



Energy Division

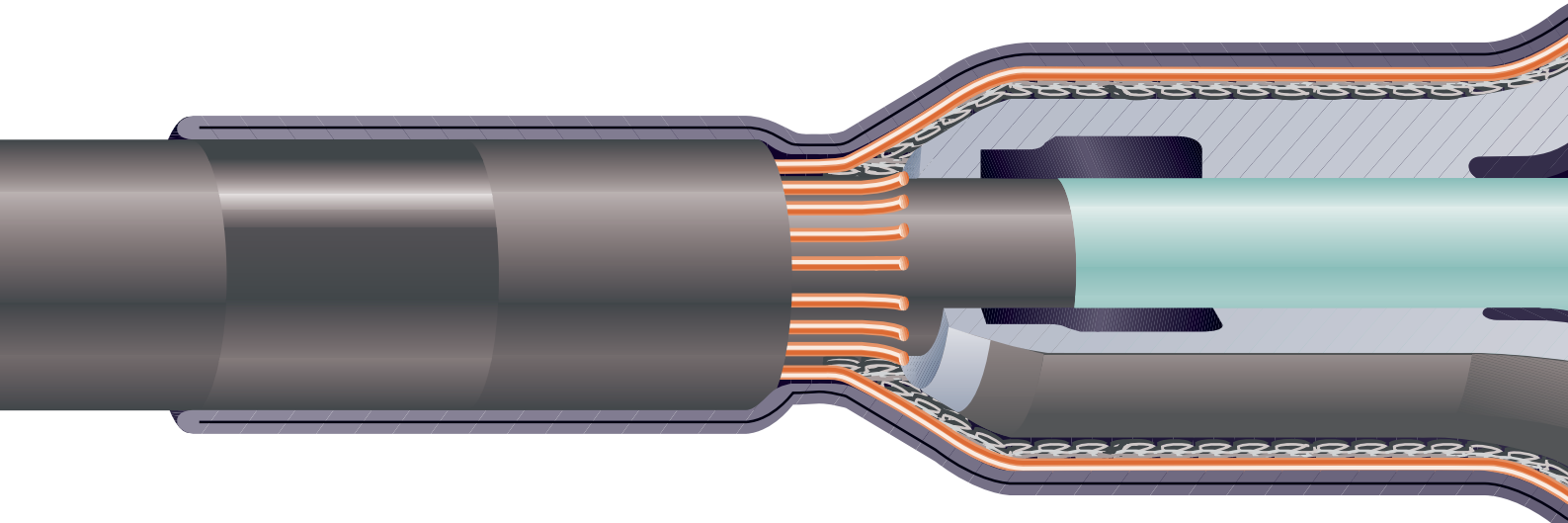
CSJR / CSJH
Cold shrinkable straight joints
for polymeric insulated cables
up to 36 kV

CSJR / CSJH

Cold shrinkable straight joints for polymeric insulated cables up to 36 kV

Features

- Pre-expanded, single piece silicone rubber joint body with high mechanical expansion capability allows a wide application range
- Electrical stress control of the screen cut area by integrated conductive geometrical stress cones
- Electrical stress control of the connector area by an integrated screened connection area (Faraday cage)
- Pre-expansion on a well-known and easy-to-install holdout system
- Choice of outer sealing and protection systems
- Easy-to-install joint system with short installation time
- Exceeds CENELEC HD 629.1, requirements which include IEC, BS, VDE and other international specifications
- Mechanical shear bolt connectors to IEC 61238-1 with wide application range for conductor and wire shield can be supplied with the kit
- Proven shield continuity concept



1 Mechanical shear bolt connectors

CSJR/CSJH joints are available with Tyco Electronics BSM mechanical connectors fitted with shear head bolts to ensure a reliable connection for different conductor materials, shapes and types used in today's network. The pre-set shear torque of the bolts ensures that the correct contact pressure is always achieved. The specially designed contact surface on the inside of the connector breaks up any oxide layer and ensures reliable service over the entire life of the joint. Different sizes of mechanical connectors with wide application ranges are available. The connectors have been tested in accordance with IEC-61238-1 class A.



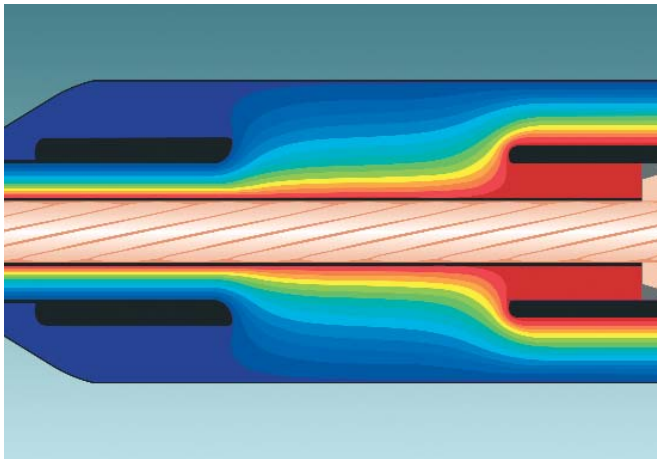
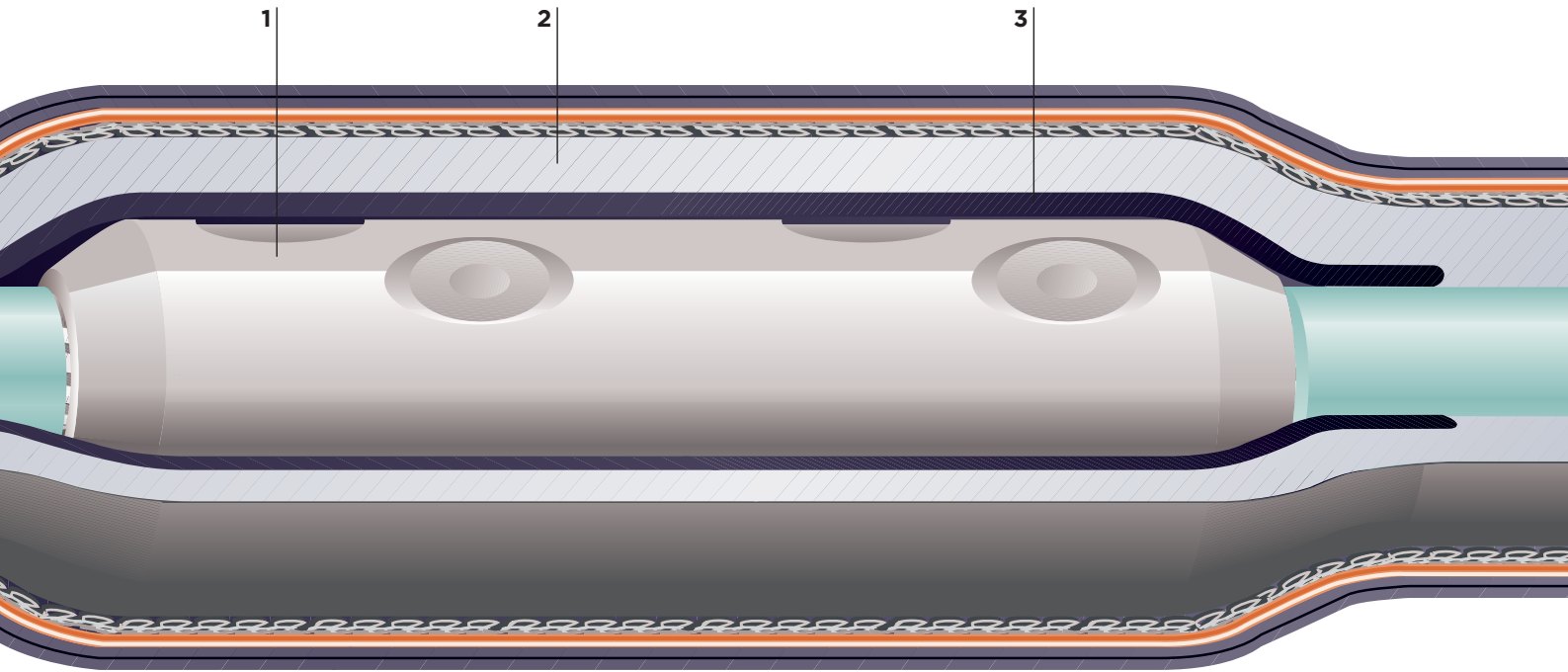
2 Pre-expanded silicone joint body

The silicone rubber joint body is delivered in a pre-expanded condition on a spiral holdout system. Silicone materials with excellent mechanical properties allow high expansion forces and therefore guarantee a wide application range. Integrated stress control mechanism and conductive outer layer provide exceptional electrical performance. The joint body can be easily removed from the spiral holdout with low release forces, particularly designed for joint applications.

General

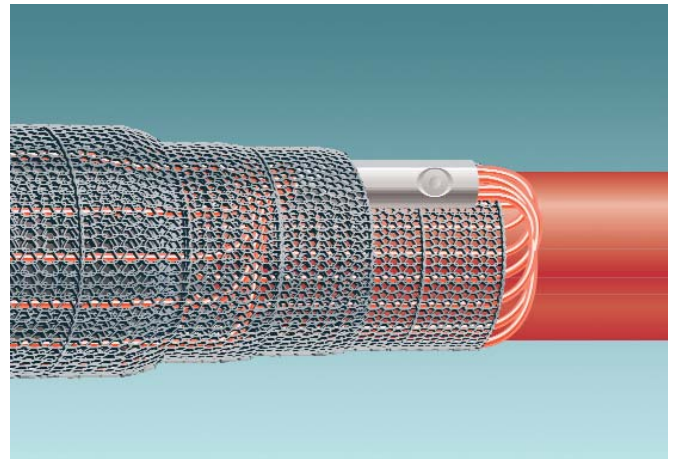
CSJR/CSJH joints offer a reliable, fast and easy-to-install jointing system to assure and maintain high network reliability. A silicone rubber joint body with integrated geometrical stress cones and Faraday cage provides excellent electrical stress control.

CSJR/CSJH joints are designed to cover a wide range of applications and to accommodate the variety of cable and conductor types in the networks. Range-taking mechanical connectors ensuring reliable installation and service can be supplied with the kit.



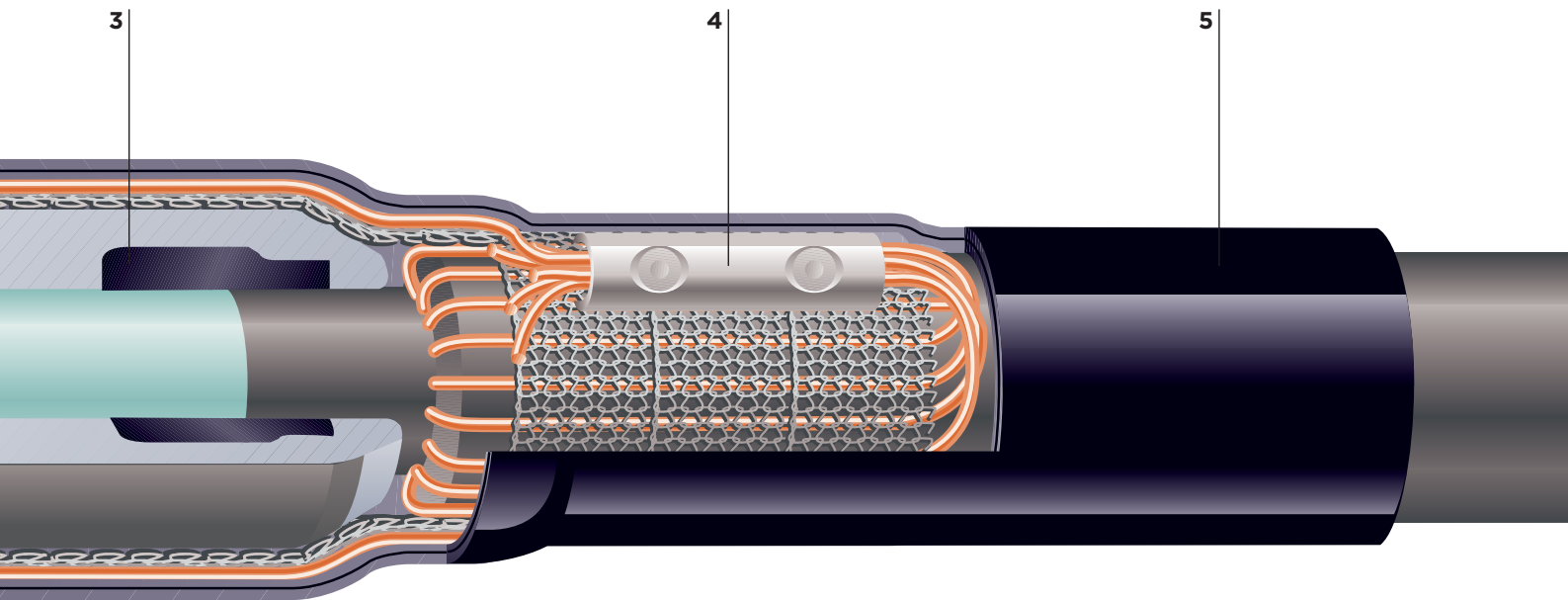
3 Electrical stress control

Electrical stress control is fully integrated in the silicone joint body by well defined conductive areas. Conductive cones with an exactly defined geometrical design over the screen cut area provide excellent electrical stress control. The electrical stress control of the connector area is made with an integrated conductive screen performing as a Faraday cage. The coverage of voids and edges at the connection area with void fillers is not necessary.



4 Shield continuity

Typical shield wire cross sections up to 35 mm² can easily be connected by either mechanical or compression connectors. Positioned at the oversheath cut-back, the connection provides a smooth profile resistant to mechanical damage. For kits with Tyco Electronics BSM mechanical connectors a mechanical shield wire connector is supplied. The two shear bolts of the shield connector provide the required contact force in order to ensure secure installation and reliable performance. Additional layers of copper mesh are applied around the joint to provide shielding and protection.



5 Outer sealing and protection

CSJx joints are available with alternative re-jacketing methods. CSJR joints include a dual-wall Rayvolve sleeve with entrapped lubricant. The elastomeric sleeve rolls onto the cable and over the joint area. The gripping force of the specially formulated EPDM elastomer combined with a high performance sealant forms a reliable moisture seal and corrosion protection for the joint system. Rayvolve sleeves have more than 20 years' service experience in cable re-jacketing systems worldwide. On CSJH joints the outer sealing and protection is provided by a thick-wall, heat-shrinkable tubing. Effective moisture seal and corrosion protection for the joint is ensured by the co-extruded hot melt adhesive. When installed, the heat-shrinkable tubing provides a similar level of protection as the PE oversheath of modern cables.



Cordless impact wrench

For the installation of mechanical connectors a cordless impact wrench is available. This tool allows simpler, safer and faster installation compared with manual installation. It can be used for shear-head bolts up to 100 Nm torque. The motor is constructed with heavy gauge copper coils and the striker is designed to deliver maximum power output while withstanding extreme heat and stress. This tool has externally accessible and replaceable carbon brushes, thereby guaranteeing long service life. The machine comes in a rigid compartmented carrying case with all hexagon sockets and keys necessary for standard mechanical connectors and lugs. The powerful battery is sufficient for approximately 20 four-bolted connectors per battery charging cycle.

CSJR

Cold shrinkable inline joints with Rayvolve EPDM sleeve as outer protection

CSJR joint without connector

	Application range* [mm ²]	Kit description	Diameter over core insulation [mm]	Diameter over outer sheath [mm]	Admissible connector dimensions Max. length [mm] Max. dia. [mm]	
12 kV	95 - 240	CSJR-12B/1XU-1XU	18.6 - 28.4	26.0 - 39.0	145.0	33.0
	185 - 300	CSJR-12C/1XU-1XU	23.2 - 32.6	30.0 - 44.0	145.0	37.0
	240 - 400	CSJR-12D/1XU-1XU	25.7 - 33.6	33.0 - 45.0	170.0	42.0
	500 - 800	CSJR-12E/1XU-1XU	34.4 - 42.2	43.0 - 58.0	200.0	45.0
24 kV	35 - 185	CSJR-24B/1XU-1XU	18.9 - 30.1	26.0 - 41.0	145.0	33.0
	95 - 300	CSJR-24C/1XU-1XU	23.5 - 34.6	30.0 - 46.0	145.0	37.0
	185 - 400	CSJR-24D/1XU-1XU	27.4 - 37.8	35.0 - 49.0	170.0	42.0
	400 - 630	CSJR-24E/1XU-1XU	35.1 - 44.0	43.0 - 57.0	200.0	45.0
	800 - 1000	CSJR-24F/1XU-1XU	43.9 - 53.2	58.5 - 67.0	200.0	50.0
36 kV	70 - 240	CSJR-36D/1XU-1XU	26.2 - 37.6	34.0 - 48.0	140.0	33.0
	240 - 630	CSJR-36E/1XU-1XU	34.9 - 49.2	42.0 - 61.0	200.0	50.0
	500 - 800	CSJR-36F/1XU-1XU	42.6 - 53.4	51.0 - 66.0	200.0	50.0

CSJR joint with mechanical connector

	Application range* [mm ²]	Kit description	Diameter over core insulation [mm]	Diameter over outer sheath [mm]	Diameter over conductor ** [mm]
12 kV	95 - 240	CSJR-12B/1XU-1XU-M	18.6 - 28.4	26.0 - 39.0	11.0 - 19.2
	185 - 300	CSJR-12C/1XU-1XU-M	23.2 - 32.6	30.0 - 44.0	15.5 - 23.1
	240 - 400	CSJR-12D/1XU-1XU-M	25.7 - 33.6	33.0 - 45.0	17.8 - 24.6
	500	CSJR-12E/1XU-1XU-M1	34.4 - 36.2	43.0 - 48.0	25.7 - 27.6
	630	CSJR-12E/1XU-1XU-M2	38.0 - 40.0	47.0 - 52.0	29.3 - 32.5
24 kV	35 - 150	CSJR-24B/1XU-1XU-M	18.9 - 28.5	26.0 - 39.0	6.8 - 19.2
	95 - 240	CSJR-24C/1XU-1XU-M1	23.5 - 32.6	30.0 - 44.0	11.0 - 19.2
	120 - 300	CSJR-24C/1XU-1XU-M2	24.3 - 34.6	32.0 - 46.0	12.5 - 21.6
	185 - 400	CSJR-24D/1XU-1XU-M	27.4 - 37.8	35.0 - 49.0	15.5 - 24.6
	500	CSJR-24E/1XU-1XU-M1	37.9 - 40.6	46.0 - 52.0	25.7 - 27.6
	630	CSJR-24E/1XU-1XU-M2	41.0 - 44.0	56.0 - 57.0	29.3 - 32.5
36 kV	95 - 240	CSJR-36D/1XU-1XU-M	27.8 - 37.6	35.0 - 48.0	11.0 - 19.2
	240 - 400	CSJR-36E/1XU-1XU-M1	34.9 - 42.8	42.0 - 54.0	17.8 - 24.6
	500	CSJR-36E/1XU-1XU-M2	42.6 - 45.6	51.0 - 57.0	25.7 - 27.6
	630	CSJR-36E/1XU-1XU-M3	45.8 - 49.2	56.0 - 61.0	29.3 - 32.5

* The application range given in the table is based on polymeric insulated cables according to IEC 60502 with stranded circular conductors.

Due to different conductor dimensions and/or cable constructions the minimum and maximum application range may be extendable. Please contact your local sales representative.

** The diameter over conductor is needed only for kits including Tyco Electronics BSM connectors. The values given in the selection table refer to aluminium circular conductors and may change for other materials and shapes.

CSJH joint without connector

	Application range* [mm ²]	Kit description	Diameter over core insulation [mm]	Diameter over outer sheath [mm]	Admissible connector dimensions Max. length [mm]	Max. dia. [mm]
12 kV	95 - 240	CSJH-12B/1XU-1XU	18.6 - 28.4	26.0 - 39.0	145.0	33.0
	185 - 300	CSJH-12C/1XU-1XU	23.2 - 32.6	30.0 - 44.0	145.0	37.0
	240 - 400	CSJH-12D/1XU-1XU	25.7 - 33.6	33.0 - 45.0	170.0	42.0
	500 - 800	CSJH-12E/1XU-1XU	34.4 - 42.2	43.0 - 58.0	200.0	45.0
24 kV	35 - 185	CSJH-24B/1XU-1XU	18.9 - 30.1	26.0 - 41.0	145.0	33.0
	95 - 300	CSJH-24C/1XU-1XU	23.5 - 34.6	30.0 - 46.0	145.0	37.0
	185 - 400	CSJH-24D/1XU-1XU	27.4 - 37.8	35.0 - 49.0	170.0	42.0
	400 - 630	CSJH-24E/1XU-1XU	35.1 - 44.0	43.0 - 57.0	200.0	45.0
	800 - 1000	CSJH-24F/1XU-1XU	43.9 - 53.2	58.5 - 67.0	200.0	50.0
36 kV	70 - 240	CSJH-36D/1XU-1XU	26.2 - 37.6	34.0 - 48.0	140.0	33.0
	240 - 630	CSJH-36E/1XU-1XU	34.9 - 49.2	42.0 - 61.0	200.0	50.0
	500 - 800	CSJH-36F/1XU-1XU	42.6 - 53.4	51.0 - 66.0	200.0	50.0

CSJH joint with mechanical connector

	Application range* [mm ²]	Kit description	Diameter over core insulation [mm]	Diameter over outer sheath [mm]	Diameter over conductor ** [mm]
12 kV	95 - 240	CSJH-12B/1XU-1XU-M	18.6 - 28.4	26.0 - 39.0	11.0 - 19.2
	185 - 300	CSJH-12C/1XU-1XU-M	23.2 - 32.6	30.0 - 44.0	15.5 - 23.1
	240 - 400	CSJH-12D/1XU-1XU-M	25.7 - 33.6	33.0 - 45.0	17.8 - 24.6
	500	CSJH-12E/1XU-1XU-M1	34.4 - 36.2	43.0 - 48.0	25.7 - 27.6
	630	CSJH-12E/1XU-1XU-M2	38.0 - 40.0	47.0 - 52.0	29.3 - 32.5
24 kV	35 - 150	CSJH-24B/1XU-1XU-M	18.9 - 28.5	26.0 - 39.0	6.8 - 19.2
	95 - 240	CSJH-24C/1XU-1XU-M1	23.5 - 32.6	30.0 - 44.0	11.0 - 19.2
	120 - 300	CSJH-24C/1XU-1XU-M2	24.3 - 34.6	32.0 - 46.0	12.5 - 21.6
	185 - 400	CSJH-24D/1XU-1XU-M	27.4 - 37.8	35.0 - 49.0	15.5 - 24.6
	500	CSJH-24E/1XU-1XU-M1	37.9 - 40.6	46.0 - 52.0	25.7 - 27.6
	630	CSJH-24E/1XU-1XU-M2	41.0 - 44.0	56.0 - 57.0	29.3 - 32.5
36 kV	95 - 240	CSJH-36D/1XU-1XU-M	27.8 - 37.6	35.0 - 48.0	11.0 - 19.2
	240 - 400	CSJH-36E/1XU-1XU-M1	34.9 - 42.8	42.0 - 54.0	17.8 - 24.6
	500	CSJH-36E/1XU-1XU-M2	42.6 - 45.6	51.0 - 57.0	25.7 - 27.6
	630	CSJH-36E/1XU-1XU-M3	45.8 - 49.2	56.0 - 61.0	29.3 - 32.5

* The application range given in the table is based on polymeric insulated cables according to IEC 60502 with stranded circular conductors.
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All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale. Raychem, TE Logo and Tyco Electronics are trademarks.

Energy Division - economical solutions for the electrical power industry: cable accessories, connectors & fittings, electrical equipment, instruments, lighting controls, insulators & insulation enhancement and surge arresters.

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