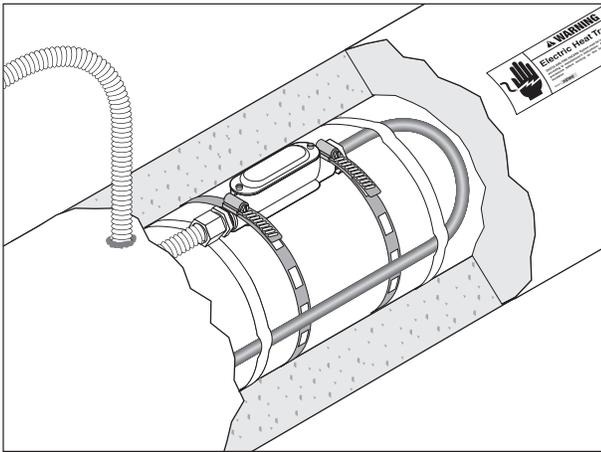




RAYCHEM

1SC-4PT, 1SC-6PT, 1SC-8PT & 1SC-12PT

Power Connection Kit Installation Instructions



DESCRIPTION

The nVent RAYCHEM 1SC-4PT (1SC80 and 1SC/H80), 1SC-6PT (1SC70 and 1SC/H70), 1SC-8PT (1SC60 and 1SC/H60) and 1SC-12PT (1SC50, 40, 30 and 1SC/H50, 40, 30) are NEMA 4 rated power connection kits designed for use with RAYCHEM 1SC and 1SC/H (-CT) series heating cables in hazardous locations with low mechanical abuse.

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 nVent at (800) 545-6258.

TOOLS REQUIRED

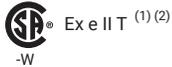
- Adjustable wrench
 - Wire strippers
 - Utility knife
 - Solder gun or torch (with small tip)
 - Thomas & Betts WT2000 crimp tool or equivalent (P/N 273435-000)
 - Thomas & Betts TBM5S crimp tool or equivalent (P/N P000000585)
 - Slotted screwdriver
 - Diagonal cutters
 - Disposable towel or rag
- Crimp tools can be ordered from nVent (see Step 9).

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)

APPROVALS

Hazardous Locations



- (1) for T-Rating, see design documentation
(2) for 1SC60-CT, 1SC70-CT, and 1SC80-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.

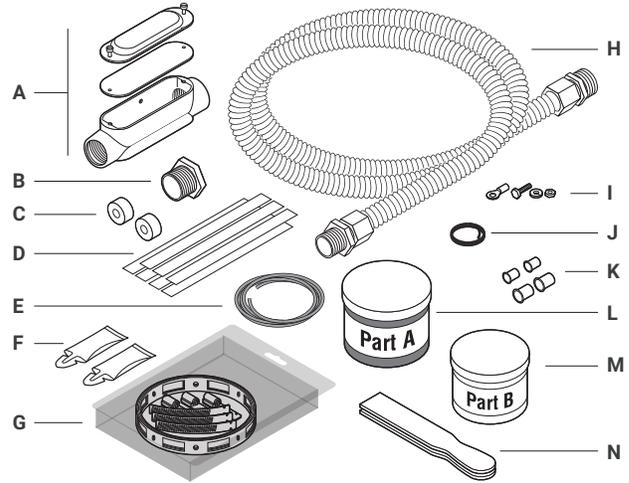
Silicone rubber compound, Part A and Part B, may generate flammable and explosive hydrogen gas if it comes in contact with an acidic, basic or oxidizing material. Personal contact with the silicone rubber compound may cause slight eye or skin irritation. Refer to MSDS VEN0030 and VEN0031 for more information.

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

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

KIT CONTENTS

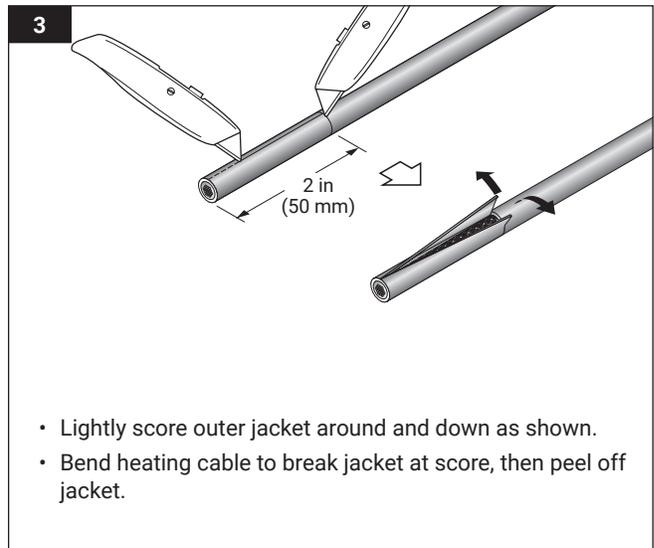
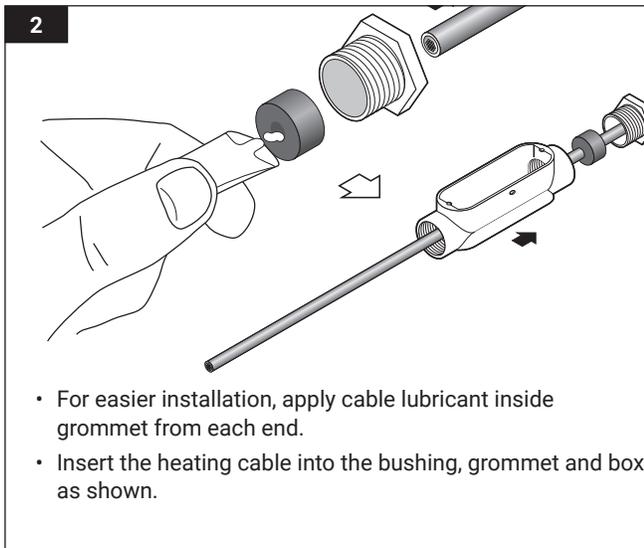
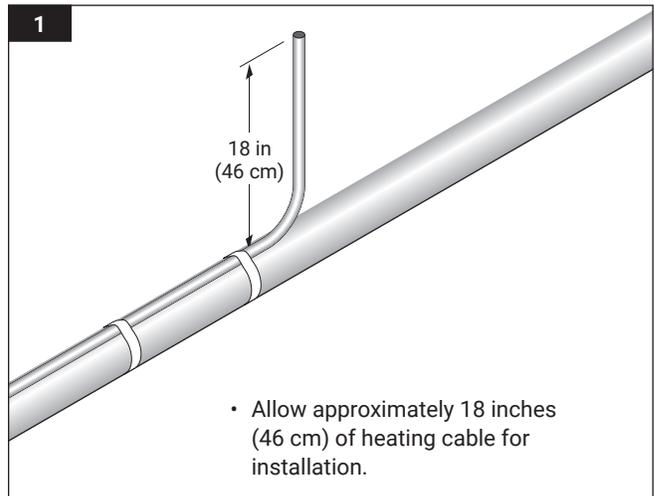
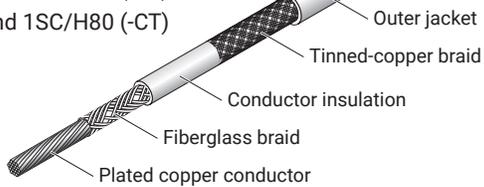
Item	Qty	Description
A	1	Box with cover, gasket, and 2 screws
B	1	Bushing
C	2	Grommets
D	7	Tape strips (5 required, 2 extra)
E	1	Cold lead
F	2	Cable lubricants
G	1	Pipe clamp banding kit
H	1	Armor assembly
I	1	Ring terminal, bolt, lock washer and nut
J	1	Coil of Kester® 48 core LF solder for nickel
K	2 or 4	Splices (see table in Step 9)
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

- 1SC and 1SC/H30 (-CT)
- 1SC and 1SC/H40 (-CT)
- 1SC and 1SC/H50 (-CT)
- 1SC and 1SC/H60 (-CT)
- 1SC and 1SC/H70 (-CT)
- 1SC and 1SC/H80 (-CT)



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

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3/4 in (20 mm)

Fiberglass braid

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

6

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

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- For easier installation, apply cable lubricant inside grommet from each end.
- Slide cold lead through grommet.

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3/4 in (20 mm)

12 in (30 cm)

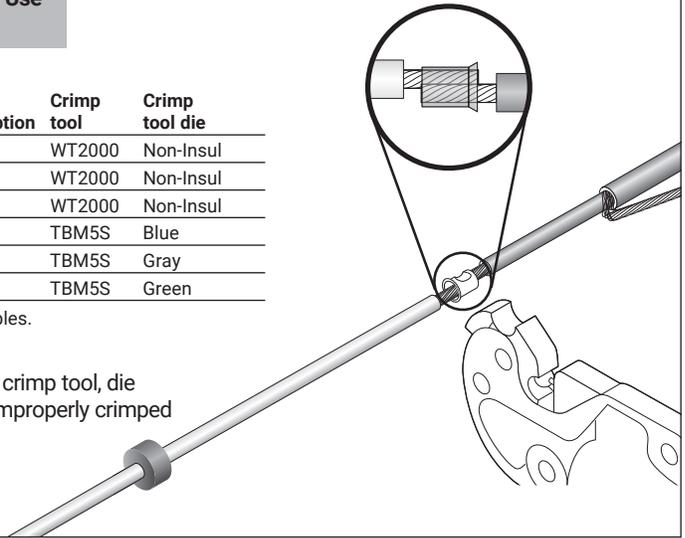
- Remove 3/4-inch (20 mm) insulation from end of cold lead.
- Position grommet approximately 12-inches (30 cm) from end.

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	Cold lead wire size	T&B Cat. no.	Splice description	Crimp tool	Crimp tool die
1SC30-CT	18 AWG	1SC-12PT	12 AWG	C10-PS-D	Silver	WT2000	Non-Insul
1SC40-CT	16 AWG	1SC-12PT	12 AWG	C10-PS-D	Silver	WT2000	Non-Insul
1SC50-CT	14 AWG	1SC-12PT	12 AWG	C10-PS-D	Silver	WT2000	Non-Insul
1SC60-CT	12 AWG	1SC-8PT	8 AWG	54610	Blue	TBM5S	Blue
1SC70-CT	10 AWG	1SC-6PT	6 AWG	54615	Gray	TBM5S	Gray
1SC80-CT	8 AWG	1SC-4PT	4 AWG	54625-TB	Green	TBM5S	Green

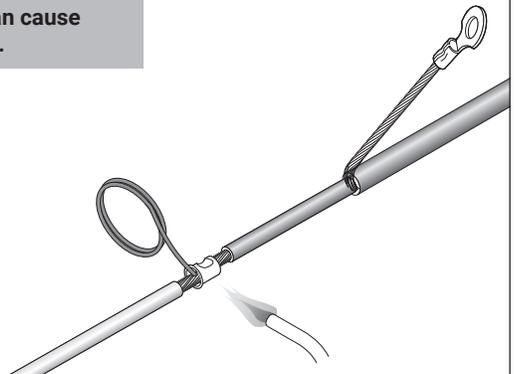
(1) The above table is also for 1SC/H30, 40, 50, 60, 70, 80 (-CT) heating cables.
For replacement splices, call nVent at (800) 545-6258.

- Crimp cold lead to heating cable conductor, using the specified crimp tool, die and splices to ensure proper electrical connection (see table). Improperly crimped connection can result in overheating.
- Smooth down any sharp wires after crimping to prevent wires from poking through tape in Step 11.



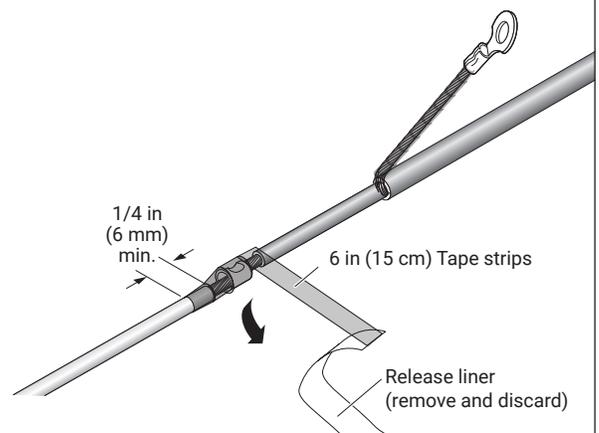
WARNING: Fire and Health Hazard
Soldering tools or minitorches can cause fire or explosion in hazardous areas. Be sure there are no flammable materials or vapors in the area before using these tools. Follow all site safety guidelines when working in hazardous areas.
Refer to solder material safety data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



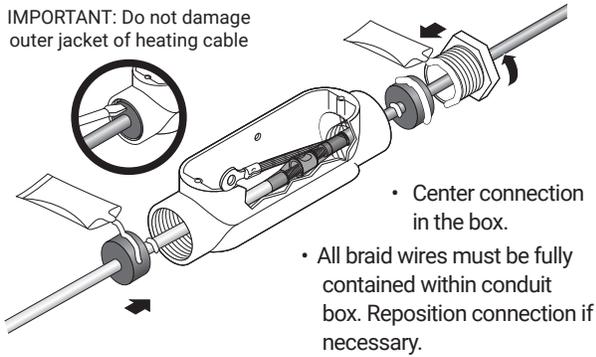
IMPORTANT: To ensure proper electrical insulation, use the specified high temperature Teflon® tape provided with the kit. Do not use common vinyl tape that does not have adequate temperature rating.

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



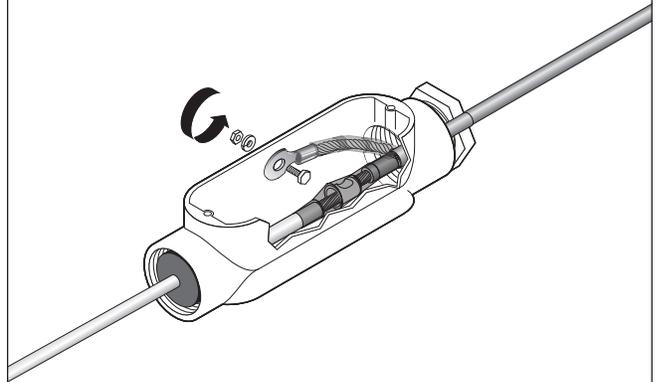
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IMPORTANT: Do not damage outer jacket of heating cable



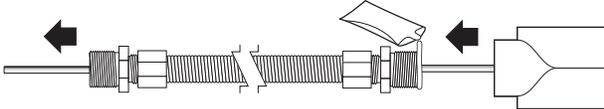
- Center connection in the box.
- All braid wires must be fully contained within conduit box. Reposition connection if necessary.
- Apply cable lubricant to the outside surface of the grommet, cold lead, heating cable and end of bushing.
- Slide grommets into ends of box and seat to the bottom of the 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.

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- Position lock washer and nut on outside of box. Fasten braid ring terminal using bolt.

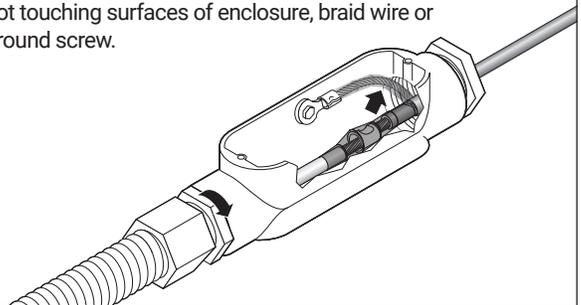
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- Slide cold lead through armor assembly.
- Apply cable lubricant to end of armor assembly.

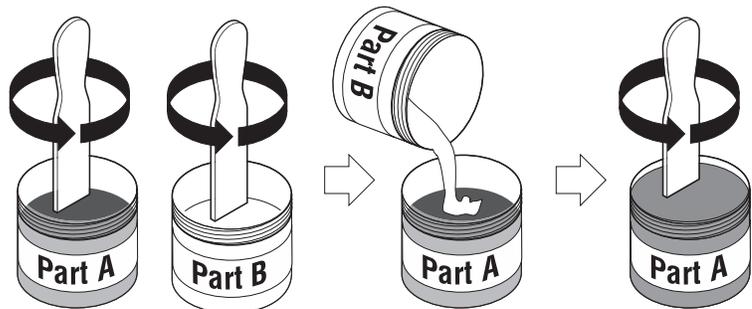
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- Tighten armor assembly to box.
- Check position of splice in box.
- Push braid wire as far away from connection as possible.
- Position taped connection so it is centered and not touching surfaces of enclosure, braid wire or ground screw.

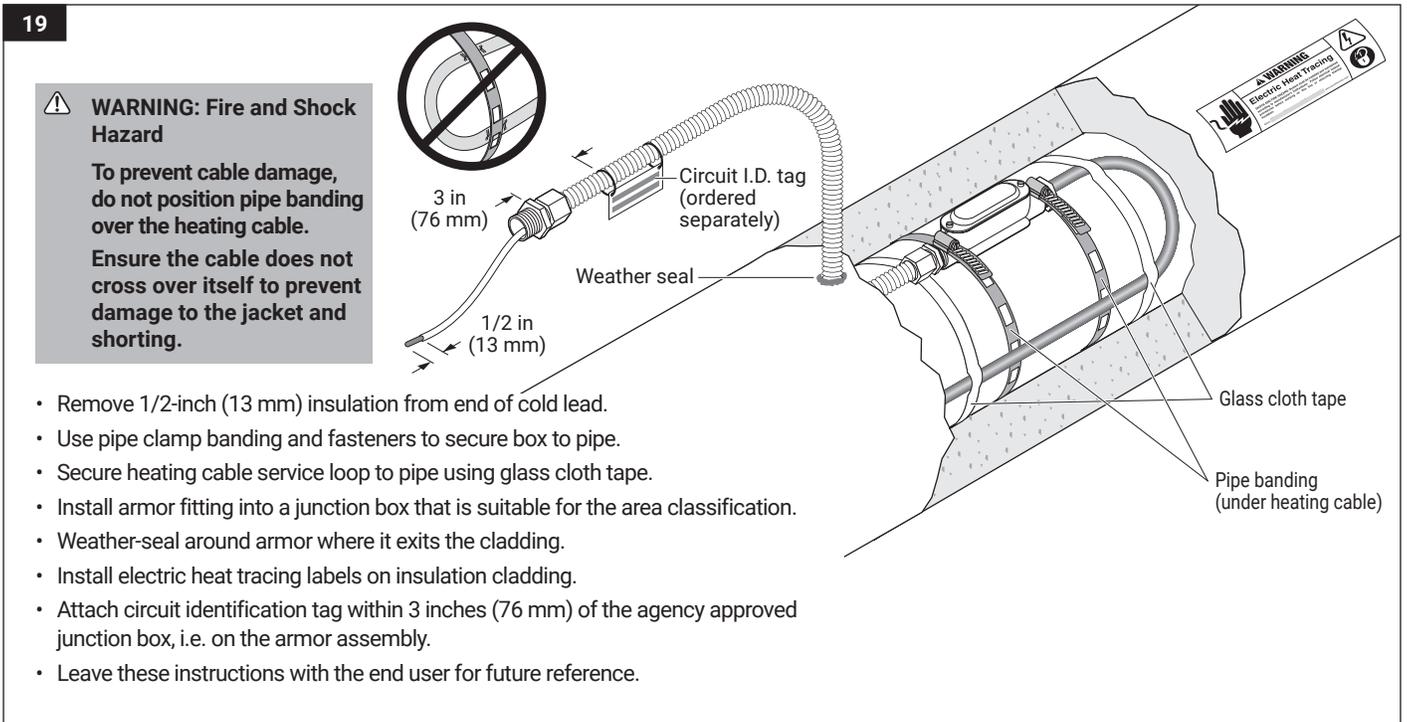
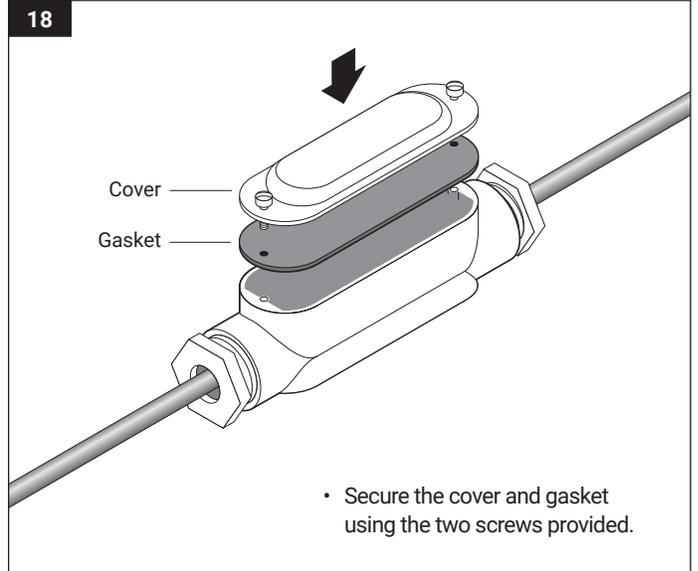
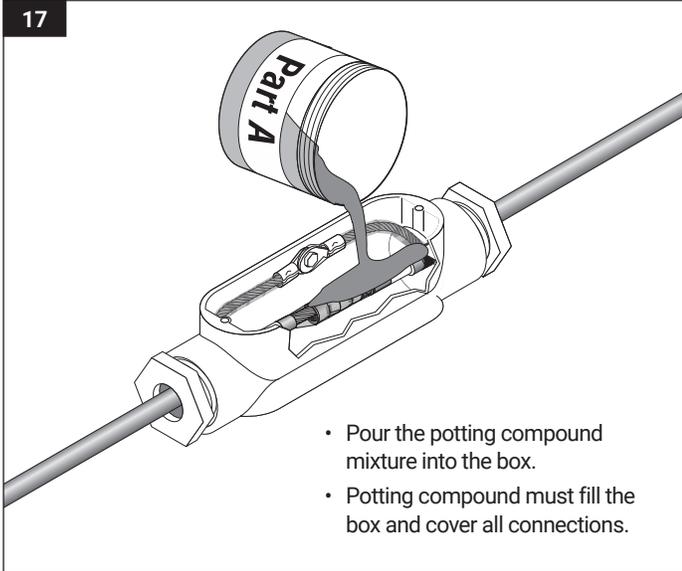


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⚠ WARNING: Health Hazard
 Refer to silicone rubber material safety data sheet packaged with kit.



- 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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