



RAYCHEM

TraceTek

TT-5000-CK-MC-M/F-10 TT-5000-CK-MC-M TT-5000-CK-MC-F TT-5000-HUV-CK-MC-M/F-10

Field Installed Connectors Installation Instructions



TT-5000-CK-MC-M/F-10 (P000000711)
TT-5000-HUV-CK-MC-M/F-10 (P000000712)

KIT CONTENTS: (10 M and 10 F connectors)

| Item | Qty | Description |
|------|-----|---|
| A | 10 | TT-CK-MC-M pin connector with spinner ring |
| B | 10 | TT-CK-MC-F socket connector |
| C | 22 | White spacers (2 extra) |
| D | 125 | SolderSleeve® splices (5 extra) |
| E | 21 | Heat-shrinkable tubing, labeled SCT (1 extra) 89 mm length for -HUV kit, 54 mm length for standard kit |
| F | 21 | Heat-shrinkable tubing, unlabeled (1 extra) |

TT-5000-CK-MC-M or (PN 961207-000) (1 M connector)
TT-5000-CK-MC-F (PN 880841-000) (1 F connector)

KIT CONTENTS:

| Item | Qty | Description (Either A or B present in kit) |
|------|-----|---|
| A | 1 | TT-CK-MC-M pin connector with spinner ring |
| B | 1 | TT-CK-MC-F socket connector |
| C | 2 | White spacers (1 extra) |
| D | 7 | SolderSleeve splices (1 extra) |
| E | 1 | Heat-shrinkable tubing, labeled SCT (0 extra) |
| F | 1 | Heat-shrinkable tubing, unlabeled (0 extra) |

WARNING:

FIRE HAZARD. Heat guns and flameless heating tools can cause fire or explosion in hazardous areas. Be sure there are no flammable materials or vapors in the area before using these tools. Follow all site safety guidelines when working in hazardous areas.

Component approvals and performance are based on the use of specified parts only.

DESCRIPTION

Field Installed Connectors for nVent RAYCHEM TraceTek 5000, 5000-HS, 5000-HUV, 5001, 5001-HS and 5001-HUV Bulk Cable

These instructions describe field connecting of TT5000, TT5000-HS, TT5000-HUV, TT5001, TT5001-HS and TT5001-HUV bulk sensing cable.

For technical support, call nVent at (800) 545-6258.

TOOLS REQUIRED

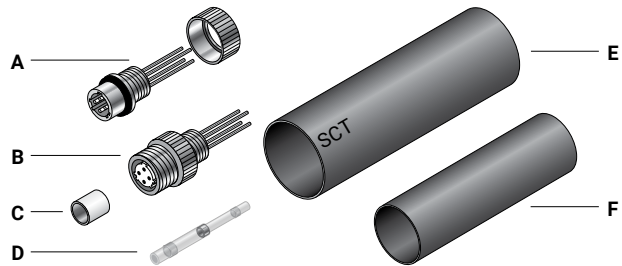
- Needle nose pliers
- Razor blade or utility knife
- Small pair of wire cutters
- 3/4-inch masking tape
- Flameless heating tool (Ultratorch 200) or suitable heat gun with concentrator tip.
- Permanent ink marker
- TT-CT-SCT crimping tool (PN 644333-000)
- High impedance ohmmeter (Fluke 87 or equivalent; meter must be capable of measuring to at least 20 megohms)
- Greenlee strippers (1917 or 1918) or equivalent for 24 AWG and 26 AWG wire

ADDITIONAL MATERIALS REQUIRED

- TT-Test-Tool-Pin&Socket (PN 986291-000)
- TT-MET-MC (PN 571293-000)
- TT-FET-MC (PN 383017-000)

NOTES

- Do not use an open flame heating tool.
- The pin connector should always be installed on the cable end pointed towards the alarm module.
- Use with TT5000, TT5000-HS, TT5000-HUV, TT5001, TT5001-HS and TT5001-HUV sensing cable only. This kit is not compatible with other nVent RAYCHEM TraceTek sensing cables.



CAUTION:

HEALTH HAZARD. Overheating heat-shrinkable tubing or SolderSleeves will produce fumes that may cause irritation. Use adequate ventilation and avoid charring or burning. Consult MSDS RAY3122 and RAY5103 for further information.

CHEMTREC 24-hour emergency telephone: (800) 424-9300
 Non-emergency health and safety information: (800) 545-6258

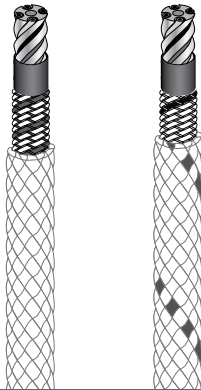
Sensing Cable and Overbraid Identification

TT5000-HS, TT5001-HS Cable

TT5000-HS
White overbraid

TT5001-HS
White overbraid with purple thread

Go to Step HS-1



TT5000-HUV, TT5001-HUV Cable

TT5000-HUV
Black overbraid with red thread

TT5001-HUV
Black overbraid with purple thread

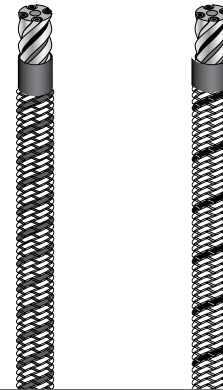
Go to Step HUV-1



TT5000 & TT5001 Cable

TT5000
Outer braid of red, white & black fibers

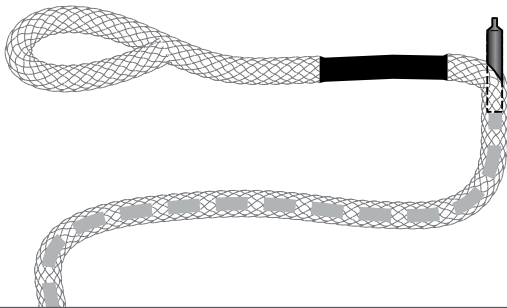
TT5001
Outer braid of white & black fibers



Go to Step 1
Page 3

HS-1

- Grasp rope braid about 25 mm (1 in) behind the taped end near the looped end of the pull rope. Feel for the sealed end of the sensor cable beneath the rope braid. Bend the rope braid to a 90 degree angle and locate sealed end of the sensor cable.
- Spread the rope braid fibers apart to expose the sealed end of the sensor cable.



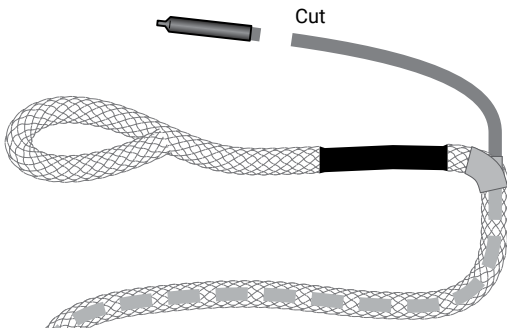
HUV-1

- Locate the sealed cable end and wrap 19 mm (3/4 in) masking tape on black overbraid 2 1/2 inches from the start of the sealed end.



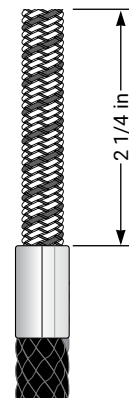
HS-2

- Grasp the sealed end and pull about 30 cm (12 in) of sensor cable out while holding the rope braid in place.
- Tape the rope braid to sensor cable to prevent the rope from springing back.
- Using Greenlee strippers, cut off the sealed end of cable about 6 mm (1/4 in) from the seal itself.



HUV-2

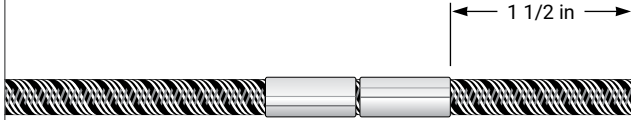
- Cut off sealed end of cable about 6 mm (1/4 in) from the seal itself.
- Unravel the black overbraid fibers to tape edge, then trim fibers to tape edge.



1

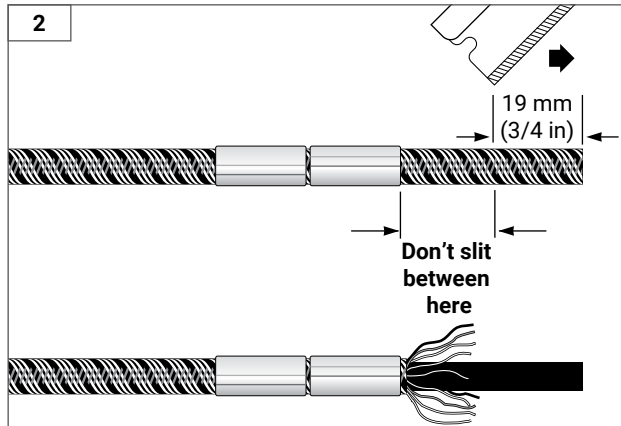
Note: Subsequent illustrations show TT5000 cable but apply to TT5001 also.

Note: For HUV cable, the tape segment below was already applied on overbraid in step HUV-2.



- Wrap 19 mm (3/4 in) masking tape 38 mm (1-1/2 in) from the end of the cable.
- Wrap a second piece adjacent to the first.
- Fold the ends of each piece of tape for easy removal.

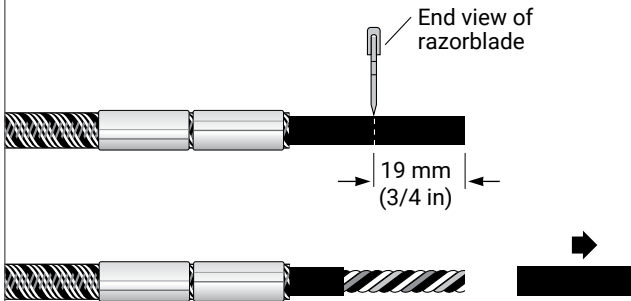
2



- Slit 19 mm (3/4 in) of the outer braid lengthwise.
- Remove severed strands.
- Twist and push the remaining braid back to the tape.
- Use cutters to cut off braid strands at the tape.

3

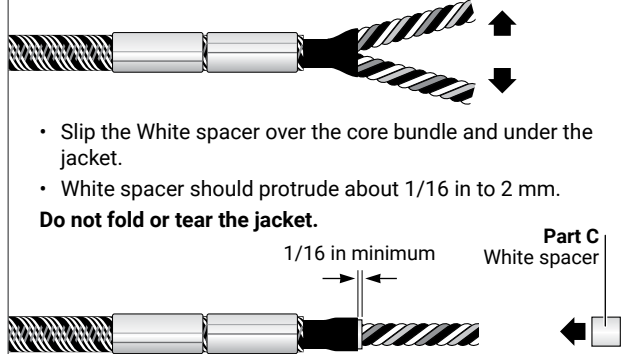
- Very lightly score all the way around the black jacket with a razor blade or utility knife.
- Remove the 19 mm (3/4 in) jacket section by twisting clockwise and pulling.



Do not cut through the black jacket

4

- Bend the core sharply in all directions to flare the black jacket and inspect the wires for damage at the cut.



- Slip the White spacer over the core bundle and under the jacket.
- White spacer should protrude about 1/16 in to 2 mm.

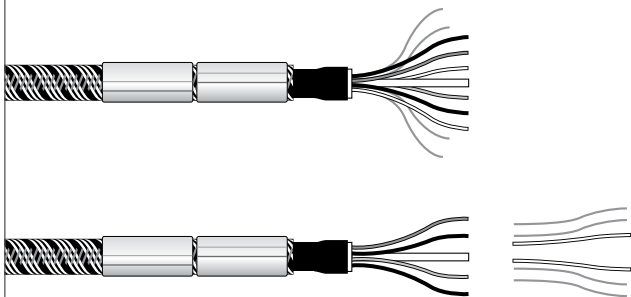
Do not fold or tear the jacket.

- Trim away any jacket shards that may be present.

5

- Unbraid the core wires.
- Cut off the 2 small white wires and 4 blue braid fibers. Leave the large diameter white wire intact.

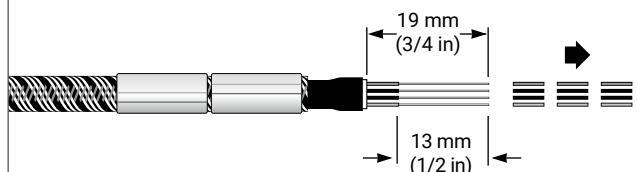
Avoid nicking the remaining wires.



6

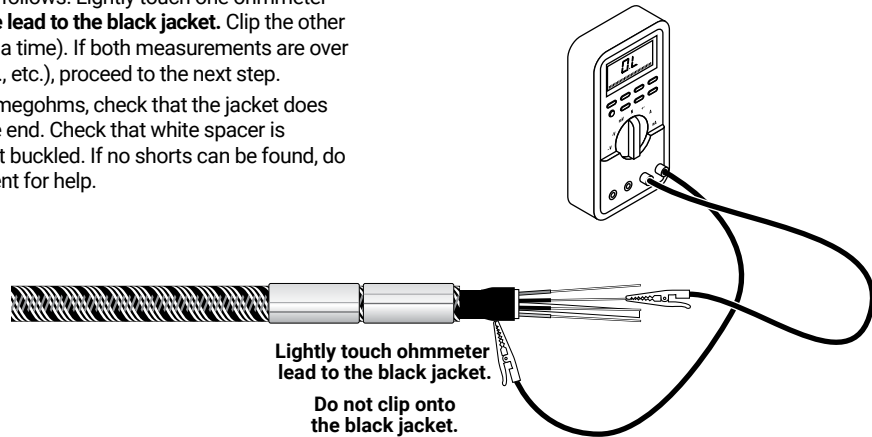
- Straighten the remaining wires by pulling slightly and flexing.
- Trim all 5 wires to 19 mm (3/4 in) long.
- Do not strip the large diameter white wire.
- Carefully strip the insulation on the four small colored wires. To avoid breaking the wires, strip the insulation in small sections until 13 mm (1/2 in) has been removed. Use the 26 AWG (0.15 mm²) slot for the black wires and the 24 AWG (0.24 mm²) slot for the red and yellow wires.

Do not break wire strands.



7

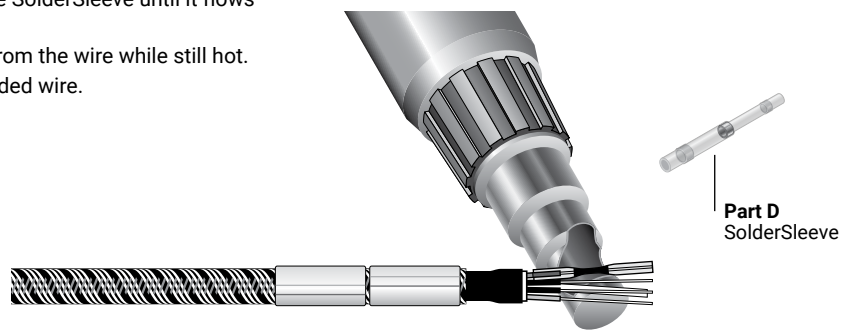
- Set the ohmmeter to its highest resistance scale. Measure the resistance between the black wires and jacket as follows: Lightly touch one ohmmeter lead to the black jacket. **Do not clip the lead to the black jacket.** Clip the other lead to each of the black wires (one at a time). If both measurements are over 20 megohms (meter may read: ∞, O.L., etc.), proceed to the next step.
- If either measurement is less than 20 megohms, check that the jacket does not touch the black wire at either cable end. Check that white spacer is properly located and black jacket is not buckled. If no shorts can be found, do not use the cable section. Contact nVent for help.



8

For either connector type, the red and yellow wires need to be pre-tinned.

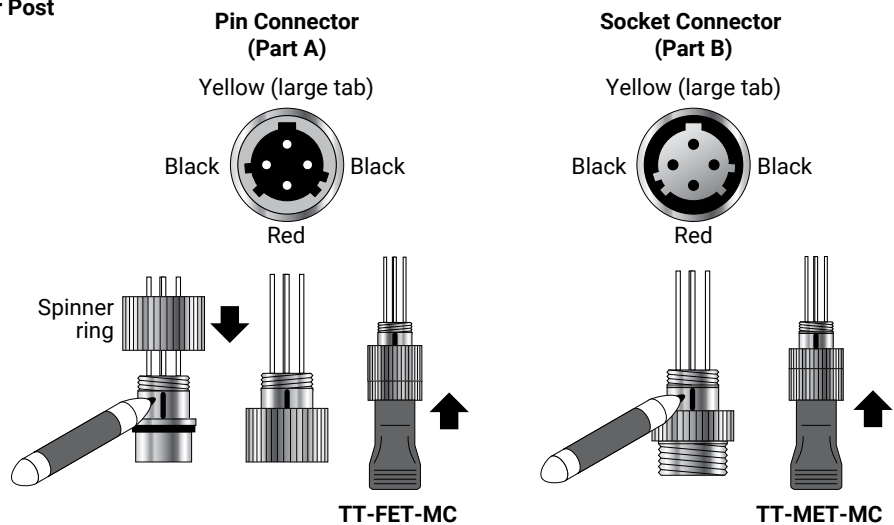
- Twist together any loose strands of the red or yellow wires.
- Slide a SolderSleeve splice (Part D) onto the red or yellow wire.
- Heat the solder band in the center of the SolderSleeve until it flows onto the bare wire.
- Use pliers to remove the SolderSleeve from the wire while still hot.
- Repeat the process with the other stranded wire.
- Discard the used SolderSleeves.



9

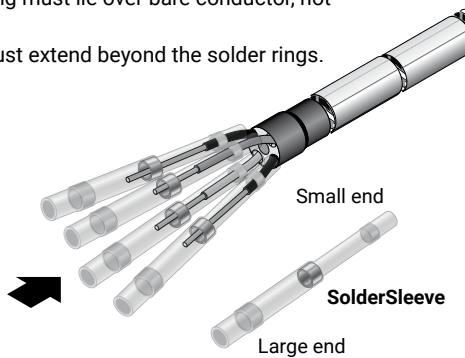
Locate the Yellow Wire Connector Post

- Note the large tab cutout around rim of connector. Position the large tap at 12 o'clock position, see below.
- Use permanent ink marker to mark flat portion of connector body behind the large tab.
- For the pin connector (Part A) only, slip the spinner ring, large hole first, onto the connector.
- Attach TT-MET-MC and TT-FET-MC to socket and pin connector (Parts B and A) to use as a holder to avoid burning fingers while applying heat.



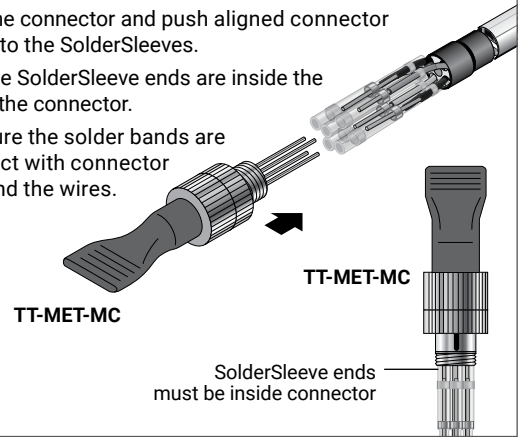
10

- Keep wires in the same order that they exit from the cable end.
- Slide a SolderSleeve splice (small end first) onto each wire, all the way to the cable end.
- The solder ring must lie over bare conductor, not insulation.
- Wire ends must extend beyond the solder rings.



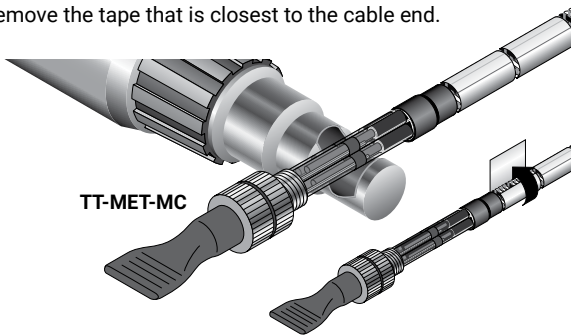
11

- Once yellow wire is aligned correctly to the mark on connector body, the red wire will be opposite to it and all wires will be in their correct positions.
- Orient the connector and push aligned connector posts into the SolderSleeves.
- Verify the SolderSleeve ends are inside the back of the connector.
- Make sure the solder bands are in contact with connector posts and the wires.



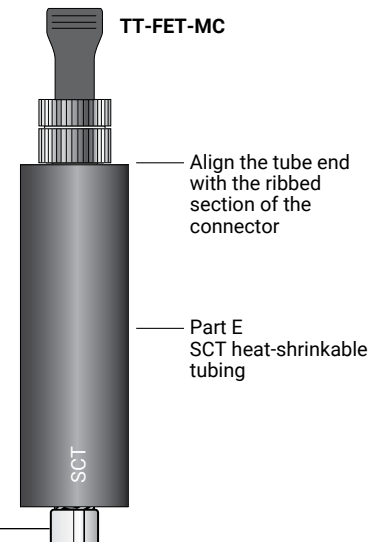
12

- Heat the SolderSleeves until they have shrunk fully and the solder rings have melted and flowed. **Keep the heat source moving to avoid charring the connector.**
- Carefully remove assembly from heat. Hold connector and cable steady and allow to cool. Moving solder joint when hot can weaken the connection.
- Remove the tape that is closest to the cable end.



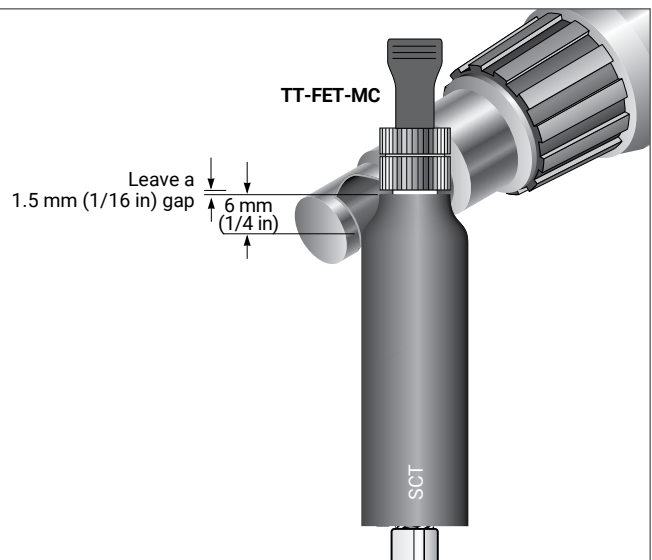
13

- Slide SCT labeled heat-shrinkable tube over the assembly.
- The SCT tube used with TT5000-HUV connector kit is designed to be longer, and will cover the tape segment on braided cable. Do not remove the tape segment securing the black overbraid before shrinking the SCT tube.



14

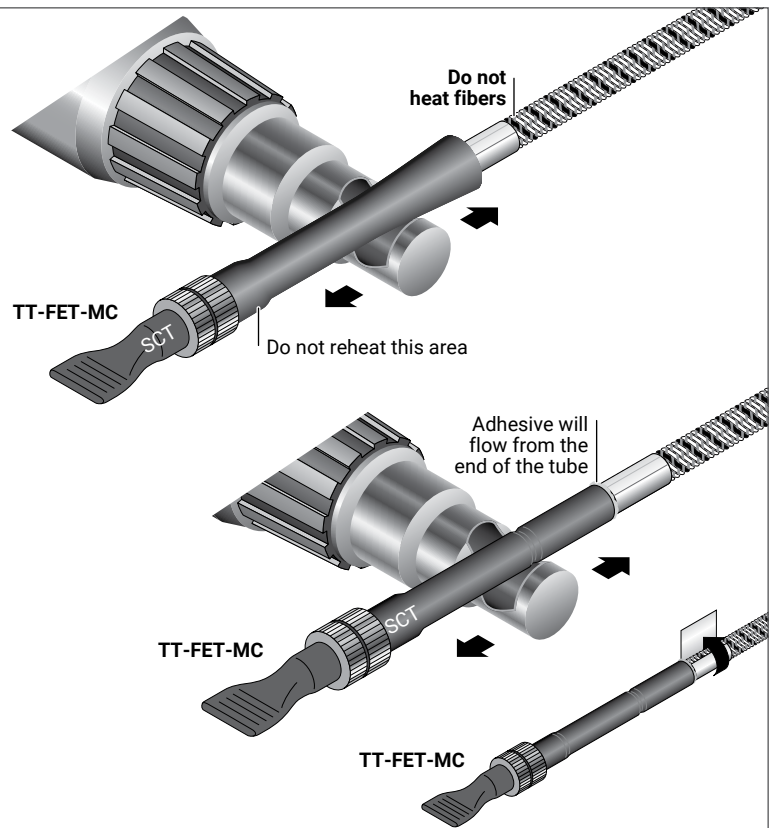
- Heat shrink 6 mm (1/4 in) of the tube onto the connector, moving the heat source around the tube to heat evenly.
- Leave a small 1.5 mm (1/16 in) gap between the tube and the ribbed section of the connector.
- **Do not overheat.** The tube may slip off of the connector if it is overheated.
- **Allow to cool before proceeding.**



15

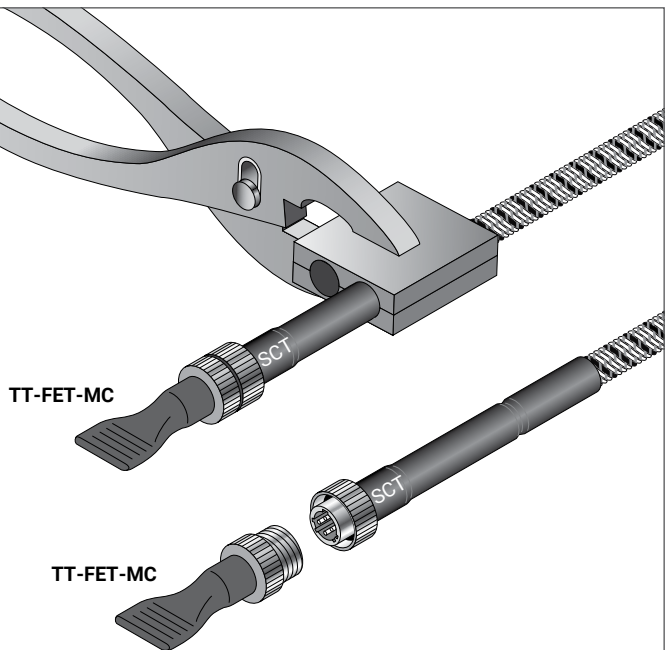
- Finish shrinking the tube, starting at the end opposite the connector.
- Do not apply heat directly to the braid fibers.
- Heat the tubing end until adhesive melts and beads on the braid fibers.
- Inspect the exposed adhesive at the tubing/braid fiber interface. If a void is visible, use a glove or rag to squeeze the tube slightly and fill the void with molten adhesive.
- Keep heating the tubing section in the middle of tube until fully recovered.
- Avoid reheating the already shrunk section on the connector body.
- Remove the last piece of tape while the adhesive is still warm.
- Proceed to the next step before the tube cools.

⚠ CAUTION: Burn Hazard
Do not get hot adhesive on your bare skin.
The hot adhesive will burn your skin.



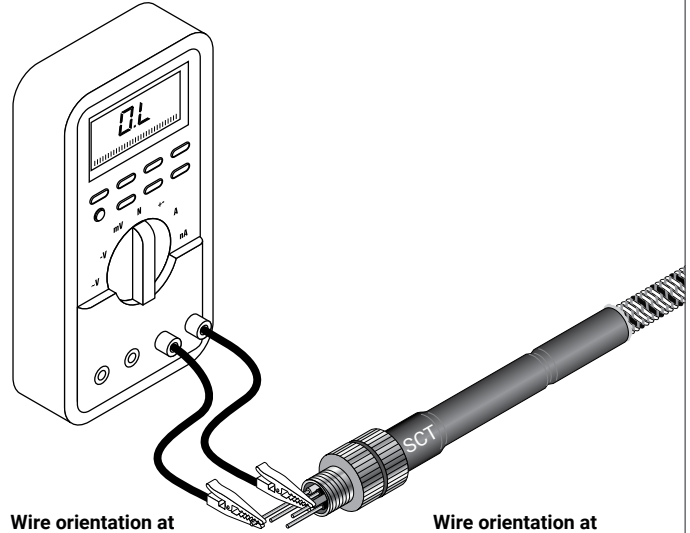
16

- While the tubing is still hot, place tubing in the larger opening of the crimp tool. Align end of crimp tool with end of shrink tube. Crimp SCT tubing to cool and seal. Open and rotate crimp tool 90 degrees and crimp again to ensure proper adherence to the cable.
- If the tubing has moved more than 3 mm (1/8 in) off the threaded connector, push the hot tubing back to the original position while supporting assembly using "holder" end termination. You may have to reheat the tube. Hold the crimp tool in place while it cools the tube.
- Apply heat to tubing one last time to soften the creases made by the crimp tool. Do not overheat.
- Remove the crimping tool and let the assembly finish cooling.
- **Allow the assembly to fully cool.**
- Remove the end termination.
- For the pin connector, the spinner ring must turn freely. If necessary, gently use pliers to break it free.

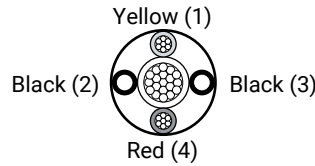


17

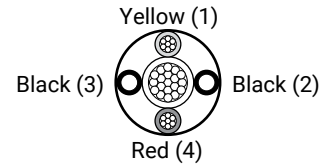
- Attach the mating test-tool-half to the connector to be tested.
- If both cable ends have connectors, attach a mating end termination at the opposite end. If there is no connector on the opposite cable end, prepare it according to steps 1 through 6 and twist together wires 1 & 2. Also join wires 3 & 4.
- Use an ohmmeter to measure the resistance between the test tool posts.
- The resistance between the 2 longest posts or the 2 shortest posts should be $\approx 4 \times$ cable length (ft) (i.e. A 100 ft. (30 m) cable should measure $\approx 400 \Omega$ between the two longest posts and $\approx 400 \Omega$ between the two shortest posts.)
- The resistance between the 2 intermediate length posts should be greater than 20 megohms.
- If the assembly fails any of the resistance tests;
 - 1) Check the twisted wires at the opposite cable end.
 - 2) Check for any pinches in the sensing cable at the access points.
 - 3) If necessary, cut off and discard the connector and install a new one.



Wire orientation at cable end opposite socket connector



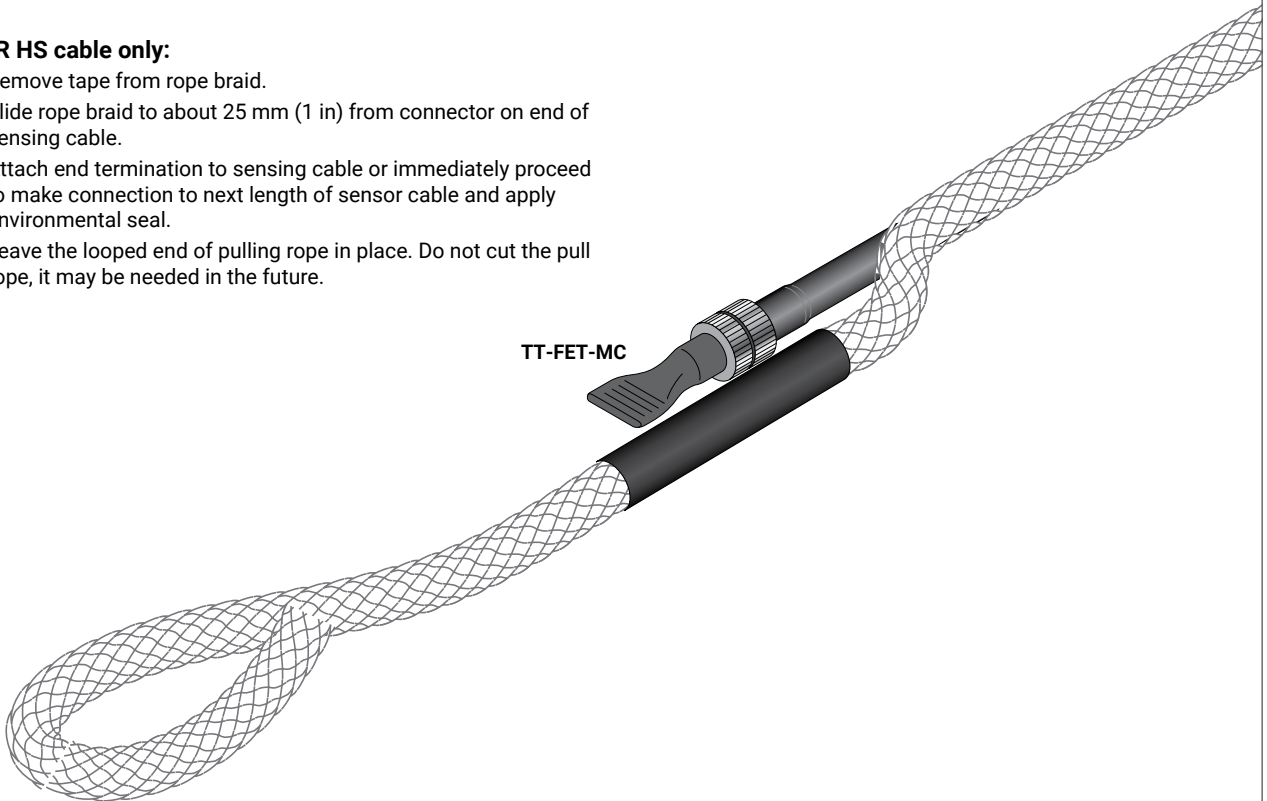
Wire orientation at cable end opposite pin connector



18

FOR HS cable only:

- Remove tape from rope braid.
- Slide rope braid to about 25 mm (1 in) from connector on end of sensing cable.
- Attach end termination to sensing cable or immediately proceed to make connection to next length of sensor cable and apply environmental seal.
- Leave the looped end of pulling rope in place. Do not cut the pull rope, it may be needed in the future.



19 Apply Environmental Seal

- Before mating the connector assemblies, slide the unlabeled shrink tube onto (Part F) one of the cables. Connect the pin and socket connectors together firmly. Center the unlabeled shrink tube over the pin/socket connection. Heat shrink the tube over the connection, beginning in the center and shrinking towards the ends until the tube fully conforms to the shape of the connection and adhesive flows from each end of the tube.

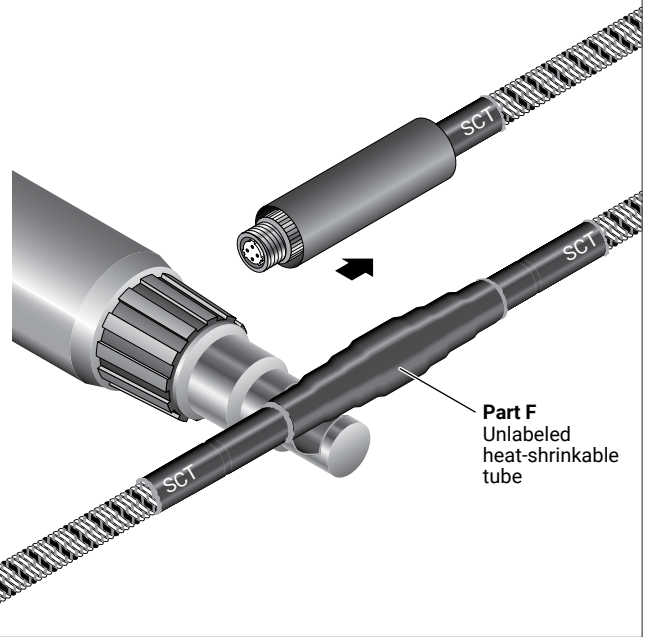
⚠ CAUTION: Burn Hazard

**Do not get hot adhesive on your bare skin.
The hot adhesive will burn your skin.**

- Avoid overheating part F. The thin wall unlabeled shrink tubing requires less heat than the SCT cable shrink tubing.
- **Let the entire connector area cool before handling the cable.**

Note: Do not leave connector open to environment. If the connector becomes wet or contaminated, it will need to be replaced.

Note: When arranging any TT5000 Series cables do not use a bend radius less than 51 mm (2 in).



North America

Tel +1.800.545.6258
Fax +1.800.527.5703
thermal.info@nvent.com

Europe, Middle East, Africa

Tel +32.16.213.511
Fax +32.16.213.604
thermal.info@nvent.com

Asia Pacific

Tel +86.21.2412.1688
Fax +86.21.5426.3167
cn.thermal.info@nvent.com

Latin America

Tel +1.713.868.4800
Fax +1.713.868.2333
thermal.info@nvent.com



nVent.com