nVent ERICO Ericore Upper Termination Instructions

***Figure 1**: Contents of upper termination kit required to complete the termination procedure.*

Tools required for terminating upper end of nVent ERICO ERICORE
1. Utility Knife 2. Tape Measure 3. 2 x 375 mm (15 in.) Shifting Spanner / Wrench 4. PVC Electrical Tape 5. Screwdriver 6. Cutting pliers 7. Zip Ties (2 pcs) 8. Desktop or Handheld Heat Gun

The Upper Termination Kit consists of:
9. 900 mm Black Heatshrink 10. 450 mm Black Heatshrink 11. Vital Warning Label 12. ERICORE Coupling 13. Structure Bonding Braid 14. Instructions 15. Insulation Cutting Tool 16. Crimp Lug 17. Silicone Tape - 2.5 m(2 pcs) 18. Semi-conductive Tape (2 pcs) 19. Roll Spring

WARNING:
1. nVent products shall be installed and used only as indicated in nVent product instruction sheets and training materials. Instruction sheets are available at www.nVent.com and from your nVent customer service representative.
2. nVent products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specified load ratings.
3. All instructions must be completely followed to ensure proper and safe installation and performance.
4. Improper installation, misuse, misapplication or other failure to completely follow nVent's instructions and warnings may cause product malfunction, property damage, serious bodily injury and/or death, and void your warranty.

SAFETY INSTRUCTIONS:
All governing codes and regulations and those required by the job site must be observed.
Always use appropriate safety equipment such as eye protection, hard hat, and gloves as appropriate to the application.

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The Insulation Cutting Tool uses friction to cut into the sheath and is less likely to damage the layers underneath than using a knife. When the instructions call for the knife to be used, be sure not to cut any deeper than instructed.

If the instructions are not followed correctly, or if any of the insulation layers or the copper foil are incorrectly cut, then the integrity of the upper termination is affected.

Refer to Figure 5 on page 3 for the following instructions (1 to 8).

1. The Ericore cable is marked in 1 meter increments for its entire length. Start from the end of the cable with lower number meter markings. At a distance of 1200 mm (47 1/8 in.), carefully cut a shallow notch into the black outer insulation no deeper than 1mm (3/64 in.).

2. Using the insulation cutting tool (15), cut around the circumference of the black outer insulation until the copper screen underneath is exposed, (see Figure 2). Do NOT use a knife instead of the provided cutting tool.

3. Using a utility knife (1), carefully cut the outer insulation of the cable to a depth of no more than 1 mm (3/64 in.), for the full 1200 mm (47 1/8 in.), in the direction of the end of the cable. Be sure not to cut so deep as to expose or damage the copper tape underneath. Starting from the end of the cable, carefully remove the outer insulation and discard.

4. Carefully clean up the friction cut, removing any burrs for a neat finish.

5. Using a screwdriver (5), fit the roll sping (19) 30 mm (1 1/4 in.) from the end of the outer insulation over the exposed copper tape.

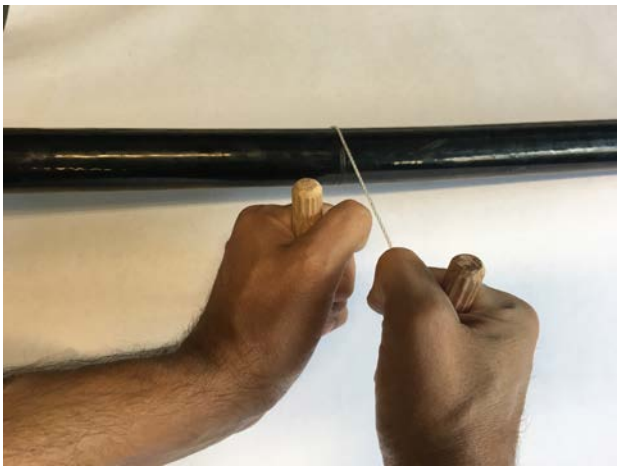

Figure 2: *Use of the insulation cutting tool to cut the insulation without damaging the layers beneath*

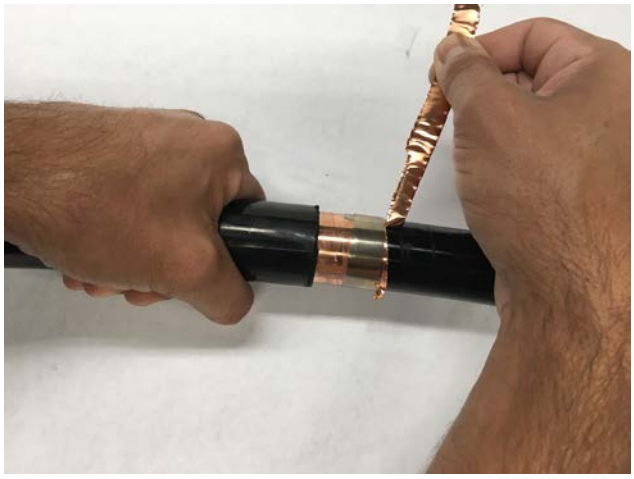

Figure 3: *Using the roll clip to cut and remove the copper screen*

Figure 4: *Placing PVC tape to prevent further unraveling*

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6. From the end of the cable, remove the copper tape up to the roll spring, exposing the black semi-conductive material by unrolling, then tearing the tape up and back over the edge of the roll spring at about a 45 degree angle, (see Figure 3). If necessary, carefully cut about 6 mm (1/4 in) of the copper tape up against the roll spring with a knife and then tear over the spring.

7. Carefully remove the roll spring, then tape up the last 6 mm (1/4 in.) of the copper tape with a piece of PVC tape, to stop further unraveling, (see Figure 4).

8. Place the structure bond braid (13) over the cable so that it sits over the copper screen. Ensure that the braid loops tightly around the copper screen. Tape the bond braid into place with PVC tape (4), (see Figure 6).

Ultimately, this braid will require electrical bonding to the structure. Terminate the bonding cable with the provided crimp lug (16).

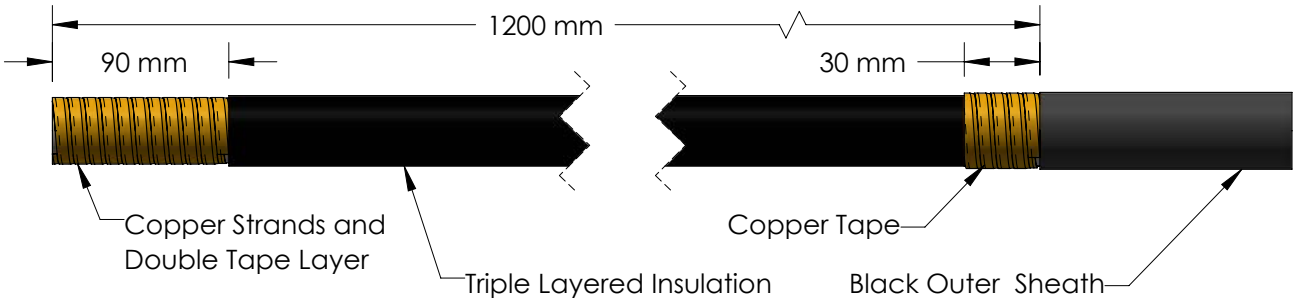

Figure 5: *Cutting Dimensions*

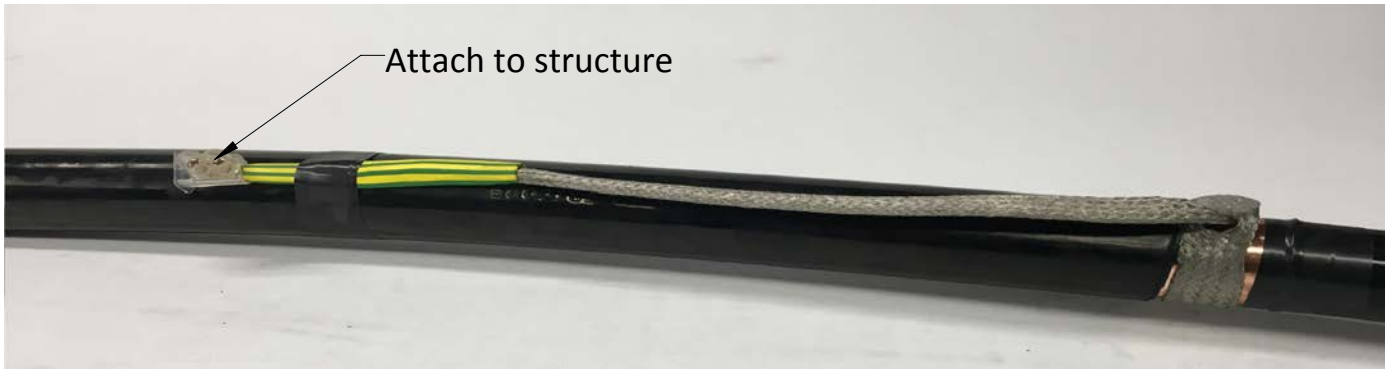

Figure 6: *Bonding braid secured in place*

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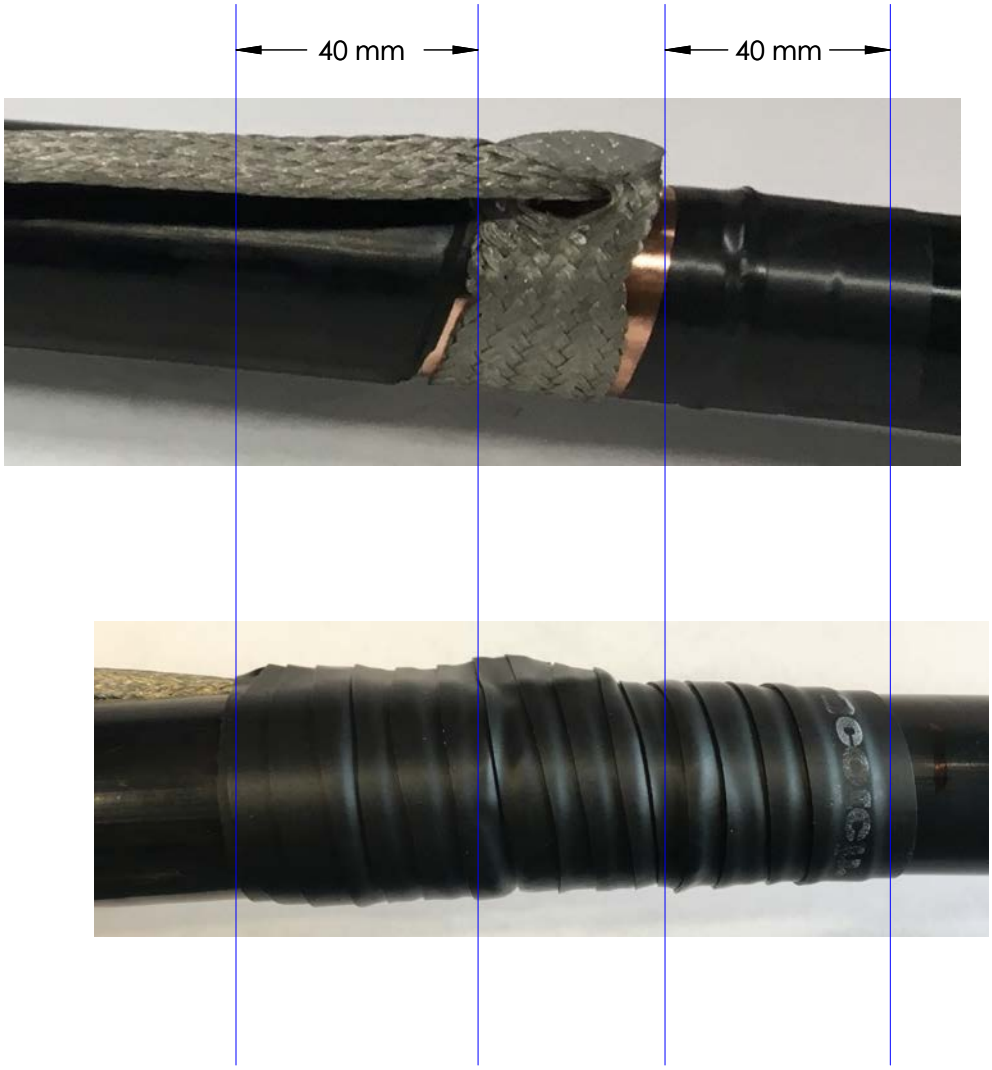

Figure 7: *Black semi-conductive tape applied over bonding braid*

9. Wrap one roll of the black semi-conductive tape (18) around the cable over the structure bonding braid. Start the wrapping 40 mm (1 1/2 in) before the copper layer and finish 40 mm (1 1/2 in) beyond the copper layer for a total of 110 mm (4 3/8 in). Overlap the tape by half the tape thickness each turn, (see Figure 7).

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(10)

(10)

(12,13)

10. At a distance of 90 mm (3 1/2 in.) from the end of the cable, carefully cut a notch in the triple layered insulation no deeper than 1 mm (3/64 in.). Then using the insulation cutting tool (15), cut around the circumference of the triple layered insulation until the copper underneath is exposed.

11. With a utility knife (1), carefully cut along the 90 mm (3 1/2 in.) length of triple layered insulation on the cable to a depth of no more than 1 mm (3/64 in.). Be sure not to cut too deep, as to expose or damage the copper layer underneath. Starting from the end of the cable, carefully remove the triple layered insulation and discard.

12. Take apart the ERICORE Coupling (12), ensuring there are 4 pieces.
There should be:

- A Compression Nut
- A Compression Ring
- A Compression Cone
- A Main Coupling Piece

13. Place the compression nut and compression ring of the coupling set over the strands and copper tape layer.

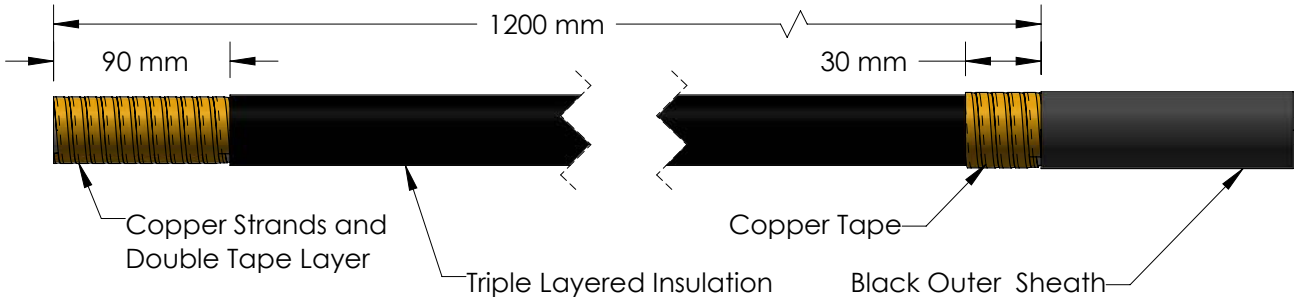

Figure 8: *Cutting Dimensions*

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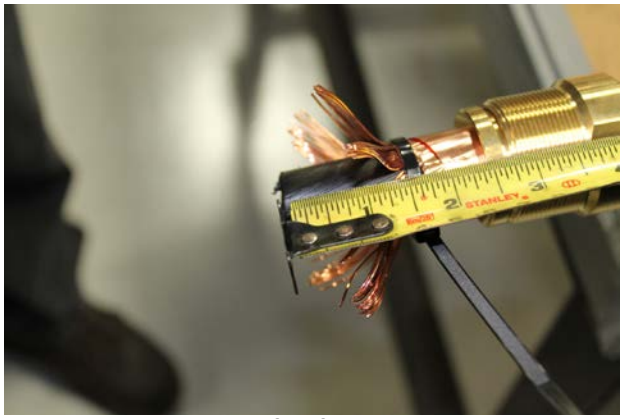
14. Remove 45 mm (1 3/4 in) of the copper tape and expose the copper strands. Install zip tie (7) to secure the copper strands. Pull back the copper strands.



(14)

15. Place the compression cone between the filler core and the copper strands. The cone should be "pushed on" until it is flush with the end of the filler core.

(15)

16. Distribute the strands as evenly as possible around the compression cone.

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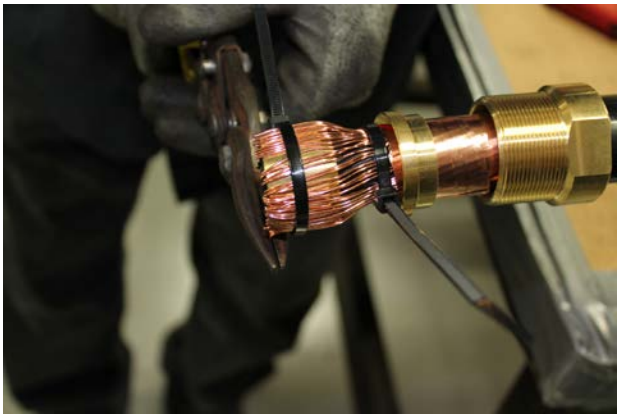
(16)

17. Install a second zip tie (7) to secure the end of the copper strands to the compression cone. With a pair of cutting pliers (6), trim the ends of the copper strands evenly with the compression cone edge.

(14)



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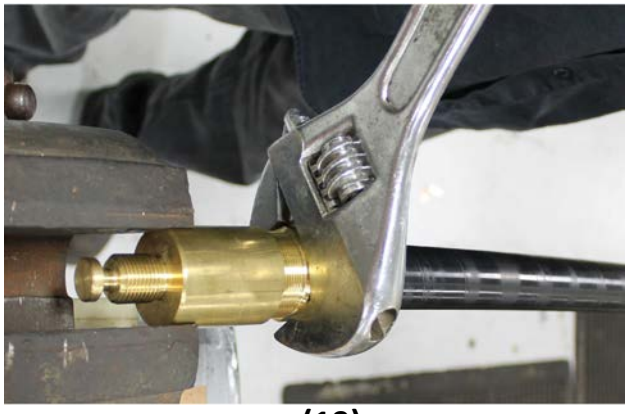

(19)

18. Install the main coupler over the strands.Do not force the main coupler on as it should slide on smoothly. Cut and remove both zip ties.

19. Thread main coupler into the the compression coupler. Tighten both couplers together with the shifting spanner/wrench (3).

20. Starting immediately at the end of the compression coupler, wrap the remaining semi-conductive tape (18) around and over the copper tape, covering it completely, then extending an additional 40 mm (1 1/2 in) over the triple layer insulation with an overlap on each turn.

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21. Installing the Heatshrink

There are two lengths of heatshrink in this kit (one is 900 mm (35 1/2 in) long, the other is 450 mm (17 1/2 in) long). Slide on and heat both in the manner shown.

Slide the first 900 mm (35 1/2 in) length of heatshrink (9) over the cable until the end of the heatshrink tube covers and overlaps the semi-conductive tape (over the black outer sheath) at the bottom end by at least 30 mm (1 1/8 in). The braid will protrude from under the heatshrink at this point. Use the desktop or handheld heatshrink gun (8) to carefully shrink the lower end of the heatshrink into the correct position (with the braid protruding) and gradually work up towards the top of the heatshrink ensuring there are no pockets of air trapped under the heatshrink.

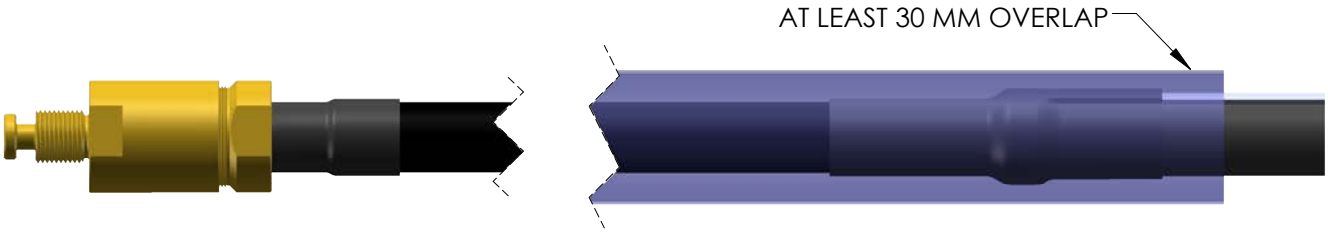

Figure 9: *Applying the first layer of heatshrink*

Then place the second 450 mm (17 3/4 in) length of heatshrink tube (10) into place over the cable, overlapping the previous heatshrink tube. Start shrinking at the top brass fitting end, and shrink it so that the lower brass nut is just covered as shown in Figure 10b.

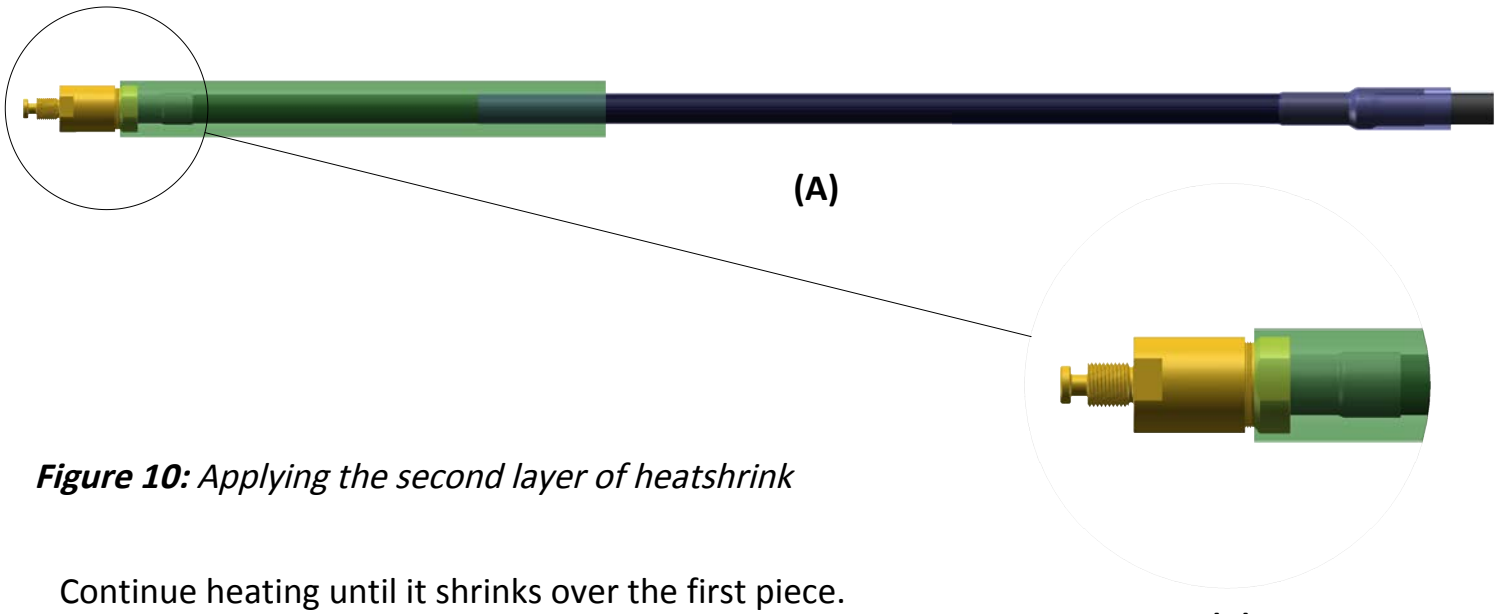

Figure 10: *Applying the second layer of heatshrink*

Continue heating until it shrinks over the first piece.

Figure 11: *Finished heatshrink assembly*

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22. Using a roll of grey silicone tape (17), overwrap half layers from 40 mm (1 3/5 in.) over the end of the heatshink to 40 mm (1 3/5 in.) over the coupling so that it covers the joint between the main coupling and compression nut.

Using the second roll of grey silicone tape (17), overwrap half layers from 40 mm (1 3/5 in.) over the end of the heatshink to 40 mm (1 3/5 in.) over the cable outer sheath at the lower end of the termination (refer to Figure 13).

Wrap with moderate tension (10 to 50% stretch). Apply one final layer with no stretch. Press down, to avoid the end lifting before fusion of the tape takes place.

The finished termination must be protected against any abrasion and sharp edges during transport or installation, as the heatshrink insulation is susceptible to ripping or tearing if nicked or scuffed.

23. The structure bonding braid MUST be electrically connected via a 6 mm^2 (8 AWG) length of insulated copper cable to the specified conductive structural point, as described in the nVent ERICO SYSTEM 3000 Installation, Operation & Maintenance Manual.

***Figure 12**: Heatshrink sections overlapping*

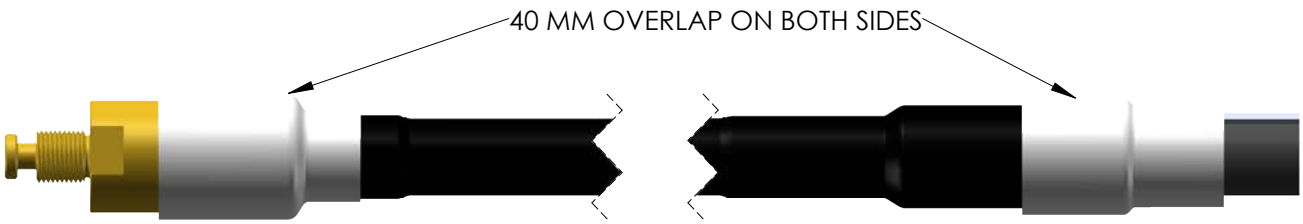

***Figure 13:** Wrap silicone tape at the top and bottom for waterproofing*

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Connecting the nVent ERICO Dynasphere

24. Feed the terminated Ericore (and bonding braid) through the FRP mast so that the entire termination is protruding from the top of the mast. Remove the lock screw in the base of the nVent ERICO Dynasphere terminal, then screw the terminal all the way onto the termination coupling thread. Install the lock screw back into position so that it locks the thread into place and will stop the terminal from unscrewing.

25. Carefully pull the down conductor (and bonding braid) back down through the FRP mast so that the terminal base sits correctly in the top of the mast.

Note: *It may be necessary to pull back any slack of nVent ERICO ERICORE downconductor through the FRP support mast to achieve a properly seated fit for the nVent ERICO Dynasphere.*

The nVent ERICO Dynasphere must not be skewed and the base of the terminal must be fully inserted into the top of the FRP mast.

26. Connect the 6 mm^2 (8 AWG) structure bonding cable as detailed in the nVent ERICO SYSTEM 3000 Installation, Operation and Maintenance Manual. After bonding the cable, ensure that the connection is waterproof and resealed if required.

27. Place the Vital Warning Label (11) in a prominent position at the base of the mast, or beside the downconductor at eye level, if the installation is in an area where it is possible for persons to gain access.

Figure 14*: Completed termination*

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***Figure 15**: Once the nVent ERICO DYNASPHERE has been fitted to the termination coupling, ensure the locking screw is tightened securely*

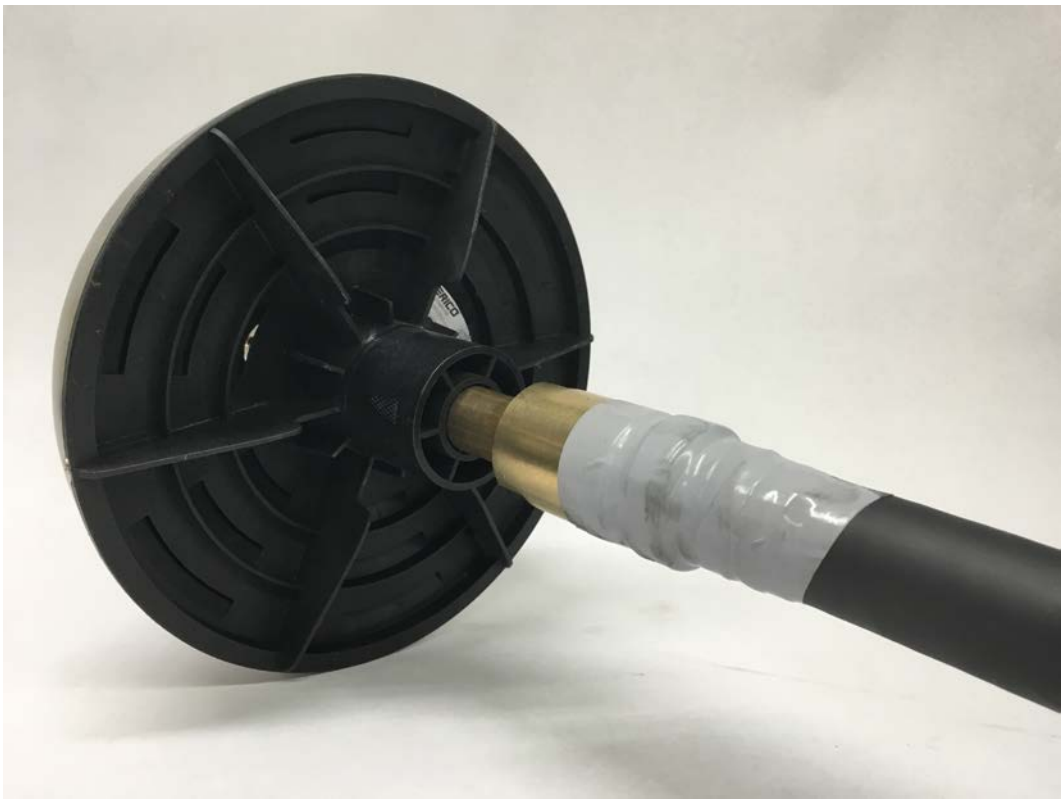

***Figure 16**: Completed assembly*