Installation instructions, user manual and service

Please keep in a safe place

Flange heater Ø 240 mm & Ø 280 mm for drinking and heating water

AHF240-TI-plus-… / AHF280-TI-plus-…

- …-TI-plus-9.5
- …-TI-plus-11.9
- …-TI-plus-15.8
- …-TI-plus-10.0
- …-TI-plus-15.0
- …-TI-plus-20.0

Index

General safety information

- Do not operate the device until you have read the installation instructions.

- This device can be used by children aged from 8 years and above and by persons with reduced physical, sensory or mental capabilities or lack of experience and/or knowledge if they have been given supervision or instruction concerning use of the device in a safe way and understand the hazards involved. Children must not play with the device. Cleaning and maintenance must not be carried out by children without supervision.

Installation, adjustment and removal may only be carried out by specialists.

Installation advice for flange heater

The device must be installed horizontally, installation from above or below is not permittet for safety reasons.

Make sure that the heating tubes are entirely covered with liquid before starting up. The circulation of the liquid through the heater must not be blocked.

The operating data, application, dimensions and design of the flange heater can be found on the the type plate and electrical diagram on the device or inside the housing cover, or in the installation instructions / user manual.

Applicable standards	Safety:	EN60335-1 / -2-21 / -2-73
	EMV:	EN55014-1 / -2
	EMF:	EN62233
	IP Code:	EN60529

Installation guidelines

Important information
If a heat exchanger is installed in the same tank, the temperature caused by the heat exchanger must be limited to 85 °C in the control system. This prevents the temperature regulator of the flange heater from responding.

Safety temperature limiter
The safety temperature limiter may trip at temperatures lower than approx. –10 °C (e. g. transportation or storage). If this happens, press the reset button.

The device may only be used to heat water.

Corrosion protection
Please note: This heating element can be used for stainless steel / black steel and black steel enamelled boilers. Depending on the tank type, select the settings using the DIP switch. For an installation of the heating element into black steel or black steel enamelled boilers, leave the red slide switch (DIP switch) in the "black steel tank"(Schwarzstahlspeicher) position (factory setting).
When installing the heating element into a stainless steel or chrome steel boiler, the slide switch (DIP switch) has to be switched to "stainless steel tank" (Edelstahlspeicher).

Electrical connection
The device is intended for permanent connection and may only be connected to permanently installed cables. Select a cable cross-section corresponding to the power rating of the device. It must be possible to disconnect all poles of the device from the mains via an isolating distance of at least 3 mm. The PE wire must be 100 mm longer than the other conductors.

Maintenance
For maintenance of the unit or replacement of parts, the device must be disconnected from the power supply. Before opening the cover, remove all plugs from the device.

The guarantee claim is void in the case of:
- Disregard of this documentation „Installation instructions, user manual and service"
- Disregarding the installation guidelines of the flange heater
- Technical modifications, repairs or interventions on the device (including replacement of the thermostat)
- Applications for which the device was not designed
- Incorrect operation and maintenance
- Not complying with directive VDI 2035
- Manipulations of the operating software
- Undocumented parameterizations via the documented interfaces

Device description

Control unit ASKO*HEAT*-**RC+** Remote Control
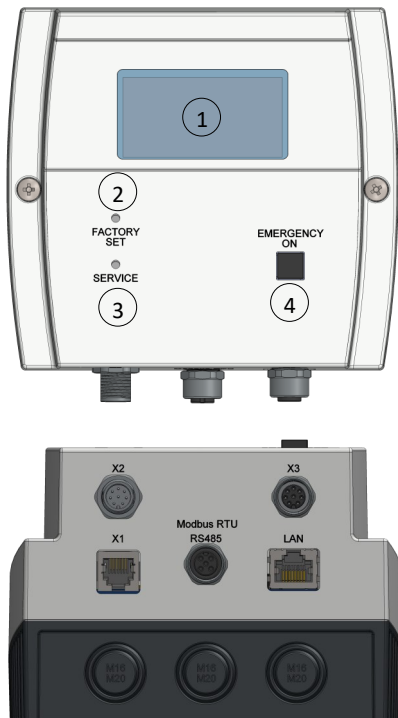
Pos. 1	Display
Pos. 2	Factory-Set button
Pos. 3	Service button
Pos. 4	EMERGENCY ON (Emergency mode)

X1:	RJ12 - Socket, heater connection
X2:	M12 - 8-pole, Signal input
X3:	M12 - 8-pole, Sensor input
RS485:	M12 - 3-pole, Modbus RTU
LAN:	Network connection

Display
Information about the heater and the network connection is shown on the display.
If the **ASKO**HEAT-**RC+** is connected to the network, the IP address is shown on the display. If the heater starts to heat due to a heating command, the heat output and the heating function will appear on the display. The temperature of the heater and the optional additional sensors are also displayed. If there is a malfunction, this is also shown in the display with "ERROR".

Emergency mode „Emergency On"
The "Emergency On" button can be used to switch on the maximum heating power immediately. This may be necessary in the event of a failure or if additional heat is required. To switch off, press the button again. The temperature is digitally limited to 60°C in this mode. For safety reasons, the **ASKO**HEAT-**F+ 2.0** automatically switches back to normal function after 24 hours.

Factory-Set
The "Factory Set" button can be used to reset the device to the factory settings. All settings made are then deleted.

Service
A permanent IP address can be assigned to the device using the "Service" button. The IP address is then 192.168.222.222.

Device description

Flange heater Ø 240mm & Ø 280mm ASKO*HEAT-F+ 2.0*

1: Temperature regulator heating group 1

2: Temperature regulator heating group 2

3: Status LED

4: Z1 A Energy supply for heater heating group 1

5: Z1 B Energy supply for heater heating group 2

6: RJ12 - Socket, connection **ASKO**HEAT*-RC+*

Temperature regulator

The max. temperature can be adjusted continuously using the rotary knob (pos. 1). The range extends from "Off" to approx. 85 °C. For economic reasons, it should be set to approx. 65 °C. Once the temperature has been reached, the appliance switches off and switches on again automatically if required.

Status LED

The status LED indicates the current mode and faults.

- **RED/YELLOW flashing:**
  No current flow, although relays are switched (and target temperature has not yet been reached)

- **RED glowing:**
  Interrupted data connection to **ASKO**HEAT*-RC+*

- **YELLOW glowing** or **GREEN/YELLOW flashing:**
  "Normal" heating

- **GREEN glowing:**
  Ready for use, but without connection to a **ASKO**HEAT*-RC+*

- **GREEN flashing:**
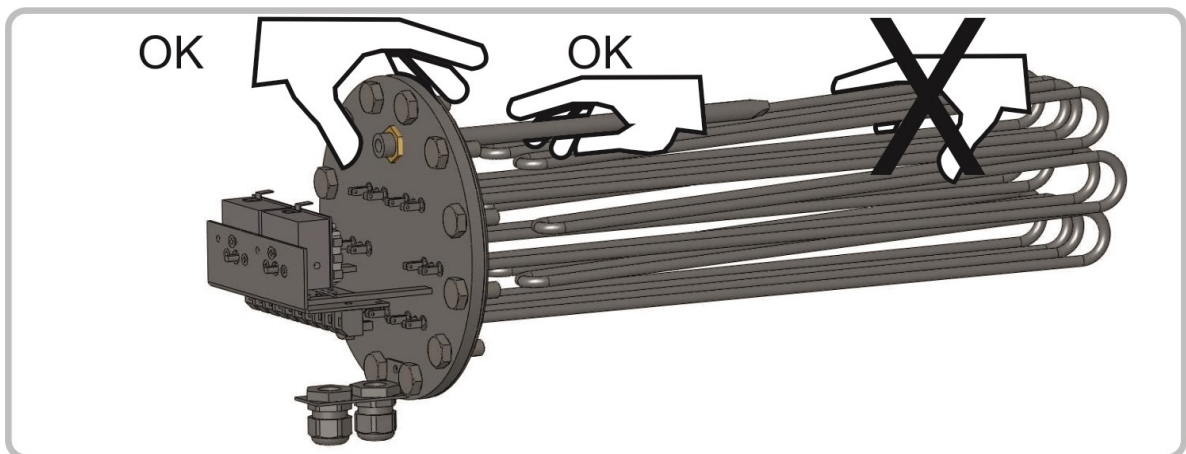 Connection to **ASKO**HEAT*-RC+*

Device description
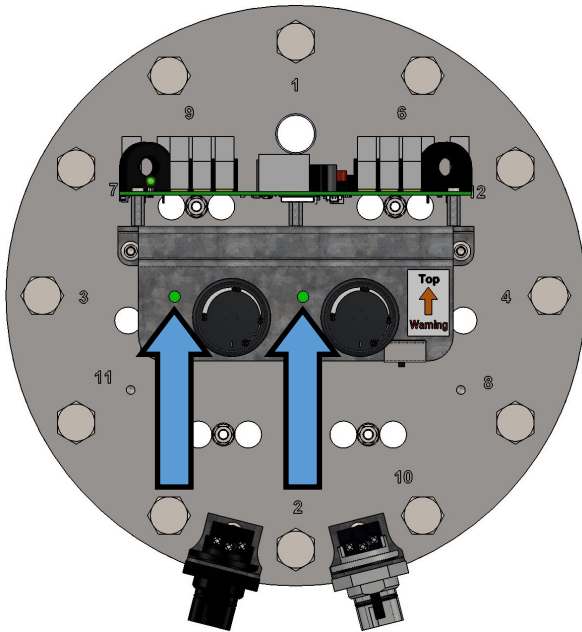
Safety temperature limiter

If the safety temperature limiter is activated, it can be reset with a "00 screwdriver" through the opening labelled "Reset". This is only possible once the temperature has cooled down by approx. 10 K.
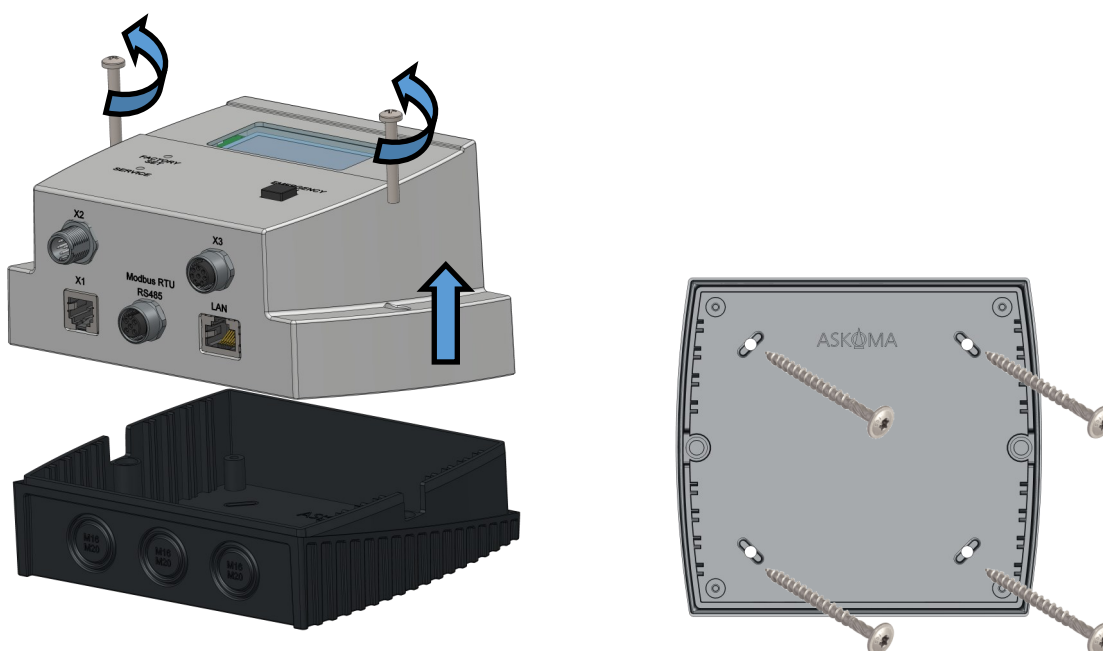
Handling

Installation instructions

Install control unit ASKO*HEAT-RC+*

The device is designed to be installed on a wall. However, it is possible to glue the unit to the hot water tank using optional accessories or to attach it to a pipe using an available angle bracket.

Wall installation:

Open the **ASKO*HEAT-RC+*** housing cover and screw the lower section to the wall.

## Pipe installation / attachment to the tank:

If the control unit has to be installed on a pipe or on the hot water tank, use the required additional material. Detailed instructions are enclosed with the accessories.

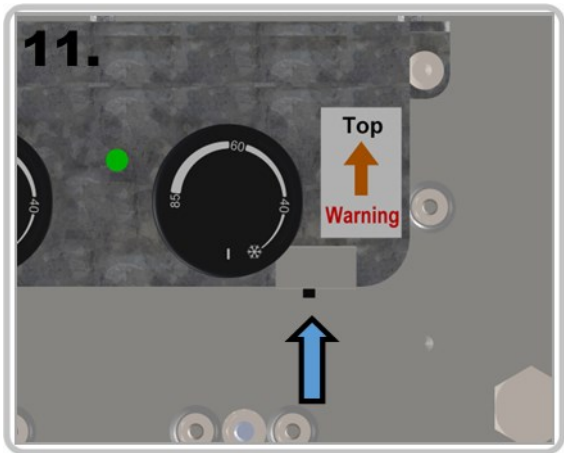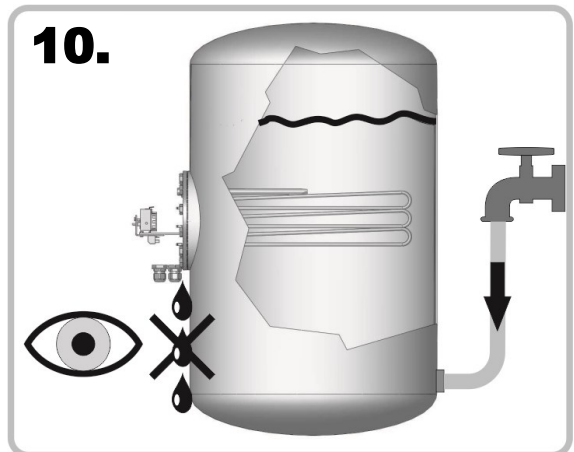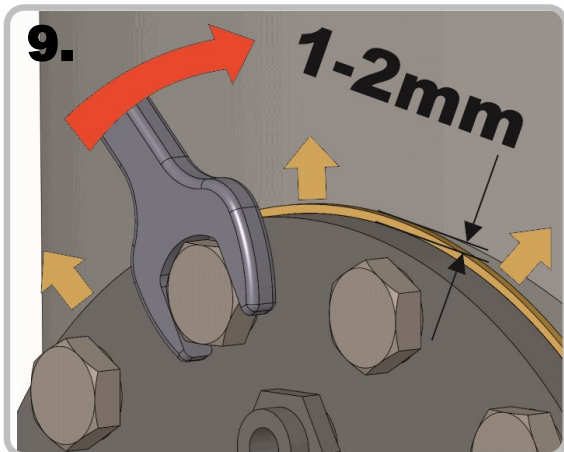The additional material can be ordered from your supplier using the Askoma article number 012-2264.

Installation instructions flange heater

1.

2.

3.

4.

5.

6.

7.

8.

Installation instructions flange heater

9.

1-2mm

10.

11.
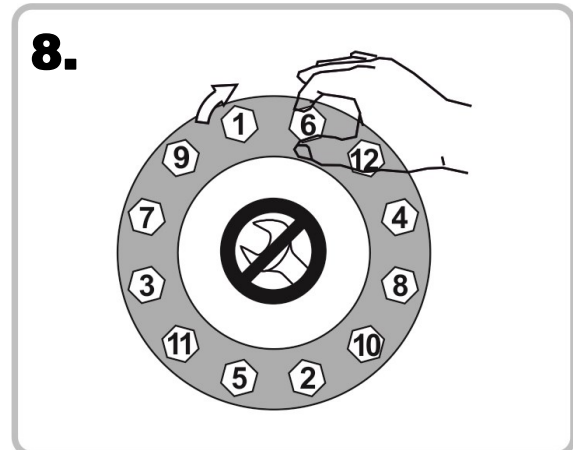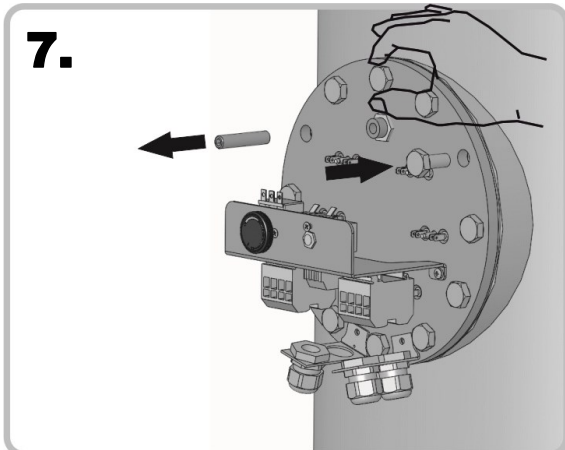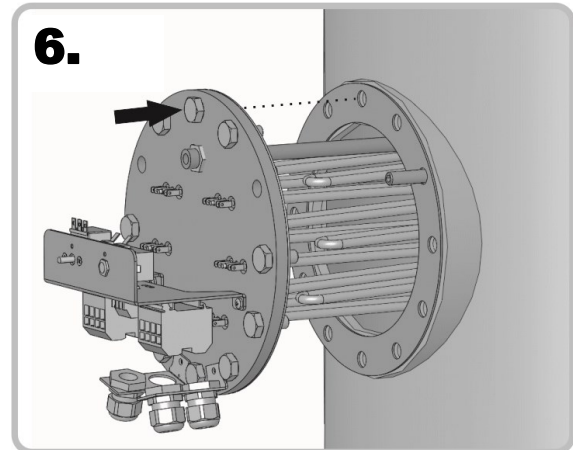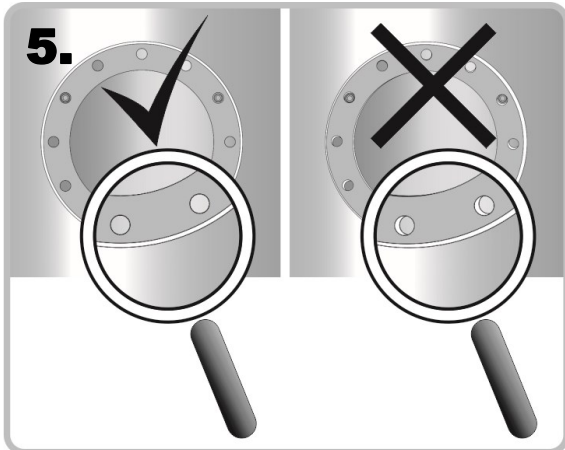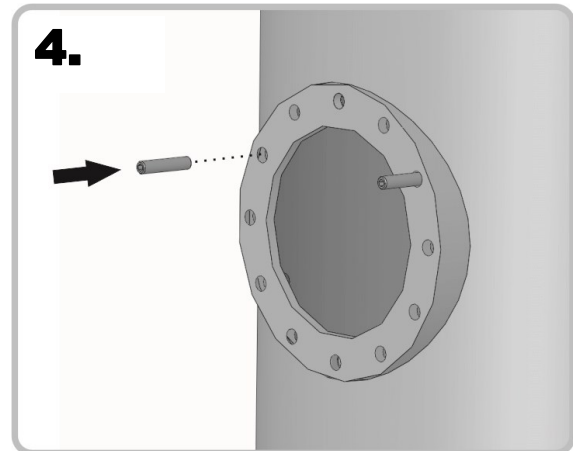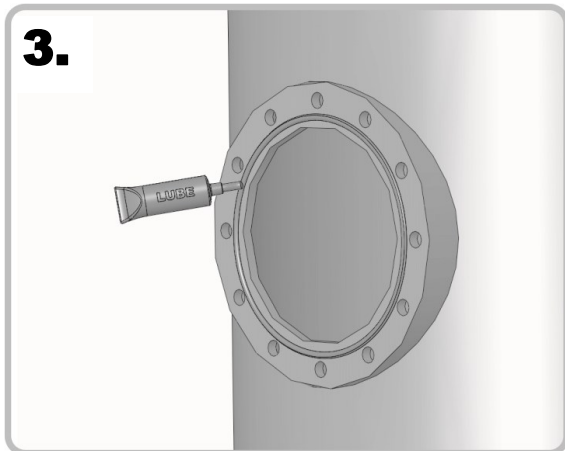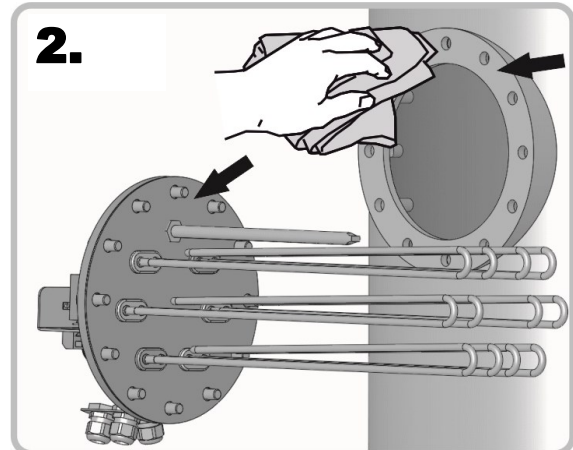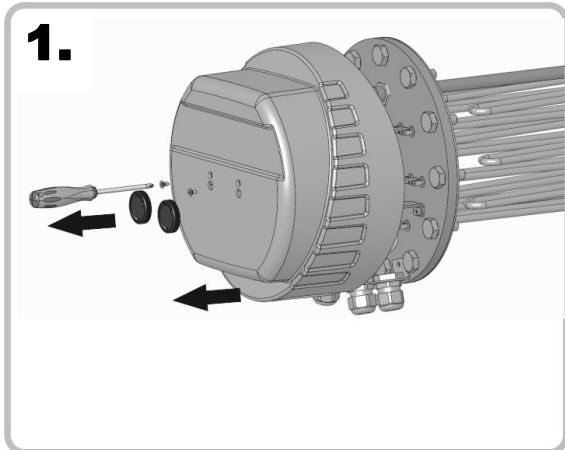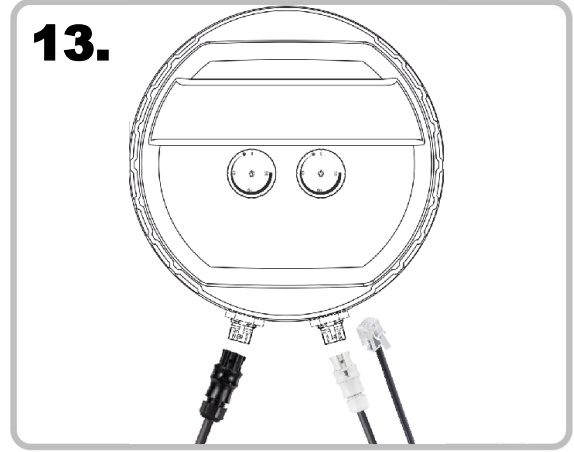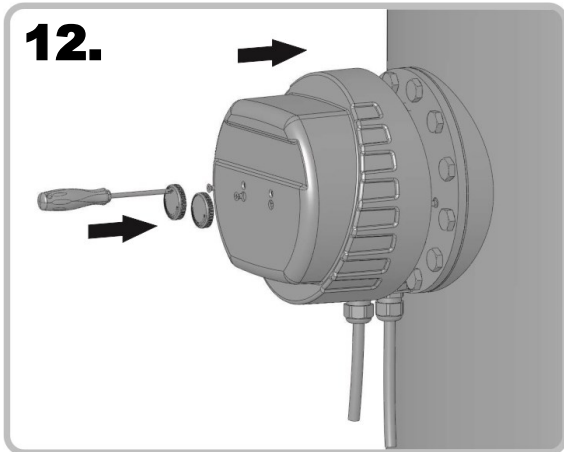

Setting the DIP switch

Position 1:
For stainless steel tank

Position 2:
For black steel- / enamelled tank
(factory setting)

12.

13.

14.

1-2mm

60°C
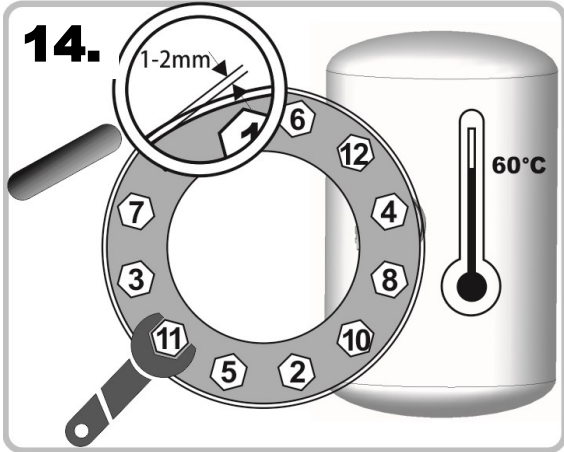
15.

Assembly bolts, sealing paste and
installation instructions / user manual
must be kept on the system for
service purposes.

Connector and pin assignment

Socket black—Z1 A (bottom left)

L1 -> Connection 3

L2 -> Connection 2

L3 -> Connection 1

N -> Connection N

PE -> Connection PE

Line voltage 3x 400 V~ (3L/N/PE)

Socket black—Z1 A (bottom left) is also used for the power supply of the relay boards. The external control box is also supplied with 5VDC operating voltage via the internal relay board.

Socket grey —Z1 B (bottom right)

L1 -> Connection 3

L2 -> Connection 2

L3 -> Connection 1

N -> Connection N

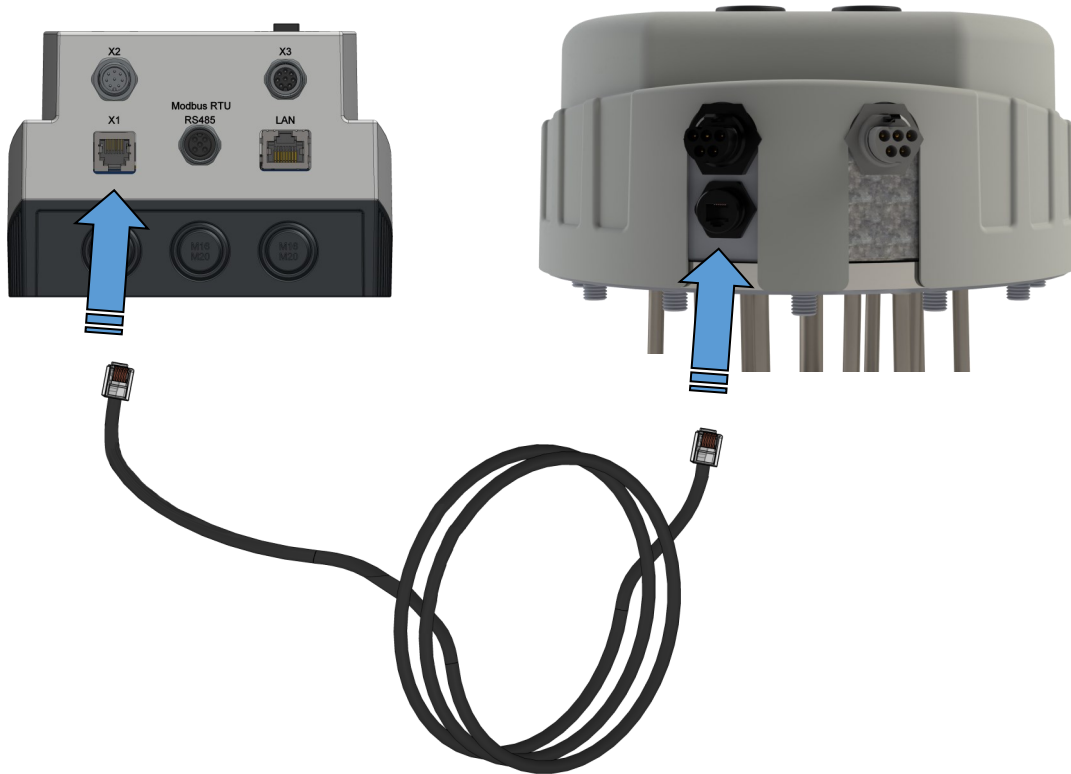PE -> Connection PE

Line voltage 3x 400V~ (3L/N/PE)

Power consumption of the devices:

- AHF240 / AHF280-TI-plus-9.5 -> 9,5 kW   Heating group Z1 (A) 3.5 kW

  Heating group Z1 (B) 6.0 kW

- AHF240 / AHF280-TI-plus-11.9 -> 11.9 kW   Heating group Z1 (A) 4.4 kW

  Heating group Z1 (B) 7.5 kW

- AHF240 / AHF280-TI-plus-15.8 -> 15.8 kW   Heating group Z1 (A) 5.8 kW

  Heating group Z1 (B) 10.0 kW

- AHF240 / AHF280-TI-plus-10.0 -> 10.0 kW   Heating group Z1 (A) 5.0 kW

  Heating group Z1 (B) 5.0 kW

- AHF240 / AHF280-TI-plus-15.0 -> 15.0 kW   Heating group Z1 (A) 7.5 kW

  Heating group Z1 (B) 7.5 kW

- AHF240 / AHF280-TI-plus-20.0 -> 20.0 kW   Heating group Z1 (A) 10.0 kW

  Heating group Z1 (B) 10.0 kW

Connector and pin assignment

Connect the **ASKO**HEAT*-RC+* control housing to the flange heater:

-> **ASKO**HEAT*-RC+* connection X1 to the RJ12 socket on the flange heater

Connector and pin assignment

Connector X2—signal inputs

Connection 1:   GND

Connection 2:   Analogue Input 0-10 V

Connection 3:   EW lock

Connection 4:   Rely K5 (5VDC)

Connection 5:   GND

Connection 6:   Heatpump request

Connection 7:   GND

Connection 8:   5VDC out
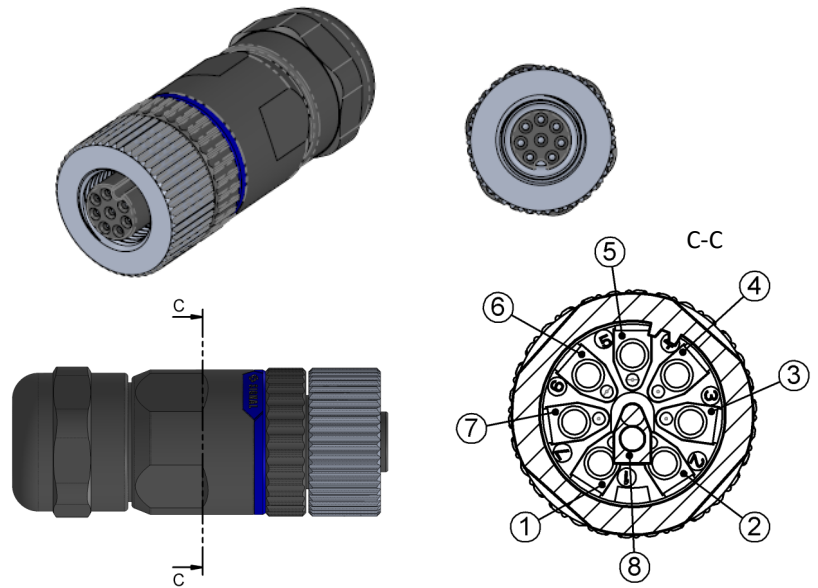
Connector X3—additional sensors

Connection 1:   GND

Connection 2:   Sensor 1

Connection 3:   GND

Connection 4:   Sensor 2

Connection 5:   GND

Connection 6:   Sensor 3

Connection 7:   GND

Connection 8:   Sensor 4
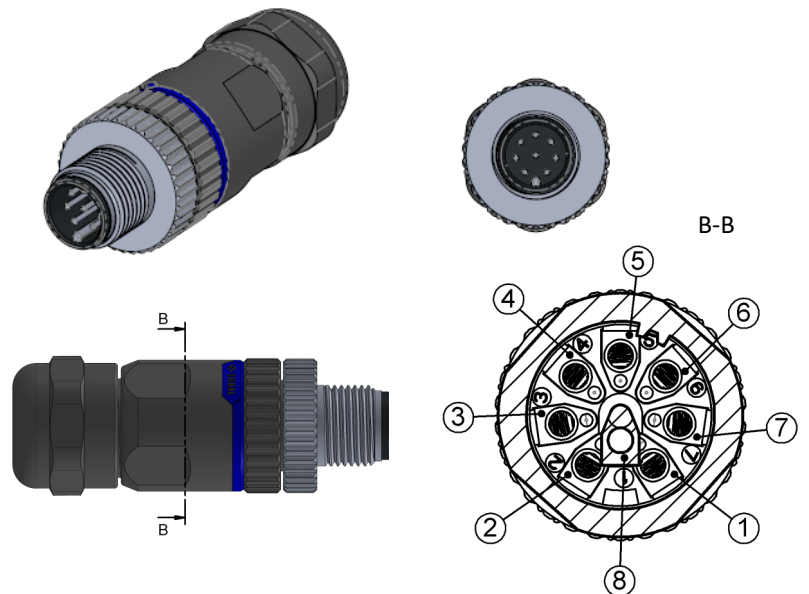
Connector Modbus RTU RS485

Connection 1:   GND

Connection 3:   RS485 B

Connection 4:   RS485 A

Start-up

Device integration into the local network

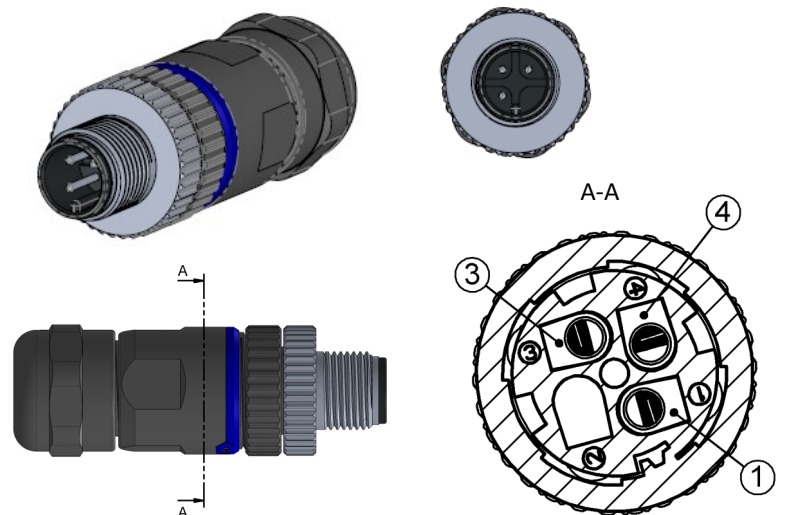The **ASKO***HEAT-RC+* is connected to a local network via a CAT5 cable.

WLAN is **not** supported.

Typically, there should be a direct connection to the router with DHCP server.

Powerline connections or WLAN bridges can lead to unexpected problems and are not recommended. (Support cannot be provided in these cases).

An internet connection is required to synchronise the local clock in the **ASKO***HEAT-RC+* and to carry out updates. In principle, the system also works without a LAN and / or Internet connection but with considerable restrictions.

If only one **ASKO***HEAT-F+ 2.0* is installed, it can be addressed with most routers as follows in a browser window of an end device connected to the LAN:

http://askoheat-eth

http://askoheat.local

In networks with several **ASKO***HEAT-F+ 2.0* units or if the local host name resolution does not work (correctly), the IP address can be read off the display of the **ASKO***HEAT-RC+*.

Example: 192.168.0.23 -> then enter this in the browser as follows: http://192.168.0.23

Functional description

Device descprition heater ASKO*HEAT+ 2.0*

The **ASKO**_HEAT_-_F+ 2.0_ can be switched in 3 or 7 stages using the **ASKO**_HEAT_-_RC+_ control unit supplied. If the heater isn't connected to the control unit, the heater switches to the highest level and heats until the temperature set on the thermostat is reached.

Device descprition control unit ASKO*HEAT*-_RC+_

It is possible to switch the appliance on or off manually at any time using the "Emergency button". This "Emergency" mode deactivates automatically after 24 hours.

The device can be switched analogue via a 0-10 V (DC) input or via the potential-free contact "Heatpump Request".

The Modbus protocol (TCP via LAN or RTU via RS485) and an API with JSON data are available digitally. A detailed description is available on the device website and online.

Emergency mode „Emergency On"

The "Emergency On" button can be used to switch on the maximum heating power immediately. This may be necessary in the event of a failure or if additional heat is required. To switch off, press the button again. The temperature is digitally limited to 60°C in this mode. For safety reasons, the **ASKO**_HEAT_-_F+ 2.0_ automatically switches back to normal function after 24 hours.

Heatpump Request

A heat pump switch-on signal can be connected via the two contacts 6 and 8 of connector X2. The maximum heat output can be switched on immediately with the „Heat pump request".

Electricity plant lock

A blocking signal can be connected via the two contacts 3 and 8 of connector X2. If the two contacts are bridged, the heater no longer heat. The heater ignores all other signals and heating commands. This function is used, for example, for heat pumps to be able to cool in summer. Or to prevent the appliance from heating despite a PV surplus.
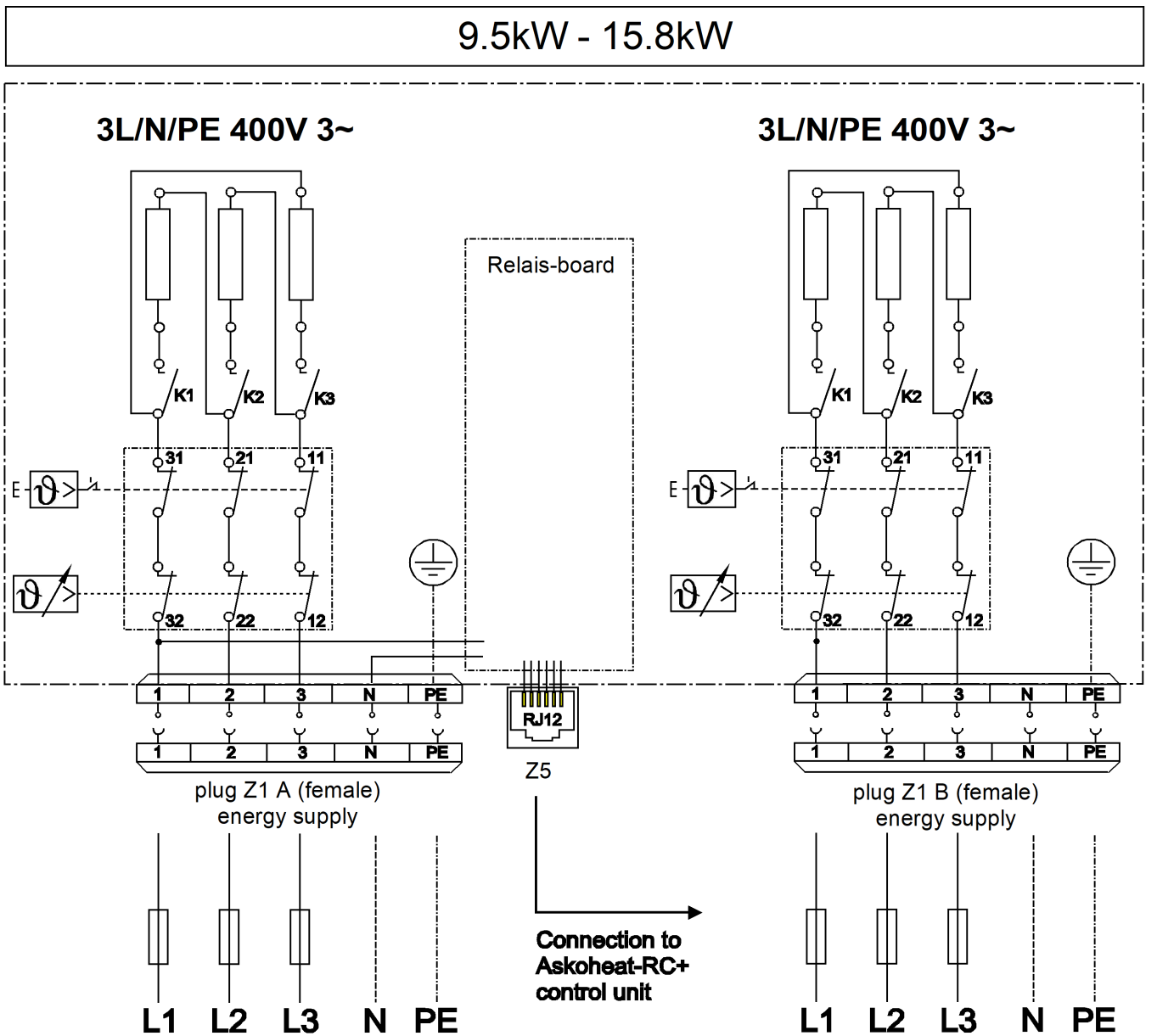
Electrical diagram

⚡ **WARNING!**   All power supply circuits must have been switched off before accessing the connection terminals.

Electrical and connection diagram AHF240-TI-plus-… / AHF280-TI-plus-…

- …-TI-plus-9.5
- …-TI-plus-11.9
- …-TI-plus-15.8

9.5kW - 15.8kW

3L/N/PE 400V 3~   Relais-board   3L/N/PE 400V 3~

plug Z1 A (female) energy supply

Z5

Connection to Askoheat-RC+ control unit

plug Z1 B (female) energy supply

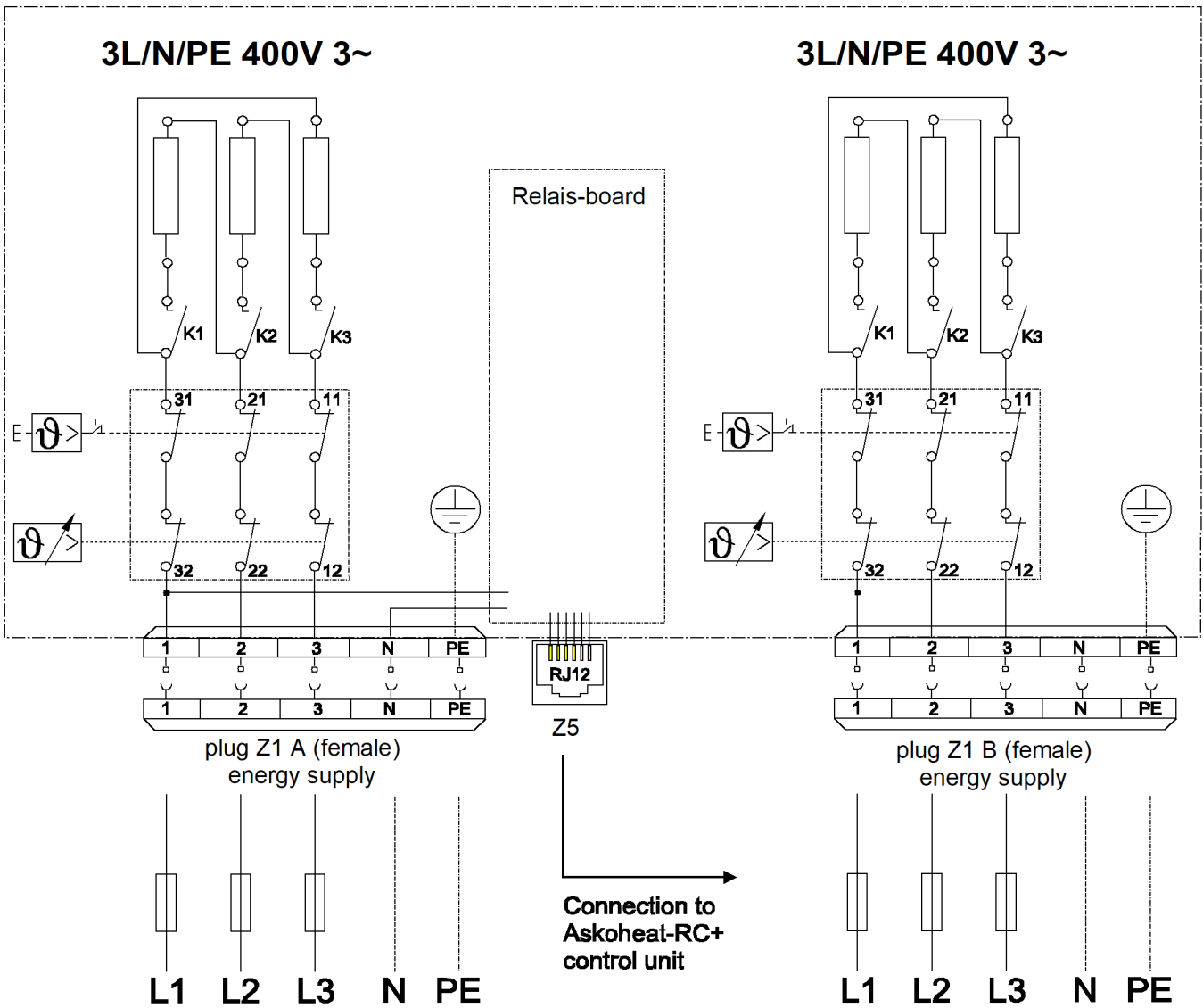L1 L2 L3 N PE   L1 L2 L3 N PE

Electrical diagram

WARNING!   All power supply circuits must have been switched off before accessing the connection terminals.

Electrical and connection diagram AHF240-TI-plus-… / AHF280-TI-plus-…

- …-TI-plus-10.0
- …-TI-plus-15.0
- …-TI-plus-20.0

10.0kW - 20.0kW

3L/N/PE 400V 3~

Relais-board

plug Z1 A (female)
energy supply

RJ12

Z5

Connection to
Askoheat-RC+
control unit

L1 L2 L3 N PE

3L/N/PE 400V 3~

plug Z1 B (female)
energy supply

L1 L2 L3 N PE

Service

2x / year ☎

When the heater is used in hard water areas it must be regularly descaled.
It is imperative that the local circumstances are paid attention to.
The build up of scale in the heating element can lead to the activation of the safety temperature limiter or thermal overloading thereby destroying the heating elements.
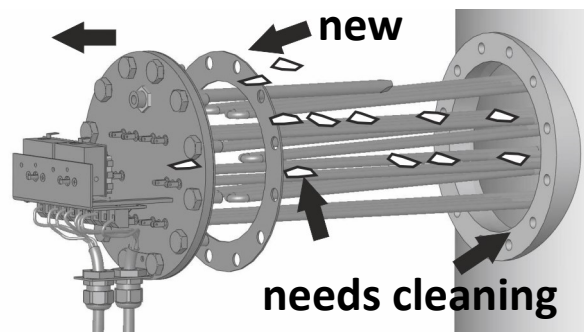**In such cases the guarantee is not valid!**

1.

0-85°C
OK?
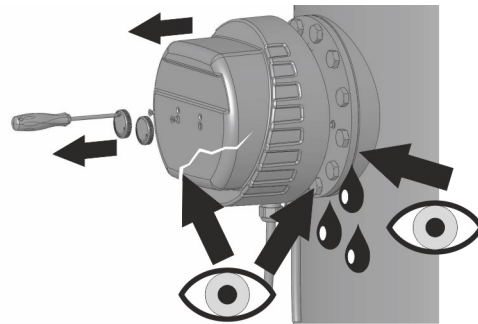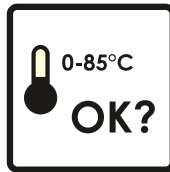
2.

The device must be cleaned (descaled) with a suitable professional descaling agent, e. g. citric acid.

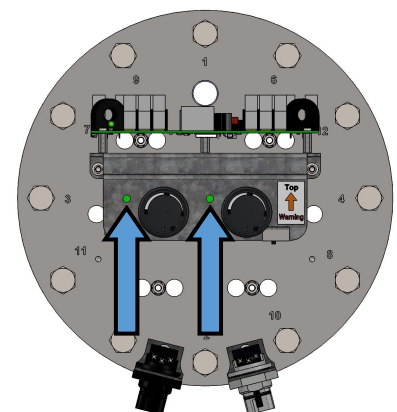**new**

needs cleaning

Malfunction

If the safety temperature limiter activates, there is a fault or error. In this case, the system must be checked by a specialist.

⚠
Reset

View device description on page 6

The version currently valid can be downloaded from our homepage

For technical data see the data sheet

Subject to technical alterations