

## 1/2" NPT cable gland kit (cold applied technology)



### **Installation Instructions**

Cold applied connection system  
for use with a 1/2" NPT thread junction box  
and BARTEC BACAB FT / ST trace heaters

### **Consignes d'installation**

Système de connexion froide  
pour utilisation avec une boîte de raccordement à filetage 1/2" NPT  
et les câbles chauffants de type  
BARTEC BACAB FT / ST



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## Safety

For safe installation of the 1/2" NPT cable gland kit with cold applied connection technology the technical requirements and instructions given in this manual must be followed.

### WARNING

**Risk of fire or electrical shock. Follow these guidelines to avoid personal injury or material damage.**

- All electrical systems and installations must comply with BARTEC GmbH requirements and be installed in accordance with the relevant electrical codes and any other applicable national and local codes.
- BARTEC GmbH, the US and Canadian electrical codes require ground fault protection to be provided for all trace heating circuits.
- Note that the design guide that comes with each trace heater contains further important information and must be followed in addition to this manual.
- Install the connection system and trace heaters carefully.
- Use the trace heater and connection system in accordance with the intended purpose and strictly comply with the operational data specified in section *Technical Data*.
- Make sure that you do not exceed the maximum heating circuit length for the trace heater type you use. Refer to the design guide of the heating system.
- The bending radius of the trace heater must be at least 1" (25 mm). Do not bend on the narrow axis.
- Any defective component of the kit must be replaced before installation.
- Note that the grommets for FT and ST trace heaters are slightly different. Make sure to use the cable gland kit that fits the trace heater you use.
- To avoid short circuits, do not connect the trace heater bus wires together.
- Keep all components and the trace heaters dry before and during installation.
- Before connection, make sure that the bus wires are intact and not nicked or damaged.
- This kit contains silicone adhesive. Keep out of reach of children. Store at below 77 °F (25 °C). Follow the safety instructions given on the packaging.
- Keep these instructions for future reference. If applicable, leave them with the end user.
- De-energize before installation or servicing.
- Use only original BARTEC accessories.

### NOTICE

The following instructions are provided in English only. Refer to [www.bartec.us](http://www.bartec.us) for the French version.

## Sécurité

Afin de garantir la sécurité lors de l'installation et de l'utilisation du kit presse-étoupe 1/2" NPT à technologie de connexion froide, il est impératif de respecter les exigences ainsi que les consignes techniques mentionnées dans le présent manuel.

### AVERTISSEMENT

**Risque d'incendie ou d'électrocution. Suivez ces consignes pour éviter toute blessure ou dommage matériel.**

- Tous les systèmes et installations électriques doivent satisfaire aux exigences imposées par la société BARTEC GmbH et doivent être installés conformément aux normes électriques en vigueur ainsi qu'aux autres prescriptions nationales et locales applicables.
- La société BARTEC GmbH ainsi que les normes électriques américaines et canadiennes imposent une protection contre les défauts à la terre pour tous les circuits de traçage électrique.
- Notez que le guide de conception fourni avec chaque câble chauffant contient des informations importantes additionnelles qu'il convient de respecter en plus du présent manuel.
- La pose du kit presse-étoupe et des câbles chauffants doit être réalisée avec soin.
- Utilisez le câble chauffant conformément à l'usage prévu et en respectant les caractéristiques de fonctionnement spécifiées à la section *Technical data*.
- Veillez à ne pas dépasser la longueur de circuit de traçage maximale autorisée pour le type de câble chauffant utilisé. Consultez à ce sujet le guide de conception du système de traçage électrique.
- Le rayon de courbure du câble chauffant ne doit pas être inférieur à 1" (25 mm). Ne pas courber le câble chauffant sur la tranche.
- Tout élément défectueux dans le kit doit être remplacé avant l'installation.
- Notez que les passe-fils pour les câbles chauffants de type FT et ST sont légèrement différents. Veillez bien à choisir le passe-fil adapté au câble chauffant utilisé.
- Pour éviter un court-circuit, ne jamais raccorder ensemble les deux conducteurs du câble chauffant.
- Conservez tous les éléments et les câbles chauffants au sec avant et pendant l'installation.
- Avant de les raccorder, assurez-vous que les fils conducteurs sont intacts, qu'ils ne sont pas incisés ni endommagés.
- Ce kit contient de la colle silicone. Tenir hors de portée des enfants. Stocker à une température inférieure à 77 °F (25 °C). Respectez les consignes de sécurité indiquées sur l'emballage.
- Conservez ces instructions pour un usage ultérieur. Le cas échéant, remettez-les à l'utilisateur final.
- Mettez le système hors tension avant toute installation ou opération de maintenance.
- Utilisez exclusivement des pièces et accessoires d'origine BARTEC.

### AVIS

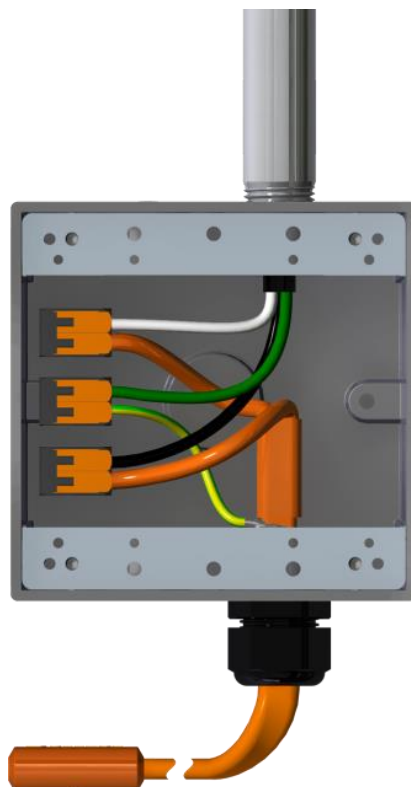
Les instructions qui suivent sont fournies en anglais uniquement. Veuillez vous référer au site [www.bartec.us](http://www.bartec.us) pour la version française.

## Overview

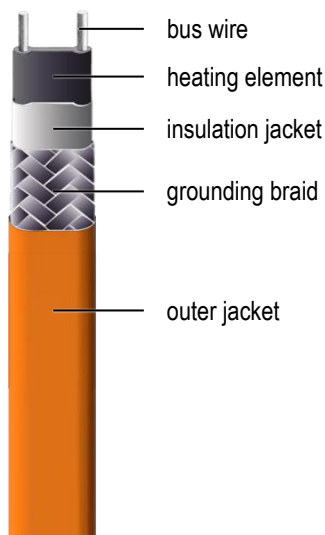
This manual covers the installation of BARTEC cold applied connection technology for use with a 1/2" NPT thread junction box and the following self-regulating trace heaters:

- BARTEC BACAB FT
- BARTEC BACAB ST

To connect the trace heater(s) to the cold lead cable the 2 bus wires are insulated with silicone pants, then connected to the cold lead cable inside the junction box. A green/yellow protection tube is provided to connect the grounding braid to the grounding conductor. Finally, the end of each trace heater is insulated with silicone adhesive and a silicone end seal.



The following terms describe the parts of the trace heater within these instructions:



## Certifications / Approvals



Cold applied connection system for use with a 1/2" NPT thread junction box and BARTEC BACAB FT / ST trace heaters

## Technical data

**Ambient temperature range** -40 to 185 °F / -40 to 85° C

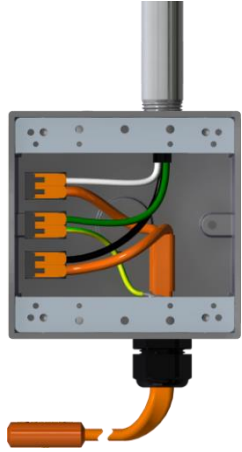








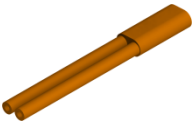





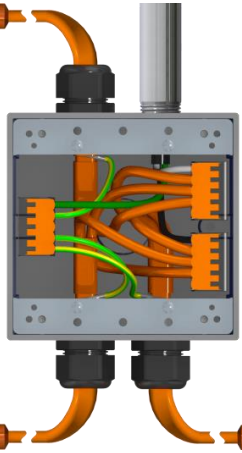

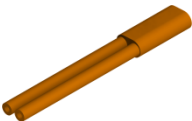

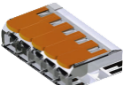




**Max. operating temperature end seal** 185 °F / 85 °C

**Electrical data** *see specifications of the trace heater used*

**Heater dimensions**  
 FT 0.46" x 0.22" (11.6 x 5.6 mm)  
 ST 0.40" x 0.19" (10.2 x 4.8 mm)

## Kit contents

The following table lists the kit contents for each of the cold applied connection systems for FT and ST trace heaters:

 <p><b>Power connection kit</b></p>	 <p>1 x Green/yellow tube for grounding braid</p>  <p>1 x Silicone pants</p>	 <p>1 x Plastic gland body</p>  <p>3 x Terminal block</p>	 <p>1 x Grommet</p>  <p>1 x Silicone adhesive</p>	 <p>1 x Fixing nut</p>  <p>1 x End seal</p>
 <p><b>Powered splice kit</b></p>	 <p>2 x Green/yellow tube for grounding braid</p>  <p>2 x Silicone pants</p>	 <p>2 x Plastic gland body</p>  <p>3 x Terminal block</p>	 <p>2 x Grommet</p>  <p>1 x Silicone adhesive</p>	 <p>2 x Fixing nut</p>  <p>2 x End seal</p>
 <p><b>Powered T connection kit</b></p>	 <p>3 x Green/yellow tube for grounding braid</p>  <p>3 x Silicone pants</p>	 <p>3 x Plastic gland body</p>  <p>3 x Terminal block</p>	 <p>3 x Grommet</p>  <p>1 x Silicone adhesive</p>	 <p>3 x Fixing nut</p>  <p>3 x End seal</p>

## Installation

### Required tools / equipment

The following tools and equipment are required for installation of the connection system:

- Wire cutters
- Flat screwdriver
- Tape measure
- Utility knife
- Needle-nose pliers (2x)



- 4" x 4" (or larger) UL Listed or CSA Certified junction box with 1/2" NPT thread.



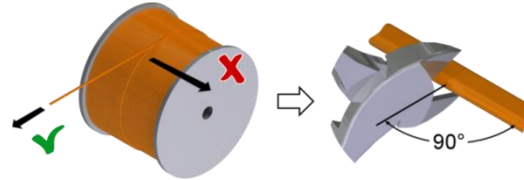
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### Preparation of the trace heater

#### **⚠ WARNING**

Risk of short circuit and material damage. Keep the trace heater ends dry before and during installation. Observe the design guide of the trace heating system.

- Unroll the required trace heater in a straight line and cut to the correct length. Cut off the trace heater ensuring a straight cut.

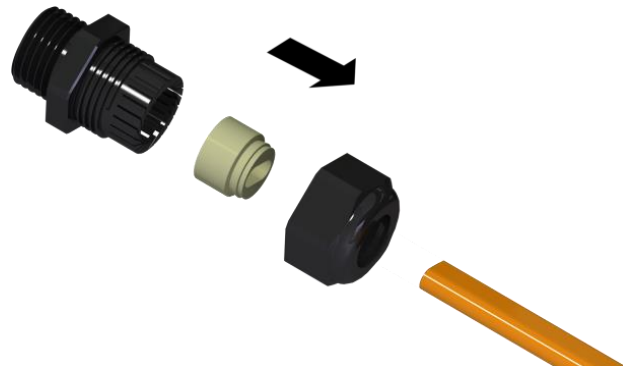


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#### **⚠ WARNING**

Risk of electrical shock and material damage. The gland body and grommet for FT and ST trace heaters are slightly different. Make sure to use the cable gland kit that fits the trace heater you use.

- Slide the fixing nut, the grommet and the gland body onto the trace heater.



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### Cautions and warnings

#### **⚠ WARNING**

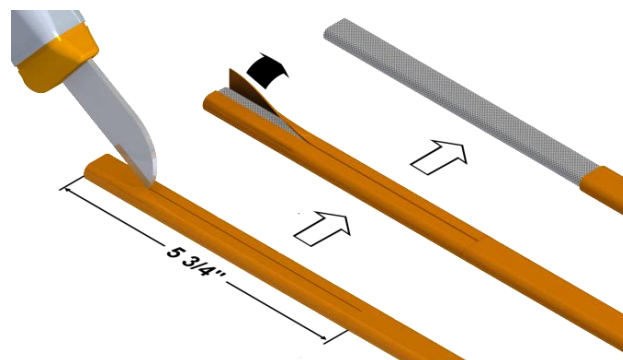
Risk of fire or electrical shock. De-energize all power circuits before installation or servicing. Always use ground fault equipment protection with the trace heating system.

- Double-check that all power circuits are de-energized before you begin your work.
- Make sure that you do not exceed the maximum heating circuit length for the trace heater type you use. Refer to the design guide of the heating system.



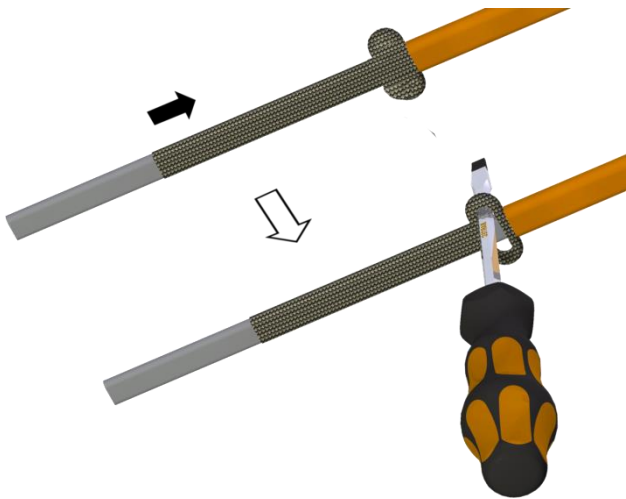
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- Remove 5 3/4" (145 mm) of the outer jacket on the end of the trace heater.



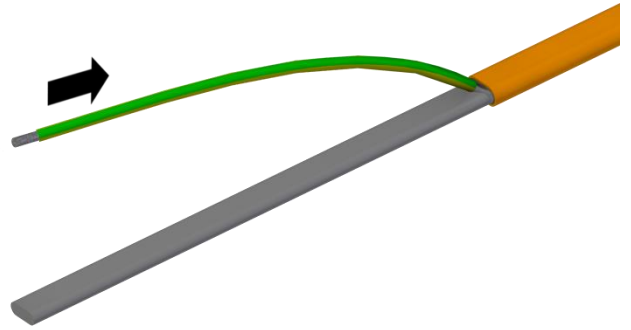
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- Push the grounding braid back. Use the screwdriver to form an eyelet. Be careful not to damage the internal insulation jacket.



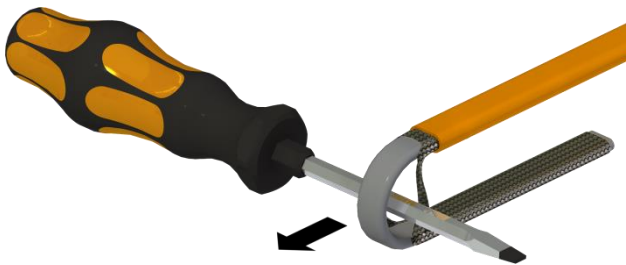
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- Push the green/yellow tube onto the twisted grounding braid.



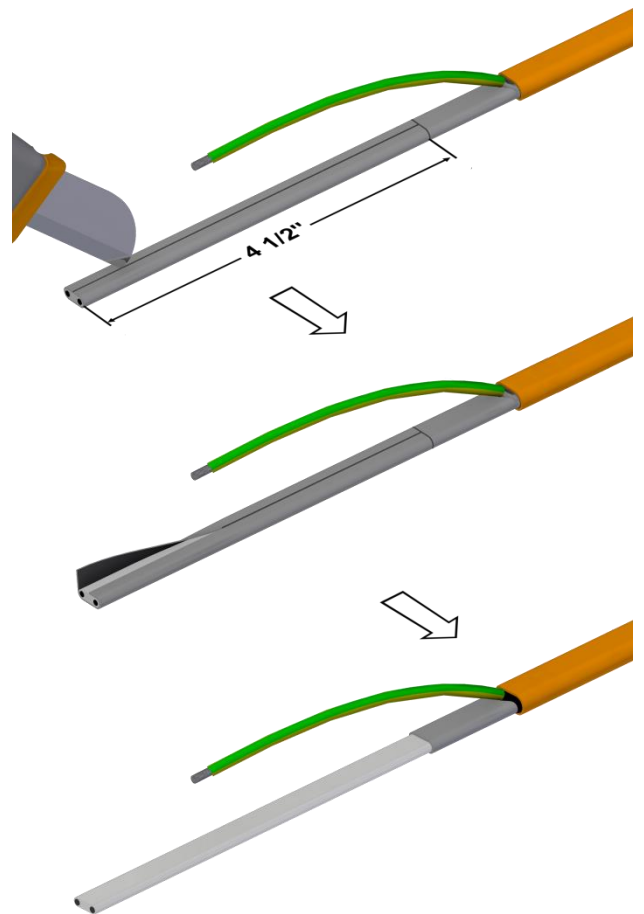
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- Bend the trace heater and pull the heating element out of the grounding braid.



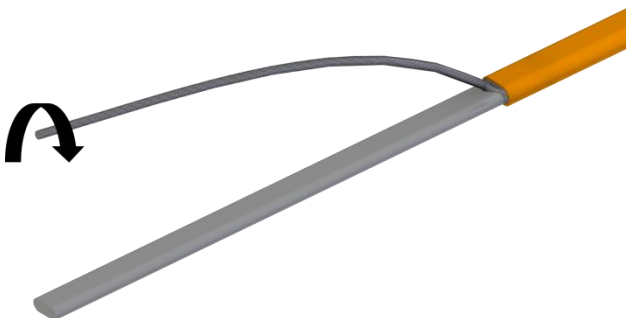
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- Remove 4 1/2" (115 mm) of the internal insulation jacket.



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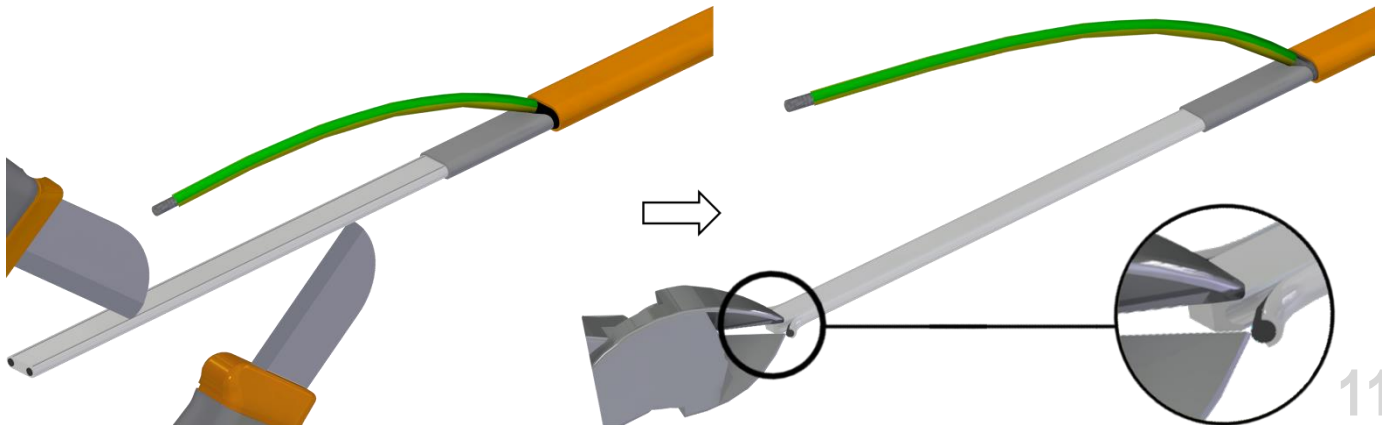
- Twist the grounding braid in order to form a pigtail.



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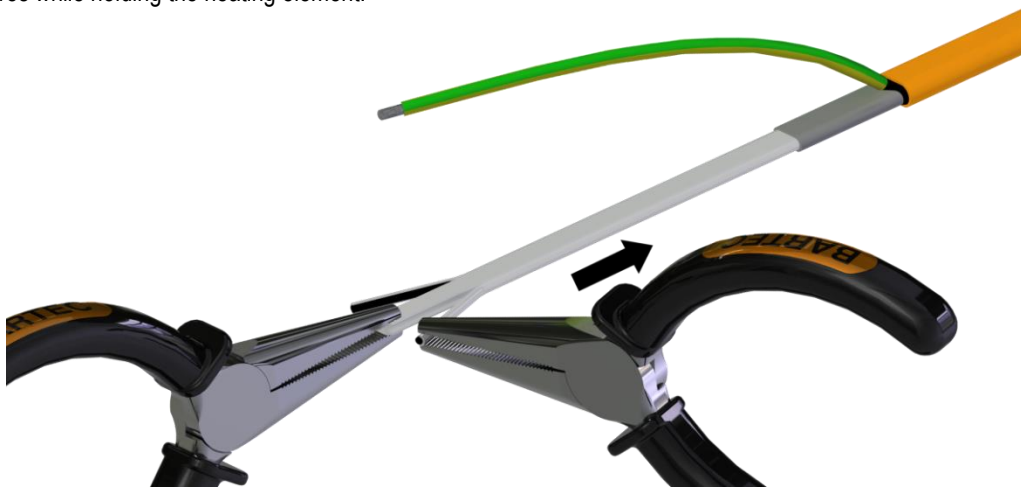


- Make a small cut **over and under** each bus wire. Take care not to damage the bus wires.
- Carefully make an incision into the edges of the heating element. Take care not to damage the bus wires.



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- Pull off the bus wires while holding the heating element.



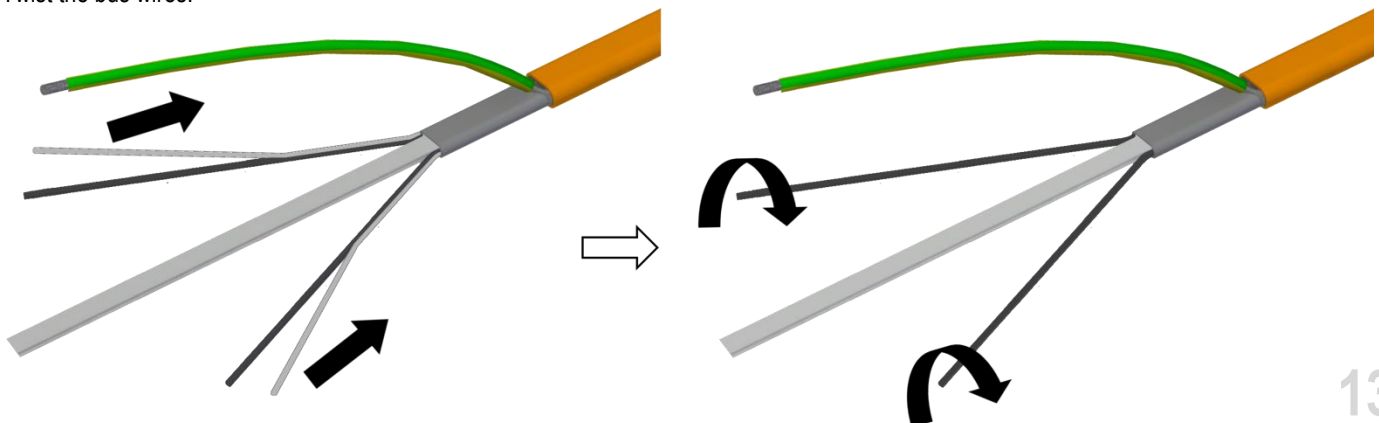
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- Remove any remaining heating element that sticks to the bus wires.

## NOTICE

**Risk of malfunction of the heating system. Before you continue, make sure that the bus wires are intact and not nicked or damaged.**

- Twist the bus wires.



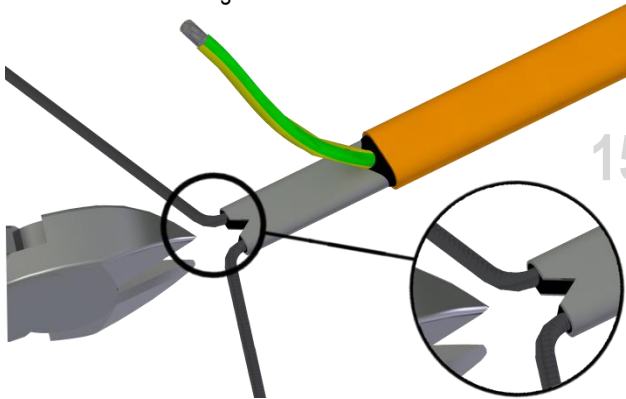
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- Remove the remaining heating element. Take care not to damage the bus wires.



**Installation of the silicone pants**

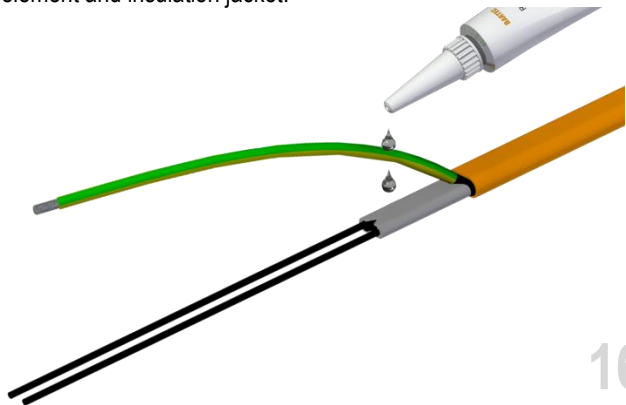
- Carefully cut in a triangle (1/5" / 5 mm) between the bus wires. Take care not to damage the bus wires.



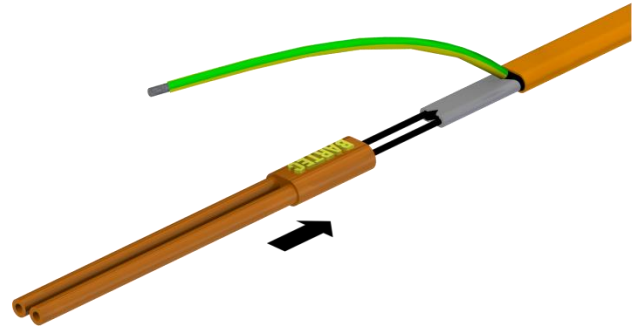
**⚠ CAUTION**

The silicone adhesive may cause irritation to skin and eyes. Avoid eye contact. Avoid repeated or prolonged skin contact. In case of contact with eyes, rinse with water and seek medical advice.

- Put a fair amount of silicone adhesive onto the exposed heating element and insulation jacket.

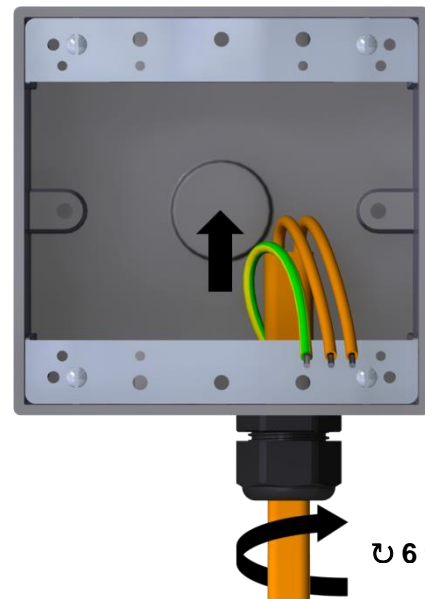


- Thread the bus wires into the silicone pants.
- You might add further silicone adhesive to ensure optimal sealing.
- Slide the silicone pants all the way onto the heating element.



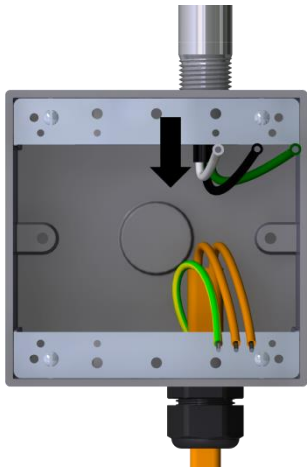
**Cable connection**

- Feed the cables into the junction box and tighten the gland to a torque of 6 ft. lbs.

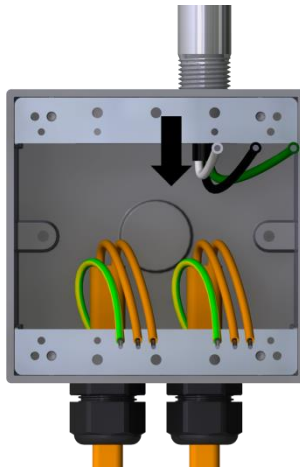


For powered splice and powered T connection kits repeat steps 3 to 16 to prepare the remaining trace heaters, introduce them into the junction box and tighten the gland.

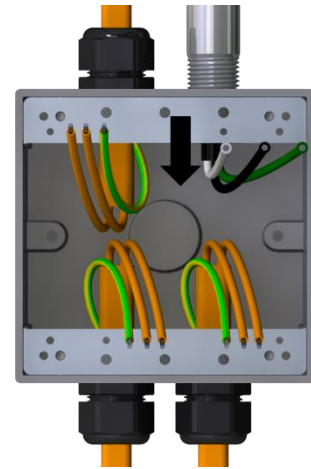
- Feed the cold lead cable into the junction box.



Power connection



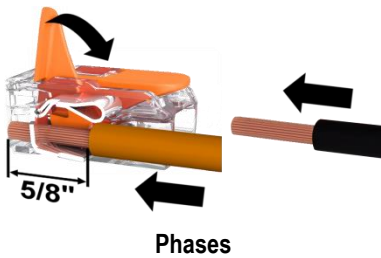
Powered splice



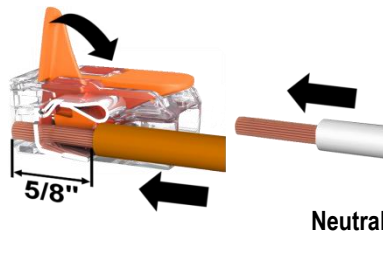
Powered T connection

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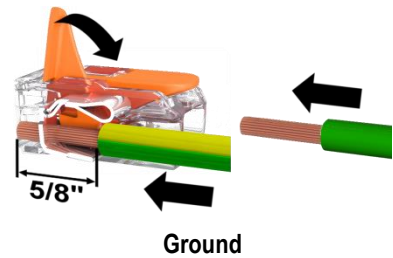
- Inside the junction box, use the individual terminal blocks to connect the bus wires and the grounding braid / grounding conductor to each other. Make sure that the wires are fully engaged in the terminal block.



Phases



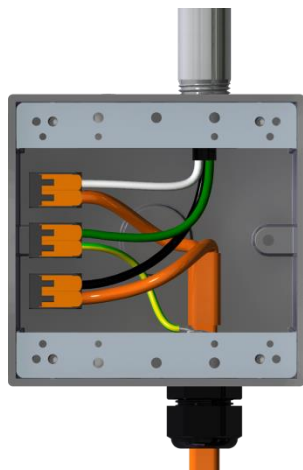
Neutral



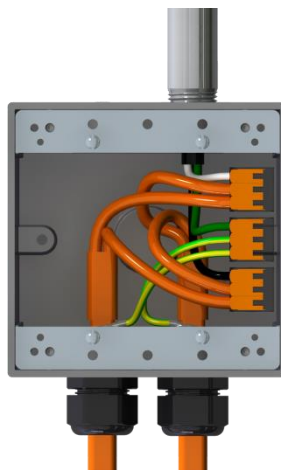
Ground

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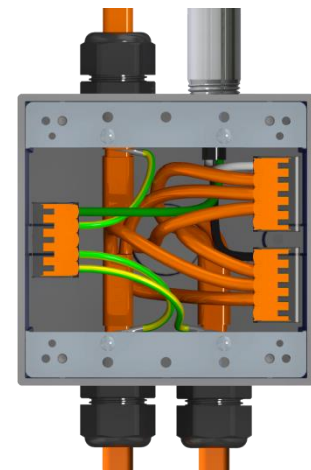
- Establish all connections as shown in the following figure.



Power connection



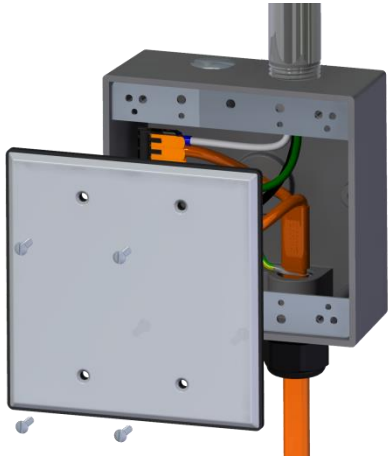
Powered splice



Powered T connection

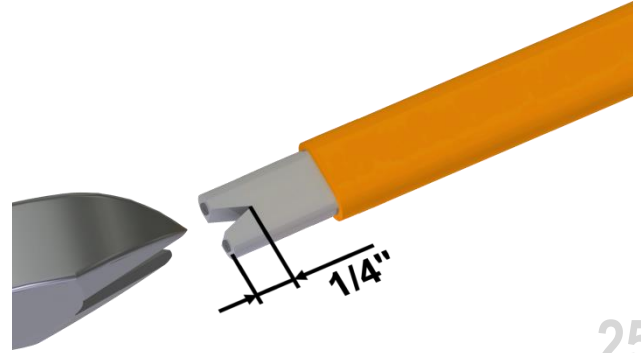
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- Mount the cover of the junction box according to the manufacturer's installation instructions.



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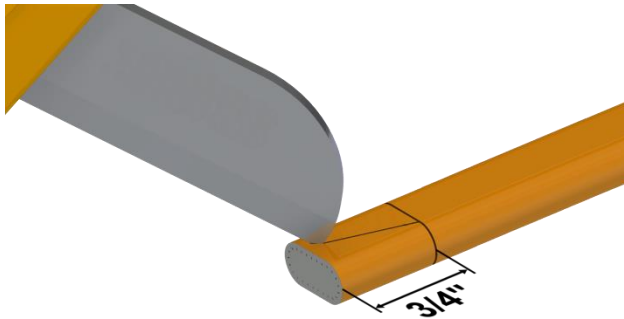
- Cut in a triangle (1/4" / 5 mm) between the bus wires.



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**Installation of the end seal**

- Cut the trace heater off straight.
- Remove 3/4" (20 mm) of the outer jacket.



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**CAUTION**

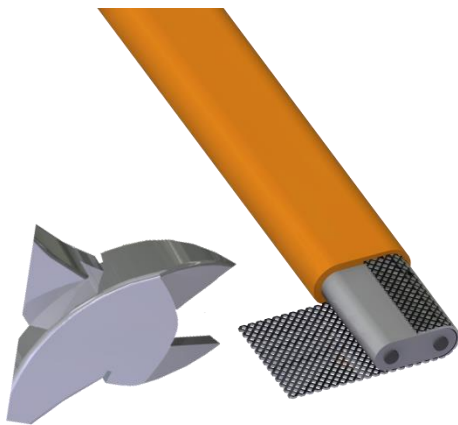
The silicone adhesive may cause irritation to skin and eyes. Avoid eye contact. Avoid repeated or prolonged skin contact. In case of contact with eyes, rinse with water and seek medical advice.

- Put silicone adhesive onto the exposed insulating jacket and into the end seal.



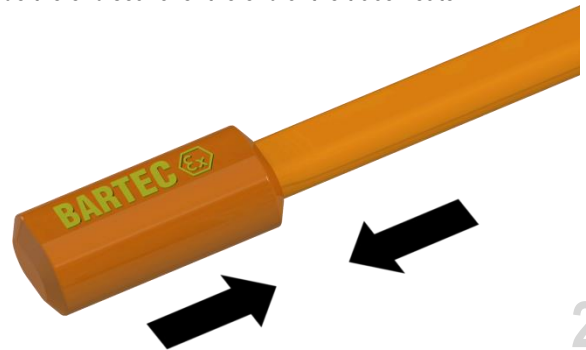
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- Remove the exposed grounding braid. Make sure that the insulation jacket is not damaged.



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- Slide the end seal over the end of the trace heater.



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**NOTICE**

Allow the adhesive to cure for 20 minutes, then visually inspect. Full strength is reached after 24 hours.







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