



## XLPE Termination

3M Heat Shrink (HS) Terminations up to 36kV are specially designed for conditions where the termination are exposed to precipitation, outdoor sunlight, extreme climate variances and heavily polluted areas. The specially engineered kits also take care of the typical partial discharge and surface corona phenomenon of all power cables under challenging service conditions.

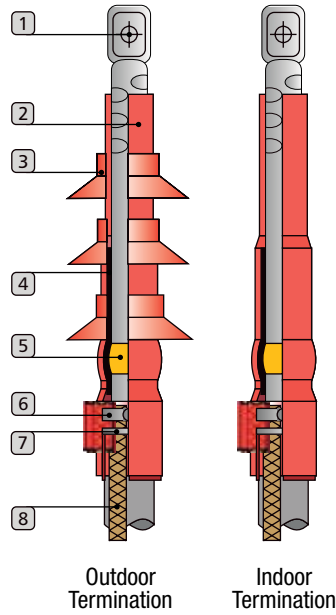
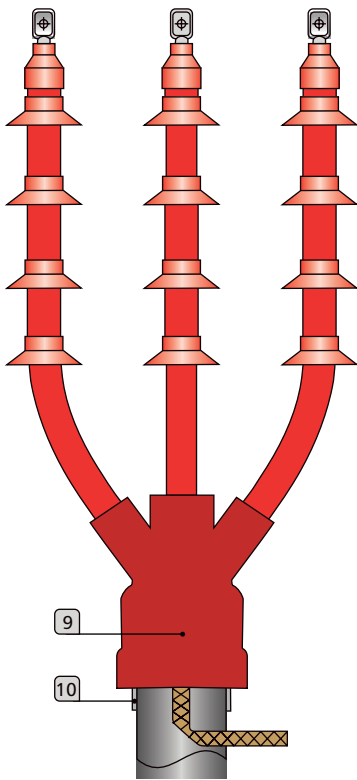
All components required for the termination are included in a single kit, which has a prolonged storage life under normal storage conditions. A few sizes of the kits cover the entire range of cables, helping in reducing inventories. The heat shrinkable components are light in weight and are made of a specially formulated cross-lined polymeric material with excellent tracking and erosion resistance characteristics. A proper creepage path is obtained within a short overall length of the termination. The kits have been designed to meet various international standards like IS, HDE, IEEE, IEC and BS. Our state-of-the-art manufacturing facility and in-house testing laboratories and accreditation to the ISO 9001 quality assurance standard, guarantees the performance of our materials to suit customer requirements.

3M Heat Shrink (HS) terminations are available for both indoor and out door applications. The terminations are available for single and multi core cable types and aerial bunch cables.

**Indoor Terminations:** Components are designed to withstand high humidity and surface contamination under electrical stress caused due to condensation and dust in internal conditions. 3M HS indoor terminations are very slim and compact.

**Outdoor Terminations:** Components are designed to withstand exposure to UV radiation, extreme climatic variations and surface contamination under electrical stress caused due to condensation, pollution and dust in external conditions.

- Ease of installation
- Simplified cable preparation
- Outstanding long term reliability
- Effective and reliable stress control
- Excellent mechanical, thermal and electrical characteristics
- Excellent Anti-tracking outer surface
- Superior resistance to weathering and UV
- Resistant to water and corrosion
- Immediate energization of cable on completion
- Suitable for all conductor shapes and materials



### XLPE Termination

- 1 Terminal Connector
- 2 Anti-Tracking Sleeve
- 3 Rain-Shed
- 4 Stress Control Sleeve
- 5 Stress Control Mastic
- 6 Binding wire
- 7 Worm Drive Clamp
- 8 Copper Braid (Earthlings for Screen)
- 9 Breakout (with sealant layer)
- 10 Gland Sleeve (Adhesive Lined)

#### Number of Rain Sheds per phase

Voltage	Indoor	Outdoor
Up to 17.5kV	-	2
Up to 24kV	-	3
Up to 36kV	1	4

### Minimum performance of M-SEAL Indoor and Outdoor Termination for MULTI-CORE XLPE cables upto 36kV

Test	Parameters	Test Voltage in kV			Observations	
		12kV	24kV	36kV	Indoor	Outdoor
IAC High voltage test	1 Minute	35	55	75	No breakdown or flashover	do
Partial discharge	Test voltage		at 2U <sub>0</sub>		Less than 20 Pc	do
Impulse withstand test	10 +VE & 10-VE, 1.2 Micro Second between conductor & screen grounded	75	125	170	No breakdown or flashover	do
Load cycling test	126 Cycles, 5H Heating. 3H Cooling with Cond. Temp. as per cable specification		at 2.5U <sub>0</sub>		No breakdown or flashover	do
Thermal short circuit test	Current according to the cross-section of cable		-		No visible signs of damage	do
DC withstand test	30 Minutes	48	96	144	No breakdown or flashover	do
Dynamic short circuit test	Current according to the cross-section of cable		-		No breakdown or flashover	do
Influence of humidity	100 hours	7	14	21	No traces of erosions extending upto insulation	NA
Salt fog test	1000 hours	7	14	21	NA	No traces of erosions extending upto insulation
Wet power frequency test	1 Minute	28	50	70		No breakdown or flasher

## Heat Shrink Terminations

Cable Size	Dia. Over Insulation (mm)	Dia. Over Outer Jacket (mm)	Kit No.
<b>6/10(12) kV 1Core XLPE Insulated Copper Tape Screened Unarmoured Cable - Indoor Terminations</b>			
16-35	11.50-16.50	16.00-26.00	IHR-6311
50-95	15.50-21.50	20.00-30.00	IHR-6312
120-185	20.50-26.50	25.00-35.00	IHR-6313
240-300	25.50-31.50	30.00-40.00	IHR-6314
400-500	30.50-38.50	35.00-47.00	IHR-6315
630-800	37.50-47.50	43.00-56.00	IHR-6316
1000	46.50-52.50	52.00-60.00	IHR-6317
<b>6/10(12) kV 1Core XLPE Insulated Copper Tape Screened Unarmoured Cable - Outdoor Terminations</b>			
16-35	11.50-16.50	16.00-26.00	OHR-6311
50-95	15.50-21.50	20.00-30.00	OHR-6312
120-185	20.50-26.50	25.00-35.00	OHR-6313
240-300	25.50-31.50	30.00-40.00	OHR-6314
400-500	30.50-38.50	35.00-47.00	OHR-6315
630-800	37.50-47.50	43.00-56.00	OHR-6316
1000	46.50-52.50	52.00-60.00	OHR-6317
16-35	11.50-16.50	16.00-26.00	OHR-6311
<b>6/10(12) kV 3Core XLPE Insulated Copper Tape Screened Armoured Cable - Indoor Terminations</b>			
16-35	11.50-16.50	39.00-55.00	IHR-3331
50-95	15.50-21.50	46.00-66.00	IHR-3332
120-185	20.50-26.50	57.00-77.00	IHR-3333
240-300	25.50-31.50	71.00-91.00	IHR-3334
400-500	30.50-38.50	85.00-105.00	IHR-3335
<b>6/10(12) kV 3Core XLPE Insulated Copper Tape Screened Armoured Cable - Outdoor Terminations</b>			
16-35	11.50-16.50	39.00-55.00	OHR-3331
50-95	15.50-21.50	46.00-66.00	OHR-3332
120-185	20.50-26.50	57.00-77.00	OHR-3333
240-300	25.50-31.50	71.00-91.00	OHR-3334
400-500	30.50-38.50	85.00-105.00	OHR-3335
<b>12/20(24) kV 1Core XLPE Insulated Copper Tape Screened Unarmoured Cable - Indoor Terminations</b>			
35-50	16.50-24.50	23.00-33.00	IHS-6311
70-95	21.00-28.50	26.00-36.00	IHS-6312
120-185	22.50-33.50	30.00-40.00	IHS-6313
240-300	28.50-37.50	35.00-45.00	IHS-6314
400-500	33.50-44.50	40.00-52.00	IHS-6315
630-800	40.50-54.50	48.00-61.00	IHS-6316
1000	48.50-56.50	57.00-65.00	IHS-6317
<b>12/20(24) kV 1Core XLPE Insulated Copper Tape Screened Unarmoured Cable - Outdoor Terminations</b>			
35-50	16.50-24.50	23.00-33.00	OHS-6311
70-95	21.00-28.50	26.00-36.00	OHS-6312
120-185	22.50-33.50	30.00-40.00	OHS-6313
240-300	28.50-37.50	35.00-45.00	OHS-6314
400-500	33.50-44.50	40.00-52.00	OHS-6315
630-800	40.50-54.50	48.00-61.00	OHS-6316
1000	48.50-56.50	57.00-65.00	OHS-6317
<b>12/20(24) kV 3Core XLPE Insulated Copper Tape Screened Armoured Cable - Indoor Terminations</b>			
35-50	16.50-24.50	50.00-70.00	IHS-3331
70-95	21.00-28.50	58.00-78.00	IHS-3332
120-185	22.50-33.50	69.00-89.00	IHS-3333
240-300	28.50-37.50	80.00-100.00	IHS-3334
400-500	33.50-44.50	91.00-116.00	IHS-3335
35-50	16.50-24.50	50.00-70.00	IHS-3331
<b>12/20(24) kV 3Core XLPE Insulated Copper Tape Screened Armoured Cable - Outdoor Terminations</b>			
35-50	16.50-24.50	50.00-70.00	OHS-3331
70-95	21.00-28.50	58.00-78.00	OHS-3332
120-185	22.50-33.50	69.00-89.00	OHS-3333
240-300	28.50-37.50	80.00-100.00	OHS-3334
400-500	33.50-44.50	91.00-116.00	OHS-3335
35-50	16.50-24.50	50.00-70.00	OHS-3331
70-95	21.00-28.50	58.00-78.00	OHS-3332

**Important Notice**

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

**Warranty: Limited Remedy: Limited Liability;**

This product will be free from defects in material and manufacture at the time of purchase. 3M MAKES NO OTHER WARRANTIES

**Technologies (S) Pte Ltd  
Electrical Markets Division**

1 Yishun Avenue 7  
Singapore 768923  
Tel: 6450 8888 (Main)  
Fax: 6552 2116

Website:  
[www.3M.com/electrical](http://www.3M.com/electrical)  
[www.3M.com.sg](http://www.3M.com.sg)

**INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF  
MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.