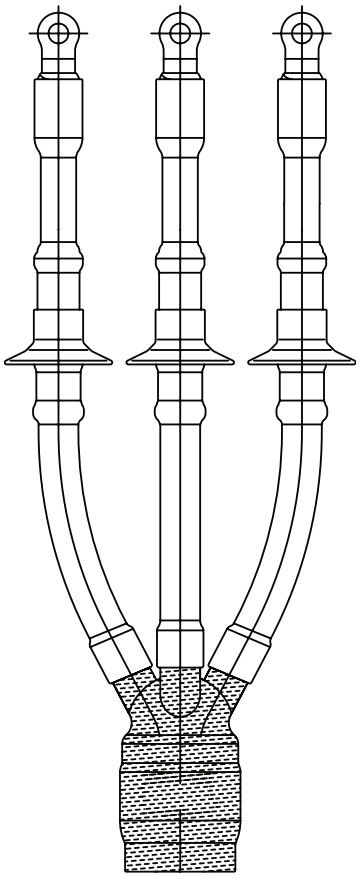
Saves Your Energy

INSTALLATION INSTRUCTION PEM1269ENG
2013-05

ENGLISH



HEAT SHRINK INDOOR AND OUTDOOR TERMINATION FOR H-CABLE
HOTHP3.2402, HOTHP3.2402L, HOTHP3.2403, HOTHP3.2403L, HITHP3.2402, HITHP3.2402L, HITHP3.2403, HITHP3.2403L

GENERAL INFORMATION

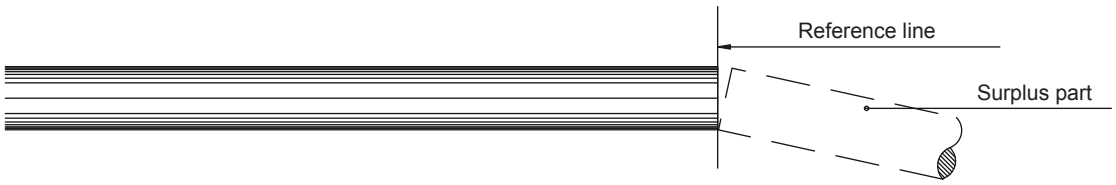
- Check that the kit is suitable for the cable type.
- Check the materials listed in the bill of materials for completeness.
- Read the installation instructions carefully before starting the installation.
- Install carefully and make sure the materials are clean during the installation.
- Clean the working place after the installation.

GENERAL INSTRUCTIONS FOR HEAT SHRINKING

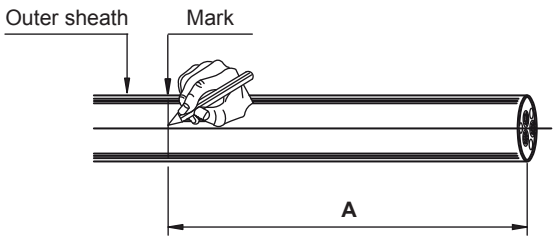
- Please note that in some working places a hot work permit is needed.
- Use a propane burner with a flame length of approx. 20-30 cm. Do not use too large or sharp flame.
- Move the flame all around the cable on the shrinking direction. Move the flame continuously to avoid overheating.
- Make sure that the ventilation is good and there are no flammable materials around.
- Clean the cable surfaces before shrinking.
- When shrinking, always follow the installation instructions and the relevant sequence to avoid trapped air.
- Check that the tube has shrunk evenly around the cable before you continue shrinking.
- If the tube turns around at the end of shrinking, straighten the tube by directing the flame inside the tube from the opposite direction.
- After shrinking the tubes should be smooth and even following the shape inside.

LEGAL NOTICE

- The product must be installed only by a competent person with sufficient training in installation practices and with sufficient knowledge of good safety and installation practices in respect of electrical equipment. If local legislation contains provisions in respect of such training or sufficient knowledge in respect of installation of electrical equipment such provisions shall be fulfilled by the said person.
- Ensto accepts no liability concerning claims resulting from misuse, incorrect installation or ignored national safety regulations or other national provisions.
- WARNING: Failure to follow the installation instructions may result in damage to the product and serious or fatal injury.

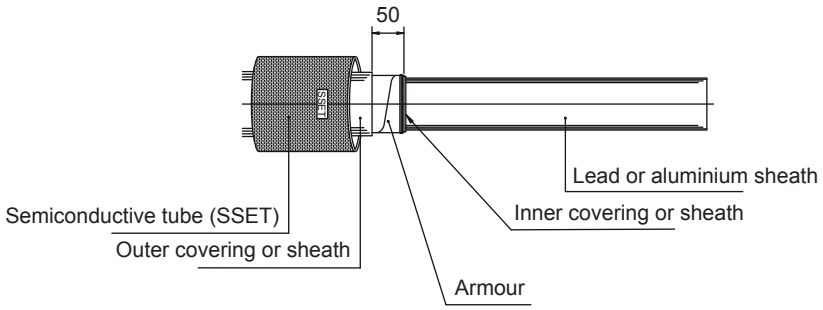


1. Check the length of each core according to the final installed position.



2. Mark the cutting point at the distance A from the core end.

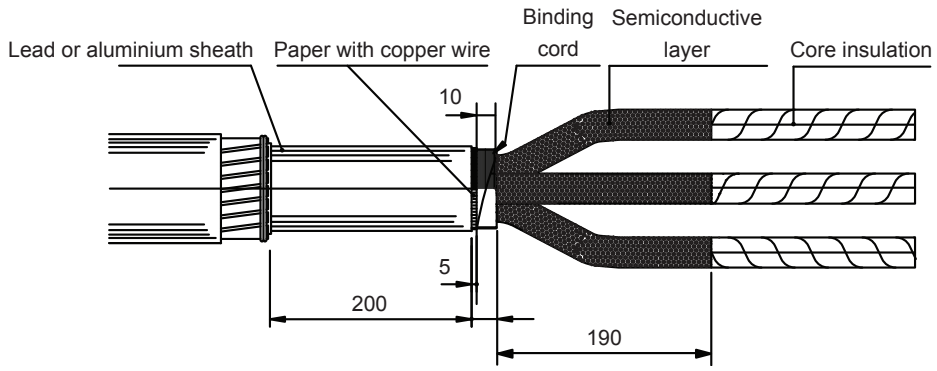
HOTHP, HITHP A_{min} = 950 mm
HOTHP, HITHP A_{max} = 1550 mm



3. Cut and remove the outer covering or sheath from the marked dimension. Cut and remove the possible armour up to 50 mm from the outer covering or sheath. Fix it with PVC tape. Cut and remove the possible inner covering or sheath.

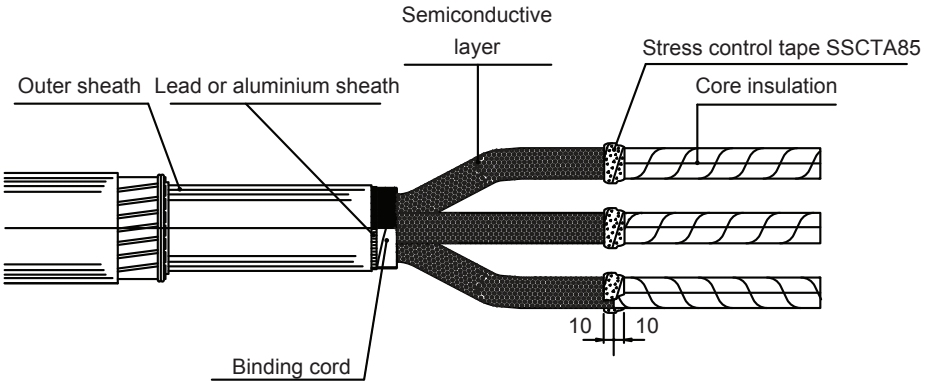
Clean the possible armour for its length and the lead or aluminium sheath up to at least 500 mm distance from the outer covering or sheath by using a suitable solvent. Roughen the possible outer sheath for a distance of 100 mm, the possible armour for its length and the lead or aluminium sheath for the distance of 200 mm with grinding paper.

Place the bigger semiconductive tube SSET on the outer covering or sheath.

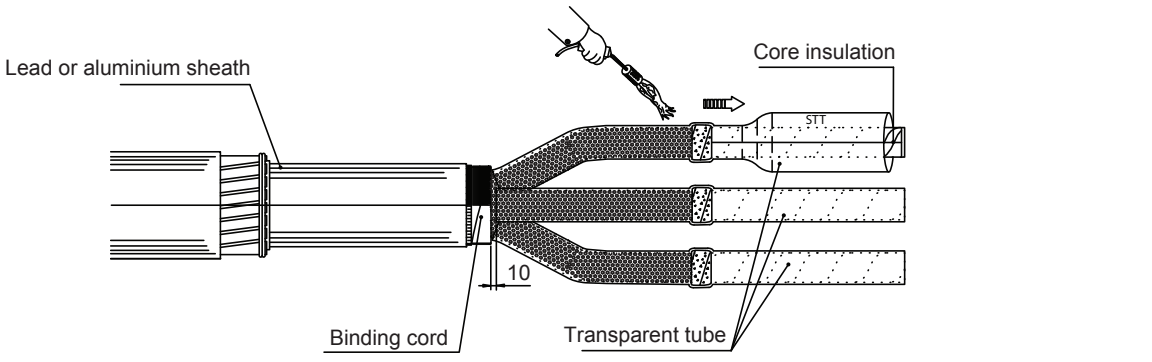


4. Cut and remove the lead or aluminium sheath up to 250 mm from the outer sheath or up to 200 mm from the armour. Cut and remove all the fillings. Clean the remaining lead or aluminium sheath with a suitable solvent. Clean the phases carefully. Fasten the semiconductive paper layer of the belt insulation for a length of to 10 mm away from the lead or aluminium sheath by using binding cord. Spread the cores.

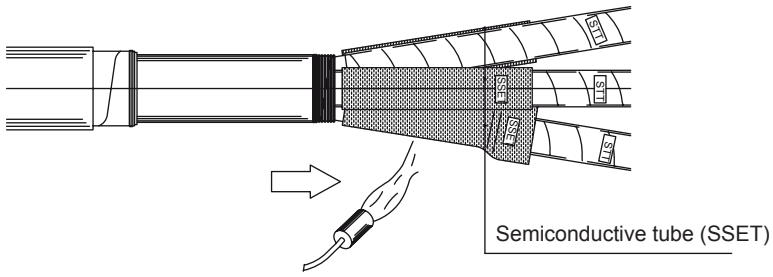
   Fasten the cable stripping string to length of B (190 mm) away from the lead or aluminium sheath. Remove the belt insulation paper up to the stripping string. Remove the semiconductive layer and the top layer of the belt paper insulation up to the stripping string. Clean the cores very carefully of extra oil. Clear the core ends about cutting pieces and dirt.



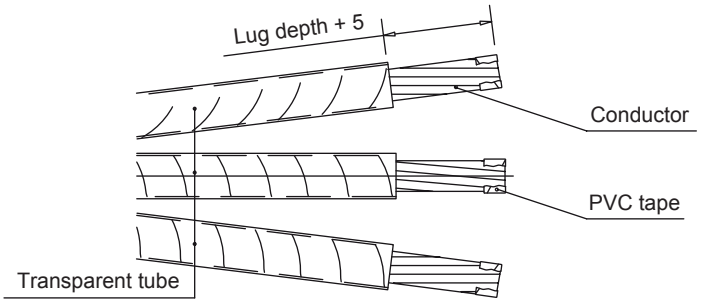
5. Wrap two layers of stress control tape SSCTA85 on the boundary of insulation shield and insulation. Cover 10 mm of insulation shield and 10 mm of insulation starting from the insulation shield side. The tape must be applied with 50 % overlap and by stretching it to half of its original width.



6. Place the transparent tubes on the cores down to 10 mm from the binding cord. Shrink the tubes one by one starting from the belt paper insulation end. Clear the transparent tubes after cooling down.

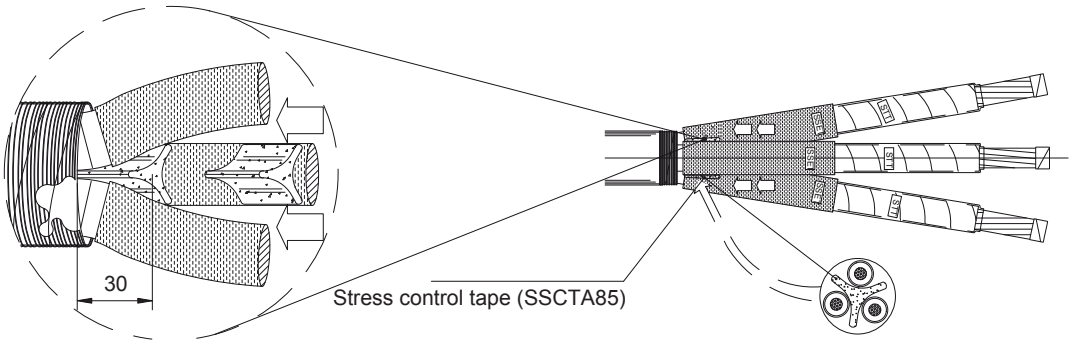


7. Place the smaller semiconductive tubes SSET on the cores pushing them into the crutch so that yellow mastics (SSCTA85) will be covered. Shrink each tube starting from the crutch end.

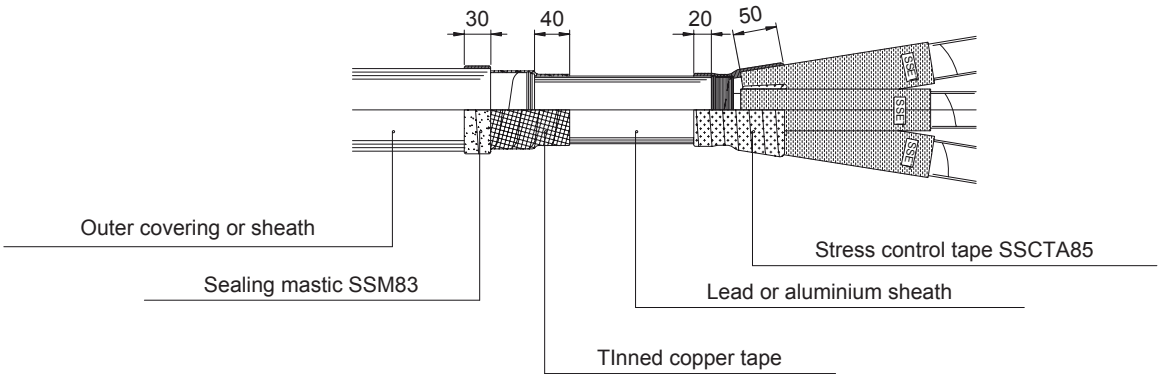


8. Cut the transparent tubes and remove the core insulation for the length equivalent to the bolt cable lug length + 5 mm. If you use compression lugs, remove the insulation following the lug manufacturer's instructions. Be careful not to nick the conductor when removing the last paper layers.

   Clean the conductors and wrap some layers of PVC tape on them.



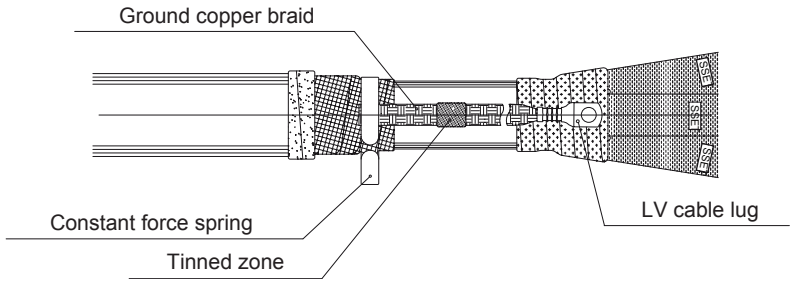
9. Shape a piece of stress control tape SSCTA85 to at least 30 mm length according to the picture and push it well into the crutch. The piece of the tape should fill up all the space in the crutch and the between the adjacent cores.



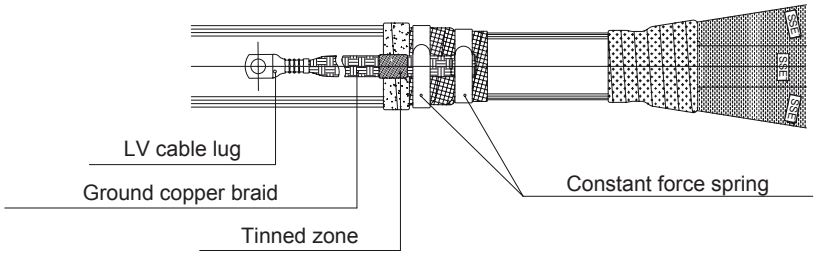
10. Wrap one layer of stress control tape SSCTA85 over the belt paper insulation starting from the lead or aluminium sheath. Cover 20 mm of the lead or aluminium sheath and continue up to 50 mm on the semiconductive SSET tubes. The tape must be applied with 50 % overlap and by stretching it to half of its original width.

    Wrap tinned copper tape, overlapping it 50 %, on the armour and up to 40 mm of the lead or aluminium sheath. Fix the end of the taping by knotting it.

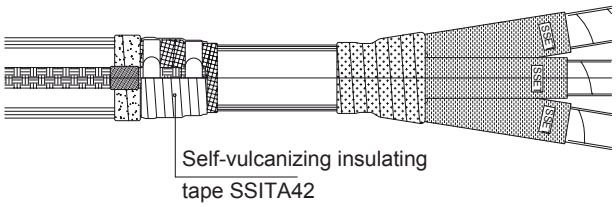
    Wrap one layer of sealing mastic SSM83 slightly stretching it on the outer covering or sheath for the distance of 30 mm.



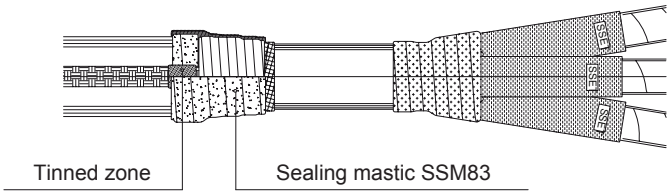
11. Fix the two ground copper braids on the tinned copper tape and the lead or aluminium sheath with a constant force spring. Lug end of the copper braids are now pointing to the core side. Fix the ground copper braids on the lead or aluminium sheath with one layer of constant force spring.



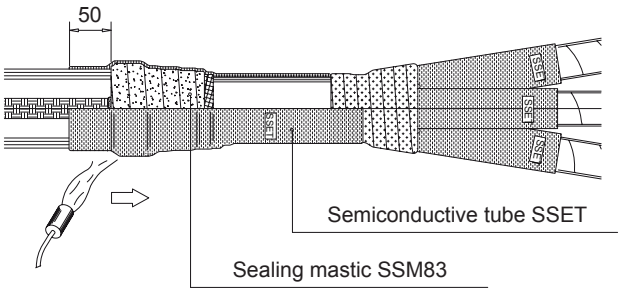
12. Fold the braid ends over the spring. Lug ends of the copper braids are now pointing to the cable side. Wrap the rest of the constant force spring on the folded braid ends. Fix the ground copper braids on the tinned copper tape on armouring with a constant force spring.



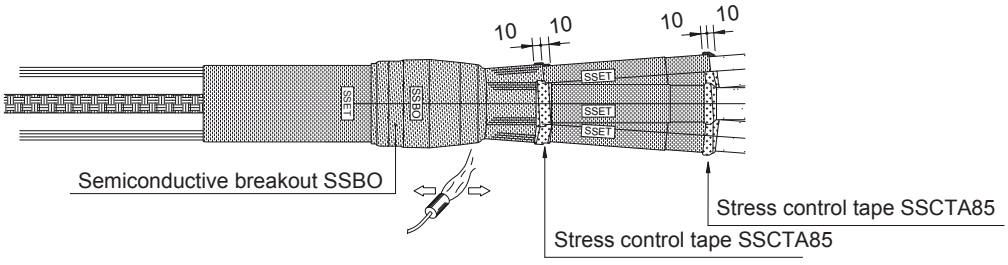
13. Wrap couple layers of self-vulcanizing insulating tape SSITA on the constant force springs to smooth sharp shapes. Wrap the tape by stretching it slightly. Wrapping direction should be chosen so that the spring will get tightened.



14. Wrap one layer of sealing mastic SSM83, slightly stretching, it on the area coated with self-vulcanizing insulating tape. Cover also the tinned zone of the ground copper braid on the outer covering or sheath.

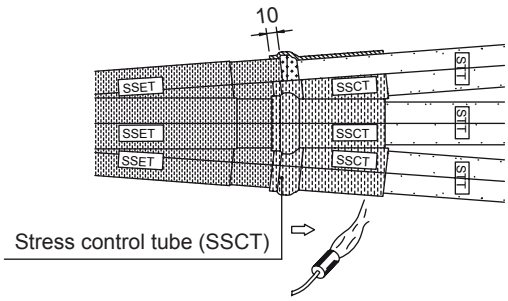


15. Place the semiconductive tube SSET so that it covers 50 mm of the outer covering or sheath down from the edge of the sealing mastic SSM83 layer. Shrink the tube starting from the cables side.

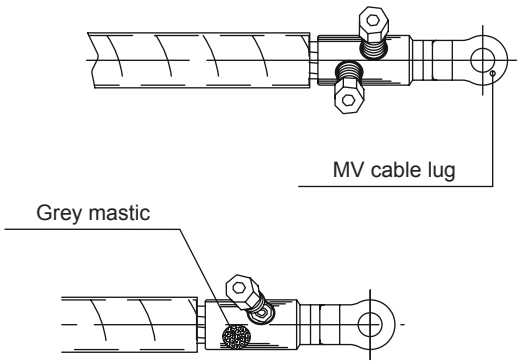


16. Push the semiconductive breakout into the crutch as far as possible. Shrink the breakout starting from the middle. Wrap one layer of stress control tape SSCTA85 on the breakout finger ends. Cover 10 mm of the breakout finger and continue up to 10 mm on the semiconductive SSET tube. The tape must be applied with 50 % overlap and by stretching it to half of its original width.

    Wrap one layer of stress control tape SSCTA85 on the upper ends of the semiconductive SSET tubes. Cover 10 mm of the SSET tube and continue up to 10 mm on the transparent tube. The tape must be applied with 50 % overlap and by stretching it to half of its original width.

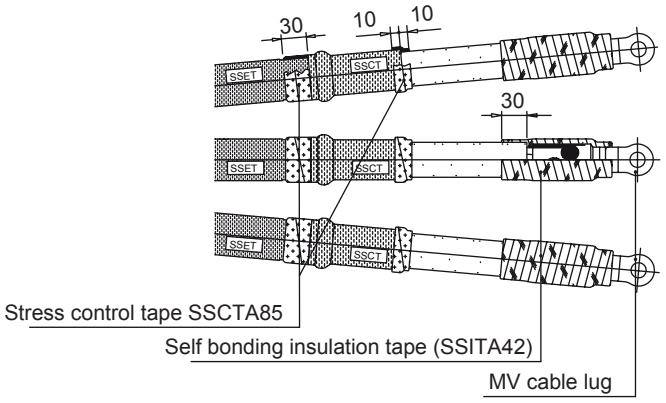


17. Place each stress control tube SSCT on the core so that it covers 10 mm of the semiconductive tube SSET. Shrink the tubes starting from the bottom.



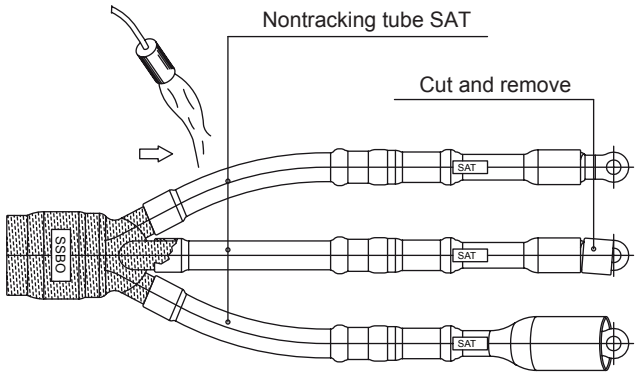
18. Remove the PVC tape from the conductor ends. Install the suitable cable lugs following the manufacturer's instructions. Remember to orient them correctly and remove any sharp edges.

    Please note that a sector shaped conductor may need to be rounded to fit into the connector. Fill the holes with grey mastic.

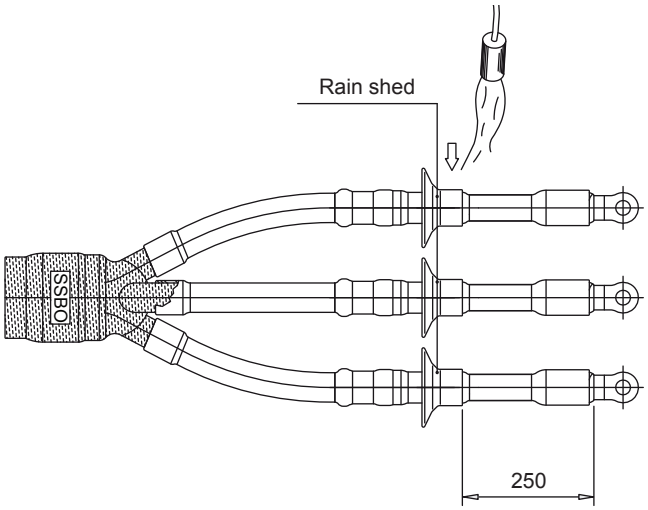


19. Wrap one layer of self bonding insulation tape SSITA42 on the cable lug barrel. Continue down to at least 30 mm on the transparent tube.

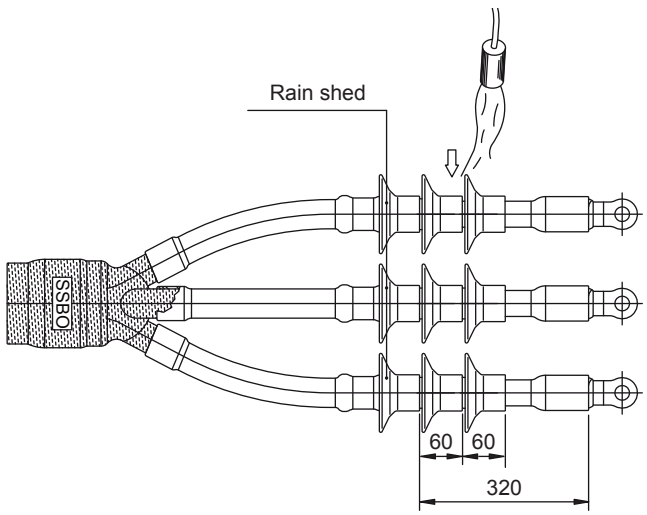
    Wrap two layers of stress control tape SSCTA85 on the semiconductive tube SSET starting from the lower edge of the stress control tube SSCT. Continue 30 mm down along the SSET tube. The tape must be applied with 50 % overlap and by stretching it to half of its original width. Wrap two layers of stress control tape SSCTA85 on the upper edge of the stress control tube SSCT. Cover 10 mm of the SSCT tube and continue up to 10 mm on the transparent tube. The tape must be applied with 50 % overlap and by stretching it to half of its original width.



20. Place the nontracking tubes SAT (red) on the cores pushing them as far down on the breakout fingers as possible. Shrink the tubes starting from the bottom. Cut and remove the excess tube leaving the lug barrel covered.

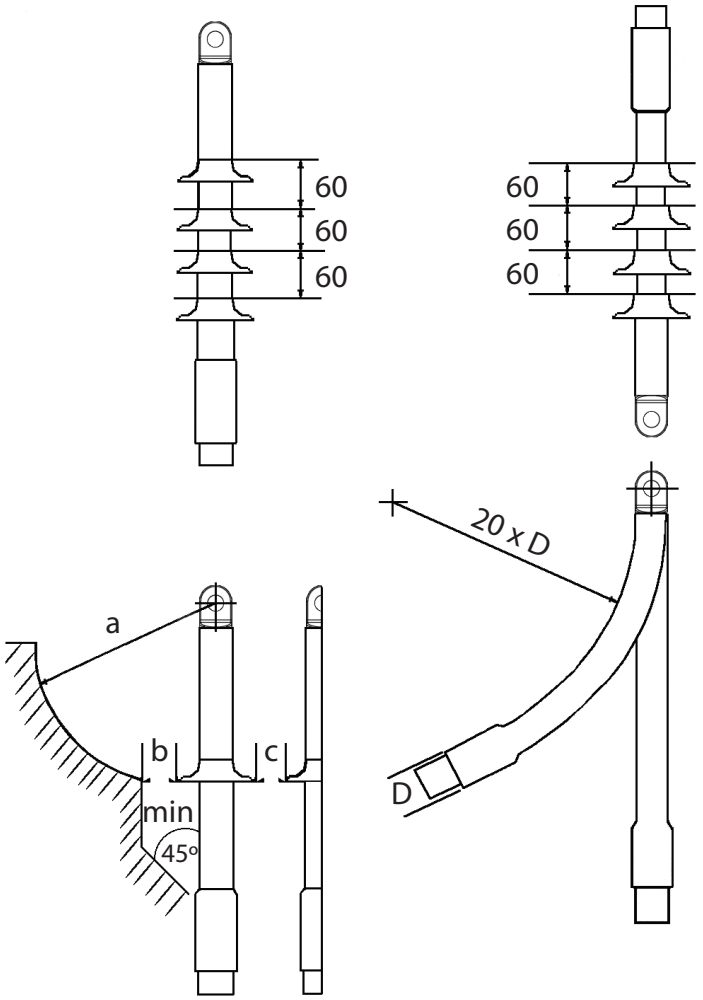


21. **Indoor termination:** Install rain sheds right after finishing the SAT tubes shrinking. Place the rain sheds so that the sheds necks edges are at 250 mm from the nontracking tubes outer end. Shrink each rain shed directing the heat only to its neck.



22. **Outdoor termination:** Install rain sheds right after finishing the SAT tubes shrinking. Place the inner rain sheds so that the shed plates are at 320 mm from the nontracking tube end. Shrink each rain shed directing the heat only to its neck. Shrink the two other rain sheds so that they are spaced 60 mm towards the cable lug.

23. The termination is now ready to use, but let it cool down before expose it to mechanical stress.



a = according to local requirements

Um kV	b min mm	c min mm
12	15	10
17,5	20	15
24	25	20
36	30	25

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