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**Shrink Polymer Systems**  
Cable Installation Materials – 24 volts to 36 kV

## INSTALLATION INSTRUCTION HEATSHRINK JOINT TO SUIT SINGLE CORE 36kV XLPE ARMoured AND NON ARMoured CABLE



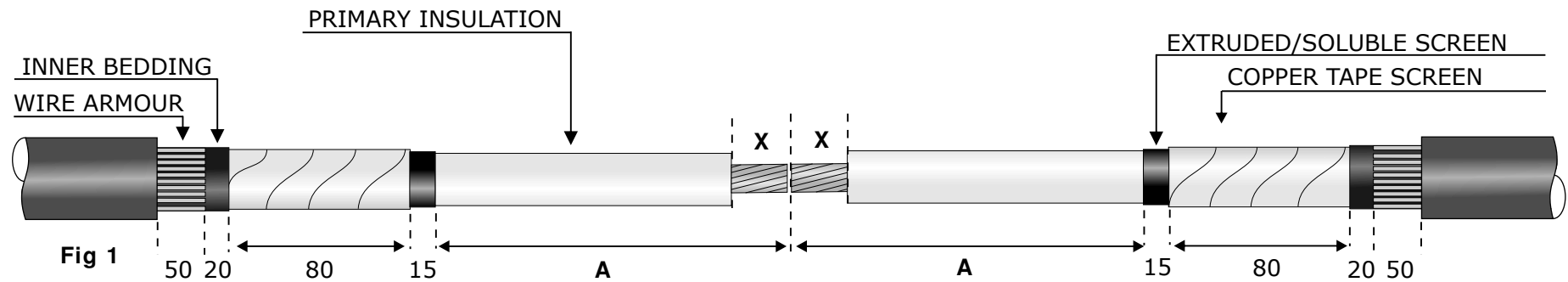
- THESE INSTRUCTIONS SHOULD BE FOLLOWED BY A TRAINED COMPETENT FITTER
- A PROPANE GAS TORCH IS THE PREFERRED METHOD FOR SHRINKING THESE MATERIALS
- ENSURE THAT THE MATERIALS ARE KEPT CLEAN AND DRY AND ARE FREE FROM DUST, SAND AND GREASE
- PLEASE CALL SHRINK POLYMER SYSTEMS FOR ANY ADVICE



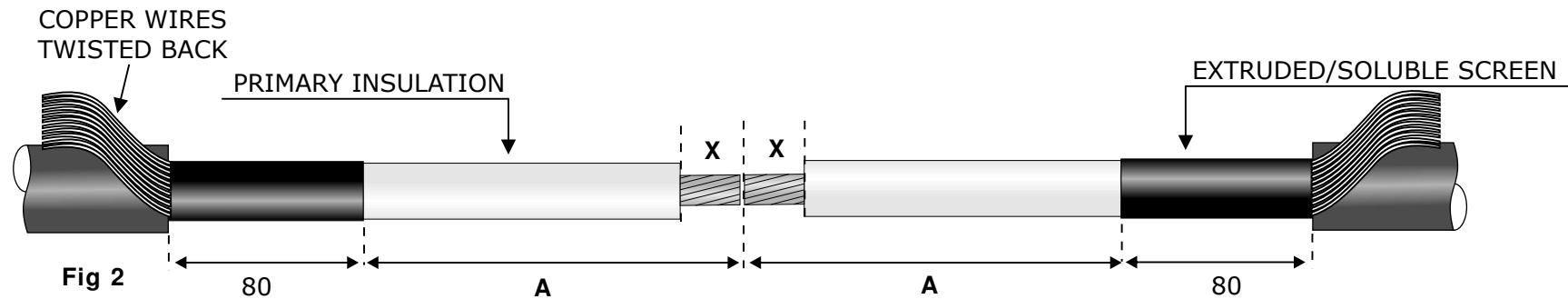
DATE OF ISSUE:- 25.02.11

# CABLE PREPARATION

## ALUMINIUM WIRE ARMoured CABLE WITH COPPER TAPE SCREEN



## NON ARMoured CABLE WITH COPPER WIRE SCREEN



SIZE (mm <sup>2</sup> )	DIMENSION A	DIMENSION X	MAX CONNECTOR LENGTH
25-95	220mm	HALF LENGTH CONNECTOR + 5mm	110mm
95-185	240mm		150mm
185-300	250mm		160mm
400-630	270mm		200mm
800-1000	280mm		220mm

**Table 1**

**Important:-** If you have a Cable size 95mm<sup>2</sup> and your kit ranges from 25-95mm<sup>2</sup>, Prepare the Cable to the 25-95mm<sup>2</sup> range not the 95-185mm<sup>2</sup> range

## Cable Preparation

1. Ensure that the cables overlap before proceeding and the outer adhesive lined shrink tube is positioned over the cable end.

### Copper Tape Screen

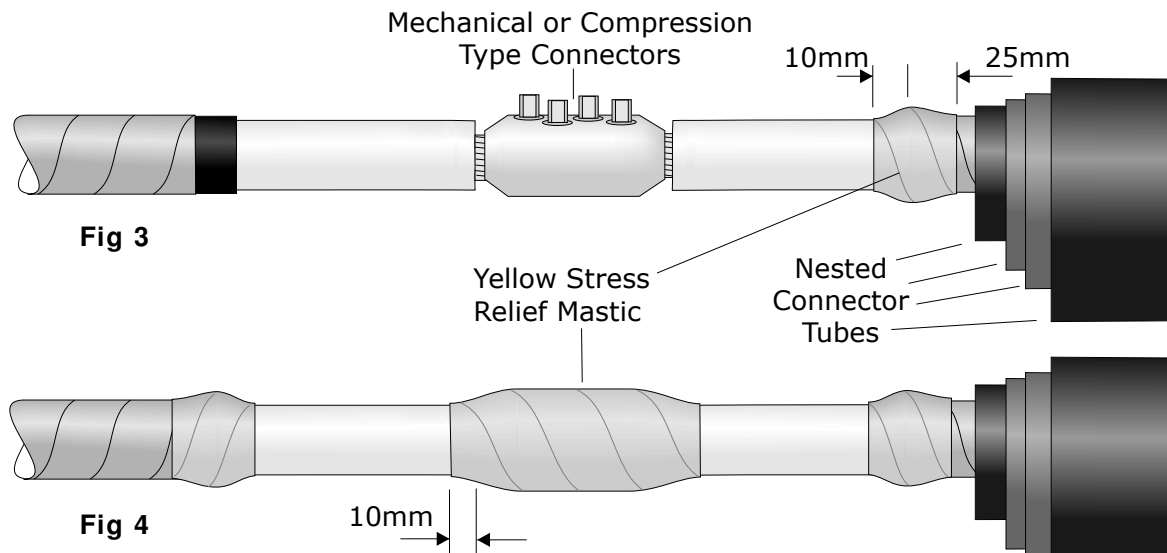
2. Expose the copper tape screen by 80mm and the black semi-conductive screen by a further 15mm beyond it (See Fig 1 and Table 1 for dimension A). If the cable is aluminium wire armoured (AWA), expose armours by 50mm and inner bedding by 20mm (See section 13-15 and Fig 10-11).

### Copper Wire Screen

3. Bend back the wires onto the outer cable sheath, these will be bonded at a later stage. Expose the black semi-conductive screen by 80mm (See Fig 1 and Table 1 for dimension A).

### Black Extruded Semi-Conductive Screen Removal

4. Carefully remove the semi-conductive screen layer using a suitable tool. Avoid scoring and damage to the primary insulation beneath. **Note:-** Screen removal tools are available and videos on screen removal feature on our website.



5. Ensure the outer shrink tube is over the cable end. Park the stress control tubes, red insulation tubes and red/black dual wall tubes over each core as shown in Fig 3.

Join the conductors using an approved MV "Tapered" connector, remove any sharp edges and de-grease before proceeding.

6. Stretch the yellow stress relief tape and apply over the screen cut area, extending onto the primary insulation by 10mm and catching the copper tape screens (If present).

7. Apply the yellow stress relief mastic over the connector area under tension and with a 50% overlap. Extend onto the primary insulation by 10mm, as shown in Fig 4.

**Important:-** Fill in the gap between Primary Insulation and Connector. Also if mechanical connectors used, fill any voids that the Bolts leave after they have been sheared.



Fig 5

8. Centralize the 3 x black stress control tubes over the connector area, ensuring they overlap the core screens at both ends. Starting from the middle, using a soft flame torch, apply heat all around the tubes until fully recovered.

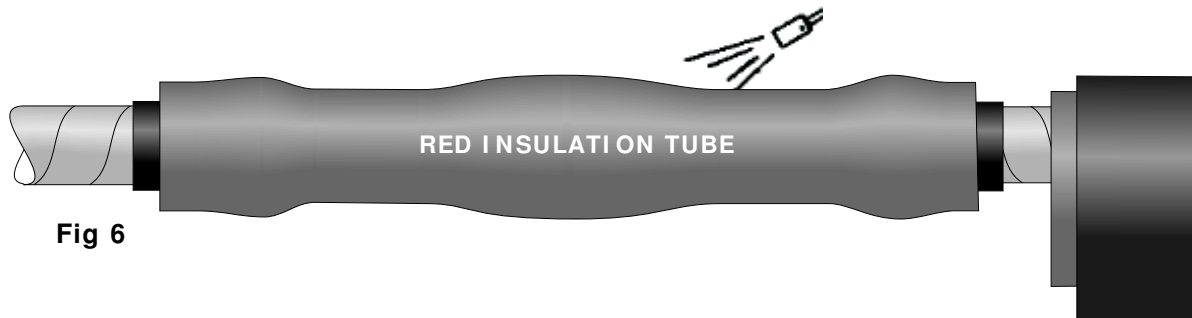


Fig 6

9. Position the first set of red insulation tubes and shrink as previous. Now fit the remaining set of red tubes. **Note:** Fit the longer set of red tubes first before the shorter second set.

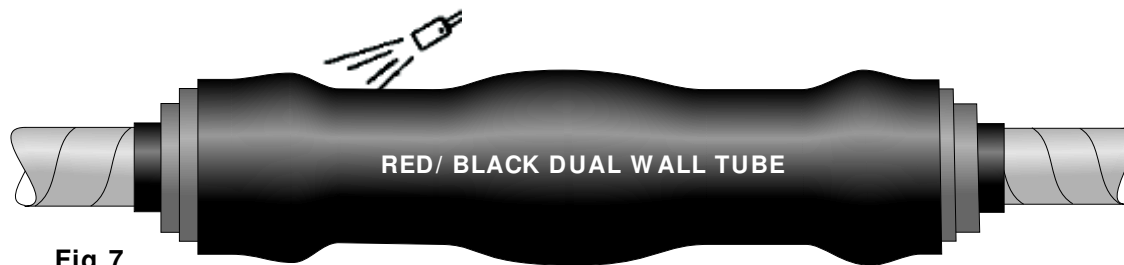


Fig 7

10. Finally position the red/black dual wall tubes and starting in the middle and working towards the ends, shrink them, keeping the flame moving all around the tubes to ensure an even recovery and wall thickness.

### Screening - Copper Tape Screen

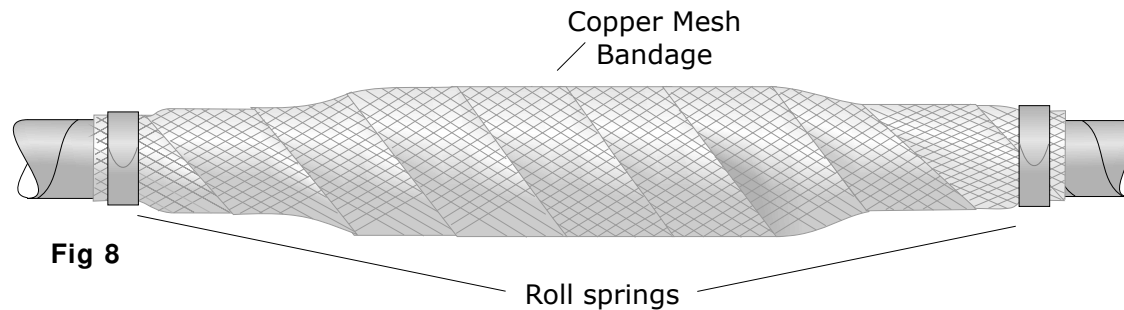


Fig 8

11. Apply two layers of the tinned copper mesh bandage with 50% overlap around the core extending onto the copper tape screens on both sides. Secure with the roll springs supplied as shown in Fig 8.

## Screening - Copper Wire Screen

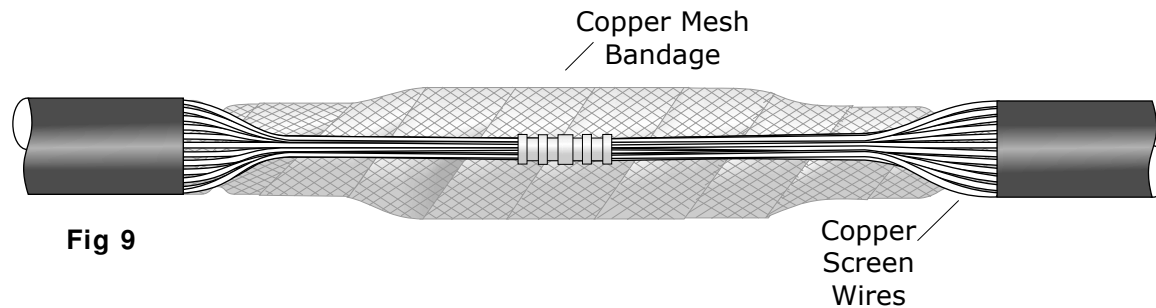


Fig 9

12. Apply a layer of the tinned copper mesh bandage with 50% overlap around the core extending around the copper wire screens on both sides.

Twist the copper screen wires together to form a conductor and join together with a suitable connector as shown in Fig 9. Apply a further layer of copper mesh bandage around the joint and tie off at each end.

## If Armour Earthing Required

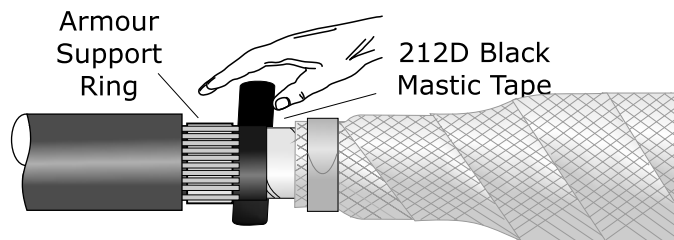


Fig 10

13. Bend back the armour wires and apply some 212D black mastic tape around the inner bedding.

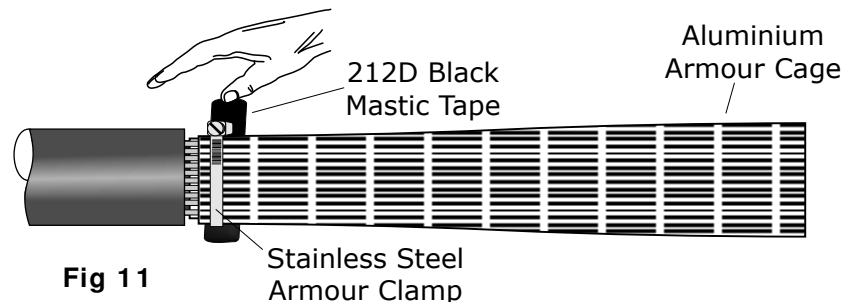


Fig 11

14. Fit the armour support rings and bend the armour wires upon it before wrapping the heavy duty aluminium cage tightly around the joint gap. Secure to both ends with the stainless steel clamps provided.

15. Apply the remaining pieces of 212D black mastic tape over the clamps and any sharp points as shown in Fig 11.



Fig 12

16. Clean, de-grease and abrade the outer cable sheaths. Position the outer adhesive lined shrink tube centrally over the joint gap. Start shrinking from the centre to one end at a time. Keep the flame on the move to ensure an even wall thickness. The tube should be wrinkle free and Sealants should be visible at the ends.

17. Allow the completed joint to cool before applying any mechanical strain.

**Important:** Consideration should be given to the use of cross bonding earth kits on long cable runs to eliminate the possibility of high circulating currents induced within the earth screen. Consult SPS for more details should they be required.



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