



All Round  
Supplies

Endeavour Energy

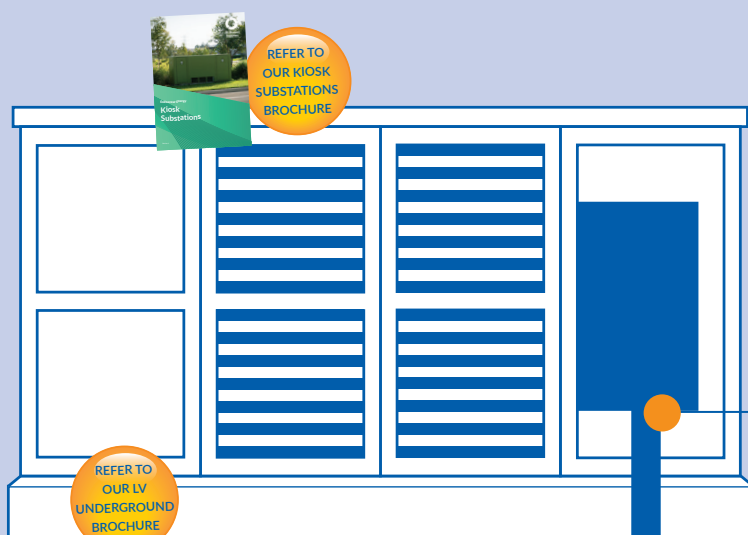
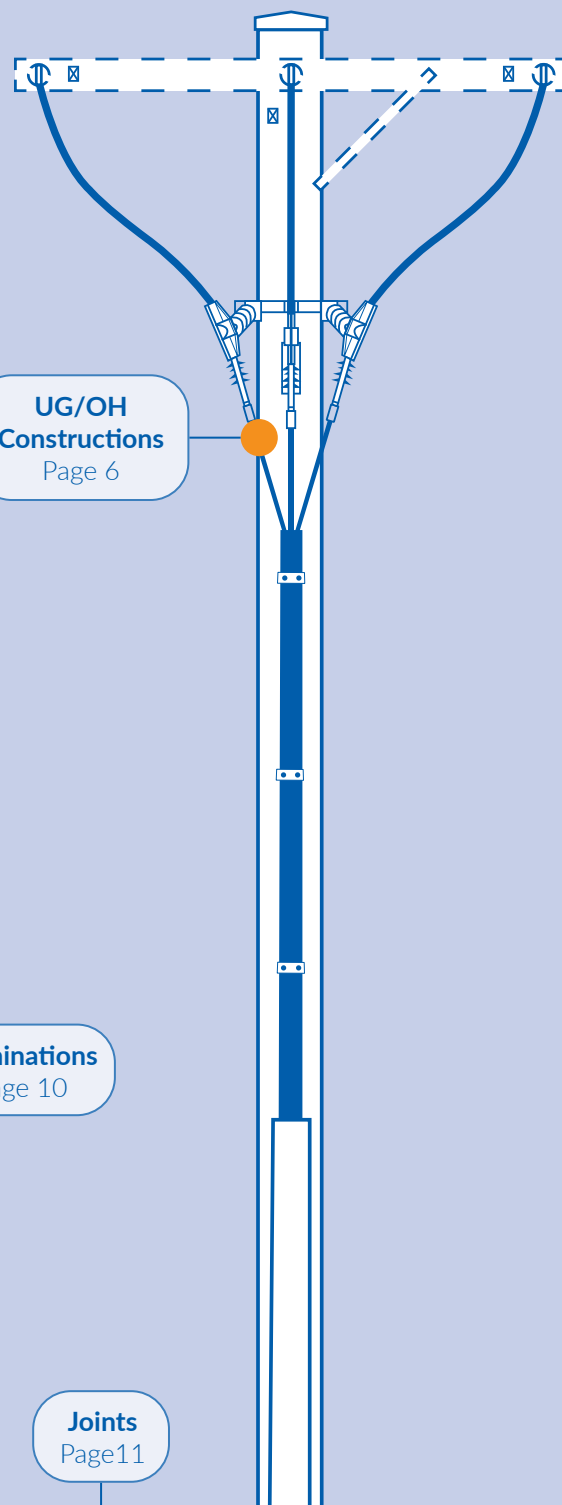
# Medium Voltage Underground



# TYPICAL UTILITY UNDERGROUND NETWORK

# Contents:

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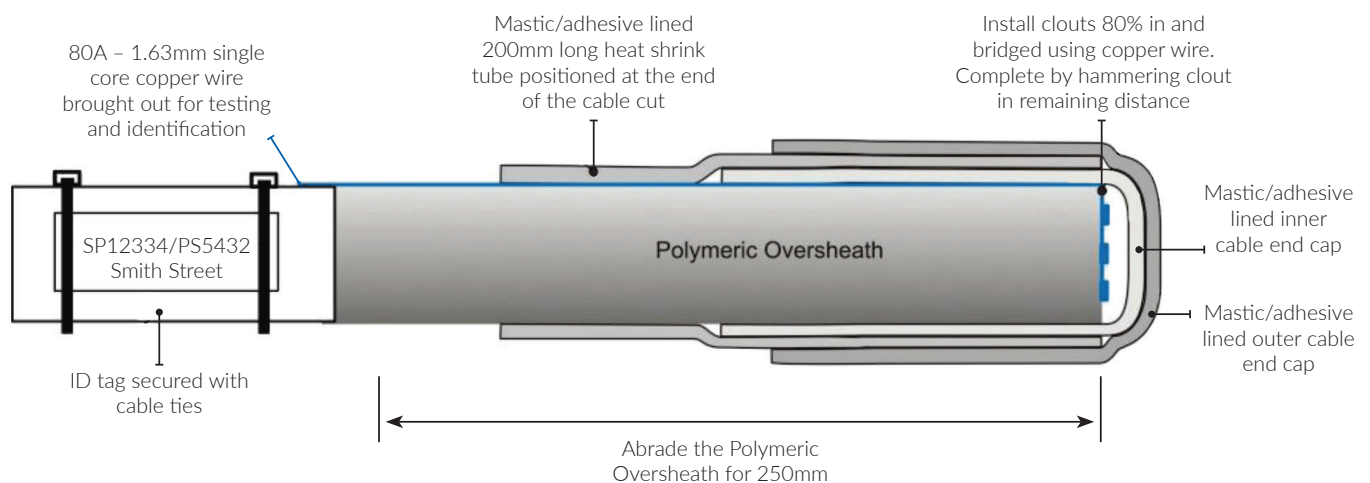
## Cable – MV Underground

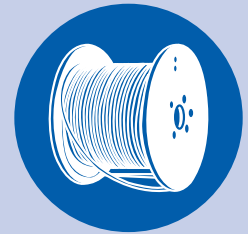
| Description                        | Pack Size                   | MOQ Cut | Cut Fee | ARS Code  |
|------------------------------------|-----------------------------|---------|---------|-----------|
| 11kV 3c 240mm <sup>2</sup> AL XLPE | Full drums only (500m)      | N/A     | N/A     | 00126     |
|                                    | Full drums only (500/1000m) | N/A     | N/A     | 00126N    |
|                                    | Cuts only (CTL)             | 50M     | \$85.00 | 00126NCTL |
| 11kV 3c 240mm <sup>2</sup> CU XLPE | Full drums only (500/1000m) | N/A     | N/A     | 09264     |
|                                    | Full drums only (500m)      | N/A     | N/A     | 00337N    |
|                                    | Full drums only (500/1000m) | N/A     | N/A     | 09265     |
|                                    | Cuts only (CTL)             | 25M     | \$85.00 | 09265CTL  |
| 11kV 3c 300mm <sup>2</sup> CU XLPE | Full drums only (400/500m)  | N/A     | N/A     | 03308     |
| 22kV 3c 240mm <sup>2</sup> AL XLPE | Full drums only (400m)      | N/A     | N/A     | 00267     |
|                                    | Full drums only (600m)      | N/A     | N/A     | 00267N    |
|                                    | Cuts only (CTL)             | 50M     | \$85.00 | 00267NCTL |
|                                    | Full drums only (500/1000m) | N/A     | N/A     | 09266     |

## Cable sealing components

| Description                         | Unit of Measure | ARS Code |
|-------------------------------------|-----------------|----------|
| Copper ID tag for underground cable | Pack of 100     | 08712    |
| Wire, fuse 80Amp – 1.63mm           | Coil 0.5kg      | 03793    |
| Clout, 2.8mm x 40mm – galvanised    | 2kg tub         | 00496    |

## Typical cable sealing details:





## Heatshrink End Caps – Adhesive Lined



| Description       | Unit of Measure | ARS Code |
|-------------------|-----------------|----------|
| 4-8 OD BLK LIN    | Each            | 04072    |
| 8-17 OD BLK LIN   | Each            | 02646    |
| 17-30 OD BLK LIN  | Each            | 02194    |
| 30-45 OD BLK LIN  | Each            | 02422    |
| 45- 65 OD BLK LIN | Each            | 00197    |
| 65-95 OD BLK LIN  | Each            | 02496    |
| 95-115 OD BLK LIN | Each            | 05034    |

## Heatshrink Tubing – Adhesive Lined



| Description             | Unit of Measure | ARS Code |
|-------------------------|-----------------|----------|
| LV 35/12MW black lined  | 1.2m length     | 00318    |
| LV 50/16MW black lined  | 1.2m length     | 00129    |
| LV 63/19MW black lined  | 1.2m length     | 00547    |
| LV 140/42MW black lined | 1.5m length     | 04892    |

## Cable sealing components

| Description                         | Unit of Measure | ARS Code |
|-------------------------------------|-----------------|----------|
| Copper ID tag for underground cable | Pack of 100     | 08712    |
| Wire, fuse 80Amp – 1.63mm           | Coil 0.5kg      | 03793    |
| Clout, 2.8mm x 40mm – galvanised    | 2kg tub         | 00496    |

## SEALING AND END-CAPPING OF CABLES

For unterminated underground cables, including the balance of the cables on cable drums, the cables must be sealed at both ends to prevent the ingress of moisture into the cable before, during and after installation.

Where multi-core cables are installed and the cable end is to be buried, or not terminated immediately, the cable cores shall be bridged prior to sealing and identification tagged. The single solid core wire tail brought out of the sealed end is to assist identification and is not designed to withstand a fault current.

As a minimum, cable sealing will now be achieved through the method detailed in MCI 0006 clause 3.4.4.

# MV UGOH Construction

1

## BONDING MATERIALS

These are the items required to make the connection between the overhead mains conductors and the underground cable at the surge arresters. The bonding cable can be either insulated cable (CCT), or a bare conductor covered with HV insulating tube.

2

## UG/OH ARSEMBLY

Our Endeavour UG/OH ARSembly kit includes materials required to install and terminate the nominated underground cable on the pole. Materials from the surge arresters down to ground level are supplied, including; surge arresters and mounting bracket, termination plates, wildlife outage protection covers, underground cable termination kit, lugs, cable clamps, cable covers, earth bar, earth cable and more.

## EARTHING MATERIALS

This refers to the materials required for the below ground level earthing, these items are sold individually as soil conditions and design requirements may change the quantities of the materials required. The earthing materials include; earth rods, couplers, driving points, cable-to-cable connectors, cable-to-rod connectors and additional earth cable.

3

# 1

## Bonding Materials – HV UG/OH

### Bonding Kits to bare OH mains using 180mm<sup>2</sup> CCT dropper cable

| Description                              | Unit of Measure |
|------------------------------------------|-----------------|
| ENDHUGOH BONDING KIT (11kV 180 CCT - AL) | A0844           |
| ENDHUGOH BONDING KIT (11kV 180 CCT - CU) | A1734           |

### Bonding materials for using bare conductor dropper cable

| Description                              | Unit of Measure |
|------------------------------------------|-----------------|
| HEATSHRINK, TUBE HV 15/6 BPTM UNL 30m    | 08181           |
| HEATSHRINK, TUBE HV 30/12 BPTM UNL 30m   | 08182           |
| LUG, COMP 120 AL M12 1 HOLE              | 00147           |
| LUG, COMP 150 AL M12 1 HOLE              | 02033           |
| LUG, COMP 185 AL M12 1 HOLE              | 00145           |
| CLAMP, PG 7/2.50 - 19/3.75 AL 2B PS SS   | 00052           |
| CLAMP, PG BI-METAL35-300 AL TO 35-240 CU | 00919           |

# 2

## Termination Kits – MV UG/OH (ARSemblies)

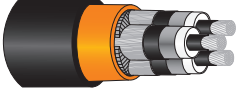
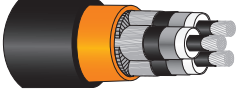
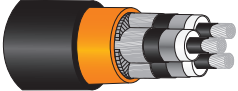
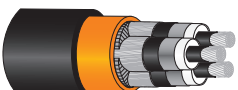
| Description                            | Termination Kit | ARS Code |
|----------------------------------------|-----------------|----------|
| ENDHUGOH 11kV 3c 185-300 XLPE WOOD TE  | TE              | A0913    |
| ENDHUGOH 11kV 3c 185-300 XLPE CONCR TE | TE              | A1102    |
| ENDHUGOH 22kV 3c 95-240 XLPE WOOD TE   | TE              | A0914    |
| ENDHUGOH 22kV 3c 95-240 XLPE CONCR TE  | TE              | A3597    |
| ENDHUGOH 11kV 3c 185-300 XLPE WOOD PJ  | PowerJoint      | A3746    |
| ENDHUGOH 11kV 3c 185-300 XLPE CONCR PJ | PowerJoint      | A3747    |
| ENDHUGOH 22kV 3c 95-240 XLPE WOOD PJ   | PowerJoint      | A3748    |
| ENDHUGOH 22kV 3c 95-240 XLPE CONCR PJ  | PowerJoint      | A3749    |

# 3

## Earthing materials - (Below Ground)

| Description                                                        | ARS Code |
|--------------------------------------------------------------------|----------|
| ROD, EARTH CU BONDED 15mm 2.44m POINTED                            | 00254    |
| COUPLER, 15mm EARTH ROD CU POINTED                                 | 02141    |
| CONNECTOR 'C' CABLE 50-70 WIDE JAW                                 | 03967    |
| CONNECTOR '6' ROD 13-15 TAP 70                                     | 02138    |
| CABLE, LV 70 CU 1c BARE COMPACTED - 100m drum                      | 00207    |
| CABLE, LV 70 CU 1c BARE COMPACTED CIH - Cut in house (30m max)     | 00207C   |
| CABLE, LV 70 CU 1c XLPE/PVC NAT/BLACK - 100m drum                  | 02142    |
| CABLE, LV 70 CU 1c XLPE/PVC NAT/BLACK CIH - Cut in house (30m max) | 02142C   |

# Quick Reference Guide

| Cable Type                                                                                                                | Cable Diameter | Heatshrink Endcap | Heatshrink Inline Joint Kit                       | Substation Termination ARSsembly Siemens 8DJH                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>11kV 3c 240mm <sup>2</sup> AL XLPE   | 70mm           | 02496             | <b>2 Options:</b><br>08011 (TE)<br>09666 (Nexans) | <b>6 Options:</b><br>A1215 (TE Elbows/TE Trifurcation)<br>A1050 (TE Elbows/Powerjoint Trifurcation)<br>A3711 (TE Elbows/NKT Trifurcation)<br>A1214 (Australmold Elbows/TE Trifurcation)<br>A0003 (Australmold Elbows/Powerjoint Trifurcation)<br>A3712 (Australmold Elbows/NKT Trifurcation) |
| <br>11kV 3c 240mm <sup>2</sup> CU XLPE   | 73mm           |                   |                                                   |                                                                                                                                                                                                                                                                                              |
| <br>11kV 3c 300mm <sup>2</sup> CU XLPE | 77mm           |                   |                                                   |                                                                                                                                                                                                                                                                                              |
| <br>22kV 3c 240mm <sup>2</sup> AL XLPE | 80mm           |                   |                                                   |                                                                                                                                                                                                                                                                                              |



|                | Substation Termination<br>ARAssembly ABB SafeLink                                                           | UG/OH ARAssembly<br>Wood Pole                                                       | UG/OH ARAssembly<br>Concrete Pole                                                   | UG/OH Bonding Kits<br>11kV 180mm <sup>2</sup> CCT                                |
|----------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| s/<br>s/<br>s/ | <b>3 Options:</b><br>A3792 (TE Trifurcation)<br>A3793 (Powerjoint Trifurcation)<br>A3667 (NKT Trifurcation) | <b>2 Options:</b><br>A0913<br>(TE Termination)<br>A3746 (Powerjoint<br>Termination) | <b>2 Options:</b><br>A1102<br>(TE Termination)<br>A3747 (Powerjoint<br>Termination) | <b>2 Options:</b><br>A0844 (Aluminium<br>Overhead)<br>A1734 (Copper<br>Overhead) |
|                | N/A                                                                                                         | <b>2 Options:</b><br>A0914<br>(TE Termination)<br>A3748 (Powerjoint<br>Termination) | <b>2 Options:</b><br>A3597<br>(TE Termination)<br>A3749 (Powerjoint<br>Termination) | N/A                                                                              |

# Switchgear Terminations

## MV termination kits

| Description                                                                                                                                         | Stockcode |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 630AMP AUSTRALMOLD ELBOWS<br>POWERJOINT TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 120-300MM <sup>2</sup> 3C XLPE                                 | A0003     |
| 630AMP AUSTRALMOLD ELBOWS<br>TE TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 120-300MM <sup>2</sup> 3C XLPE                                         | A1214     |
| 630AMP AUSTRALMOLD ELBOWS<br>NKT TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 120-300MM <sup>2</sup> 3C XLPE                                        | A3712     |
| 630AMP TE ELBOWS<br>POWERJOINT TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 185-300MM <sup>2</sup> 3C XLPE                                          | A1050     |
| 630AMP TE ELBOWS<br>TE TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 185-300MM <sup>2</sup> 3C XLPE                                                  | A1215     |
| 630AMP TE ELBOWS<br>NKT TRIFURCATION KIT & FLOATING CLAMP<br>11/22KV 185-300MM <sup>2</sup> 3C XLPE                                                 | A3711     |
| 630AMP INLINE CONNECTORS WITH NKT TRIFURCATION KIT<br>AND FLOATING CLAMP FOR ABB SAFELINK SWITCHGEAR:<br>11KV 240-300MM <sup>2</sup> 3C XLPE        | A3667     |
| 630AMP INLINE CONNECTORS WITH TE TRIFURCATION KIT<br>AND FLOATING CLAMP FOR ABB SAFELINK SWITCHGEAR:<br>11KV 240-300MM <sup>2</sup> 3C XLPE         | A3792     |
| 630AMP INLINE CONNECTORS WITH POWERJOINT TRIFURCATION<br>KIT AND FLOATING CLAMP FOR ABB SAFELINK SWITCHGEAR:<br>11KV 240-300MM <sup>2</sup> 3C XLPE | A3793     |



# Joint Kits

## Straight-Through Joint Kits (XLPE to XLPE cables)

### Heatshrink Joint Kits

| Description                              | Joint Kit | ARS Code |
|------------------------------------------|-----------|----------|
| STJ, 11/22kV 185-300 3C or 3-1 XLPE HEAT | TE        | 08011    |
| STJ, 11/22kV 185-300 3C, 3-1, 1-1 XLPE   | Nexans    | 09666    |

### Cold Applied Joint Kits

| Description                             | Joint Kit | ARS Code |
|-----------------------------------------|-----------|----------|
| STJ, 22kV 240 3c XLPE/XLPE COLD APPLIED | ABB       | 00721    |

### Resin Joint Kits

| Description                               | Joint Kit | ARS Code |
|-------------------------------------------|-----------|----------|
| STJ, 11/22KV 120-300 3C XLPE RESIN LOVINK | Lovink    | 06294    |
| RESIN MODULE, LOVINK COLD APPLIED         | Lovink    | 06295    |
| TOOL, LOVINK LOVISIL JOINTERS KIT         | Lovink    | 06455    |

## Transition Joint Kits (XLPE to Paper cables)

### Heatshrink Joint Kits

| Description                           | Joint Kit | ARS Code |
|---------------------------------------|-----------|----------|
| TTJ, 11kV 3c 185-240 XLPE 25-95 PLY   | Nexans    | 05060    |
| TTJ, 11kV 3c 95-300 XLPE 95-240 PLY   | Nexans    | 09753    |
| TTJ, 11kV 3c 240-400 XLPE 240-300 PLY | Nexans    | 10084    |
| TTJ, 11kV 3c 240 XLPE 500 PLY         | Nexans    | 10085    |

### Resin Joint Kits

| Description                              | Joint Kit | ARS Code |
|------------------------------------------|-----------|----------|
| STJ, 11/22kV 120-300 3c XLPE COLD LOVINK | Lovink    | 06294    |
| PILC MODULE, LOVINK JOINT                | Lovink    | 08506    |
| RESIN MODULE, LOVINK COLD APPLIED        | Lovink    | 06295    |
| TOOL, LOVINK LOVISIL JOINTERS KIT        | Lovink    | 06455    |

# UG/OH Parts

## Termination kits and covers

| Description                                                       | Joint Kit  | ARS Code | UOM      |
|-------------------------------------------------------------------|------------|----------|----------|
| TERM, 11/22KV 3C XLPE OUTDOOR H/S (includes lugs)                 | TE         | 06670    | Each     |
| TERM, 11/22KV 3C XLPE OUTDOOR H/S (Includes lugs & Possum Guards) | PowerJoint | 09922    | Each     |
| COVER, OUTAGE PROTECTION - POSSUM GUARDS                          | TE         | 02311    | Set of 3 |

## Surge arresters and mounting bracket

| Description                                   | ARS Code | UOM  |
|-----------------------------------------------|----------|------|
| SURGE ARRESTER, 11KV POLY (POLE TOP) WITH ELD | 05031    | Each |
| SURGE ARRESTER, 22KV POLY (POLE TOP) WITH ELD | 05554    | Each |
| BRACKET, SURGE ARRESTER MOUNTING              | 00153    | Each |

## Earth bar

| Description             | ARS Code | UOM  |
|-------------------------|----------|------|
| EARTH BAR, 11/22KV UGOH | 08638    | Each |

## Cover guard

| Description                             | ARS Code | UOM          |
|-----------------------------------------|----------|--------------|
| COVER GUARD, POLE PLASTIC BLK SGL 1.55M | 02713    | 1.55m length |

## Cable saddles

| Description                                   | ARS Code | UOM  |
|-----------------------------------------------|----------|------|
| SADDLE, 84MM TYPE 0 GALV STEEL (Wood Pole)    | 00306    | Each |
| CLAMP, CABLE 30-100 UNIVERSAL (Concrete Pole) | 02613    | Each |





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