



Terminations

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Cold Shrink Terminations



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 even the most punishing environmental conditions. Enhanced performance at a lower installed cost continue to make 3M the preferred choice for cold shrink solutions.

3M Cold Shrink QT-II and QT-III terminations are designed using 3M developed track resistant silicone rubber and Hi-K stress control material in conjunction with 3M's unique Cold Shrink delivery system.

The QT-II and the QT-III are supplied prestretched on a removable core. Removal of the core (unwind) after positioning the termination allows the product to shrink into position, providing a tight seal.

3M Cold Shrink terminations offer easy installation and reliable performance when terminating indoor and outdoor medium voltage cable.

QT-II and QT-III Cold Shrink silicone rubber is specifically formulated as a high track resistant material with hydrophobicity (water repelling action) to insure a long life expectancy.

These Cold Shrink terminations are lightweight for either free-hanging or bracket mounting arrangements.

3M offers you two options for choosing a Cold Shrink Termination. The QT-III utilizes the latest technology with built in Hi-K stress controlling mastic and silicone sealing mastic resulting in a much more user-friendly application. The QT-II offers many of the same advantages and benefits as the QT-III but does require several additional steps during the installation.

All terminations meet or exceed IEEE 48 requirements.

Choosing the right terminations.

Questions to ask yourself before ordering a terminating product.

- What is Voltage Rating? 5 kV___ 8 kV___ 15 kV___ 25/28 kV___ 35 kV___ 46 kV___
- What is Insulation Level? 100%___ 133%___
- What is Conductor Size? _____ AWG/kcmil
- What is Cable/Shielding Type? (tape, drain wire, UniShield®, LC Shielded, Jacketed Concentric Neutral, other)_____
- What is Conductor Material? Copper _____ Aluminum (Al/Cu) _____
- Where will the termination be mounted? Indoor___ Outdoor___ Cabinet Indoor___
Vented Cabinet Outdoor ___ Heated Cabinet Outdoor ___

Glossary of Terminations Terms

Class 1 Termination – Provides electric stress control for the cable insulation shield terminus: provides complete external leakage insulation between the cable conductor(s) and ground; and provides a seal to the end of the cable against the entrance of the external environment and maintains the operating design pressure, if any, of the cable system. This class is divided into three types:

- Class 1A: For use on extruded dielectric cable
- Class 1B: For use on laminated dielectric cable
- Class 1C: Expressly for pressure-type cable systems

Class 2 Termination – Provides electric stress control for the cable insulation shield terminus, and provides complete external leakage insulation between the cable conductor(s) and ground.

Class 3 Termination – Provides electric stress control for the cable insulation shield terminus.

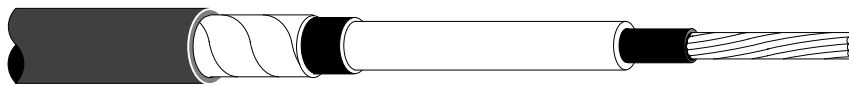
Indoor Termination–Dry – A termination intended for use where it is protected from solar radiation and precipitation and not subject to periodic condensation, or other excessive humidity (90% RH or more). May be installed in air conditioned or heated areas.

Indoor Termination–Wet – A termination intended for use where it is protected from direct exposure to both solar radiation and precipitation, but is subjected to climatic conditions that can cause condensation onto the termination surfaces.

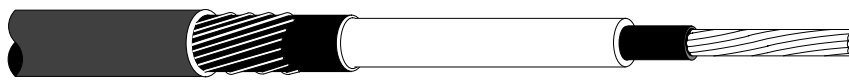
Outdoor Termination – A termination intended for use where it is not protected from direct exposure to either solar radiation or precipitation. These are Class 1A, 1B, or 1C terminations. Class 2 terminations may also qualify.

Note: Some cables below 15 kV do not have an insulation shield. Terminations for such cables would not be required to provide electric stress control. In such cases, this provision would not be part of the definition.

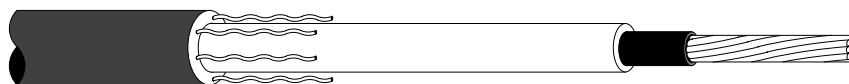
Cable Types for Terminating



Tape Shielded Cable

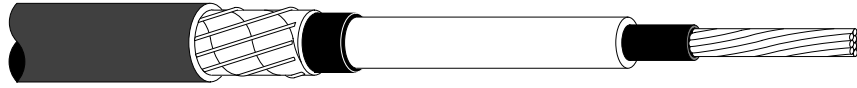


Wire Shielded Cable

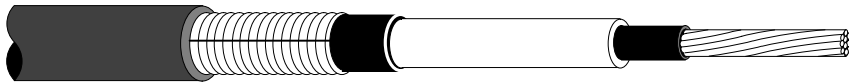


UniShield® Cable

Cable Types for Terminating



Wire Over Tape Shielded Cable



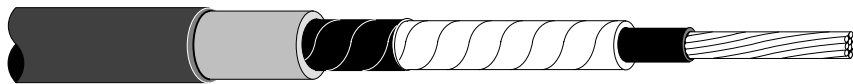
LC Shielded Cable



Concentric Neutral (CN) Cable



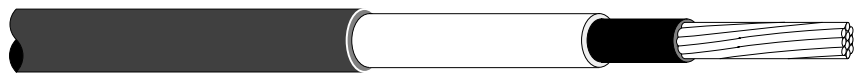
Jacketed Concentric Neutral (JCN) Cable



Paper Insulated Lead Covered (PILC) Cable



Nonshielded (Dry) Cable



Nonshielded (Wet or Dry) Cable

5630K Series Termination Kits for 5 to 15 kV (for Tape, Wire and UniShield® Shield Cable)

Kit No.	UPC (054007-)	Cable Insulation O.D. Range in. (mm)	Cable Jacket O.D. Range in. (mm)	Conductor Size Range				
				5 kV 100%	5 kV 133%	8 kV 100%	8 kV 133%	15 kV 100%
Shielded Cable Kits (Each Shielded Cable Kit makes three terminations)								
4 Skirt								
5632K	49681	0.33 – 0.69 (8 – 17)	0.55 – 0.92 (14 – 23)	8 – 2/0 AWG (10 – 60 mm ²)	8 – 1/0 AWG (10 – 50 mm ²)	8 – 1 AWG (10 – 38 mm ²)	8 – 4 AWG (10 – 16 mm ²)	8 – 6 AWG (10 – 14 mm ²)
5633K	12256	0.64 – 0.90 (16 – 23)	0.80 – 1.20 (20 – 30)	3/0 AWG – 300 kcmil (95 – 150 mm ²)	2/0 AWG – 250 kcmil (70 – 125 mm ²)	1/0 – 4/0 AWG (60 – 100 mm ²)	2 – 3/0 AWG (35 – 80 mm ²)	4 – 1/0 AWG (22 – 50 mm ²)
5635K	12257	0.84 – 1.33 (21 – 34)	1.00 – 1.60 (25 – 41)	350 – 750 kcmil (180 – 325 mm ²)	300 – 750 kcmil (180 – 325 mm ²)	250 – 600 kcmil (125 – 325 mm ²)	3/0 AWG – 500 kcmil (95 – 250 mm ²)	2/0 AWG – 350 kcmil (70 – 180 mm ²)
5636K	12258	1.10 – 1.65 (28 – 42)	1.30 – 1.90 (33 – 48)	750 – 1500 kcmil (400 – 725 mm ²)	750 – 1250 kcmil (400 – 625 mm ²)	600 – 1000 kcmil (325 – 500 mm ²)	500 – 1000 kcmil (300 – 500 mm ²)	350 – 750 kcmil (180 – 325 mm ²)
5637K	12259	1.30 – 1.95 (33 – 50)	1.50 – 2.40 (33 – 61)	1000 – 2000 kcmil (600 – 1000 mm ²)	1000 – 2000 kcmil (600 – 1000 mm ²)	800 – 1750 kcmil (500 – 850 mm ²)	750 – 1750 kcmil (400 – 850 mm ²)	600 – 1500 kcmil (325 – 725 mm ²)

NOTE: Because of the various factors which affect Cable Primary Insulation O.D. and Cable Jacket O.D. (e.g., type of conductor, insulation thickness), the cable sizes in the chart above are guidelines. Confirm conductor will fit within cable insulation range.

NOTE: For three conductor cable applications, consult your 3M sales representative.

5600 and 5680 Series Outdoor Termination Kits for 5 to 35 kV (for Concentric Neutral Cables)

Kit No.	UPC (054007-)	Cable Insulation O.D. Range in. (mm)	Conductor Size Range					
			5 kV 100%	5 kV 133%	8 kV 100%	8 kV 133%	15 kV	25/28 kV
Non-jacketed Concentric Cable Kits (Each concentric and Jacketed Concentric Cable Kit makes one termination)								
4 Skirt								
5601	02427	0.637 – 1.12 (16 – 28)	3/0 AWG – 500 kcmil (95 – 250 mm ²)	2/0 AWG – 500 kcmil (35 – 25 mm ²)	1/0 AWG – 350 kcmil (60 – 150 mm ²)	2 – 4/0 AWG (35 – 100 mm ²)	—	—
5602	11882	0.84 – 1.38 (21 – 35)	350 – 750 kcmil (180 – 325 mm ²)	350 – 750 kcmil (180 – 325 mm ²)	250 – 750 kcmil (125 – 325 mm ²)	250 – 500 kcmil (125 – 250 mm ²)	—	—
5603	11885	1.08 – 1.80 (27 – 46)	750 – 1000 kcmil (400 – 500 mm ²)	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)	500 – 1200 kcmil (300 – 600 mm ²)	—	—
6 Skirt								
5681	09133	0.637 – 1.12 (16 – 28)	3/0 AWG – 500 kcmil (95 – 250 mm ²)	2/0 AWG – 500 kcmil (35 – 250 mm ²)	1/0 AWG – 350 kcmil (60 – 150 mm ²)	2 – 4/0 AWG (35 – 100 mm ²)	2 – 2/0 AWG (35 – 60 mm ²)	—
5682	69794	0.84 – 1.38 (21 – 35)	350 – 750 kcmil (180 – 325 mm ²)	350 – 750 kcmil (180 – 325 mm ²)	250 – 750 kcmil (125 – 325 mm ²)	250 – 500 kcmil (125 – 250 mm ²)	1 AWG – 350 kcmil (50 – 150 mm ²)	—
5683	69795	1.08 – 1.80 (27 – 46)	750 – 1000 kcmil (400 – 500 mm ²)	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)	500 – 1200 kcmil (300 – 600 mm ²)	350 – 750 kcmil (180 – 325 mm ²)	—
5684	69796	1.31 – 2.10 (33 – 53)	—	—	—	—	750 – 1500 kcmil (400 – 725 mm ²)	—
8 Skirt								
5604**	08002	0.637 – 1.12 (16 – 28)	3/0 AWG – 500 kcmil (95 – 250 mm ²)	2/0 AWG – 500 kcmil (35 – 250 mm ²)	1/0 AWG – 350 kcmil (60 – 150 mm ²)	2 – 4/0 AWG (35 – 100 mm ²)	2 – 2/0 AWG (35 – 60 mm ²)	—
5605	11888	0.84 – 1.38 (21 – 35)	350 – 750 kcmil (180 – 325 mm ²)	350 – 750 kcmil (180 – 325 mm ²)	250 – 750 kcmil (125 – 325 mm ²)	250 – 500 kcmil (125 – 250 mm ²)	1 AWG – 350 kcmil (50 – 150 mm ²)	1 – 4/0 AWG (50 – 100 mm ²)
5606	11893	1.08 – 1.80 (27 – 46)	750 – 1000 kcmil (400 – 500 mm ²)	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)	500 – 1200 kcmil (300 – 600 mm ²)	350 – 750 kcmil (180 – 325 mm ²)	4/0 AWG – 500 kcmil (120 – 250 mm ²)
5607	11897	1.31 – 2.10 (33 – 53)	—	—	—	—	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)
5608	09168	1.80 – 2.75 (46 – 70)	—	—	—	—	—	1000 – 2000 kcmil (500 – 1000 mm ²)

** The 5604 is rated 25/28 kV.

5640 and 5650 Series Outdoor Termination Kits for 15 to 35 kV (for Jacketed Concentric Neutral Cable)

Kit Number	UPC (054007-)	Cable Insulation O.D. Range in. (mm)	Cable Jacket O.D. Range in. (mm)	Conductor Size Range		
				15 kV	25/28 kV	35 kV
Jacketed Concentric Cable Kits (Each Concentric and Jacketed Concentric Cable Kit makes one termination)						
4 Skirt						
5641	11963	0.637 – 1.12 (16 – 28)	0.93 – 1.35 (24 – 34)	2 – 2/0 AWG (35 – 60 mm ²)	—	—
5642	11970	0.84 – 1.38 (21 – 35)	1.19 – 1.72 (30 – 44)	3/0 AWG – 350 kcmil (95 – 180 mm ²)	—	—
5643	11972	1.08 – 1.80 (27 – 46)	1.37 – 2.02 (35 – 51)	400 – 700 kcmil (240 – 325 mm ²)	—	—
5644	11973	1.31 – 2.10 (33 – 53)	1.62 – 2.55 (41 – 65)	750 – 1500 kcmil (400 – 725 mm ²)	—	—
6 Skirt						
5651	09132	0.637 – 1.12 (16 – 28)	0.93 – 1.35 (24 – 34)	2 – 2/0 AWG (35 – 60 mm ²)	2 – 1/0 AWG (35 – 50 mm ²)	—
5652	69791	0.84 – 1.38 (21 – 35)	1.19 – 1.72 (30 – 44)	3/0 AWG – 350 kcmil (95 – 180 mm ²)	1/0 AWG – 250 kcmil (60 – 125 mm ²)	—
5653	69792	1.08 – 1.80 (27 – 46)	1.37 – 2.02 (35 – 51)	400 – 700 kcmil (240 – 325 mm ²)	250 – 500 kcmil (125 – 250 mm ²)	—
5654	69793	1.31 – 2.10 (33 – 53)	1.62 – 2.55 (41 – 65)	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)	—
8 Skirt						
5646	11975	0.84 – 1.38 (21 – 35)	1.19 – 1.72 (30 – 44)	3/0 AWG – 350 kcmil (95 – 180 mm ²)	1/0 AWG – 250 kcmil (60 – 125 mm ²)	1 – 3/0 AWG (50 – 80 mm ²)
5647	11976	1.08 – 1.80 (27 – 46)	1.37 – 2.02 (35 – 51)	400 – 700 kcmil (240 – 325 mm ²)	250 – 500 kcmil (125 – 250 mm ²)	4/0 AWG – 300 kcmil (120 – 150 mm ²)
5648	11977	1.31 – 2.10 (33 – 53)	1.62 – 2.55 (41 – 65)	750 – 1500 kcmil (400 – 725 mm ²)	500 – 1250 kcmil (300 – 625 mm ²)	350 – 1000 kcmil (180 – 500 mm ²)
5649	09958	1.80 – 2.30 (46 – 58)	2.10 – 2.75 (53 – 70)	—	—	1000 – 1500 kcmil (600 – 725 mm ²)

5690K Series Outdoor Termination Kits for 15 to 35 kV (for Tape, Wire and UniShield® Shield Cable)

Kit Number	UPC (054007-)	Cable Insulation O.D. Range in. (mm)	Cable Jacket O.D. Range in. (mm)	Conductor Size Range			
				15 kV 100%	15 kV 133%	25/28 kV	35 kV
Shielded Cable Kits (Each Shielded Cable Kit makes three terminations)							
6 Skirt							
5691K	49395	0.64 – 0.90 (16,3 – 22,9)	0.80 – 1.20 (20,3 – 30,5)	2 – 3/0 AWG (35 – 80 mm ²)	2 – 1/0 AWG (35 – 50 mm ²)	2 – 1 AWG (35 – 38 mm ²)	—
5692K	49396	0.84 – 1.33 (21,3 – 33,8)	1.00 – 1.60 (25,5 – 40,6)	3/0 AWG – 400 kcmil (95 – 200 mm ²)	2/0 AWG – 350 kcmil (70 – 180 mm ²)	1/0 AWG – 250 kcmil (60 – 125 mm ²)	—
5693K	49397	1.10 – 1.65 (27,9 – 41,9)	1.30 – 1.90 (33 – 48,3)	500 – 750 kcmil (300 – 325 mm ²)	400 – 750 kcmil (240 – 325 mm ²)	300 – 500 kcmil (180 – 250 mm ²)	—
5694K	49398	1.30 – 1.95 (33 – 49,5)	1.50 – 2.40 (38,1 – 61)	800 – 1750 kcmil (500 – 850 mm ²)	800 – 1500 kcmil (500 – 725 mm ²)	600 – 1250 kcmil (325 – 625 mm ²)	—
8 Skirt							
5696K	49399	0.84 – 1.33 (21 – 33,8)	1.00 – 1.60 (25,4 – 40,6)	3/0 AWG – 400 kcmil (95 – 200 mm ²)	2/0 AWG – 350 kcmil (70 – 180 mm ²)	1/0 AWG – 250 kcmil (60 – 125 mm ²)	2 – 3/0 AWG (35 – 80 mm ²)
5697K	49400	1.10 – 1.65 (27,9 – 41,9)	1.30 – 1.90 (33 – 48,3)	500 – 750 kcmil (300 – 325 mm ²)	400 – 750 kcmil (240 – 325 mm ²)	300 – 500 kcmil (180 – 250 mm ²)	4/0 AWG – 400 kcmil (120 – 150 mm ²)
5698K	49401	1.30 – 1.95 (33 – 49,5)	1.50 – 2.40 (38,1 – 61)	800 – 1750 kcmil (500 – 850 mm ²)	800 – 1500 kcmil (500 – 725 mm ²)	600 – 1250 kcmil (325 – 625 mm ²)	500 – 1000 kcmil (300 – 500 mm ²)

Specifications and Ordering Information for 4604 and 4605 Silicone Rubber Termination Kits for 46 kV

Part Number	UPC (054007-)	Conductor Range	Cable Insulation O.D. Range	Creepage Distance	Arcing Distance	Case Qty.
4604 and 4605 Silicone Rubber Termination Kits Tape Shielded Cable, Wire Shielded Cable, LC Shielded Cable See page 216 - 217 for cable type illustrations.						
4604	50192	4/0 AWG-600 kcmil (120-300 mm ²)	1.31-2.10" (33-53 mm)	46" (max.) (1168 mm)	30" (max.) (762 mm)	1
4605	50193	600-1500 kcmil (325-725 mm ²)	1.80-2.66" (46-66 mm)	46" (max.) (1168 mm)	30" (max.) (762 mm)	1



Note: Because of the various factors which affect cable primary insulation O.D. and cable jacket O.D. (e.g., type of conductor, insulation thickness), the cable sizes in the chart above are guidelines. Confirm that cable insulation O.D. fits range specified above for the termination. **For three conductor applications, consult your 3M sales representative.**

5610A Series Silicone Rubber Termination Kits for 5 to 8 kV

3M™ Cold Shrink 5610A series termination kits provide an environmental seal to the terminal lug area of 5 to 8 kV unshielded power cable. Each kit contains everything needed (except terminal lug) to seal three cable ends. Kits can be used for both indoor (protected) and outdoor (weather-exposed) applications.


The silicone rubber provides tracking protection for the lug ends of the cable.

Each kit contains:

- 3 Silicone rubber unshielded terminations
- 3 strips Scotch® 70 silicone rubber tape*
- Instructions

*5614A contains one roll of Scotch 70 silicone rubber tape.

Specifications and Ordering Information for 5610-A Series Silicone Rubber Termination Kits for 5 and 8 kV

Part Number	UPC (054007-)	Conductor Range	Cable Insulation O.D. Range	Terminations per Kit	Case Qty.	
5610A Series Silicone Rubber Termination Kits						
5 kV and 8 kV		Nonshielded (Dry) Cable, Nonshielded (Wet or Dry) Cable				
See page 216 - 217 for cable type illustrations.						
	5611A	49549	8-4 AWG (10-16 mm ²)	0.31 x 0.72" (7,9-18,3 mm)	3	1
	5612A	49550	2-2/0 AWG (35-60 mm ²)	0.44 x 0.95" (11,2-24,1 mm)	3	1
	5613A	49551	3/0 AWG-300 kcmil (95-150 mm ²)	0.56 x 1.18" (14,2-30,0 mm)	3	1
	5614A	49552	350-1000 kcmil (180-500 mm ²)	0.95 x 1.94" (24,1-49,3 mm)	3	1

Note: Because of the various factors which affect cable primary insulation O.D. and cable jacket O.D. (e.g., type of conductor, insulation thickness), the cable sizes in the chart above are guidelines. Confirm that cable insulation O.D. fits range specified above for the termination.

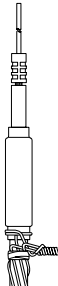
5671 and 5672 Termination Kits for 5 to 15 kV

3M™ Cold Shrink QT II 5671 and 5672 kits are one-piece, 5 to 15 kV, Class 3 terminations. They will terminate CN or JCN cables. A Hi-K (high dielectric constant) stress control tube insulated with a track-resistant silicone rubber tube are prestretched together onto a removable core. Meets IEEE Standard 48. **Each kit makes one termination.**

Each kit contains:

- Hi-K silicone rubber terminations
- Silicone rubber terminator
- Packet of silicone grease
- Instructions

Specifications and Ordering Information for 5670 Series Silicone Rubber Termination Kits for 5 and 15 kV

Part Number	UPC (054007-)	Conductor Range	Cable Insulation O.D. Range	Terminations per Kit	Case Qty.	
5671 and 5672 Termination Kits						
		Concentric Neutral (CN) Cable, Jacketed Concentric Neutral (JCN) Cable				
See page 216 - 217 for cable type illustrations.						
	5671	33798	2 AWG-250 kcmil (35-125 mm ²)	0.637-1.120" (16-28 mm)	1	10
	5672	33799	250-1000 kcmil (125-500 mm ²)	0.940-1.810" (24-46 mm)	1	10

Note: Because of the various factors which affect cable primary insulation O.D. and cable jacket O.D. (e.g., type of conductor, insulation thickness), the cable sizes in the chart above are guidelines. Confirm that cable insulation O.D. fits range specified above for the termination.