

## Fitting instructions, user manual and service

Please keep in a safe place

### Flange heater Ø 180mm for drinking and heating water

#### AHFR-BI-plus-1.75 up to 5.8 kW

- AHFR-BI-plus-1.75
- AHFR-BI-plus-3.5
- AHFR-BI-plus-4.4
- AHFR-BI-plus-5.8



## Index

General safety and assembly information	Page 2
Operating instructions	Page 3
Assembly instructions	Page 4
User manual	Page 6
Operating conditions	Page 7
Electrical diagram	Page 8 / 9
Service	Page 10
Malfunction	Page 10

## General safety information



- Do not place the device into operation until after having read the user manual.
- These devices may be used by children aged 8 or more and by persons with reduced physical, sensory or mental capacity or those lacking in experience and/or knowledge if they are supervised or if they have been instructed in safe operation of the device and understood the resultant dangers. Children may not play with the device. The device may not be cleaned or serviced by children unless they are supervised.

**Installation, setting and removal must be carried out only by qualified electricians.**

## Assembly information

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

Make sure that the heating tubes are entirely covered by the liquid before placing into operation. The circulation of the liquid shall not be inhibited.

Operating data, application, dimensions and model of the flange heater are on the identification plate and circuit diagram on the device, respectively inside the housing cover, or can be found in the fitting instructions / user manuals.

## Operating instructions

### Important information

If a heat exchanger is fitted in the same tank, the controller must limit the temperature caused by the heat exchanger to 85°C. This prevents the safety temperature limiter of the flange heater tripping.

### Safety temperature limiter

The safety temperature limiter may trip at temperatures lower than approx. -15°C (e. g. transportation or storage). If this happens, press the reset button, see page 6 "user manual".

**The device may only be used to heat water.**

### Corrosion protection

Please note: This heating element is applicable in stainless steel boiler as well as in black steel / black steel enamelled boilers. Select the settings via DIP switch according to the boiler type. For an installation of the heating element into black steel or black steel enamelled boilers, the red slide switch (DIP switch) has to be left in position "Schwarzstahlspeicher" (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 position "Edelstahlspeicher".

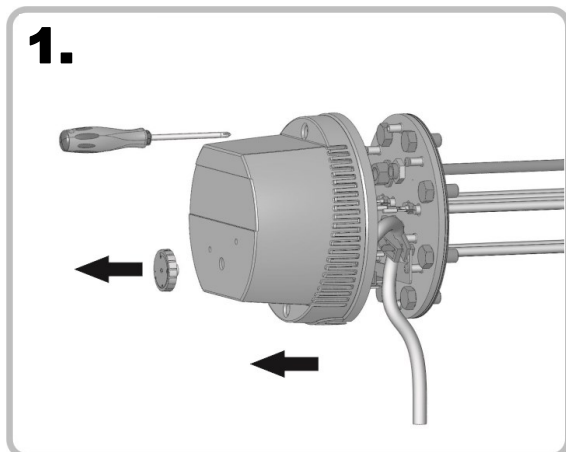
### Electrical connection

The device is intended for fixed connection only and may be connected only to fixed cables. Select a cable cross-section suitable for the power rating of the device. All poles of the device must be able to be disconnected from the mains by means of an at least 3mm isolating distance. The PE wire must be 100mm longer than the other conductors.

### In the event of the following the guarantee is void:

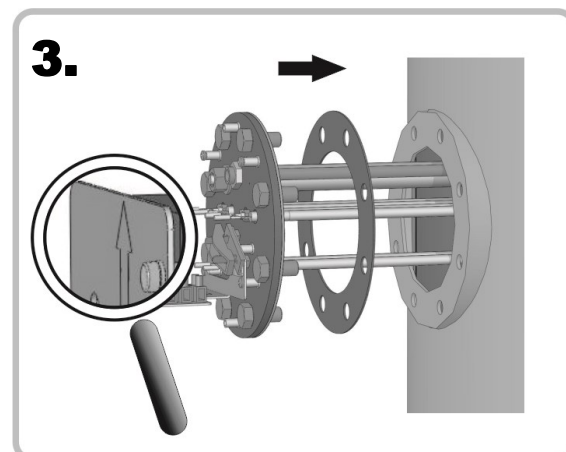
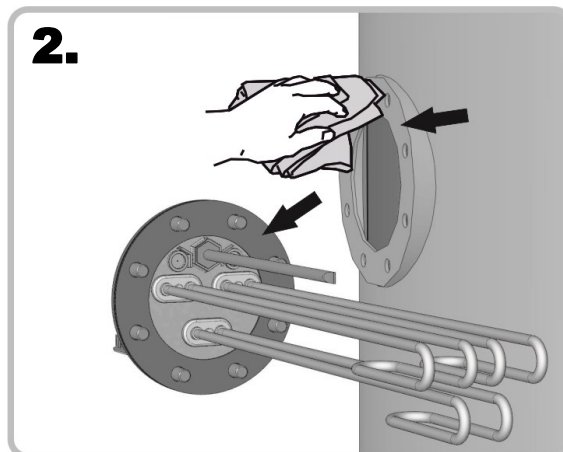
- Not complying with this paperwork „Fitting instructions, user manual, and service“
- Not complying with the storage heater manufacturer's fitting instructions
- Technical modifications, repairs or tampering with the device (including exchanging the thermostat)
- Applications for which the device was not designed
- Incorrect operation and maintenance
- Not complying with directive VDI 2035
- Manipulations on the operating software
- Undocumented parameterizations via the documented interfaces

## Assembly instructions



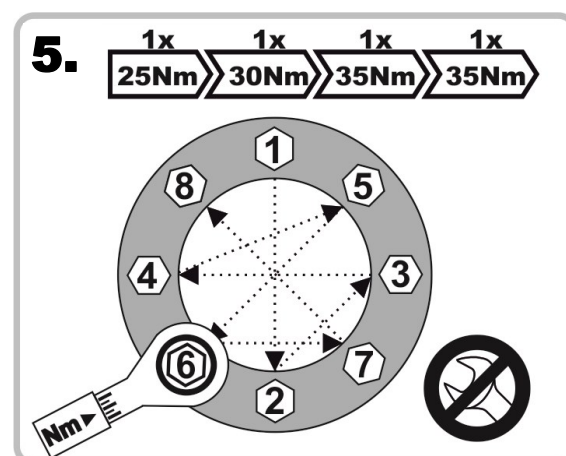
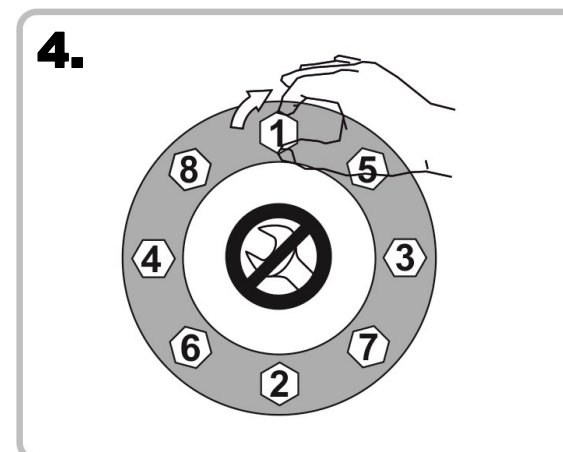
Carefully unscrew the housing cover

Clean the sealing surface of the flange



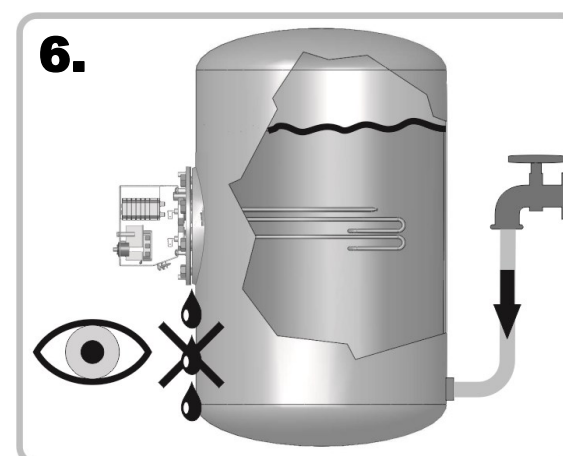
Screw the flange heater including the seal onto the storage tank, note the installation position, see „TOP“ sticker

Tighten screws by hand



Tighten the screws with a torque wrench

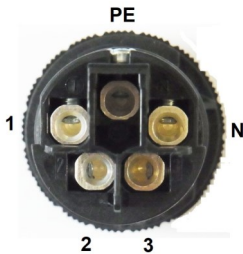
Fill the tank and check for leaks



# Assembly instructions

## Connect flange heater electrically

**Plug Z1**—Connect the power supply to the heating element as follows:



- Connection 1: L1
- Connection 2: L2
- Connection 3: L3
- Connection N: N
- Connection PE: PE



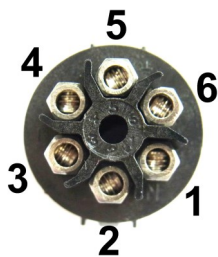
- **Plug Z2**—Temperature sensor (optional)



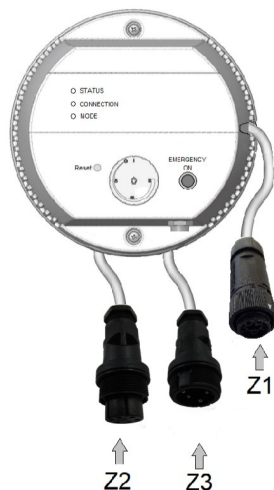
- Connection 1: Temperature sensor 1
- Connection 2: Temperature sensor 2
- Connection 3: Temperature sensor 3
- Connection 4: Temperature sensor 4
- Connection 5: GND
- Connection 6: Relay K4



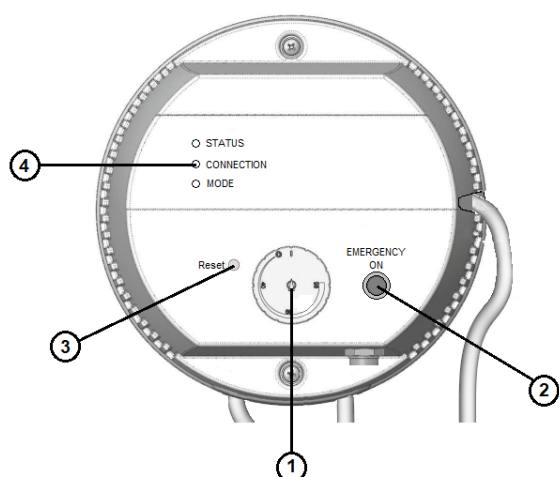
- **Plug Z3**—Heat pump request / 0-10V analogue signal (optional)



- Connection 1: GND
- Connection 2: Heat pump request
- Connection 3: Analogue input 0-10V
- Connection 4: RS485: A
- Connection 5: RS485: B
- Connection 6: RS485: GND



## User manual for the user and qualified installer



Pos. 1	Temperature control
Pos. 2	Emergency On
Pos. 3	Reset button
Pos. 4	Operating lights

### Device description

The **ASKOHEAT-F+** is switched in 7 steps via the digital Modbus interface or the analogue 0-10V input. In addition, the maximum level up to 24 hours can be activated via the „Emergency On“ button (Pos. 2) or the digital input „Heat pump request“.

The use of the interface is described in a separate document (Modbus protocol) and can be downloaded from our homepage.

### Temperature control

The maximum temperature can be continuously adjusted with the rotary knob (pos. 1). The range extends from „Out“ to approx. 85°C. For economic reasons, it should be set to approx. 65°C.

When the temperature is reached, the device switches off and on again automatically if necessary.

### Safety temperatur limiter

If the safety temperature limiter has tripped, you can reset it with a "00 screwdriver" through the opening marked "Reset". This cannot be done until the temperature has cooled down by approx. 10K.

### Emergency operation „Emergency On“

The maximum heating output can be switched on immediately with the „Emergency On“ button. To do this, press the button for at least 2 seconds. This may be necessary in the event of a fault or if additional heat is required. To switch off, press the button again for at least 2 seconds. For safety reasons, the **ASKOHEAT-F+** automatically switches back to normal operation after 24 hours.

### Applicable standards

Safety:	EN60335-1 / -2-21 / -2-73
EMC:	EN55014-1 / -2
CEM:	EN62233
IP Code:	EN60529

## Operating conditions

### LED 1: STATUS

<b>Blue</b>	Communication over ethernet (MODBUS TCP, RTU, webbrowser or HTTP-JSON (e.g. Energy Manager) within last 5 seconds
<b>Red—Flashing</b>	Error, for further information open the local webpages of ASKOHEAT+
<b>White—Flashing</b>	Identify for 20 seconds or Emergency Mode toggles on or off / very fast flashing at start and stop update

### LED 2: CONNECTION

<b>Red</b>	Connection to local network (LAN)
<b>Green</b>	LAN (Ethernet) connected to a switch, hub or router
<b>Yellow-flashing</b>	Data communication over LAN (Ethernet)
<b>Blue-flashing</b>	ASKOHEAT+ is running without LAN connection, e.g. using only analog input

### LED 3: MODE

<b>Yellow</b>	Heater relays are active, but without current flow (switch-off by thermostat)
<b>Green</b>	Heater is active with current flow
<b>Blue-flashing</b>	Emergency Mode is active
<b>White</b>	Identify for 20 seconds or Emergency Mode toggles on or off / very fast flashing at start and stop update



# Electrical diagram

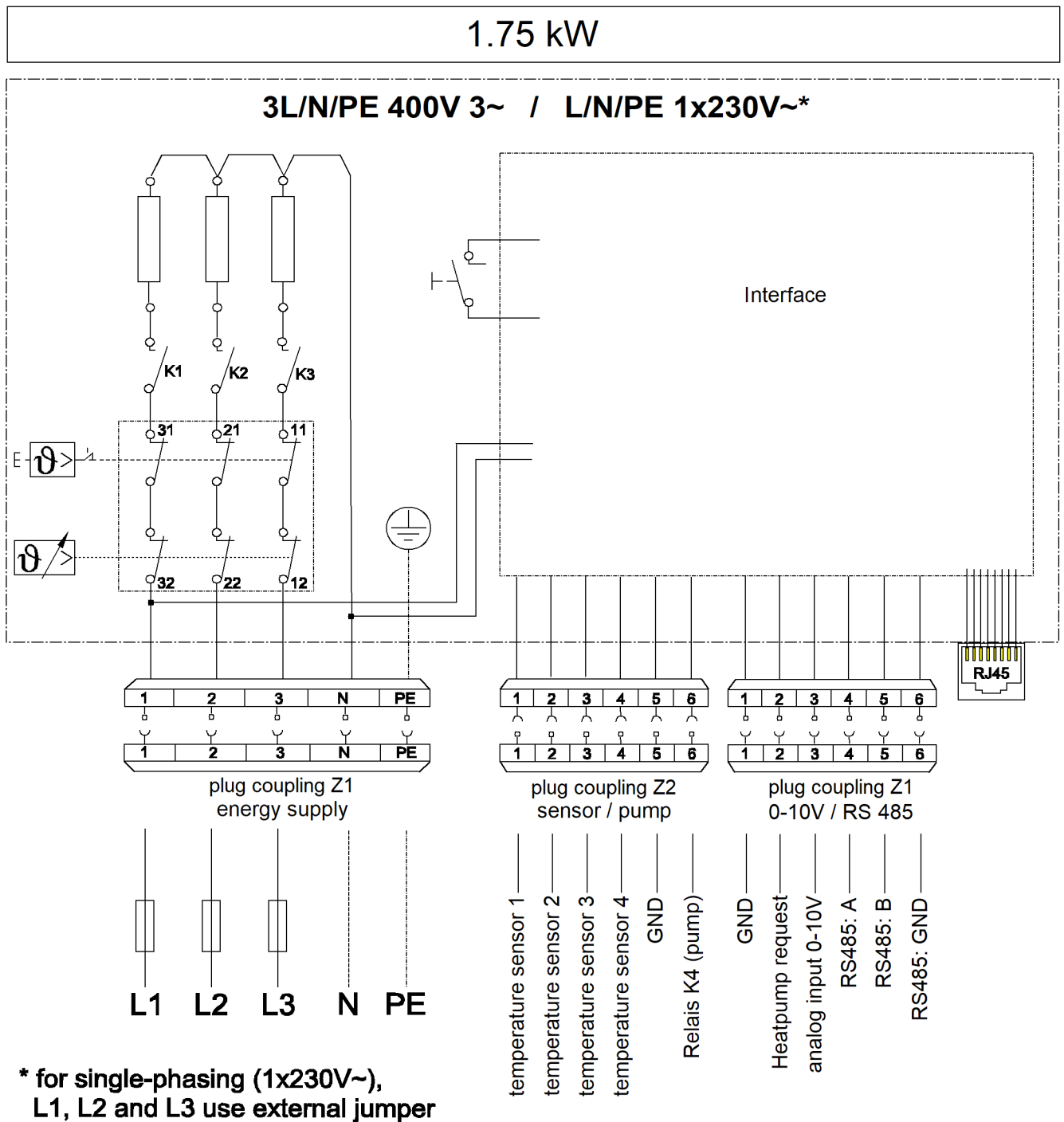


## **WARNING!**

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

### Electrical and connection diagram 1.75 kW

- AHFR-BI-plus-1.75





# Electrical diagram

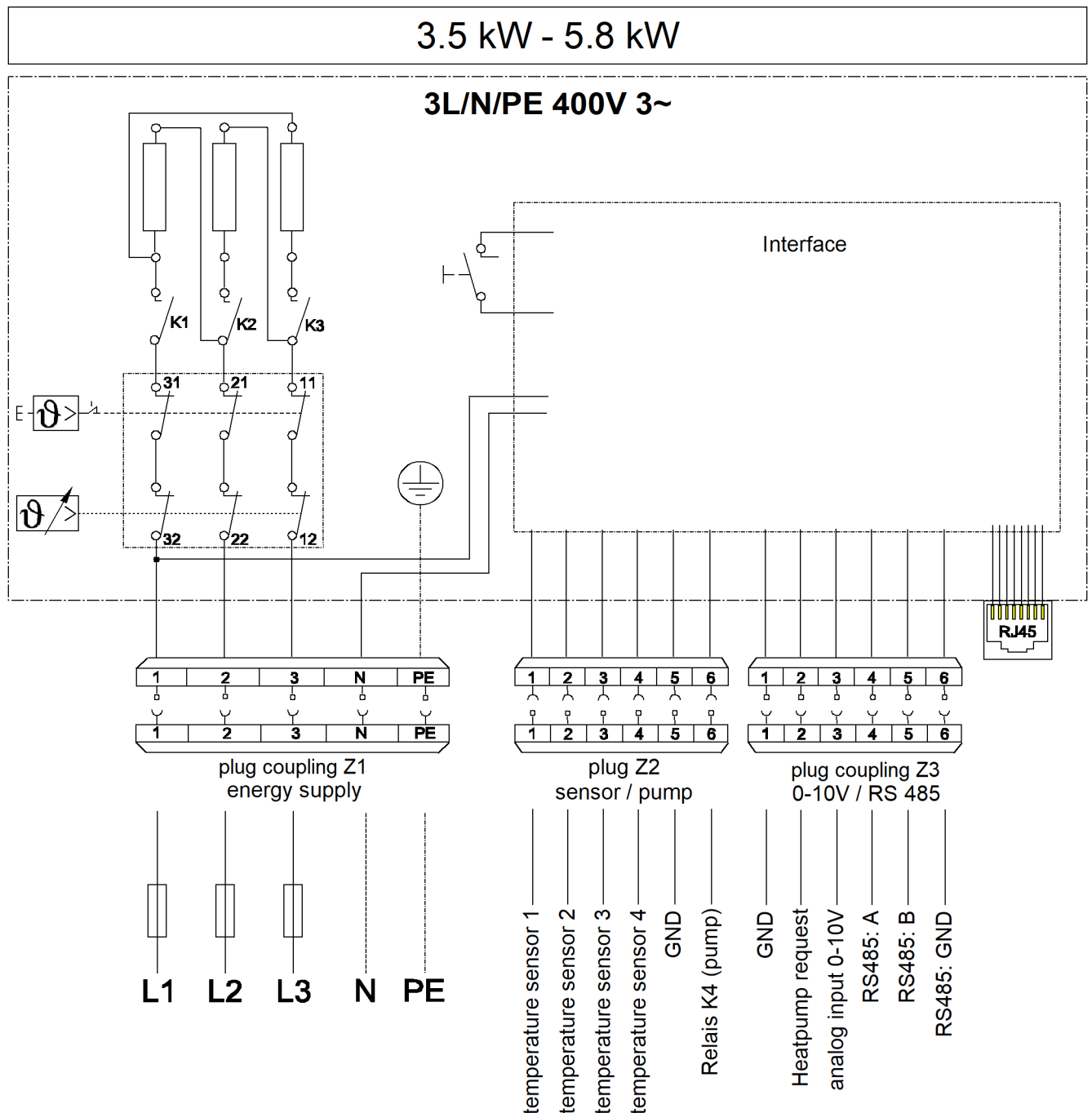


## **WARNING!**

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

### Electrical and connection diagram 3.5 kW - 5.8 kW

- AHFR-BI-plus-3.5
- AHFR-BI-plus-4.4
- AHFR-BI-plus-5.8



## Service

2x / year



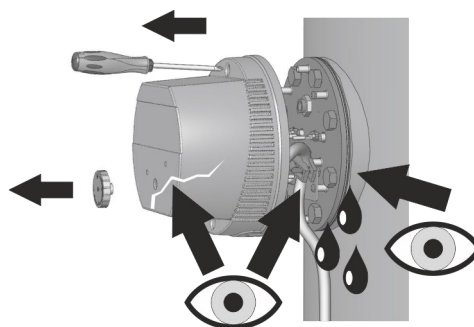
When the heater is used in hard water areas it must be regularly descaled.

**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.

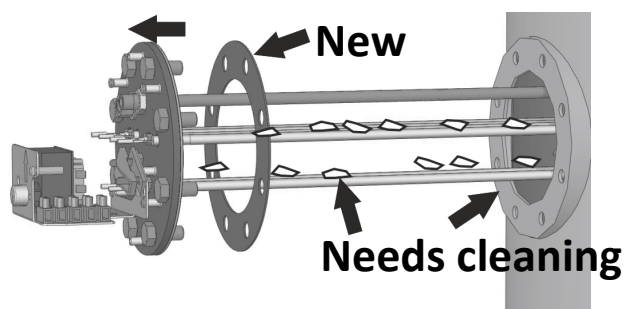
**In such cases the guarantee is not valid!**

1.



2.

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



## Malfunction

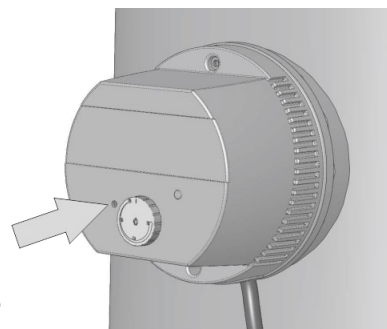


If the safety temperature limiter trips, there is a fault or error. A qualified expert must inspect the system in this case.



### Reset

See user manual for the qualified installer.



The version currently valid can be downloaded under "Downloads" from our homepage

For technical data see the data sheet

Subject to technical alterations