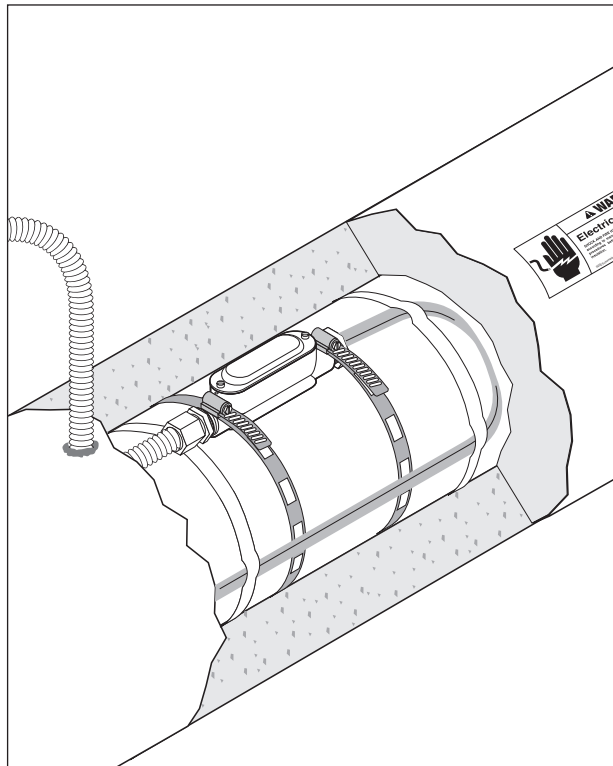
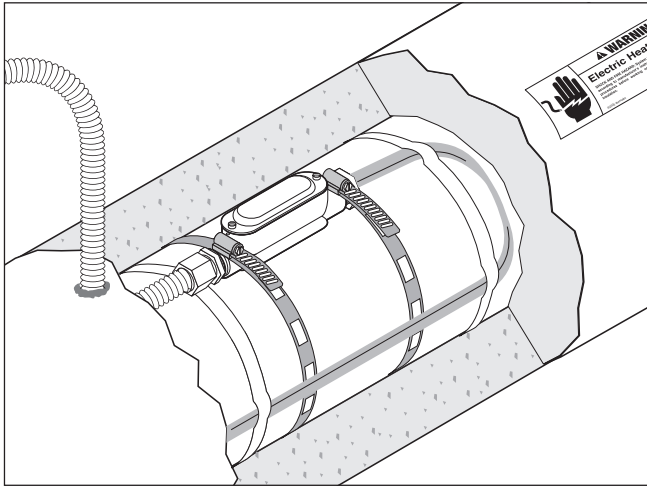


## 2SC-12PT

### Power Connection Kit Installation Instructions





## 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

For T-Rating, see design documentation

## DESCRIPTION

The Raychem 2SC-12PT is a NEMA 4 rated power connection kit designed for use with Raychem 2SC30, 40, 50 (-CT), 2SC/H30, 40, 50 (-CT) and 2SC/F30, 40, 50 (-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 Chemelex at (800) 545-6258.

## TOOLS REQUIRED

- Slotted screwdriver
  - Wire strippers
  - Diagonal cutters
  - Utility knife
  - Disposable towel or rag
  - Adjustable wrench
  - Solder tool or torch (with small tip)
  - 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  $40^{\circ}\text{F}$  ( $4^{\circ}\text{C}$ )
  - GS-54 for installation temperature above  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ )
- 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.

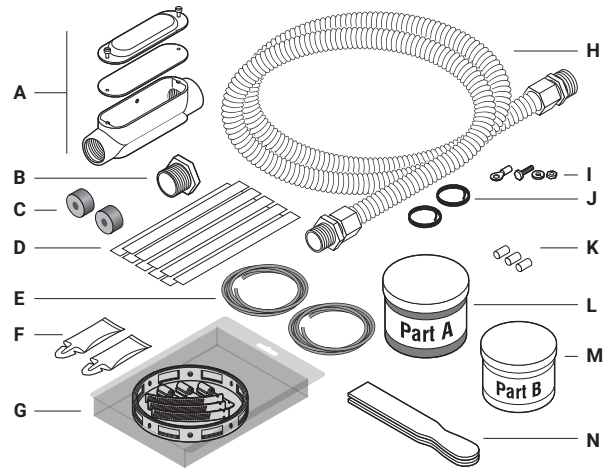
Silicone rubber compound Part A and Part B may generate flammable and explosive hydrogen gas if it comes in contact with an acidic, basic or oxidizing material. Personal contact with the silicone rubber compound may cause slight eye or skin irritation. Consult MSDS VEN0030 and VEN0031 for further information.

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    | 10  | Tape strips (8 required, 2 extra)               |
| E    | 2   | Cold leads                                      |
| F    | 2   | Cable lubricants                                |
| G    | 1   | Pipe clamp banding kit                          |
| H    | 1   | Armor assembly                                  |
| I    | 1   | Ring terminal, bolt, lock washer and nut        |
| J    | 2   | Coils of Kester® 48 core LF solder for nickel   |
| K    | 3   | Parallel splices, spare 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)         |



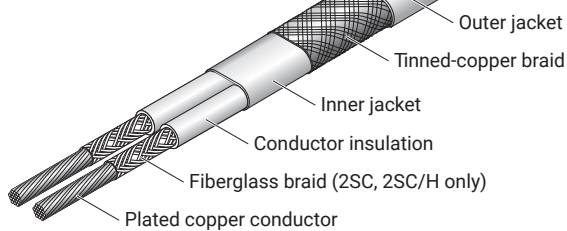
### Heating Cable Construction

#### Heating cable types

2SC30, 40 and 50 (-CT)

2SC/H30, 40 and 50 (-CT)

2SC/F30, 40 and 50 (-CR)



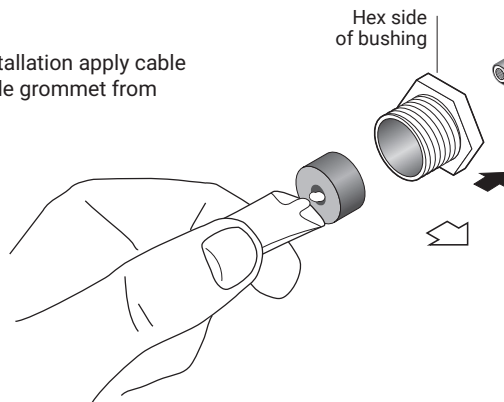
1

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

18 in.  
(46 cm)

2

- For easier installation apply cable lubricant inside grommet from each end.



- Insert the heating cable into the bushing and grommet as shown.

**3**

2-1/4 in (57 mm)

- 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.

**4**

1/2 in (13 mm)

- Lightly score inner jacket around and down as shown.

**Be careful not to cut into conductor insulation.**

- Bend heating cable to break jacket at the score, then peel off jacket.

3/4 in (19 mm)

Fiberglass braid (only for SC, SC/H)

1/2 in (13 mm)

- Cut 3/4-inch (19 mm) from end of one conductor.
- Remove 1/2-inch (13 mm) insulation and fiberglass braid from end of each conductor.

**5**

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

**6**

1/2 in (13 mm)

12 in (30 cm)

- For easier installation, apply cable lubricant inside grommet from each end.
- Slide cold leads through the second grommet.
- Remove 1/2-inch (13 mm) insulation from ends of cold leads.
- Position grommet approximately 12-inches (30 cm) from end.

**7**

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

| Heating splice cable <sup>(1)</sup> | Heating cable conductor size | Power connection wire size | Thomas & Betts catalog no. |
|-------------------------------------|------------------------------|----------------------------|----------------------------|
| 2SC30-CT                            | 18 AWG                       | 12 AWG                     | C10-PS-D                   |
| 2SC40-CT                            | 16 AWG                       | 12 AWG                     | C10-PS-D                   |
| 2SC50-CT                            | 14 AWG                       | 12 AWG                     | C10-PS-D                   |

<sup>(1)</sup> The above table is also applicable for 2SC/H30, 40, 50 (-CT) and 2SC/F30, 40, 50 (-CR) heating cables. For replacement crimps, call Chemelex at (800) 545-6258.

- Crimp cold lead wires to heating cable conductors.
- Smooth down any sharp wires after crimping to prevent wires from poking through the tape in step 9.

Crimp each splice twice

8

**⚠ 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.

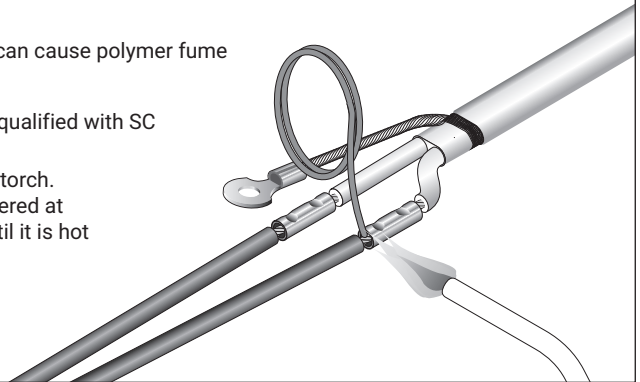
Refer to solder material safety data sheet packaged with kit.

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  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ). Heat the center of the splice until it is hot enough to melt the solder placed at both ends.

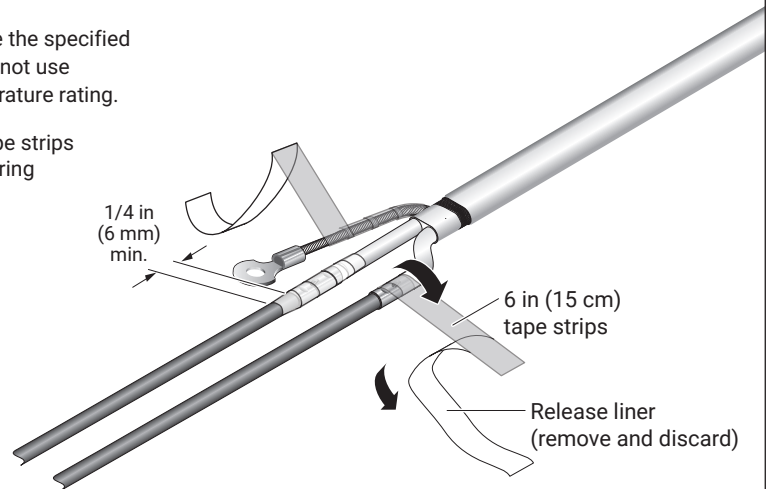
**Allow the connections to cool before proceeding to the next step.**



9

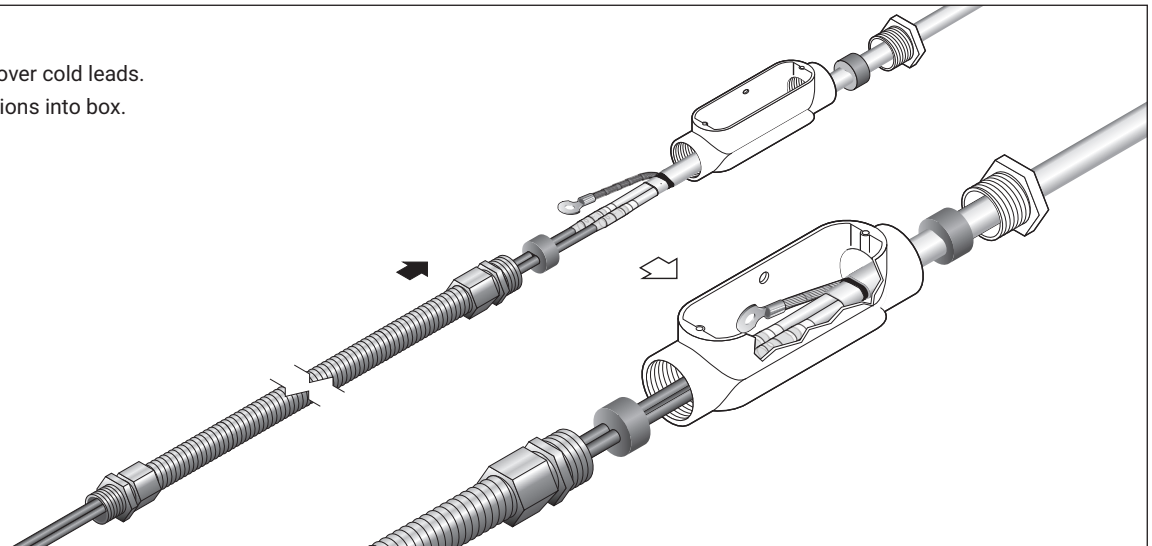
**IMPORTANT:** To ensure proper electrical insulation, use the specified high temperature Teflon® tape provided with the kit. Do not use common vinyl tape that does not have adequate temperature rating.

- Use release liner to guide tape while wrapping the tape strips around the connection. Use three strips of tape, covering splice and  $\frac{1}{4}$ -inch (6 mm) of cold lead and conductor insulation (approximately three overlapped layers).
- Wrap braid with one strip of tape.



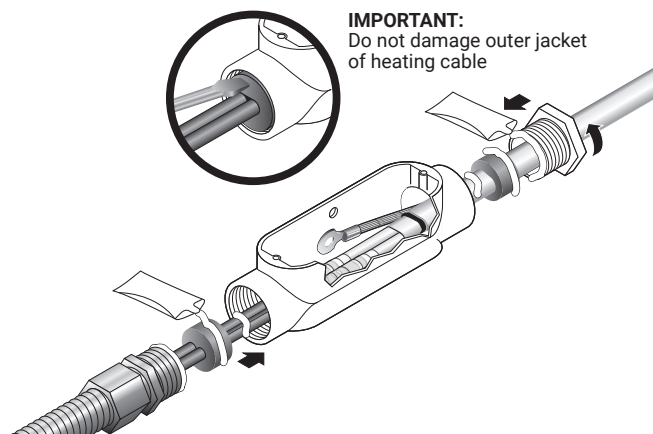
10

- Slide armor over cold leads.
- Pull connections into box.



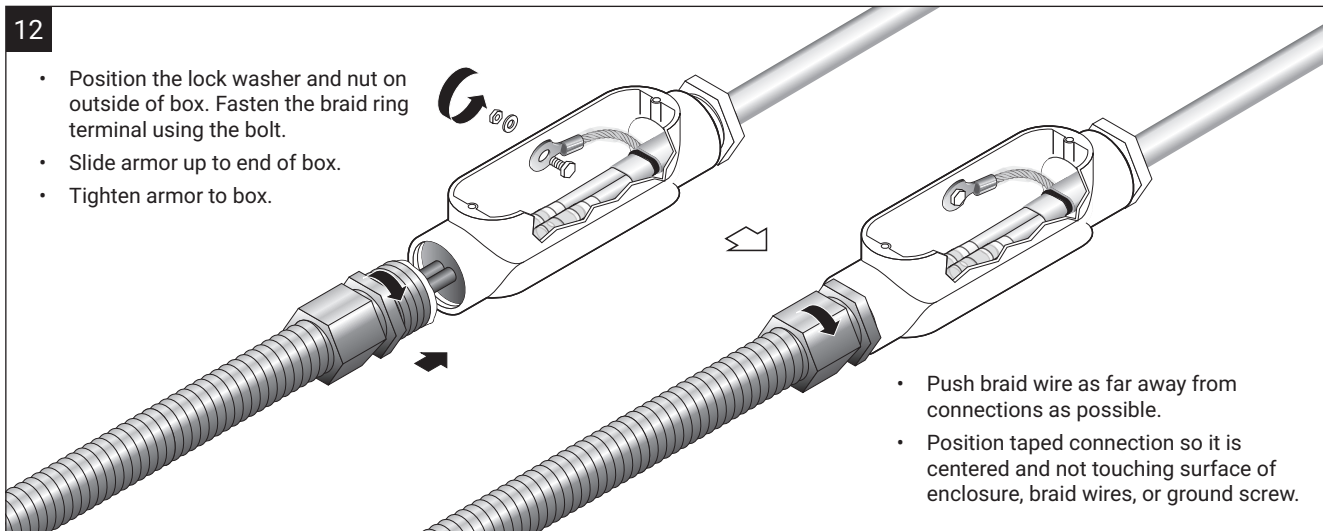
11

- Center connections in the box.
- All braid wires must be fully contained within the box.
- Apply cable lubricant to the outside surface of the grommet, wires, cable and end of bushing and armor.
- 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.



12

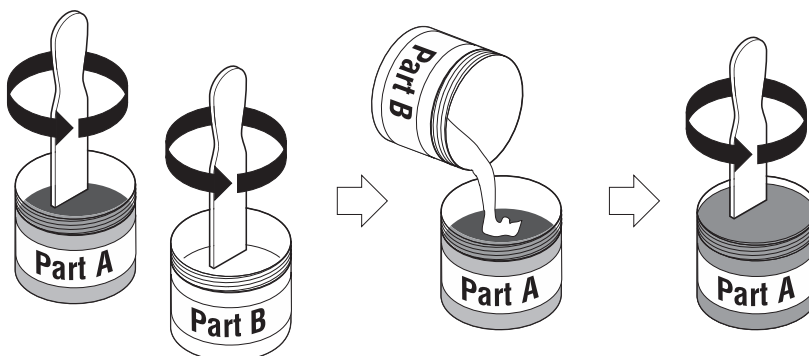
- Position the lock washer and nut on outside of box. Fasten the braid ring terminal using the bolt.
- Slide armor up to end of box.
- Tighten armor to box.



- 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.

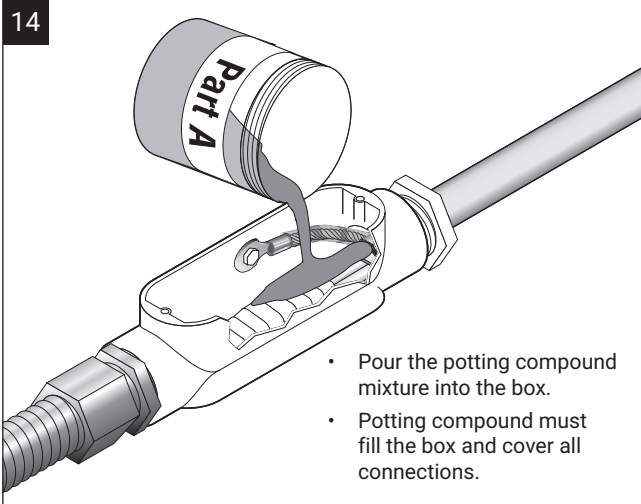
13

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

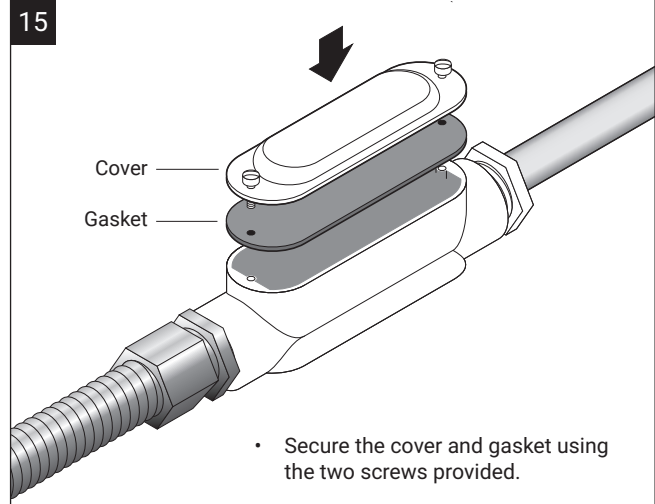


- Open the two containers: one labeled Part A, and the other Part B.
- Use separate wooden sticks to stir the contents of each container until smooth and homogeneous.
- Pour all the contents of the container labeled Part B into the container labeled Part A and mix thoroughly until the color is uniform.

14



15



16

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



1/2 in  
(13 mm)

3 in  
(76 mm)

Circuit I.D. tag  
(ordered separately)

Weather seal



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

Glass cloth tape

Pipe banding  
(under heating cable)

- Remove 1/2-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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