

3M Science.
Applied to Life.™

3M™ Cold Shrink High Voltage Cable Accessories for
132kV / 145kV Applications

Cold Shrink Technology: Applied to taking the heat out of cable installations.



Cold Shrink Technology: Applied to taking the heat out of cable installations

Our cold shrink technology revolutionised the power industry by taking the heat out of low to medium voltage cable installations. Nearly 40 years later, this proven technology continues to innovate and is now available for high voltage applications up to 145kV as well as underground cable installations.

3M™ Cold Shrink Termination Kits and Joint Kits have been engineered for safe, fast, economical installation without using special tools, sealants, adhesives, torches or other heat sources. Once installed, the cold shrink component creates a dynamic, compressed environmental seal and electrical interface that is resistant to ultra-violet radiation, ozone and industry-approved cable cleaners. So, for dependable, trouble-free performance, look no further.

3M™ Cold Shrink Inline Joint SC/SS-145 for cables up to 145kV

Description

Kits are available with or without shield break for cross bonding. All inline joint kits are based on the SC/SS 145-II joint body family.

One-piece, cold shrink silicone rubber joint for in-line and cross bond applications with different re-jacketing and earthing options.

Applications

- Application range from 240mm² up to 1600mm²
- In-line and cross bond design available

Features

- One piece silicone rubber cold shrink joint body
- Shear bolt connector included (optional crimp connector)
- Connectors for round compacted or round segmented conductor available
- Flexible design accommodates different shielding and cable re-jacketing systems
- No special tools required
- Short installation length
- No parking positioning required
- Kit covers a wide range of cable sizes

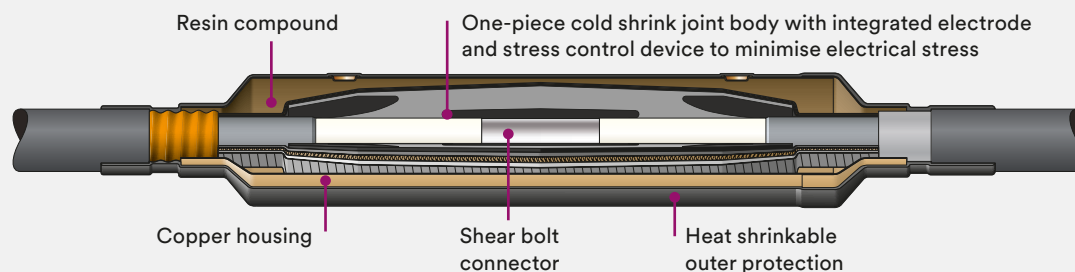
Optional

- Re-jacketing with cold shrink, heat shrink or resin-filled enclosure
- Metal housing (optional)
- Link boxes for a variety of grounding systems

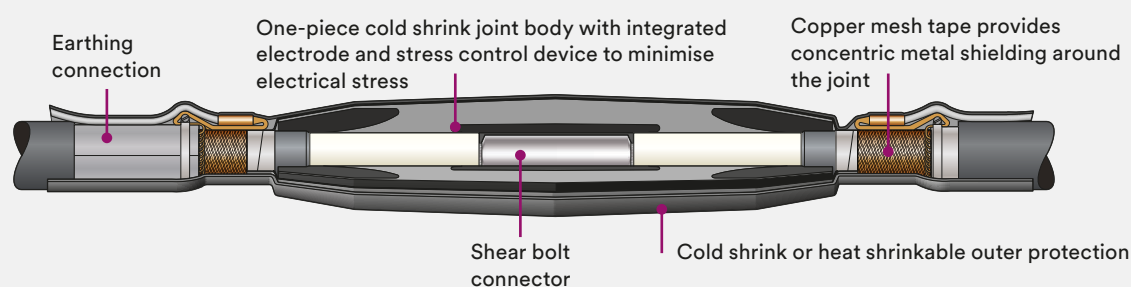
Available Grounding Systems

- Removable links
- Surge voltage limiters (SVL)
- Cross bond boxes

3M™ Cold Shrink Joint SS-II with an in-line configuration, copper housing and heat shrink re-jacketing



3M™ Cold Shrink Joint SC-II with a cross bond configuration and cold shrink or heat shrink jacket



3M™ Outdoor Self Supporting Termination with Composite Insulator TS 145-II for up to 145kV applications

Description

Designed for polymeric insulated cables up to 145kV. All outdoor termination kits are based on the TS 145-II termination family.

Applications

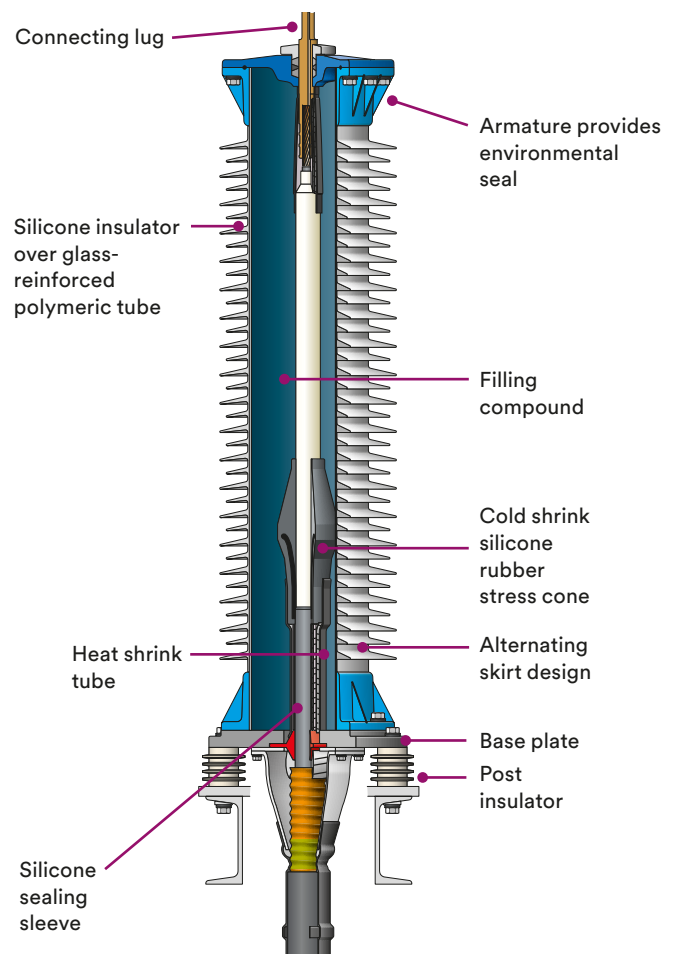
- For indoor and outdoor applications with self supporting functionality up to 145kV
- Application range from 240mm² up to 1600mm²
- Maximum installation angle of 30°

Features

- One-piece pre-molded cold shrink silicone stress cone for safe and quick installation
- Light-weight construction, approximately 1/3 the weight of most porcelain terminations
- Easier handling, transportation and installation than a porcelain insulator
- Hydrophobic silicone materials provide excellent environmental performance
- Smooth surface enables self-cleaning properties
- Less sensitive to earthquakes, vibrations and thermal variations
- Internal shear bolt connection option eliminates need for crimp-type connections
- No special tools required
- One kit covers a wide range of cable sizes
- Alternating skirts
- Shelf life: loaded stress cone 18 months, other components 36 months

Optional

- Arcing horns
- Variety of lengths available
- Available with porcelain insulator upon request (TP-II)



Certification & Selection Guide for 3M™ Cold Shrink Terminations and Joints

Product	Dry Termination	Silicone Wet Termination	In-Line Joint	Cross Bond Joint
IEEE 115 kV	TD-II 115	TS-II 115	SS-II 115	SC-II 115
IEC 123 kV	TD-II 123	TS-II 123	SS-II 123	SC-II 123
IEEE 138 kV		TS-II 138	SS-II 138	SC-II 138
IEC 145 kV		TS-II 145	SS-II 145	SC-II 145
Applicable Certifications	IEC 60840	IEC 60840	IEC 60840	IEC 60840

To determine the appropriate kit for your intended application, please submit your cable specifications to 3M.

Cable Preparation

The right tools for cable preparation and installation are essential to ensure long-term reliability of the network. 3M is available to discuss the appropriate standard and special tools required for your installation.

These tools are recommended to prepare the cable for all installations:

- Straightening bar, angle-type
- Heating sleeve with temperature control unit
- Roll-type peeling device
 - SH 80: for cables with max diameter over outer semicon of 80 mm
 - SH 130: for cables with max diameter over outer semicon of 130 mm



We're with you in the trenches:

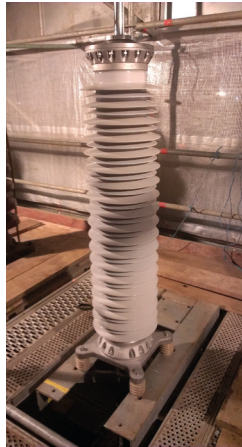
Even the most innovative technology will have little benefit, unless it is matched to the application and correctly applied. That's why all 3M cable accessories are backed by global and local networks of technical support, sales and supply chain specialists.

Training

3M offers hands-on training courses to experienced HV Cable Jointers.

This can be carried out at an approved training school or on-site during the cable installation.

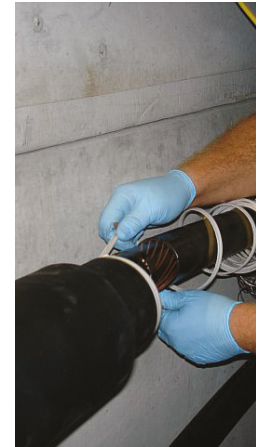
On completion of the training you will receive a 3M HV Cable Accessories Certification which will be valid for a period of two years.



Supervision

3M offers site supervision for every installation. Our experienced Technical Engineers will be on hand to provide support and guidance before, during and after the installation. This will ensure the accessories are installed in accordance with our instructions and give newly trained jointers peace of mind knowing we will be on hand.

This is the kind of service you can come to expect from 3M accessory installations after training.



A History of Cold Shrink Technology Innovation

1971

3M™ Pre-Stretched Tube – for insulating buried low-voltage secondary joints and for protecting mining cable joints

1972

First medium-voltage termination – 3M™ Termination QTM – includes slide-on stress cone and cold shrink silicone skirts

1993

3M™ Joint QS-2000 – first medium-voltage cold shrink joint

1997

3M™ Joint QS-III – a one-piece joint with wide range and geometric stress control

2009

3M™ High Voltage Joint QS-III for 69/72,5 kV underground applications



1968

3M researchers invent cold shrink technology and perfect the removable core. 40 years of industry-changing "firsts" follow

1977

3M™ Medium Voltage Termination QT-II – an all-cold shrink termination with silicone insulator and high-K stress control

1996

3M™ Medium Voltage Termination QT-III – termination integrated with built-in environmental seal and mastic

2005

3M™ High Voltage Termination QT-III for 69/72,5kV pole- and pad-mounted applications

2010

3M™ High Voltage Joints and Terminations for up to 145kV applications

3M™ Joint QS-1000 – joint for 15kV with stress relief built into insulation material

Important Notice

All cross sectional drawings represent typical product construction, installation materials may vary. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

Warranty; Limited Remedy; Limited Liability.

3M's product warranty is stated in its Product Literature available upon request. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. User is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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