



# RAYCHEM

## TraceTek

# TT-3000-CK-MC-M/F

# TT-3000-CK-MC-M

# TT-3000-CK-MC-F

## Field Installed Connectors for nVent RAYCHEM TraceTek 3000 Bulk Cable Installation Instructions



nVent RAYCHEM TraceTek TT-3000-CK-MC-M/F (PN 999313-000)

### KIT CONTENTS: (5 M and 5 F connectors)

Item	Qty	Description
A	5	TT-CK-MC-M pin connector with spinner ring
B	5	TT-CK-MC-F socket connector
C	45	SolderSleeve <sup>®</sup> splices (5 extra)
D	11	Heat-shrinkable tubing, labeled SCT (1 extra)
E	11	Heat-shrinkable tubing, unlabeled (1 extra)
F	1	TT-MET-MC Pin end termination
G	1	TT-FET-MC Socket end termination
H	1	Pin and socket test tool

nVent RAYCHEM TraceTek TT-3000-CK-MC-M or (1 M connector) (PN 415441-000)

nVent RAYCHEM TraceTek TT-3000-CK-MC-F (1 F connector) (PN 494333-000)

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	5	SolderSleeve <sup>®</sup> splices (1 extra)
D	1	Heat-shrinkable tubing, labeled SCT (0 extra)
E	1	Heat-shrinkable tubing, unlabeled (0 extra)

### DESCRIPTION

These instructions describe field connecting of nVent RAYCHEM TraceTek TT bulk sensing cable.

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

### TOOLS REQUIRED

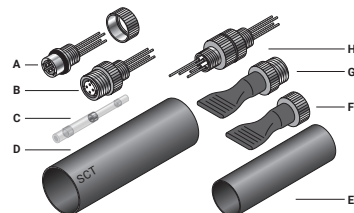
- nVent RAYCHEM TraceTek TT-ULTRA-TORCH (PN 390067-000) flameless heating tool (Ultratorch 200) or suitable heat gun with concentrator tip
- nVent RAYCHEM TraceTek TT-STRIPPER (PN 358979-000) Greenlee stripper (1917) or equivalent for 26 AWG wire
- nVent RAYCHEM TraceTek TT-CT-SCT crimp tool (PN 644333-000)
- High impedance ohm-meter (Fluke 87 or equivalent; meter must be capable of measuring to at least 20 megohms)
- Needle nose pliers
- Small pair of wire cutters
- Permanent ink marker

### ADDITIONAL MATERIALS REQUIRED FOR TT-3000-CK-MC-M OR TT-3000-CK-MC-F

- nVent RAYCHEM TraceTek TT-Test-Tool-Pin&Socket (PN 986291-000)
- nVent RAYCHEM TraceTek TT-MET-MC (PN 571293-000)
- nVent RAYCHEM TraceTek 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 TT3000 sensing cable only. This kit is not compatible with other TraceTek sensing cables.



**⚠ 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.

**⚠ WARNING:**

**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.

**1**

- Using the needle nose pliers, pull the four wires from their grooves exposing 1 1/8 inch (28 mm) of wireless core.
- Cut off 1 inch (25 mm) of the core without damaging the wires.

**2**

- Grasp the wire tips with the needle nose pliers.
- Pull the wires into their grooves and lightly tug to straighten without stretching.
- Cut the wires to leave 3/4 inch (19 mm) protruding from the cable end.
- Carefully strip 1/2 inch (13 mm) of insulation from each of the wires (use 26 awg slot).

**3**

- Use the ohmmeter to measure the resistance between the black wires. The resistance must be greater than 20 megohms (meter may read: ∞ O.L., etc.).
- If the measurement is less than 20 megohms, the cable is wet or contaminated and must be removed, inspected and cleaned and/or dried.

**4 Locate the Yellow Wire Connector Post**

- Note the large tab cutout around rim of connector. Position the large tab 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.

**Pin Connector (Part A)**

Yellow (large tab)

Black      Black

Red

Spinner ring

TT-FET-MC

**Socket Connector (Part B)**

Yellow (large tab)

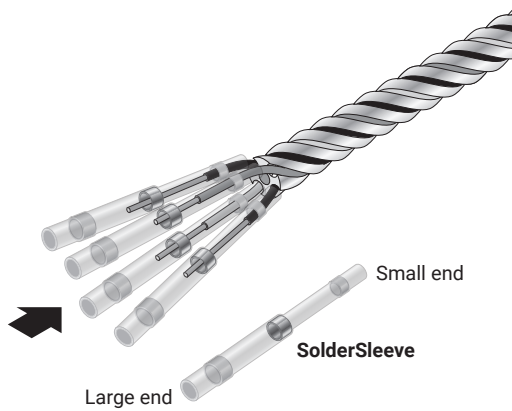
Black      Black

Red

TT-MET-MC

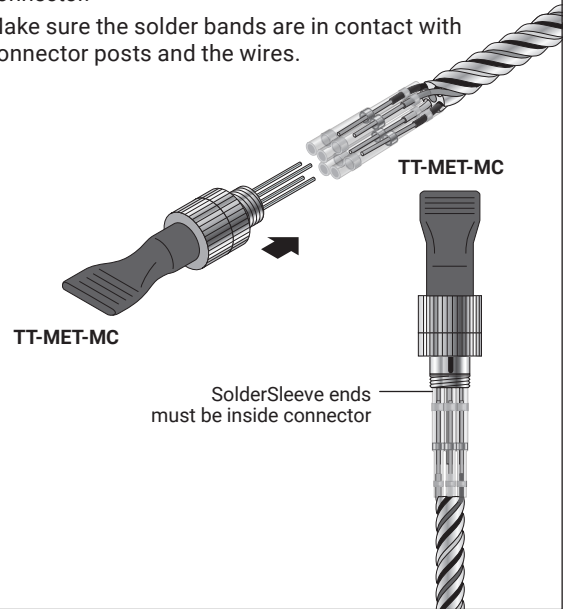
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- Keep wires in the same order that they exit from the cable end.
- Slide a SolderSleeve splice (small end first) onto each wire, all the way to the cable end.
- The solder ring must lie over bare conductor, not insulation.
- Wire ends must extend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



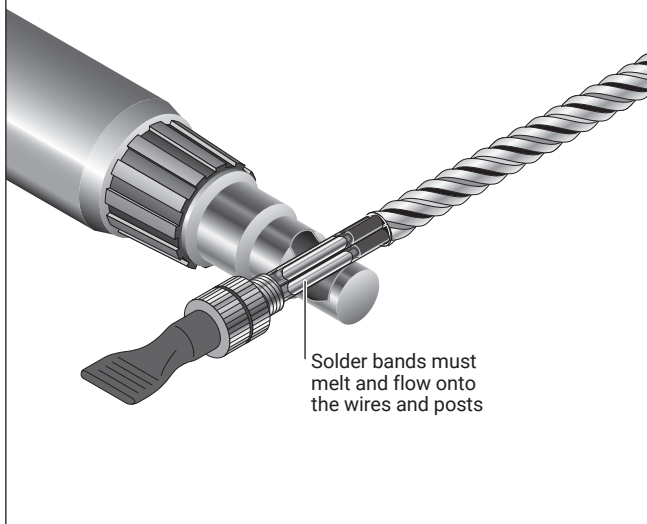
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- Once yellow wire is aligned correctly to the mark on connector body, the red wire will be opposite to it and all wires will be in their correct positions.
- Orient the connector and push aligned connector posts into the SolderSleeves.
- Verify the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



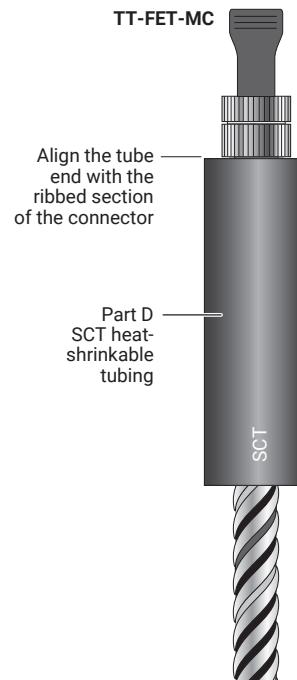
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- Heat the SolderSleeves until they have shrunk fully and the solder rings have melted and flowed. **Keep the heat source moving to avoid charring the connector.**
- Carefully remove assembly from heat. Hold connector and cable steady and allow to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



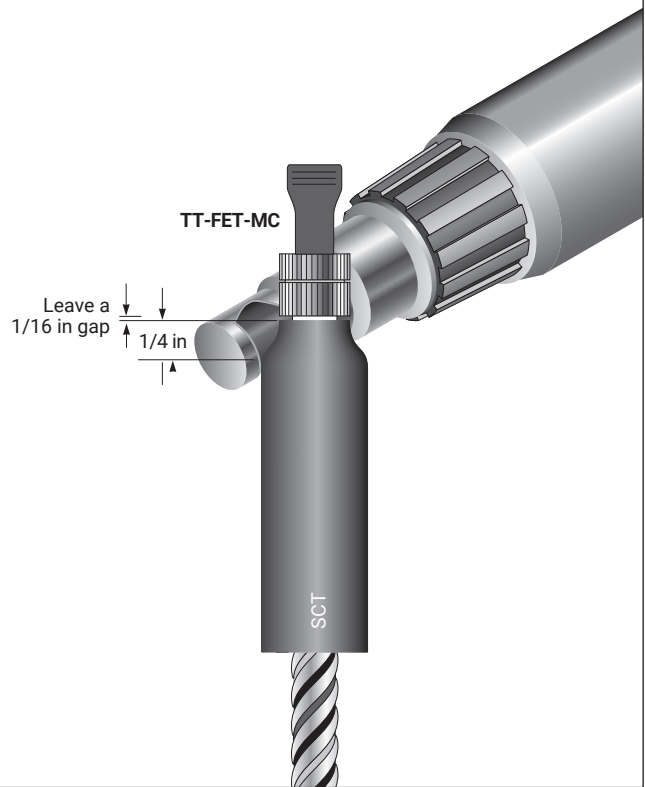
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- Slide SCT labeled heat-shrinkable tube over the assembly.



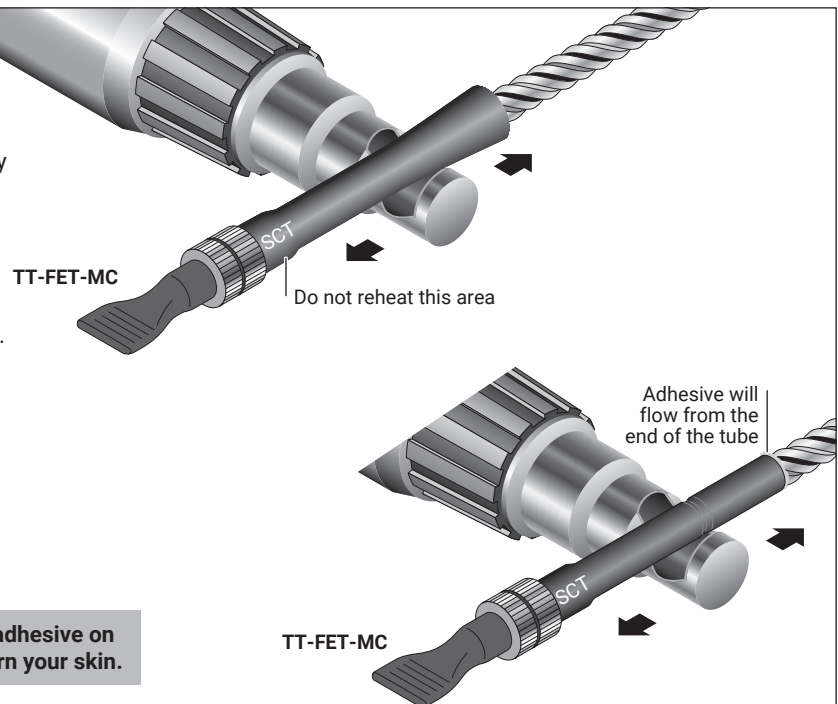
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- Heat shrink 1/4 inch (6 mm) of the tube onto the connector, moving the heat source around the tube to heat evenly.
- Leave a small gap (1/16 inch {1.5 mm}) between the tube and the ribbed section of the connector.
- **Do not overheat**  
The tube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



10

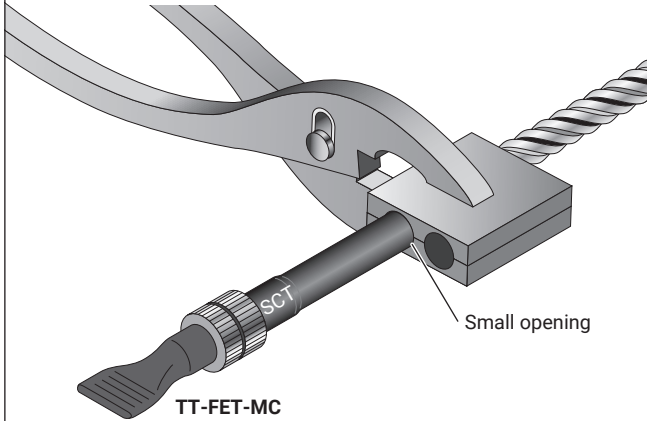
- Heat shrink the tubing starting at the connector end, avoiding the already shrunk section. Keep the heat source moving slowly to avoid charring.
- Continue heating after the tube surface is smooth to ensure that the internal adhesive flows freely.
- Heat the tube uniformly until adhesive flows from the end to ensure a water resistant seal.
- While the tube is still hot, inspect the exposed adhesive at the tubing/cable interface. If a void is visible, use a glove or rag to squeeze the tube slightly and fill the void with molten adhesive.
- Remove heat and immediately proceed to next step.



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

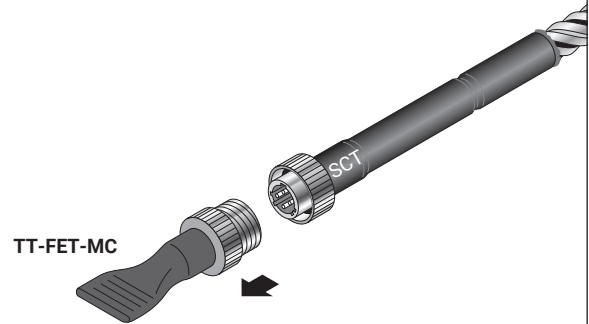
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- While the tubing is still hot, place tubing in the smaller opening of the crimp tool. Align opening with SolderSleeve/ cable area. Crimp SCT tubing to cool and seal. Open and rotate crimp tool 90 degrees and crimp again to ensure proper adherence to cable.
- If the tubing has moved more than 1/8 inch (3 mm) 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 tool in place while it cools the tube.
- Remove the crimp tool and let the assembly finish cooling.



12

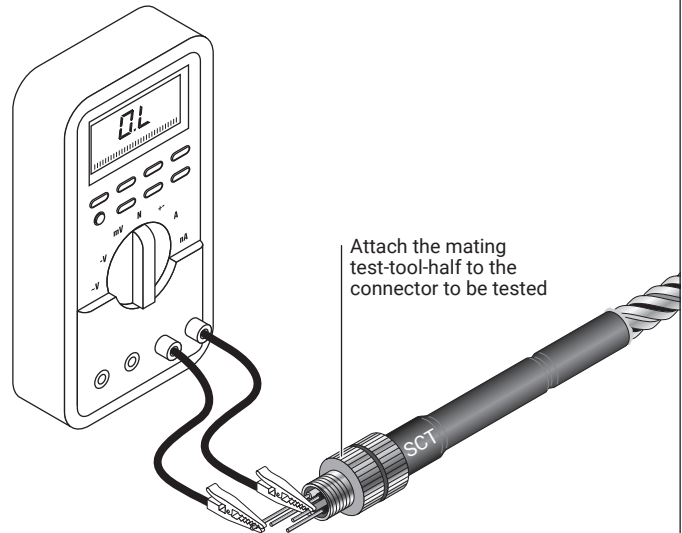
- Remove the end termination.
- For the pin connector, the spinner ring must turn freely. If necessary, gently use pliers to break it free.



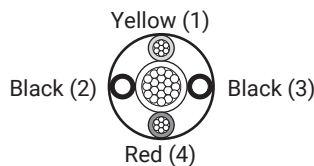
13 Test the Connector Assembly

**Electrical Test**

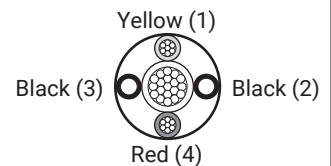
- Attach the mating test-tool-half to the connector to be tested.
- If both cable ends have connectors, attach a mating end termination at the opposite end. If there is no connector on the opposite cable end, prepare it according to steps 1 and 2. Then twist together wires 1 & 2 and wires 3 & 4.
- Use 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  $\approx 4x$  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 that the 2 black wires are not touching at the opposite cable end.
  - 2) 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**



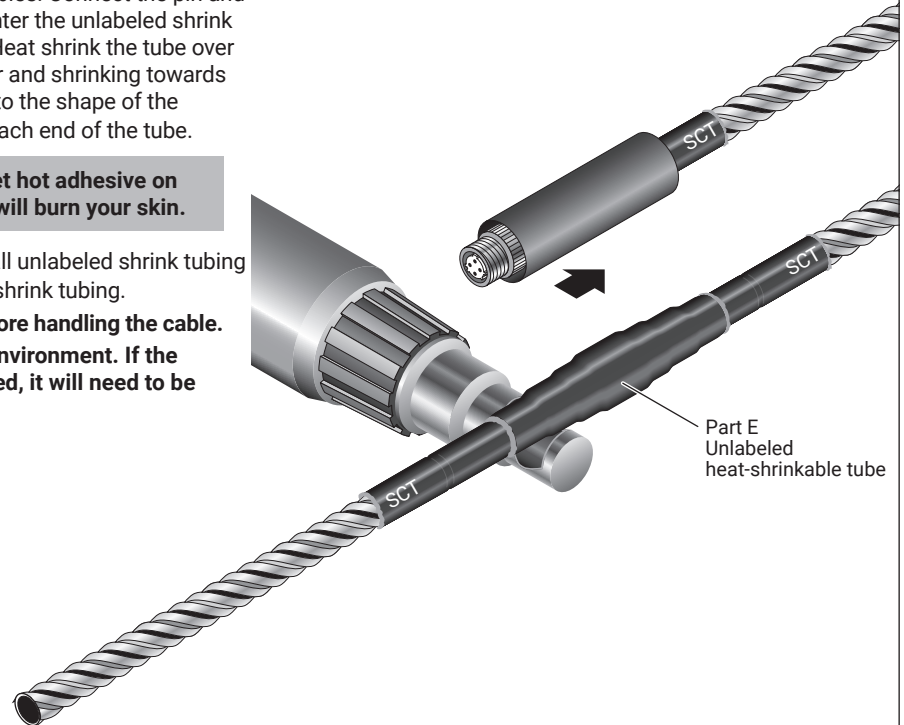
## 14 Apply Environmental Seal

- Before mating the connector assemblies, slide the unlabeled shrink tube (Part E) onto 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 E. 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.**



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