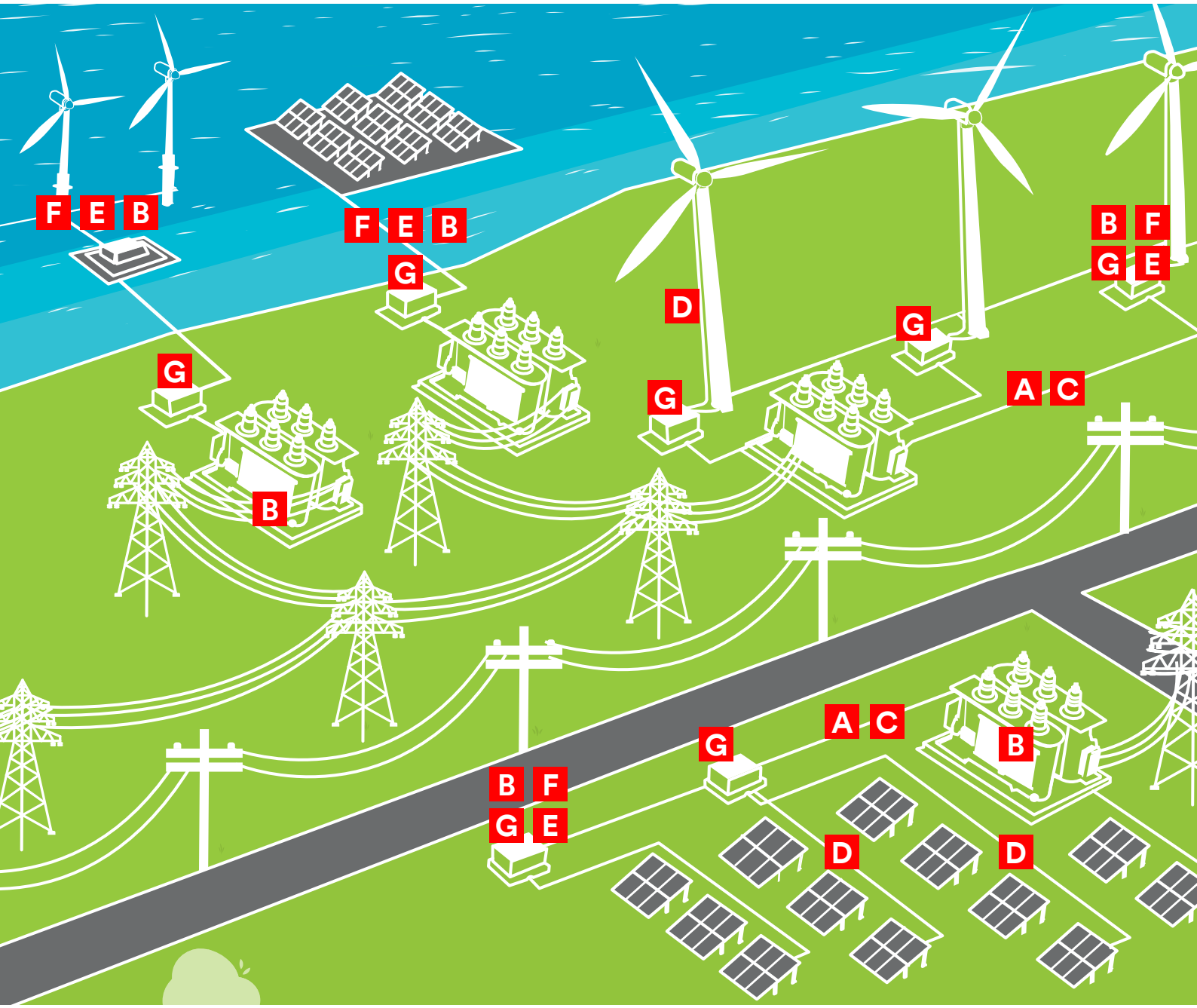
3M Science. Applied to Life.™

Renewable Energy Electrical Installations

Reliable solutions for your renewable electrical system installations.

From start to finish, 3M provides reliable insulation, connection and termination solutions to help you solve your challenging electrical installations for wind farms, solar farms and battery energy storage systems.

Well-functioning and reliable electrical installations are crucial for the efficient use of renewable energy sources. With your energy circuits running to the limit, reducing downtime is very important. That's why 3M provides easy-to-install, reliable electrical Low, Medium & High Voltage Solutions to help you meet your needs. We can collaborate with you to provide strong technical support, training and customized product kits to help you keep your system running.



Power Cable Accessories

Easy-to-install, reliable solutions.

A

3M™ Cold Shrink Medium Voltage splice kit QS200 12-36 kV

Designed from the ground up, these medium voltage splices are one of the pinnacles of 3M's performance, quality and reliability these kits are used with 1-core and 3-core cables, armored or non armored. No special tools, torches or other heat sources needed.

B

3M™ Cold Shrink QT-II Termination Kit 12-36 kV

3M™ Cold Shrink Medium Voltage Termination QT-II is designed using a unique Cold Shrink delivery system. Products are supplied pre-stretched on a removable core for efficiency and ease of installation. Electrical field control device pre-installed in the insulation body help to avoid complexity during the installation. The specific properties of the insulating silicon body allow to terminate wide range of cable cross sections. 3M™ MV termination kits are available both with and without mechanical lugs included.

3M™ Cold Shrink QT-III Termination Kit 12-36 kV

3M™ QT-III Termination is a further development of the QT-II. It has similar functionality but offers additional advantages for the end user. The main advantages of the QT-III Termination are that it contain fewer individual components. This eliminates time-consuming installation steps, which leads to fewer chances of error.

C

3M™ Separable Connector Kit 12-36 kV

The Separable Connector is used to establish the connection between the cable and switchgear, transformer or other equipment. Products are moulded using high quality EPDM and sold in packs of 3 phases and they come with stress control element, earthing set, mechanical cable lug and assembly instructions. The straight, elbow and T-plug connectors cover a wide range of cable cross sections. All kits are fully type tested to Cenelec HD 629.1 (DIN VDE 0278).

D

3M™ Cold Shrink Connector Insulators 1000 V

3M™ Cold Shrink Connector Insulators are useful as primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 1000 V, both indoor and outdoor. They are often good in providing physical protection and environmental sealing for communication and other non-electrical applications, including sheath repairs. Operating temperature range is -40°C to 90°C. In applications where the product is continuously exposed to UV radiation it is good to overwrap with e.g. Scotch® Super 33+™ Vinyl Electrical Tape or Scotch® Self-Fusing Silicone Rubber Electrical Tape 70.

Power Cable Accessories

Easy-to-install, reliable solutions.

E

3M™ Cold Shrink High Voltage Splice kit QS3000 72.5 kV

3M™ Cold Shrink High Voltage Splice QS3000 Series Kits are designed for inline splicing up to 72.5 kV Umax Voltage class, 1-core XLPE Crossed Linked Polyethylene cables systems with copper wire screen, lead sheath or aluminium sheath according to IEC 60840.

F

Cold Shrink High Voltage Termination kit QTEN Series 72.5 kV

3M™ Cold Shrink High Voltage Termination QTEN Series Kits. 1-core copper wire, lead sheath or aluminium sheath screened cables. The product options cover power cables up to 2500 mm² in size. The QTEN series, is designed for XLPE Crossed Linked Polyethylene cables up to 72.5 kV (U_max) according to IEC 60840. The kit includes silicone Cold Shrink body with integrated silicone rain sheds with a separate Cold Shrink stress control tube. Silicone Cold Shrink tubes are included to seal on cable lug and cable sheath. The creepage current collector is included for a defined earth potential at the end of the rain sheds.

G

3M™ Sensored Cable Accessories (SCA)

3M™ Sensored Cable Accessories (SCA) are Medium voltage cable accessories including accurate current and voltage sensors to support the grid automation. It provides high accuracy voltage, current and phase angle with real time measurements when connected to secondary equipment, like RTUs or protection relays, at the medium voltage secondary substation. Moreover with a capacitive voltage sensor, the accessories provide reliable measurements over a wide temperature range and capable to capture up to the 50th harmonic (2500 Hz), offering a unique way to measure key parameters on the grid for use in prominent use-cases such as Real time monitoring, Fault detection and location, Voltage regulation and volt-var optimisation, Power quality management and Asset health.

Other solutions:

3M™ Locating and Marking System

3M™ Locators and Markers provide a complete system for locating, marking and mapping vital underground assets.

From markers that give an exact path and estimated depth of underground utilities, to markers that store information, to utility locators that interface with GPS/GIS field mapping instruments, 3M offers the precision tools needed to manage your assets.

3M™ Path Marking Tape

3M™ EMS and iD Ball Marker

3M™ Dynatel™ Locator XE Series

Cable Jacket Repair

Scotch® Cable Jacket Repair Tape

3M™ Heat Shrink Tubing HDCW

Other Supplies

Vinyl Electrical Tape

Rubber Electrical Tape

3M™ Scotchflex™ Cable Tie

Cold Shrink vs. Heat Shrink

Safety:

Cold shrink does not carry the same safety concerns as heat shrink, which sometimes requires shutting down a facility before an installation to minimize the danger of explosions from combustible gases.

Time Saving:

Cold shrink kits have minimal parts, which means fewer installation steps. This helps minimize the chance for errors and reduces installation time, resulting in low failure rates. Heat shrink torches require a hot work permit, which further increases the time and cost of each installation.

Installation:

Cold shrink offers consistent installation, independent of physical location. The cold shrink cord design allows for easy application. There are no special tools or heat sources required, which can be an advantage when installing in tight places such as switchgear and joint bay/excavation, or in inclement weather conditions.

Electrical Performance:

Silicone cold shrink is UV resistant, water repellent, and chemical resistant, which help contribute to low failure rates. 3M's cold shrink splices produced failure rates of 0.067% and 0.022% for cold shrink terminations in a 2013 study*.

*Source: Based upon U.S. failure data of U.S. manufactured 3M Cold Shrink Medium Voltage Cable Accessories between 2009 and 2012.

Wherever the job takes you, we have your solution.

Making and maintaining industrial electrical systems is a critical portion of our customers' job. Our goal is to offer high-quality, reliable, easy to install products for connecting, terminating, insulating and sealing electrical connections.

From start to finish, 3M and our channel partners provide the solutions needed to help simplify electrical installation while maintaining reliability. With our technical support, custom kits, and various training options, we help our customers save money, keep their projects on schedule, and get the job done.

We have the expertise to support electrical solutions in key market segments such as:

Product Selection and Use: 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. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE. If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price. Warranty claims must be made within one (1) year from the date of 3M's shipment.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by applicable law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: 3M industrial and occupational products are intended, labelled, and packaged for sale to trained industrial and occupational customers for workplace use. Unless specifically stated otherwise on the applicable product packaging or literature, these products are not intended, labelled, or packaged for sale to or use by consumers (e.g., for home, personal, primary or secondary school, recreational/sporting, or other uses not described in the applicable product packaging or literature), and must be selected and used in compliance with applicable health and safety regulations and standards (e.g., U.S. OSHA, ANSI), as well as all product literature, user instructions, warnings, and limitations, and the user must take any action required under any recall, field action or other product use notice. Misuse of 3M industrial and occupational products may result in injury, sickness, or death. For help with product selection and use, consult your on-site safety professional, industrial hygienist, or other subject matter expert. For additional product information, visit www.3M.com.

Contact us at:
www.3M.co.uk/electrical

3M United Kingdom PLC
3M Centre
Cain Road, Bracknell
Berkshire RG12 8HT
www.3m.co.uk

3M Ireland Limited
The Iveagh Building
Carrickmines Park,
Carrickmines, Dublin 18
www.3mireland.ie

3M a/s
Hannemanns Allé 53
DK-2300 København S
Denmark
www.3mdanmark.dk

Suomen 3M Oy
Keilaniementie 1
02150 ESPOO
PL 600, 02151 ESPOO
puh. 09 525 21 Finland
www.3msuomi.fi

3M Norge AS
Tærudgata 16
2004 Lillestrøm
Norway
www.3mnorge.no

3M Svenska AB
Herrjärvatorg 4
170 67 Solna
Sweden
www.3msverige.se