

P O W E R D E L I V E R Y



PRODUCT SELECTION GUIDE

PRODUCT CATEGORIES

- Transmission Cable Joints
- Transmission Cable Terminations

Thomas & Betts



POWER DELIVERY

Thomas & Betts — long recognized as the leading manufacturer of Elastimold® pre-molded cable accessory components worldwide

Incorporating specially formulated materials with 100% peroxide-cured insulation and shielding, Elastimold products represent the state of the art in pre-molded process technology. When you specify Elastimold pre-molded products, you can count on durable, quality construction and non-degrading, high-reliability, maintenance-free performance.

Welcome to the *Elastimold TCJ™ Transmission Cable Joints Product Selection Guide*

This Product Selection Guide offers a comprehensive listing of Elastimold products for 46kV through 138kV underground power transmission systems, including both TCJ Transmission Cable Joints and TCT Transmission Cable Terminations. See inside for product applications, ratings and selections.

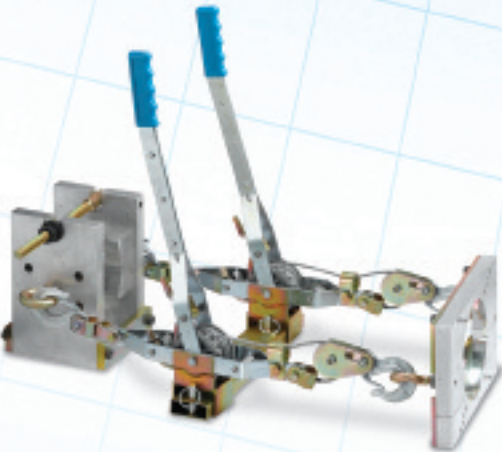
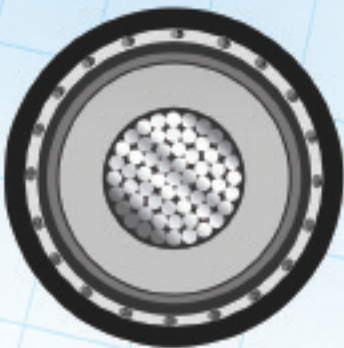
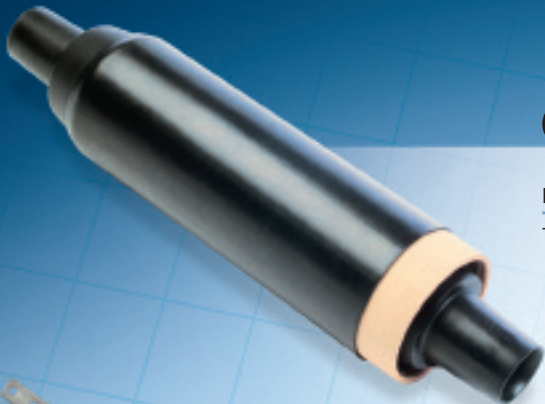
Why choose Elastimold products?

Elastimold's broad line of pre-molded products offers significant advantages over field-fabricated and other alternatives:

- 100% factory assurance testing prior to delivery and installation
- Simplified, single-piece construction with built-in insulating, shielding and sealing surfaces
- Ease of installation with no special skills required
- Compact, lightweight, durable designs for easy handling and application

Order Today

To order, request more information or obtain samples of Elastimold products for evaluation, contact your Thomas & Betts utility agent or distributor today.



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Cable Data Requirements

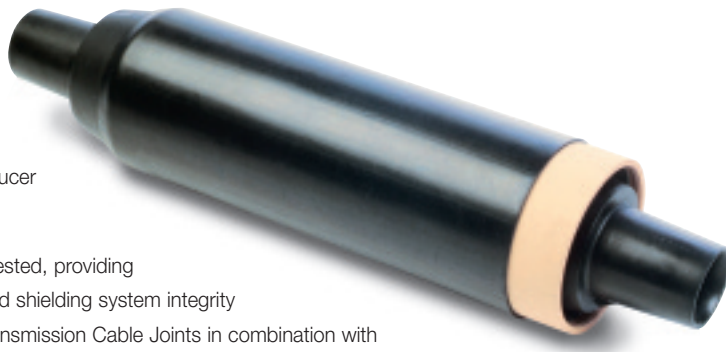
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Elastimold® TCJ™ Transmission Cable Joints for 46kV through 138kV Class Systems

**Factory molded and tested
to ensure the highest quality.**



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.

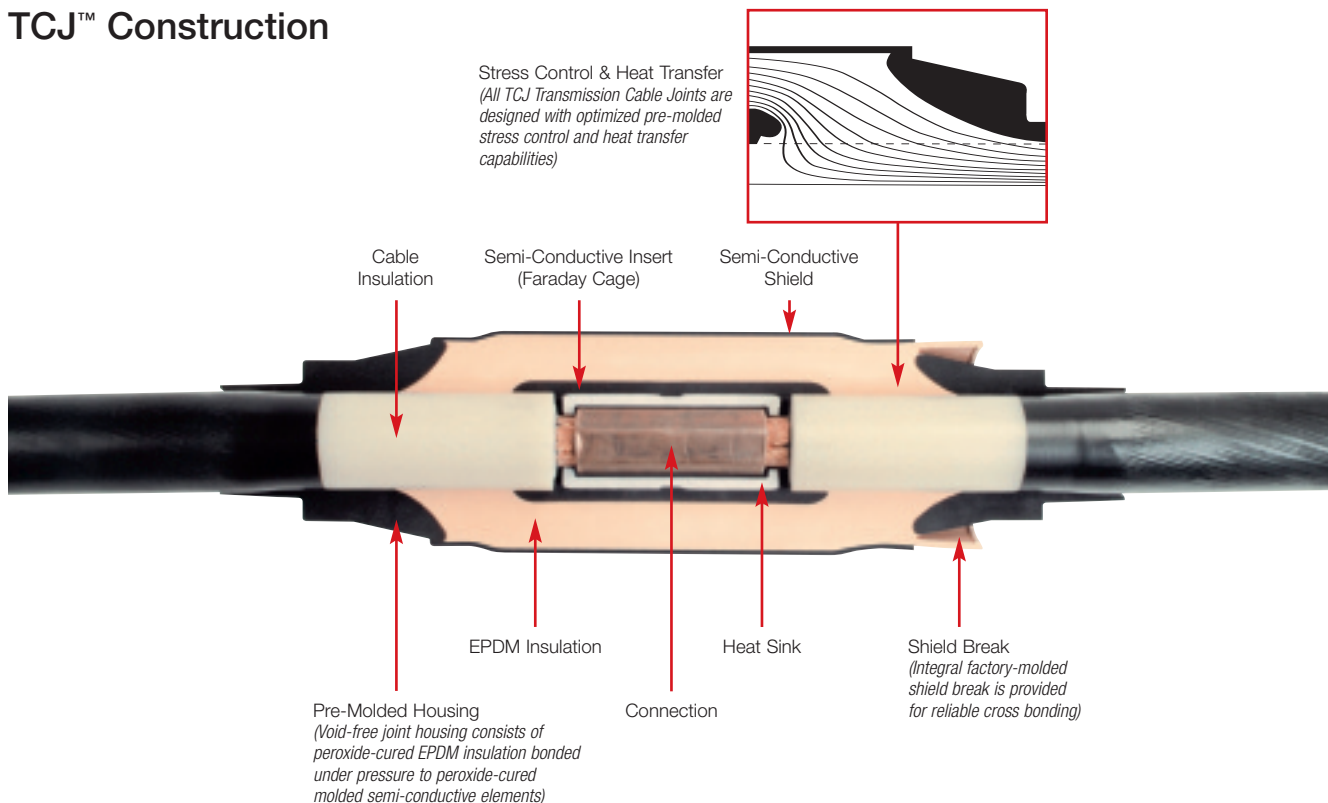
Features	Benefits/Descriptions
Factory-Molded Quality	Each cable joint is produced exactly per design, producing a quality not possible with field molding equipment or tape.
100% Factory Tested	Electrically tested in the factory to ensure consistent quality.
Faster Installation	Molding is done in the factory, reducing on-site time. No penciling of cable insulation required.
Reduced Training Requirements	Easy-to-learn installation procedure.
No Costly Installation Machinery Required	Field molds, wrapping machines or pre-stretch not required. A low-cost assembly tool is available.
No Special Environmental Enclosures or Equipment Required	Reduced site cost.
Extended Shelf Life	Enables instant availability of spares.
Shield Break is Standard	Joints may be installed either as a shield break or as a non-shield break.
Stress Control & Heat Transfer	Designed with optimized pre-molded stress control and heat transfer capabilities.

Dimensional Information for Transmission Cable Joints

Base Catalog Number	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

*Maximum System Voltage conforms with AEIC/IEC industry standards

TCJ™ Construction



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	< 0.5%	< 0.5%
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)

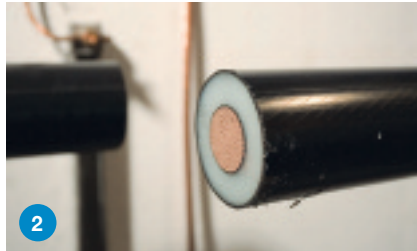
Minimum Corona Extinction Voltage (kV) (3pC Sensitivity)	60	120
AC Withstand: (kV)	160/15 min.	240/30 min.

Typical Installation of Transmission Cable Joints

Following detail installation instructions provided for the specific Transmission Cable Joint being installed:



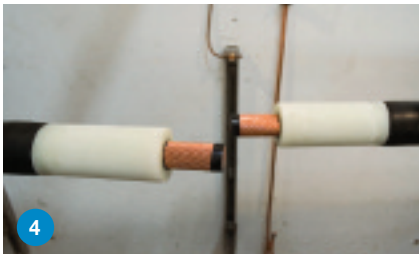
1 Overlap cables, straighten and strip back jacket.



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.

Elastimold® 69TCT Terminator

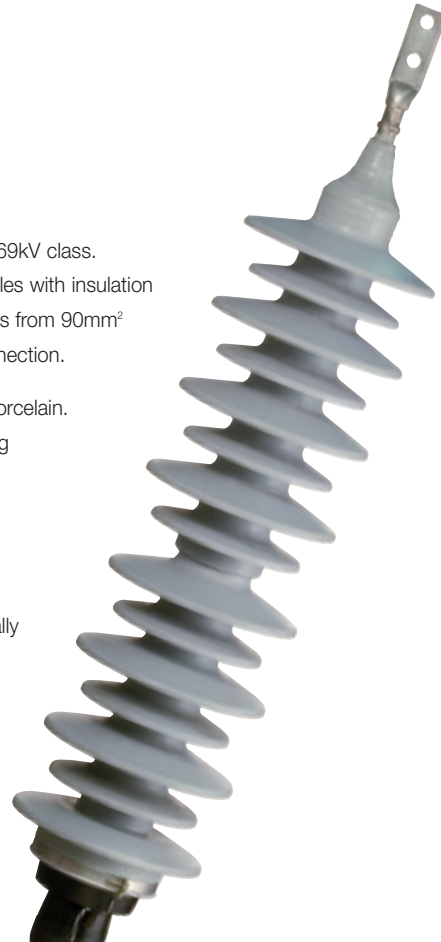
Class 1 termination for cable systems rated through 69kV.

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.

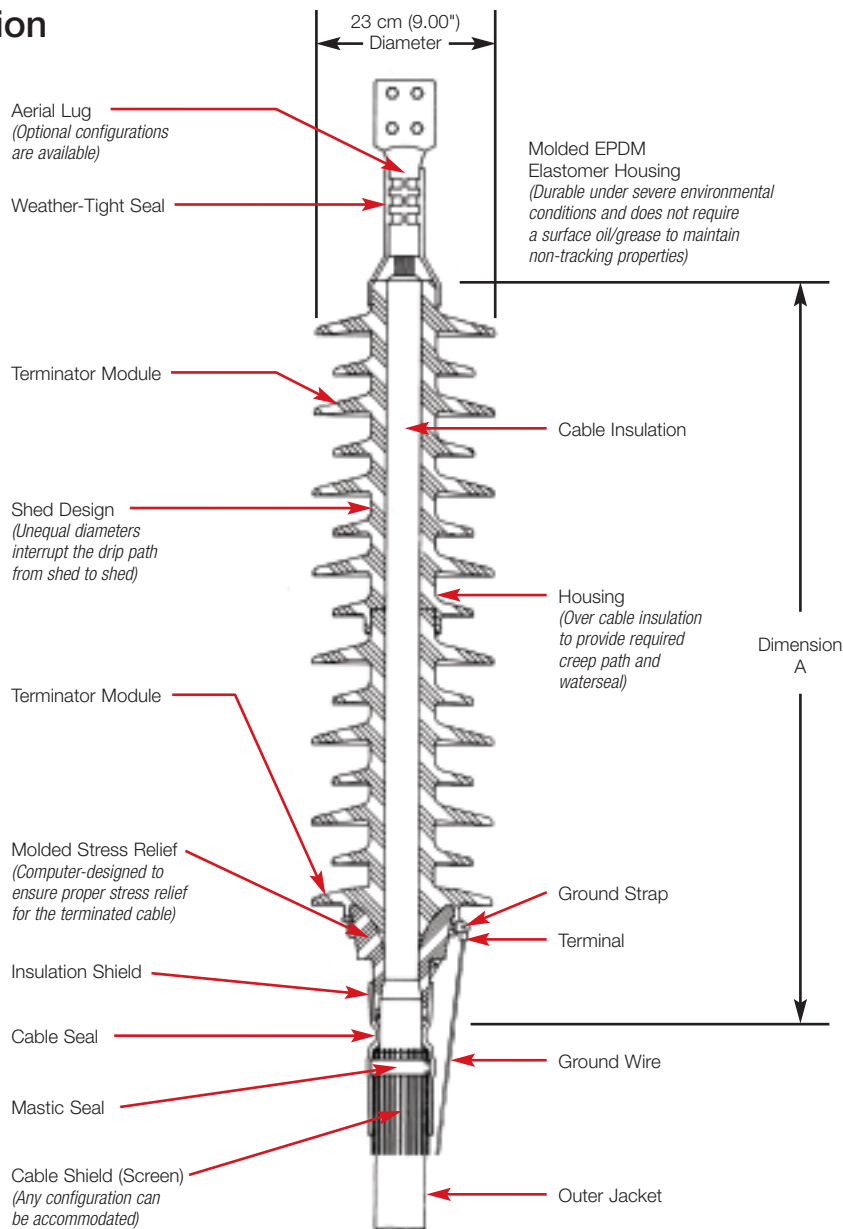


Features	Benefits/Descriptions
Molded EPDM Elastomer Housing	Durable under severe environmental conditions and does not require a surface oil/grease to maintain non-tracking properties.
State-of-the-Art Shed Design	Employs unequal diameters to interrupt the drip path from shed to shed.
Housing Slides over Cable Insulation	Provides required creep path and waterseal.
Computer-Designed Molded Stress Relief	Ensures proper stress relief for the terminated cable.

Electrical Data for 69TCT Transmission Cable Termination

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 60Hz 1 Minute Dry	175kV

TCT Construction

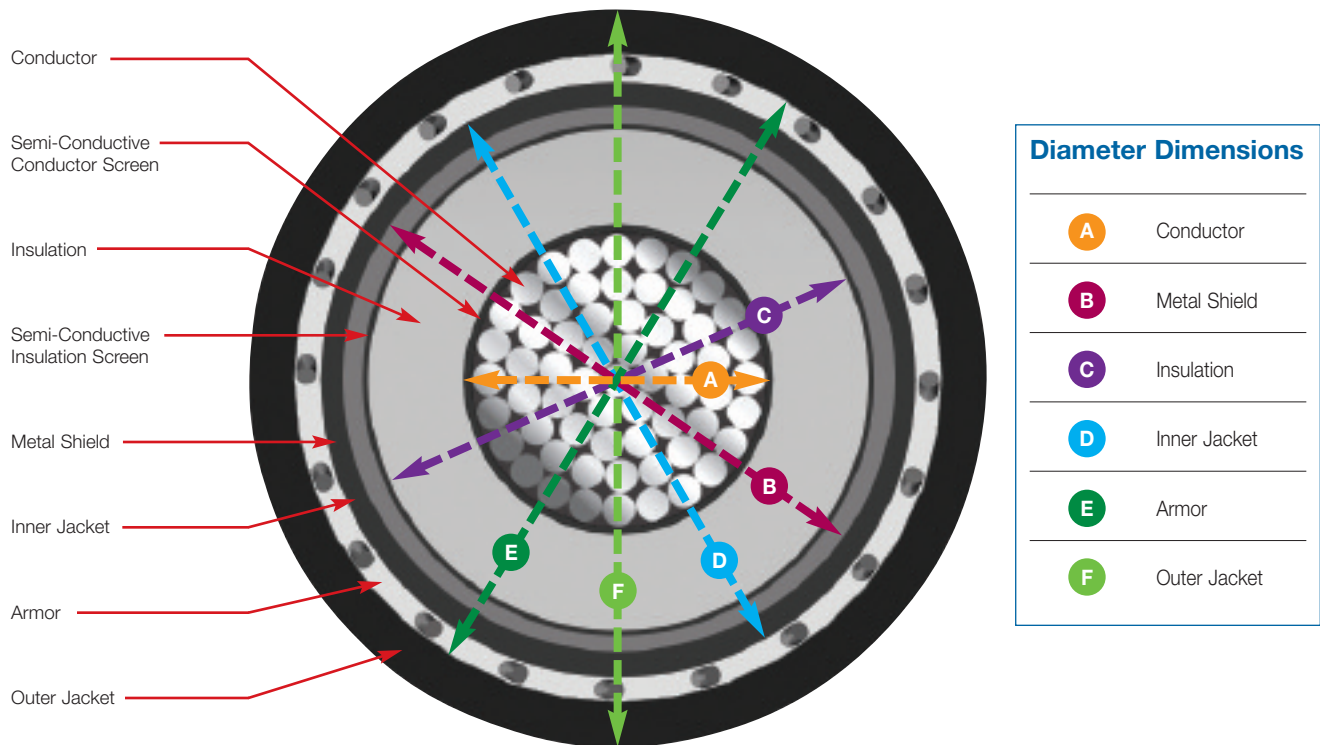


Dimensional Information for Transmission Cable Terminations

Base Catalog Number	Voltage Class Nominal	*Maximum System Voltage	Modules	Size	Inches					Millimeters				
					Insulation Range		Termination Height (A)	Strike Distance	Creep Distance	Insulation Range		Termination Height (A)	Strike Distance	Creep Distance
					Min.	Max.				Min.	Max.			
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

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 MCM)	Outside Diameter (mm or inches)
Conductor	☐ Alum ☐ CU		A
Metal Shield			B

Item Name	Material	Normal Thickness (mm or inches)	Nominal Outside Diameter (mm or inches)
Insulation	☐ XLPE ☐ EPR		C
Inner Jacket			D
Armor*			E
Outer Jacket*			F

*If applicable

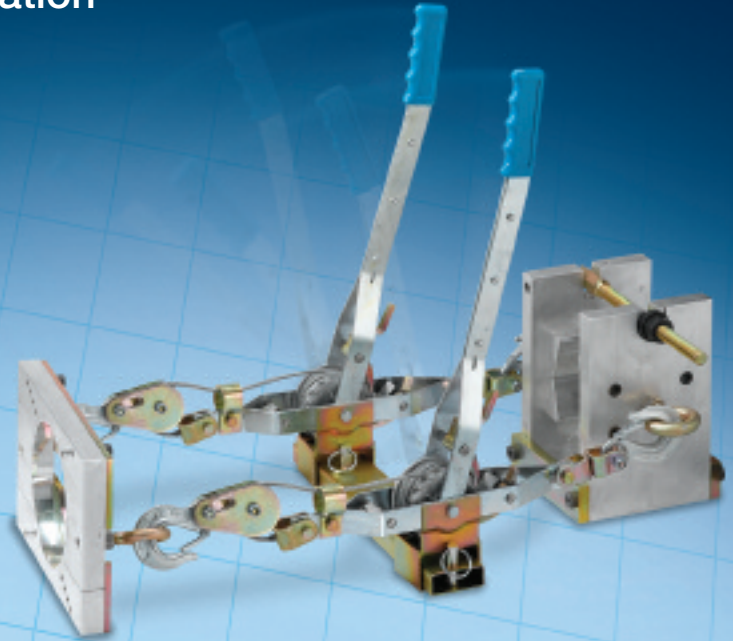
Nominal System Voltage _____ kV

Non-Shieldbreak Joint Qty. _____

Termination Qty. _____

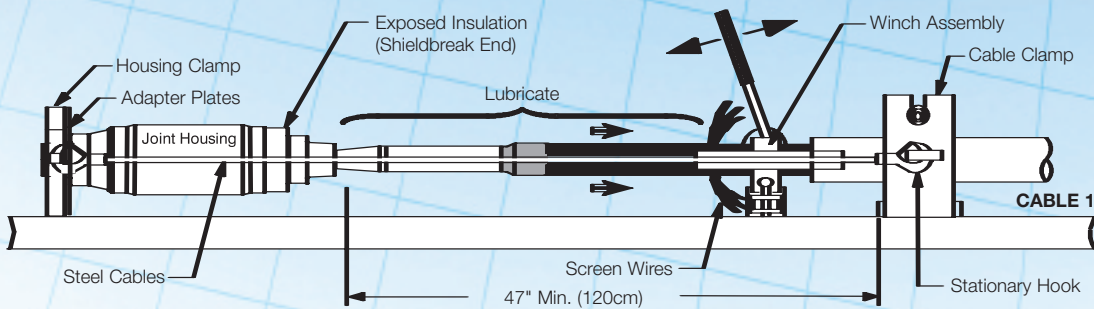
Termination & Joint Installation Tool — TCJ-ATK-U

Aids in sliding the joint or termination onto the cable.



TCJ™ Installation

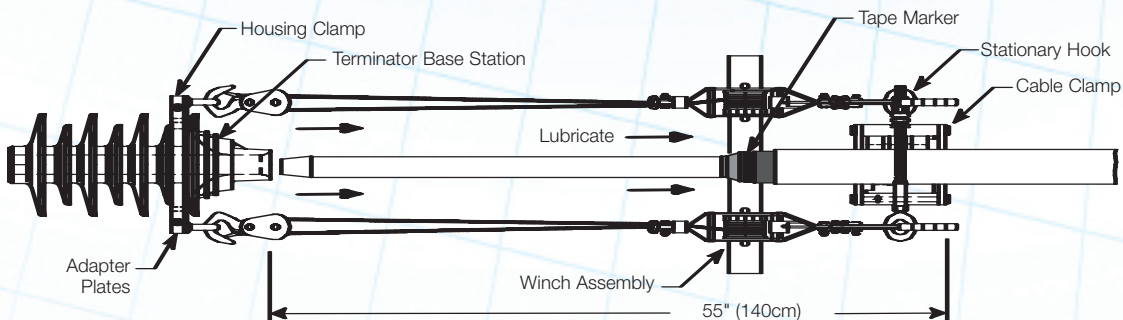
When installing a TCJ Transmission Cable Joint, secure the cable clamp to the cable, position the housing clamp on the joint housing and then pull and park the joint on the cable by rotating the winch handles. Connect the conductors of the two cables and reverse the TCJ-ATK-U to slide the joint housing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



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

TCT Installation

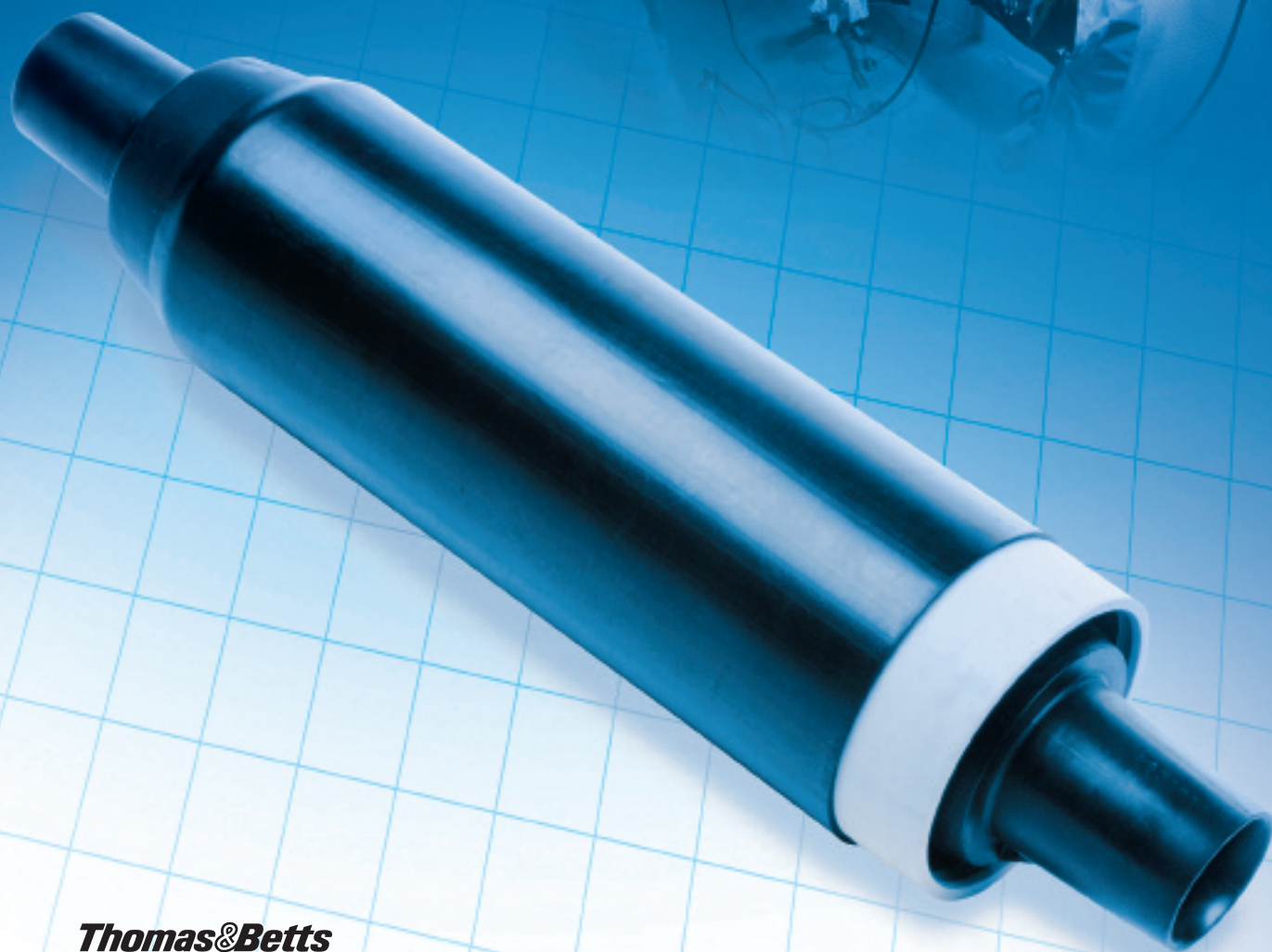
When installing a TCT Transmission Cable Termination, secure the cable clamp to the cable, position the housing clamp on the termination housing and pull the termination into the cable by rotating the winch handles.



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



POWER DELIVERY



Thomas & Betts

Thomas & Betts Corporation
Utility Group
8155 T&B Blvd.
Memphis, TN 38125
P: 800.326.5282
F: 800.888.0690