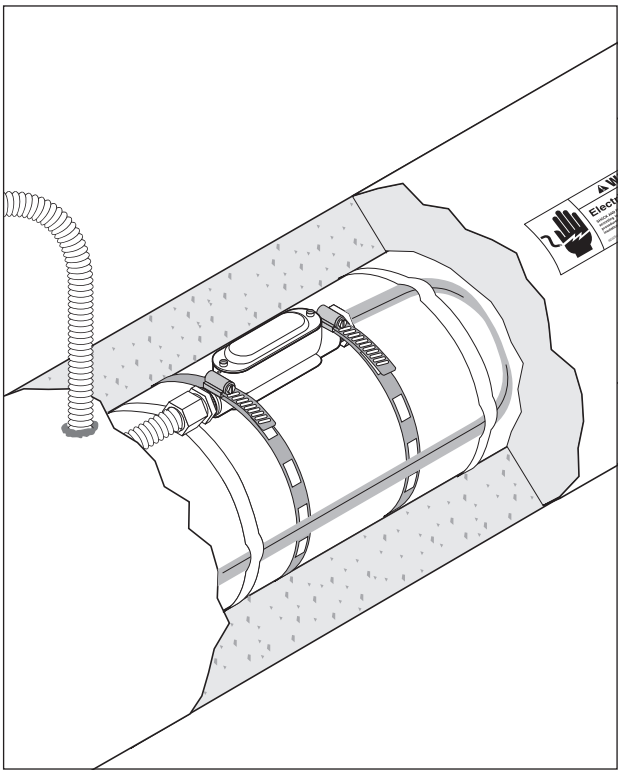
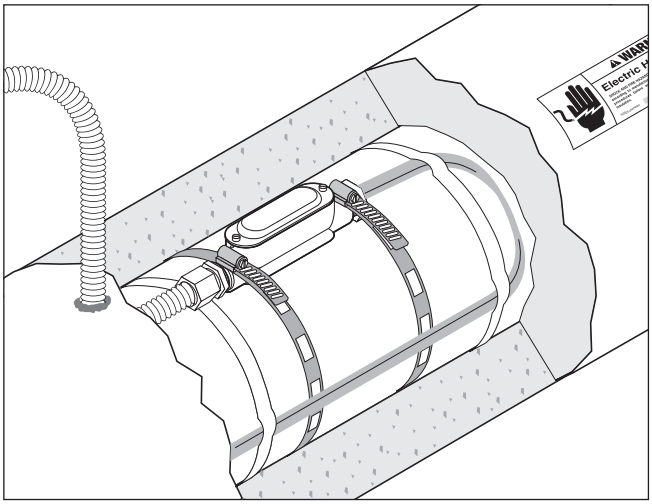
Raychem

3SC-4PT 3SC-6PT 3SC-8PT

Power Connection Kit Installation Instructions



chemelex



APPROVALS

Hazardous Locations

FM APPROVED	Class I, Div. 2, Groups B, C, D Class II, Div. 2, Groups F, G Class III
SP C US	Class I, Div. 2, Groups A, B, C, D Class II, Div. 2, Groups F, G Class III

For T-Rating, see design documentation

DESCRIPTION

The Raychem 3SC-4PT, 3SC-6PT, and 3SC-8PT are NEMA 4 rated power connection kits designed for use with Raychem 3SC60, 70, 80 (-CT), 3SC/H60, 70, 80 (-CT) and 3SC/F60, 70, 80 (-CR) series heating cables in hazardous locations.

This kit may be installed at temperatures as low as –40°F (–40°C). For easier installation, store above freezing until just before installation.

For technical support, call Chemelex at (800) 545-6358.

TOOLS REQUIRED

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

ADDITIONAL MATERIALS REQUIRED

- Glass cloth tape:
  - GT-66 for installation temperature above 40°F (4°C)
  - GS-54 for installation temperature above –40°F (–40°C)
- Agency approved junction box suitable for the area classification
- Circuit identification tag (P/N P000000311)

⚠ 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 Chemelex, 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 Chemelex-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.

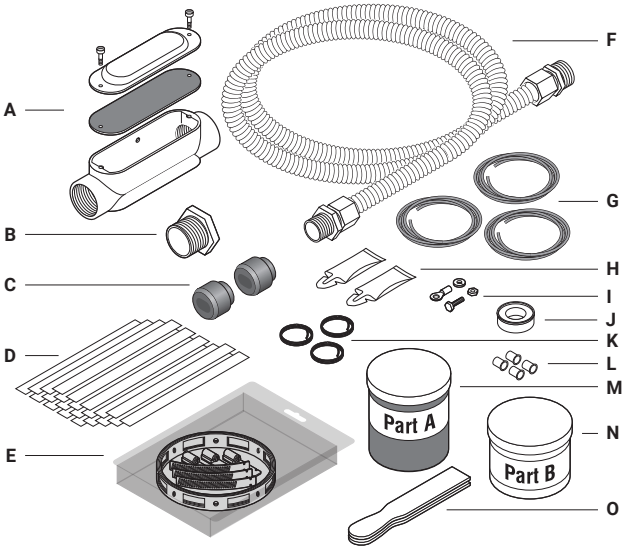
Silicone rubber compound Part A and Part B may generate flammable and explosive hydrogen gas if it comes in contact with an acidic, basic or oxidizing material. Personal contact with the silicone rubber compound may cause slight eye or skin irritation. Consult MSDS VEN0030 and VEN0031 for further information.

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

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

KIT CONTENTS:

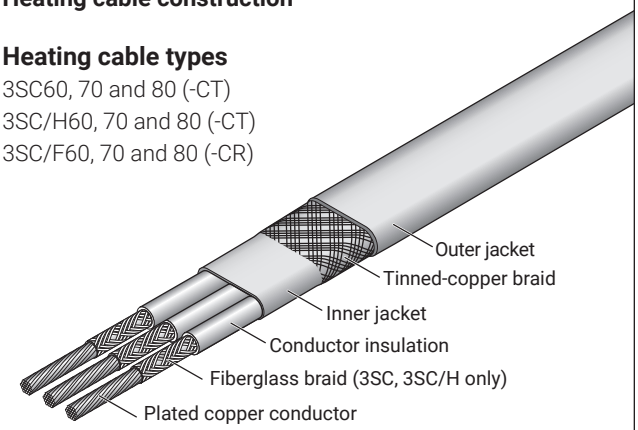
Item	Qty	Description
A	1	Box with cover, gasket, and 2 screws
B	1	Bushing
C	2	Grommets
D	22	Tape strips (19 required, 3 extra)
E	1	Pipe clamp banding kit
F	1	Armor assembly
G	3	Cold leads
H	2	Cable lubricants
I	1	Ring terminal, bolt, lock washer, and nut
J	1	Teflon® tape
K	3	Coils of Kester® 48 core LF solder for nickel
L	4	Compression joints (see table in Step 7), spare included
M	1	KE 1204 silicone rubber potting compound Part A
N	1	KE 1204 silicone rubber potting compound Part B
O	2	Stir sticks
P	2	Material Safety Data Sheets (not shown)



Heating cable construction

Heating cable types

3SC60, 70 and 80 (-CT)
3SC/H60, 70 and 80 (-CT)
3SC/F60, 70 and 80 (-CR)



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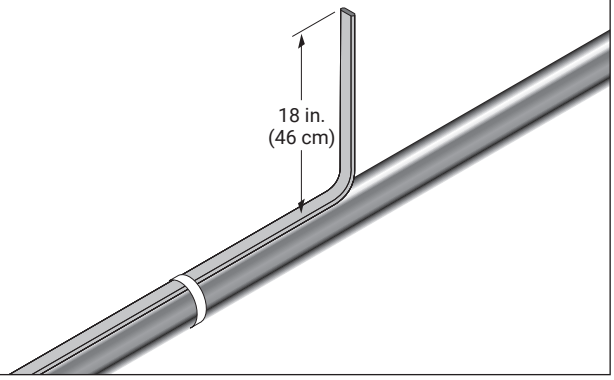
- Allow approximately 18 inches (46 cm) of heating cable for installation.



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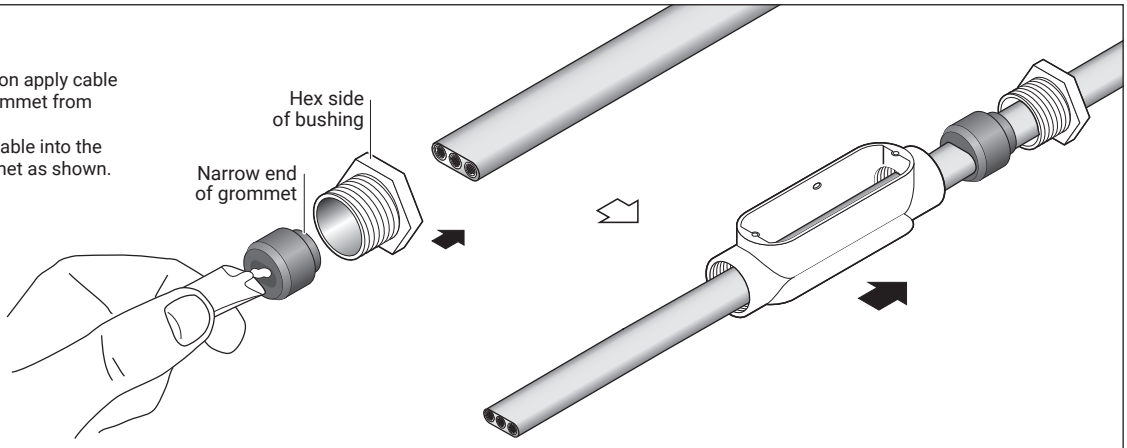
- For easier installation apply cable lubricant inside grommet from each end.
- Insert the heating cable into the bushing and grommet as shown.



- Position box on the heating cable as shown.

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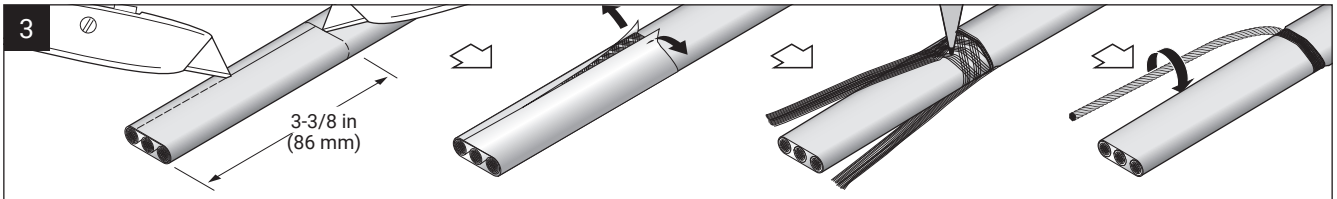

- Lightly score outer jacket around and down as shown.
- Bend heating cable to break jacket at the score, then peel off jacket.
- Use a pointed object to separate the braid from the heating cable.
- Pull braid to same side as small hole in side of box.
- Twist the braid to make a pigtail.

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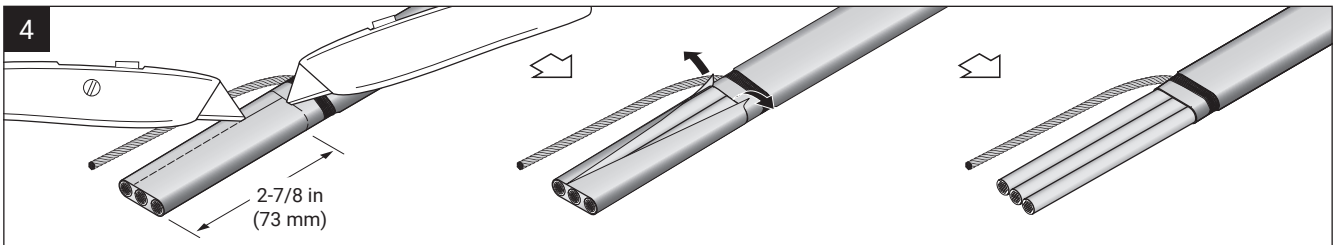
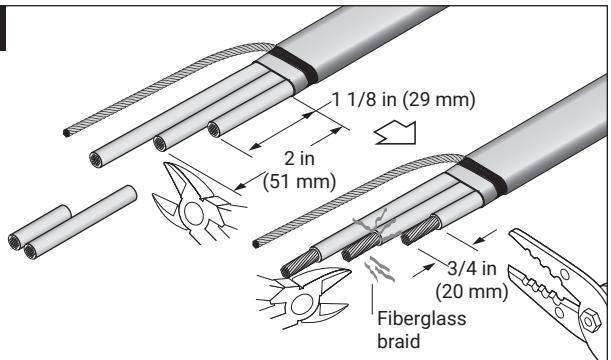


- Lightly score around and down to remove 2-⅞ inches (73 mm) of inner jacket.
- Bend heating cable to break jacket at score then peel off jacket.

5



- Cut two heating cable conductors to lengths shown.
- Remove ¾ inch (20 mm) insulation and fiberglass braid to expose the bare conductors.

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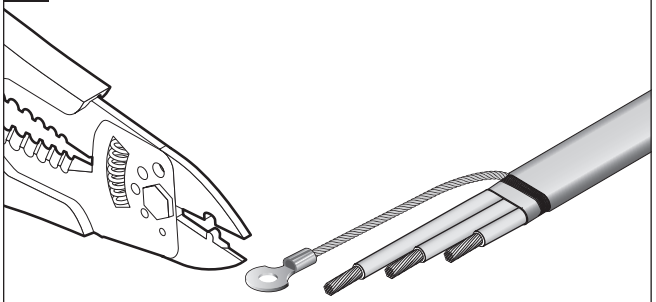
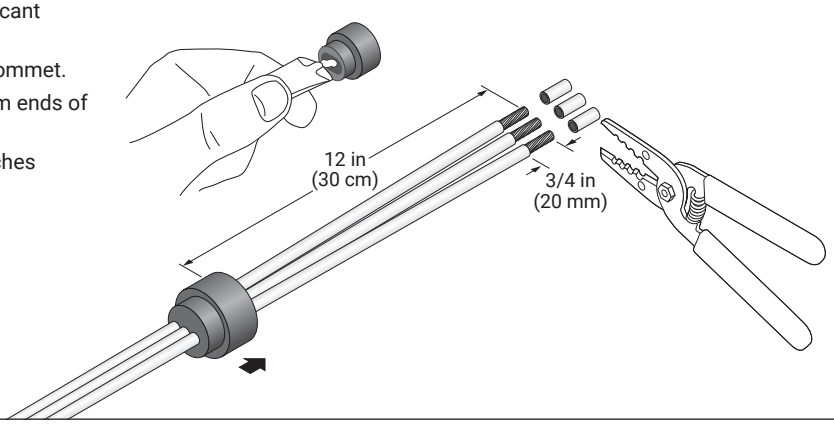


- Use a Thomas and Betts WT2000 crimp tool to crimp the ring terminal onto the braid.

7

- For easier installation, apply cable lubricant inside grommet from each end.
- Slide cold leads through the second grommet.
- Remove ¾-inch (20 mm) insulation from ends of cold leads.
- Position grommet approximately 12-inches (30 cm) from end.



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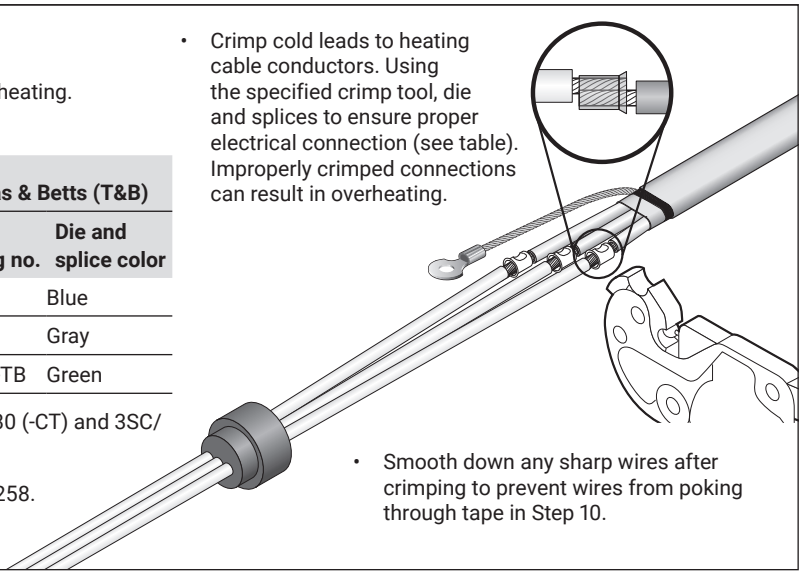
⚠ **WARNING:** Using the wrong splice can cause overheating. Use only the splice specified for the cable type.

Heating cable [1]	Heating cable conductor size	Power connection kit	Power connection wire size	Thomas & Betts (T&B) Splice catalog no.	Thomas & Betts (T&B) Die and splice color
3SC60-CT	12 AWG	SC-8PT	8 AWG	54610	Blue
3SC70-CT	10 AWG	SC-6PT	6 AWG	54615	Gray
3SC80-CT	8 AWG	SC-4PT	4 AWG	54625-TB	Green

[1] The above table is also applicable for 3SC/H60, 70, 80 (-CT) and 3SC/F60, 70, 80 (-CR) heating cables.

For replacement crimps, call Chemelex at (800) 545-6258.

- Overlap conductors in splice.
- Crimp cold leads to heating cable conductors. Using the specified crimp tool, die and splices to ensure proper electrical connection (see table). Improperly crimped connections can result in overheating.



- Smooth down any sharp wires after crimping to prevent wires from poking through tape in Step 10.

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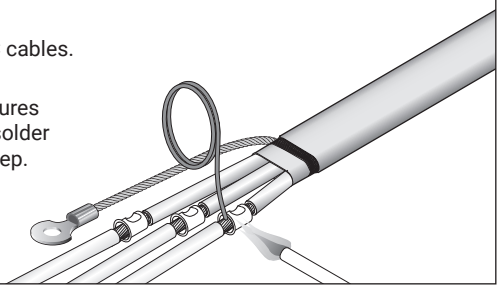
⚠ **WARNING:** Fire and Health Hazard
Soldering tools or minitorches can cause fire or explosion in hazardous areas. Be sure there are no flammable materials or vapors in the area before using these tools. Follow all site safety guidelines when working in hazardous areas.
Refer to solder material safety 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 difficulty breathing.

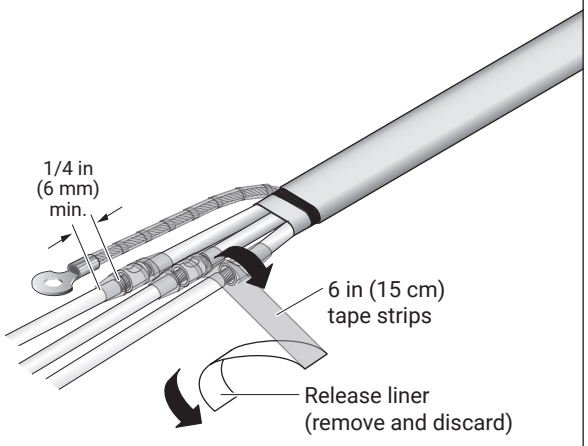
- Use only solder provided with kit. Only Kester 48 core LF has been qualified with SC cables.
- Heat each splice using a soldering tool, or a propane or MAPP gas torch.
  Note: MAPP gas may be required if the connections are being soldered at temperatures below –4°F (–20°C). Heat the center of the splice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



10

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. Use five strips of tape, covering splice and ¼-inch (6 mm) of conductor insulation (approximately three overlapped layers).
- Wrap braid with two tape strips.



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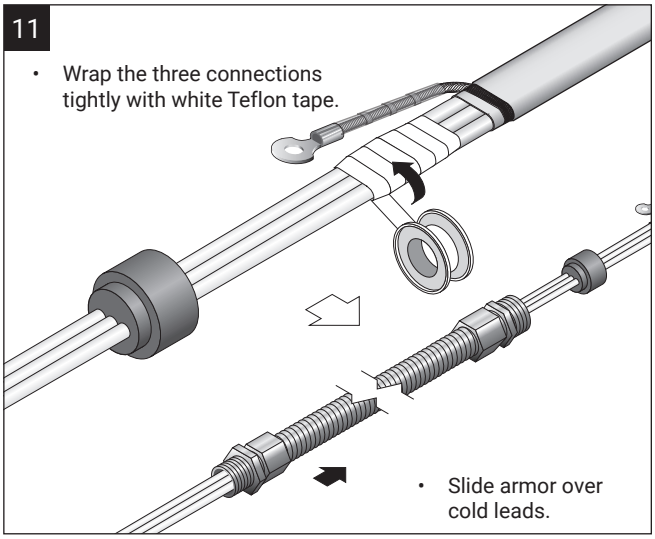
- Wrap the three connections tightly with white Teflon tape.



- Slide armor over cold leads.

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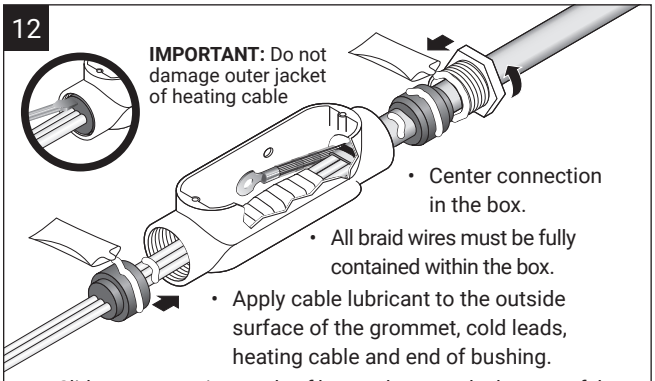
IMPORTANT: Do not damage outer jacket of heating cable



- Center connection in the box.
- All braid wires must be fully contained within the box.
- Apply cable lubricant to the outside surface of the grommet, cold leads, 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 a wrench.

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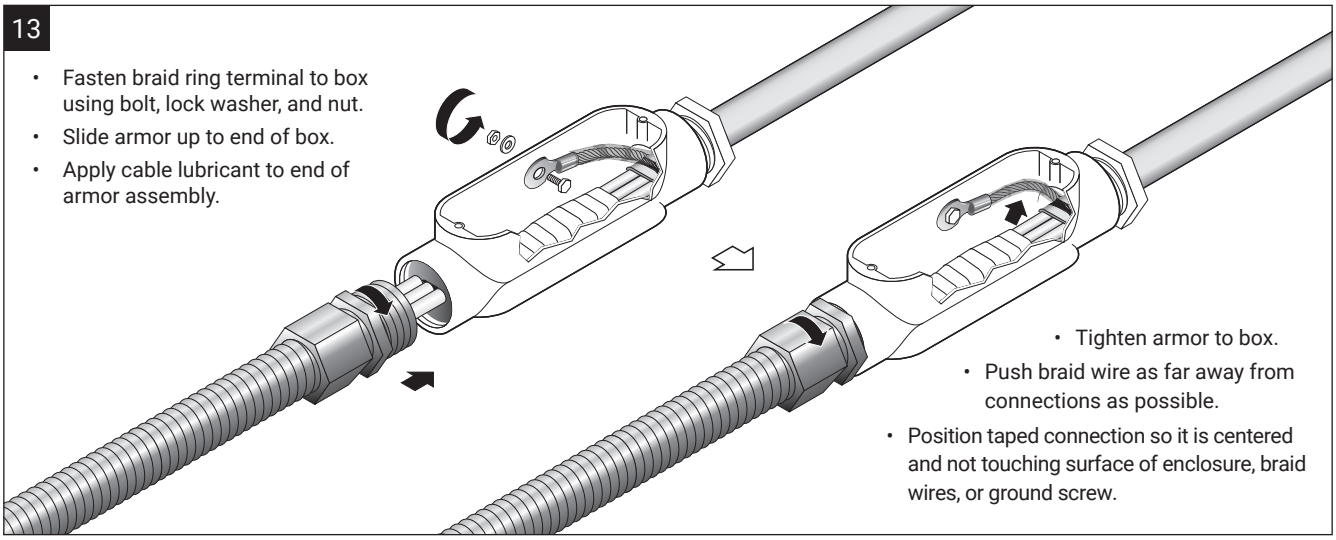
- Fasten braid ring terminal to box using bolt, lock washer, and nut.
- Slide armor up to end of box.
- Apply cable lubricant to end of armor assembly.



- Tighten armor to box.
- Push braid wire as far away from connections as possible.
- Position taped connection so it is centered and not touching surface of enclosure, braid wires, or ground screw.

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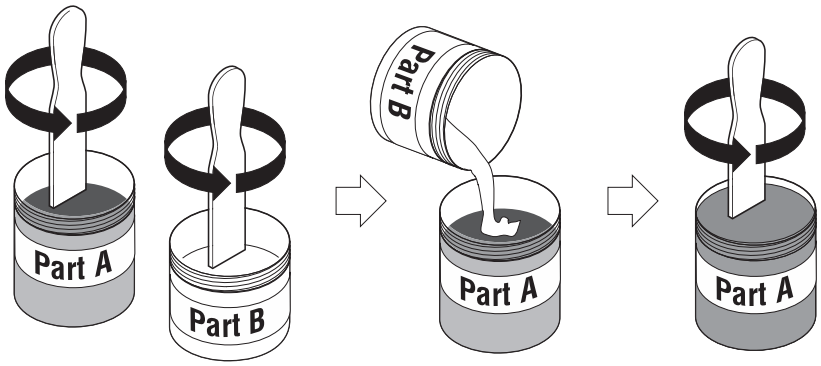
⚠ **WARNING:** Health Hazard
Refer to silicone rubber material safety data sheet packaged with kit.



- 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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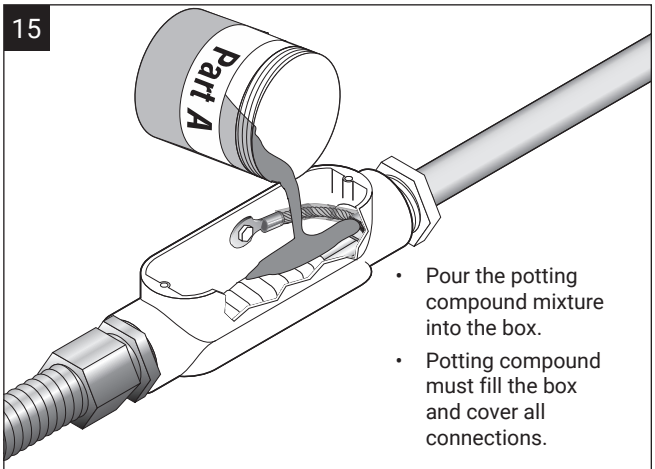

- Pour the potting compound mixture into the box.
- Potting compound must fill the box and cover all connections.

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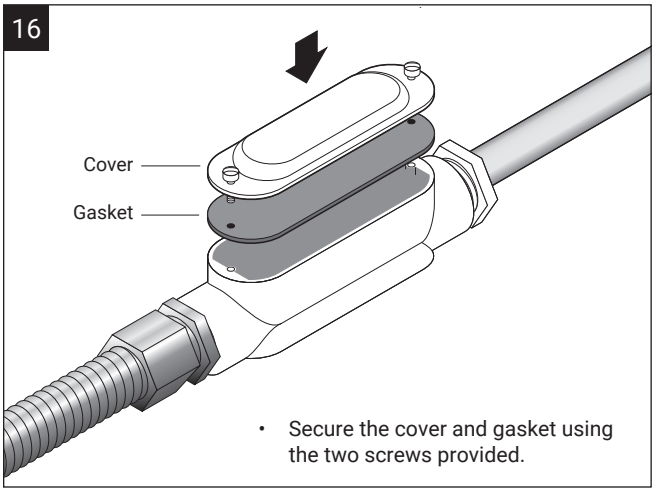

- Secure the cover and gasket using the two screws provided.

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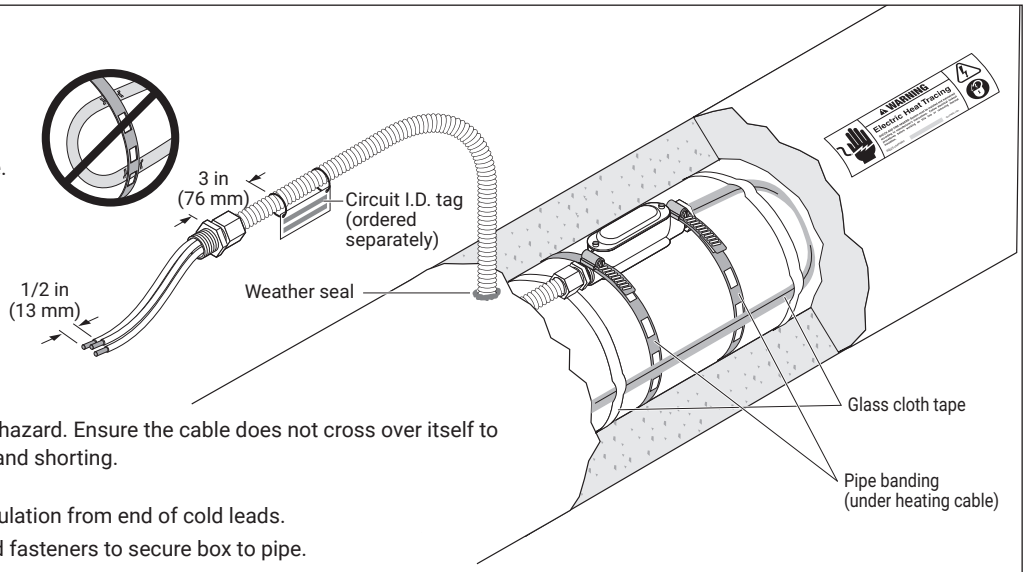
⚠ **WARNING:** Fire and shock hazard. To prevent cable damage, do not position pipe banding over the heating cable.



⚠ **WARNING:** Fire and shock hazard. Ensure the cable does not cross over itself to prevent damage to the jacket and shorting.

- Remove ½-inch (13 mm) insulation from end of cold leads.
- Use pipe clamp banding and fasteners to secure box to pipe.
- Secure heating cable service loop to pipe using glass cloth tape.
- Install armor fitting into a junction box that is suitable for the area classification.
- Weather-seal around armor where it exits the cladding.
- Install electric heat-tracing labels on insulation cladding.
- Attach circuit identification tag within 3 inches (76 mm) of the agency approved box, i.e. on the armor assembly.
- Leave these instructions with the end user for future reference.

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