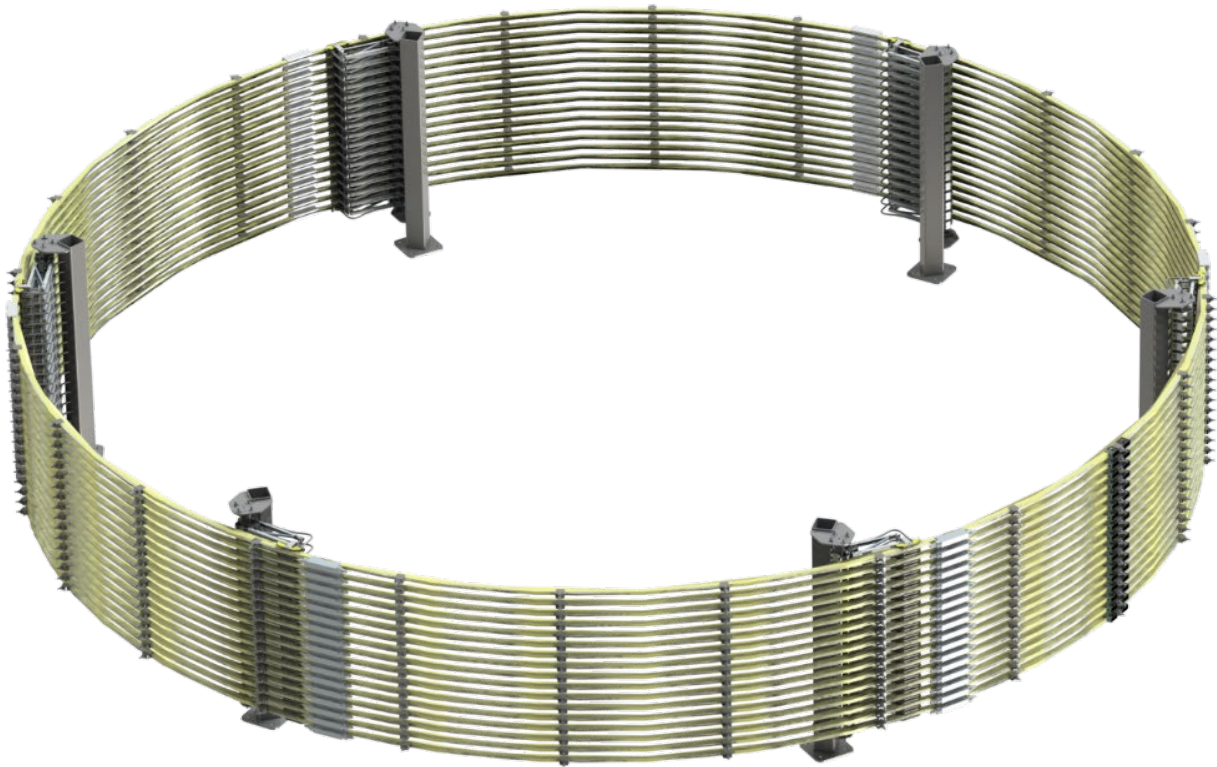


Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Example of a Conductor Rail Slip Ring

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



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Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



1 General

1.1 Purpose and scope of these installation instructions

These installation instructions describe the installation of the heating wire within the conductor rail profile 0812 and 0813 during a new installation of a conductor rail slip ring layout. For layouts other than conductor rail slip rings, please refer to the respective 0812/0813 heating wire installation instructions. The described installation instructions do **not** refer to repairs or replacement of heating systems in existing conductor rail systems. Additional information can also be found in the Installation Instructions for conductor rails 0812 and 0813.

1.2 Functionality and task of conductor rail heating

To increase a system availability in winter operation, conductor rail systems in outdoor installations or similar environmental conditions are provided with a heating. The Conductix-Wampfler GmbH conductor rail programs 0812 and 0813 are suitable for protected outdoor use (IP21). Heating should prevent the conductor rail from hoarfrost formation and consequent loss of contact with the current collector. The heating of the conductor rail is carried out with an electrical heating wire, which is drawn into the conductor rail profile. It is positioned within the conductor rail profile, opposite of the sliding surface of the current collector (see Fig.1 and Fig.2). Each pole of a conductor rail system is being heated. Terminal boxes are used for the electrical connection of the heating wires.

The heating is switched on for the temperature range below +5°C (start of hoarfrost formation from approx. +5°C). Above 5°C the heating must be switched off to avoid damage to the insulation. The type of heating wire must be determined so that the heating capacity per heating wire is between 10 - 15 W/m (max. 25W/m).



WARNING!

Low temperatures reduce the material breaking strength!

At low temperatures, the material breaking strength is continuously reduced and material damage can occur.

- Due to the risk of material damage (e.g., due to increased risk of breakage), the installation of the system at ambient temperatures below -10° C is to be avoided.
- In order to protect the system from rain and snow, it may be advisable to attach a protective cover (protected outdoor use).
- Critical environmental conditions (e.g., heavy soot deposits from diesel vehicles or the like can lead to the occurrence of leakage currents, since deposits on the conductor lines are no longer removed, for example by rain). If necessary, contact Technical Sales for support.
- From an outdoor temperature of below -40° C, the operation of the system is not (only statically) possible (risk of breakage of plastics).

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Risk of death due to electrical shock!

Contact with energized components can lead to death or severe injury by electrical shock. There is also a risk of injury from a shock reaction, falling or being thrown across the room as a result of an electrical shock.

- The power supply to the heating wire must be switched off when the conductor rail is switched off for work on the conductor rail system (danger with electrical voltage).
- As far as possible, the heating wire should not be looped over several poles (carryover voltage).
- Heating wire in maintenance sections must always be supplied separately and switched off positively with the phase voltage.

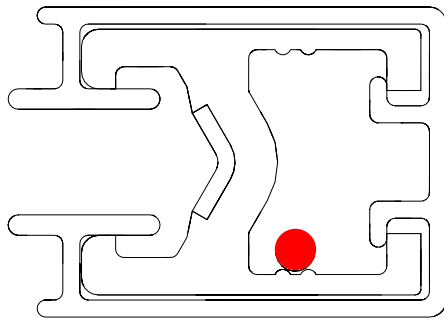


Fig.1: Position of the heating wire 0812

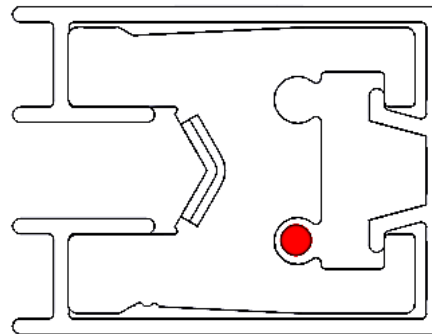


Fig.2: Position of the heating wire 0813 (1000 A)

An example system overview of conductor rail program 0812 conductor rail slip ring with heating is shown in Fig.3.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Example of Conductor Rail Slip Ring 0812 (vertical ring layout, insertion from the inside):

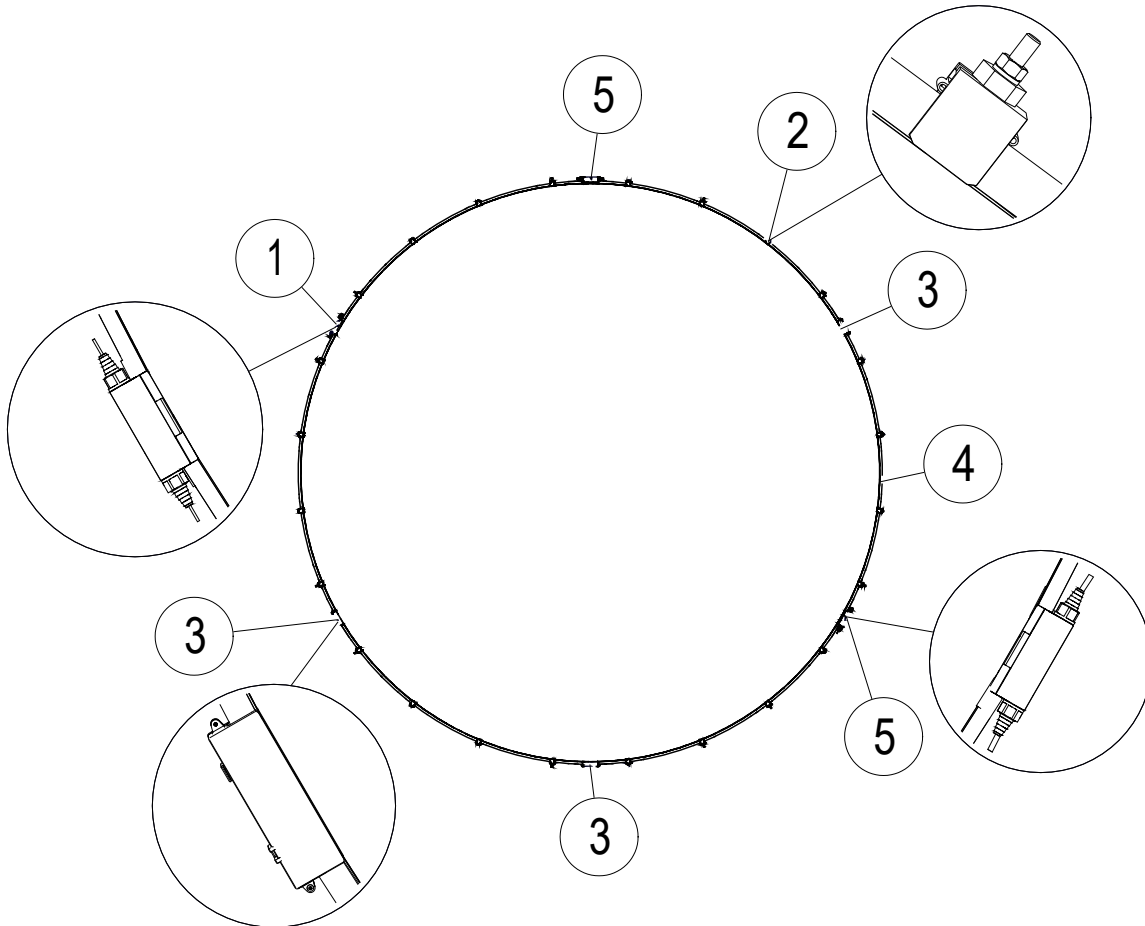


Fig.3: System overview 0812

Item	Name
1	Infeed only for the heating
2	Hanger clamp
3	Connectors
4	Conductor rail slip ring
5	Infeed of the conductor rail system 0812/0813 (number depends on respective connection layout)

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



1.3 Project planning

When designing the conductor rail heating, the following is specified for each project:

- the heating wire length,
- the supply voltage,
- a connection layout and
- the heating wire type, i.e. resistance.
- Segment division or separation (e.g. maintenance sections or sections with air gap sections)

A corresponding connection layout is created and made available to the customer.

1.4 Required tools, facilities and material

The following tools are required for installation (not included in scope of delivery):

- Side cutter
- Crimping tool for insulated crimp connectors (e.g. Klauke K82)
- Battery-powered screwdriver
- Cutting tool
- Industrial hot air blower (e.g. Leister 1502 A with reflector PR 12)
- Wire stripper
- Continuity tester
- On-site axle for suspension of the spool of the heating wire

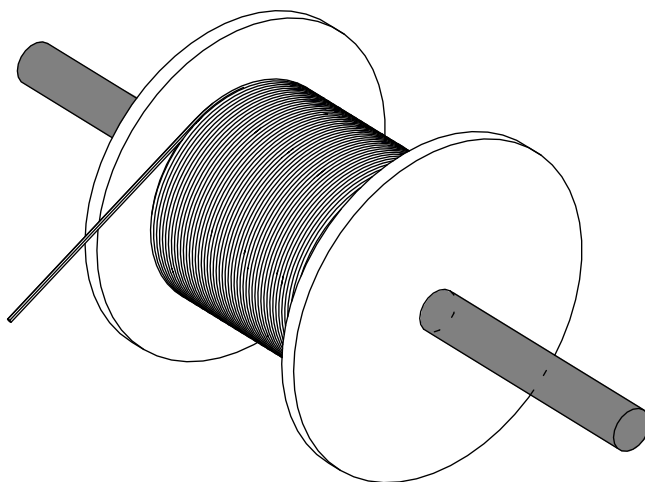


Fig. 4: Spool of heating wire

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Required material for the crimp connection (included in scope of delivery):

- Cold connection cable: Cable 1x1.5 mm², first isolation Ø2.8 mm, outer sheath Ø4.4 mm, minimum bending radius is 3xd (Ø4.4 mm) for fixed installation (item 1) 1 heat-shrink crimp connector DR 1 (red) (item 2)
- 70 mm heat-shrink tubing (item 3)
- Heating wire (item 4): Minimum bending radius is 5xd (Ø2.3 mm)

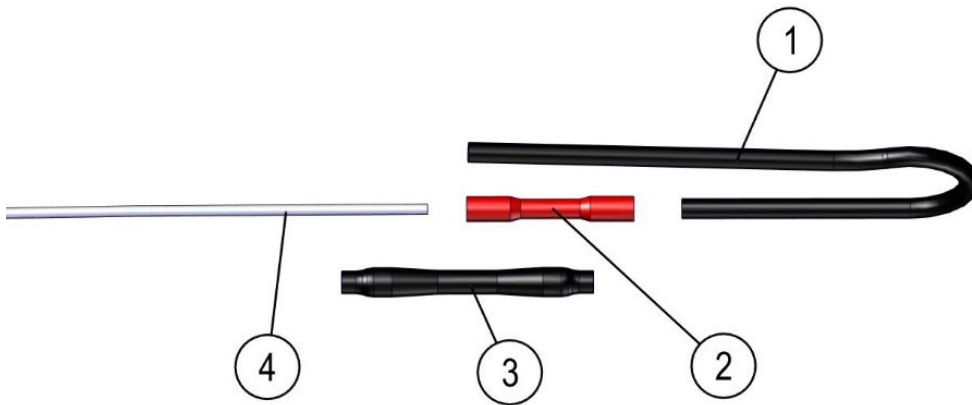


Fig. 5: Cold connection cable (item 1), heat-shrink crimp connector (item 2), heat-shrink tubing (item 3) and heating wire (item 4)

Item	Name
1	Cold connection cable
2	Heat-shrink crimp connector
3	Heat-shrink tubing
4	Heating wire

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



1.5 Personnel requirements



Inadequately trained people are at risk of injury!

Improper use can result in serious injury to people and property.

→ All activities must only be performed by qualified personnel.

- Only people who can be expected to perform their work reliably are acceptable personnel. People whose responsiveness is influenced by drugs, alcohol, or medications, for example, are not permitted.
- When selecting personnel, all age- and occupation-specific regulations applicable at the place of use must be observed.

The following qualifications are specified in the instructions for certain fields of activity.

■ **Specialist personnel**

consists of people capable of performing assigned tasks and independently identifying and avoiding potential hazards based on their specialist training, knowledge and experience as well as their understanding of the applicable regulations.

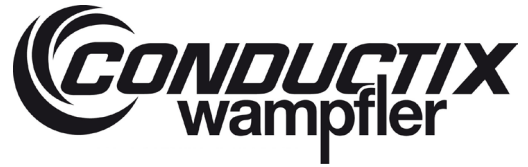
Personnel are considered qualified if they have successfully concluded training, for example, as electricians, master electricians, electrical engineers, or electrical technicians. Personnel are also considered qualified who have been employed correspondingly for several years, have been educated in theory and practice during that time, and whose knowledge and skills in the trade required have been tested.

The operator of the machine or system must document that the corresponding certification, or other documentation of qualification, is available or had been submitted previously.

The installation, maintenance and commissioning of electrical equipment may only be carried out by qualified personnel (electricians) in accordance with local regulations. Work with higher installation positions usually requires additional qualifications and certificates for the use of lifting devices and protective equipment. On the part the manufacturer, professional and proper handling of components is required. It is recommended that the installation personnel be trained by the manufacturer or that accompaniment of the installation by specialist fitters/supervisor be scheduled.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2 Installation

2.1 Safety instructions



Fire hazard or destruction of the conductor rail system!

Failure to properly connect the heating wires will result in damage to the conductor rail system (e.g. fire/melting) or the conductor rail system will not operate.

- Connect heating wire correctly.
- Operate heating wire with intended voltage/power.

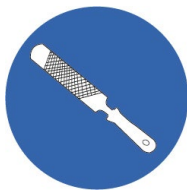
2.2 Installation of the heating wire into the conductor rail profile

Requirements:

- At least two skilled workers are needed for these steps; three skilled workers are even better.
- Pull in the heating wire directly from the spool.
- Do not unwind the heating wire before starting the mounting working steps.
- Hanger clamps are already mounted in the support profile.

Required tools:

- Suspension for spool
- Battery-powered drill
- Cutting tool for the slot of the insulation profile
- Metal File



Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.2.1 Place the spool for the heating wire

→ Place the spool with the wound heating wire near the infeed of the heating wire by means of an on-site axle for suspension (2) (see Fig.6).

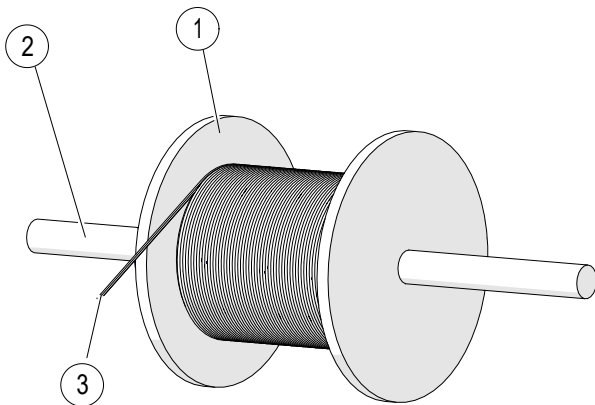


Fig.6: Wound heating wire with suspension

Item	Name
1	Spool
2	On-site axle for spool suspension
3	Heating wire



NOTE!

Pay attention to the connection layout of the heating wires!

2.2.2 Make slot in the insulation profile



NOTE!

The conductor rail slip rings always need to start with an infeed point of the heating wire.

→ At the conductor rail end of the infeed point of the heating wire, a slot for the heating wire has to be sawn into the insulation profile in accordance with Fig.9 and Fig.10. To avoid crushing of the heating wire or the cold connection cable:

→ Drill insulation profile (see Fig.7). **NOTE:** Do not drill into the conductor bar!

- For 0812 insulation profile: Make a 15 mm slot on both sides to the hole (see Fig.8 and Fig.9).
- For 0813 insulation profile: Make a 20 mm slot on both sides to the hole (see Fig.8 and Fig.10).

→ Clean conductor rail and deburr insulation profile so that no sharp edges remain.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813

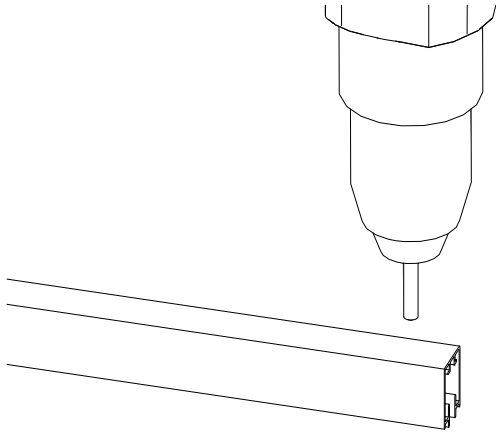
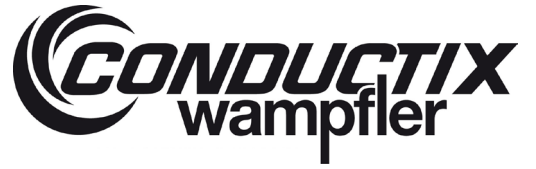


Fig.7: Drill hole for slot in the insulation profile

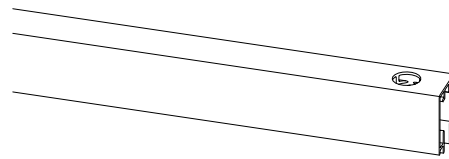


Fig.8: Insulation profile with drilled hole

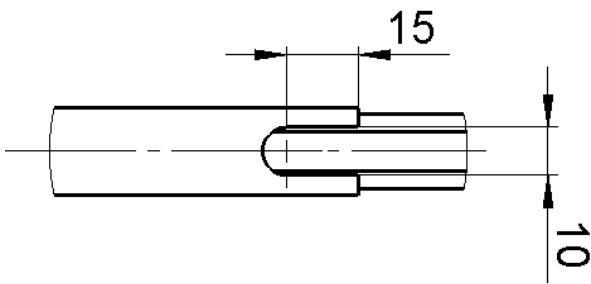


Fig.9: Slot for conductor rail system 0812

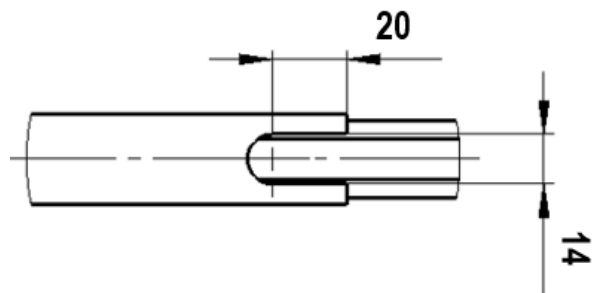


Fig.10: Slot for conductor rail system 0813

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.2.3 Clip the first conductor rail into the hanger clamps

→ Clip the first conductor rail curve into the pre-assembled hanger clamp (Fig.11).

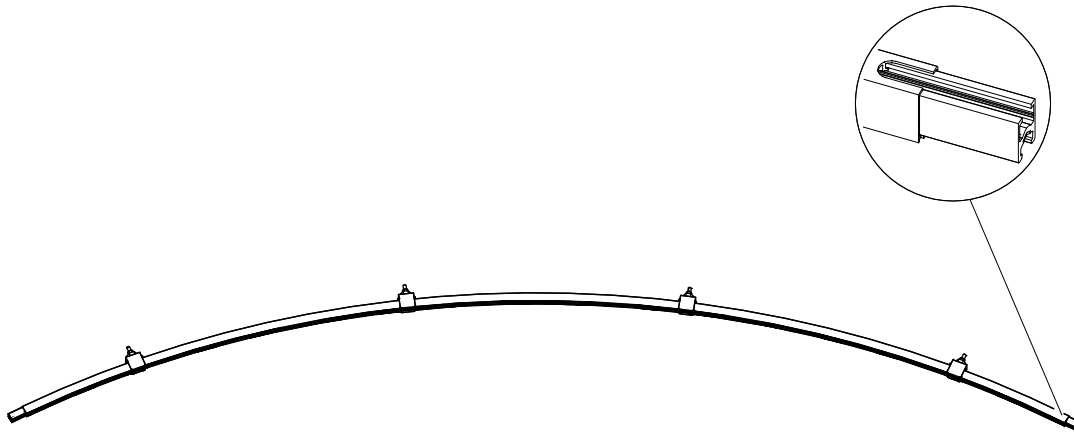


Fig.11: First conductor rail curve is clipped into the hanger clamps

2.2.4 Install heating wire 0812/0813



NOTE!

The conductor rail slip rings always need to start with an infeed point of the heating wire.



NOTE!

If an existing heating wire is damaged, it must be replaced. For this purpose, the damaged heating wire must be dismantled, and a new heating wire installed.

For the installation of a new heating wire, the following steps must be carried out:

→ Wind the heating wire off the spool (see Fig.12) and, at the infeed point of the heating wire (see item 1 in Fig.13), pull the wire straight through the cavity of the conductor rail profile before installing the connectors and the infeeds. When inserting the heating wire, make sure that the heating wire does not hit the sharp edges of the slot in the insulation profile and the conductor bar (see Fig.13).

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813

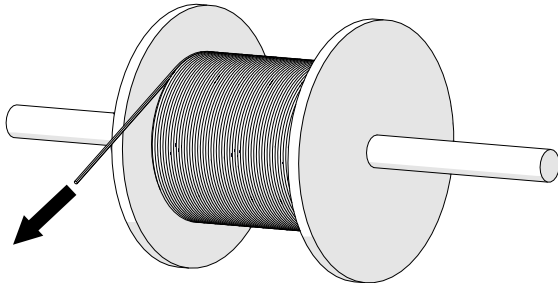


Fig.12: Unwind heating wire from spool

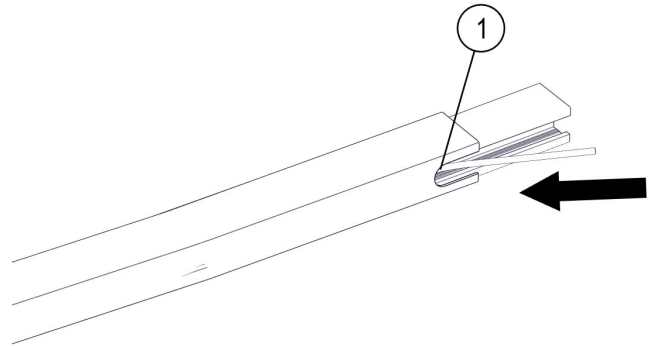


Fig.13: Pull the heating wire through the slot of the insulation profile

The following must be observed when pulling the heating wire in:

- Pull heating wire straight off the spool.
- Pull the heating wire in at a shallow angle.
- No looping.
- Avoid high tensile forces acting on the heating wire.
- Avoid buckling and crushing of the heating wires.
- Do not pull the heating wire over sharp edges.
- Avoid too tight a bending radius on the heating wire.



NOTE!



ATTENTION!

The heating wire must not be damaged during installation!

- The slot in the insulation profile must be deburred.
- The heating wire must not get stuck in any section of conductor rail system.

- A skilled worker should push the heating wire through the cavity of the conductor rail, while the second skilled worker receives the loose end of the heating wire at the end of the conductor rail curve and holds it.
- Clip in the next conductor rail curve and push the heating wire further through the cavity of the second conductor rail curve. Allow enough space to install the connector/infeed (see 2.2.5 and 2.4) later.
- Hold the heating wire at the end of the 2nd conductor rail curve.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.2.5 Install the connector or infeed of the conductor rail 0812/0813



The heating wire must run straight through the connector or infeed of the conductor rail and must not get stuck during the installation process!

Install connector or infeed of the conductor rail 0812/0813 according to BAL0812-0001/BAL0813-0007. See also project specific documents.

2.2.6 Cut the last rail curve to length

→ The last curve may have to be shortened to the correct length.



Curves must be cut in a right angle, see Fig. 14 and Fig. 15.

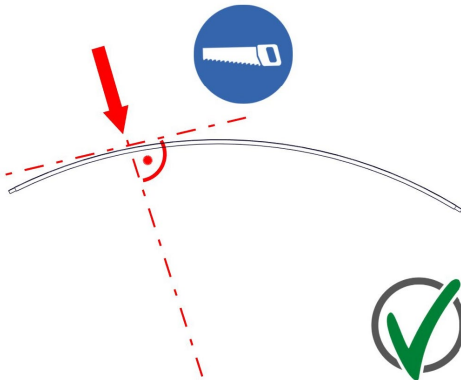


Fig. 14: Curve is cut in a right angle

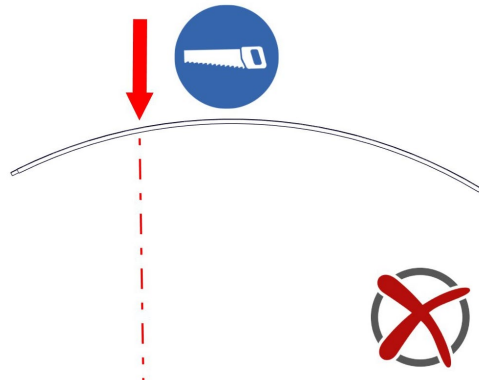


Fig. 15: Curve is not cut in a right angle

→ When cutting to length: Maintain cutting direction from top to bottom (see BAL0812-0001 and BAL0813-0007) to prevent the stainless steel strip from loosening (see item 2 in Fig. 17). After cutting to length, the outer and inner edges of the conductor bar must be deburred (1-2 mm 45°) to prevent wear of the sliding contact.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813

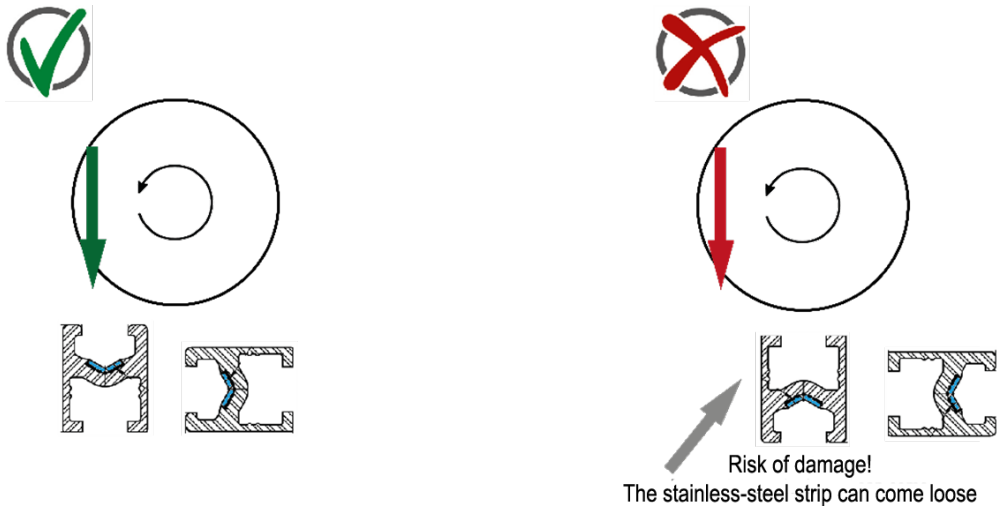
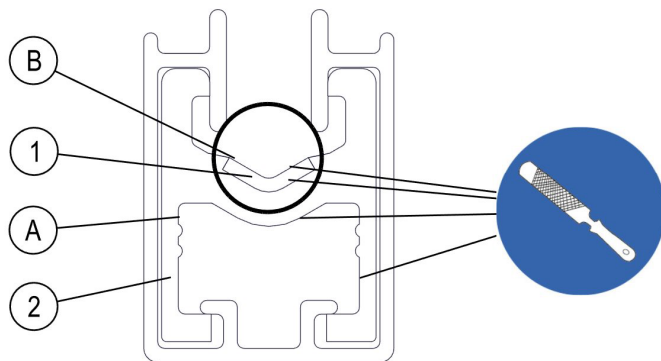
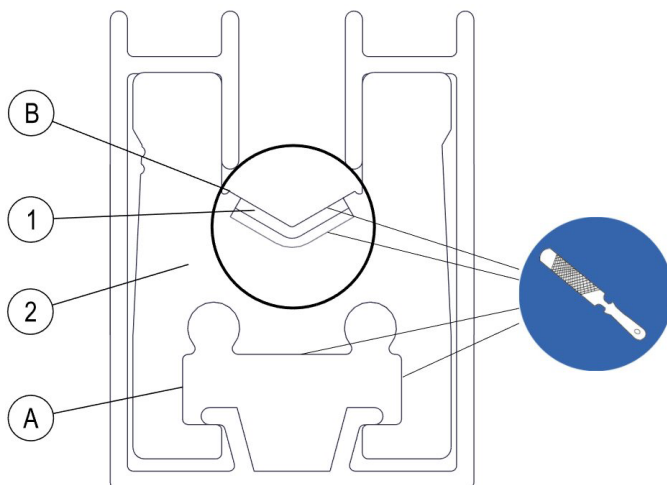


Fig. 16: Cut the rail to length



Item	Name
1	Stainless-steel strip
2	Conductor bar
A	Internal edges burr-free
B	External edges burr-free

Fig. 17: Conductor Rail 0812



Item	Name
1	Stainless-steel strip (for cooper conductor bars does it not exist)
2	Conductor bar (Aluminum or CopperECO)
A	Internal edges burr-free
B	External edges burr-free

Fig. 18: Conductor Rail 0813

→ The last curve also requires a slot in the insulation profile for the infeed point of the heating wire (see 2.2.2).

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.2.7 Clip in the last conductor rail curve

- Install the connector or infeed (of conductor rail) (see connection layout) on the penultimate conductor rail curve (2).
- Pull the heating wire through the not yet clipped last rail curve (3) until the heating wire protrudes about 500 mm.
- Slide in the loosely assembled clamping plate of the connector on the penultimate curve (2) at the connector point (for conductor rail 0813, see note on page 17).
- Slide in the infeed of the heating wire on the first rail curve (1). The clamping plate must be pre-assembled loosely.
- Slide the heating wire at the last rail curve (3) through the heating wire infeed point (4).
- Clip in the last rail curve (3).
- Tighten connector/infeed nuts with appropriate torque.

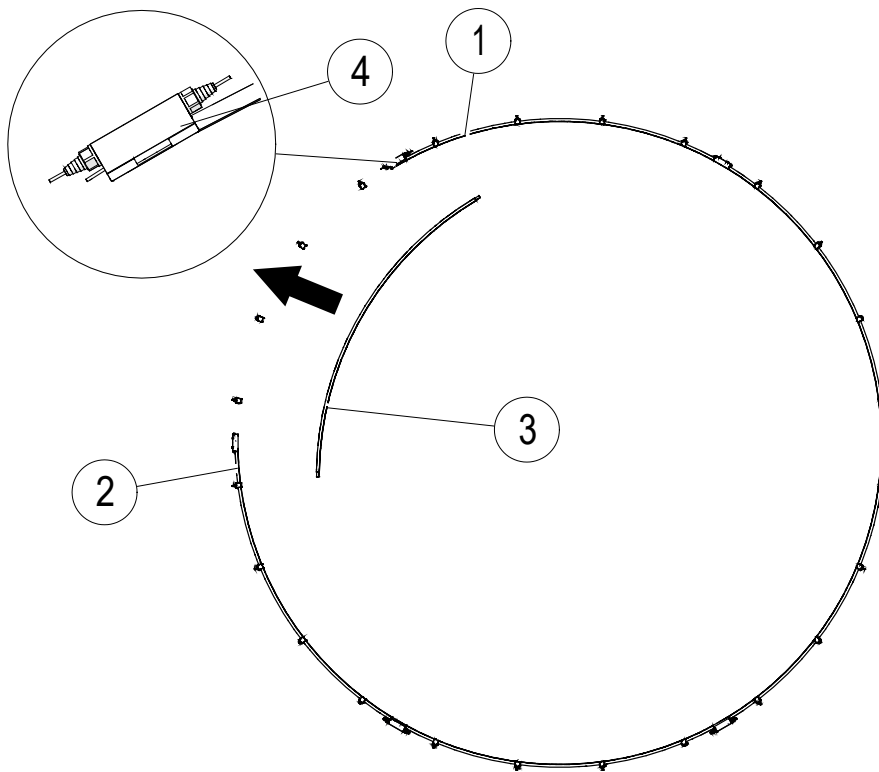


Fig. 19: Assembly of the last rail curve (example for 0812)

Item	Name
1	First rail curve segment
2	Penultimate rail curve segment
3	Last rail curve segment
4	Infeed of heating wire

- After connecting the two ends of the conductor rail curves, the heating wire is exposed to 300 mm - 500 mm left and right.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Please note:

For clipping the last conductor rail curve 0813, the connector or infeed 0813 must be disassembled into its single parts (clamping plate (4), nuts (1), and washer (2) see Fig. 20). Slide the clamping plate (4) into the conductor bar (see Fig. 21). Slide the connector (3) and washers (2) over the connecting bolts of the clamping plate (4) and tighten nuts (1) (31 Nm) (see Fig. 22).

For the further working steps for connector (3) or infeed please refer to BAL0813-0007.

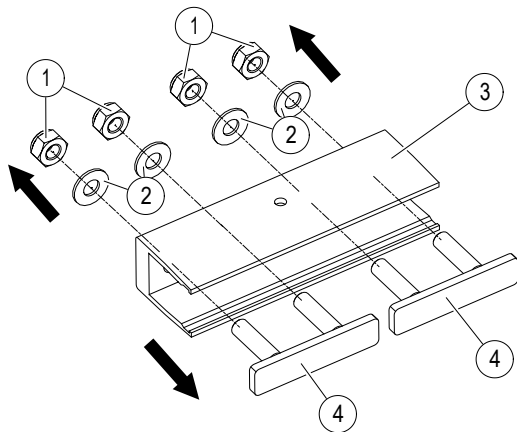


Fig. 20: Disassembly of connector 0813

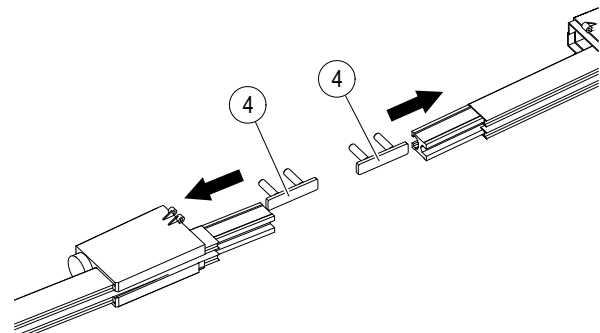


Fig. 21: Slide the clamping plates into the conductor bar

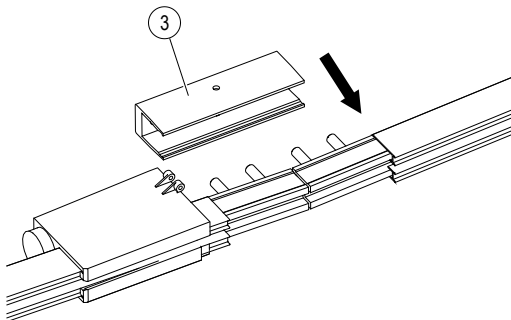


Fig. 22: Slide the connector (3) over the clamping plate

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.3 Crimp the heating wire and connection cable



NOTE!

An insulation measurement (see MV0800-0018) must be carried out after each conductor rail slip ring and before the cables are crimped (see 2.2.7).

Required tools:

- Side Cutter
- Crimping tool for insulated heat-shrink crimp connectors (e.g., Klauke K82)
- Cordless screwdriver
- Cutting tool
- Cable stripper
- Industrial hot air blower (min. > 120 ° C)
- Pen (red or white) for marking

Required materials (scope of delivery):

- 1 heat-shrink crimp connector DR 1 (red)
- Cold connection cable: Cable 1x1.5 mm², first insulation Ø2.8 mm, outer jacket Ø4.4 mm, minimum bending radius is 3xd for permanent installation
- 55 mm heat-shrink tubing
- Heating wire

To connect to an electrical power supply, the heating wire ends must be provided with cables, the so-called cold connection cables. These lead into the electrical terminal boxes in which they are connected.

Requirements:

- The heating wire is installed as described in chapter 2.2.



WARNING!

Inadequately trained people are at risk of injury!

Improper use can result in serious injury to people and property.






→ All activities must only be performed by qualified personnel.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Work steps:

<ul style="list-style-type: none"> → Cut the heating wire on one side up to 500 mm. Apply crimping to the first heating wire end. → Strip the heating wire and cold connection cable to 7 mm. → Push the heat-shrink crimp connector DR 1 (red) onto the stripped heating wire end (see Fig. 23). 	 <p>Fig. 23: Push the heat-shrink crimp connector onto the stripped heating wire end</p>
<ul style="list-style-type: none"> → Clamp the heat-shrink crimp connector with a crimping tool (e.g., Klauke K 82) (see Fig. 24). 	 <p>Fig. 24: Heat-shrink crimp connector is crimped with the heating wire</p>
<ul style="list-style-type: none"> → Push the stripped end of the cold connection cable onto the other end of the heat-shrink crimp connector and clamp it with a crimping tool (e.g., Klauke K 82) (see Fig. 25 and Fig. 26). → With an industrial hot air blower at approx. > 120° C, first shrink the point with the heat-shrink crimp connector. When heating up the heat-shrink crimp connector, the adhesive must run out a little to ensure water resistance. 	 <p>Fig. 25: Insert the stripped end of the cold connection cable into the heat-shrink-crimp connector</p>  <p>Fig. 26: Cold connection cable is crimped with the heat-shrink crimp connector</p>
<ul style="list-style-type: none"> → Then push the heat-shrink tubing over the cold connection cable to the crimp connector point and also shrink it with an hot air blower at approx. > 120° C and allow to cool (see Fig. 27) → Carefully push back the heat-shrink crimp as described in chapter 2.3.1 	 <p>Fig. 27: Heating wire, shrink-crimp connector and cold connection cable</p>

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.3.1 Determine and mark the position of the crimp connection 0812/0813

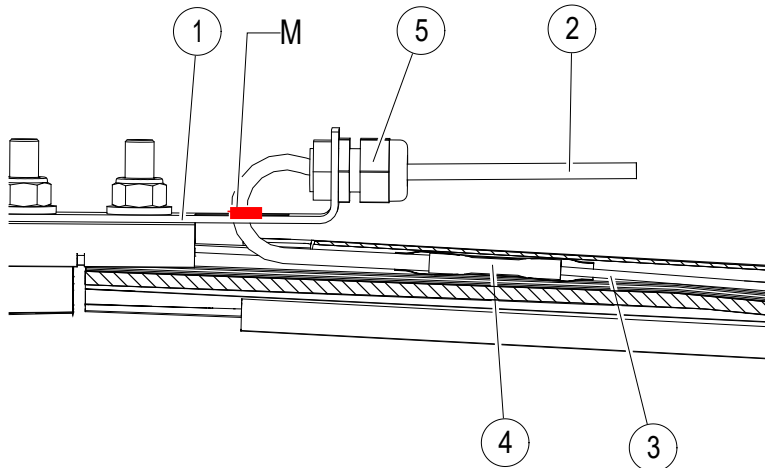


Fig. 28: Overview of the crimp connection 0812 once finished (showing right side only)

Item	Name
1	Plate for heating wire infeed
2	Cold connection cable
3	Heating wire
4	Crimp connection
5	Strain Relieve
M	Marking

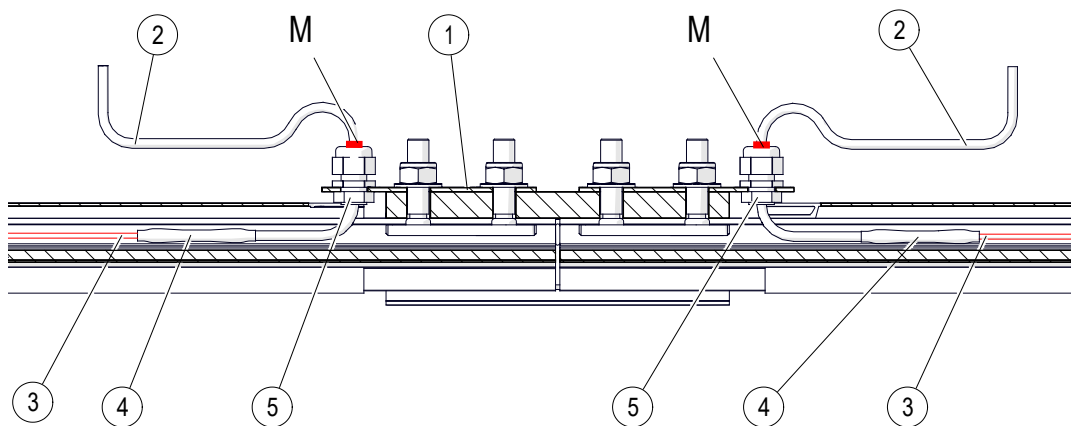


Fig. 29: Overview of the crimp connection 0813 once finished (showing both sides)

Item	Name
1	Plate for heating wire infeed
2	Cold connection cable
3	Heating wire
4	Crimp connection
5	Strain Relieve
M	Marking

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Work steps:

- Cut both heating wire ends to length if needed. Both ends should protrude approx. 100 -150 mm (0812/0813).

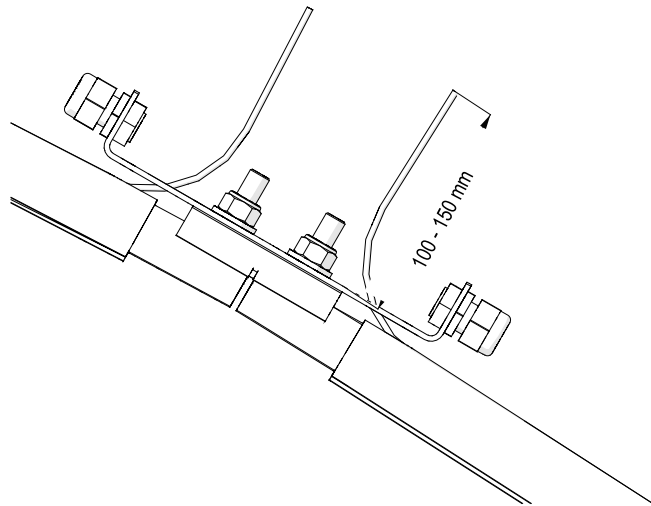


Fig. 30: Cut heating wire ends (example 0812)

- Crimp the first heating wire end as described in 2.3. with the cold connection cable.
- Mark (M 1) the cold wire at distance X after the end of the crimp connection (e.g. with a white pen).

0812: X= 50 mm
0813: X= 100 mm

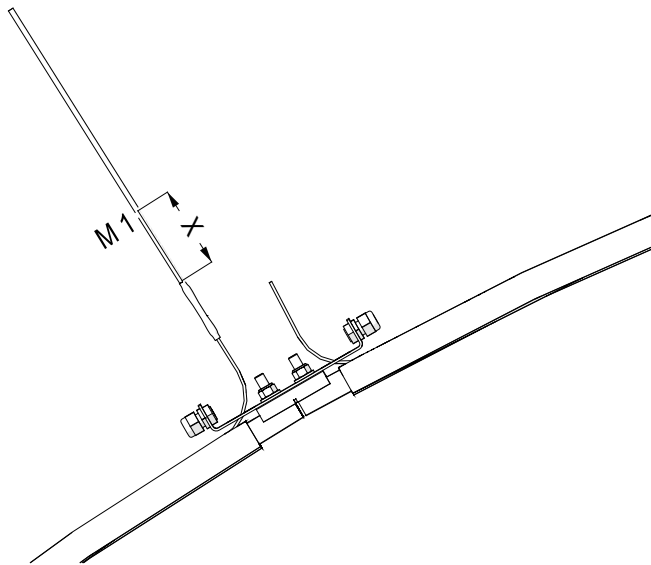


Fig. 31: Crimp the first heating wire end (example 0812)

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Pull on the heating wire (2) until the marking (M 1) of the cold connection cable (3) lies flat

- against the plate (1) (0812) or
- against the top of the strain relieve (4) (0813).

- Also mark (M 2) the location of the heating wire (2) that bears
- against the plate (0812) or
 - against the top of the strain relieve (4) (0813).

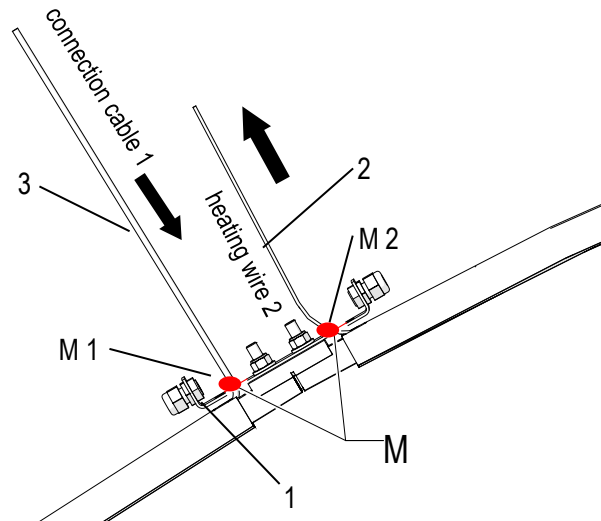


Fig. 32: Markings on heating wire and connection cable (example 0812)

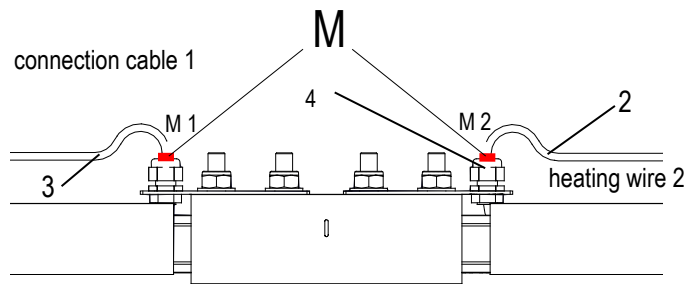


Fig. 33: For 0813, the baseline for Marking (M) is the top of the strain relieve

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- Starting from the marking (M 2) on the heating wire, pull the heating wire out by approx. $2 X$.
- Mark (M 3) the heating wire again from the first marking by X in the direction of the plate.

0812: $X = 50$ mm
0813: $X = 100$ mm

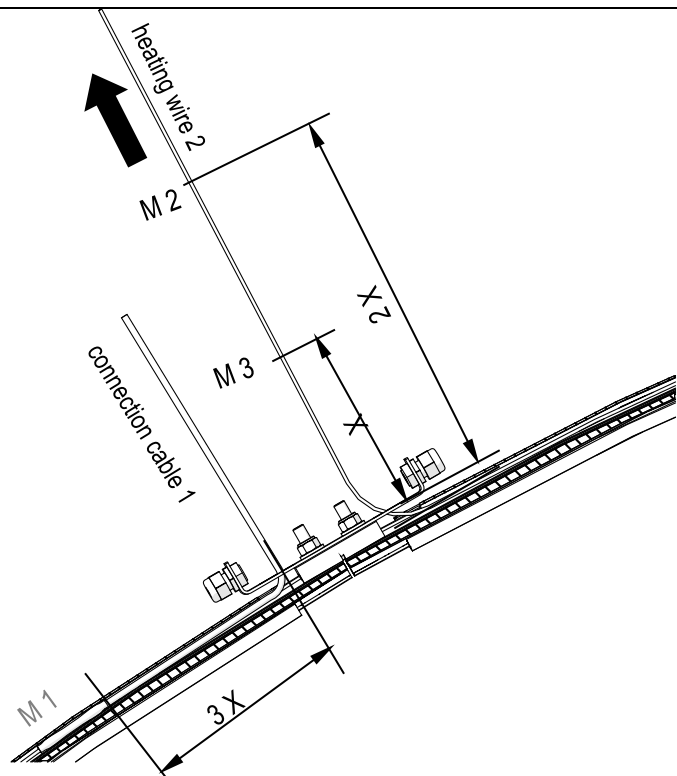


Fig. 34: Mark heating wire (example 0812)

- Cut heating wire to length at the lower marking (M 3).

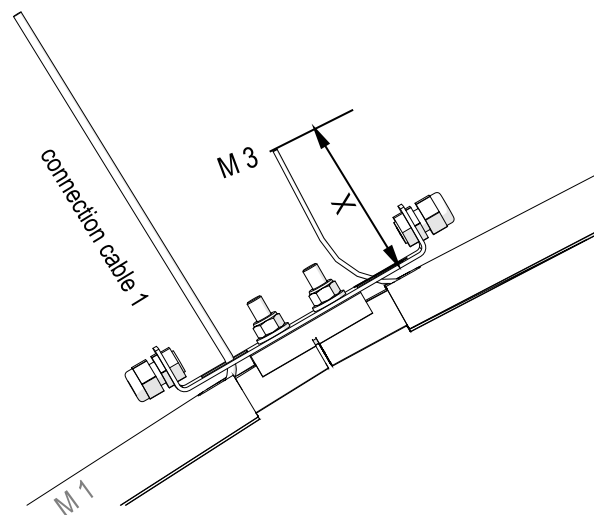


Fig. 35: Cut heating wire to length (example 0812)

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



→ Crimp the other heating wire end (M 3) with cold connection cable as described in chapter 2.3.

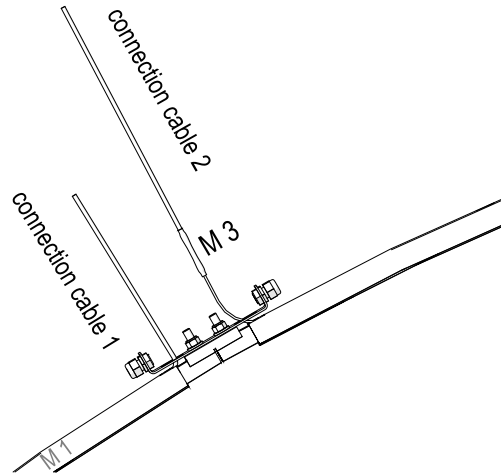


Fig. 36: Crimp the second heating wire end (example 0812)

→ Mark (M 4) the dimension X on the cold connection cable (e.g. with a white pen).

0812: X = 50 mm
0813: X = 100 mm

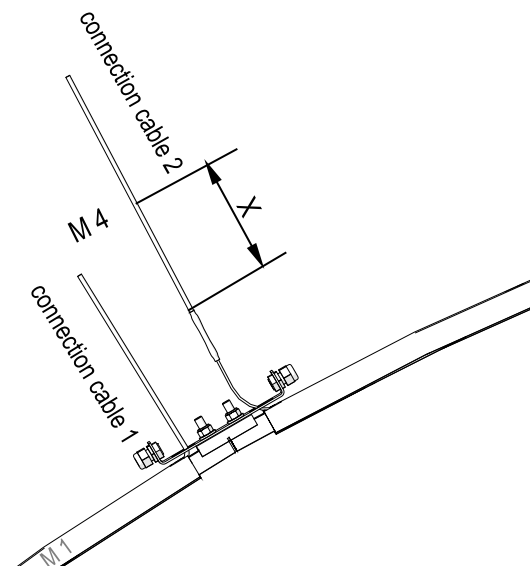


Fig. 37: Mark cold connection line (example 0812)

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- Pull back the first end (1) so that the marking (M 4) of the second end (2) rests
- against the plate (0812)
 - against the top of the strain relieve (0813).

The markings (M1 and M4) should be on one level. Ideally, both marks are

- on the plate (0812)
- on the top of the strain relieve (0813).

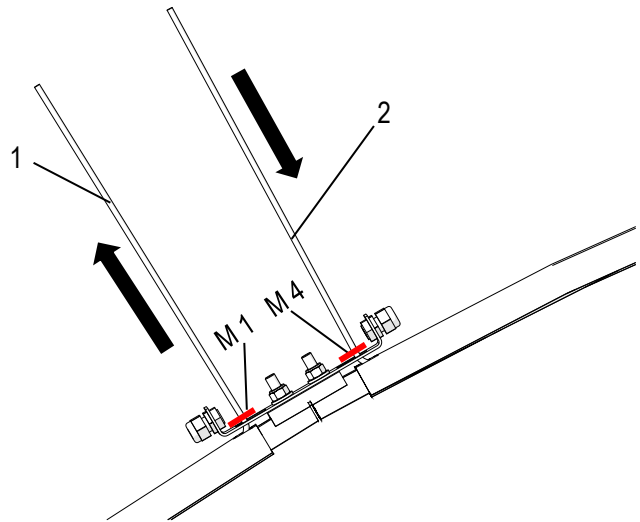


Fig. 38: Both marks are on the plate and on one level (example 0812)

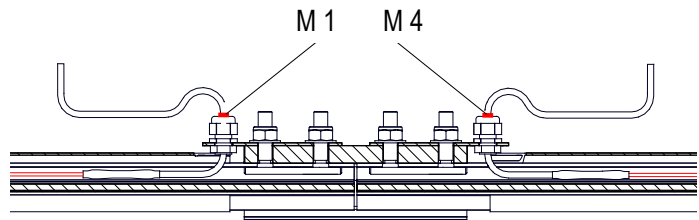


Fig. 39: For 0813, the marks (M) should rest against the top of the strain relieve

Installation Instructions

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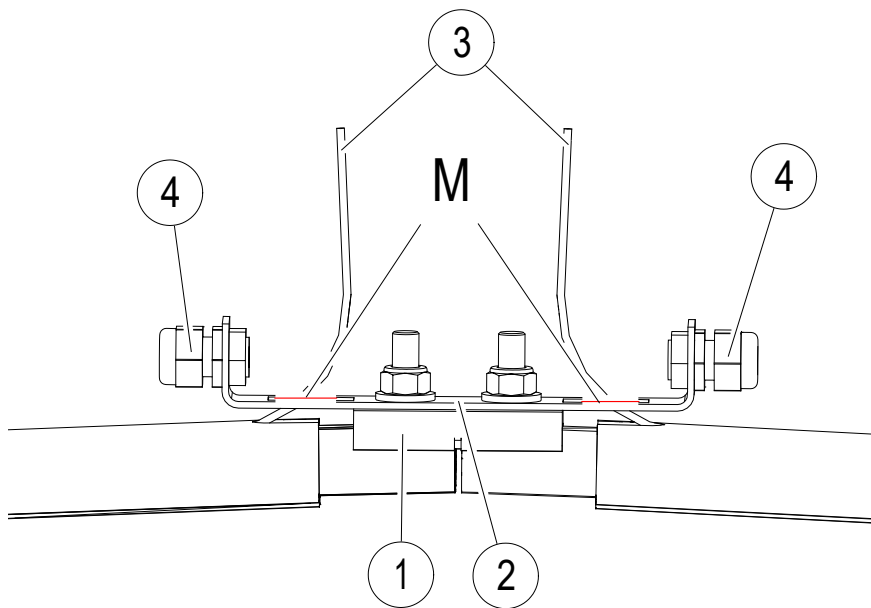


2.4 Install the infeed of the heating wire

2.4.1 Install the infeed of heating wire 0812

Requirements:

- All infeed mounting elements for the infeed point (see also BAL0812-0001) of the heating wire are installed as described in Fig. 40. Especially, the plate for heating wire infeed (2) is deburred and installed correctly.
- The heating wire is crimped (see 2.3) and the crimp connection is at the correct location (see 2.3.1) and the markings (M) on one level of the plate for heating wire infeed (2).



Item	Name
1	Connector
2	Plate for heating wire infeed
3	Cold Connection Cable
4	Strain Relieve
M	Marking

Fig. 40: Infeed of the heating 0812

Work steps:

- Slide the cold connecting cables through the strain relieve (1) and tighten it. Pay attention to the minimum bending radius $3x d$ ($\varnothing 4.4$ mm).

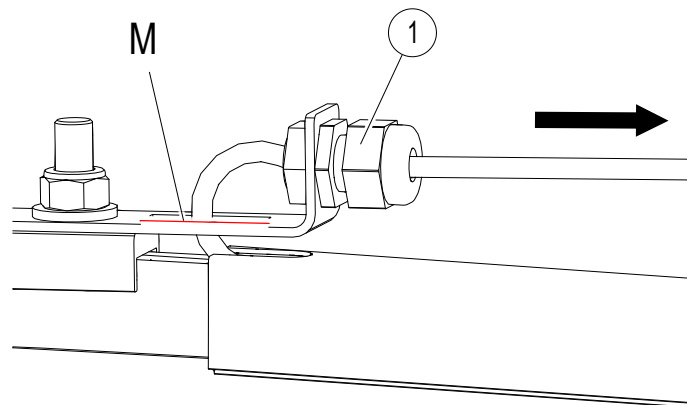


Fig. 41: Pull the cold connection cable through the strain relieve (1)

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



- Clip the two cap halves (2) together (see Fig. 42 and Fig. 43).
- Slice the grommet (4) and install screw connection (3) and the grommet (4) (see Fig. 44).

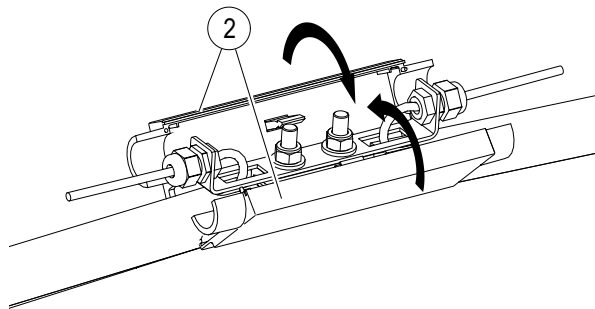


Fig. 42: Clip the two cap halves together

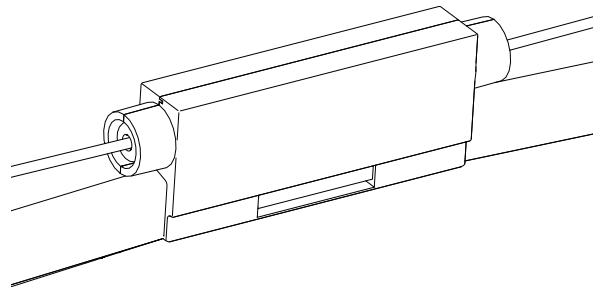


Fig. 43: Cap halves are clipped (without screw connection and grommet)

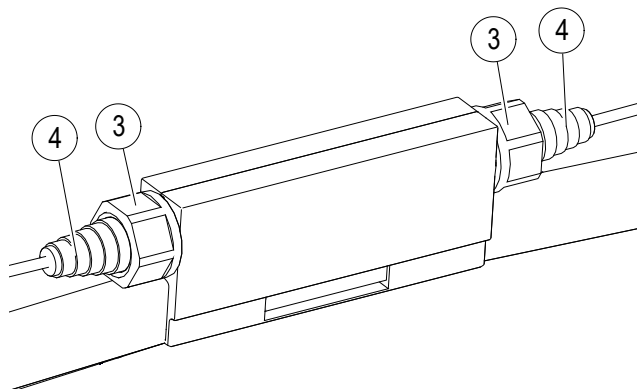


Fig. 44: Screw Connection and Grommet are installed

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



2.4.2 Install the infeed of heating wire 0813

Requirements:

- The heating wire is crimped (see 2.3) and the crimp connection is at the correct location (see 2.3.1).
- All infeed mounting elements for the infeed point (see also BAL0813-0007) of the heating wire are installed as described in Fig. 45. The markings (M) are rested against the top of the strain relieve (5).
- The cap halves must be moved on the conductor rail curves **before** starting work steps for connector and infeed (see BAL0813-0007).

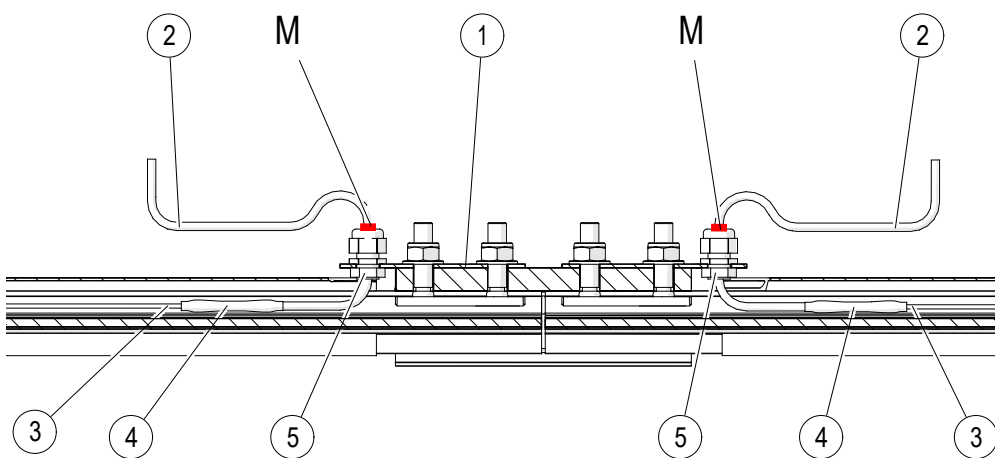


Fig. 45: Overview of the crimp connection 0813

Item	Name
1	Plate for heating wire infeed
2	Cold connection cable
3	Heating wire
4	Crimp connection
5	Strain Relieve
M	Markings

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



Work steps:

→ Slice the grommets (1) for the cold connection cables (3) (see Fig. 46).

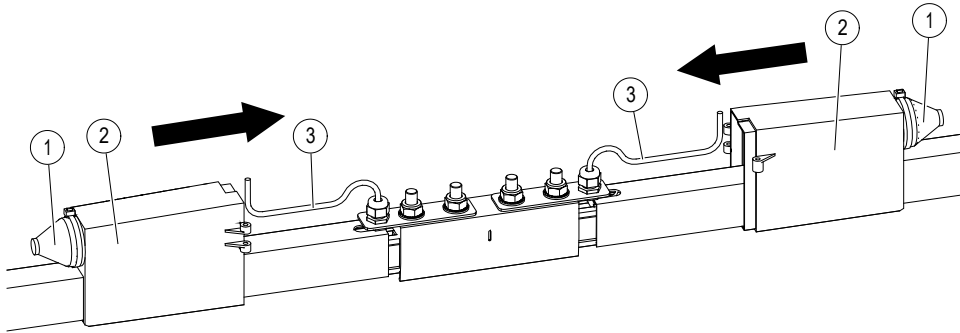


Fig. 46: Slide the cap halves (2) together

→ Slide the cap halves (2) together and pull the cold connection cables (3) through the grommets (1) (see Fig. 46 and Fig. 47) and fix it with the cable ties (4).

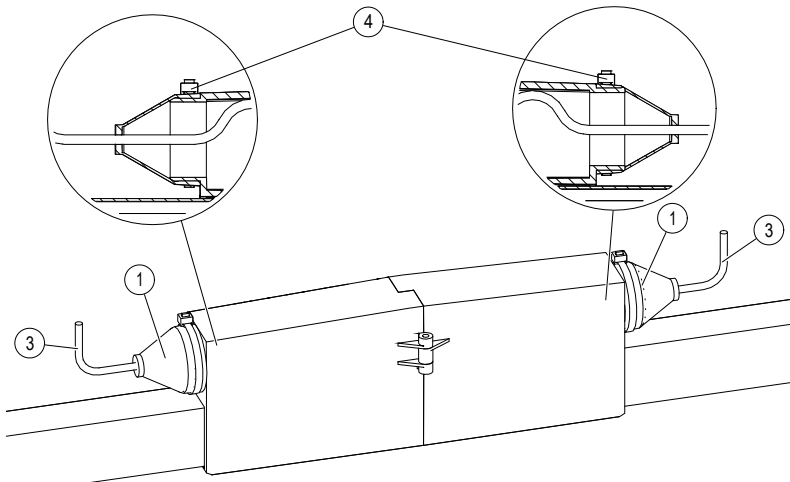


Fig. 47: Pull the cold connection cable (3) through the grommet (1)

→ Tighten the screws (5) of the cap halves (see Fig. 48).

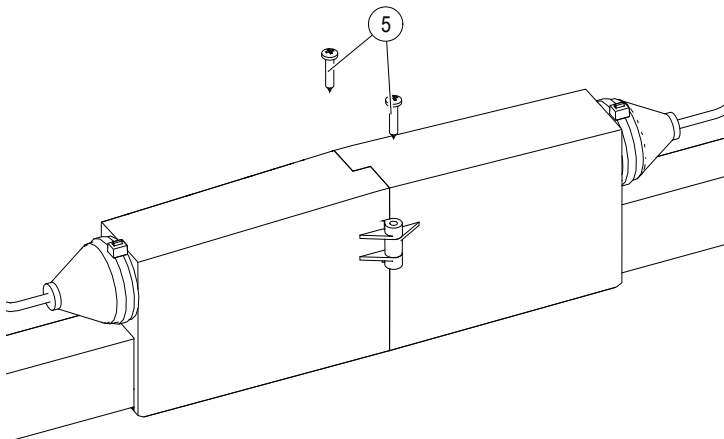


Fig. 48: Tighten the screws (5) of the cap halves

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



3 Connect heating wire



Risk of death by electrocution!

Contact with energized components can lead to death or severe injury by electrical shock. There is also a risk of injury from a shock reaction, falling or being thrown across the room as a result of an electrical shock.

- All activities on conductor rails must only be performed by qualified personnel in compliance with the safety rules
- When working on the conductor rail system, disconnect the conductor rail and heating from the power supply, secure them against switching on again and check that they are voltage-free.
- In the case of multiple power feeds and integrated heating wire, switch off all power feeds, secure them against switching on again and check that they are voltage-free.
- Measures must be taken to prevent voltage leak, e.g. when a current collector or vehicle passes over insulation sections and transfer points, and the individual poles must be grounded or short-circuited during the work.
- For systems with heating wire, ensure that the heating is also switched off when the energy side is disconnected.
- In the case of partial lines, such as maintenance lines, segment the heating. When disconnecting the energy side, make sure that the heating system is also disconnected from the power supply.
- As part of the risk assessment of the installation, consider permanently installed monitoring of the heating insulation, if necessary.



If the voltages are too high, the heating system will fail!

- The system-specific parameters (e.g., voltage) must match the project-specific information (see heating wire layout plan)!



After short circuits, accidents and in some cases, lightning strikes, check the entire system for integrity and full functionality!



After commissioning the system, the following checks must be carried out regularly:

- Regular visual inspection of the connection cables for fragility due to UV radiation.
- Check the connection cables/cables for firm seating.
- Check the terminals in the terminal box regularly to see whether they have loosened as the result of vibration.

Installation Instructions

Heating Wire Installation in Conductor Rail Slip Rings 0812 and 0813



The following must be observed when pulling in the heating wire:

- When connecting the heating wires in the terminal boxes, it is essential that the heating wire layout plan supplied with the order is observed.
- Ensure correct installation.
- Before the heating wire is connected, an insulation measurement in accordance with MV0800-0018 and a continuity test should be carried out.
- Ensure that the cables cannot collide with moving components (e.g., conductor bars, drivers, other crane parts).

Connect heating wire to on-site terminal boxes:

- When connecting the heating wires in the terminal boxes, it is essential to observe the Heating wire installation plan supplied with the order.
- Ensure proper installation. Due to vibrations, spring clamps are preferred.

Conductix-Wampfler GmbH
Rheinstraße 27 + 33
79576 Weil am Rhein - Märkt
Germany

Phone: +49 (0) 7621 662-0
Fax: +49 (0) 7621 662-144
info.de@conductix.com
www.conductix.com