



# 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



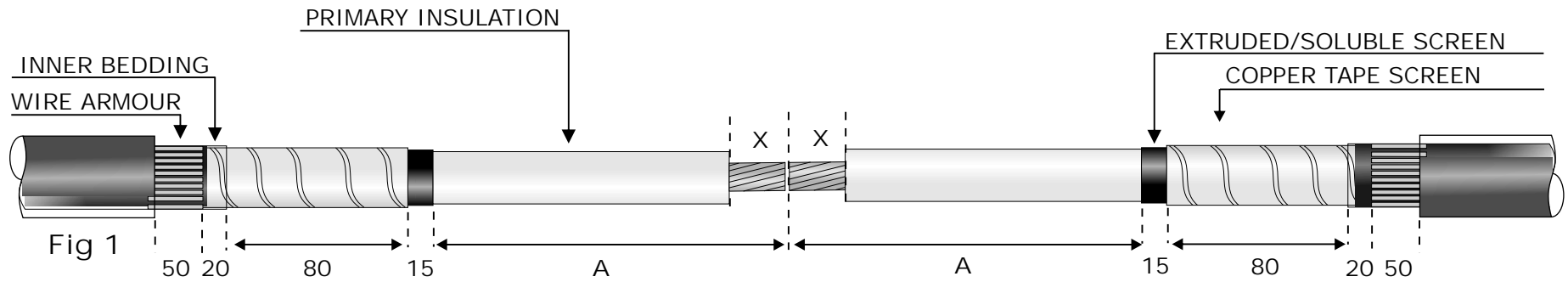
- THESE INSTRUCTIONS SHOULD BE FOLLOWED BY A TRAINED COMPETENT FITTER
- A PROPANE GAS TORCH IS THE PREFERRED METHOD FOR SHRINKING THESE MATERIALS
- ENSURE THAT THE MATERIALS ARE KEPT CLEAN AND DRY AND ARE FREE FROM DUST, SAND AND GREASE
- PLEASE CALL SHRINK POLYMER SYSTEMS FOR ANY ADVICE



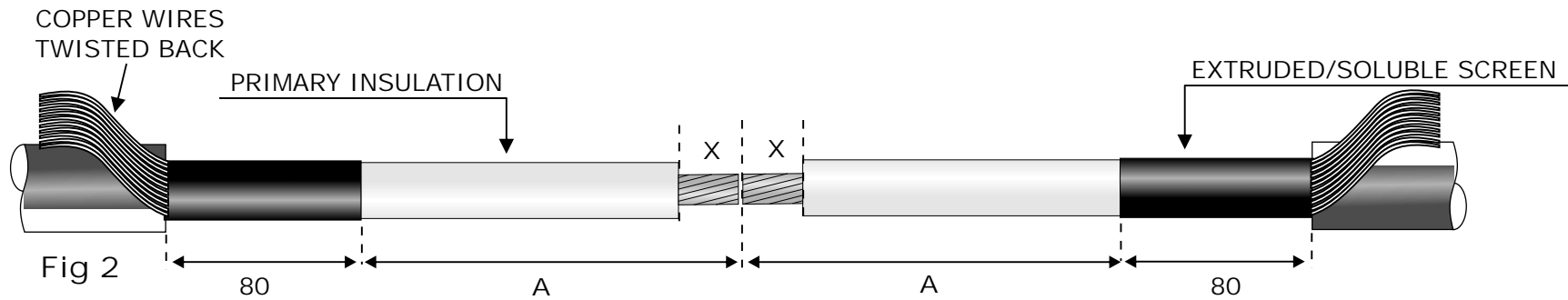
DATE OF ISSUE: 16.09.09

# 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

## Cable Preparation

1. Ensure that the Cables overlap before proceeding.

### 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 20-21 and Fig 12-13).

### 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. Remove the Black Screen layer using a suitable Tool. Avoid scoring and damage to the Primary Insulation beneath. Note: - The Screen should be completely removed leaving a cleanly cut end. Do not roughen the Primary Insulation with Emery cloth.

Screen removal Tools can be provided for both 'Peelable' and 'Bonded' Screen layers, ask Shrink Polymer Systems for more details.

### Soluble Semi-Conductive Screen Layer

5. Using a Non-adhesive Tape, cover the top of dimension A and remove the Black Semi-Conductive soluble layer above using a clean cloth and suitable solvent. Note: - Remove all traces of Carbon and remember to remove the Tape.

It is good practice to flame brush the Primary Insulation and Screen cut. This has the effect of removing any minor surface scratches or burrs that may be present.

### Nested Tube Sequence

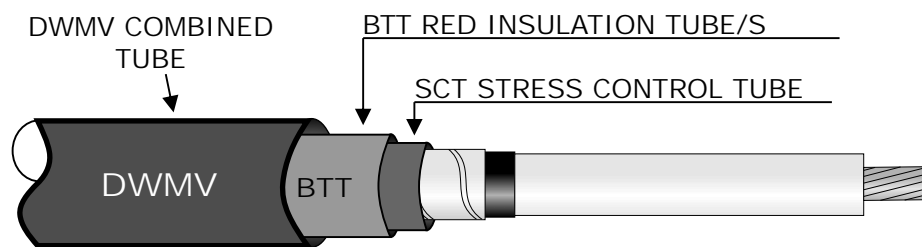


Fig 3

6. Before proceeding, position the Connector Insulation Tubes down one or both of the Cables ends if the Tubes do not "Nest" as shown in Fig 3.

Note: - Picture shows one BTT Tube making the Joint suitable for 17.5 and 24kV. For 36kV there are 2 x BTT Tubes plus SCT Stress Control and DWMV combined Insulation/Conductive Tube.

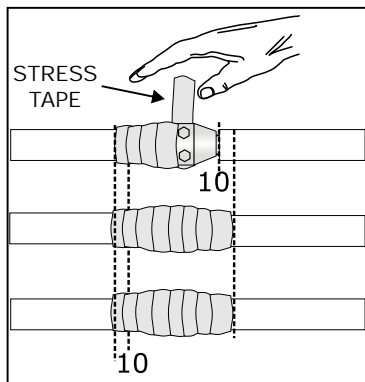


Fig 4

7. Remove the Primary Insulation for ½ length of the Connector + 5mm.
8. Crimp the Connector with the correct Tool/Die and remove any sharp burrs.
9. De-grease the Connector and Primary Insulation with the Tissues provided.
10. Apply the Yellow TS 31785Y Stress Tape over the Connector with half width overlap and stretch. Important:- Fill in the gap between Primary Insulation and Connector and extend onto the Primary Insulation by 10mm only.

Note:- Tapered and centralised Mechanical Connectors can be used, please consult regarding size before use.

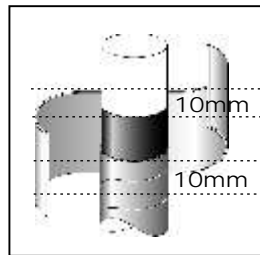


Fig 5

11. Stretch the Yellow TS31785Y Stress Relief Tape and apply with ½ width overlap around each Black Semi-Conductive Screen edge so that it overlaps for a distance of 10mm onto the Primary Insulation and 10mm onto the Conductive Screen. If the Cable has a Copper Tape Screen, apply the Tape approx 10mm onto the Copper Tape Screen as in Fig 5.

Connector Insulation Tube Sequence (picture shows copper tape screens)

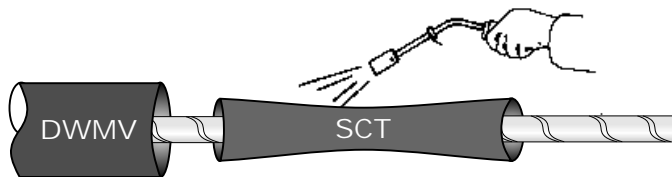


Fig 6

12. Position the Stress Control Tube (SCT) centrally over the Connector overlapping the end of Screen points and onto the Copper Tape Screens (If present). With a suitable heat source, shrink from the centre working all around the Tube to one end at a time. Note:- Allow the Tube to cool before cleaning the surface with the Tissues provided. This improves electrical performance.

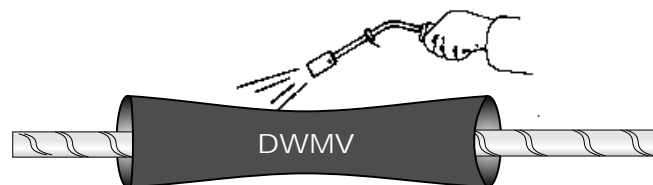


Fig 7

13. If voltage is higher than 12kV position the required number of Red BTT Tubes one at a time, centrally over the Stress Control Tube and shrink in an even manner.

14. Position the Combined Insulation/Conductive Tube (DWMV) centrally over the Stress Control Tube (Or Red BTT Tube depending on voltage) and shrink as previous. Keep the flame on the move to ensure an even wall thickness.

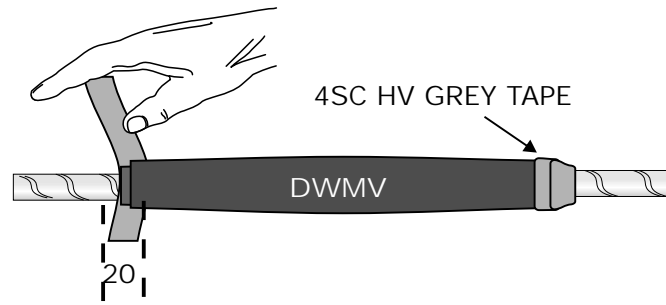


Fig 8

15. Take the two pieces of 4SC HV Grey Mastic Tape and apply whilst stretching to the ends of the DWMV Tubes and Copper Tape Screens (If present) by approx 10mm each as shown in Fig 8.

Screening - Copper Tape Screen

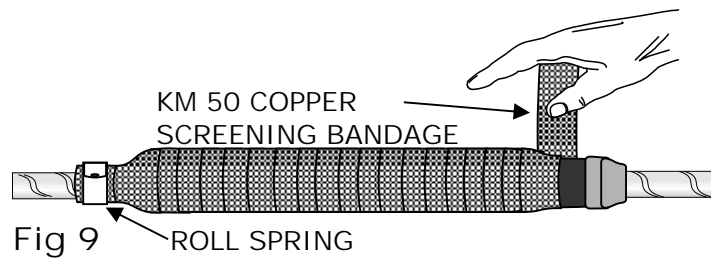


Fig 9

16. Wrap two layers of Copper Screening Bandage (KM 50) with 50% overlap over the Joint area and secure to the Copper Tape Screens with the Roll Springs.

Screening - Copper Wire Screen

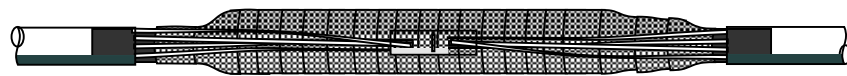


Fig 10

17. Wrap a layer of KM50 Copper Screening Bandage over the joint area and secure. Bend the Copper Wire Screen back over the Joint and twist the ends together to form a stranded Conductor. Join the two Wire Screens with a Crimp Ferrule as shown in Fig 10.

## Outer Sealing

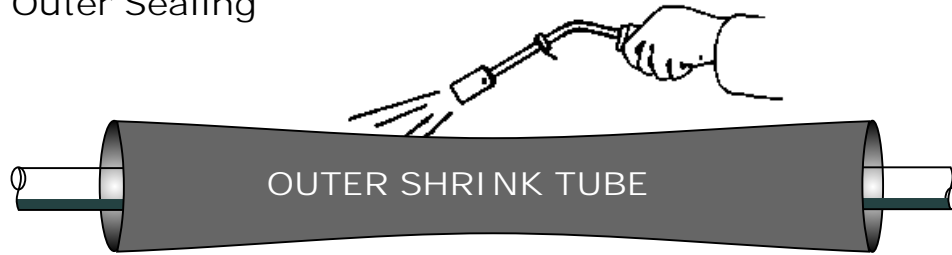


Fig 11

If Armour Earthing Required See Fig 12-13

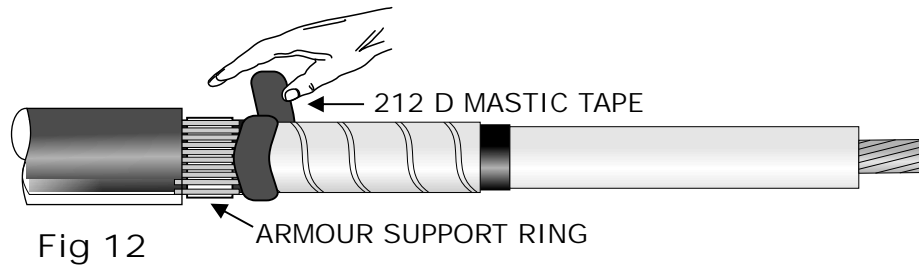


Fig 12

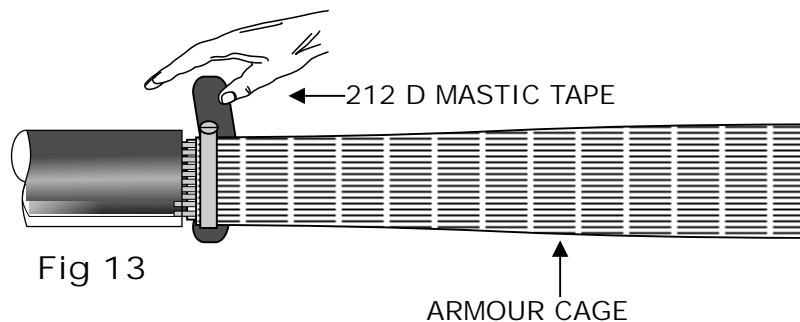


Fig 13

18. Clean and De-grease 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 Tube ends.

19. Allow the completed Joint to cool before applying any mechanical strain.

20. Fit the Armour Support Rings before wrapping the Heavy Duty Aluminium Cage tightly around the joint gap. Secure to both ends with the Clamps provided. Apply the remaining pieces of 212D Black Tape over the Clamps and any sharp points as shown in Fig 13.

21. Refer back to section 18 and Fig 11 for the installation of the Outer Shrink Tube.

Important:- Where there are long Cable runs, high circulating Currents can build up on Armoured Cables and Cross Bonding kits should be used. Please consult Shrink Polymer Systems for advice.



IMPORTANT NOTICE TO PURCHASER:- Sellers and Manufacture's only obligation shall be to replace such quantity of the product proved to be defective. Neither the Seller nor Manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use or inability to use the product. Before using, User shall determine the suitability of the product for his or her intended use and User assumes all risk and liability whatsoever in connection therewith.

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