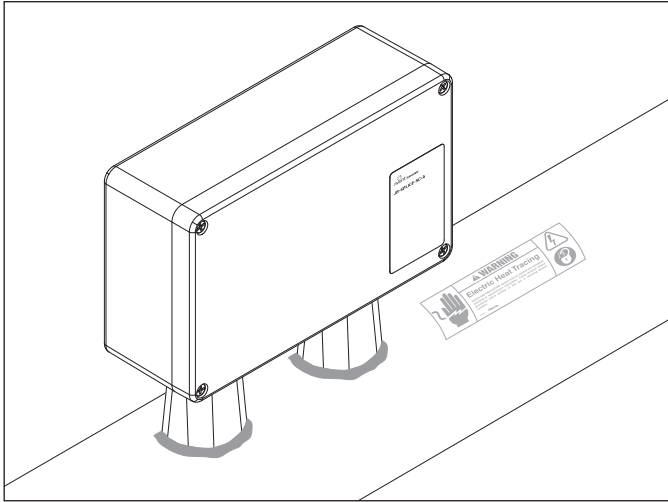




**RAYCHEM**

## JB-SPLICE-SC-A

### Splice box for SC cables installation instructions



#### 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 <sup>(1)</sup>

<sup>(1)</sup> 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.

#### **⚠ AVERTISSEMENT:**

Ces composants sont des dispositifs électriques. Ils doivent être installés correctement pour assurer un fonctionnement approprié et pour éviter les risques d'incendie ou de chocs électriques. Suivez attentivement toutes les instructions d'installation et lisez ces avertissements importants.

- Ce kit est destiné à un usage unique.
- Pour minimiser le danger d'incendie causé par un arc électrique continu, si le câble chauffant est endommagé ou mal installé, et pour respecter les exigences de nVent et celles des codes d'électricité nationaux, il est impératif d'utiliser un équipement muni d'une protection des défauts de fuite à la terre DDFT sur chaque circuit alimentant un câble chauffant. Un disjoncteur ordinaire peut ne pas être assez sensible pour prévenir les arcs continus.
- Les homologations des composants et le rendement reposent uniquement sur l'utilisation des pièces fournies par nVent. Ne pas substituer de pièce ni utiliser du ruban isolant en vinyle.

- Les composants et les terminaisons des câbles chauffants doivent être tenus au sec avant et pendant l'installation.
- Les fils omnibus endommagés peuvent surchauffer et occasionner des court-circuits. Ne cassez pas les brins du fil omnibus lorsque vous entaillez la gaine ou le noyau.
- Assurez-vous que toutes les sources d'alimentation sont hors tension avant d'ouvrir la boîte
- Utilisez uniquement des matériaux d'isolation résistants au feu, tels que des matériaux en fibre de verre.
- Laissez ces instructions d'installation à l'utilisateur pour référence ultérieure.

## 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 nVent RAYCHEM 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

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**JB-SPLICE-SC-A configured as Splice box / 133°F ambient**

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**3SC(H)-30,40,50,60 (-CT)**

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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)**

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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.**

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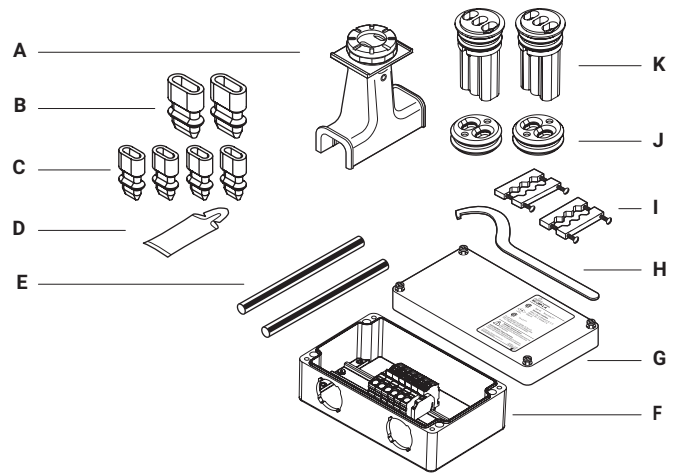
**STORAGE & TRANSPORTATION**

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- 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	4	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

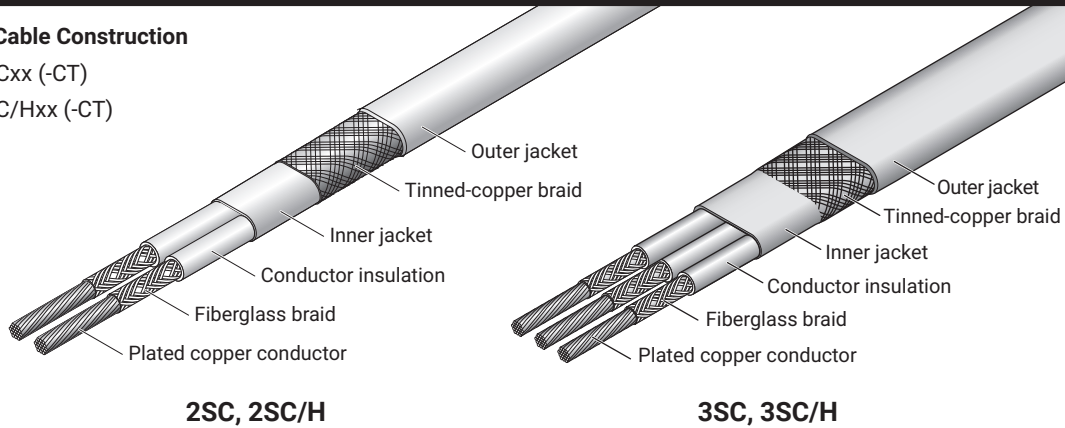


## HEATING CABLE TYPES

### Heating Cable Construction

2 and 3SCxx (-CT)

2 and 3SC/Hxx (-CT)

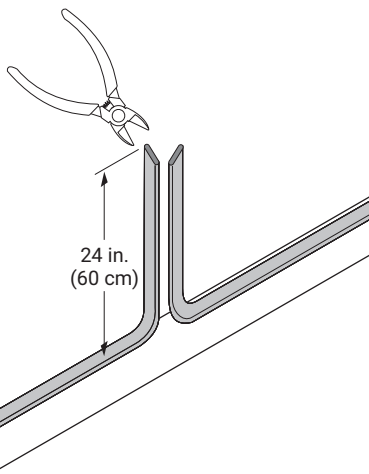


**2SC, 2SC/H**

**3SC, 3SC/H**

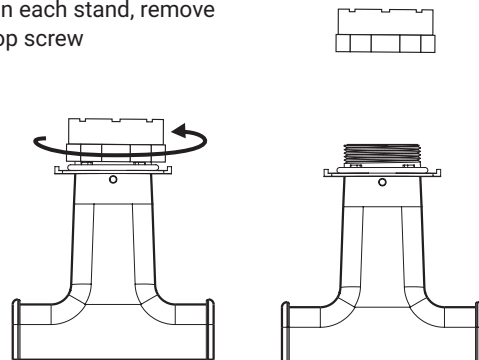
**1**

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



**1.1**

- 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, 3SC-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.

**Step B**

**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.

**Step B1**

**Step B2**

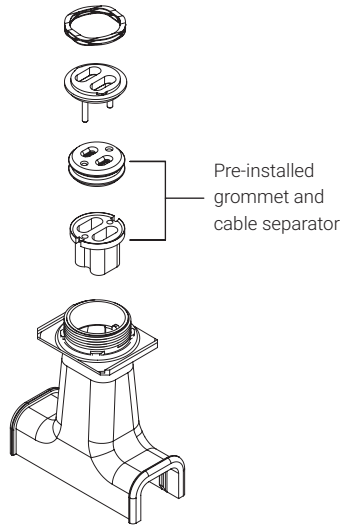
**Step B3**

Turn it 1.5 x so that it is  
 tightened down loosely

### Step C

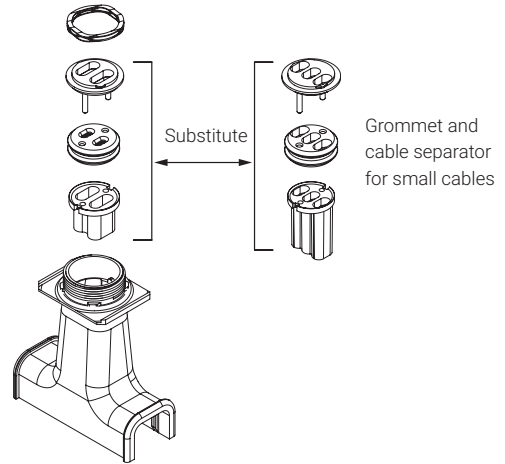
#### OPTION 3:

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.

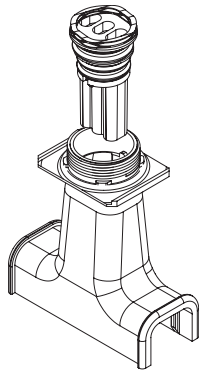


### Step C1

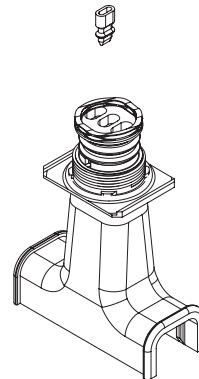
Substitute the pre-installed top plate, grommet and cable separator with the provided top plate, grommet and cable separator for small cables.



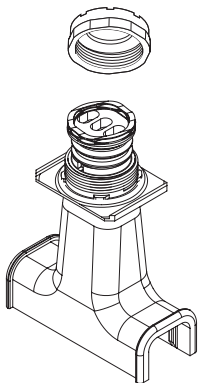
### Step C2 Reassemble spring again to top plate



### Step C3 Install plug in middle slot

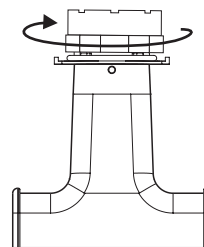


### Step C4



### Step C5

Turn it 1.5 x so that it is tightened down loosely



**2**

- 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.

**3**

Cable 1: 6 in. (150 mm)

Cable 2: 7.5 in. (190 mm)

Do not cut braid.

For each cable:

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

**4**

For each cable:

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

**5**

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.

**6**

7.5 in. (190 mm)

6.7 in. (170 mm)

6 in. (150 mm)

5 in. (127 mm)

3/4 in. (20 mm)

Fiberglass braid

6 in. (150 mm)

5.1 in. (130 mm)

4.3 in. (110 mm)

3/4 in. (20 mm)

5 in. (127 mm)

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

**7**

3/4 in. (20 mm)

Fiberglass braid

For each cable:

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

3SC heating cable shown.

**8**

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 overheating of the components**

Max Length as per Step 6

**9**

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

Pipe strap

Glass cloth tape

**⚠ 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.

**10**

- For each stand: Remove box nut.

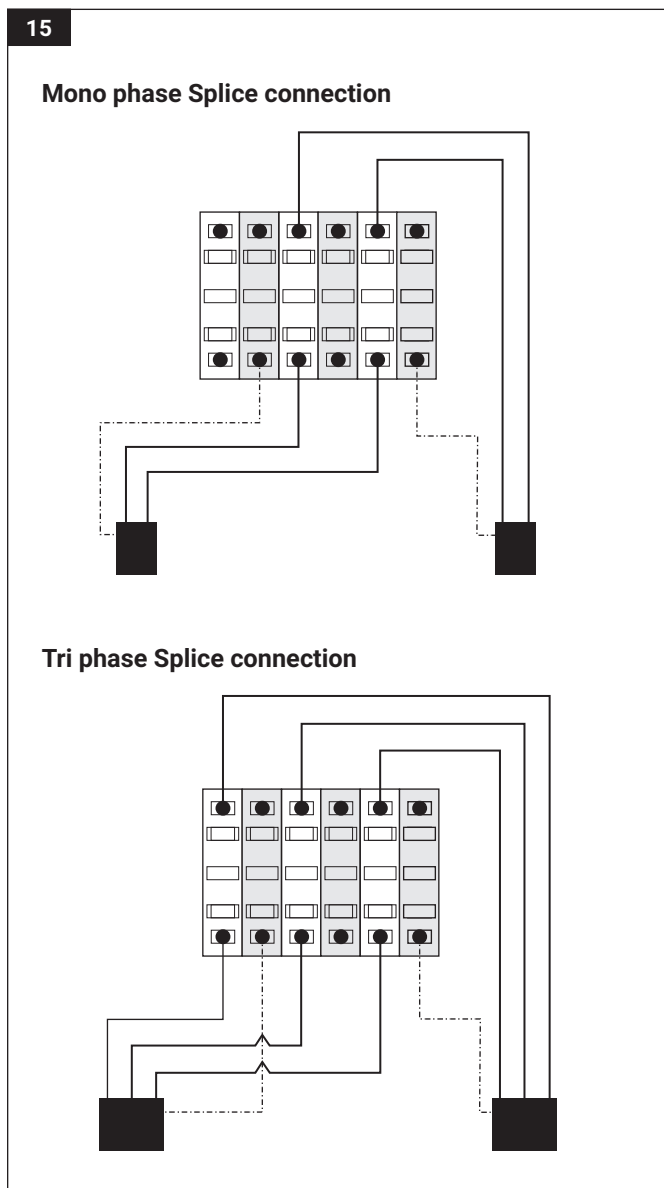
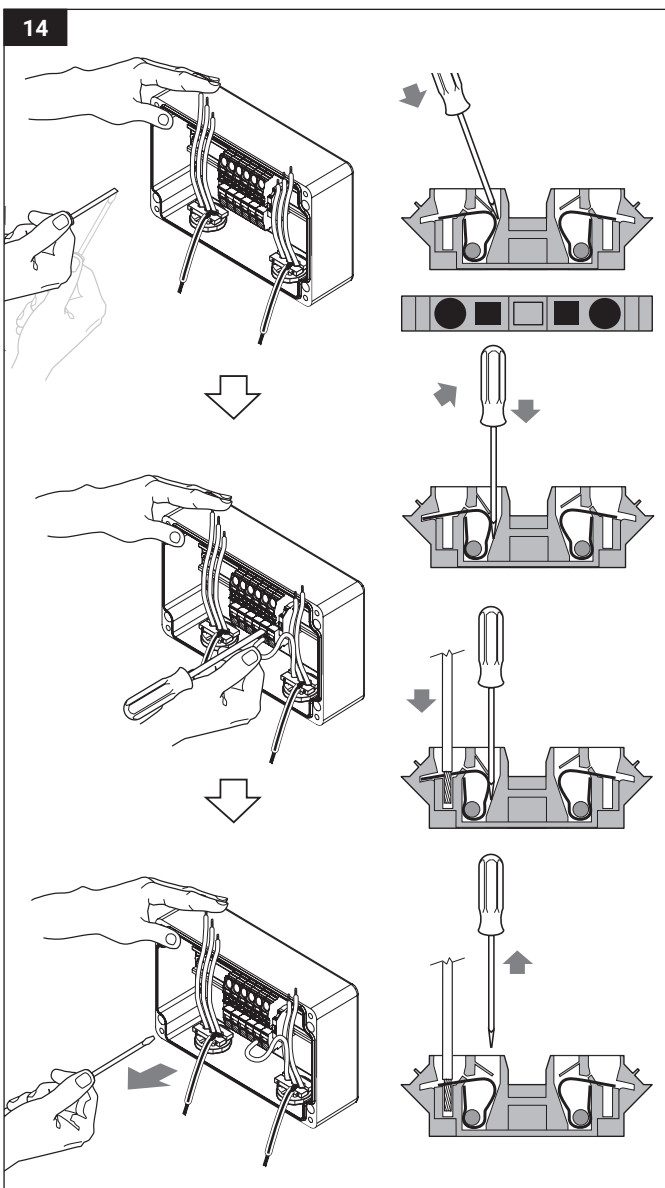
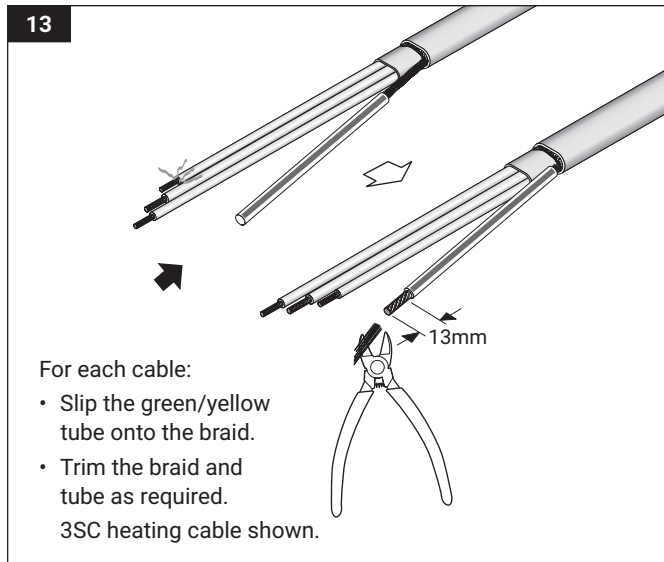
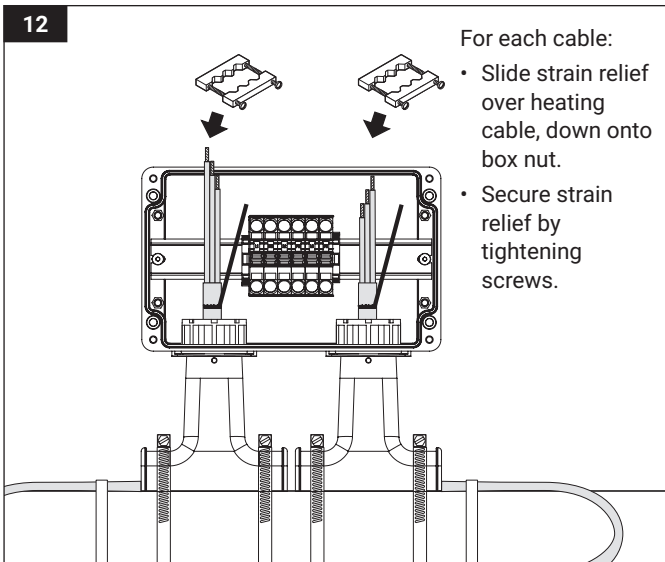
O-ring

- Install grommet plug in unused opening.

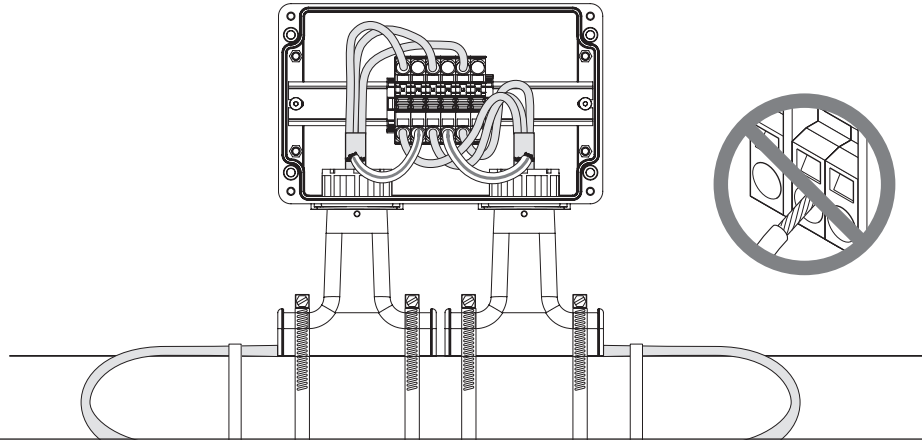
**11**

- 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 +/- 1.5



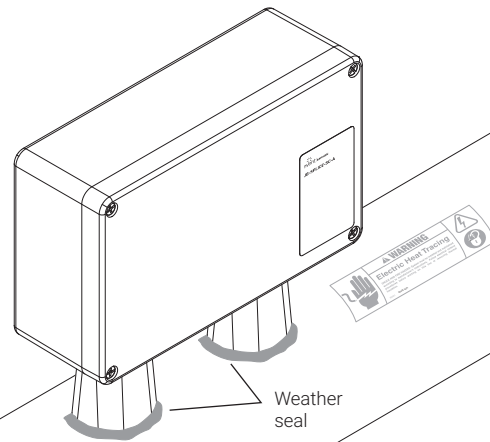


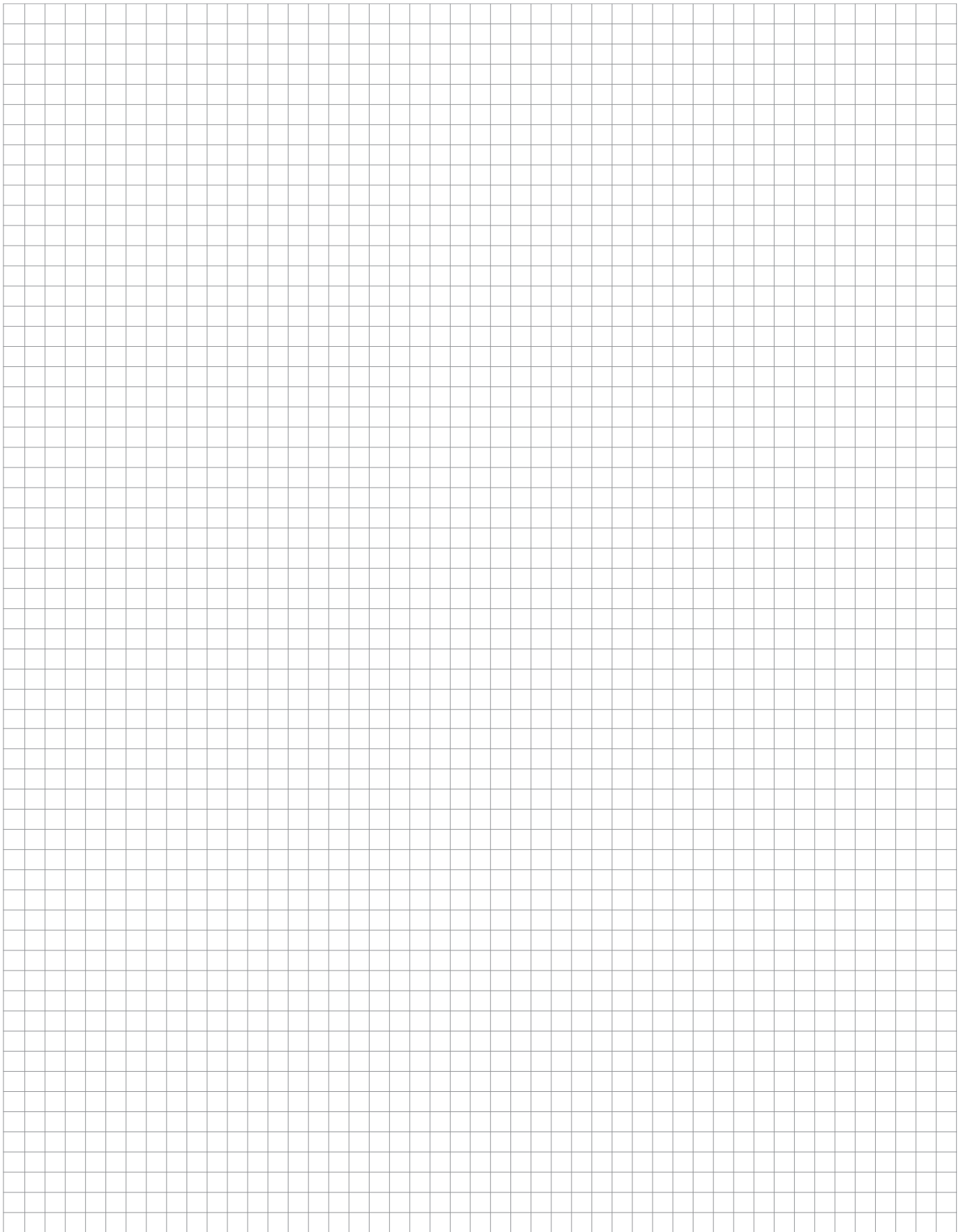
16



17

- 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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