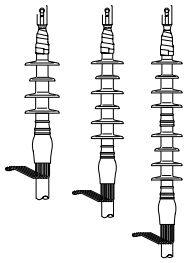
Quick Term II

5640 and 5650 Series

Silicone Rubber Termination Kits 15 kV – 34.5 kV

Data Sheet



1. Product Description

3M™ 5640 and 5650 Series Quick Term II Silicone Rubber Termination Kits are one-piece Cold Shrink™ terminations for Jacketed Concentric Neutral (JCN) power cable. **They meet the requirements of IEEE standard 48–1990, for class 1 terminations**. In addition they meet German standard VDE 0278 parts 5 & 100, British standard BS C–89, Spanish standard UNE 21–115–75 and Brazilian standard A·B·N·T· 9314. Similar terminations using Quick Term II technology meet French EdF standards HN 33–E–01 and HN 41–E–01. The 3M Quick Term II consists of a high dielectric constant (high-K) stress control tube insulated with a molded silicone skirted insulator. There is a four skirt design rated 15 kV, a six skirt design rated 25/28 kV and an eight skirt design rated 34.5 kV. Each insulator design incorporates an extended base feature which when combined with mastic ensures a seal at the cable jacket end where the cable neutral wires are brought out. Quick Term II terminations are provided in an expanded state, mounted on a removable inner supporting plastic core. As supplied in this pre-stretched condition the termination is ready for field installation. During installation the core is unwound, allowing termination to shrink and form a tight seal. Collectively, these termination kits cover cables with primary insulation O.D. from 0.637″ to 2.30″ (16,2 – 58,4 mm) and with cable jacket O.D. from 0.93″ to 2.75″ (23,6 – 70,0 mm).

These kits can be used to terminate Jacketed Concentric Neutral (JCN) power cables from:

4 AWG to 2000 kcmil at 15 kV,
2 AWG to 1750 kcmil at 25 kV and
1 AWG to 1500 kcmil at 34.5 kV.

Stress Control

The 3M Quick Term II controls the electric field surrounding the terminated cable insulation shield end, by use of a special high dielectric constant (High-K) material which is an integral part of the termination. The High-K material has a dielectric constant of about 25. By controlling the electrical field, the stress concentration in the applied termination materials and at the air interface is less than 15 volts/mil at rated voltage. In the shielded portion of 15 kV cable, the stress concentrations typically vary from 50 volts/mil at the shield to about 70 volts/mil at the conductor. When terminated with the Quick Term II, the stress in the cable underneath this unit is less than it is in the shielded portion of the cable.

(Figure 1) shows an actual computerized stress plot of the Quick Term II.

Cold Shrink™ Insulators

3M Quick Term II Skirted Insulators are constructed of non-tracking silicone rubber which minimizes leakage currents in wet conditions for three reasons:

1. The smooth surface of the silicone rubber insures that a minimum amount of contamination will adhere to the termination.
2. Silicone rubber has a hydrophobic surface: When water comes in contact with the silicone it **beads** up and runs off the skirts rather than completely wetting these surfaces. Thus a less conductive path is formed on the silicone and leakage currents are lowered.
3. When leakage currents do increase and arcing occurs on the surface, the ash formed by erosion of the silicone insulator is non-organic or non-conductive. Continued degradation is thereby deterred.

Under heavy rain conditions, conventional skirted terminations with even-skirt diameter insulators tend to form drip paths or continuous water paths from insulator skirt tip to skirt tip. By comparison, 3M Quick Term II insulators are designed with unique, uneven skirt diameters. This feature allows water dripping from the upper skirt to fall free, avoiding the skirt to skirt conductive path that can develop with even-skirted diameter insulators. This design of the 3M Quick Term II termination optimizes performance under heavy rain conditions.

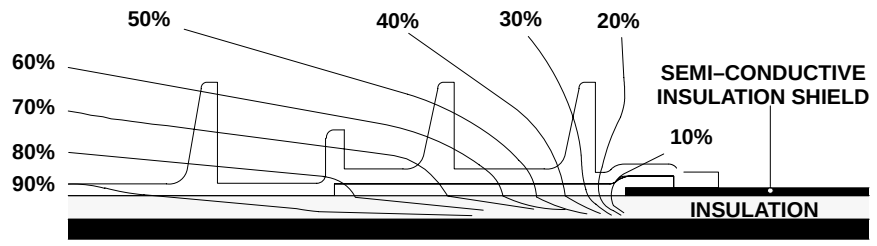


Figure 1

Kit Contents:

Each kit contains sufficient quantities of the following materials to make three terminations:

1 Molded Silicone Rubber Termination
1 Packet of Silicone Grease
Scotch™ 70 Silicone Tape
  1 strip in kits 5641 – 5644 and 5651
  2 strips in kits 5646 – 5649 and kits 5652 and 5654
Mastic
1 Instruction Sheet

2. Applications

The 5640 and 5650 Series Quick Term II Silicone Cold Shrink™ Terminations are used to terminate Jacketed Concentric Neutral (JCN) power cable rated 15 kV, 25/28 kV and 34.5 kV having extruded solid dielectric insulation as follows: Polyethylene (high and low density), cross-linked polyethylene (XLP) and ethylene propylene rubber (EPR). The terminations are light weight for either free-hanging or bracket-mounting arrangements. They can be used in both protected and weather exposed contaminated areas. The amount of airborne contamination determines the operating environment. Operating environments are described as areas having varying degree of airborne contaminant or pollution severity that may, or may not effect the long term performance of terminations. These operating environments are defined as light, medium, heavy and extremely heavy variations of pollution severity. The appropriate termination selection depends on the system voltage and operating environment. *(See tables to right)*.

3. Data: Physical and Electrical Properties

The 5640 and 5650 Series Quick Term II terminations can be used on cables with a rated operating temperature of 90°C and an emergency overload rating of 130°C, (reference: AEIC CS5 and AEIC CS6). These kits meet requirements for a 15 kV, 25 kV and 34.5 kV, Class 1 termination in IEEE Standard Test Procedures and Requirements for High-Voltage Cable Terminations (IEEE Standard 48-1990). (See Section 5, **"Performance Tests"**). The current rating of Quick Term II terminations meets and exceeds the current rating of the cables.

Recommended Application Guide

Termination Kit	System Voltage	Operating Environment			
		Light	Medium	Heavy	Extremely Heavy
(Four Skirt) 5641 – 5644	15 kV	✔	✔	✔	
(Six Skirt) 5651 – 5654	15 kV		✔	✔	✔
(Eight Skirt) 5646 – 5649	15 kV			✔	✔
(Four Skirt) 5641 – 5644	25/28 kV	✔			
(Six Skirt) 5651 – 5654	25/28 kV	✔	✔	✔	
(Eight Skirt) 5646 – 5649	25/28 kV		✔	✔	✔
(Four Skirt) 5641 – 5644	34.5 kV				
(Six Skirt) 5651 – 5654	34.5 kV	✔			
(Eight Skirt) 5646 – 5649	34.5 kV	✔	✔	✔	★

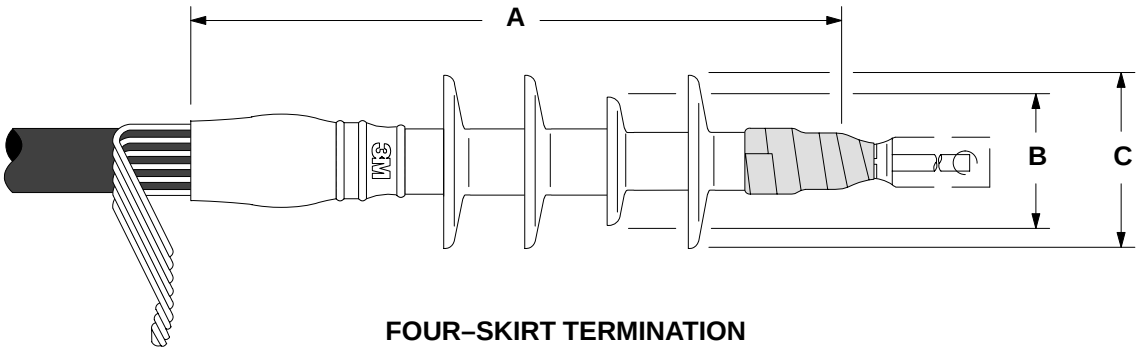
Recommended operating environments are marked with a check (✔)
★ Consult 3M sales representative.

Pollution Severity Level Guide

Light	Heavy
• Areas without industry and with low density housing. • Areas subjected to frequent winds and/or rain fall with low density industry and housing. • Agricultural areas. ☆ • Mountainous areas. All of these regions should be situated at least 7 to 15 miles from the coast and should not be exposed to coastal winds. ❋	• High density industrial areas and some urban areas with high density housing, especially those with infrequent rain fall. • Areas subjected to a moderate concentration of conductive dust, particularly industrial smoke producing deposits. • Areas generally close to the coast and exposed to coastal spray or to strong winds carrying sand and salt, and subjected to regular condensation.
Medium	Extremely Heavy
• Non polluting industrial areas subject to infrequent rain fall and with average density housing. • Areas subjected to frequent winds and/or rainfall with high density industry and housing. • Areas exposed to wind from the coast but generally over two miles from the coast.	• Usually very limited areas having extremely heavy pollutants from industrial sites especially those located near oceans and subjected to prevailing winds from the sea. • Very small isolated areas where terminations are located immediately adjacent to a pollutant source, especially downwind (cement plants, paper mills, etc.).

☆ Use of fertilizers by spraying, or the burning of crop residues, can lead to a higher pollution level due to dispersal by wind.

❋ Distances from coast depend on the topography of the coastal area and on the extreme wind conditions.



FOUR–SKIRT TERMINATION

A. Typical Dimensions

Product Number	A	B	C	Creepage Distance	Arcing Distance
5641	10.00″ (max) (254 mm)	1.67″ (42,4 mm)	2.68″ (68,1 mm)	15.25″ (max) (387 mm)	10.50″ (max) (267 mm)
5642	10.0″ (max) (254 mm)	1.82″ (46,2 mm)	2.75″ (69,8 mm)	15.25″ (max) (387 mm)	10.50″ (max) (267 mm)
5643	11.00″ (max) (279 mm)	2.00″ (50,8 mm)	3.25″ (82,5 mm)	17.25″ (max) (438 mm)	11.50″ (max) (292 mm)
5644	11.25″ (max) (286 mm)	2.00″ (50,8 mm)	3.55″ (90,2 mm)	17.50″ (max) (445 mm)	11.75″ (max) (298 mm)

B. Termination Selection Table

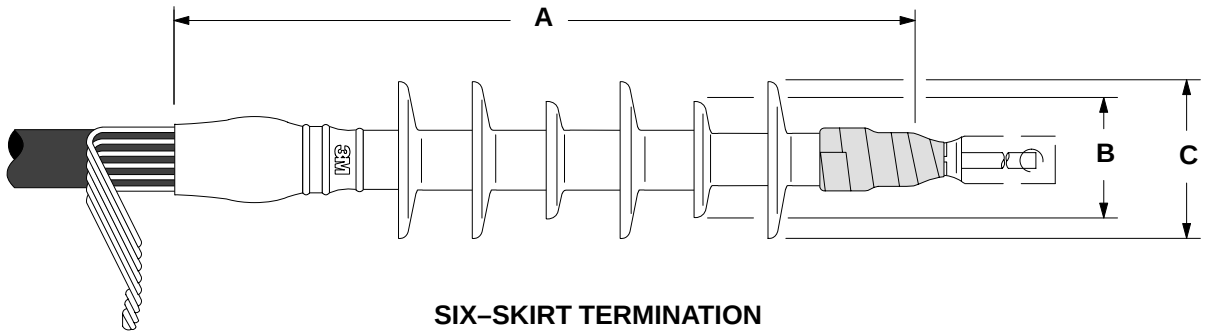
Kit Number	Cable Insulation O. D. Range	Cable Jacket O. D. Range	Conductor Size Range (AWG kcmil)	
			15 kV	25 kV**
5641	0.637 – 1.12 in. (16,2 – 28,4 mm)	0.93 – 1.35 in. (23,6 – 34,3 mm)	2 Str. or 2 Sol. – 2/0	2 Sol. – 1/0
5642	0.84 – 1.38 in. (21,3 – 35,0 mm)	1.19 – 1.72 in. (30,2 – 43,7 mm)	3/0 – 350	1/0 – 250
5643	1.08 – 1.80 in. (27,4 – 45,7 mm)	1.37 – 2.02 in. (34,8 – 51,3 mm)	400 – 700	250 – 500
5644	1.31 – 2.10 in. (33,3 – 53,3 mm)	1.62 – 2.55 in. (41,1 – 64,8 mm)	750 – 1500	500 – 1250

** See Recommended Application Guide, on page 2.

C. Typical Results per IEEE STD. 48–1990 Tests

IEEE STD. 48 Test	15 kV Class		25 kV Class	
	Requirement	Results	Requirement	Results
60 sec. w/s ac	50 kV	85 kV*	65 kV	90 kV*
10 sec. w/s wet ac	45 kV	65 kV*	60 kV	75 kV*
6 hours w/s ac	35 kV	80 kV*	55 kV	85 kV*
Corona @ 3 pc. CSV CEV	— 13 kV	33 kV 28 kV	— 21.5 kV	36 kV 32 kV
15 min. w/s dc	75 kV	Pass 75 kV	105 kV	pass 105 kV
Impulse w/s	110 kV	+165 kV* –150 kV*	150 kV	+180 kV* –165 kV*
30 day Cyclic Aging @ 130°C w/s ac Corona @ 3 pc. CEV> Impuse +10 – 10	 28.5 kV 13 kV +110 kV –110 kV	 Pass Pass Pass Pass	 48 kV 21.5 kV +150 kV –150 kV	 Pass Pass Pass Pass

*At higher voltage flashovers occur.



SIX–SKIRT TERMINATION

A. Typical Dimensions

Product Number	A	B	C	Creepage Distance	Arcing Distance
5651	13.00″ (max) (330 mm)	1.67″ (42,4 mm)	2.68″ (68,1 mm)	21.00″ (max) (533 mm)	13.50″ (max) (343 mm)
5652	13.00″ (max) (330 mm)	1.82″ (46,2 mm)	2.75″ (69,8 mm)	21.00″ (max) (533 mm)	13.50″ (max) (343 mm)
5653	14.50″ (max) (368 mm)	2.00″ (50,8 mm)	3.25″ (82,5 mm)	23.75″ (max) (603 mm)	15.00″ (max) (381 mm)
5654	14.75″ (max) (375 mm)	2.00″ (50,8 mm)	3.55″ (90,2 mm)	24.00″ (max) (610 mm)	15.25″ (max) (387 mm)

B. Termination Selection Table

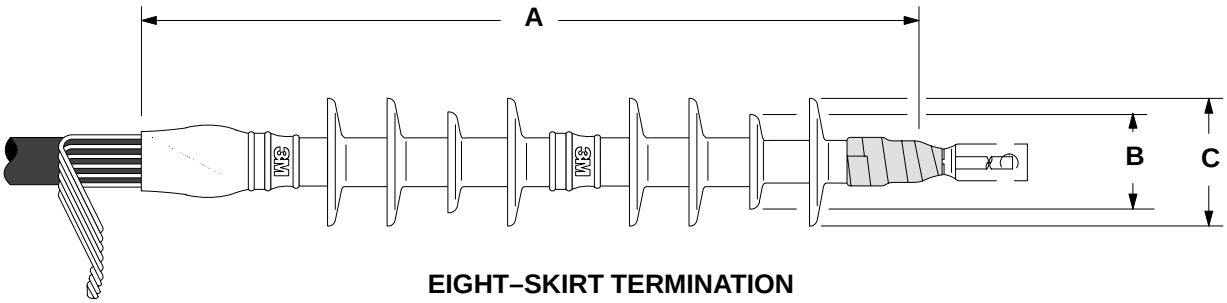
Kit Number	Cable Insulation O. D. Range	Cable Jacket O. D. Range	Conductor Size Range (AWG kcmil)		
			15 kV**	25 kV	35 kV**
5651	0.637 – 1.12 in. (16,2 – 28,4 mm)	0.93 – 1.35 in. (23,6 – 34,3 mm)	2 – 2/0	2 – 1/0	—
5652	0.84 – 1.38 in. (21,3 – 35,0 mm)	1.19 – 1.72 in. (30,2 – 43,7 mm)	3/0 – 350	1/0 – 250	1 – 3/0
5653	1.08 – 1.80 in. (27,4 – 45,7 mm)	1.37 – 2.02 in. (34,8 – 51,3 mm)	400 – 700	250 – 500	4/0 – 300
5654	1.31 – 2.10 in. (33,3 – 53,3 mm)	1.62 – 2.55 in. (41,1 – 64,8 mm)	750 – 1500	500 – 1250	350 – 1000

** See Recommended Application Guide, on page 2.

C. Typical Results per IEEE STD. 48–1990 Tests

IEEE STD. 48 Test	15 kV Class		25 kV Class†		34.5 kV Class†	
	Requirement	Results	Requirement	Results	Requirement	Results
60 sec. w/s ac	50 kV	100 kV*	65 kV	110 kV*	90 kV	115 kV*
10 sec. w/s wet ac	45 kV	70 kV*	60 kV	80 kV*	80 kV	90 kV*
6 hours w/s ac	35 kV	95 kV*	55 kV	105 kV*	75 kV	110 kV*
Corona @ 3 pc. CSV CEV	— 13 kV	33 kV 28 kV	— 21.5 kV	36 kV 32 kV	— 30 kV	41 kV 39 kV
15 min. w/s dc	75 kV	Pass 75 kV	105 kV	pass 105 kV	140 kV	pass 140 kV
Impulse w/s	110 kV	+195 kV* –180 kV*	150 kV	+210 kV* –195 kV*	200 kV	+225 kV* –210 kV*
30 day Cyclic Aging @ 130°C w/s ac Corona @ 3 pc. CEV> Impuse +10 – 10	 28.5 kV 13 kV +110 kV –110 kV	 Pass Pass Pass Pass	 48 kV 21.5 kV +150 kV –150 kV	 Pass Pass Pass Pass	 66 kV 30 kV +200 kV –200 kV	 Pass Pass Pass Pass

†25 kV class Quick Term II terminations will also meet prorated values for 28 kV rated systems.
*At higher voltage flashovers occur.



EIGHT–SKIRT TERMINATION

A. Typical Dimensions

Product Number	A	B	C	Creepage Distance	Arcing Distance
5646	17.50″ (max) (444 mm)	1.82″ (46,2 mm)	2.75″ (69,8 mm)	28.00″ (max) (711 mm)	18.00″ (max) (457 mm)
5647	19.50″ (max) (495 mm)	2.00″ (50,8 mm)	3.25″ (82,5 mm)	31.00″ (max) (787 mm)	20.00″ (max) (508 mm)
5648	19.75″ (max) (501 mm)	2.00″ (50,8 mm)	3.55″ (90,1 mm)	31.25″ (max) (794 mm)	20.25″ (max) (514 mm)
5649	21.00″ (max) (533 mm)	2.40″ (60,9 mm)	4.00″ (102 mm)	33.75″ (max) (857 mm)	21.50″ (max) (546 mm)

B. Termination Selection Table

Kit Number	Cable Insulation O. D. Range	Cable Jacket O. D. Range	Conductor Size Range (AWG kcmil)		
			15 kV**	25 kV**	35 kV**
5646	0.84 – 1.38 in. (21,3 – 35,0 mm)	1.19 – 1.72 in. (30,2 – 43,7 mm)	3/0 – 350	1 – 250	1 – 3/0
5647	1.08 – 1.80 in. (27,4 – 45,7 mm)	1.37 – 2.02 in. (34,8 – 51,3 mm)	400 – 700	300 – 500	4/0 – 300
5648	1.31 – 2.10 in. (33,3 – 53,3 mm)	1.62 – 2.55 in. (41,1 – 64,8 mm)	750 – 1500	500 – 1250	350 – 1000
5649	1.80 – 2.30 in. (45,7 – 58,4 mm)	2.10 – 2.75 in. (53,3 – 70,0 mm)	1500 – 2000	1250 – 1750	1000 – 1500

** See Recommended Application Guide, on page 2.

C. Typical Results per IEEE STD. 48–1990 Tests

IEEE STD. 48 Test	15 kV Class		25 kV Class		34.5 kV Class	
	Requirement	Results	Requirement	Results	Requirement	Results
60 sec. w/s ac	50 kV	115 kV*	65 kV	125 kV*	90 kV	135 kV*
10 sec. w/s wet ac	45 kV	75 kV*	60 kV	85 kV*	80 kV	95 kV*
6 hours w/s ac	35 kV	100 kV*	55 kV	110 kV*	75 kV	120 kV*
Corona @ 3 pc. CSV CEV	— 13 kV	33 kV 28 kV	— 21.5 kV	36 kV 32 kV	— 30 kV	41 kV 39 kV
15 min. w/s dc	75 kV	Pass 75 kV	105 kV	pass 105 kV	140 kV	pass 140 kV
Impulse w/s	110 kV	+215 kV* –200 kV*	150 kV	+235 kV* –220 kV*	200 kV	+255 kV* –240 kV*
30 day Cyclic Aging @ 130°C w/s ac Corona @ 3 pc. CEV> Impuse +10 – 10	 28.5 kV 13 kV +110 kV –110 kV	 Pass Pass Pass Pass	 48 kV 21.5 kV +150 kV –150 kV	 Pass Pass Pass Pass	 66 kV 30 kV +200 kV –200 kV	 Pass Pass Pass Pass

*At higher voltage flashovers occur.

D. Typical Physical and Electrical Properties

Silicone Rubber Insulator

Physical Properties

Test Method	Typical Value*
• Color	Munsel Gray
• Permanent Set 22 hours @ 100°C (212°F) 100% elongation 5 minute recovery	8%
• Ultimate Tensile Strength (ASTM D412)	1200 psi (8.28 MPa)

Electrical Properties

Test Method	Typical Value*
• Dielectric Constant (K) (ASTM D150)	
23°C (73°F)	3.4
90°C (194°F)	3.0
130°C (266°F)	2.7
• Dissipation Factor (ASTM D150)	
23°C (73°F)	0.4%
90°C (194°F)	1.3%
130°C (266°F)	1.2%
• Dielectric Strength (ASTM D149)	
0.075″ thick slab (1,90 mm)	507 volts/mil (20 kV/mm)
• Track Resistance (ASTM 2303)	
2.5 kV	10 hrs.
3.5 kV	1 hr.

EPDM Rubber High-K Stress Control Tube

Physical Properties

Test Method	Typical Value*
• Ultimate Tensile Strength (ASTM 412)	1394 psi (9.6 MPa)
• Permanent Set 22 hours @ 100°C (212°F) 100% elongation 15 minute recovery	16%

Electrical Properties

Test Method	Typical Value*	
• Dielectric Constant (K) (ASTM D150) 60 Hz; @ 60% strain	@400 V	@3 kV
23°C (73°F)	25.7	28.8
65°C (149°F)	24.5	27.2
90°C (194°F)	25.2	27.7
vs. frequency @ 23°C (73°F)		
150 Hz		35
1,000 Hz		29
10,000 Hz		24
100,000 Hz		20
• Dissipation Factor (ASTM D150) 60 Hz; @ 60% strain	@400 V	@3 kV
23°C (73°F)	0.096	0.166
65°C (149°F)	0.093	0.165
90°C (194°F)	0.132	0.161
vs. frequency @ 23°C (73°F)		
150 Hz		0.16
1,000 Hz		0.15
10,000 Hz		0.14
100,000 Hz		0.12

* Average values, not intended for specification purposes.

4. Specification Guide

(Open Specification)

The cable termination must be a one-piece Cold Shrink™ 15 kV, 25 kV or 34.5 kV Class device and meet all 15 kV, 25 kV or 34.5 kV requirements for Class 1 termination as recorded in IEEE Standard 48-1990. The termination must be a molded rubber unit where the built in stress relief mechanism uses the concept of high dielectric constant capacitive stress grading. The molded rubber insulator must be made from silicone rubber.

(Closed Specification)

Terminate all 15 kV, 25 kV and 34.5 kV Class Jacketed Concentric Neutral (JCN) Cable in accordance with the instructions in the 3M Brand 5640 and 5650 Series Quick Term II Silicone Rubber Termination Kits.

5. Performance Tests

A. Corona Tests

The purpose of the corona tests is to insure that all properly installed terminations operate corona-free at a minimum of 150% of their operating voltage. In this test, phase to ground voltage is gradually increased until high frequency discharges are displayed on an oscilloscope.

The voltage at which these discharges reach three picocoulombs is recorded as the corona starting voltage (CSV). The voltage is then lowered until the discharges are less than three picocoulombs. This voltage is recorded as the corona extinction voltage (CEV). All Quick Term II terminations conform with the IPCEA recommended minimum corona extinction (CEV) level of 150% of operating voltage. Samples installed on 15 kV class cable are typically corona-free at 30 kV. Samples installed on 34.5 kV class cable are typically corona-free at 40 kV.

B. Impulse Tests (BIL)

In this test a nominal 1.2×50 microsecond wave, both positive and negative, is used. Ten consecutive impulses at each polarity are applied. All Quick Term II terminations meet the BIL requirements as recorded in IEEE Standard 48-1990 with a considerable amount of safety margin.

C. Alternating Current Withstand Tests

All terminations meet ac withstand tests as specified in IEEE Standard 48-1990. See applicable tables **"Typical Results per IEEE STD. 48-1990 Tests."**

The average value of voltage which will arc over the termination surface in air, from the cable connecting lug to the neutral wire at the termination base, is shown in *table on next page*.

To determine dielectric strength, terminations are immersed in SF_6 gas. The SF_6 gas, having a higher dielectric strength than air, prevents termination flashover. The ac breakdown values are shown in *table on next page*.

Product Number	AC Flashover			AC Breakdown in SF_6		
	15 kV Class	25 kV Class	34.5 kV Class	15 kV Class	25 kV Class	34.5 kV Class
5641–5644	85 kV	95 kV	—	130 kV	155 kV	—
5651–5654	105 kV	115 kV	125 kV	130 kV	155 kV	197 kV
5646–4549	125 kV	135 kV	145 kV	130 kV	155 kV	197 kV

D. Environmental Performance

When airborne contaminants are deposited on a termination surface destructive leakage currents can be initiated when the surface becomes wet. Fog and drizzle are worse than rain. Rain tends to wash the pollutants off the termination while fog will wet the pollutants making the surface conductive to varying degrees promoting leakage current formation. This is most typical of hydrophillic surfaces typified by porcelain *(Figure 2)*. The surface of 3M Quick Term II silicone insulator is hydrophobic which makes it less likely to erode or track because the surface does not wet readily. *(Figure 3)*. This either prevents or minimizes leakage current formation. On occasion severe environmental conditions can be sustained for long time periods and cause any polymeric surface to lose its hydrophobicity. Because of this, EPDM polymers tend to lose their hydrophobicity over time, and porcelain surfaces become increasingly hydrophillic with time, which will result in premature failure or flashover. However, the silicone surface will re-establish its hydrophobic surface within 24 hours *(Figure 4)*. This unique ability of the Quick Term II silicone is a major factor to insure long service life.

References

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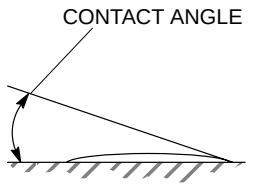
*Member of the 3M Electrical Products Division Technical Community.

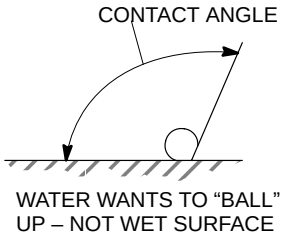
HYDROPHILLIC



PORCELAIN

Figure 2

HYDROPHOBIC



SILICONE

Figure 3

RECOVERY OF CONTACT ANGLE FOR QTII SILICONE RUBBER.

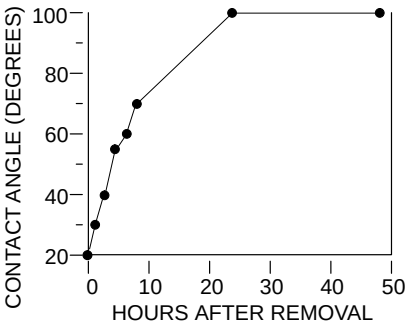


Figure 4

E. Sealing Tests

The bottom seal on Jacketed Concentric Neutral (JCN) Cable is formed with mastic placed under the folded neutral wires, which is then over-wrapped with vinyl tape. The tape wrap forces the wires into the mastic to form a moisture seal around the neutral wires. The elongated base of a 5640 or 5650 Series Quick Term II Cold Shrink™ insulator covers the cable jacket end and tape/mastic region to complete the seal. The top seal on the lug is provided by the use of Scotch™ 70 Silicone Rubber Electrical Tape.

The seals are tested by immersing the lug end in water and applying air pressure to the conductor. Both seals will withstand internal air pressure test per IEEE Standard 48-1990.

F. Ultraviolet Resistance

After 1,000 hours of testing in a Weather-O-Meter according to Specifications ASTM D750 and ASTM G23, the silicone insulator exhibited no crazing, cracking or change in surface appearance. Silicone rubber, unlike carbon based elastomers, is inherently stable under exposure to sunlight. This is because of the silicone molecular back bone (the silicon-oxygen bond) has a bond strength greater than the ultraviolet energy of sunlight while the carbon-carbon bond of an EPDM elastomer is less than sunlight.

Installation Techniques

A detailed instruction sheet regarding proper installation is included in each kit. A brief summary of these procedures is as follows:

a. Prepare cable according to standard procedure (*Figure 5*).

b. Make jacket seal with mastic and vinyl tape (*Figure 5*).

c. Install lug using appropriate crimp tool (*Figure 5*).

d. Apply a liberal coating of silicone grease to the edge of the cable semi-conductive insulation shield (*Figure 6*).

e. Place termination over cable and unwind the core allowing the termination to shrink into place (*Figure 7 and 8*).

f. Apply 70 Tape Top Seal (*Figure 8*).

Figure 5

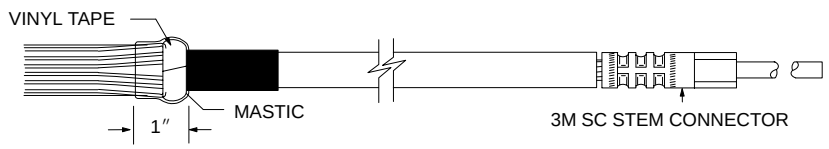


Figure 6

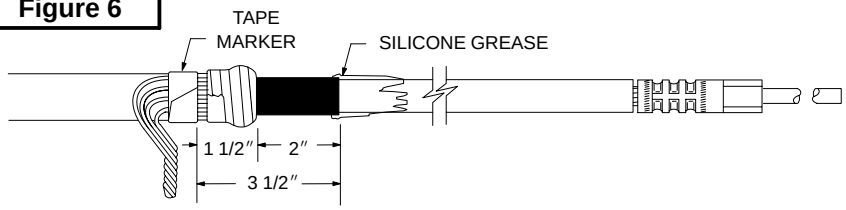
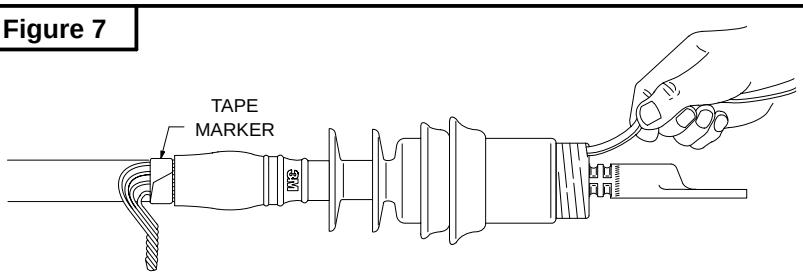
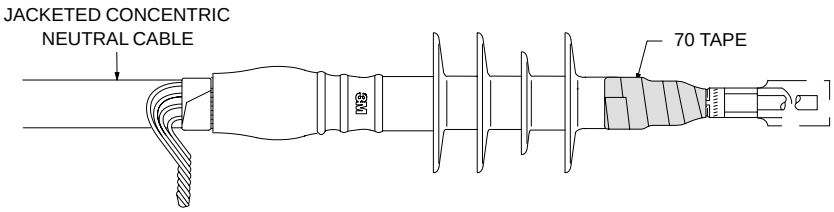


Figure 7



NOTE: The material being removed at this step is polypropylene and can be recycled with other waste.

Figure 8



6. Field Maintenance

Hypotting

These terminations can be tested according to the instructions given in IEEE Standard 400-1991, ‘‘Guide for Making High Direct Voltage Tests in the Field.’’

Surface Cleaning

It is not uncommon in areas of extreme contamination for users to periodically clean terminations and other insulators. Energized or de-energized, established techniques for cleaning cable terminations can be used, e. g. high pressure water and pulverized corn cobs.

7. Availability

3M 5640 and 5650 Series Quick Term II Molded Silicone Rubber Termination Kits can be purchased through your local authorized 3M electrical distributor.

8. Shelf Life

3M 5640 and 5650 Series Quick Term II Silicone Rubber Termination Kits are packaged three terminations per carton. As provided in the expanded state, terminations have an on-shelf storage life of three years.

Maximum recommended storage temperature is 110°F (43°C). They are not effected by freezing storage temperatures. The year and quarter of manufacture is molded into the base of each Quick Term II termination. Stock rotation practice is recommended.

‘3M’, ‘Cold Shrink’ and ‘Scotch’ are trademarks of 3M.

Important Notice to Purchaser:

All statements, technical information and recommendations related to the Seller’s products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use. The user assumes all risks and liability whatsoever in connection with such use.

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