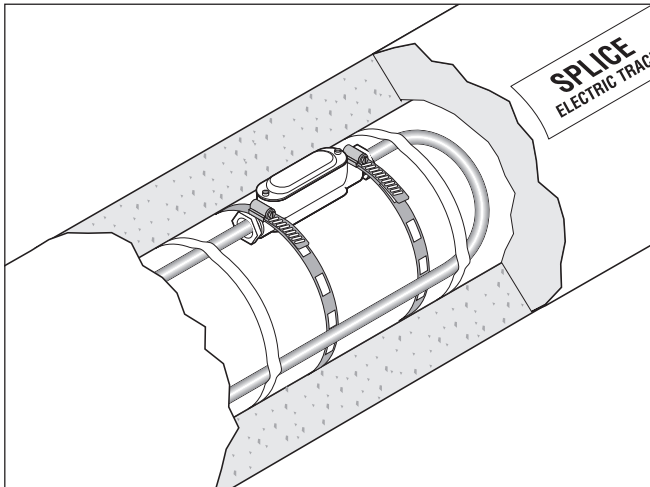




## RAYCHEM

### 1SC-SSC

#### Splice Connection Kit Installation Instructions



#### DESCRIPTION

The nVent RAYCHEM 1SC-SSC is a NEMA 4 rated splice connection kit for use with RAYCHEM 1SC30, 40, 50, 60, 70, 80 (-CT) and 1SC/H30, 40, 50, 60, 70, 80 (-CT) series heating cables in hazardous locations with low mechanical abuse.

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

- Utility knife
  - Wire strippers
  - Adjustable wrench
  - Solder gun or torch (with small tip)
  - Thomas & Betts WT2000 crimp tool or equivalent (PN 273435-000)
  - Thomas & Betts TBM5S crimp tool or equivalent (PN P000000585), see Step 8
  - Diagonal cutters
  - Slotted screwdriver
  - Disposable towel or rag
- 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



(1) for T-Rating, see design documentation

(2) for 1SC60, 70, 80(-CT) and 1SC/H60, 70, 80(-CT) only.

##### Nonhazardous Locations



#### 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 guns 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. Refer to MSDS VEN0043 for more information.

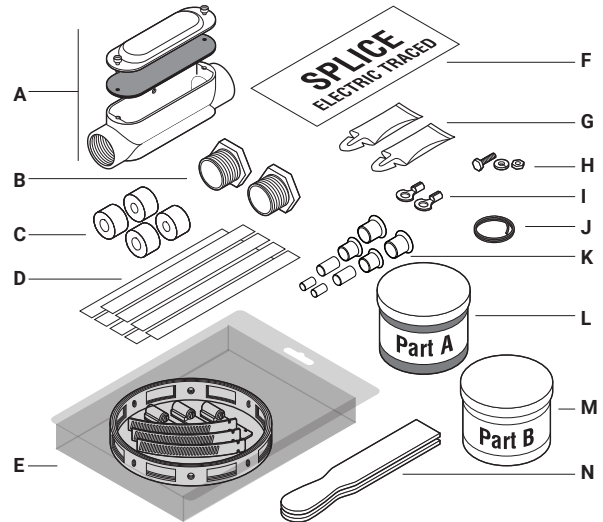
Silicone rubber compound, Part A and Part B, may generate flammable and explosive hydrogen gas if it comes in contact with an acidic, basic or oxidizing material. Personal contact with the silicone rubber compound may cause slight eye or skin irritation. Refer to MSDS VEN0030 and VEN0031 for more information.

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	4	Grommets
D	8	Tape strips (5 required, 3 extra)
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	1	Coil of Kester® 48 core LF solder for nickel
K	8	Thomas & Betts splices, spares included
L	1	KE 1204 silicone rubber potting compound Part A
M	1	KE 1204 silicone rubber potting compound Part B
N	2	Stir sticks
O	2	Material Safety Data Sheets (not shown)

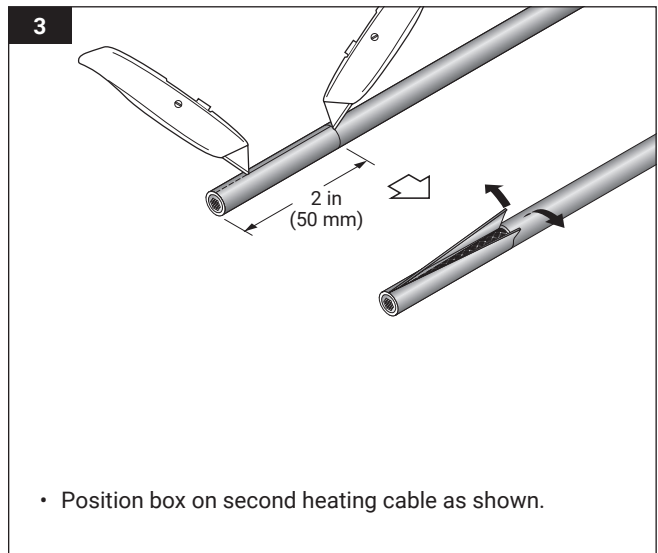
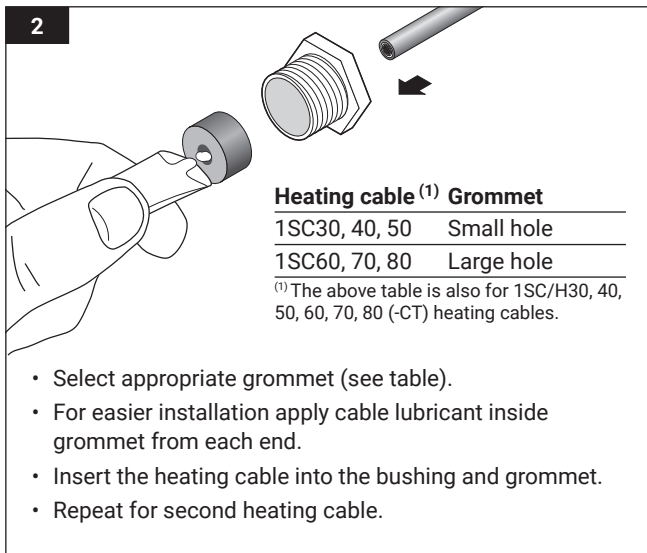
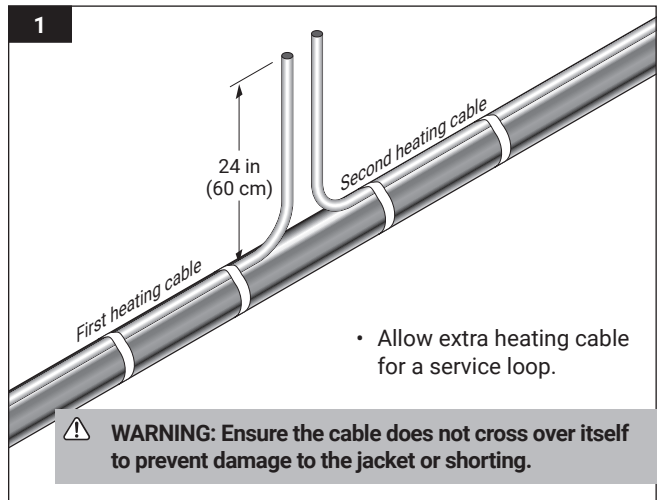
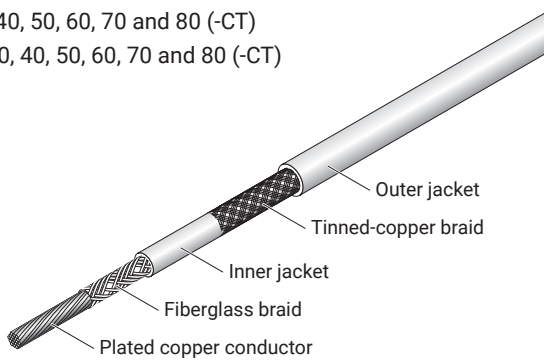


### Heating Cable Construction

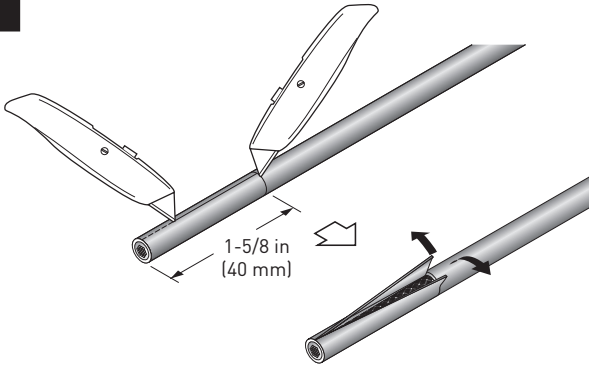
#### Heating cable types

1SC30, 40, 50, 60, 70 and 80 (-CT)

1SC/H30, 40, 50, 60, 70 and 80 (-CT)

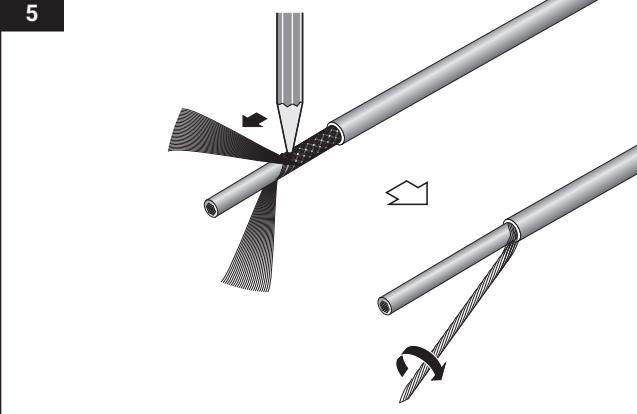


**4**



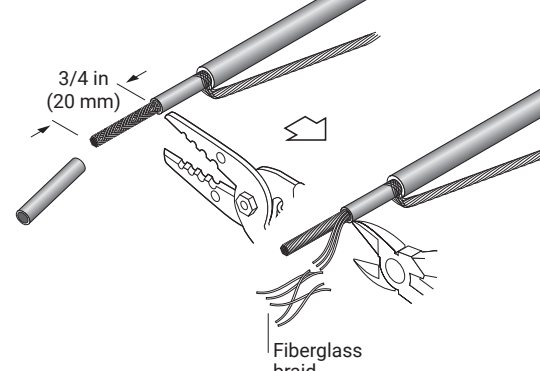
- Lightly score outer jacket around and down as shown.
- Bend heating cable to break jacket at score, then peel off jacket.

**5**



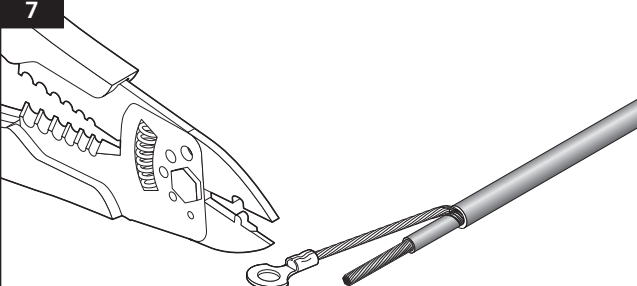
- Use a pointed object to separate the braid from the heating cable.
- Twist the braid to make a pigtail.

**6**



- Remove 3/4 inch (20 mm) inner jacket and glass fiber braid to expose the bare conductor.
- Do not cut conductor strands.

**7**



- Crimp ring terminal onto braid, using the Thomas & Betts WT2000 crimp tool.

**Repeat steps 4 through 7 for second heating cable.**

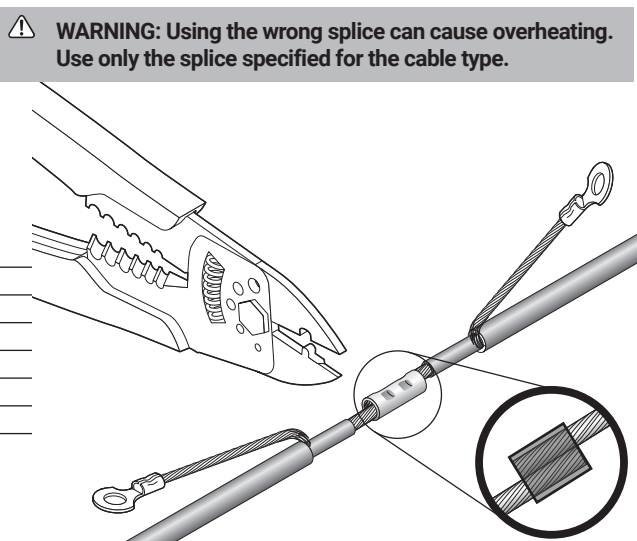
**8**

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

Heating cable <sup>(1)</sup>	Thomas & Betts catalog no.	Description	Crimp tool	Crimp tool die
1SC30-CT	B14-PS-M	Small silver	WT2000	Non-Insul
1SC40-CT	B14-PS-M	Small silver	WT2000	Non-Insul
1SC50-CT	C10-PS-D	Large silver	WT2000	Non-Insul
1SC60-CT	C10-PS-D	Large silver	WT2000	Non-Insul
1SC70-CT	54610	Blue	TBM5S	Blue
1SC80-CT	54620	Brown	TBM5S	Brown

<sup>(1)</sup> The above table is also for 1SC/H30, 40, 50, 60, 70, 80 (-CT) heating cables. For replacement splices, call nVent at (800) 545-6258.

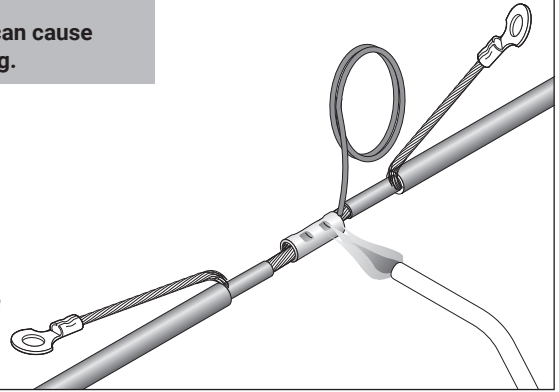
**WARNING:** Using the wrong splice can cause overheating. Use only the splice specified for the cable type.



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**⚠ 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.**

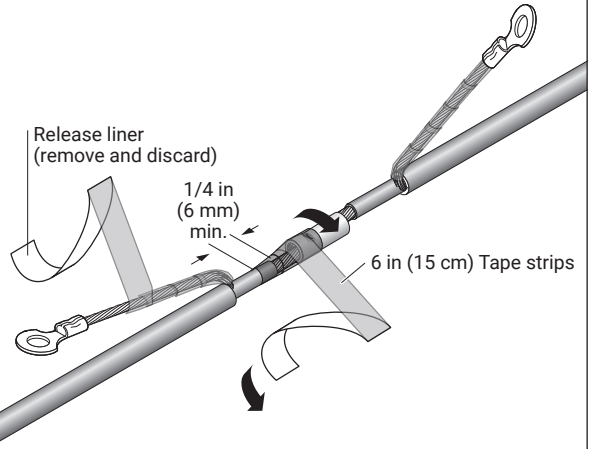
- Use only solder provided with kit. Only Kester 48 core LF has been qualified with SC cables.
- Heat the splice using a soldering tool, or a propane or MAPP gas torch.  
**Note:** MAPP gas may be required if the connections are being soldered at temperatures below -4°F (-20°C). Heat the center of the splice until it is hot enough to melt the solder placed at one end of the connection. The solder should flow between the inside of the splice and heating cable conductors. **Repeat for the other end of the splice. Allow the connection to cool before proceeding to the next step.**



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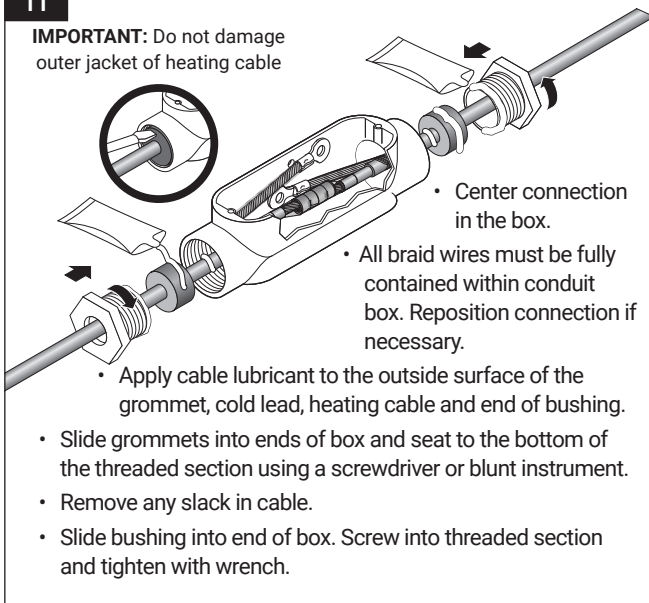
**IMPORTANT:** To ensure proper electrical insulation, use the specified high temperature Teflon® tape provided with the kit. Do not use common vinyl tape that does not have adequate temperature rating.

- Slowly remove release liner from tape strips while wrapping tape around the connection. Use three strips of tape, covering splice and 1/4-inch (6 mm) of inner jacket (approximately three overlapped layers).
- Wrap braid with tape strips.



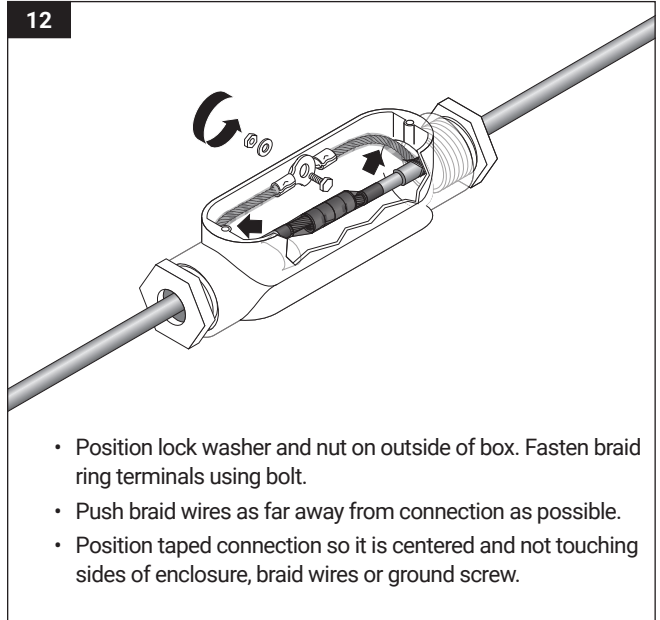
11

**IMPORTANT:** Do not damage outer jacket of heating cable



- Center connection in the box.
- All braid wires must be fully contained within conduit box. Reposition connection if necessary.
- Apply cable lubricant to the outside surface of the grommet, cold lead, 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 bushing into end of box. Screw into threaded section and tighten with wrench.

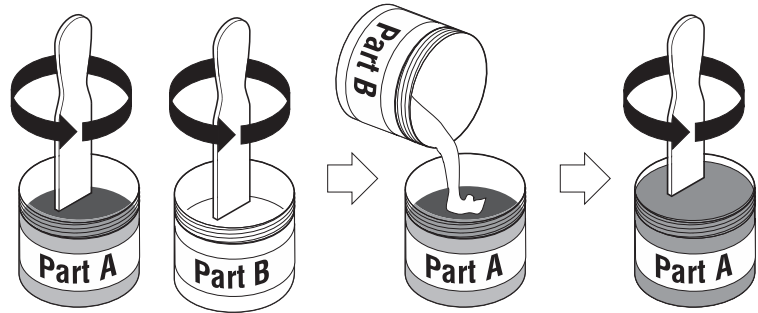
12



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

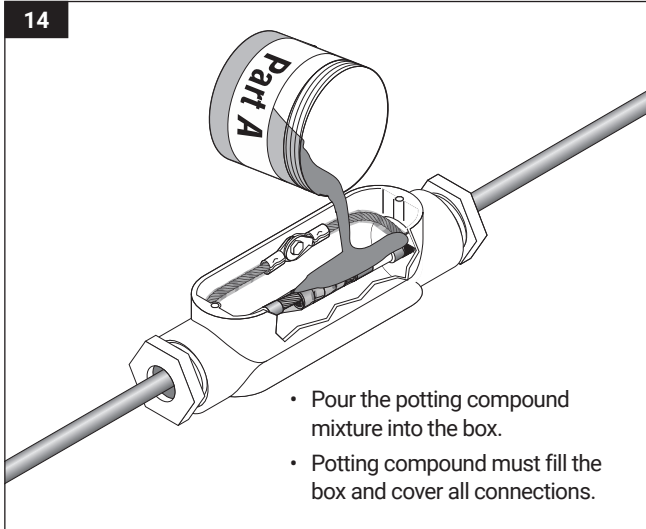
13

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



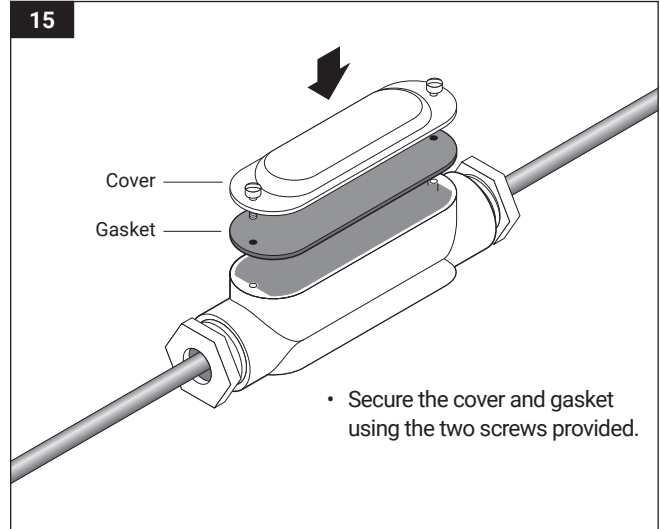
- Open the two containers: one labeled Part A, and the other Part B.
- Use separate wooden sticks to stir the contents of each container until smooth and homogeneous.
- Pour all the contents of the container labeled Part B into the container labeled Part A and mix thoroughly until the color is uniform.

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- Pour the potting compound mixture into the box.
- Potting compound must fill the box and cover all connections.

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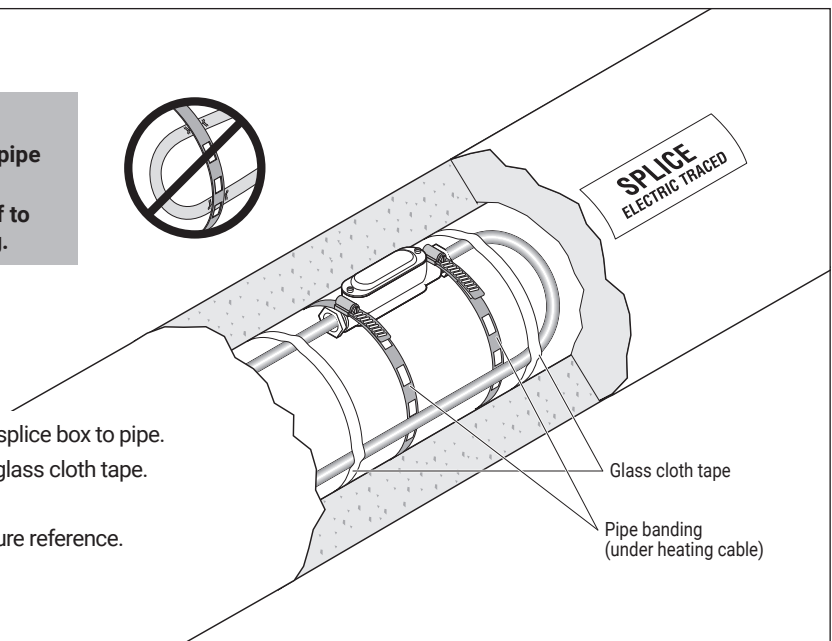
- Secure the cover and gasket using the two screws provided.

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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 box 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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