

3M™ Cold Shrink Low Voltage Solutions for the Industrial Market



3M *Innovation*

You're in a demanding industry.

To be successful, you need a wide range of reliable products designed to effectively manage your daily processes.

You need a supplier with a solid understanding of your industry and the technology that drives it.

Quite simply, you need 3M.

Our Electrical Products Division designs and manufactures a comprehensive line of products that can address your diverse applications. widely recognized for our innovation, reliability and global corporate strength, 3M has the products and services you need and the name you trust.

Discover 3M Low Voltage Cold Shrink Solutions

Your reputation and revenues depend on the quality of your work. When you complete a job you want assurance that every connection you make is correctly sealed and insulated to provide long term protection. 3M makes the products you need for that peace of mind.

Over 25 years ago, 3M pioneered cold shrink technology. Since then, field use and laboratory analysis have repeatedly proven its merits and reliability. Through constant innovation, we have refined cold shrink products making them better than ever. They're easier to apply and built to withstand extreme environmental conditions. Enhanced performance at a lower installed cost continue to make 3M the preferred choice for cold shrink solutions.

Cold shrink splicing products are designed using 3M's unique cold shrink delivery system. Products are supplied pre-stretched on a removable core for efficiency and ease of installation. Removal of the core (unwind) after positioning the splice allows the product to shrink into position forming a moisture-tight seal. The live memory action of the specially formulated material ensures a permanent, durable environmental seal and insulation.

Discover how quality 3M products can solve your most common sealing and insulating applications.

3M™ Cold Shrink 8420 and 8440 Series

Splices for 1kV

3M 8420 and 8440 Series Cold Shrink Tubes are open-ended, rubber sleeves which are factory expanded and assembled onto removable plastic cores. The core is removed after the tube has been positioned for installation over an inline connection, coupling, or termination; allowing the tube to shrink and form a water-resistant seal. The tube is made from EPDM or silicone rubber. Originally developed for insulation applications in the electric utility industry, 3M Cold Shrink Tubes can be used in a variety of industrial, communications, transportation, military and commercial applications.

8420-EPDM Rubber and 8440 Silicone Rubber Cold Shrink Tubes

Features

- Simple, safe installation, requires no tools or special training.
- Accommodates a wide range of cable, wire, conduit and hose diameters.
- No torches or heat required.
- Good thermal stability.
- Seals tight, retains its resiliency and pressure even after prolonged years of aging and exposure.
- Excellent wet electrical properties.
- Improved, tougher rubber formulation provides a highly flexible "living" seal.
- Water-resistant. Meets the water seal requirements of ANSI C119.1.
- Seals without mastic, tape or adhesives.
- Resistant to fungus, ozone, alkalis and acids.
- Easily removed for required disconnects or inspections.

Cold Shrink

3M™ CPT Series Corrosion Protection Kits



8 A mastic strip fills the exposed threads to enhance the environmental seal



9 Addition of the cold shrink tubing forces the mastic into the threads and provides overall corrosion protection.

3M™ CPT Series Cold Shrink Corrosion Protection Kits are designed to provide a quick and easy method for protecting bulkhead termination connectors from the corrosive influences of wet and salt-fog installation environments.

A CPT series assembly is an open-ended tubular rubber sleeve which is factory expanded and assembled onto a removable core. The core is removed after the assembly has been positioned for installation over a bulkhead terminator connector. Mastic strips are provided for sealing between NPT fitting threads and the enclosure in use (junction box, cabinet, panel board, etc.). CPT insulating sleeves are made of an EPDM rubber that contains no chlorides or sulfurs. Ten kits accommodate 1/2" through 4" bulkhead connectors.

To extend the useful life of this product in applications where continuous exposure to high levels of ultra-violet radiation are expected, overwrap with Scotch™ Super 33+ or Scotch™ 70 Silicone Tape.

Features

- Simple installation, requires no tools
- Accommodates a wide range of connectors and
- No torches or heat required
- Good thermal stability
- Seals tight; retains it's resiliency and pressure after prolonged years of aging and exposure
- Excellent wet electrical properties
- Salt spray resistant. Meets requirements of ASTM B287, in a 5% salt solution with a 3.0–3.1 pH
- Water-resistant. Meets the water seal requirements of ANSI C119.1
- Resists fungus
- Resists acids, alkalies and ozone



10 CPT kits are designed to fit metal clad jacketed cable connectors. (See connector cross reference chart on next page)

CPT Series Corrosion Protection Kit Sizing Guide

Product Number (NPT size)	Cable O.D. (Minimum)	Connector	
		Maximum O.D.	Maximum Installed Length
CPT-1/2	0.50" (13 mm)	1.60 (41 mm)	4.50" (114 mm)
CPT-3/4	0.66" (17 mm)	1.90" (48 mm)	4.80" (122 mm)
CPT-1	0.66" (17 mm)	2.20" (56 mm)	4.80" (122 mm)
CPT-1 1/4	1.22" (31 mm)	2.65" (67 mm)	4.80" (122 mm)
CPT-1 1/2	1.40" (36 mm)	3.00" (76 mm)	5.50" (140 mm)
CPT-2	1.68" (43 mm)	3.60" (91 mm)	6.50" (165 mm)
CPT-2 1/2	1.97" (50 mm)	4.30" (109 mm)	8.50" (215 mm)
CPT-3	2.60" (66mm)	5.40" (137 mm)	8.50" (215 mm)
CPT-3 1/2	2.90" (74 mm)	6.00" (152 mm)	10.0" (254 mm)
CPT-4	2.90" (74 mm)	6.00" (152 mm)	10.5" (267 mm)

Solutions

3M™ 5300 Series Motor Lead Splice Kits



For easy identification, the preformed, slip-on rubber boot is now printed with 1kV or 5kV voltage ratings.

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Pigtail Splicing for 1000V (or less) and 5/8kV Shielded and Non-shielded Feeder Cables

3M Motor Lead Kits contain everything needed to quickly splice, seal and insulate copper lug connections of motor lead and feeder cables in one convenient kit. No special tools, torch or power source is needed. All splices are easily re-enterable for inspections and motor replacement.



From the quickly applied Scotch™ 2220 Stress Control Tape to the factory formed parts and Cold Shrink insulators, everything is designed for simple installation with long-term reliability.

Splices are easy to re-enter, simply by pulling off the boot or sleeve. Just a few sizes of these convenient kits are needed for most pigtail splicing. They will handle 14 AWG through 500 kcmil copper feeder cables.

Each kit contains:

- Three separately packaged splices with pre-formed, slip-on rubber boots
- Mastic sealing strips

Splicing Kits 5300 to 5304

Voltage Rating: Up to 1000V

Use with one-hole copper lugs

Ordering Information

Kit Number	Conductor Range		Motor Lead
	Feeder	AWG/kcmil (mm ²)	

Pigtail – 1000V

Kit Number	Feeder	AWG/kcmil (mm ²)	Motor Lead	AWG/kcmil (mm ²)
5300	14-10	(2,5-4)	16-12	(1,5-2,5)
5301	10-4	(6-16)	12-4	(4-16)
5302	2-1/0	(35-60)	4-1/0	(25-50)
5303	1/0-250	(70-120)	2-250	(35-120)
5304	250-500	(150-240)	4/0-500	(120-240)

Splicing Kits 5316 to 5319

Voltage Rating: Up to 5/8kV (Non-shielded)

Use with one or two-hole copper lugs

Ordering Information

Kit Number	Conductor Range		Motor Lead
	Feeder	AWG/kcmil (mm ²)	

Pigtail – 5/8 kv

Kit Number	Feeder	AWG/kcmil (mm ²)	Motor Lead	AWG/kcmil (mm ²)
5316	8-4	(10-16)	10-4	(6-16)
5317	2-1/0	(35-50)	4-1/0	(25-50)
5318	1/0 -250	(70-120)	2 -250	(35-120)
5319	250-500	(150-240)	4/0 -500	(120-240)

Splicing Kits 5321 to 5324

Voltage Rating: Up to 8kV (Shielded or Non-shielded)

Use with one or two-hole copper lugs

Ordering Information

Kit Number	Conductor Range		Motor Lead
	Feeder	AWG/kcmil (mm ²)	

Pigtail – 5/8kV

Kit Number	Feeder	AWG/kcmil (mm ²)	Motor Lead	AWG/kcmil (mm ²)
5321	8-4	(10-16)	10-4	(6-16)
5322	2-1/0	(35-50)	4-1/0	(25-50)
5323	1/0-250	(70-120)	2 -250	(35-120)
5324	250-500	(150-240)	4/0 -500	(120-240)

Motor Lead Replacement Kits for 5321 to 5324 Kits

Ordering Information

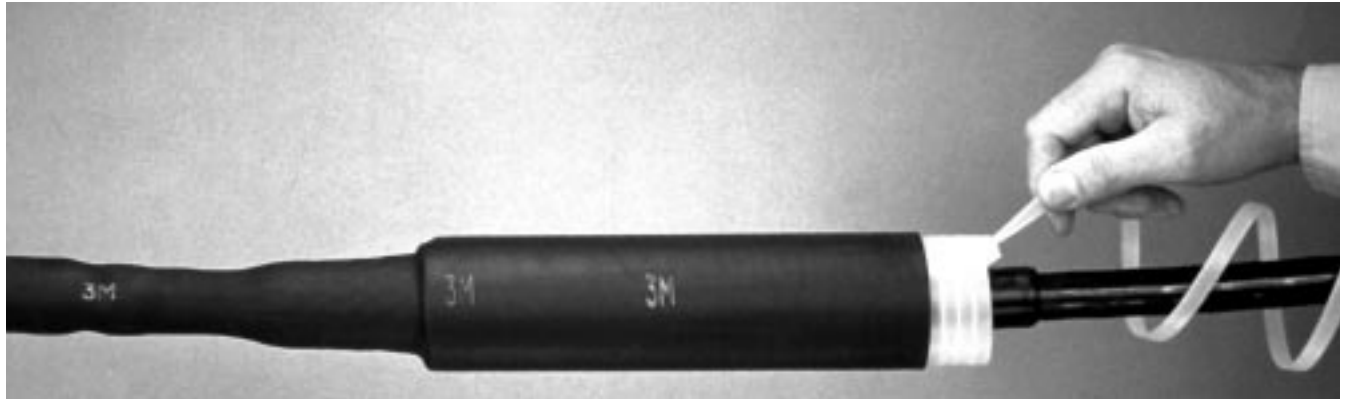
Original Kit No.	Replacement Tube
5321	MLRT-21
5322	MLRT-22
5323	MLRT-23
5324	MLRT-24

Motor lead replacement tubes are designed to allow for re-use of 3M 5320 series pigtail splicing kits.

Each kit contains:

- A cold shrink tube
- Mastic strips
- Rubber tape
- Silicone grease, which permits the reinstallation of the pigtail boots

Cold Shrink



Applications

- Primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 1000 volts
- Physical protection and moisture sealing for couplings, hoses, connectors, and terminal lugs
- Cable jacket and sheath repairs
- Environmental sealing for communication connectors and other non-electrical applications

- Repair of non-pressurized hoses and conduit
- Corrosion protection for fittings and couplings
- Resists ozone and ultraviolet light*
- Resists fire - will not support flame*
- Resists fluid splashes*
- Operating temperature range -66°F/ -55C to 500°F/260°C*

* 8440 Silicone Rubber Series only

3M EPDM Rubber Cold Shrink Tube Selection Table

Product Number	Conductor Size	Product Diameter Range (minimum - maximum)* inches (mm)	Relaxed Tube Length inches (mm)
8423-6	#6 - #4 AWG	0.31 - 0.56 (7,80 - 14,3)	6.0 (152)
8424-8**	#10 AWG - 1/0	0.10 - 0.82 (2,54 - 20,9)	8.0 (203)
8425-8	#2 AWG - 1/0	0.40 - 0.82 (10,1 - 20,9)	8.0 (203)
8426-9	2/0 - 250kcmil	0.55 - 1.18 (13,9 - 30,1)	9.0 (229)
8426-11	2/0 - 250kcmil	0.55 - 1.18 (13,9 - 30,1)	11.0 (279)
8427-6	—	0.67 - 1.38 (16,8 - 35,1)	6.0 (152)
8427-12	250 - 400kcmil	0.67 - 1.38 (16,8 - 35,1)	12.0 (305)
8427-16	250 - 400kcmil	0.67 - 1.38 (16,8 - 35,1)	16.0 (406)
8428-6	—	0.95 - 1.94 (24,0 - 49,3)	6.0 (152)
8428-12	500-800kcmil	0.95 - 1.94 (24,0 - 49,3)	12.0 (305)
8428-18	500-800kcmil	0.95 - 1.94 (24,0 - 49,3)	18.0 (457)
8429-6	—	1.27 - 2.67 (32,2 - 67,8)	6.0 (152)
8429-9	1000kcmil	1.27 - 2.67 (32,2 - 67,8)	9.0 (229)
8429-12	900-1000kcmil	1.27 - 2.67 (32,2 - 67,8)	12.0 (305)
8429-18	1000kcmil	1.27 - 2.67 (32,2 - 67,8)	18.0 (457)
8430-9	1250-2000kcmil	1.68 - 3.69 (42,6 - 93,7)	9.0 (229)
8430-18	1250-2000kcmil	1.68 - 3.69 (42,6 - 93,7)	18.0 (457)

* Minimum = Seal Diameter. Maximum = Connector Clearance Dimension

** Product contains range-extending adapters (Without adapters, 8424-8/8425-8 ranges are identical).

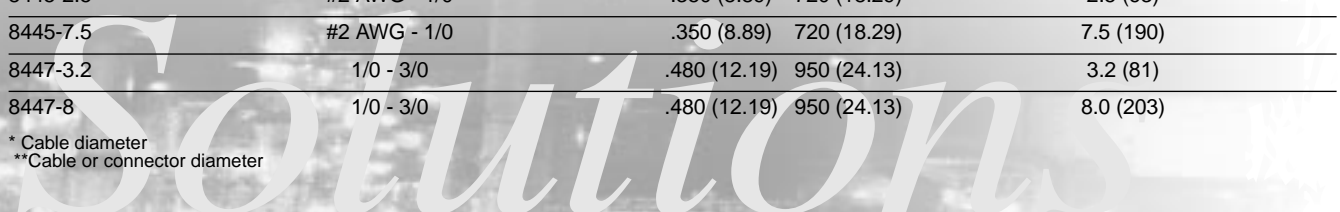
Important: Use wire insulation/jacket diameters and connector O.D. for final sizing confirmation.

3M Silicone Rubber Cold Shrink Tube Selection Table

Product Number	Conductor Size	Application Range inches (mm)		Relaxed Tube Length inches (mm)
		Min. Dia.*	Max. Dia.**	
8443-2	#6 - #2 AWG	.270 (6.86)	.560 (14.22)	2.0 (51)
8443-6.5	#6 - #2 AWG	.270 (6.86)	.560 (14.22)	6.5 (165)
8445-2.5	#2 AWG - 1/0	.350 (8.89)	.720 (18.29)	2.5 (63)
8445-7.5	#2 AWG - 1/0	.350 (8.89)	.720 (18.29)	7.5 (190)
8447-3.2	1/0 - 3/0	.480 (12.19)	.950 (24.13)	3.2 (81)
8447-8	1/0 - 3/0	.480 (12.19)	.950 (24.13)	8.0 (203)

* Cable diameter

**Cable or connector diameter



3M™ Cold Shrink 5730 Series

Splices for 1kV 3-Conductor Armor Power Cable (Teck 90)
(5730 & 5731 contain insulating material for a 4th conductor/ground)

3M is pleased to introduce cold shrinkable inline splice kits for 3-conductor armor power cable up to 1000V. Designed with cold shrink technology to meet increasing customer requirements, these kits are made from EPDM rubber.

With the increased use of multi-conductor cable, your requirements for a reliable, watertight, permanent splice are met with the 5730 series splice kits. 3M cold shrink sleeves offer protection against moisture and contamination for inline splices. 3M Low Voltage Cold Shrink Splicing Kits are applicable for indoor and outdoor installations, including direct burial, aerial and submersible applications. The 5730 series accommodates a full range of cable sizes from #14 AWG-750 MCM. The overall jacket diameter ranges from 0.62" - 4.0" (16mm-102mm).



Cold shrink tubing provides the connector insulation as well as the cable re-jacketing (kits 5732-5735 only)

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Features and Benefits

- Quick and easy installation
- No torches or heat required
- Accommodates a wide range of cable sizes and splice diameters
- Good thermal stability
- Long term water tight seal of Cold Shrink insulation meets requirements of ANSI C119.1
- Maximum protection against mechanical stress
- Resistant against fungus, acids, alkalis, ozone and ultraviolet light

5730-5731 Low Voltage Inline Splice Kits

For use with 3/C or 4/C Armor Power Cable
CSA certified for 600V or less



Kit Contents

For 3 or 4 conductor cable, sizes #14-#4 AWG.

- 6 Mastic Strips (Scotch™ 2228)
- 1 Cold Shrink Cable Sleeve
- 1 Shielding Sleeve (Tinned Copper)
- 2 Strips of Scotch™ 24 Shielding Tape
- 2 Constant Force Springs

Note: Connectors are not included in the kit. Use only CSA certified compression connectors.
Vinyl or nylon butt connectors are preferable.

5732-5735 Low Voltage Inline Splice Kits

For use with 3/C Armor Power Cable
(TECK-90) up to 1000V



Kit Contents

For 3 conductor cable, sizes #2 AWG - 750 MCM.

- 3 Cold Shrink Insulation Sleeves
- 1 Cold Shrink Cable Sleeve
- 1 Shielding Sleeve (Tinned Copper)
- 2 Strips of Scotch™ 24 Shielding Tape
- 2 Constant Force Springs

Note: Connectors are not included in the kit. Use only CSA certified compression connectors.

Selection Guide

Kit Number	Cable Sizes (Awg or MCM)	Overall Jacket Diameter	Amount of Armorcast Required*
5730	#14-#10	0.62-1.0" (16-25 mm)	1 roll
5731	#8-#4	0.95-1.4" (24-36 mm)	1 roll
5732	2-1/0	0.95-2.4" (24-61 mm)	1 roll
5733	2/0-250	1.15-3.3" (29-84 mm)	2 rolls
5734	250-500	1.55-4.0" (39-102 mm)	2 rolls
5735	500-750	1.55-4.0" (39-102 mm)	3 rolls

*Amount of Armorcast needed based on two half lapped layers.



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3M™ 4560 Armorcast™ Material

Structural Material for Cable Splice Re-arming and Re-jacketing

The 4560 Armorcast products create maintenance free mechanical protection for power cable splices. 3M Armorcast structural material is a flexible fiberglass knit fabric strip that has been saturated with black urethane resin syrup. It is rolled and packed dry in a sealed foil envelope.

Features and Benefits

- Quick and easy installation
- No flame, electricity, or chemicals needed
- Safe for use in all hazardous environments (manholes, vaults, etc.)
- Resists moisture, temp, acid, alkali, ozone, sunlight and gasoline
- No special tools, mechanical ties, rails or clips required
- Forms to any shape or size

Cold Shrink

3M™ Cold Shrink 5550 and 5740 Series

Splices for 5kV and 8kV Shielded and Non-shielded Cable



Cold Shrink 5550 Series Rubber Splice Kits are for splicing 5kV and 8kV shielded, solid dielectric, power cables. Each kit contains all the materials (except connectors and optional ground strap) required to



construct three single conductor splices on tape shield, wire shield or UniShield® cables. The splices are designed for use with 3M Scotchlok™ 10000, 11000 and 20000 series inline compression connectors, or any UL Listed inline compression connector meeting the dimensional requirements for maximum connector lengths listed in the ordering table. Note: The kit can also be used to splice a shielded to a nonshielded 5/8kV cable.

Each kit makes three splices.



Cold Shrink 5740 Series Rubber Splice Kits are for splicing 5kV and 8kV non-shielded power cables. Each kit is a cold shrink design to provide superior,

time-saving insulation technology. Once the splice is placed on the cable, install the connector according to manufacturer's directions, overwrap the connector area with the rubber mastic tape provided, center the cold shrink splice over the connector, and remove the core to complete the splice.

Each kit makes three splices.

Specifications and Ordering Information for 5kV and 8kV Cold Shrink Splices

Product Number	UPC (54007-)	Conductor Size		Maximum Connector Length		Typical Splice Length	Cable Insulation/Jacket O.D. Range	Case Qty.
		Copper	Aluminum	Copper	Aluminum			
5550 Series		Tape Shielded Cable, Wire Shielded Cable, Unishield Cable						
5551	09089	6-4/0 AWG (14-100 mm ²)	6-3/0 AWG (14-80 mm ²)	3.3" (84 mm)	2.7" (69 mm)	19" (483 mm)	–	1
5552	09090	4/0 AWG-500 kcmil (120-250 mm ²)	4/0 AWG-400 kcmil (120-200 mm ²)	4.3" (109 mm)	3.7" (94 mm)	21" (533 mm)	–	1
5553	09091	500-1000 kcmil (300-500 mm ²)	500-1000 kcmil (300-500 mm ²)	6.3" (160 mm)	5.3" (135 mm)	23" (584 mm)	–	1
5740 Series		Non-shielded Dry Cable, Non-shielded Wet or Dry Cable						
5741	49491	8-4 AWG* (10-22 mm ²)		2 1/2* (64 mm ²)*		–	0.38-0.70" (9,7-17,8 mm)	1
5742	49492	2 AWG-300 kcmil* (35-150 mm ²)		4 1/2* (108 mm)*		–	0.63-1.20" (16,0-30,5 mm)	1
5743	49493	350-1000 kcmil (185-500 mm ²)	350-750 kcmil (185-400 mm ²) (22-50 mm ²)*	6 1/4* (159 mm)* (53 mm)*		–	0.90-2.10" (22,9-53,3 mm) (46-61 mm)	1

Note: Be sure to order the correct size connector to complete the splice, see pages 241 and 242.

*Not specified to copper or aluminum. **Portable Cable Type SHD-GC 4-3/0 AWG Type MPF-GC (22-80 mm²)

Kit Contents for 5kV and 8kV Cold Shrink Splices

Description	5550 Series	5740 Series
Cold Shrink Insulators	3 each	3 each
Cold Shrink Splice Jackets	3 each	—
Scotch™ 13 Electrode Wraps	3 each	—
Scotch™ 2228 Rubber Mastic Tape	3 rolls*	3 rolls**
Scotch™ 13 Semi-Conducting Tape	3 rolls	—
Scotch™ 130C Linerless Rubber Splicing Tape	1 roll	—
Shielding Braid Sleeve	3 each	—
Constant-Force Springs-Solderless Ground Connectors	6 each	—
Cleaning Pad Kits	3 each	3 each
Instructions	3 each	3 each

* 5553 kit contains 6 rolls ** 5743 kit contains 6 rolls



Metal Clad Jacketed Cable Connectors – Connector Cross Reference

Trade Size (Inches) (NPT Size)	Cable Jacket Range (Inches) Min. Max.		Crouse-Hinds (TMC or TMCX)	Appleton	T & B	O-Z /Gedney
1/2"	0.46"	0.71"	TMCX165	TMCX6550	ST050-462, ST050-464	JMC-50-71
3/4"	0.65"	0.93"	TMCX285	TMCX8875	ST075-467, ST075-468	JMC-75-115
1"	1.10"	1.45"	TMCX3112	TMCX118100	ST100-469	JMC-100-145
1 1/4"	1.37"	1.79"	TMCX4140	TMCX140125	ST125-470, ST125-550, ST125-471	JMC-125-179
1 1/2"	1.74"	2.15"	TMCX5161	TMCX166150	ST150-472, ST150-473	JMC-150-215
2"	2.03"	2.59"	TMCX6206	TMCX206200	ST200-551, ST200-474, ST200-475, ST200-476	JMC-200-259
2 1/2"	2.47"	3.03"	TMCX7247	TMCX251250	ST250-477, ST250-478	JMC-250-303
3"	2.93"	3.61"	TMCX8302	TMCX304300	ST300-479, ST300-480, ST300-481	JMC-300-361
3 1/2"	3.55"	4.23"	TMCX9352	TMCX359350	ST350-482, ST350-483	JMC-350-423
4"	4.05"	4.73"	TMCX10402	TMCX402400	ST400-484, ST400-485	JMC-400-473

Note: The TMCX connector is slightly longer than the TMC connector.

In your business, innovative solutions, technology and reliability are essential. 3M delivers that and more. 3M has the power of a diversified, global manufacturer with more than 60,000 products in our line; a reputation for technical excellence and innovation; and employees committed to delivering quality products and service to you, our valued customer.

Our capability doesn't stop with electrical products, it starts there. To explore the many ways we can serve you, contact your 3M representative today.

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