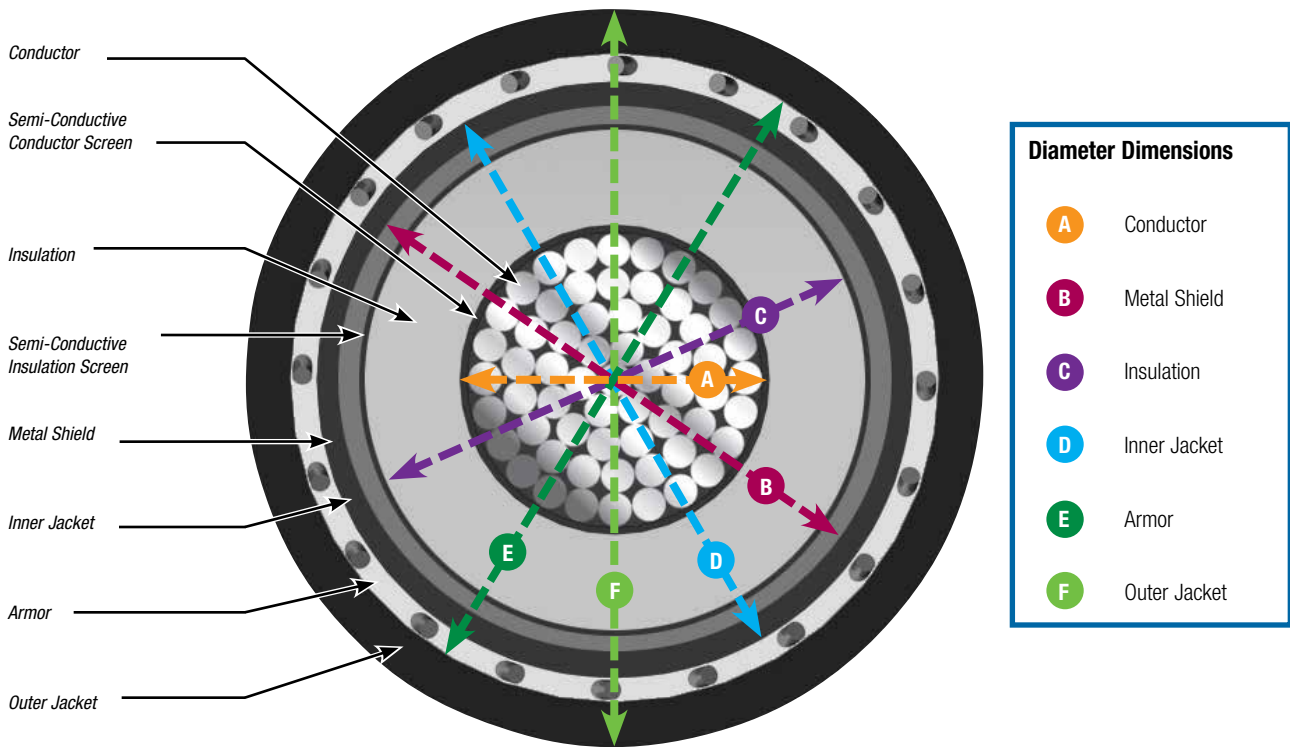


Typical Transmission Cable Termination (TCT) installation using the TCJ-ATK-U.



Transmission Cable Accessories Technical Information

Cable Construction



Provide cable cut sheet or provide dimensional data below.

Cable Data Requirements for Cable Joint and Cable Termination Selection

ITEM NAME	MATERIAL	SIZE (MM ² OR KCMIL)	OUTSIDE DIAMETER (MM OR INCHES)
Conductor	<input type="checkbox"/> Aluminum <input type="checkbox"/> Copper		A
Metal Shield			B

ITEM NAME	MATERIAL	NORMAL THICKNESS (MM OR INCHES)	NOMINAL OUTSIDE DIAMETER (MM OR INCHES)
Insulation	<input type="checkbox"/> XLPE <input type="checkbox"/> EPR		C
Inner Jacket			D
Armor*			E
Outer Jacket*			F

* If applicable

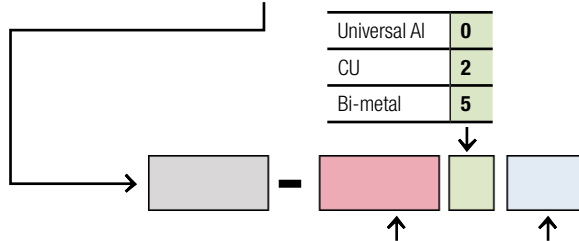
Nominal System Voltage _____ kV

Non-Shieldbreak Joint Qty. _____

Termination Qty. _____

L-Kits and Vault Stretcher Kits Ordering Information

Kits:	15/25 kV	35 kV
1-Way L-Kit	K655L1	755L1
2-Way L-Kit	K655L2	755L2
3-Way L-Kit	K655L3	755L3
~4-Way L-Kit	K655L4	755L4
2-Way VS-Kit	K655VSL2	755VSL2
3-Way VS-Kit	K655VSL3	755VSL3
4-Way VS-Kit	K655VSL4	755VSL4



For 15/25 kV				
Cable Insulation Diameter in inches		Cable Insulation Diameter in millimeters		Symbol for W
MIN.	MAX.	MIN.	MAX.	
0.640	0.820	16.256	20.828	F
0.760	0.950	19.304	24.130	G
0.850	1.050	21.590	26.670	H
0.980	1.180	24.892	29.972	J
1.090	1.310	27.686	33.274	K
1.180	1.465	29.972	37.211	L
1.280	1.430	32.512	36.322	LM
1.370	1.630	34.798	41.402	M
1.515	1.780	38.481	45.212	N
1.725	1.935	43.815	49.149	P

For 15/25 kV				
Cable Insulation Diameter in inches		Cable Insulation Diameter in millimeters		Symbol for W
MIN.	MAX.	MIN.	MAX.	
0.760	0.950	19.304	24.130	G
0.850	1.050	21.590	26.670	H
0.980	1.180	24.892	29.972	J
1.090	1.310	27.686	33.274	K
1.180	1.465	29.972	37.211	L
1.280	1.430	32.512	36.322	LM
1.370	1.630	34.798	41.402	M
1.515	1.780	38.481	45.212	N
1.725	1.935	43.815	49.149	P
1.900	2.120	48.260	53.848	Q

	AWG or kcmil		mm2	Connector Only		
	Strand./Compr.	Solid/Compact	Compact	Universal Aluminum	Copper	Bi-metal
210	-	2	-	03700210	03702210	04601210
220	2	1	35	03700220	03702220	04601220
230	1	1/0	50	03700230	03702230	04601230
240	1/0	2/0	-	03700240	03702240	04601240
250	2/0	3/0	70	03700250	03702250	04601250
260	3/0	4/0	95	03700260	03702260	04601260
270	4/0	250	125	03700270	03702270	04601270
280	250	300	-	03700280	03702280	04601280
290	300	350	150	03700290	03702290	04601290
300	350	400	185	03700300	03702300	04601300
310	400	450	240	03700310	03702310	04601310
320	450	500/550	-	03700320	03702320	04601320
330	500	600	250/300	03700330	03702330	04601330
340	550	650	-	03700340	03702340	04601340
350	600	700	400	03700350	03702350	03705350
360	650	750/800	-	03700360	03702360	04601360
380	700/750	900	-	03700380	03702380	04601380
390	800	-	500	03700390	03702390	04601390
400	900	1000	-	03700410	03702410	04601410
410	1000	-	-	03700410	03702410	04601410
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