nvent RAYCHEM JB-SPLICE-SC-A Splice Box for SC Cables Instruction Manual

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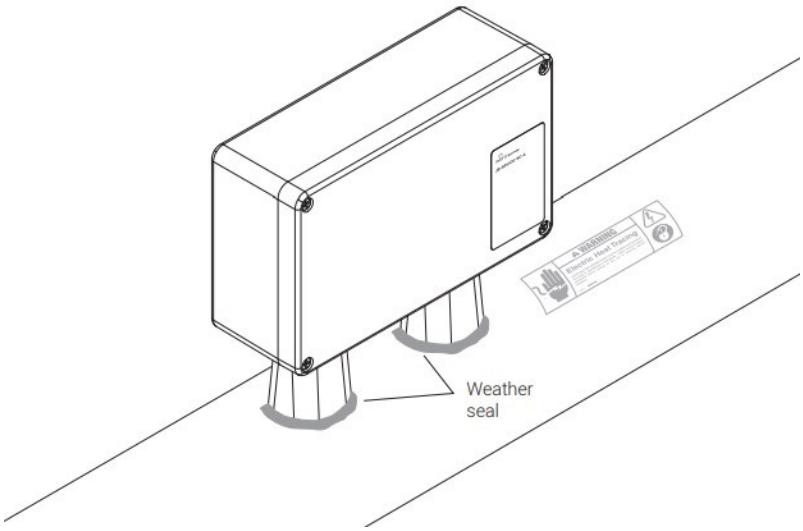
Contents

DESCRIPTION



The nVent RAYCHEM JB-SPLICE-SC-A is a NEMA 4X-rated splice box designed for use with nVent RAYCHEM 2 and 3SCxx (-CT), 2 and 3SC/Hxx (-CT)) series heating cables in hazardous locations. The box is designed to allow for the direct connection of these cables.

TOOLS REQUIRED

- Adjustable pliers
- Slotted screwdriver
- Wire strippers
- Diagonal cutters
- Utility knife

ADDITIONAL MATERIALS REQUIRED

- Pipe straps (4)
- Glass cloth tape:
  - GT-66 for installation temperature above 40°F
  - GS-54 for installation temperature above –40°F

- Circuit identification tag (P/N P000000311)

APPROVALS

Hazardous Locations

Class I Division 2 Group A, B, C, D Class I Zone 2 IIC Type 4X Temp code T (1)

For system T-rating, see design documentation

⚠WARNING:

This component is an electrical device that must be installed correctly to ensure proper operation and to prevent shock or fire. Read these important warning and carefully follow all of the installation instructions.

- This kit is intended for one time use only.
- To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of nVent, agency certifications, and national electrical codes, ground-fault equipment protection must be used. Arcing may not be stopped by conventional circuit breaker.
- Be sure all power sources are de-energized before opening box.
- Keep components and heating cable ends dry before and during installation.
- Component approvals and performance are based on the use of nVent-specified parts only. Do not use substitute parts or vinyl electrical tape.
- Damaged conductor can overheat or short. Do not break conductor wire stands when scoring the jacket or removing insulation.
- Use only fire resistance insulation materials, such as fiberglass wrap or flame retardant foam.

DESIGN OF SC DIRECT CIRCUIT

Verify the circuit length, maximum allowed power levels, circuit breaker size and the maximum sheath temperature per nVent Thermal LLC’s design software such as TraceCalc Pro.
Failure to do so can result in overheating of the components and or cables resulting in a fire hazard.

USAGE

The JB-SPLICE-SC-A can be used to make the connection between two n Vent RAY CHEM 2SC(H) or 3SC(H) heating cables directly without the use of a cold lead (Splicing).
Each box can only be used to splice one heating cable circuit
To be able to use the JB-SPLICE-SC-A splice system safely, the following restrictions of power as a function of pipe temperatures and max ambient apply:

JB-SPLICE-SC-A configured as Splice box / 104°F ambient					
2SC(H)-30, 40, 50, 60 (-CT)					
Max allowed wattage W/ft	10.4	7.9	5.5	3.1	0
Max pipe temperature °F	176	212	248	284	320
2SC(H)-70 (-CT)					
Max allowed wattage W/ft	6.7	6.7	5.5	3.1	0
Max pipe temperature °F	176	212	248	284	320
2SC(H)-80 (-CT)					
Max allowed wattage W/ft	3.7	3.7	3.7	3.1	0
Max pipe temperature °F	176	212	248	284	320

JB-SPLICE-SC-A configured as Splice box / 104°F ambient					
3SC(H)-30, 40, 50, 60, 70 (-CT)					
Max allowed wattage W/ft	10.9	9.2	6.7	3.7	0
Max pipe temperature °F	176	212	248	284	320
3SC(H)-80 (-CT)					
Max allowed wattage W/ft	5.5	5.5	5.5	3.7	0
Max pipe temperature °F	176	212	248	284	320

JB-SPLICE-SC-A configured as Splice box / 133°F ambient					
2SC(H)-30,40,50 (-CT)					
Max allowed wattage W/ft	7.9	6.7	5.5	3.1	0
Max pipe temperature °F	176	212	248	284	320
2SC(H)-60 (-CT)					
Max allowed wattage W/ft	6.4	6.4	5.5	3.1	0
Max pipe temperature °F	176	212	248	284	320
2SC(H)-70 (-CT)					
Max allowed wattage W/ft	3.9	3.9	3.9	3.1	0
Max pipe temperature °F	176	212	248	284	320
2SC(H)-80 (-CT)					
Max allowed wattage W/ft	2.1	2.1	2.1	2.1	0
Max pipe temperature °F	176	212	248	284	320

JB-SPLICE-SC-A configured as Splice box / 133°F ambient					
3SC(H)-30,40,50,60 (-CT)					
Max allowed wattage W/ft	9.2	8.2	6.1	3.7	0
Max pipe temperature °F	176	212	248	284	320
3SC(H)-70 (-CT)					
Max allowed wattage W/ft	6.4	6.4	6.1	3.7	0
Max pipe temperature °F	176	212	248	284	320
3SC(H)-80 (-CT)					
Max allowed wattage W/ft	3.1	3.1	3.1	3.1	0
Max pipe temperature °F	176	212	248	284	320

Use nVent Thermal's design software such as TraceCalc Pro to validate the usage of the components for your application.
The maximum length of heating cable inside the junction cannot exceed under any circumstances:

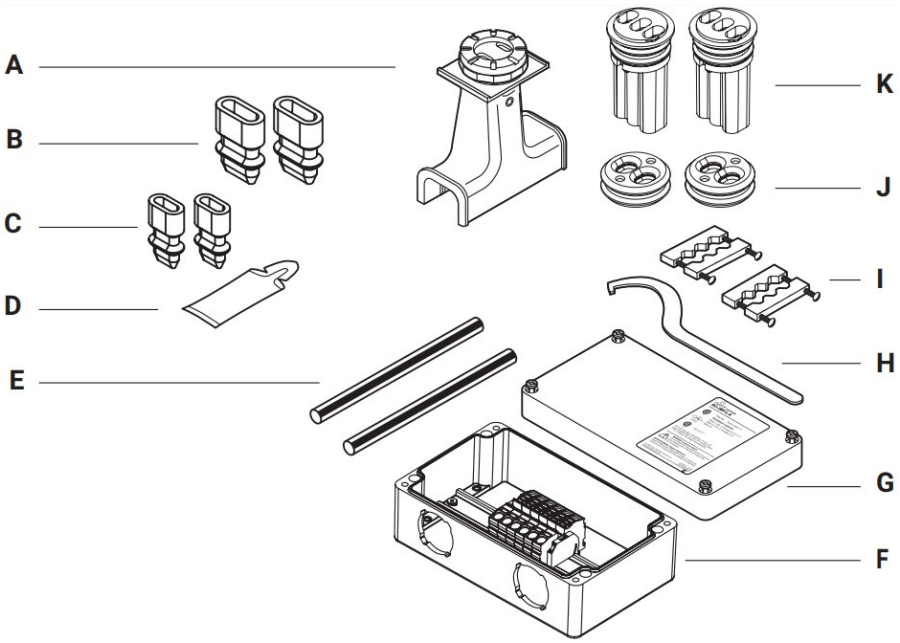
- 35 inch (90cm) of total heating conductor length

This is very important to maintain the integrity of the components of the system.

STORAGE & TRANSPORTATION

- Store and transport product in a clean, dry place
- **Temperature** range: –67°F to +133°F
  Protect junction box from moisture or mechanical damage

KIT CONTENTS

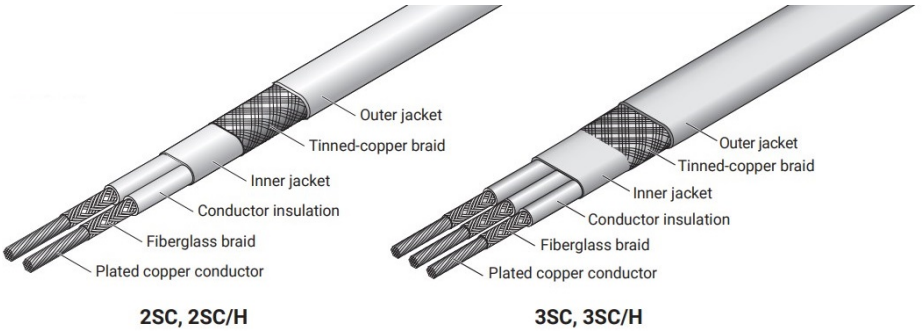


Item	Qty	Description
A	2	Stand assembly
B	2	Large plug
C	2	Small plug
D	1	Cable lubricant
E	2	Green/yellow tube
F	1	Junction box
G	1	Lid
H	1	Spanner
I	2	Strain relief
J	2	Grommet for large cables
K	2	Grommet and cable separators for small cables

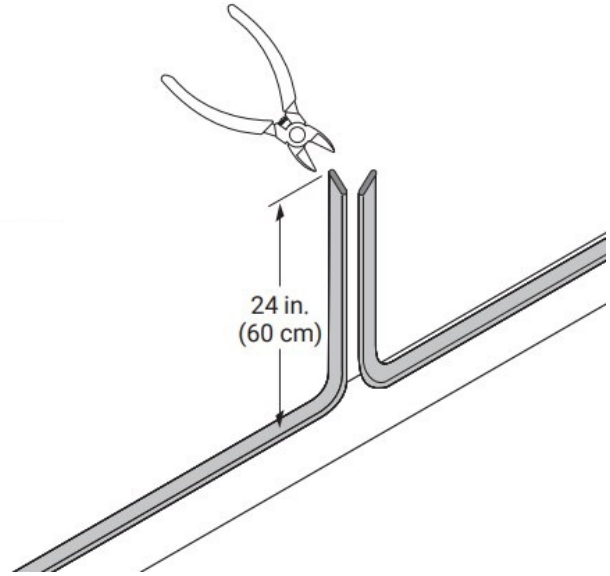
HEATING CABLE TYPES

Heating Cable Construction

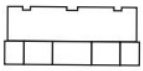
2 and 3SCxx (-CT)
2 and 3SC/Hxx (-CT)

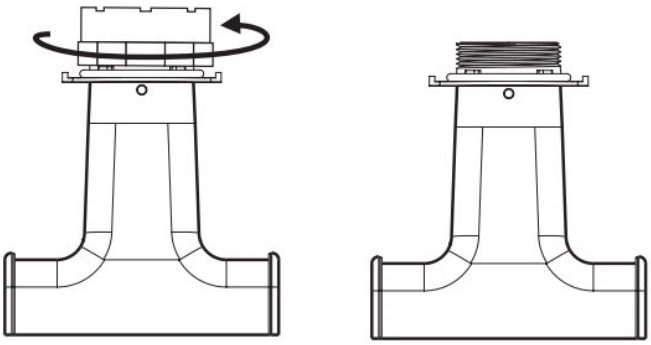


- Allow approximately 24 inches (60 cm) of heating cable for installation.
- Cut off heating cable end at a 45° angle for easier insertion.



- On each stand, remove top screw

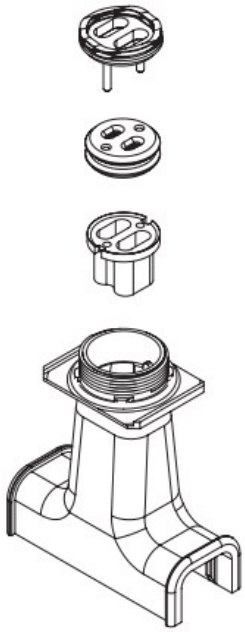




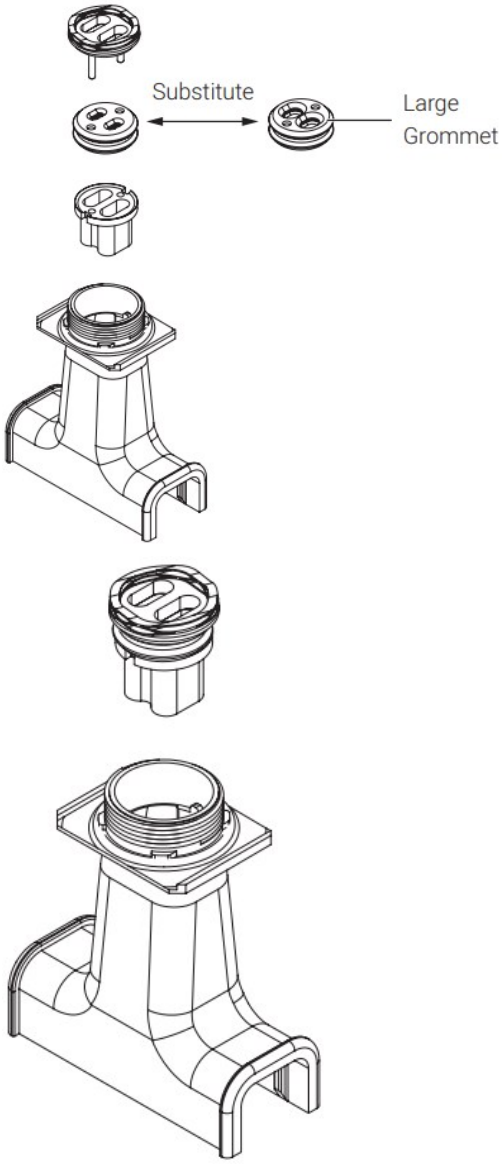
Cable Range	Action
2SC-30, 2SC-40, 2SC-50	Grommet, Grommet plug and cable separator for small cables to be installed (Steps C)
2SC-60, 2SC-70, 2SC-80, 3SC-30, 3SC-40, 3SC-50, 3 SC-60	Grommet and cable separator are pre installed
3SC-70, 3SC-80	Grommet for large cables to be installed (Steps B)

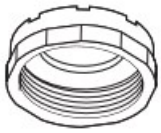
Schematic built up of stand & grommet assembly

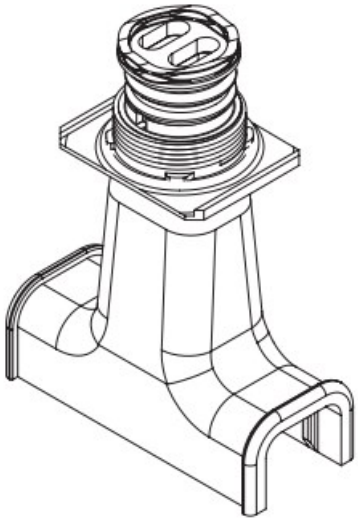
OPTION 1:
If cable type is (2SC-60, 2SC-70, 2SC-80, 3SC-30, 3SC-40, 3SC-50, 3SC-60)
Grommet and cable separator are pre-installed, so no action required.



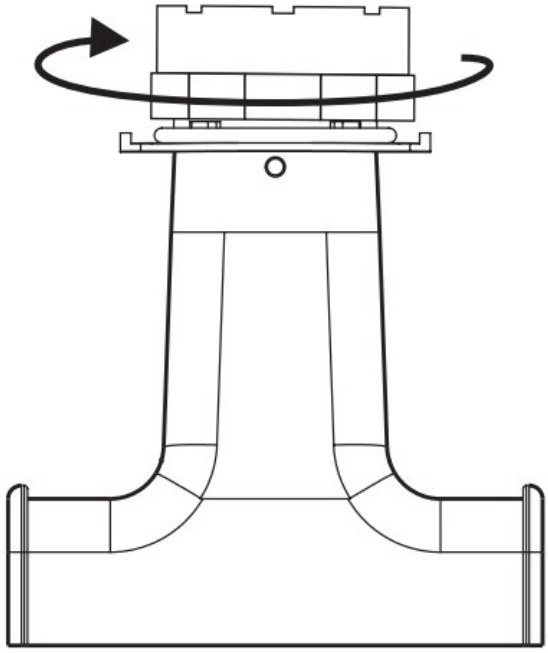
OPTION 2:
If cable type is 3SC-70 or 3SC-80 open up the parts & substitute the pre-installed grommet with Large Grommet and reassemble.
Do this for each stand.



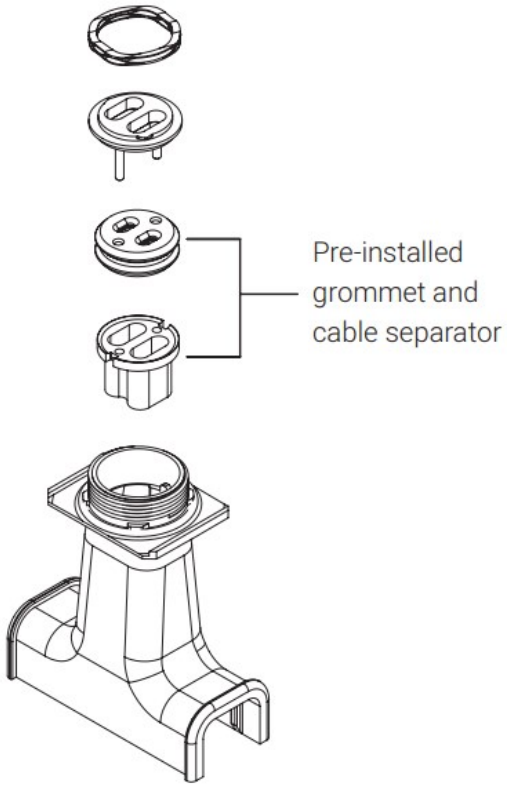




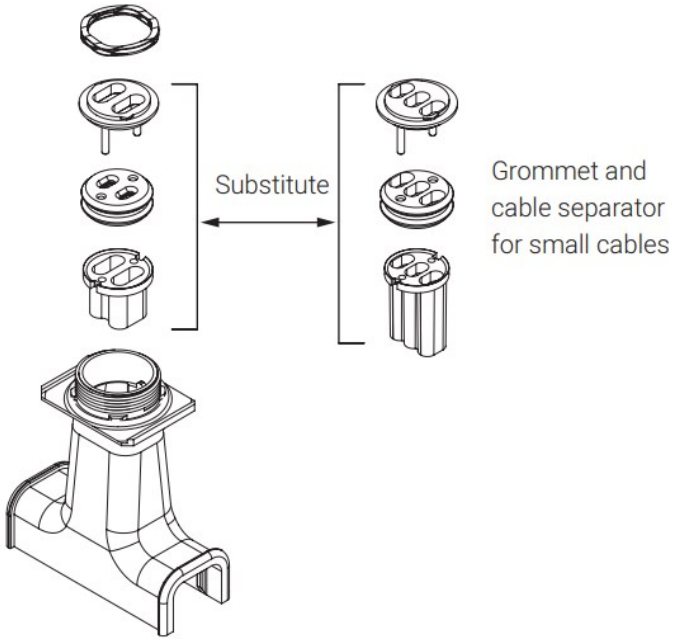
Turn it 1.5 x so that it is tightened down loosely



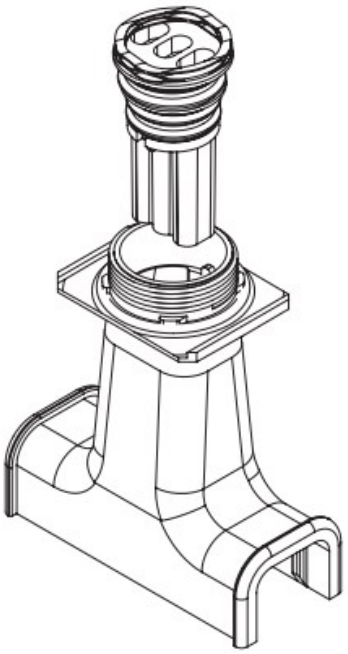
OPTION 3:
If cable type is 2SC-30, 2SC-40, 2SC-50 open the parts & remove the spring from the pre-installed cable separator. Replace the pre-installed top plate, grommet and cable separator with the provided top plate, grommet and cable separator for small cables. Re-assemble the spring and install small plug into center hole. Assemble into stand.
Do this for each stand.



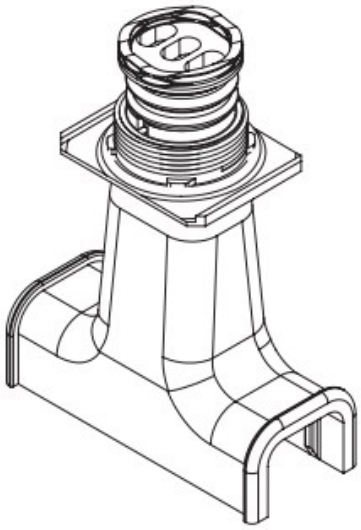
Substitute the pre-installed top plate, grommet and cable separator with the provided top plate, grommet and cable separator for small cables.

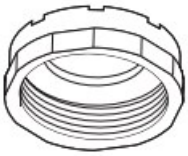


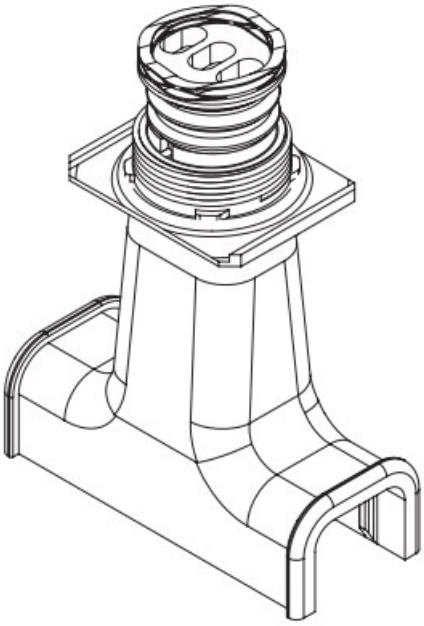
Reassemble spring again to top plate



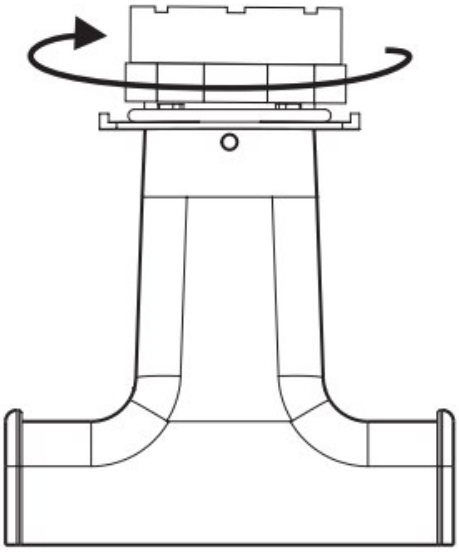
Install plug in middle slot



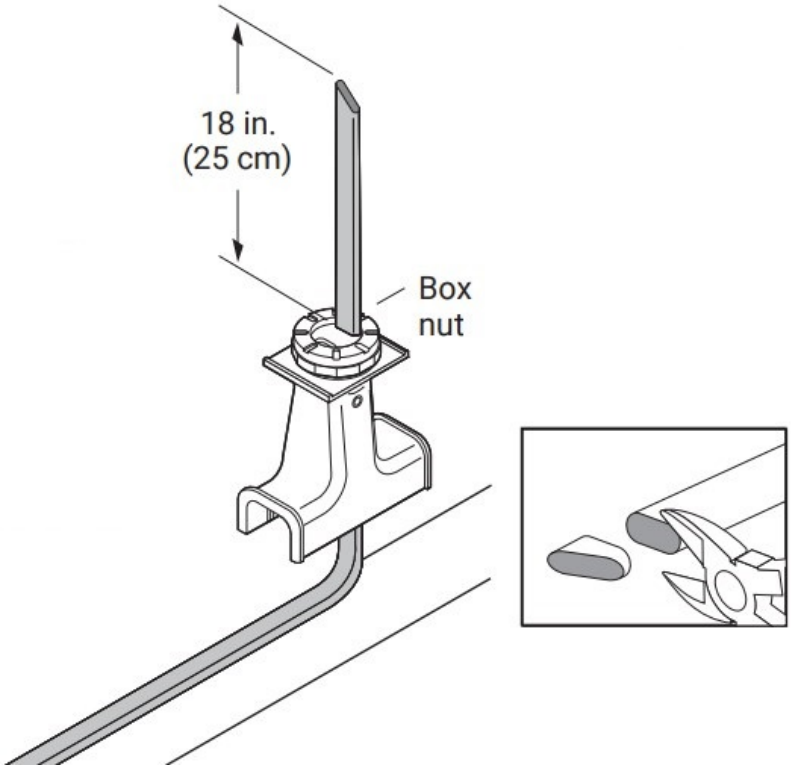




Turn it 1.5 x so that it is tightened down loosely

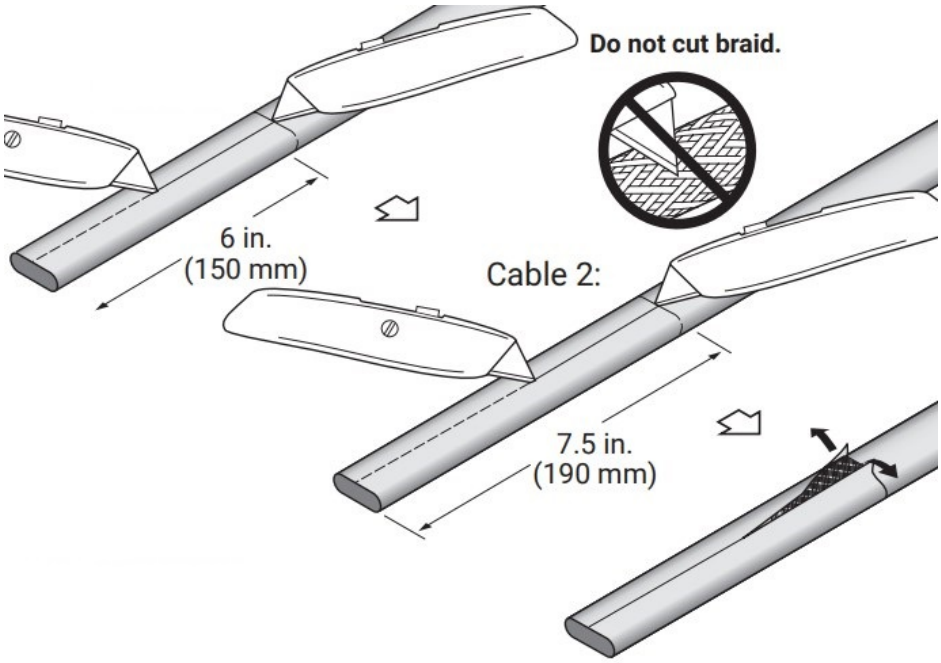


- For each cable push heating cable through stand and nut as shown. Use cable lubricant if needed.
- Square off cable end with 90° angle cut.
- Do not attach stand to pipe until step 8.



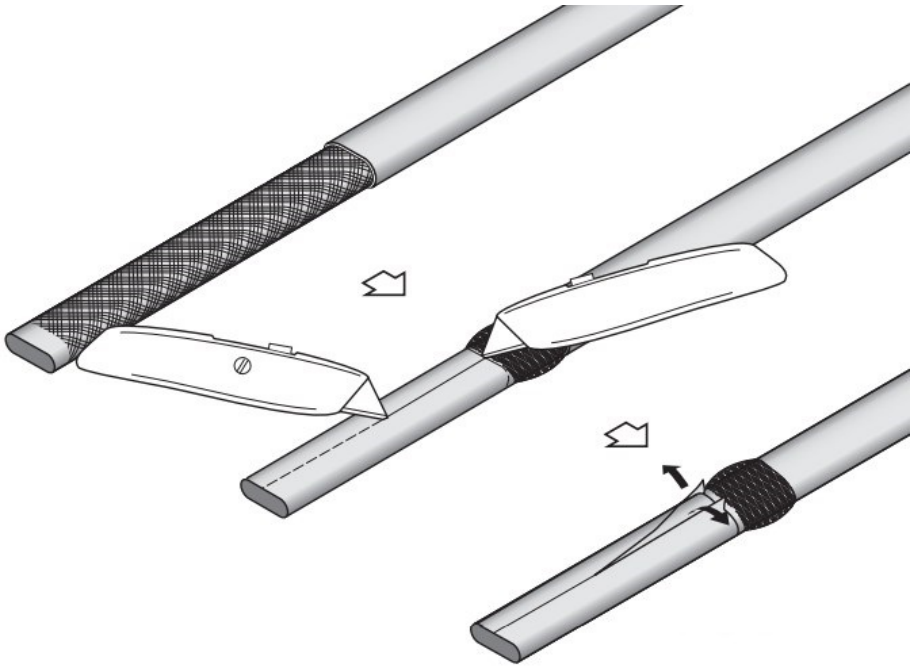
For each cable:

- Lightly score outer jacket around and down as shown.
- Bend heating cable to break jacketat score, then peel off jacket.



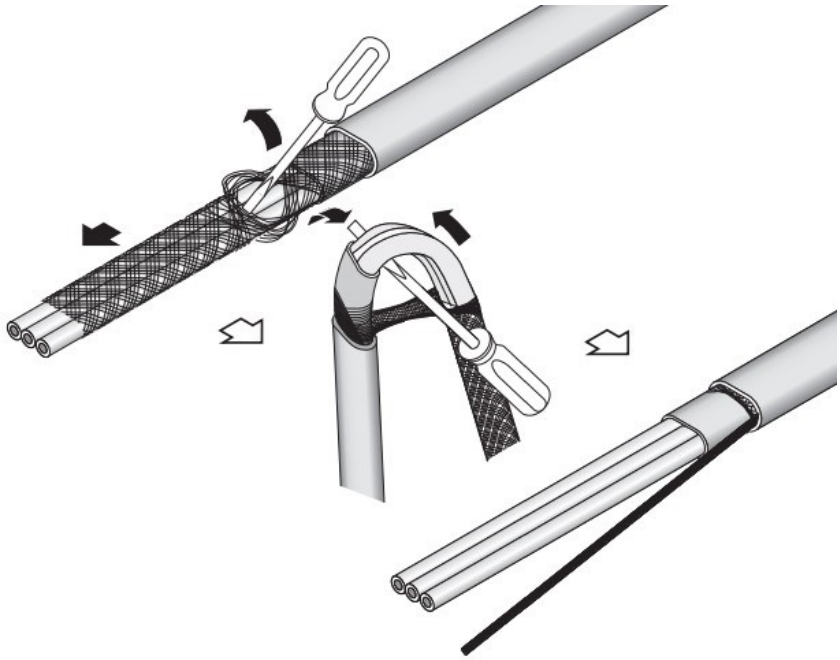
For each cable:

- Push braid back as far as possible.
- Lightly score inner jacket around and down as shown.
- Peel off inner jacket.

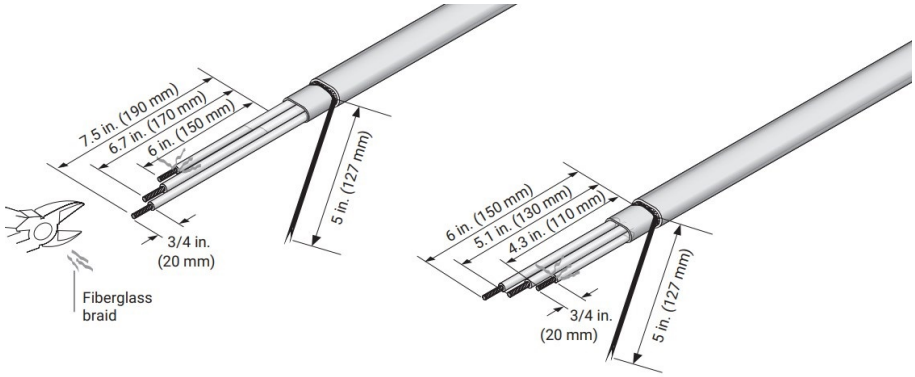


For each cable:

- Push braid forward. Use a screwdriver to open braid.
- Bend heating cable and work it through opening in braid.
- Pull braid tight to make pigtail. 3SC heating cable shown.

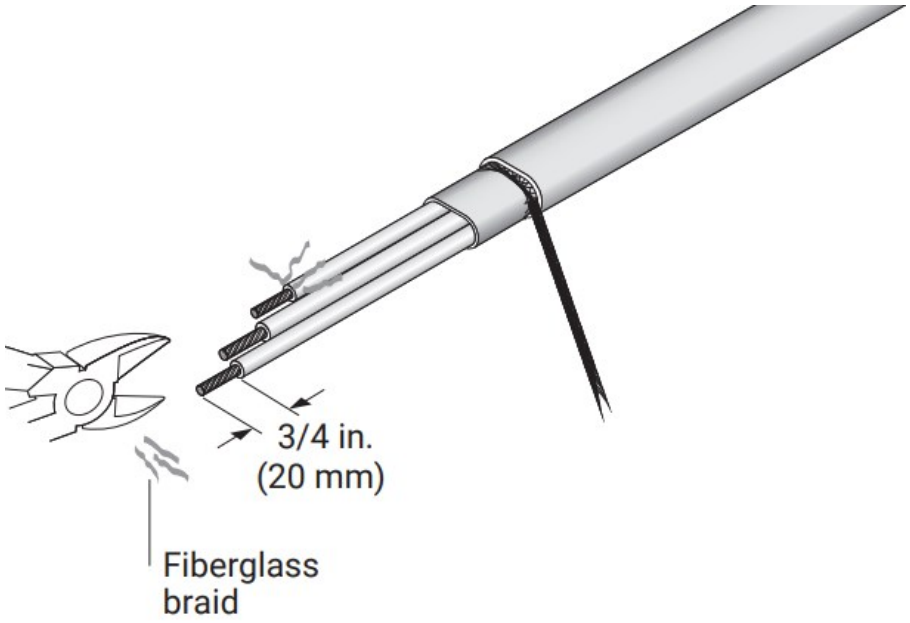


- Failure to Trim as indicated can cause over heating of the components



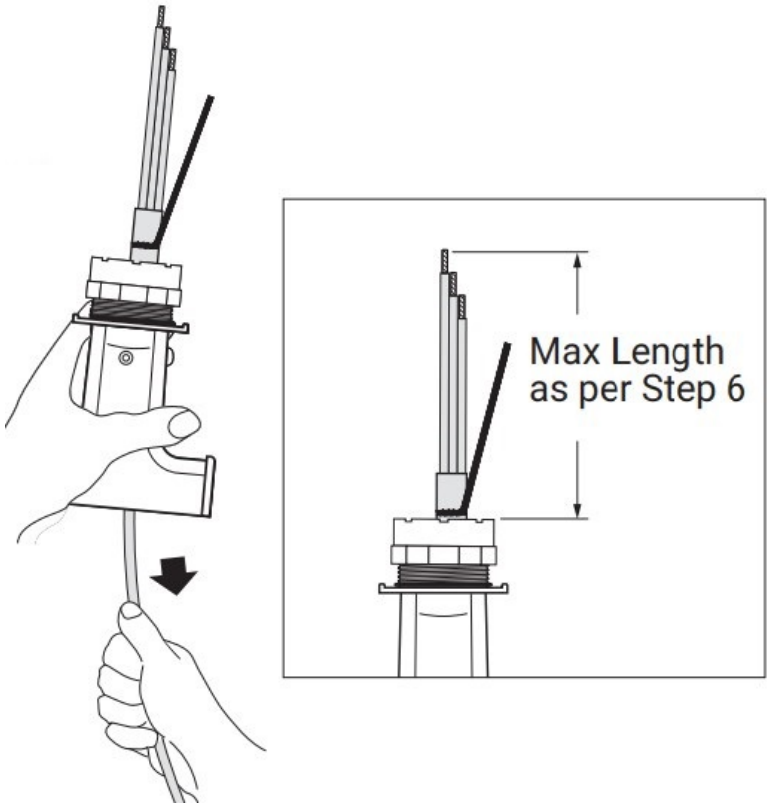
For each cable:

- Remove 3/4-inch (20 mm) insulation and fiberglass braid from end of each conductor. 3SC heating cable shown



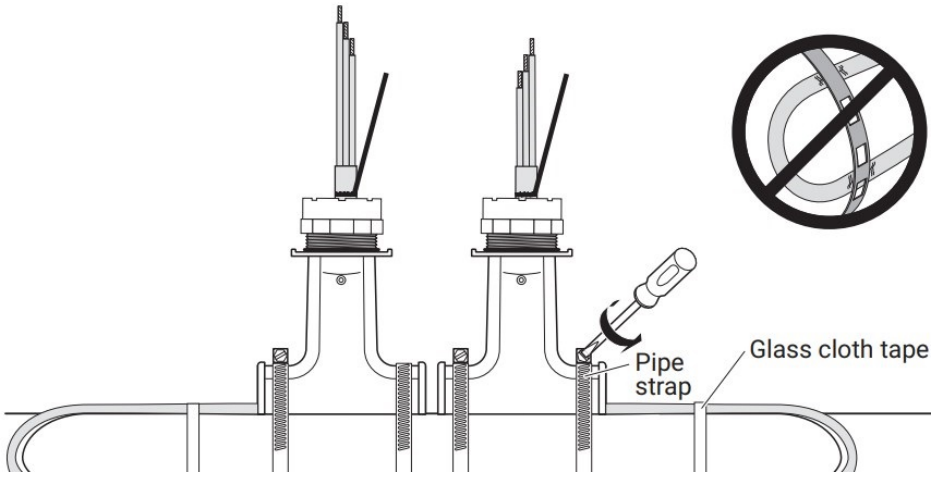
For each cable:

- Pull heating cable back into stand as shown. Use cable lubricant if needed.
  The cable braid should be in contact with the grommet in the stand.
  Failure to leave more heater in the JB can cause over heating of the components

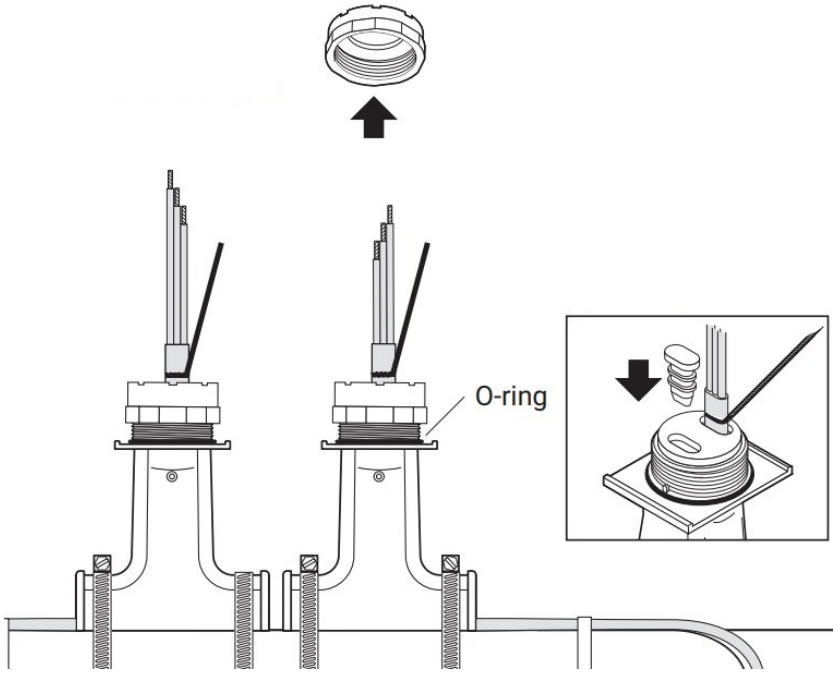


⚠WARNING: Fire and Shock Hazard. To prevent cable damage and shorting, position pipe straps under the heating cable. Ensure the cable does not cross over itself

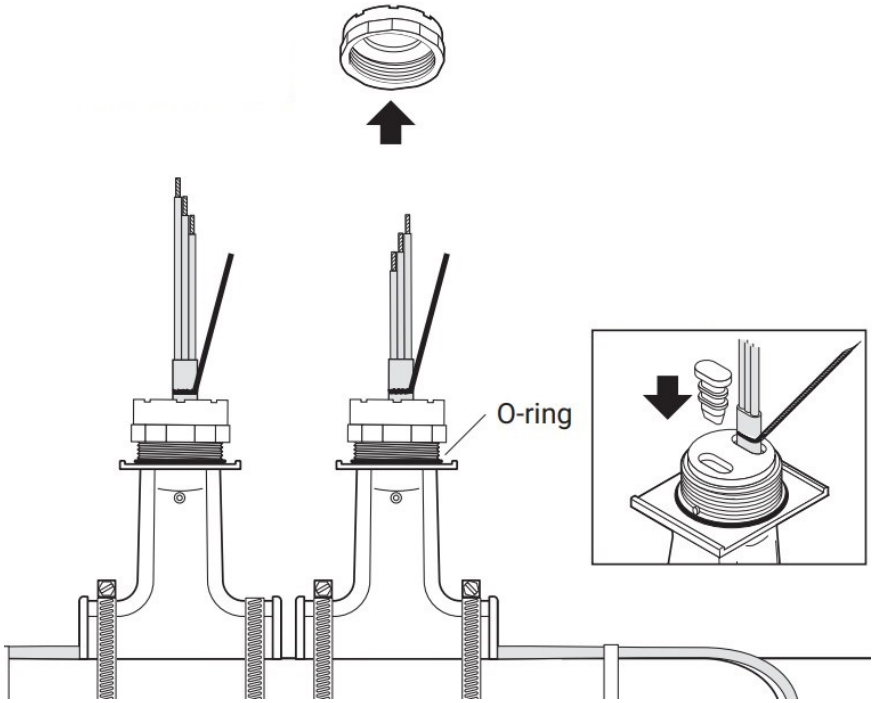
- Fasten stand to pipe. Do not pinch heating cables.
- Loop and tape extra heating cable to pipe.



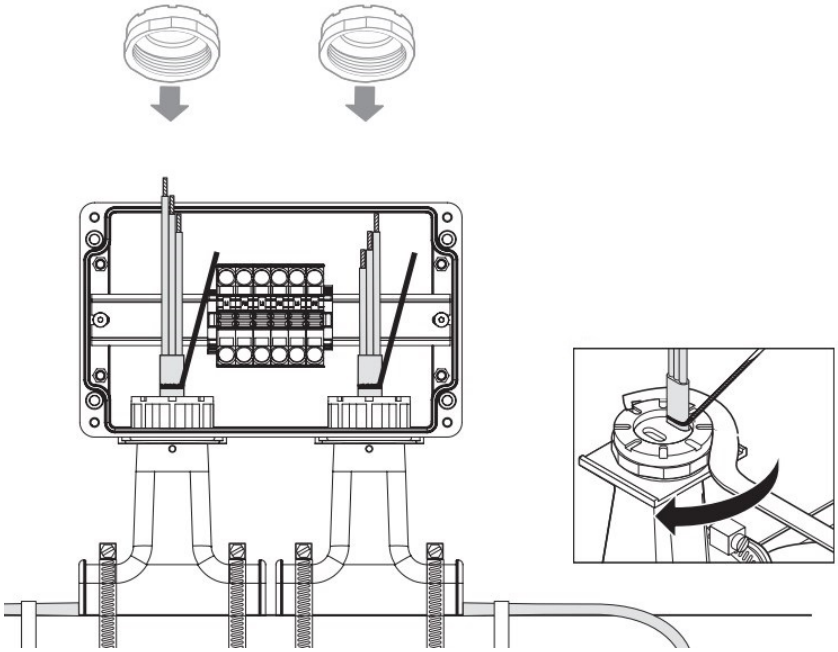
- **For each stand:** Remove box nut.



- Install grommet plug in unused opening.

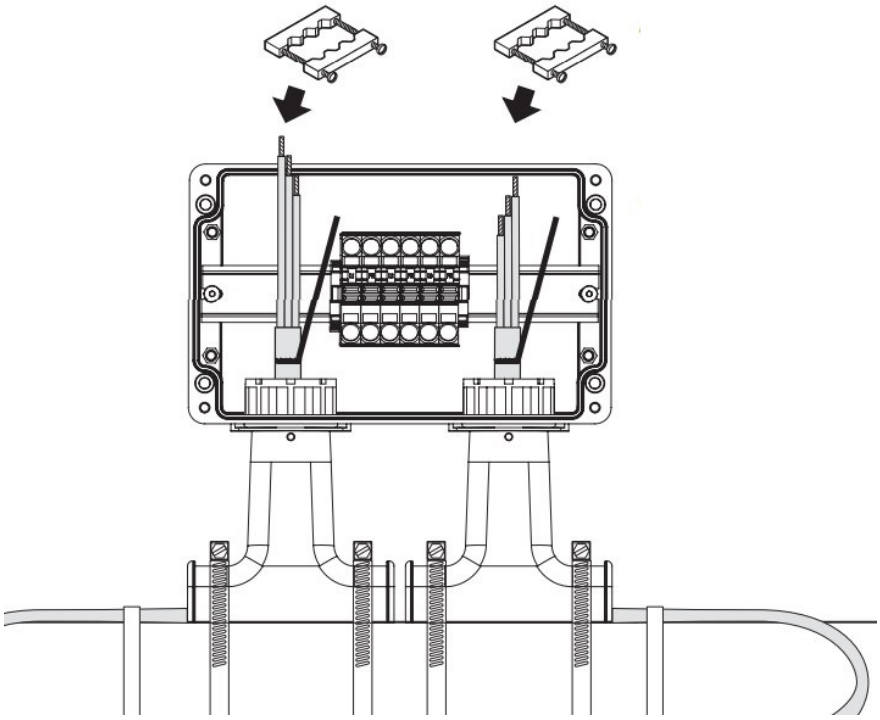


- Place junction box onto both stands. Align key-ways in box hole with alignment feature on stand.
- Put box nut back onto stand.
- Tighten box nut with spanner.
- Torque = 16.2lbf-ft +/-



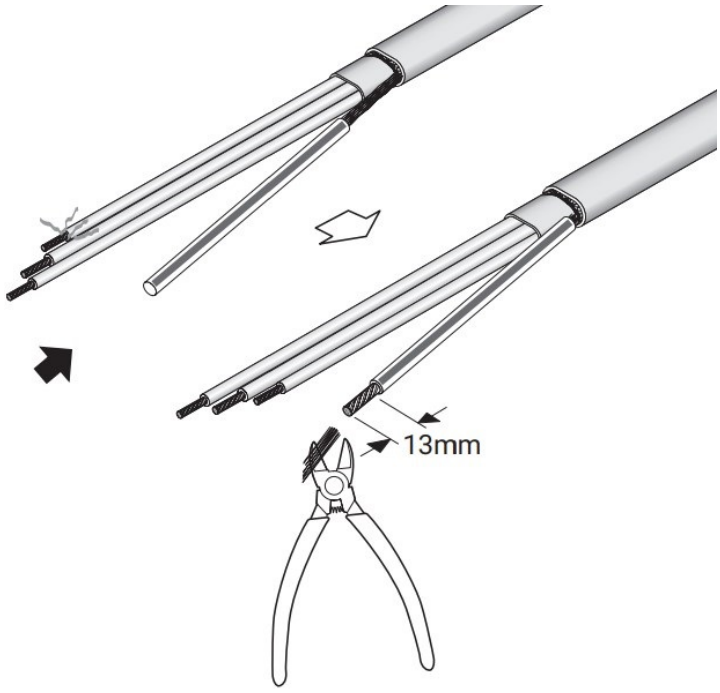
For each cable:

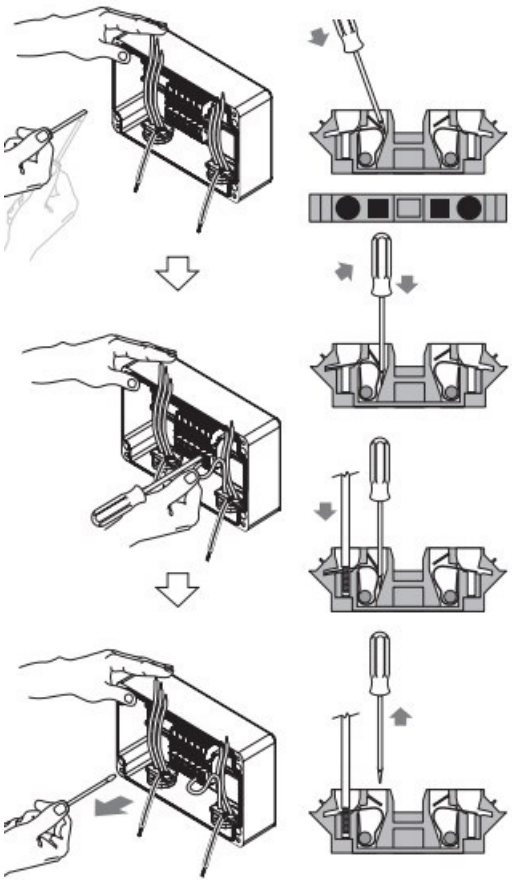
- Slide strain relief over heating cable, down onto box nut.
- Secure strain relief by tightening screws.



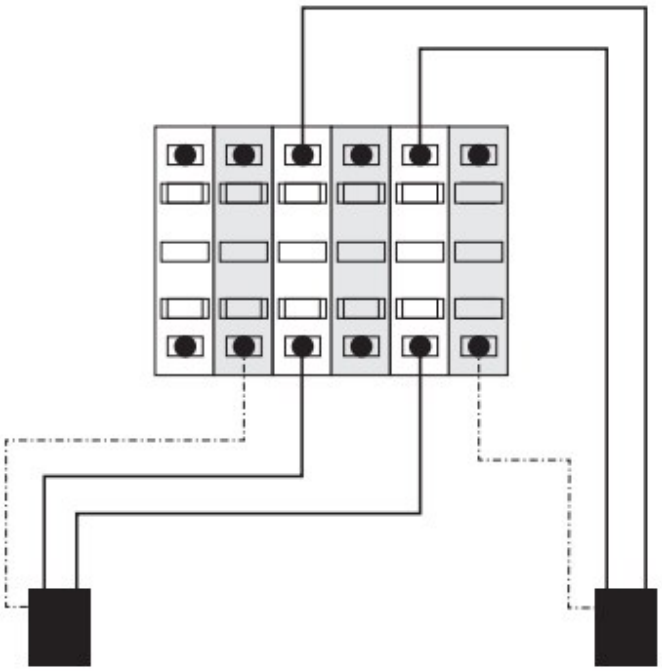
For each cable:

- Slip the green/yellow tube onto the braid.
- Trim the braid and tube as required. 3SC heating cable shown.

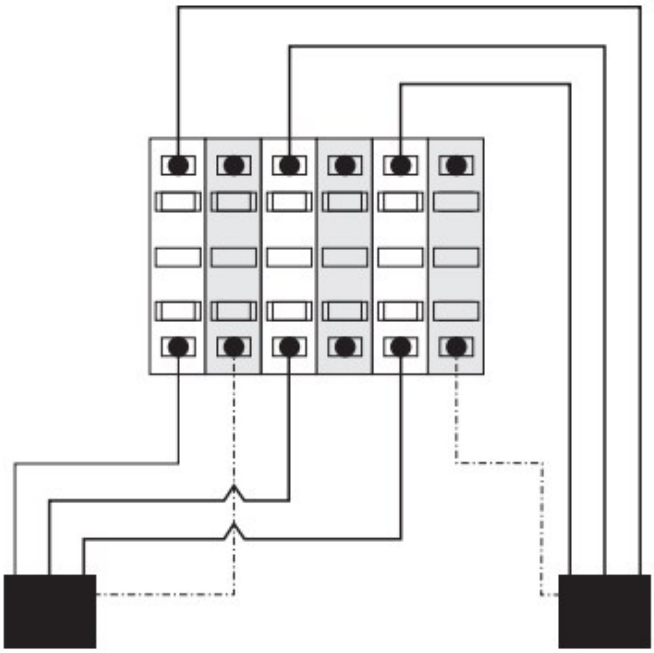


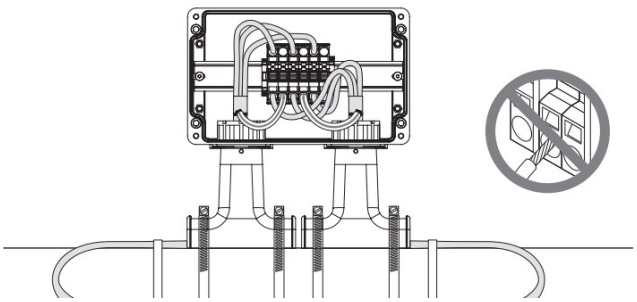


Mono phase Splice connection

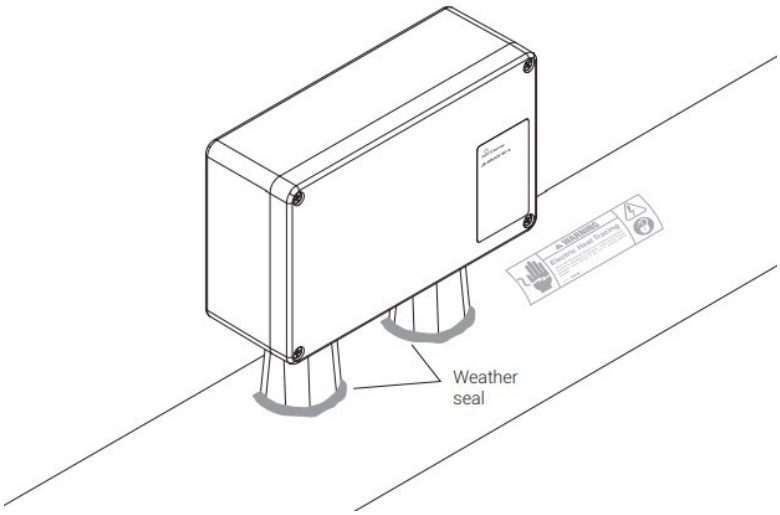


Tri phase Splice connection





- Install lid. Torque = 0.75 to 1.08 lbf-ft
- Apply insulation and cladding.
- Weather-seal stand entry.
- Install electric heat-tracing labels on insulation cladding.
- Leave these installation instructions with the end user for future reference.



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RAYCHEM-IM-H61732-JBSpliceSCA-EN-2303

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PN P000000556

Documents / Resources

	nvent RAYCHEM JB-SPLICE-SC-A Splice Box for SC Cables [pdf] Instruction Manual JB-SPLICE-SC-A Splice Box for SC Cables, JB-SPLICE-SC-A, Splice Box for SC Cables, Splice Box, Box

References

- Electrical Heat Tracing | Heat Tracing | nVent RAYCHEM