

NELSON™ HEAT TRACING SYSTEMS

MINERAL INSULATED HEATER CABLES FOR FIELD SPLICE OF 300 AND 600 VOLT PRODUCTS

INSTALLATION INSTRUCTIONS

Moisture and dirt are enemies to a successful field splice. A splice should only be made under reasonable dry conditions. Use clean dry tools. **DO NOT TOUCH THE MAGNESIUM OXIDE WITH YOUR HANDS. DO NOT GET FLUX ON THE MAGNESIUM OXIDE.**

Begin by building a splicing fixture out of a 254mm (10.0") piece of angle iron and two vice grip pliers or "C" clamps as shown in *Figure 1*.

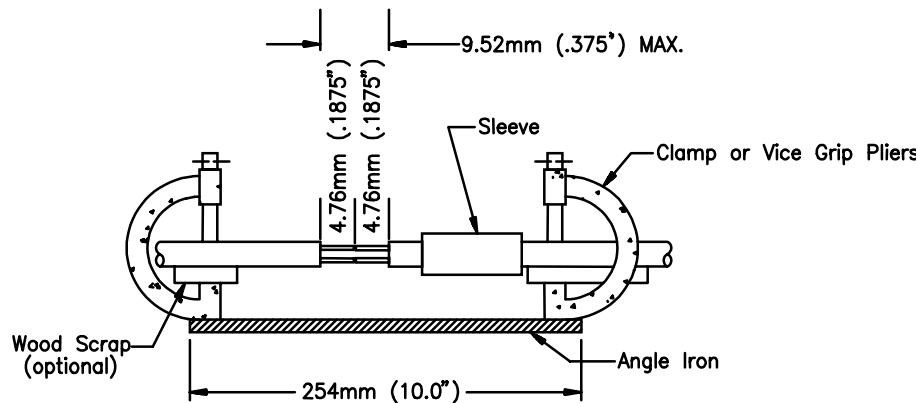


Figure 1
Arrangement Preparatory to Making Splice

1. To prepare the cables for splicing, use the tube cutter and score the circumference of the sheath at a distance 9.52mm (.375") from the end. A slight bend will break the sheath. Crush end with pliers, slip off the cut end and remove the magnesia insulation from the conductors squarely with the cut. Cut conductors back to 4.76mm (.187") from end of sheath using cutting pliers. This will leave an air space of 9.52mm (.375") after splice is made.
2. Check the insulation value between conductors and sheath on both lengths of cable using a 500 volt D.C. megger. If the reading is above 100 megohms proceed with the splice. If the reading is lower, dry out each of the cables with a low torch heat, a high direct flame will melt the cable sheath. Start about 304.8mm (12.0") from the end and heat the cable to a dull red, about 648.8°C (1200°F). Slowly move the heat to the cable end. Re-check with the megger. The reading may not reach 100 megohms while cable is hot.
3. Brazing should be done with a #1 tip or smaller. An oxyacetylene flame is preferred. **DO NOT** attempt brazing with butane, propane, etc., as those gases will not produce enough heat. Slip splice sleeve over cable end before starting. With the conductor ends butted, apply a minimum amount of flux to each conductor joint and braise, leaving a very small bead. Remove hard flux with pliers or scrape off with pocket knife.
4. Slip the splice tube over the joint. Apply a minimum amount of flux to preclude flux flowing into the joint where it might contaminate the insulation. Braise the tube ends to the sheath, *see Figure 2*. Quench the completed joint with a water soaked rag and re-test unit with megger. Reading of 50 megohms or better should be obtained.

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INSTALLATION OF END CAP

1. Cut end of heater back approximately 9.52mm (.375")
2. Check the insulation value between conductors and sheath on both lengths of cable using a 500 volt D.C. megger. If the reading is above 100 megohms proceed with the splice. If the reading is lower, dry out each of the cables with a low torch heat, a high direct flame will melt the cable sheath. Start about 304.8mm (12.0") from the end and heat the cable to a dull red, about 648.8°C (1200°F). Slowly move the heat to the cable end. Re-check with the megger. The reading may not reach 100 megohms while cable is hot.
3. Twist conductors together.
4. Apply flux and solder with oxyacetylene torch.
5. Cut excess amount of soldered center conductors to 6.34mm (.25")
6. Slip end cap on cable as far as it will go. (End cap is milled out so it will not touch center conductor.) See Figure 3.
7. Apply flux shoulder of end cap and silver solder.
8. Immediately after soldering quench with water soaked rag and megger. Reading of 50 megohms or better should be obtained.

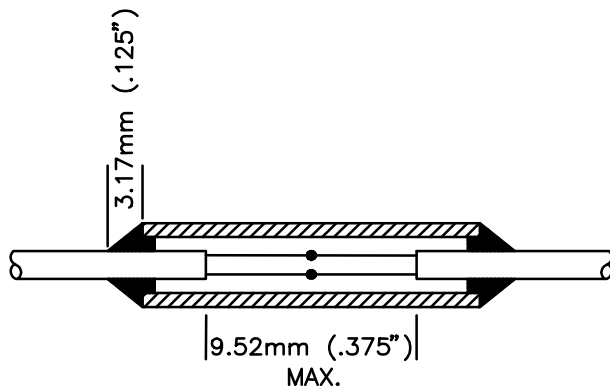


Figure 2
Cross Section of Completed Splice

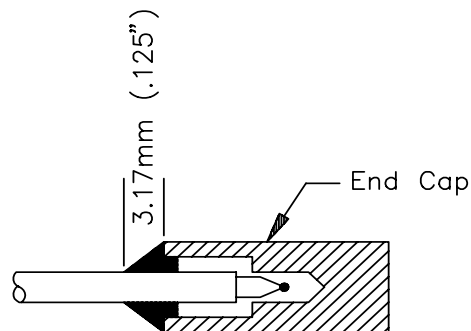


Figure 3
Cross Section of Completed End Cap

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.