

Transmission cable joints

TCJ™ transmission cable joints for 46 kV through 138 kV class systems

Factory molded and tested to ensure the highest quality.

- 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

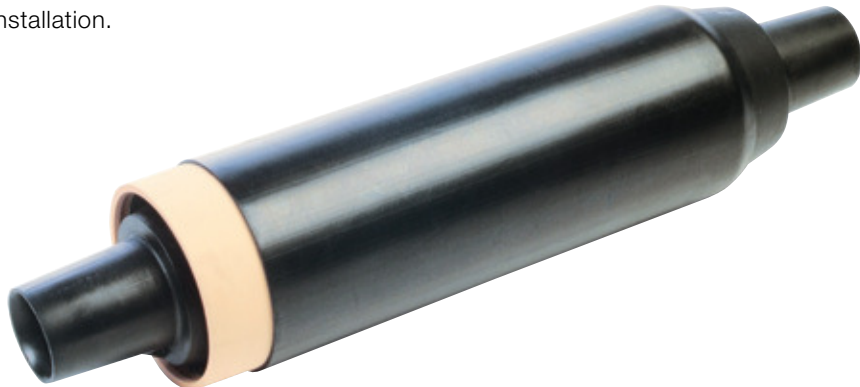
TCJ transmission cable joints for 46 kV through 138 kV class systems are designed by Thomas & Betts, the manufacturer of Elastimold pre-molded cable accessories.

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 69 kV) and 57.2mm to 91.96mm (2.25" to 3.62") for Style 4 (through 138 kV). 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.

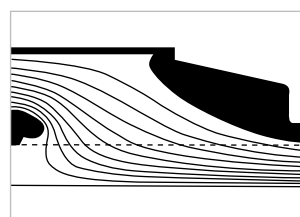
Easy-to-learn installation procedures eliminate the need for labor-intensive field molds, tape-wrapping machinery or field expansion. Field assembly is greatly simplified, because all electrical stress-management elements have been provided during the factory-molding process rather than being fabricated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



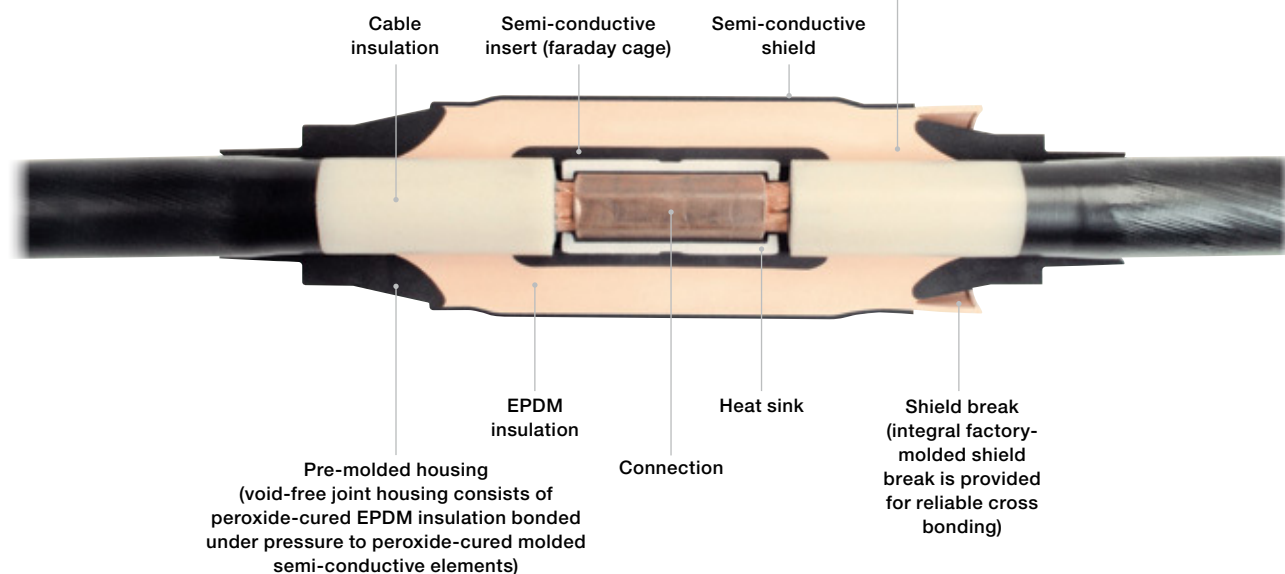
Dimensional information												
Base cat. no.	Voltage class nominal	Maximum system voltage*	Style	Size	Inches				Millimeters			
					Insulation diameter range		Joint housing		Insulation diameter range		Joint housing	
					Min.	Max.	Diameter	Length	Min.	Max.	Diameter	Length
69TCJS1	69 kV	72.5 kV	1	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	69 kV	72.5 kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
69TCJS4	69 kV	72.5 kV	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	138 kV	145 kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
138TCJS4	138 kV	145 kV	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.



Stress control and heat transfer (all TCJ transmission cable joints are designed with optimized pre-molded stress control and heat transfer capabilities)

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) (3 pC sensitivity)	60	120
AC withstand: 15 min. (kV)	90	190
Current	Continuous rating equal to cable	
Thermal –	90 °C	
A. Max. continuous conduct. temp.	Class A/class 2	
B. Splice compression connectors per ANSI C119.4		
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

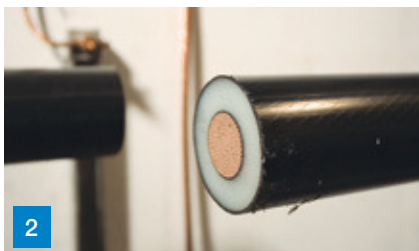
Production tests for transmission cable joints (each unit)		
Minimum corona extinction voltage (kV) (3 pC sensitivity)	60	120
AC withstand: (kV)	160/15 min.	240/30 min.

Example of a typical installation of transmission cable joints

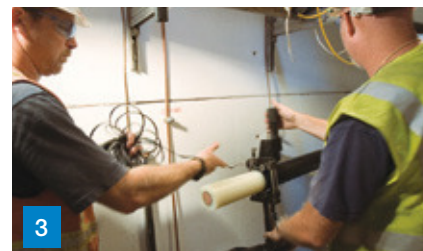
Warning: Refer to local code for required PPE.



1
Overlap cables, straighten and strip back jacket.



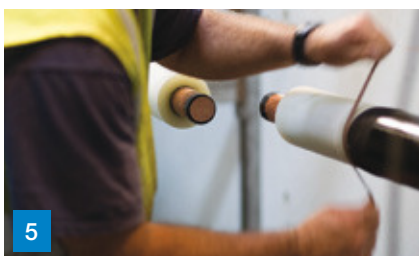
2
Square cut the cable at the center line of the joint.



3
Remove the semi-conductive shield.



4
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.