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**Shrink Polymer Systems**

**Cable Installation Materials – 24 volts to 36 kV**

INSTALLATION INSTRUCTION  
HEATSHRINK TRANSITION JOINT TO SUIT SINGLE CORE  
7.2-36kV XLPE TO PILC CABLE TYPE SPAJ PX

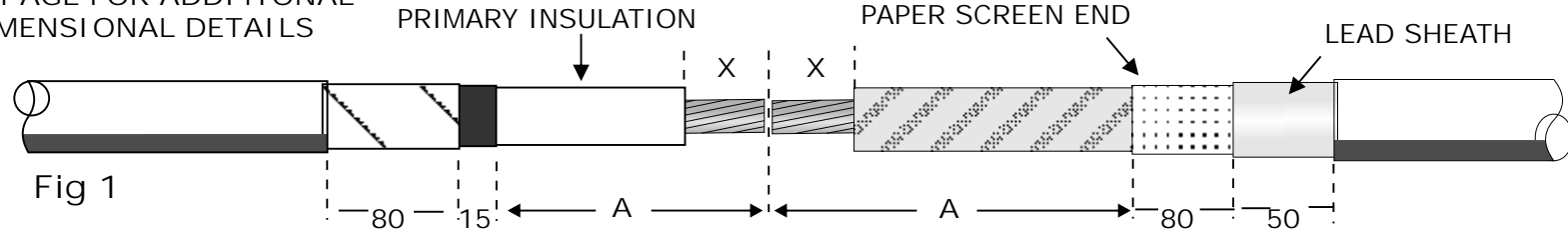


- THESE INSTRUCTIONS SHOULD BE FOLLOWED BY A TRAINED COMPETENT FITTER
- A PROPANE GAS TORCH IS THE PREFERRED METHOD FOR SHRINKING THESE MATERIALS
- ENSURE THAT THE MATERIALS ARE KEPT
- CLEAN AND DRY AND ARE FREE FROM DUST, SAND AND GREASE
- PLEASE CALL SHRINK POLYMER SYSTEMS FOR ANY ADVICE



DATE OF ISSUE: 27.10.09

IF CABLE IS ARMoured SEE  
LAST PAGE FOR ADDITIONAL  
DIMENSIONAL DETAILS



1. Ensure the Cables overlap sufficiently before preparing to the dimensions shown in Figure 1 and Table 1 below.
2. XLPE Cable Preparation - Expose the Copper Tape Screens by 80mm and the Black Semi-Conductive screen by a further 15mm. Remove the Screen with a suitable Tool to avoid scoring or damaging the Primary Insulation beneath. A suitable Tool can be supplied (See our general catalogue). If Cable is Aluminium Wire Armoured, expose Armours by 50mm and the Inner Bedding by 35mm (See Fig 13).

Note:- If Cable is Copper Wire Screened expose Semi Conductive Screen to 95mm and leave the Copper Screen Wires long enough to pass over the joint so that they can be secured to the Lead Sheath with the large Roll Spring along with the Copper Mesh.

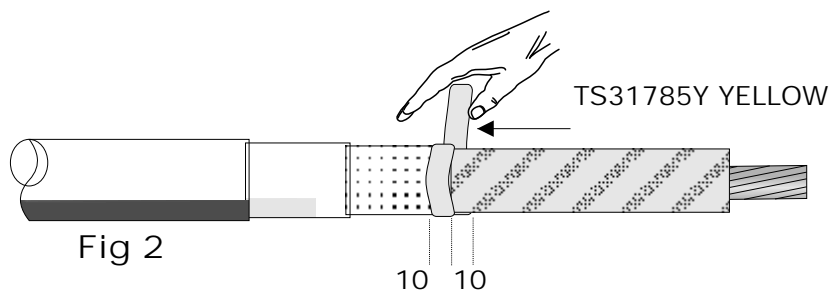
3. PILC Cable Preparation - Tie a binder at point (A) from the end of the Core Insulation and remove the Screen Papers carefully to this point. Clean and de-grease the Lead Sheath and remove any excess grease from the Cores. Remove binder at screen point. Bell the Lead cut so it does not damage the Papers.

VOLTAGE TABLE			HEATSHRINK TUBE REQUIREMENT			
VOLTAGE	A	X	SCT	BTT	DWMV	TMI
7.2kV	180mm	HALF CONNECTOR LENGTH +5mm	1	---	1	1
12kV	190mm		1	---	1	1
17.5kV	200mm		1	1	1	1
24kV	220mm		1	1	1	1
36kV	250mm		1	2	1	1

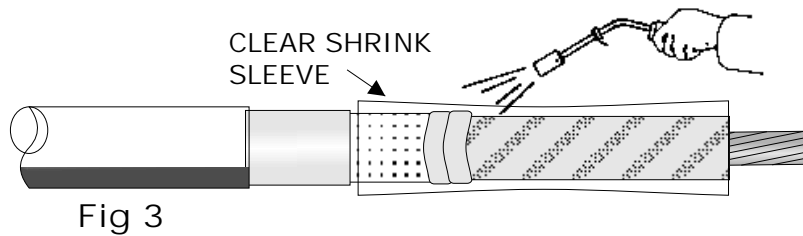
Table 1

SIZE ( mm <sup>2</sup> )	MAX CONNECTOR LENGTH (mm)
25-95	100
120-185	140
185-300	150
400	170

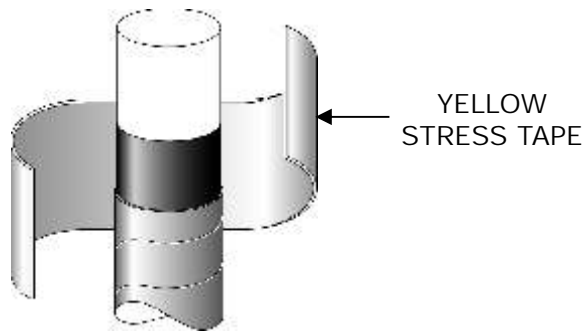
Table 2



4. With stretch, apply the Yellow Stress Tape (TS 31785Y) with half width overlap to the Paper Screen end. Extend the Tape 10mm on to the Paper Screen and 10mm on to the Insulation as shown in Fig 2.

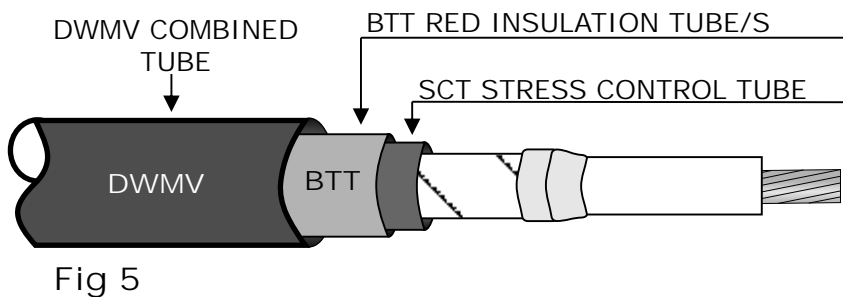


5. Slide the Clear Shrink Tubes over the Cores down to the Lead cut. With a suitable heat source, shrink the Tubes into position.



6. On the Xlpe side, stretch the Yellow Stress Control Tape and apply with  $\frac{1}{2}$  width overlap around the Black Semi-Conductive Screen edge so that it overlaps onto the Copper Tape Screens for a distance of 10mm and onto the Primary Insulation by approx 10mm.

#### Nested Tube Sequence



7. Before proceeding, position the 'Nested' Connector Insulation Tubes down one or both of the Cables ends as shown in Fig 5. Note: - Picture shows one BTT Tube making the Joint suitable for 17.5 and 24kV. For 12kV, only SCT Stress Control and DWMV combined Insulation/Semi-Conductive Tubes are required.

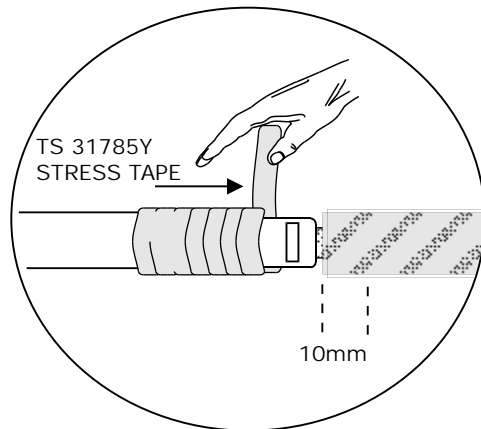


FIG 6

8. Remove the Primary Insulation for  $\frac{1}{2}$  length of the Connector + 5mm. Crimp the Connector with the correct Tool/Die and remove any sharp burrs. De-grease the Connector and Primary Insulation with the Tissues provided. 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.

### Connector Insulation Tube Sequence

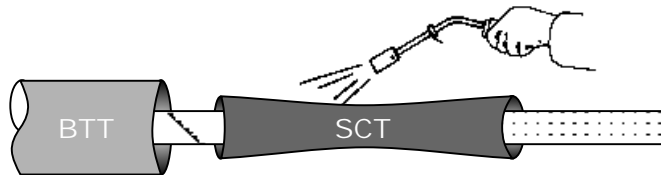


FIG 7

9. Position the Stress Control Tube (SCT) centrally over the Connector overlapping the end of Screen points on both Cables and onto the Copper Tape Screen (If present on XLpe Cable). 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 has shown to improve electrical performance).

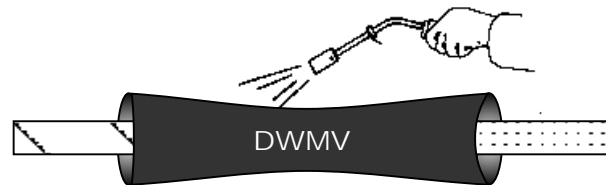


FIG 8

10. 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 (See Table 1 for Tube requirement).

11. Position the Combined Insulation/Semi-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.

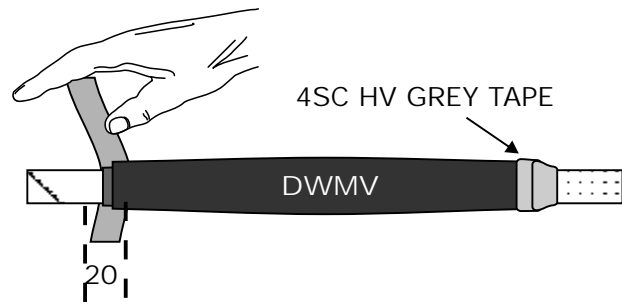


FIG 9

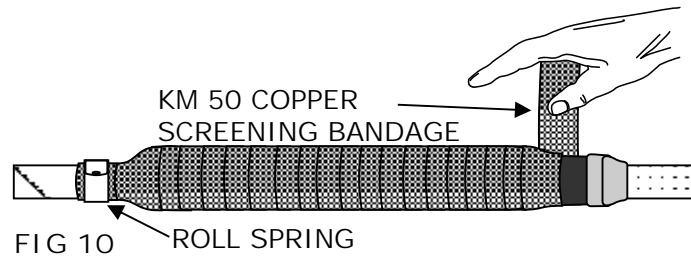


FIG 10

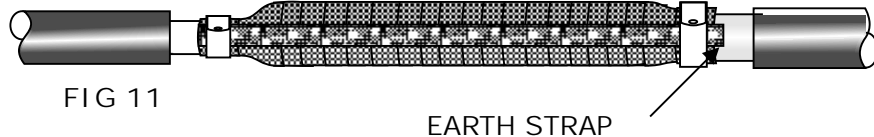


FIG 11

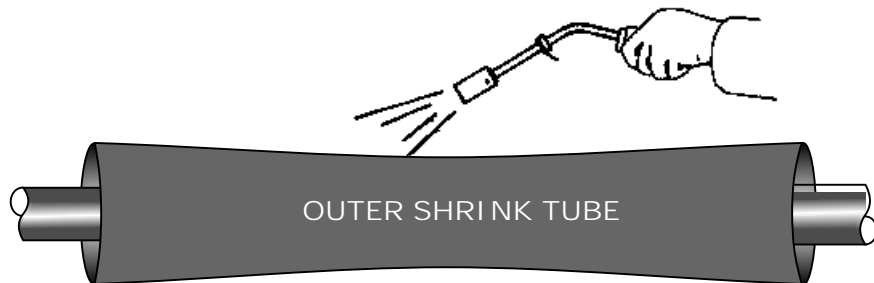


FIG 12

12. Take the two pieces of 4SC HV Grey Mastic Tape and apply whilst stretching to the ends of the DWMV Tubes and Copper Tape Screen (Xlpe) and Paper Screen by approx 10mm each as shown in Fig 9.

13. Wrap a layer of Copper Screening Bandage (KM 50) with 50% overlap over the Joint area and secure to the Copper Tape Screen by either Soldering or the preferred Roll Spring method.

If Xlpe Cable has Copper Wire Screen, secure the KM 50 Screening Bandage around the Copper Wires and tie off.

14. Continue to wrap the Copper Screening Bandage so that it overlaps on to the Lead Sheath and temporarily secure.

15. Lay the Copper Earth Strap across the joint gap and secure along with the Copper Bandage to the Lead Sheath and the Copper Tape Screens with the Roll Springs supplied.

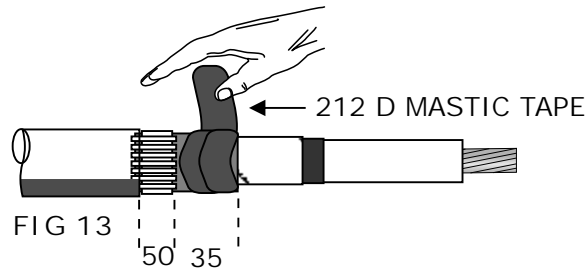
Note:- If Copper Wire Screen, lay the Wires across the joint gap and secure to the Lead Sheath with the Roll Spring along with the Copper Mesh.

16. Position the Outer Shrink Tube centrally over the joint gap and shrink from the centre to one end at a time. Keep the flame on the move all around the Tube to ensure an even wall thickness. Sealant should be seen to flow at ends once fully recovered.

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

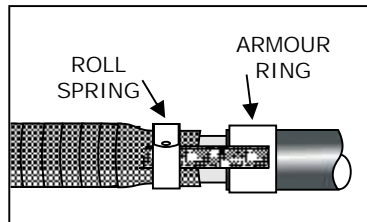
# ARMOUR EARTH SUPPLEMENT I NSTRUCTION

## XLPE/AWA CABLE

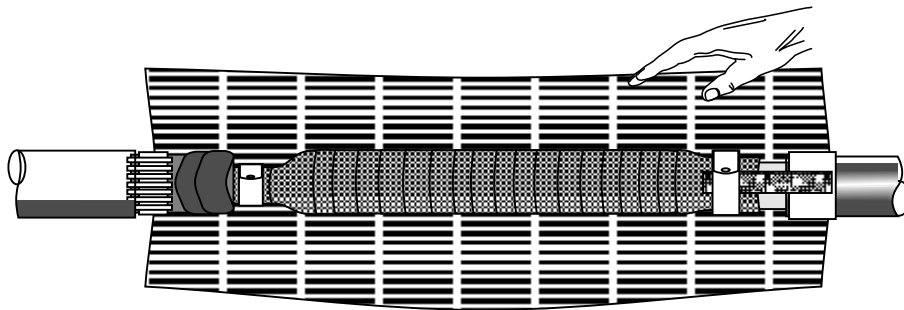


18. If the Xlpe Cable has Aluminium Wire Armours, expose Armours to 50mm and Inner Bedding to 35mm as shown in Fig 13. Wrap a turn of Black 212D Mastic Tape over the Inner Bedding to form a moisture seal. Fit the Armour Support Ring

## PILC CABLE



19. On the Pilc side, position the Armour Support Ring on the Outer Cable Sheath as shown in Fig 14. Use 212D Black Mastic Tape to build up the Cable Sheath Diameter if too loose.



20. Wrap the Aluminium Cage around the joint gap and secure at each side along with the Copper Earth Strap with the Armour Clamps provided.

21. Tape over any sharp edges before centralising the Outer Shrink Tube and shrink as previously described in Fig 12.

IMPORTANT NOTICE TO PURCHASER: - Sellers and Manufacturere'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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