



Shrink Polymer Systems

Cable Installation Materials – 24 volts to 36 kV

INSTALLATION INSTRUCTION HEATSHRINK TRANSITION JOINT TO SUIT SINGLE CORE 12kV XLPE CABLE TO SINGLE CORE 12kV PILC CABLE



Picture for illustration
purposes only

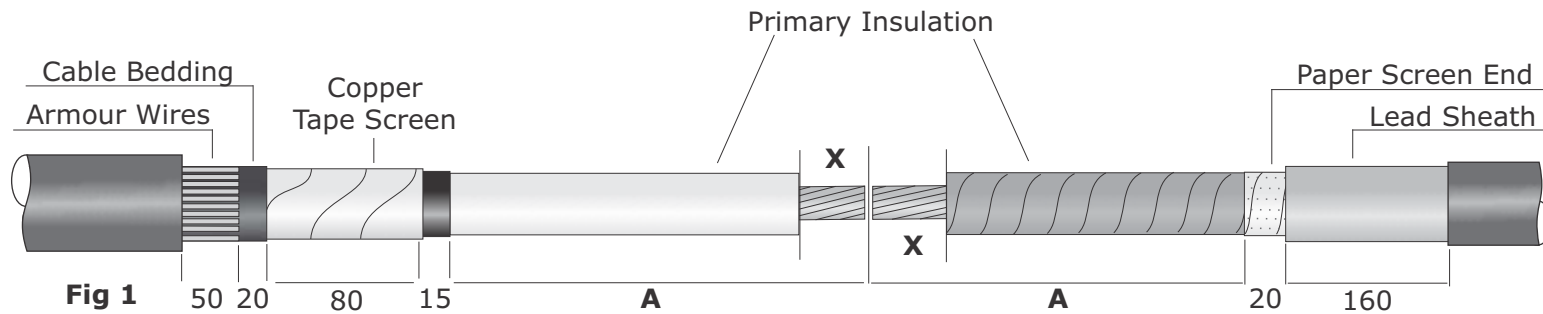
- THESE INSTRUCTIONS SHOULD BE FOLLOWED BY A TRAINED COMPETENT FITTER
- A PROPANE GAS TORCH IS THE PREFERRED METHOD FOR SHRINKING THESE MATERIALS
- ENSURE THAT THE MATERIALS ARE KEPT CLEAN AND DRY AND ARE FREE FROM DUST, SAND AND GREASE
- PLEASE CALL SHRINK POLYMER SYSTEMS FOR ANY ADVICE



DATE OF ISSUE: 20.06.13

XLPE CABLE

PILC CABLE



CONDUCTOR SIZE (mm ²)	DIMENSION A	DIMENSION X	MAX CONNECTOR LENGTH (mm)
25-70	180	HALF LENGTH OF CONNECTOR + 5mm	100
95-185	190		130
185-300	200		150
400-630	240		230

Table 1

Important:- If you have a cable size 185mm² and your kit ranges from 95-185mm², prepare the cable to the 95-185mm² range not the 185-300mm² range

Cable Preparation

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

Armoured Xlpe Cable with 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 18-22 and Fig 10-11).

Non Armoured Xlpe Cable with Copper Wire Screen

3. If the cable is copper wire screened, 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 and follow Table for dimension A.

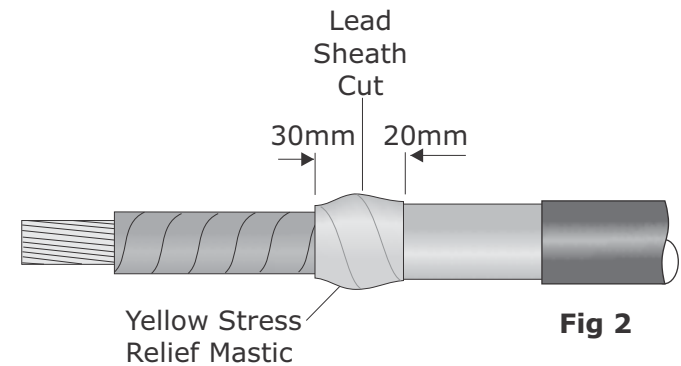
Black Extruded Semi-Conductive Screen Removal

4. Carefully remove the semi-conductive screen layer to dimension **(A)** 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.

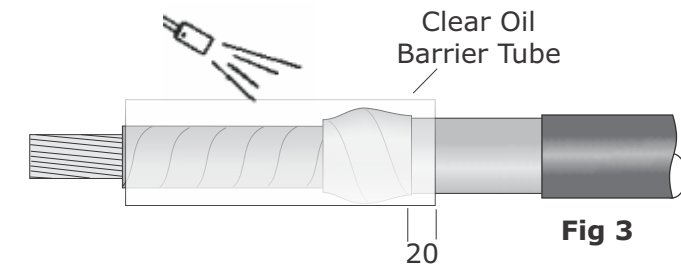
PILC Cable Preparation

5. Tie a binder from the end of the core insulation and remove the screen papers carefully to point **(A)**. The paper screen should be exposed to a point 20mm to the lead sheath and expose the lead sheath by 160mm as shown in Fig 1. Clean and de-grease the lead sheath and remove any excess grease from the cores. Remove binder at screen point. Bell the lead cut so it does not damage the papers.

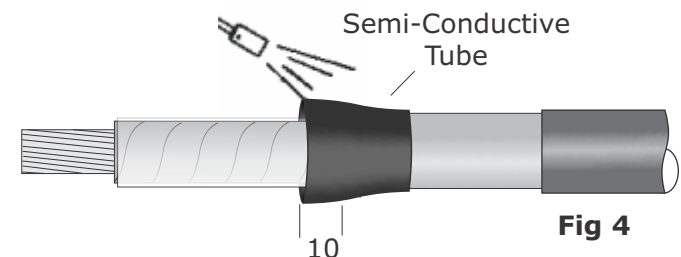
6. Stretch and apply the yellow stress relief mastic around the end of the exposed paper screen end. Extend onto the lead sheath by 20mm and onto the paper insulation (past the 20mm screen end) by 10mm as shown in Fig 2.

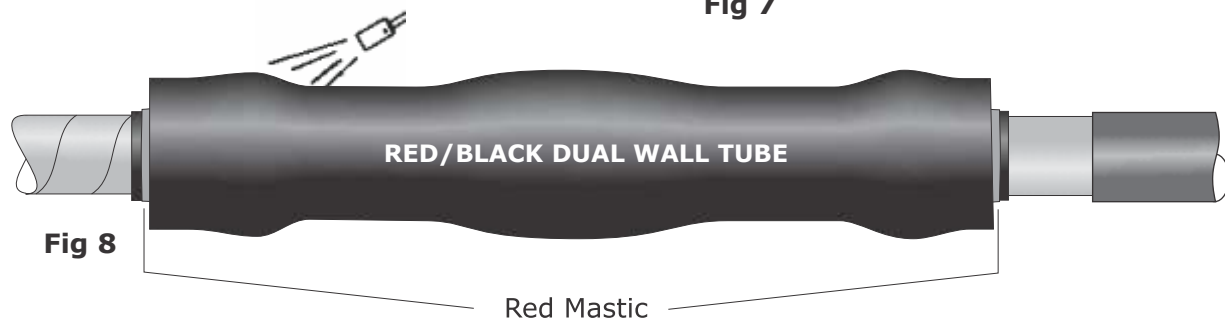
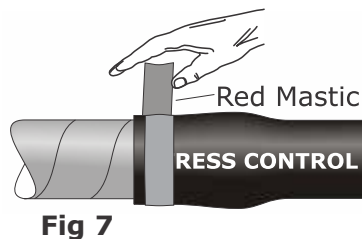
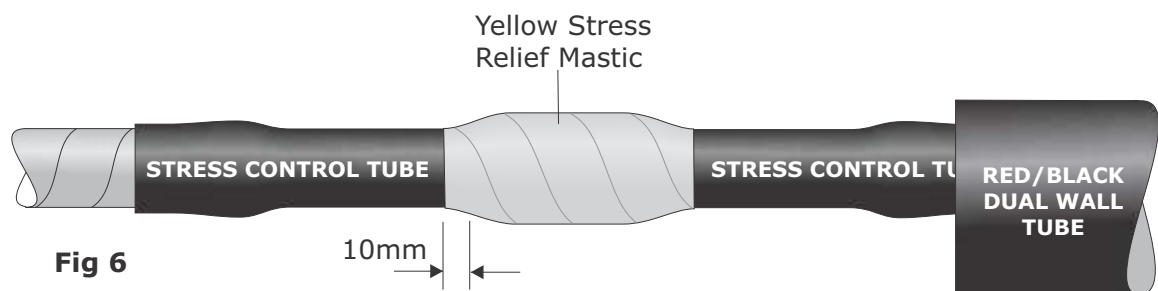
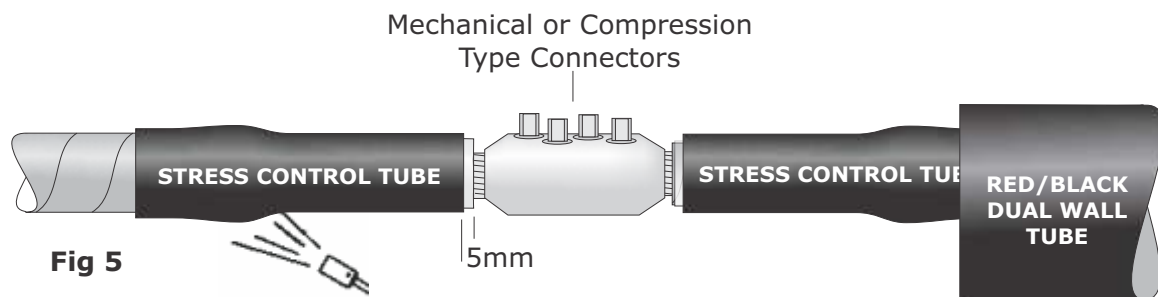


7. Position the clear oil barrier tube over the paper core extending over the applied yellow stress relief tape and onto the lead sheath by approx. 20mm as shown in Fig 3. With a suitable flame, shrink the tube so that it fully recovers and is wrinkle free.



8. Now position the short black semi-conductive tube so that it overlaps onto the paper core 10mm beyond the applied yellow stress relief mastic as shown in Fig 4. Shrink from this end applying heat all around the tube until fully recovered.





9. Position the stress control tubes and red/black dual wall tubes over each core as shown in Fig 2.

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

11. Position the stress control tubes as shown 5mm back from the insulation and starting from the insulation end, apply heat all around the tubes using a soft flame torch. Heat until fully recovered.

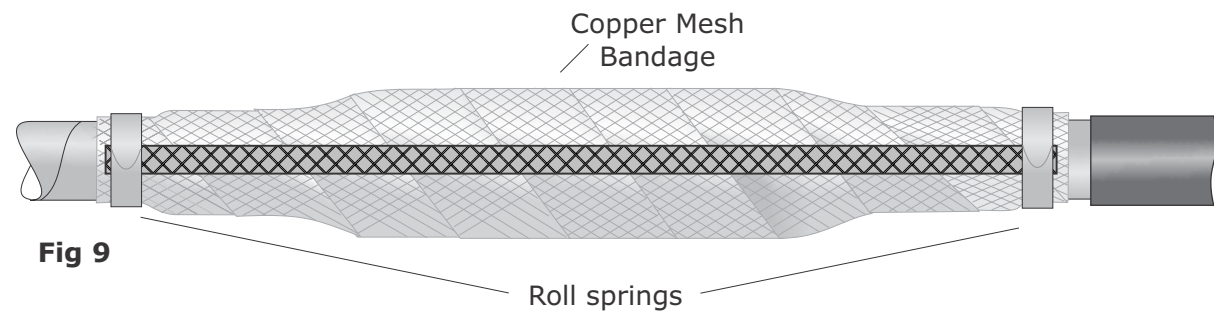
12. Fit the approved MV 'tapered' centralised conductor connector using the appropriate tool. Clean and de-grease before proceeding.

13. Apply the yellow stress relief mastic over the connector area under tension and with a 50% overlap. Extend onto the short stress control tubes by 10mm, as shown in Fig 6.

Important:- Fill in the gap between primary insulation and connector and apply the tape so that it tapers towards the core. If mechanical connectors used, fill any voids that the bolts leave after they have been sheared.

14. Stretch and apply the short red mastic tape pieces over the stress control tubes as shown in Fig 7, so that the red/black tubes sit upon it. This will create an additional moisture seal.

15. Finally, centrally position the red/black dual wall tubes so that they cover the screen end points. Starting in the middle and working towards the ends, shrink them whilst keeping the flame moving all around the tubes to ensure an even recovery and wall thickness.



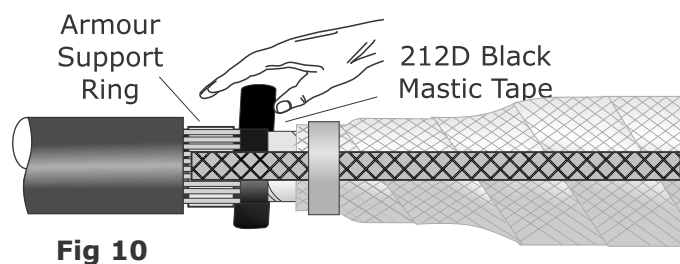
Copper Tape Screen on Xlpe Cable

16. Apply two layers of the tinned copper mesh bandage with 50% overlap around the core extending onto the copper tape screens on the xlpe cable and onto the lead on the pilc cable.

Secure with the roll springs supplied as in Fig 9 along with additional earth braid shown.

Copper Wire Screen on Xlpe Cable

17. Bend the copper screen wires back over the joint and secure to the lead sheath on the pilc cable. Apply some KM50 copper mesh under and over the copper wires to achieve a good contact before securing to the lead with the roll spring.



Armour Earthing (If Required)

Xlpe Cable

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

19. Fit the armour support ring and bend the armour wires upon it as shown in Fig 10.

Pilc Cable

20. The Pilc cable is unlikely to be armoured, so position the armour support ring over the outer cable sheath so that the armour cage will rest upon it.

21. Wrap the heavy duty aluminium cage tightly around the joint gap. Secure to both ends with the stainless steel clamps provided along with any earth braid.

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

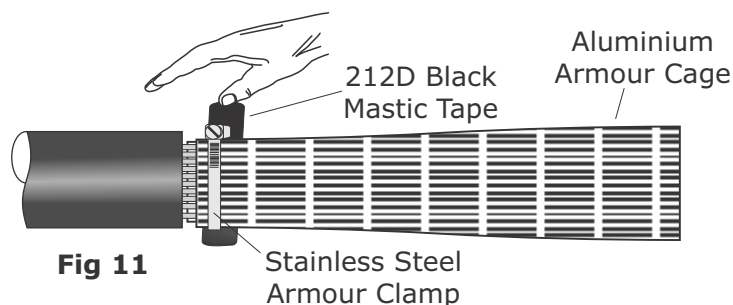




Fig 12

23. 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.

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

Important: user/circuit designer should determine whether or not special earthing requirements are needed to reduce the possible effects of induced sheath voltages or circulating currents in armoured cables. The decision to single point earth/solid point earth or install cross bonding kits needs to be considered once length of run, loading and positioning of cables is known.



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