

3M[™] Cold Shrink High Voltage Cable Accessories for 72.5 kV Applications

Enhance grid reliability in an evolving landscape.

Efficient, reliable 3M Cold Shrink Technology for renewable energy.

As the world transitions towards clean energy to help reduce the reliance on fossil fuels, we're seeing an increased demand for electricity. The shift toward higher voltage classes, an increasing need for reliable power transit solutions and a willingness to bury grids in response to climate change all require faster and easier installation of cable joints and terminations without compromising reliability. With a long-standing history of providing reliable solutions, 3M Cold Shrink Technology can help meet these challenges. The benefits of 3M[™] Cold Shrink Products go beyond long-lasting and reliable performance:

- Fast and easy installation process—no heat or special tools required
- Ideal for installation in the field, even in harsh weather conditions
- Provides excellent electrical insulation
- Protects against environmental factors such as moisture and UV radiation

50+ years of cold shrink technology expertise.

Since inventing the first cold shrink pre-stretched tube (PST) in the early 1970s, 3M has developed power cable accessories for:

- Various voltage classes
- Different applications, including joints, branch joints, transition joints, terminations and sensored terminations
- Different markets, including electric power utilities, railways or renewables

Cold shrink technology offers great benefits for high voltage cable accessories and paves the way for more innovation to cover all cable sizes and voltage classes.





Cold Shrink: A great match for high voltage.

There are various technologies available for terminations, including self-supportive terminations filled with a dielectric fluid and non-self-supportive terminations made from technologies such as slip-on or push-on, heat shrink and cold shrink.

The 72.5 kV voltage class can be seen as an extension of medium voltage applications where cold shrink technology serves as an excellent solution due to its ease of application and reliability. Cold shrink accessories and mechanical connectors require no special tools to install, making the technology a perfect choice for terminations in the energy industry.

3M[™] Cold Shrink Joint maintains an active seal through thermal cycles without losing pressure.

- Provides constant, inward pressure
- Allows for expansion and contraction after installation
- Provides a pressure seal, no adhesives needed
- Results in improved electrical performance due to higher interfacial pressure



The benefits of 3M Cold Shrink Technology vs. heat shrink technology:

Reliability

- Easy installation process; no push-on force required
- No specific tools required for accessory installation
- Design limits the risk of installation mistakes
- No use of flame, less need for polishing and exposure to dust

Larger Range Taking

- Cold shrink technology allows for larger coverage with one accessory
- Use of screw connectors with larger range taking

Reduced Time

• Quicker installation can lead to reduced labour costs

Robust Design

• Constant inward pressure creates a "living seal"

Manufacturing Quality

- Pre-moulded bodies
- Splice bodies are 100% factory tested with alternating current (AC) test/partial discharge (PD)

3M[™] Cold Shrink Termination Kits: Engineered for fast, economical installation.

3M[™] Cold Shrink Termination Kits contain what you need to terminate 69/72.5 kV class termination, either for solid dielectric copper wire screen cables or for lead sheathed cables. Kits can be created to meet your specific requirements to include mounting, connecting and earthing hardware.

These terminations are lightweight and require no special tools or torch. Design limits the risk of installation mistakes.

3M[™] Cold Shrink QTEN Terminations for 69/72.5 kV meet or exceed the requirements of Institute of Electrical and Electronics Engineers (IEEE) Std. 48-2009, table 1A and International Electrotechnical Commission (IEC) 60840.

The QTEN offers a unique High-K adapter that reduces surface stress, allowing for a more compact termination. It also provides large cross sectional coverage up to 1600 mm².



Product Features

- Versatile design of the silicone cold shrink termination body allows installation on a wide range of cable sizes and types, and a fast and easy installation at temperatures ranging from -20°C/-4°F to +50°C/122°F
- No heat, flame or special tools are needed during termination body installation
- Accommodates crimp or mechanical lugs up to 90 mm in diameter
- Wide application range covering several cable cross sectional areas from 120 mm² –1600 mm²
- Solderless earth connection by means of connection to copper screen wires or lead sheath
- Thick walled, silicone rubber cold shrink outer rain sheds and sealing PST's provide physical protection and moisture sealing of the completed termination



3M[™] Cold Shrink QTEN Termination Kit Portfolio

Kit Contents

The QTEN Termination includes a cold shrink body with integrated silicone elastomeric insulation and outer silicone rain sheds, with a separate cold shrink stress control PST. Also included are silicone cold shrink PSTs for bottom and top lug sealing. The inner refractive stress control layer and the silicone insulation layer are co-extruded during the manufacturing process. The termination is designed to accommodate all available cable lug designs, including hexagonal or deep indent crimping technologies and a wide variety of mechanical shear-off connecting technologies.

SAP ID	Kit reference	Cross section (mm²)	Diameter over cable jacket (mm)	Diameter over primary insulation (mm)	Lug-max diameter (mm)	Lug included	Shielding type
7100230584	QTEN 96-EP 720-2	120–1000	90	33.0-60.0	90	No	Copper Wire Screen
7100206947	QTEN 96-EP 721-2	630–800 solid	90	33.0-60.0	70	Yes	Copper Wire Screen
7100206948	QTEN 96-EP 722-2	120–1000	90	33.0-60.0	90	No	Lead Sheath
7100206926	QTEN 96-EP 725-2*	120–1000	90	33.0-60.0	90	No	Copper Wire Screen
7100154720	QTEN 96-EP 730-2	630–1600	110	51.1-87.0	110	No	Copper Wire Screen
7100154729	QTEN 96-EP 732-2	630–1600	110	51.1-87.0	110	No	Lead Sheath

Minimum Order Quantity = 1

*This termination body contains 10 skirts.

3M[™] Cold Shrink QS3000 Joint Kits: Engineered for dependable, trouble-free performance.

QS3000 Joint Kits are easy to install, feature a reliable design and offer a full size range from 150 mm² to 1600 mm². These Cold Shrink QS3000 Joint Kits contain a 72.5 kV (IEC) class joint for connecting copper wire screen or lead sheathed cables.

The cold shrink joint body consists of a one-piece moulded design made of silicone rubber, while the cold shrink rejacketing is made of ethylene propylene diene monomer (EPDM) rubber for physical and sealing protection.

The QS3000 joint bodies for 72.5 kV Umax are fully tested according to IEC 60840.

Product Features

- One-piece silicone rubber joint body for 72.5 kV
- Each joint body is 100% factory tested for greater reliability
- No special tools required
- Application range cross sections from 150 mm² to 1600 mm² (insulation diameter range 35.9 mm–74.0 mm)

Full Range 3M[™] Cold Shrink QS3000 Joint





3M[™] Cold Shrink QS3000 Joint Kit Portfolio

Kit Contents

The joint kit includes 3M[™] Cold Shrink QS3000 Silicone splice body with integrated stress control device, conductive electrode, silicone elastomer insulation and outer semi-conductive layer. Also included are a copper screen sleeve, constant force springs and thick walled EPDM rubber cold shrink outer tubes to re-build the cable outer jacket.

Minimum Order Quantity = 1

SAP ID	Kit reference	Cross section (mm²)	Diameter over cable jacket (mm)	Diameter over primary insulation (mm)	Earth screen cross section (mm²)	Connector included
7100260823	AD-72XA1-20-N-50C	150–630 (800 solid)	65	35.9-56.2	50	No
7100259033	AD-72XB1-20-N-150C	150–630 (800 solid)	65	35.9-56.2	150	No
7100259034	AD-72XA1-20-SP1-50C	300–630 (800 solid)	65	35.9-56.2	50	Yes
7100260822	AD-72XB1-20-SP1-150C	300–630 (800 solid)	65	35.9-56.2	150	Yes
7100278365	AD-72XA1-30-N-50C	630–1600	100	54.0-74.0	50	No
7100290896	AD-72XB1-30-N-150C	630–1600	100	54.0-74.0	150	No
7100277047	AD-72XA1-30-SP2-50C	630-800 (1000 solid)	100	54.0-66.0	50	Yes
7100303495	AD-72XB1-30-SP2-150C	630-800 (1000 solid)	100	54.0-66.0	150	Yes
7100297908	AD-72XA1-30-SP3-50C	800–1000	100	54.0-71.0	50	Yes
7100264414	AD-72XB1-30-SP3-150C	800–1000	100	54.0-71.0	150	Yes

As cable accessory experts, we can help you make the change to 3M Cold Shrink Technology.

Even the most advanced technology needs to be matched to the application and correctly installed. Experts from 3M are available to suggest options for you to evaluate and help select a solution optimized for your requirements.



For over 50 years, 3M has been providing dependable solutions for low and medium voltage installations.



All 3M high voltage cable accessories are backed by a global network of technical support, sales and supply chain specialists.

> Offering more than high voltage cable accessories, 3M provides reliable solutions with a consistent track record around the globe. Every pre-moulded component (joint body and stress cone) is 100% electrical factory tested and every solution is backed by the strong reputation 3M commands in the industry. Work with a partner you can trust as you

As the voltage class increases, so do the challenges faced on the job site.



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