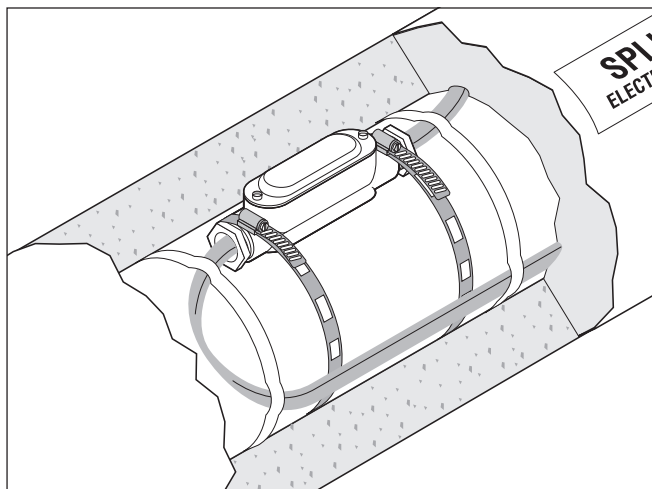




## RAYCHEM

### 2SC-LSC

#### Splice Connection Kit Installation Instructions



#### DESCRIPTION

The nVent RAYCHEM 2SC-LSC is a NEMA 4 rated splice connection kit for use with RAYCHEM 2SC60, 70, 80 (-CT), 2SC/H60, 70, 80 (-CT) and 2SC/F60, 70, 80 (-CR) series heating cables in hazardous locations.

This kit may be installed at temperatures as low as  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ). For easier installation, store above freezing until just before installation.

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

#### TOOLS REQUIRED

- Diagonal cutters
  - Wire strippers
  - Disposable towel or rag
  - Solder tool or torch (with small tip)
  - Thomas & Betts TBM5S crimp tool or equivalent (P/N P000000585)
  - Thomas & Betts WT2000 crimp tool or equivalent (P/N 273435-000)
  - Utility knife
  - Adjustable wrench
  - Slotted screwdriver
- Crimp tools can be ordered from nVent.

#### ADDITIONAL MATERIALS REQUIRED

- Glass cloth tape:
  - GT-66 for installation temperature above  $40^{\circ}\text{F}$  ( $4^{\circ}\text{C}$ )
  - GS-54 for installation temperature above  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ )

#### APPROVALS

##### Hazardous Locations



Class I, Div. 2, Groups B, C, D  
Class II, Div. 2, Groups F, G  
Class III



Class I, Div. 2, Groups A, B, C, D  
Class II, Div. 2, Groups F, G  
Class III  
-W for Canada



Ex e II T <sup>(1)</sup>  
-W for Canada

<sup>(1)</sup> for 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 warnings and carefully follow all of the installation instructions.

- 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 breakers.
- Component approvals and performance are based on the use of nVent-specified parts only. Do not use substitute parts or vinyl electrical tape.

- Damaged conductors can overheat or short. Do not break conductor wire strands when scoring the jacket or removing insulation.
- Keep components and heating cable ends dry before and during installation.
- Use only fire-resistant insulation materials, such as fiberglass wrap or flame-retardant foam.
- Soldering tools or torches can cause fire or explosion in hazardous areas. Be sure there are no flammable materials or vapors in the area before using these tools.
- Wrap exposed conductors with supplied tape strips to prevent shorts.

#### ⚠ CAUTION:

**HEALTH HAZARD:** Hot solder can burn eyes and skin. Fumes during soldering are irritating to eyes and may cause headache and respiratory system irritation or damage. Prolonged or repeated exposure to rosin flux fumes during soldering may result in allergic reaction in a sensitive person, resulting in asthma symptoms. Consult MSDS VEN0043 for further information.

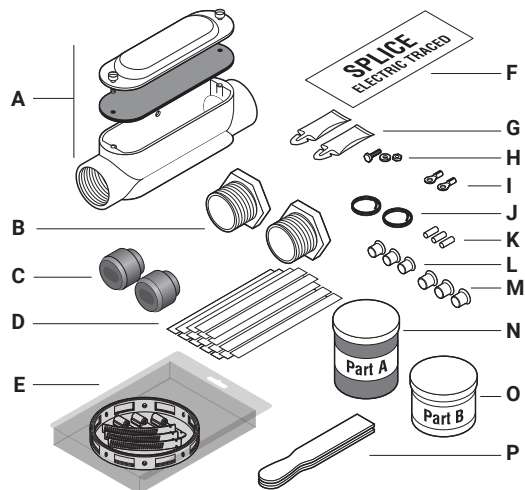
Silicone rubber compound Part B, may generate flammable and explosive hydrogen gas if it comes in contact with an acidic, basic or oxidizing material. Personal contact with the silicone rubber compound may cause slight eye or skin irritation. Consult MSDS VEN0030 and VEN0031 for further information.

CHEMTREC 24-hour emergency telephone:  
(800) 424-9300

Non-emergency health and safety information:  
(800) 545-6258.

## KIT CONTENTS

Item	Qty	Description
A	1	Box with cover, gasket, and 2 screws
B	2	Bushings
C	2	Grommets
D	17	Tape strips (14 required, 3 extras)
E	1	Pipe banding kit
F	1	ETL-SPLICE label
G	2	Cable lubricants
H	1	Bolt, lock washer and nut
I	2	Thomas & Betts #C10-14 ring terminals
J	2	Coils of Kester® 48 core LF solder for nickel
K	3	Silver parallel splices, spare included
L	3	Blue compression joints, spare included
M	3	Brown compression joints, spare included
N	1	KE 1204 silicone rubber potting compound Part A
O	1	KE 1204 silicone rubber potting compound Part B
P	2	Stir sticks
R	2	Material Safety Data Sheets (not shown)



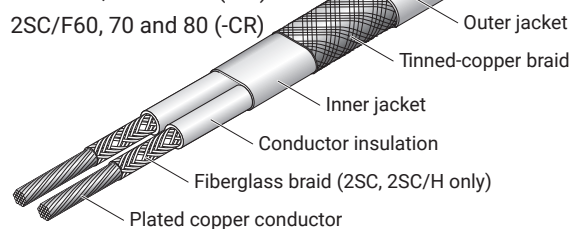
### Heating Cable Construction

#### Heating cable types

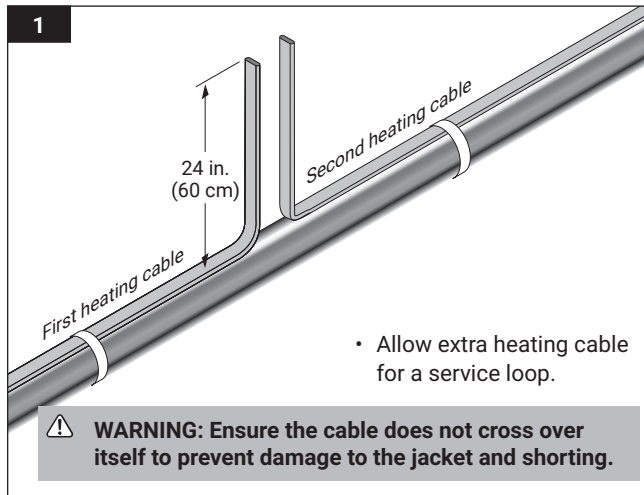
2SC60, 70 and 80 (-CT)

2SC/H60, 70 and 80 (-CT)

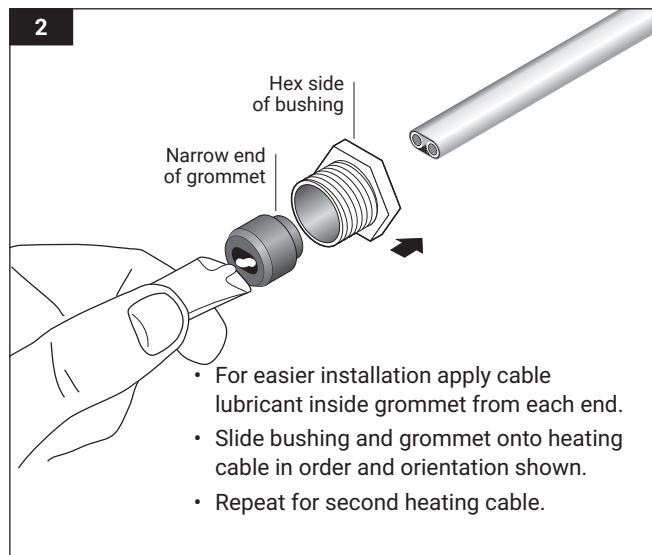
2SC/F60, 70 and 80 (-CR)



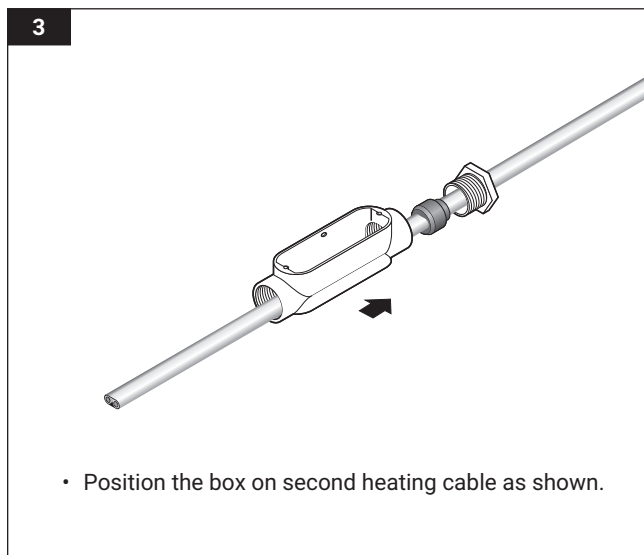
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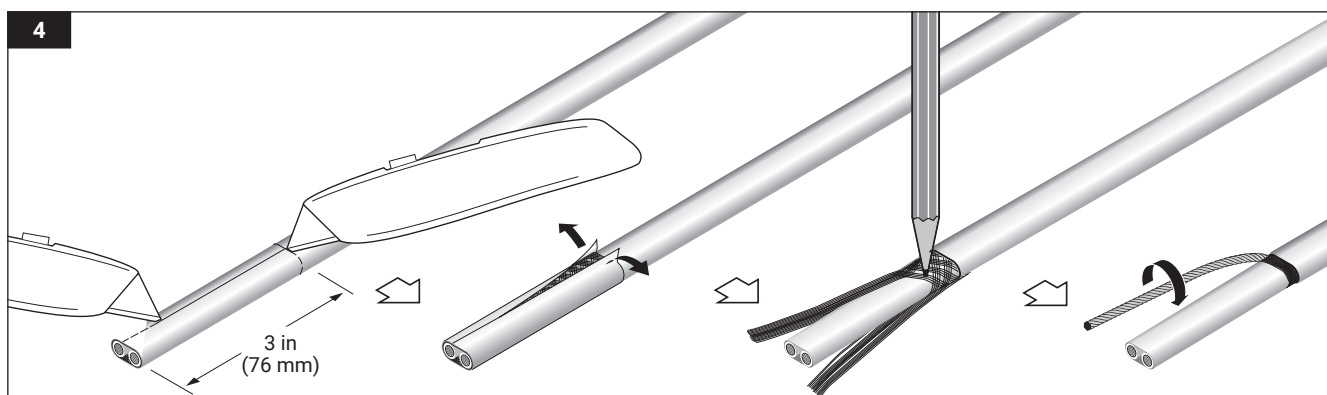
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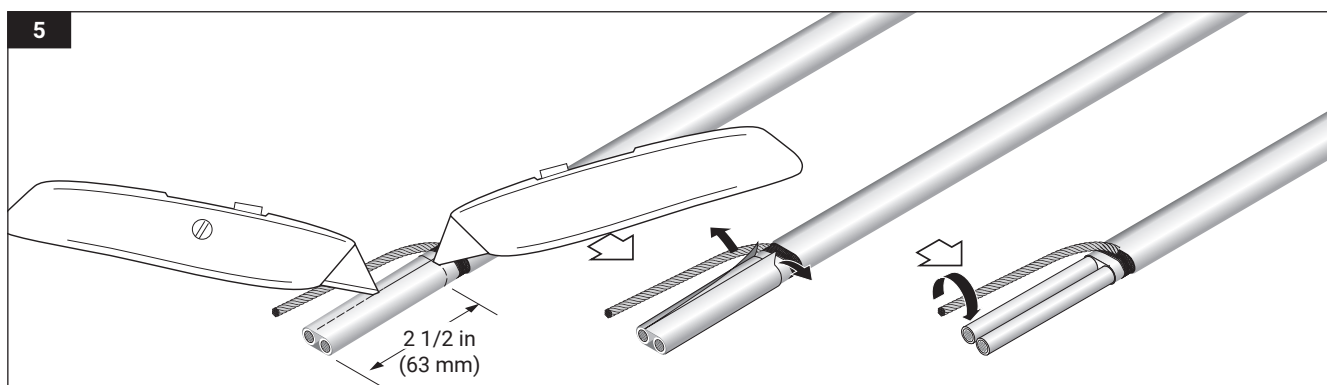


4



- Lightly score outer jacket around and down as shown.
- Bend heating cable to break jacket at the score, then peel off jacket.
- Use a pointed object to separate the braid from the heating cable.
- Pull braid to same side as small hole in side of box.
- Twist the braid to make a pigtail.
- Repeat for second heating cable.

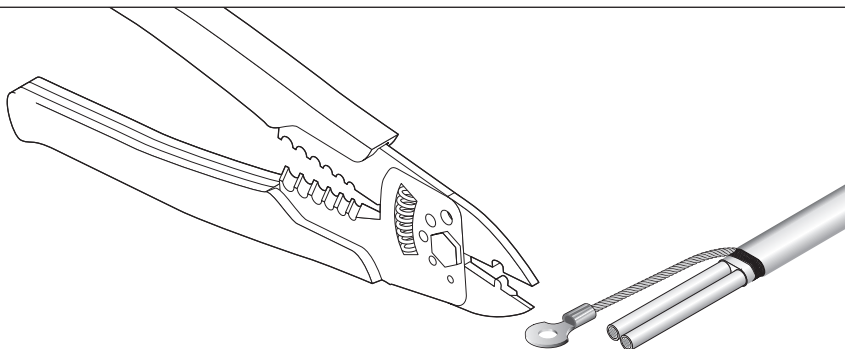
5



- Lightly score inner jacket around and down as shown.
- Bend heating cable to break jacket at score then peel off jacket.
- Twist the braid to make a pigtail.

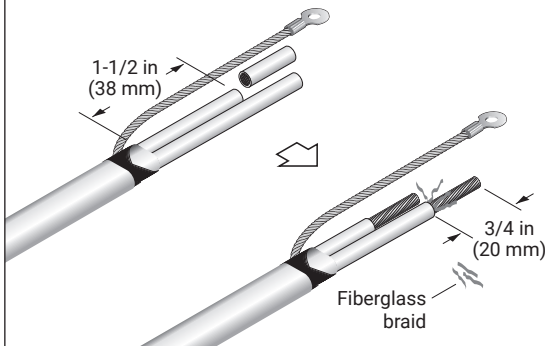
6

- Use the Thomas & Betts WT2000 crimp tool to crimp the ring terminal to the braid.
- Repeat Steps 4 through 6 for second heating cable.



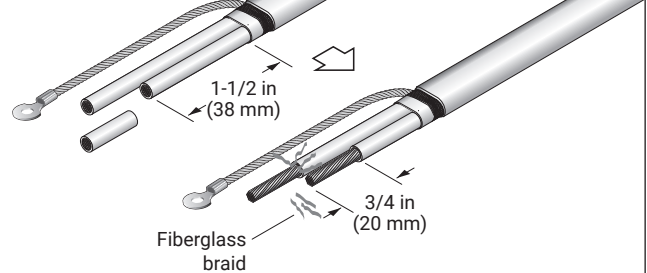
## 7 First Heating Cable only

- Cut heating cable conductor positioned next to braid as shown.
- Remove 3/4-inch (20 mm) insulation and fiberglass braid to expose bare conductors.



## 8 Second Heating Cable only

- Cut heating cable conductor positioned farthest from braid as shown.
- Remove 3/4-inch (20 mm) insulation and fiberglass braid to expose bare conductors.



## 9

**WARNING: Using the wrong splice can cause overheating. Use only the splice specified for the cable type.**

- Overlap conductors in splice.
- Crimp heating cable conductors together using the appropriate splices and crimp tool (see table).
- When using the WT2000 crimp tool, crimp the splice twice.

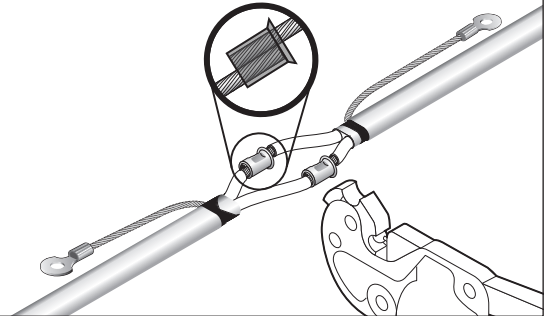
### Thomas & Betts (T&B)

Heating cable <sup>(1)</sup>	Splice catalog no.	Splice description	Crimp tool	Crimp tool die
2SC60-CT	C10-PS-D	Small	WT2000	Non-Insul
2SC70-CT	54610	Blue	TBM5S	Blue
2SC80-CT	54620	Brown	TBM5S	Brown

<sup>(1)</sup> The above table is also applicable for 2SC/H60, 70, 80 (-CT) and 2SC/F60, 70, 80 (-CR) heating cables.

For replacement splices call nVent at (800) 545-6258.

- Smooth down any sharp wires after crimping to prevent wires from poking through tape in Step 11.



## 10

### WARNING: Fire and Health Hazard

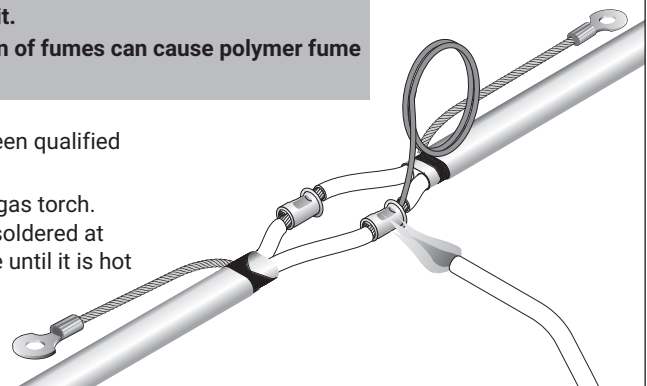
Soldering tools or minitorches can cause fire or explosion in hazardous areas. Be sure there are no flammable materials or vapors in the area before using these tools. Follow all site safety guidelines when working in hazardous areas.

Refer to solder material safety data sheet packaged with kit.

Do not overheat or char the conductor insulation. Inhalation of fumes can cause polymer fume fever, flu-like symptoms, irritation, and difficult breathing.

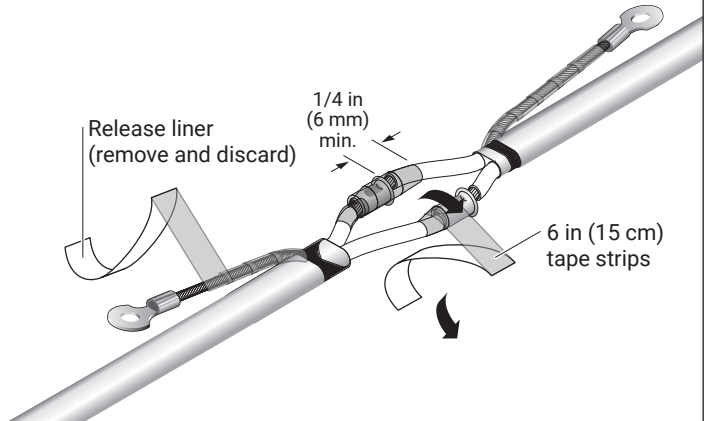
- Use only solder provided with kit. Only Kester 48 core LF has been qualified with SC cables.
- Heat each splice using a soldering tool, or a propane or MAPP gas torch.  
Note: MAPP gas may be required if the connections are being soldered at temperatures below -4°F (-20°C). Heat the center of the splice until it is hot enough to melt the solder placed at both ends.

**Allow the connection to cool before proceeding to the next step.**



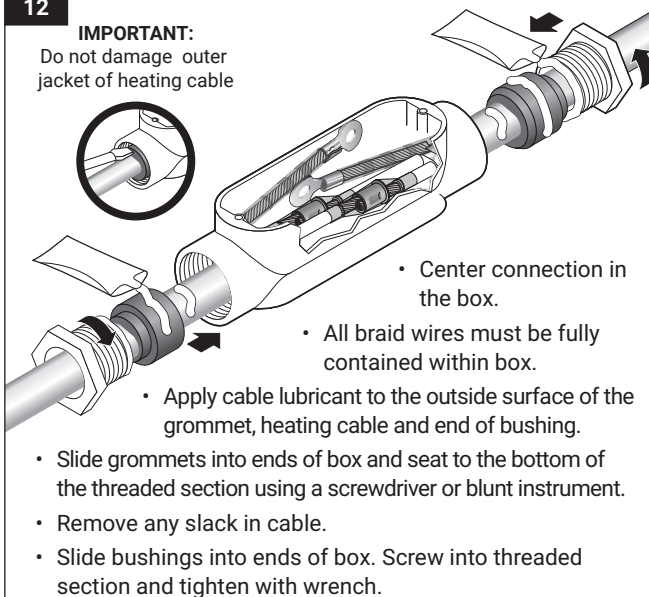
**IMPORTANT:** To ensure proper electrical insulation, use the specified high temperature Teflon® tape provided with the kit. Do not use common vinyl tape that does not have adequate temperature rating.

- Use release liner to guide tape while wrapping the tape strips around the connection. Wrap each connection separately with five strips of tape, covering splice and 1/4-inch (6 mm) of conductor insulation (approximately three overlapped layers).
- Wrap each braid with two strips of tape.

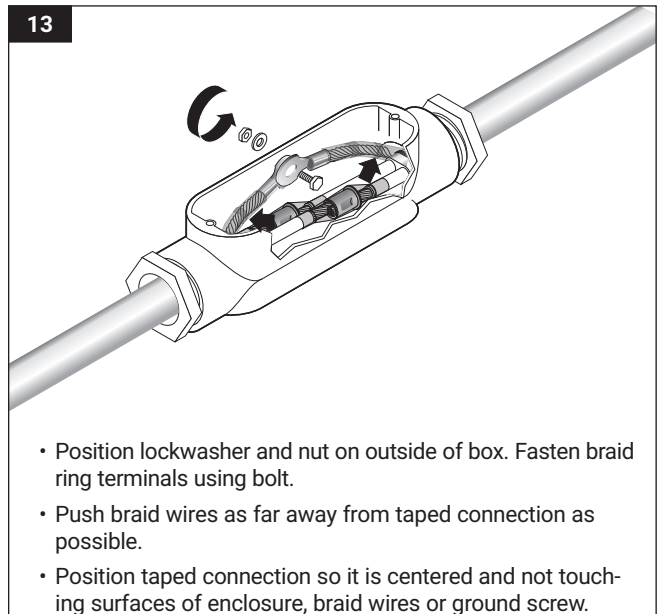


**IMPORTANT:**

Do not damage outer jacket of heating cable

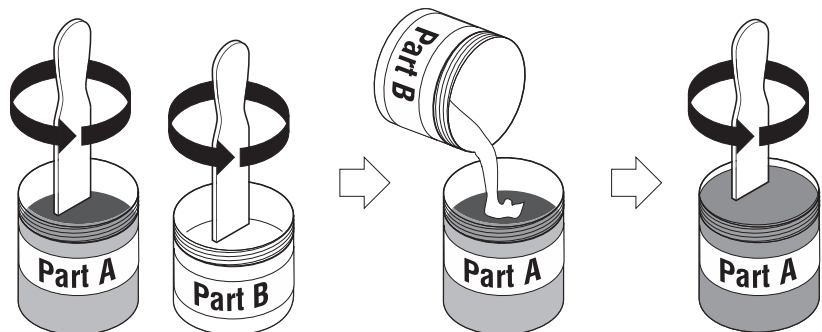


- Center connection in the box.
- All braid wires must be fully contained within box.
- Apply cable lubricant to the outside surface of the grommet, heating cable and end of bushing.
- Slide grommets into ends of box and seat to the bottom of the threaded section using a screwdriver or blunt instrument.
- Remove any slack in cable.
- Slide bushings into ends of box. Screw into threaded section and tighten with wrench.



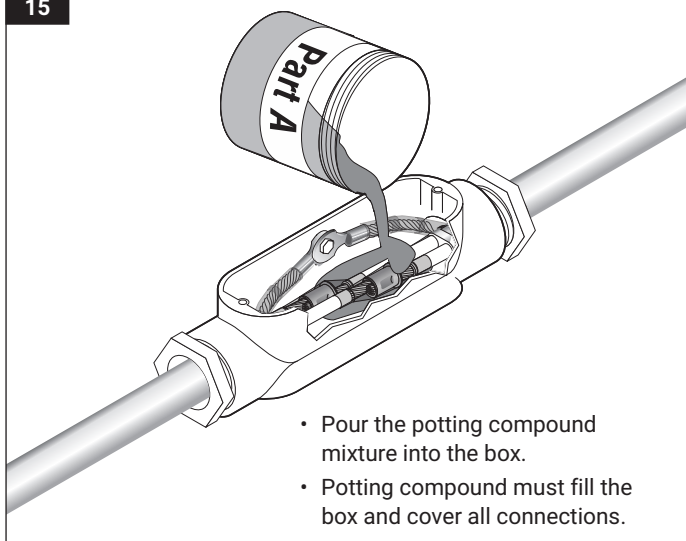
- Position lockwasher and nut on outside of box. Fasten braid ring terminals using bolt.
- Push braid wires as far away from taped connection as possible.
- Position taped connection so it is centered and not touching surfaces of enclosure, braid wires or ground screw.

**WARNING: Health Hazard**  
Refer to silicone rubber material safety data sheet packaged with kit.

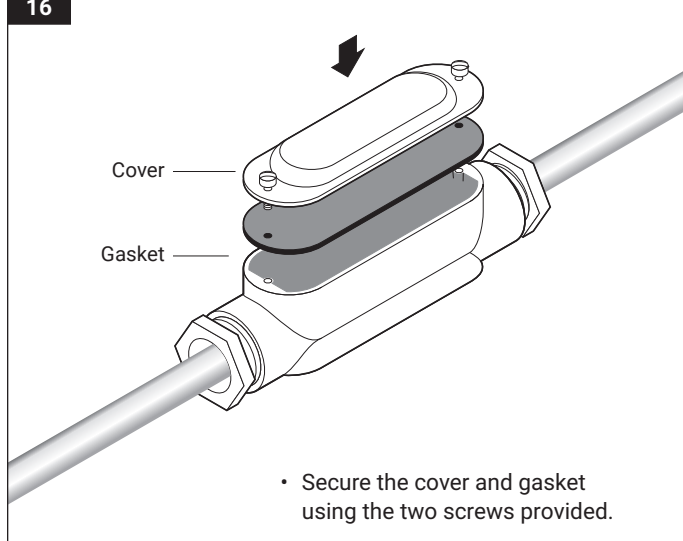


- Open the two containers: one labeled Part A, and the other Part B.
- Use separate wooden sticks to stir the contents of each container until smooth and homogeneous.
- Pour all the contents of the container labeled Part B into the container labeled Part A and mix thoroughly until the color is uniform.

15



16

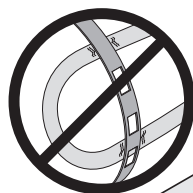


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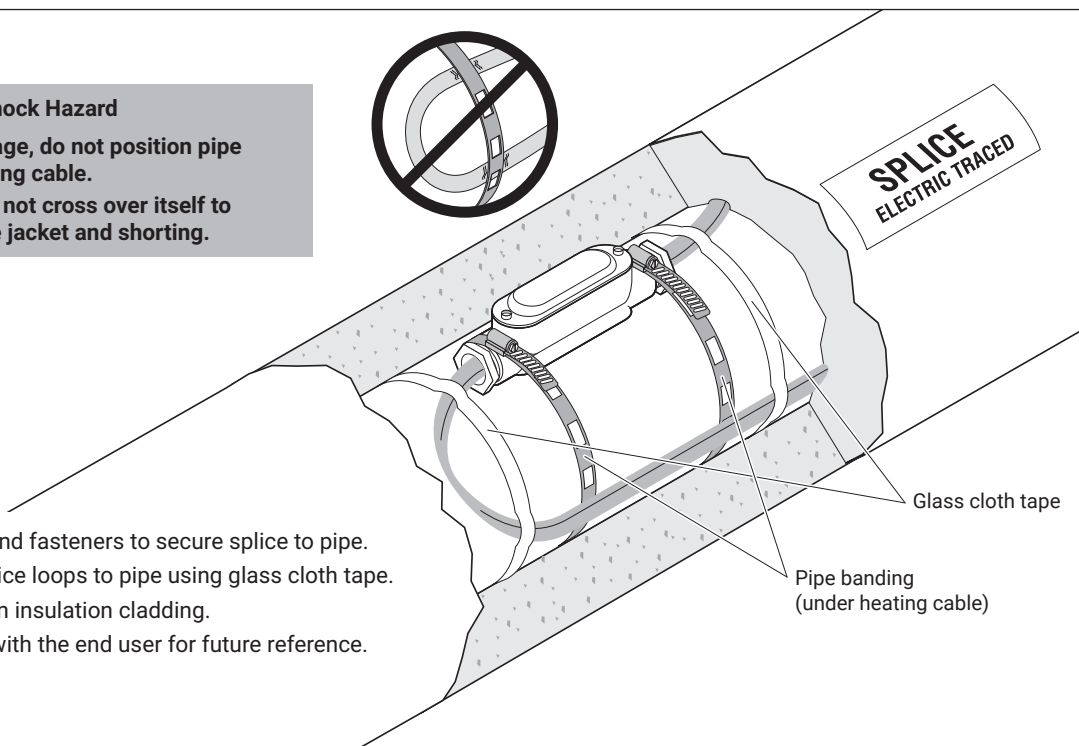
**WARNING: Fire and Shock Hazard**

To prevent cable damage, do not position pipe banding over the heating cable.

Ensure the cable does not cross over itself to prevent damage to the jacket and shorting.



- Use pipe clamp banding and fasteners to secure splice to pipe.
- Secure heating cable service loops to pipe using glass cloth tape.
- Install ETL-SPLICE label on insulation cladding.
- Leave these instructions with the end user for future reference.

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