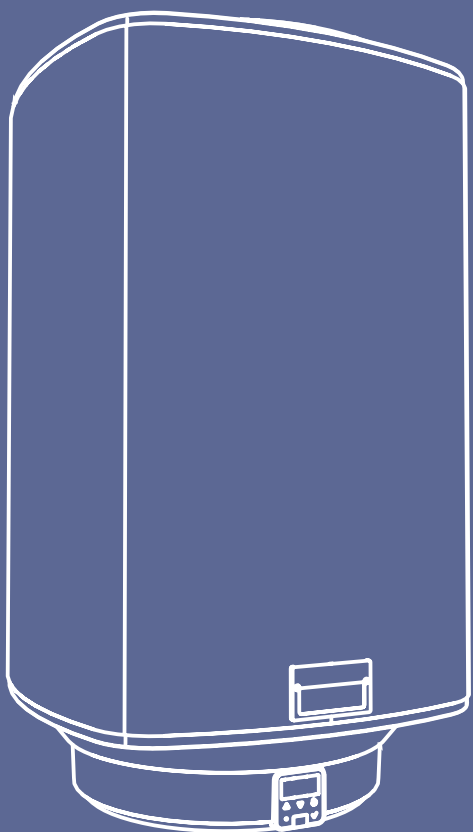


## Installation & Use





# Introduction

This manual contains important information about the safe and proper installation and commissioning of the product.

Read this manual carefully before commencing with the installation.

The following definitions are used in this manual to draw attention to hazards, instructions or indications related to people, products, installations and/or the surroundings.

## **Danger!**

Indicates that action may result in serious or fatal injuries.

## **Warning!**

Indicates a hazard that can cause severe injury and/or severe damage to the product, system or surrounding area.

## **Caution!**

Instructions important for the installation, functioning, operation or maintenance of the product. Failure to observe these instructions can result in minor injury and/or severe damage to the product, system or surrounding area.

## **Note**

Instructions important for the installation, functioning, operation or maintenance of the product. Failure to observe these instructions can result in minor damage to the product, system or surrounding area.

## **Tip**

Instructions that may be important for the installation, functioning, operation or maintenance of the product, but are not related to injury or material damage.

Itho Daalderop retains the right to make changes without prior notification. Due to our continuous product improvement process, the illustrations in this document may not match the delivered appliance.

The latest version (if available) can be downloaded from our website.

Itho Daalderop cannot be held responsible for costs, damage or personal injury if the product is not used in accordance with the instructions given in the manual.

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# 1. Safety and other regulations

## 1.1. Safety

- Install the product as outlined in this manual and according to the relevant installation and safety instructions.
- This product and/or system may be operated safely by children aged 8 years and older and by people with physical, sensory or mental disabilities or a lack of experience/knowledge if under supervision or after having received instructions regarding safe use, and if they are aware of the product and/or system hazards.
- Cleaning and maintenance by the user may not be done by children or people with physical, sensory or mental disabilities or a lack of experience/knowledge without supervision.
- Do not allow children to play with the product and/or system.
- This product and/or system is intended for use in domestic and similar environments, such as:
  - personnel kitchens in shops, offices and other work environments;
  - farms;
  - by customers in hotels, motels and other residential environments;
  - bed and breakfast environments.
- Use in other environments in consultation with the product and/or system manufacturer.
- Ensure that the electrical system to which the product is connected meets the necessary conditions.
- Do NOT connect the appliance to mains power until the heater has been filled with water and vented.
- Take the following steps before carrying out work on an open appliance:
  - Switch the power off.
  - Make sure that the power cannot be switched back on accidentally.
- Avoid contact with electrical components when power is required for working. Risk of electric shock.
- The heater and safety group may only be fitted in frost-free rooms due to the risk of freezing.
- Regularly operate the safety group to test that it is not blocked by a build-up of dirt.

## 1.2. Water quality requirements

WATER QUALITY	
Acidity (pH)	7-8.5
Iron content (Fe)	< 0.2 mg/l
Chlorine content (Cl)	< 150 mg/l
Conductivity	< 125 mS/m
Hardness	3-12 °dH / 5-22 °fH / 0.53-2.14 mmol/l CaCO <sub>3</sub>
Chemical additives	Not permitted

A softening filter must be used in areas where the water hardness exceeds the values stated in the table. You can contact your water supplier to find out the water hardness level.

# 2. Product information

## 2.1. Application

This manual applies to the following heater models:

- Smartboiler Mono
- Smartboiler Mono Plus

These are hot water heaters designed for use in the kitchen, shower and/or bath. These heaters are capable of supplying comfortable amounts of hot water to these tap points simultaneously. The heaters are fitted with a copper inner tank.

- The Smartboiler Mono is a low-power heater with a single heating element offering 1000 W or 1750 W capacity.
- The Smartboiler Mono Plus is a low-power heater with two heating elements with 2500 W combined capacity.

The heater can be connected in one of the following ways:

- Connection based on water pressure principle with a safety group. This connection method is described in this manual.
- Connection based on water pressure principle with an inlet mixer tap. See the installation instructions for the inlet mixer tap.
- Connection based on low pressure principle. This requires a special low-pressure mixer tap. See the installation instructions for the low-pressure mixer tap.

## 2.2. Technical data

Description	Symbol	Unit	Smartboiler Mono					Smartboiler Mono Plus				
			30	50	80	120	150	30	50	80	120	150
Weight (empty)	—	kg	22	25.5	33	42.5	51	22	25.5	33	42.5	51
Weight (filled)	—	kg	52	75.5	113	162.5	201	52	75.5	113	162.5	201
Storage volume	V	l	30	50	80	120	150	30	50	80	120	150
Supply voltage	—	V	~ 230 V – 50 Hz					~ 230 V – 50 Hz				
Power	—	W	1000				1750	2500				
Load	—	A	4.3				7.6	10.9				
IP classification	—	—	IPX5					IPX5				
Temperature setting	—	°C	55 / 60 / 65 / 70 / 75 / 80 / 85 <sup>(boost)</sup>					55 / 60 / 65 / 70 / 75 / 80 / 85 <sup>(boost)</sup>				
Warm-up time ( $\Delta T=55^{\circ}\text{C}$ ) <sup>(1)</sup>	—	h:min	1:35	2:40	4:15	3:40	4:30	0:40	1:05	1:40	2:35	3:10
Standing loss	S	W	27	33	36	50	57	27	33	36	50	57
Water connector	—	inch/mm	1/2" / 15 mm compression					1/2" / 15 mm compression				
Maximum operating pressure	P <sub>mw</sub>	kPa bar	800 8					800 8				
Daily water heating electricity consumption	Q <sub>elec</sub>	kWh	2.5	6.7	6.7	13.5	13.5	7.0	6.7	6.7	13.5	13.5
Energy-efficient water heating	$\eta_{wh}$	%	39.3	39.9	39.9	39.1	39.1	39.0	39.9	39.9	39.1	39.1
Weekly electricity consumption with smart controls	Q <sub>elec, week, smart</sub>	kWh	13.3	25.1	25.1	54.1	54.1	25.1	25.1	25.1	54.1	54.1
Weekly electricity consumption without smart controls	Q <sub>elec, week</sub>	kWh	15.1	28.6	28.6	60.8	60.8	26.8	28.6	28.6	60.8	60.8
Mixed water at 40°C	V <sub>40</sub>	l	51	80	137	199	255	51	80	137	199	255

<sup>1)</sup> At a cold water temperature of 10°C.

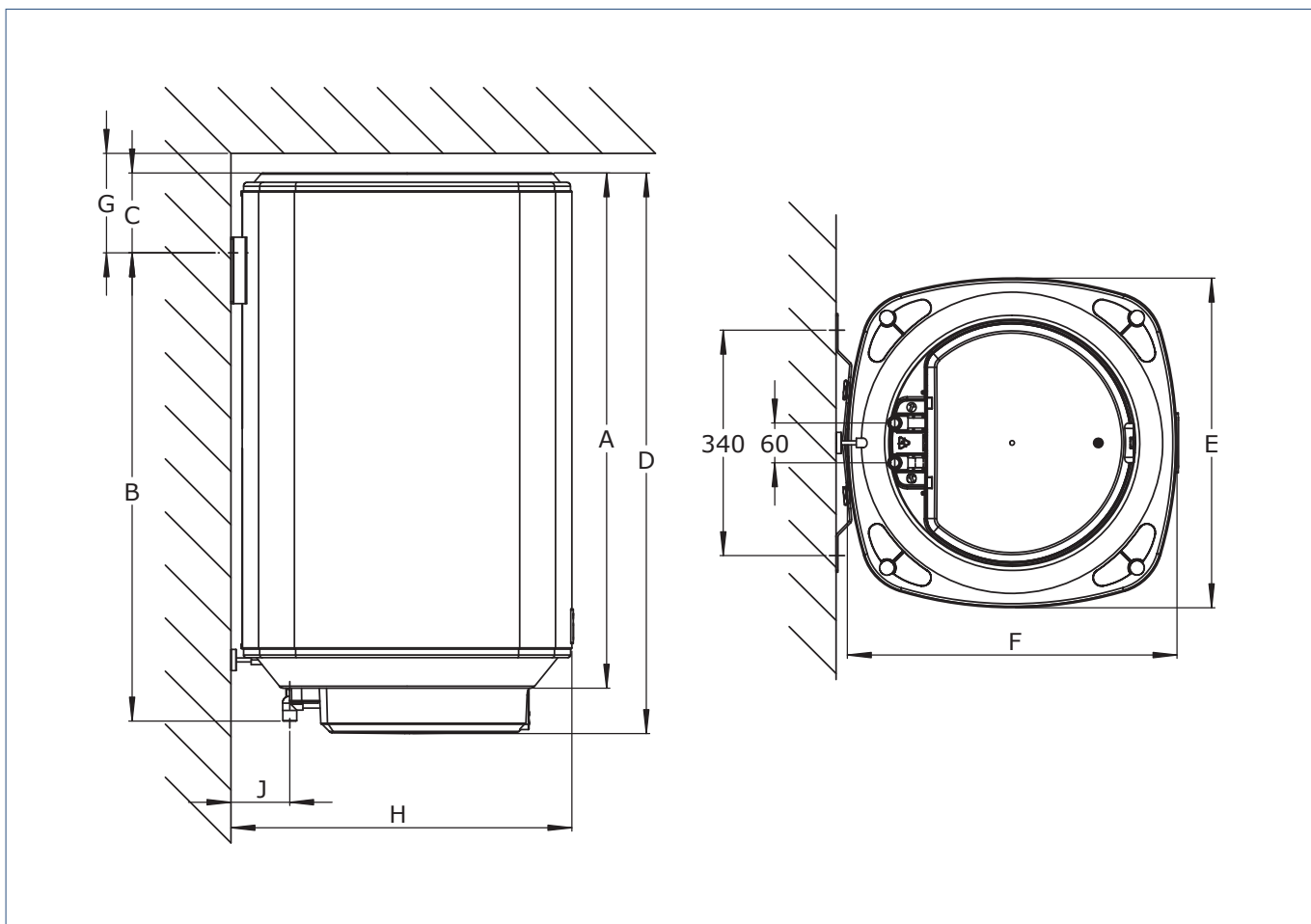
## 2.3. Product data sheet information

Itho Daalderop			Smartboiler Mono					Smartboiler Mono Plus				
Description	Symbol	Unit	30	50	80	120	150	30	50	80	120	150
Declared load profile	—	—	S	M	M	L	L	M	M	M	L	L
Water heating energy efficiency class	—	—	A	B	B	C	C	B	B	B	C	C
Energy-efficient water heating <sup>(1)</sup>	$\eta_{wh}$	%	39	40	40	39	39	39	40	40	39	39
Annual water heating electricity consumption <sup>(1)</sup>	AEC	kWh	469	1286	1286	2617	2617	1286	1286	1286	2617	2617
Room thermostat temperature setting <sup>(2)</sup>	—	°C	65					65				
Specific precautions to be taken for assembly, installation or maintenance			Read the manual before installation and use									

1) Only applies with smart control function engaged

2) To be set by the user

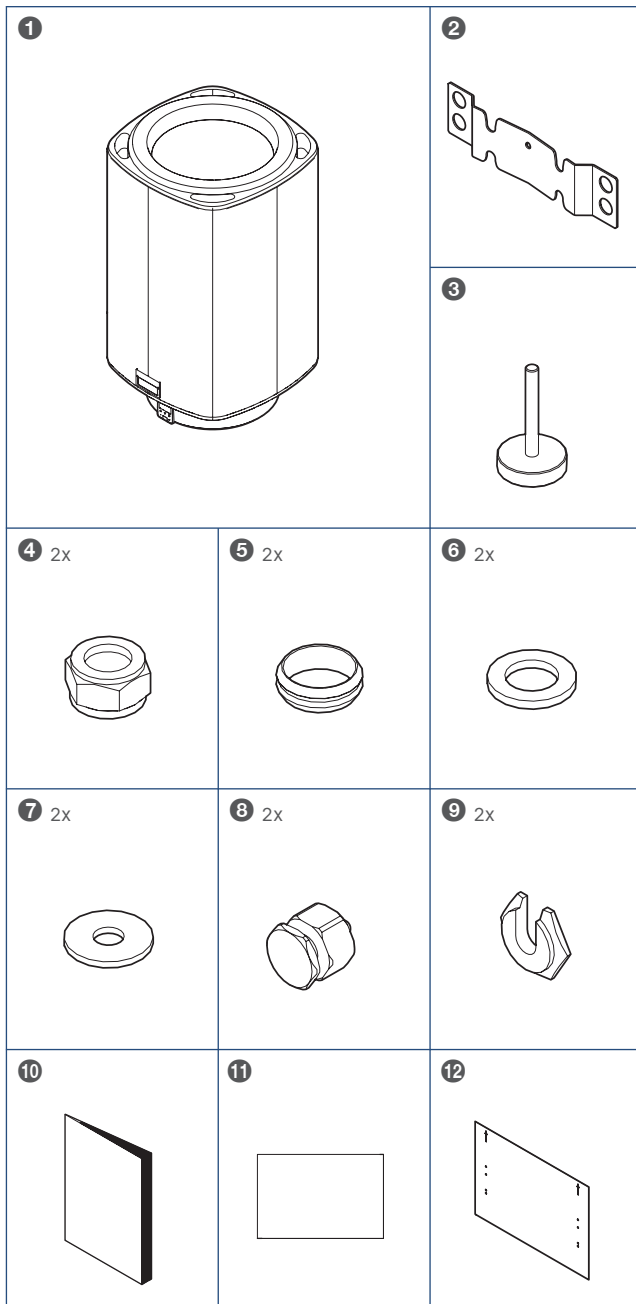
## 2.4. Dimensional sketch



Key		Heater model				
Dimension	Unit	30	50	80	120	150
A	mm	569	660	777	1046	1250
B	mm	455	555	705	1005	1208
C	mm	161	152	120	90	90
D	mm	637	728	845	1114	1318
E	mm	437	437	497	497	497
F	mm	467	467	497	497	497
G (min.)	mm	210	200	150	125	125
H	mm	480	480	510	510	510

## 2.5. Package contents

Use the overview below to check whether the package contents are complete and that the components have not been damaged. If you detect any damage or if one or more components are missing, please contact the sales point where you purchased the unit.



### Key

- 1 Smartboiler
- 2 Mounting bracket
- 3 Levelling foot
- 4 Compression nut 15 mm
- 5 Compression ring 15 mm
- 6 Gasket ring 1/2"
- 7 Washer M10
- 8 Long lug
- 9 Centring ring
- 10 Manual
- 11 Warranty card
- 12 Drilling jig

## 2.6. Recycling

This product was manufactured using sustainable materials. It should be disposed of in a responsible manner at the end of its life cycle. Your local authorities can provide you with information on how to do so.

The product's packaging can be recycled. These materials should be disposed of in a responsible manner in accordance with government regulations.



As a reminder of the need to dispose of batteries and electrical household appliances separately, the product features a symbol consisting of a crossed-out wheeled bin. This means that the product should not be disposed of with the rest of your domestic waste at the end of its life cycle. It must be taken either to a special separate waste collection centre operated by the local council or to an outlet specified by this service.

Any adverse effects on the environment and human health are minimised by handling batteries and household appliances separately. This ensures that the materials comprising the appliance can be recycled, thereby saving a significant amount of energy and raw materials.



# 3. Installation

## Warning!

NEVER turn on the power during installation to prevent damage to the product.

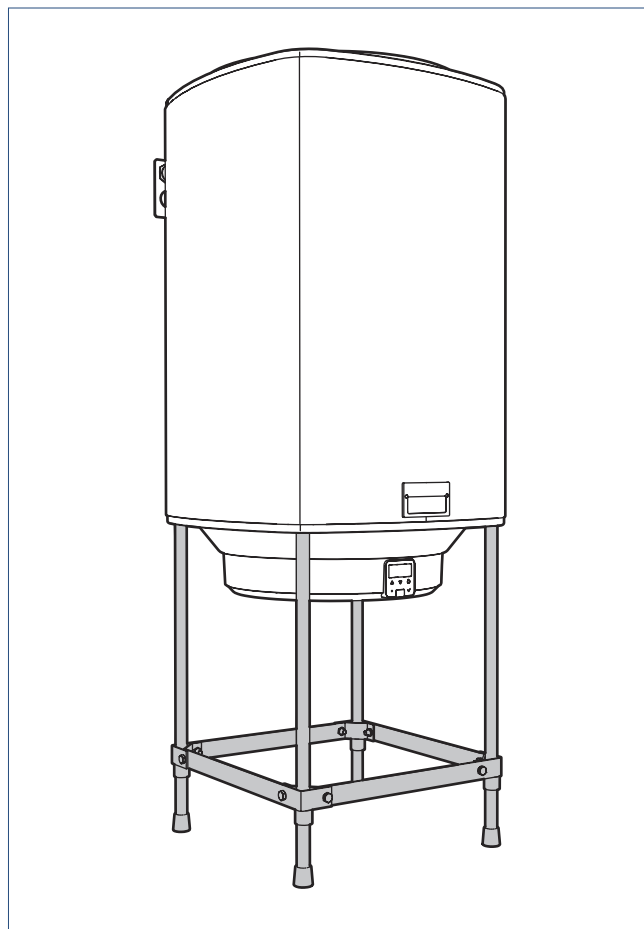
Make the following preparations:

- Turn **OFF** the electric circuit to which the heater is going to be connected in the meter box.
- Shut off the water mains stop tap and release the pressure in the system before starting work.
- Mark the hot and cold water connections.
- Remove the current heater if present.
- Flush the water pipes before connecting them.

To replace an existing heater, follow the instructions under **Existing heater replacement on page 10**.

Otherwise, continue from **New installation on page 12**.

## 3.1. Boiler seating



If the wall is not strong enough to support mounting of the 80 L, 120 L or 150 L boiler models, the Itho Daalderop boiler seating can be used to provide **additional support** for wall mounting.

## Caution!

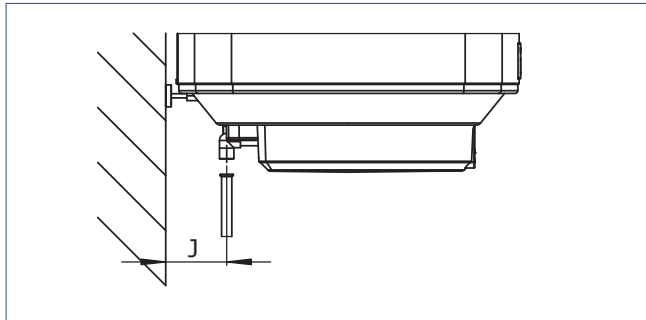
The boiler seating is **NOT** suitable for independently supporting the heater without wall mounting.

### 3.2. Existing heater replacement



The mounting bracket design enables the most common existing heaters to be replaced without needing to drill new holes or replace the plumbing.

If this is not possible, install the heater according to the instructions under **New installation on page 12**.

- Remove the old heater and mounting bracket.
- Measure the distance **J** (distance between the wall and the centre of the pipes).



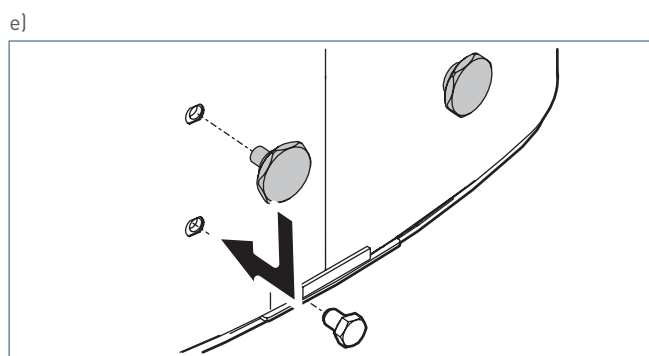
- If this distance is 100 mm, replace the installed lugs with the longer version.

	Standard	Long
		
<b>J (mm)</b>	85	100

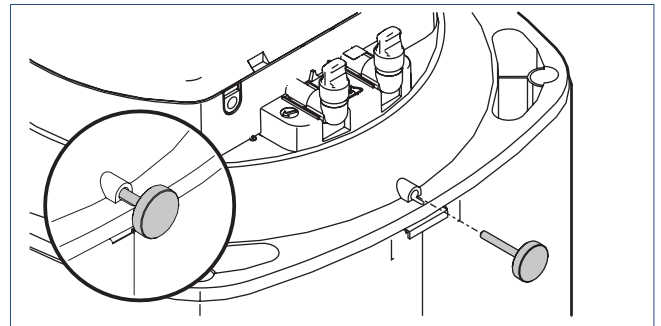
- For 50 L heater model only:**

It is possible that the distance between the ceiling and the lug's centre (dimension **G** in **Dimensional sketch on page 7**) is less than 200 mm. In this case, move the lugs to the holes in the heater containing the M8 bolts.

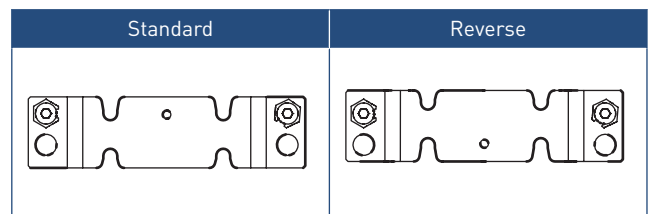
**Moving the lugs lowers the heater position and will require the pipes to be cut.**



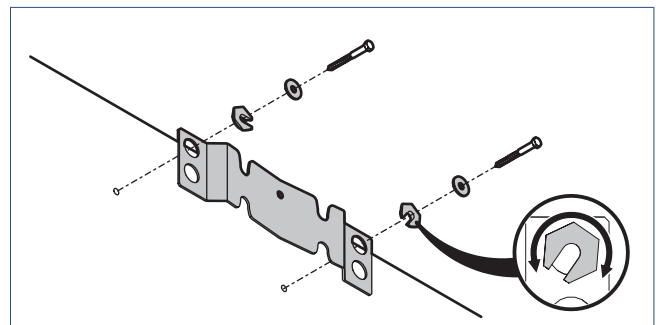
- Twist the levelling foot all the way to the back of the heater.



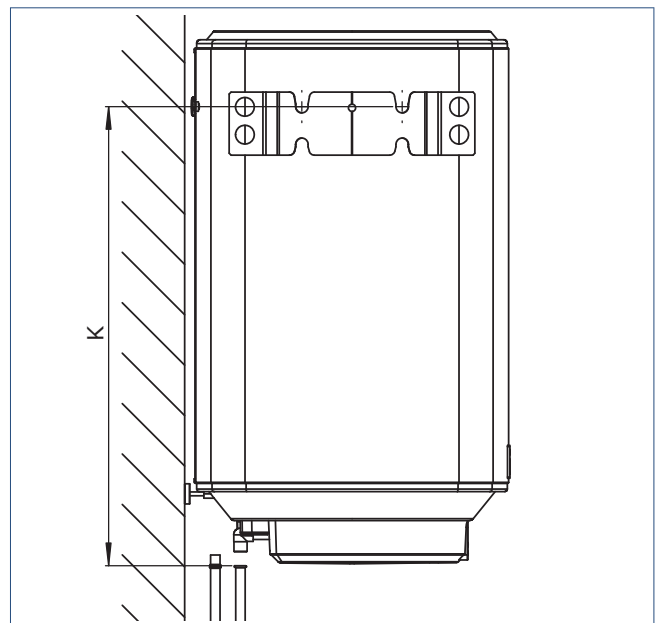
- Install the mounting bracket in the **STANDARD** position, with the centring hole at the top and the existing mounting hardware.



- Always use the mounting bracket's topmost mounting holes.
- Rotate the centring rings to adjust the bracket horizontally.

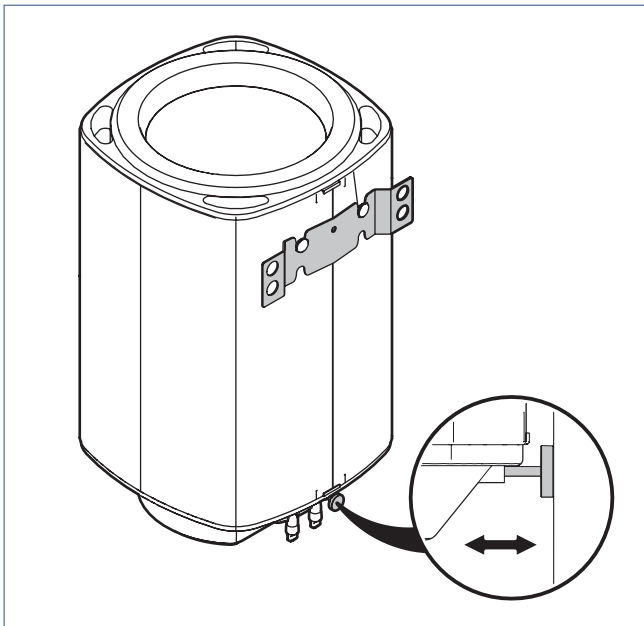


- Measure the distance **K** (distance between the pipes and the centre of the notch in the mounting bracket).



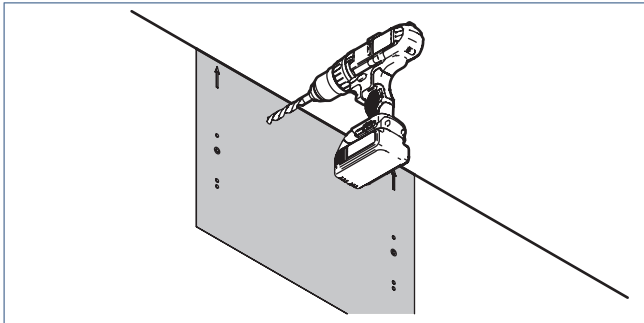
	Heater model				
Dimension	30	50	80	120	150
K (mm)	455	555	705	1005	1208

- i) Install the mounting bracket in the **REVERSE** position if the measured distance is not equal to distance **K** in the chart.
  - **Always use the mounting bracket's topmost mounting holes.**
  - Rotate the centring rings to adjust the bracket horizontally.
- j) Mount the heater on the mounting bracket.
- k) Level the heater vertically by rotating the levelling foot in or out.



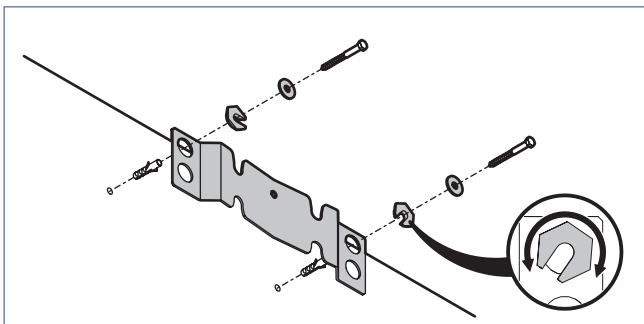
### 3.3. New installation

- a) Position the drilling jig with the arrow up against the ceiling.
- b) Mark the hole positions for the relevant heater model on the wall.
- c) Drill the necessary holes to install <sup>(1)</sup> the mounting bracket.



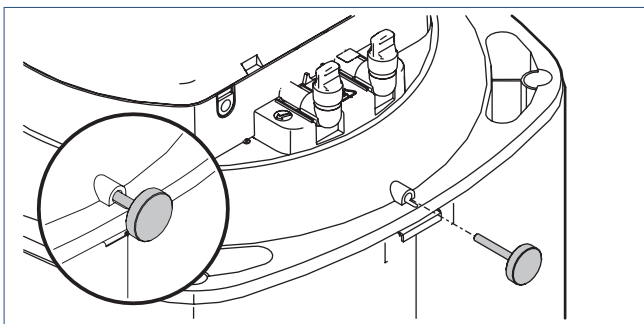
<sup>1)</sup> Use the appropriate mounting hardware for the wall type.

- d) Install the mounting bracket with the centring hole at the top.
  - Always use the mounting bracket's topmost mounting holes.
  - Rotate the centring rings to adjust the bracket horizontally.

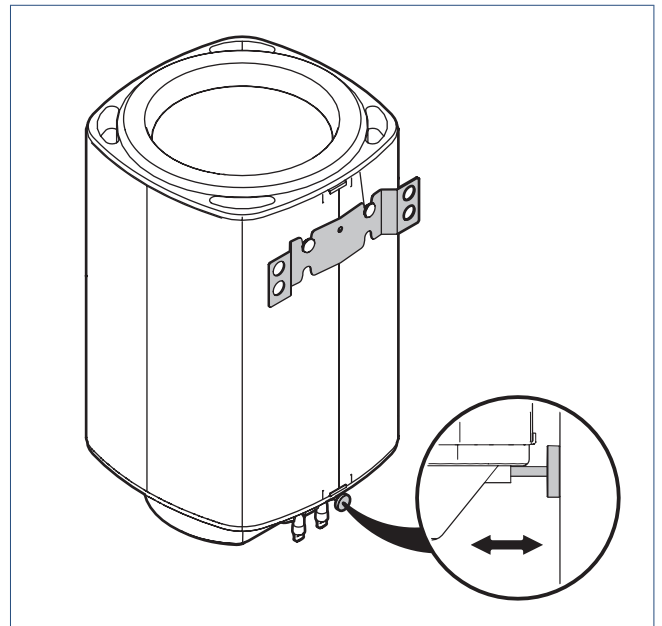


Wall mounting; example

- e) Twist the levelling foot all the way to the back of the heater.

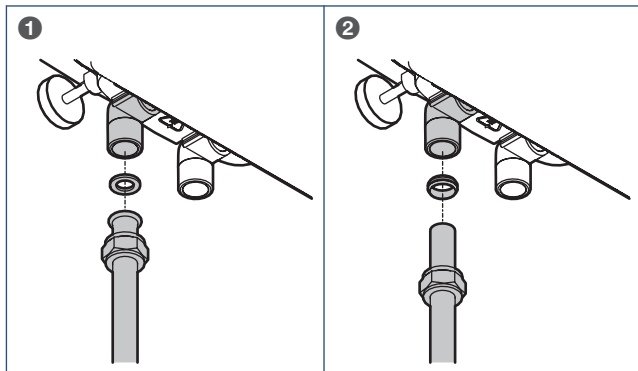


- f) Mount the heater on the mounting bracket.
- g) Level the heater vertically by rotating the levelling foot in or out.



### 3.4. Hot water connection

Connect the hot water pipe to the heater's hot water connection (red) using a flat gasket **1** or compression fitting **2**.

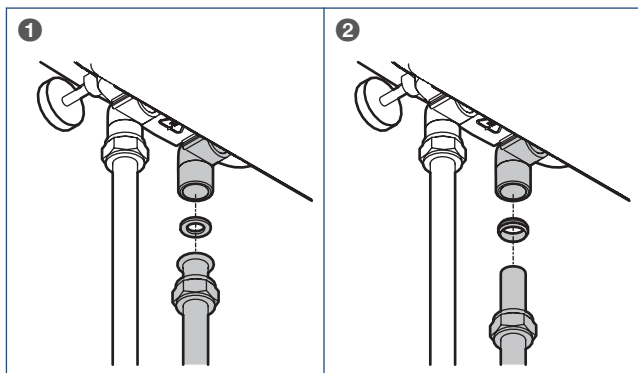


### 3.5. Cold water connection

#### Tip

When installing the heater, you need a safety group. The safety group and associated fittings are not included in the package. The safety group must be suitable for a water pressure level of up to 800 kPa.

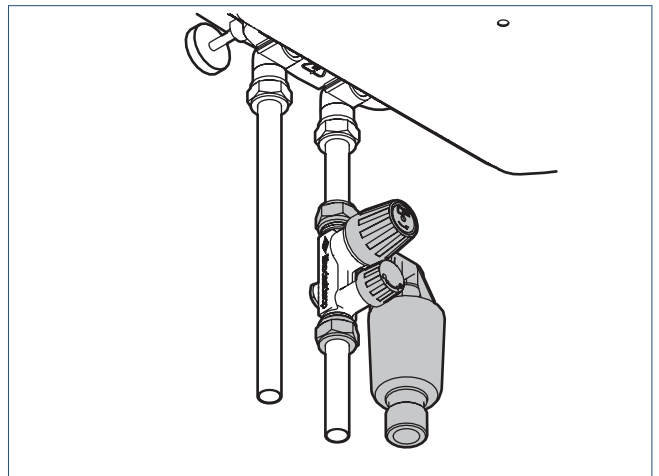
- a) Connect the cold water pipe to the heater's cold water connection (blue) using a flat gasket **1** or compression fitting **2**.



- b) Mount a safety group approved for use in the country of installation to the cold water pipe. When doing so, please note the following instructions:
- Position the safety group so the flow direction is either horizontal or vertical from bottom to top.
  - The expansion outlet of the safety group should face downwards.
  - The expansion outlet of the safety group must remain unobstructed. Only the funnel may be connected to the expansion outlet. Do not connect a hose or pipe to the expansion outlet.
  - The length of the hose between the safety group and the water heater should be no more than 2 metres.

#### Caution!

Take note of the direction in which the water flows through the safety group. The direction is indicated by an arrow on the safety group.



- c) Connect the funnel's expansion outlet to the home's drainage system.

### 3.6. Electrical connection

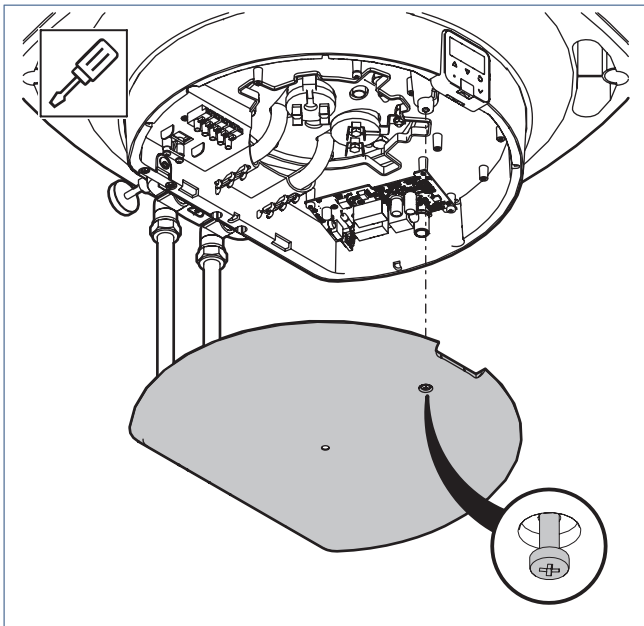
**! Caution!**

The appliance must be connected in accordance with national and local regulations for electrical installations using a fixed connection which can be switched off by means of a (built-in) power control.

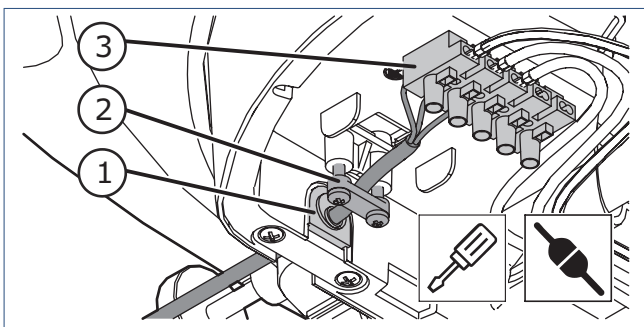
**! Caution!**

At the consumer unit, turn **OFF** the electric circuit to which the heater will be connected.

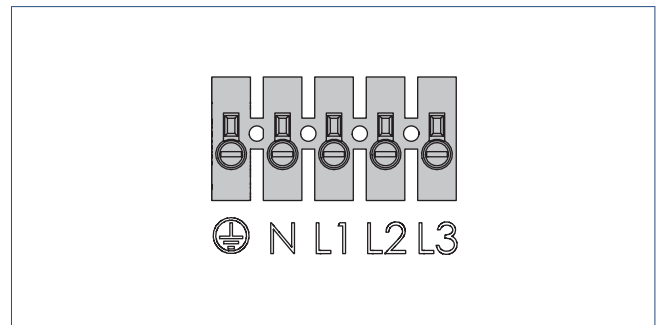
a) Remove the closing cap.



b) Feed the power cable through the cable gland **1** and the strain relief **2**.



c) Connect the power cable to the terminal block **3** in accordance with the instructions below:



Smartboiler Mono / Smartboiler Mono Plus		
	Colour	Function
⊥	Green/yellow	Earth
N	Blue	Neutral
L1	Brown	Live
L2	—	—
L3	—	—

**! Caution!**

**NEVER** connect the heater to a separate off-peak phase tail. In case of variable rate electricity tariffs, you can use the **DAY/NIGHT** function to only heat the water during off-peak hours.

- d) Secure the strain relief by tightening the two screws.
- e) Replace the closing cap on the heater.

The water heater can now be filled and turned on. Follow the instructions under **Filling and first use on page 24**.

**! Caution!**

Do not turn on the power to the appliance yet. Only do so when this is expressly required during commissioning.

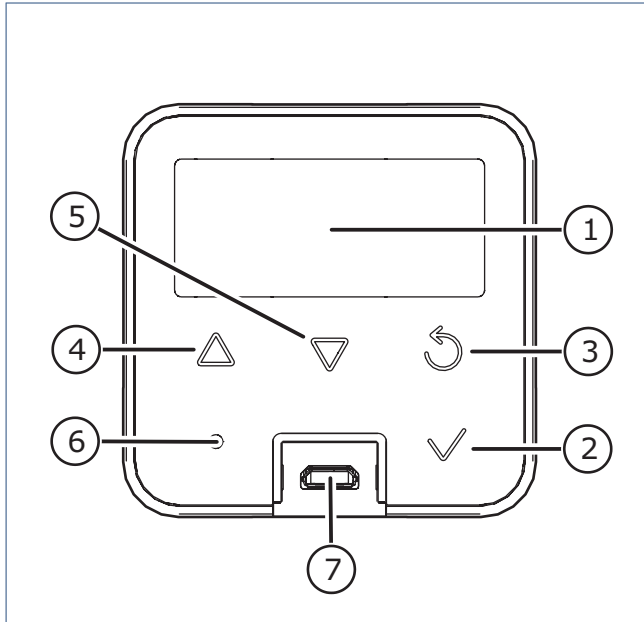
**Tip**

First read the **Operation on page 15** chapter to learn how to operate the heater using the HMI controller.

# 4. Operation

## 4.1. HMI controller

The Smartboiler is equipped with an HMI controller.



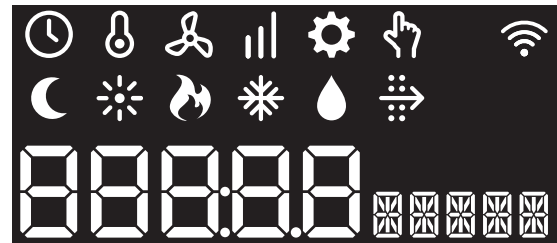
Key	
1	Screen
2	Select / OK
3	Back / Cancel
4	Up / Increase
5	Down / Lower
6	LED indicator
7	Service connection

The appliance has various statuses, menus and messages which can be displayed on the screen, namely:

- Initialising
- Operational status (information menu)
- Service menu;
  - Time
  - Configuration
  - Service
- Errors

## 4.2. Initialising

An LCD test is performed while initialising. This briefly displays all the on-screen icons and symbols. After testing, the screen will display the heater's current operational status.



*The LED indicator is off.*

The very first time (after installation) the heater will initialise in **STANDBY** mode. After this, the heater will always initialise in the last selected mode – either **ON** or **STANDBY** mode – when the power is restored.

### Note









The heater may carry out a safety check while heating. During this check the heating element switches off temporarily and the following message appears on-screen: **START TEST**.



## 4.3. Operational status

The screen remains inactive during normal operations.  
The LED indicator is continuously lit in blue.  
Press any button to activate the screen and display the current operational status.

The screen can display the following icons with these meanings:

Icon	Description
	<b>SMART control</b> The heater adjusts the water temperature independently to meet the user's demands.
	<b>Boost</b> The water is heated once to 85°C.
	<b>Error</b> The heater has encountered an error.
	<b>Heater mode ON</b> The water is heated to a set temperature in accordance with the <b>CONFIGURATION</b> settings.
	<b>Day mode</b> The daytime mode is activated and the water is NOT heated during this period.
	<b>Night mode</b> The night mode is activated and the water CAN be heated during this period.
	<b>Heating active</b> The heating element is activated and the water is heated.
	<b>Frost protection active</b> The frost protection is activated.

The heater has the following three heater modes:

### ON

The water is heated in accordance with the **CONFIGURATION** settings.

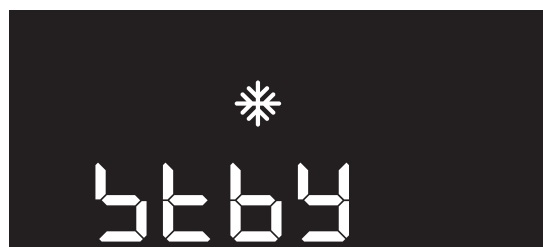


*Operational status; example*

- The visible icons show the current operational status.
- The LED indicator is continuously lit in blue.
- The current water temperature is displayed as standard.
- Press the **Up** or **Down** buttons for additional information about the heater; see **Information menu on page 18**.
- Press the **OK** button to display the **SERVICE MENU**; see **Service menu on page 19**.
- The screen is disabled if no button is operated for 30 seconds.

### STANDBY

The water is not heated, but the frost protection remains active.



*STANDBY heater mode; example*

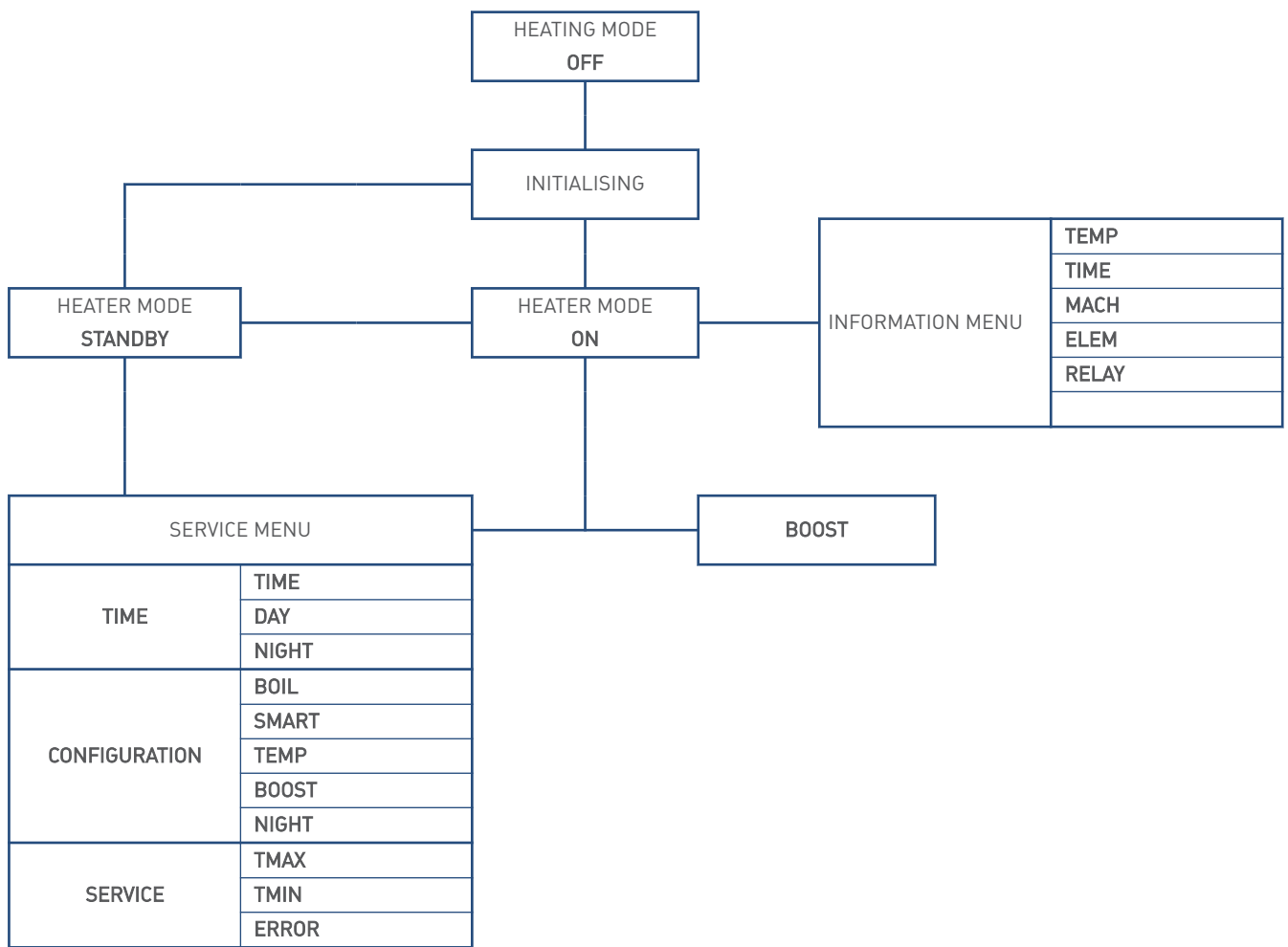
- The large characters show the **STANDBY** heater mode.
- The LED indicator is lit in blue and slowly turns ON and OFF every 5 seconds.
- Press the **OK** button to display the **SERVICE MENU**.
- The screen is disabled if no button is operated for 30 seconds.

### OFF

The boiler can only be fully turned off by removing the power supply.



#### 4.4. Menu structure



## 4.5. Information menu

Press the **Up** or **Down** buttons in the operational status to display the information menu.



Heater information example

The information menu displays current values and heater information.

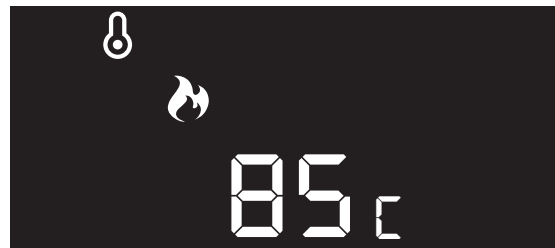
Symbol	Unit	Description
TEMP	°C	Heater water temperature.
TIME	hh:mm	Heater time.
MACH	DAYS	Heater time in operation.
ELEM	TIME	Heating element time in operation.
RELAY	CLICK	Number of switch-on cycles of the heating element. <sup>(1)</sup>

1) Actual value = displayed value x 10.

- The LED indicator flashes blue slowly.
- Switch between the displayed information by pressing the **Up** and **Down** buttons.
- The large characters show the value. The small characters alternate between the symbol and the unit.
- Pressing the **Back** button returns the screen to the previous menu.
- The screen is disabled if no button is pressed for 30 seconds.

## 4.6. Boost

There may occasionally be an insufficient amount of hot water. Activate the **BOOST** function for immediate one-time heating of the water up to 85°C.



- Press any button to activate the screen.
- Activate the **BOOST** function by pressing the **INCREASE** button for approximately three seconds.
- The LED indicator flashes **white** twice in confirmation.
- The **BOOST** icon remains visible while the function is active.

The **BOOST** function can also be activated through the **CONFIGURATION** service menu.

## 4.7. Frost protection

The heater is equipped with a **FROST PROTECTION** function to ensure the heater water does not freeze. If the water temperature drops below 5°C, it heats the water to 8°C.

The **FROST PROTECTION** function is only enabled in **STANDBY** mode.




## 4.8. Service menu

Go to the **SERVICE MENU** by activating the screen in the operational status and pressing the **OK** button.



*Service menu selection; example*

The following **SERVICE MENU** options are available for selection:

Icon	Menu
	<b>TIME</b> Set the <b>TIME</b> , <b>START NIGHT MODE</b> and <b>START DAY MODE</b> .
	<b>CONFIGURATION</b> Set the heater's operational status.
	<b>SERVICE</b> Reset an error.

- The visible icon shows the selected service menu.
- The LED indicator flashes yellow slowly.
- Switch between the displayed icons by pressing the **Up** and **Down** buttons.  
The displayed icon flashes slowly.
- Press the **OK** button to open the selected **SERVICE MENU**.
- Pressing the **Back** button returns the screen to the previous menu.
- If no operation is performed for 30 seconds, the heater returns to the operational status and the screen is disabled.

### 4.8.1. TIME service menu

The following times can be set in the **TIME** service menu:

Symbol	Unit	Description	Min.	Max.	Step	Setting
<b>TIME</b>	hh:mm	Current time in hours and minutes	00:00	23:59	1	12:00
<b>DAY</b>	hh:mm	Starting time for day mode in hours and minutes	00:00	23:59	1	06:30
<b>NIGHT</b>	hh:mm	Starting time for night mode in hours and minutes	00:00	23:59	1	23:30



Setting current time; example

- Switch between the displayed settings by pressing the **Up** and **Down** buttons.
- The large characters show the current or set time. The small characters alternate between the symbol and the unit.
- The LED indicator is continuously lit in yellow.
- Pressing the **Back** button returns the screen to the previous menu.
- Setting or adjusting the time:
  - Select the time to be set by pressing the **OK** button.

---

*The LED indicator flashes yellow rapidly.*

---
  - Set the time by pressing the **Increase** or **Lower** button, briefly or continuously.
  - Confirm the set time by pressing the **OK** button.
  - Cancel the setting by pressing the **Back** button.
- If no operation is performed for 30 seconds, the heater returns to the operational status and the screen is disabled.

## 4.8.2. CONFIGURATION service menu

The following settings can be adjusted in the **CONFIGURATION** service menu:

Symbol	Unit	Description	Min.	Max.	Step	Setting
<b>BOIL</b>	—	Heater mode	Off	On	—	Off
<b>SMART</b>	—	SMART control	Off	On	—	On
<b>TEMP</b>	°C	Heater water temperature	55	80	5	65
<b>BOOST</b>	—	Boost	Off	On	—	Off
<b>NIGHT</b>	—	Day/Night	Off	On	—	Off



Setting selection; example

- Switch between the displayed settings by pressing the **Up** and **Down** buttons.
- The large characters show the selected setting. The small characters alternate between the symbol and the unit.
- The LED indicator is continuously lit in yellow.
- Pressing the **Back** button returns the screen to the previous menu.
- Adjust the settings:
  - Select the setting to be adjusted by pressing the **OK** button.

---

*The LED indicator flashes yellow rapidly.*

---

  - Adjust the setting using the **Increase** or **Lower** button.
  - Confirm the change by pressing the **OK** button.
  - Cancel the change by pressing the **Back** button.
- If no operation is performed for 30 seconds, the heater returns to the operational status and the screen is disabled.

### BOIL - Heater mode

Setting of the heater mode.

- **ON**  
The water is heated in accordance with the **CONFIGURATION** settings.
- **OFF = STANDBY [standard setting]**  
The water is not heated, but the frost protection remains active.

### SMART - SMART control

The water temperature is automatically maintained while the heater is turned on. This ensures hot water is available at any time. There will, however, be times when no hot water is required, e.g. when sleeping. To avoid heating the water unnecessarily at those times, use the energy-saving **SMART CONTROL** function.

When the **SMART CONTROL** function is activated, the heater independently records hot water usage for a full week. After this first week, the heater knows at which times hot water is required each day and ensures that water heated to the correct temperature is available during those periods. The water temperature setting is adjusted automatically as well. For example, more hot water usage at a certain time will result in a higher temperature than the set temperature for that period.

The **SMART CONTROL** is a continuously self-learning function. It continues to adjust to match the changes in daily hot water usage.

#### **Caution!**

Disconnecting the heater from the mains power for more than a fortnight will cause the learned usage pattern to be lost. On restoring power the function will start the learning process anew.

- **ON [standard setting]**  
The water is not heated continuously, but in accordance with daily usage requirements. This setting is more energy-efficient.
- **OFF**  
The water is kept at a constant set temperature.

## TEMP - Heater temperature

The maximum temperature of the heater's water.

Min. 55°C | Max. 80°C | +/- 5°C.

- **65°C [standard setting]**

## BOOST

There may occasionally be an insufficient amount of hot water.

Activate the **BOOST** function for immediate one-time heating of the water to at least 85°C.

After the water has been heated, the heater will revert to the

**CONFIGURATION** settings.

- **ON**  
The water is heated once and immediately to at least 85°C.
- **OFF [standard setting]**  
The **BOOST** function is disabled and the water is heated in accordance with the **CONFIGURATION** settings.

The **BOOST** function is enabled in **ON** mode alongside the **SMART CONTROL** and **DAY/NIGHT** functions.

## NIGHT - Day/night

In case of variable rate electricity tariffs, you can use the **DAY/NIGHT** function to only heat the water during off-peak hours.

In night mode the heater automatically determines when to start heating for the correct water temperature at the end of the night.

- **ON**  
Day and night modes are activated by setting the times in the **TIME** service menu.
  - **Day mode** - The water is NOT heated during this period.
  - **Night mode** - The water CAN be heated during this period.
- **OFF [standard setting]**  
The **DAY/NIGHT** function is disabled and the water is heated in accordance with the **CONFIGURATION** settings.

The **DAY/NIGHT** function is disabled by activating the **SMART CONTROL** function.

### 4.8.3. SERVICE service menu

The following settings can be adjusted in the **SERVICE** service menu:

Symbol	Unit	Description	Min.	Max.	Step	Setting
TMAX	°C	Maximum heater temperature during SMART CONTROL.	65	80	5	80
TMIN	°C	Minimum heater temperature during SMART CONTROL.	55	60	1	55
ERROR	RESET	Resetting the appliance during or after error resolution.	0	1	1	0



RESET selection; example

- The LED indicator is continuously lit in yellow.
- Pressing the **Back** button returns the screen to the previous menu.
- Adjust the settings:
  - Select the setting to be adjusted by pressing the **OK** button.

---

*The LED indicator flashes yellow rapidly.*

---

  - Adjust the setting using the **Increase** or **Lower** button.
  - Confirm the change by pressing the **OK** button.
  - Cancel the change by pressing the **Back** button.
- If no operation is performed for 30 seconds, the heater returns to the operational status and the screen is disabled.

#### Tip

An **ERROR RESET** can also be performed during error notification in the operational status by pressing the **Back** button for approximately five seconds.

#### Tmax - Max. heater temperature SMART

The maximum water temperature during **SMART CONTROL**.  
Min. 65°C | Max. 80°C | +/- 5°C.

- **80°C [standard setting]**

#### Tmin - Min. heater temperature SMART

The minimum water temperature during **SMART CONTROL**.  
Min. 55°C | Max. 60°C | +/- 1°C.

- **55°C [standard setting]**

#### ERROR - Reset appliance error

Reset settings:

- **0 = NO [standard setting]**  
The reset is cancelled.
- **1 = RESET**  
Remove the heater's error message by resetting the appliance.

An **ERROR RESET** of the appliance means that:

- The error message history is deleted;
- The heater restarts in **STANDBY** mode. Go to the **CONFIGURATION** settings to change the heater mode to **ON**.

# 5. Use

## 5.1. Filling and first use

### Caution!

Do not turn on the power to the appliance yet. Only do so when this is expressly required during commissioning.

- a) Open the main water valve.
- b) Open the valve of the safety group.
- c) Open all hot water taps.
- d) As soon as water comes out of the tap, the heater is full. Rinse the heater through for 3 minutes.

### Caution!

Check for leaks while filling the installation.

- e) Shut off the hot water tap.
- f) Turn on the power to the heater. After initial start-up the heater goes into **STANDBY** mode.



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*If the appliance does not have power, check the fuse in the fuse box and replace it if necessary. If that fuse is also not the cause of the problem, contact Itho Daalderop.*

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- g) Change the heater mode to **ON** (see quick instructions below).

#### QUICK INSTRUCTIONS - CHANGING THE HEATER MODE

1. Screen disabled.
2. Press any button to activate the screen.
3. Press **OK** to open the service menu.
4. Press **OK** to select the **CONFIGURATION** service menu (thermometer).
5. Press **OK** to go to **HEATER MODE**.
6. Press **INCREASE** () or **REDUCE** () to change the heater mode to **ON**.
7. Press **OK** to confirm the change.
8. The screen is disabled again if no button is operated for 30 seconds.

The water will now be heated and the **HEATING ACTIVE** icon is visible.

- h) Check the safety group regularly. There should be expansion water draining away via the outlet of the safety group.

### Warning!

If no water comes out of the expansion outlet during heating, immediately turn the power off and open the hot water tap to alleviate the water pressure. Consult the troubleshooting guide (see Faults on page 27).

- i) When the **HEATING ACTIVE** icon disappears, the water has reached the set temperature.
- j) Perform the following flushing procedure:
  1. After heating, leave the water in the heater for one hour.
  2. Open the hot water tap until cold water runs out.
  3. Repeat steps **1** and **2** twice more.

### Caution!

The flushing procedure is a strict requirement.

- k) The water heater is now ready for use.

## 5.2. Prevention of legionella bacteria

Leaving the heater in **STANDBY** mode for more than a week may lead to the presence of legionella bacteria. For this reason, adhere to the following procedure when turning the heater back on again:

- a) Enable the **BOOST** function and wait until the water has maintained the set temperature for **at least ten minutes**.
- b) Open the hot water tap and flush the hot water pipe until cold water runs out of the tap.

### Warning!

Prevent water mist during rinsing.

- c) Heat the water again using the **BOOST** function.

### Caution!

Perform this procedure prior to use whenever the heater has been turned off for more than three days.



# 6. The most frequent complaints

The following is an overview of the most common complaints known to Itho Daalderop. For each of these complaints there are a number of possible causes with a solution given in each case, however, further research may be needed to resolve a complaint.

### Tip

If you cannot resolve the complaint yourself, please contact your installer or service organisation.

Water leak.	
Cause	Solution
a) Connection is leaking.	<ul style="list-style-type: none"> <li>• Check the coupling(s) and tighten if necessary.</li> <li>• Replace the coupling(s) if necessary.</li> </ul>
b) Heater is leaking.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> <li>• Contact your installer or service organisation.</li> </ul>
c) Tap is leaking.	<ul style="list-style-type: none"> <li>• Shut off the water supply.</li> <li>• Contact your installer or service organisation.</li> </ul>

Mixer tap does not dispense water.	
Cause	Solution
a) The mains water tap is shut off.	<ul style="list-style-type: none"> <li>• Open the mains water tap.</li> </ul>
b) The valve of the safety group is shut off.	<ul style="list-style-type: none"> <li>• Open the valve of the safety group.</li> </ul>

Mixer tap only dispenses cold water.	
Cause	Solution
a) There is no power to the heater.	<ul style="list-style-type: none"> <li>• Insert the plug into a grounded wall socket.</li> <li>• Check the mains power and reset the tripped circuit.</li> </ul>
b) The heater is in STANDBY mode.	<ul style="list-style-type: none"> <li>• Switch the heater ON.</li> </ul>
c) The heater has encountered an error.	<ul style="list-style-type: none"> <li>• The heater must be reset.</li> </ul>

Reduced water flow or excessive splashing.	
Cause	Solution
a) Scaling and/or dirt on perlator.	<ul style="list-style-type: none"> <li>• Descale and/or rinse the perlator.</li> </ul>
b) Water pressure is too low (< 2 bar).	<ul style="list-style-type: none"> <li>• Contact your water supplier.</li> </ul>
c) The valve of the safety group is not fully open.	<ul style="list-style-type: none"> <li>• Open the valve of the safety group.</li> </ul>
d) The safety group is fouled.	<ul style="list-style-type: none"> <li>• Replace the safety group.</li> </ul>

Steam is coming out of the mixer tap.	
Cause	Solution
a) The thermostat or overload circuit breaker is faulty.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> </ul> Contact your installer or service organisation.

The heater is causing a short circuit	
Cause	Solution
a) There is a short circuit in the electrical wiring or the heater element.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> </ul> Contact your installer or service organisation.

No expansion water is coming out of the safety group	
Cause	Solution
a) Defective safety group.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> </ul> Replace the safety group.
b) No water in the heater.	<ul style="list-style-type: none"> <li>• Fill the heater with water.</li> </ul>
c) The heater is OFF (standby) [dependent on model].	<ul style="list-style-type: none"> <li>• Switch the heater ON.</li> </ul>
d) The heater has encountered an error.	<ul style="list-style-type: none"> <li>• The heater must be reset.</li> </ul>
e) Heating element is broken.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> </ul> Contact your installer or service organisation.

# 7. Faults

## 7.1. Error messages

The appliance has three types of error message which are displayed on the screen, namely:

- **HMI error on page 27**
- **Blocking on page 27**
- **Locking on page 28**

### Tip

Consult **Diagnosis of error messages on page 29** to correct the cause of any errors.

### 7.1.1. HMI error

- The LED indicator is continuously lit in red.
- An HMI error is indicated by a code starting with the letter **H**.



Code	Icon	Description
H1	—	Software error
H2	—	Hardware fault
H3	—	Software error

- The appliance continues to operate.
- Try to resolve HMI errors by resetting the error message; see **Reset error message on page 28**.

### Caution!

If the appliance remains in an error state or the same error occurs repeatedly, contact your installer or service organisation.

### 7.1.2. Blocking

- The LED indicator flashes slowly in red.
- Blocking is indicated by a code starting with the letter **B**.



Code	Icon	Description
B0	—	Power is too low
B1	—	Software error
B2	—	Reset failed
B3	—	Overload protection
B4	—	Time not set

- The appliance remains in operation but certain functions are disabled.
- Once the cause of the error is removed the block will be lifted automatically. The appliance will then function normally once more.
- Try to resolve a block by resetting the error message; see **Reset error message on page 28**.

### Caution!

If the appliance remains in an error state or the same error occurs repeatedly, contact your installer or service organisation.

### 7.1.3. Locking

- The LED indicator flashes quickly in red.
- Locking is indicated in the operational status by a code starting with the letter **E**.



Code	Icon	Description
E0	—	Hardware error
E1	—	Hardware error
E2	—	Hardware error
E3	—	Hardware error
E4	—	Hardware error
E5	—	Hardware error
E6	—	Hardware error
E7	—	Hardware error
E8	—	Software error
E9	—	Hardware error
E10	—	Overload protection
E11	—	Temperature sensor error
E12	—	Hardware error
E13	—	Hardware error
E14	—	Software error
E15	—	Heater selection error
E20	—	Boiling dry
E24	—	Blocking continues for too long
E25	—	Temperature sensor error
E26	—	Temperature sensor error
E27	—	Temperature sensor error
E28	—	Temperature sensor error
E29	—	Temperature sensor error
E30	—	Temperature sensor error
E31	—	Temperature sensor error
E32	—	Temperature sensor error

- The appliance is no longer in operation and all functions are disabled.
- Try to resolve a lock by resetting the error message; see **Reset error message on page 28**.

#### **Caution!**

If the appliance remains in an error state or the same error occurs repeatedly, contact your installer or service organisation.

### 7.2. Reset error message

An error message can be reset in one of two ways:

1. In the event of an error notification in the operational status, press the **Back** button for approximately five seconds. The LED indicator flashes green twice in confirmation.
2. Using **ERROR RESET** in the **SERVICE** service menu.

An **ERROR RESET** of the appliance means that:

- The error message history is deleted;
- The heater restarts in **STANDBY** mode. Go to the **CONFIGURATION** settings to change the heater mode to **ON**.

## 7.3. Diagnosis of error messages

H1	Software error	
	Cause	Solution
	a) No communication with RF module.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the HMI controller.</li> </ul>

H2	Hardware fault	
	Cause	Solution
	a) Defective RTC	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the HMI controller.</li> </ul>

H3	Software error	
	Cause	Solution
	a) Debug error	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the HMI controller.</li> </ul>

B0	Power is too low	
	Cause	Solution
	a) The power supply is not functioning correctly.	<ul style="list-style-type: none"> <li>• Check the domestic electrical installation.</li> <li>• Check the cabling and connectors and correct as necessary.</li> <li>• Replace the control board.</li> </ul>

B1	Software error	
	Cause	Solution
	a) No communication with watchdog processor.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

B2	Reset failed	
	Cause	Solution
	a) Reset too often while the error is still present.	<ul style="list-style-type: none"> <li>• Rectify the error first of all.</li> <li>• Disconnect the appliance from the mains power for twenty seconds.</li> <li>• Check the cabling and connectors and correct as necessary.</li> <li>• Replace the control board.</li> </ul>

B3		
Overload protection		
	Cause	Solution
	a) Overheating of hot water temperature sensor.	<ul style="list-style-type: none"> <li>• Wait until the water in the heater has cooled down sufficiently.</li> <li>• Draw off hot water until the error goes away.</li> </ul>

B4		
Time not set		
	Cause	Solution
	a) The clock did not activate during initialisation.	<ul style="list-style-type: none"> <li>• Set the correct time in the TIME service menu.</li> <li>• Replace the control board.</li> </ul>

E0		
Hardware error		
	Cause	Solution
	a) EEPROM does not work properly.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E1		
Hardware error		
	Cause	Solution
	a) ROM memory is defective.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E2		
Hardware error		
	Cause	Solution
	a) One or more processor instructions are not being executed correctly.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E3		
Hardware error		
	Cause	Solution
	a) One or more processor registers are incorrect.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E4		
Hardware error		
	Cause	Solution
	a) RAM memory is defective.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E5	Hardware error	
	Cause	Solution
	a) The control board does not work properly.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E6	Hardware error	
	Cause	Solution
	a) Internal watchdog reset is not performed correctly.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E7	Hardware error	
	Cause	Solution
	a) Too great a variance between internal and external clocks.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E8	Software error	
	Cause	Solution
	a) The software does not work properly.	<ul style="list-style-type: none"> <li>• The appliance automatically resets itself a maximum of three times.</li> <li>• Replace the control board.</li> </ul>

E9	Hardware error	
	Cause	Solution
	a) The sensor data is not updated by the ADC.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E10	Overload protection	
	Cause	Solution
	a) Overheating of hot water temperature sensor.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the thermal protection device.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E11	Temperature sensor error	
	Cause	Solution
	a) Too great a variance in the hot water temperature sensor.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E12	Hardware error	
	Cause	Solution
	a) Phase relay does not work properly.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E13	Hardware error	
	Cause	Solution
	a) Neutral relay does not work properly.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E14	Software error	
	Cause	Solution
	a) Incorrect value in the EEPROM.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E15	Heater selection error	
	Cause	Solution
	a) Incorrect control board.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the identification resistor on the control board.</li> <li>• Replace the control board.</li> </ul>
	b) Incorrect identification resistor.	<ul style="list-style-type: none"> <li>• Replace the identification resistor on the control board.</li> </ul>

E20	Boiling dry	
	Cause	Solution
	a) The heater is not filled with water.	<ul style="list-style-type: none"> <li>• Disconnect the appliance from the mains power.</li> <li>• Fill the heater with water before turning on the appliance.</li> <li>• Reset the error.</li> </ul>

E24	Blocking continues for too long	
	Cause	Solution
	a) The appliance is blocked for longer than 20 hours.	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the control board.</li> </ul>

E25	Temperature sensor error (RefLo)	
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor open).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E26	Temperature sensor error (RefLo)	
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor short circuit).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>



E27		
Temperature sensor error (RefHi)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor open).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E28		
Temperature sensor error (RefHi)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor short circuit).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E29		
Temperature sensor error (Tup1)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor open).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E30		
Temperature sensor error (Tup1)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor short circuit).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E31		
Temperature sensor error (Tup2)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor open).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

E32		
Temperature sensor error (Tup2)		
	Cause	Solution
	a) The sensor measures a temperature outside the normal working range (sensor short circuit).	<ul style="list-style-type: none"> <li>• Reset the error.</li> <li>• Replace the sensor.</li> <li>• Replace the control board.</li> </ul>

# 8. Service and maintenance

## 8.1. General maintenance

In principle, the heater is maintenance-free.

The heater casing can be cleaned with a normal, non-abrasive household cleaning agent.

Depending on the intensity of use and the composition of the mains water, scale deposits can build up in the heater. Please consult your installer.

## 8.2. Emptying the water heater

- Turn off power to the heater.
- Open the hot water tap until cold water runs out.
- Shut off the water mains stop tap or the shut-off valve for the safety group.
- To release pressure from the system, open the hot water tap.
- Once the water stops flowing, shut off the tap again.

### Caution!

During the next step, a small amount of water may exit the heater's inlet hose until the water inside the heater has built up a vacuum.

- Disconnect the cold water pipe from the heater inlet.
- Connect a flexible hose to the heater inlet with the other end of the hose at the drain.
- Open the hot water tap to allow the heater to draw in air. The heater will then empty via the heater inlet.

## 8.3. Hardware/software information

In the operational status, simultaneously press the **OK** and **Lower** buttons to display the heater's circuit board and software versions.



*Circuit board hardware version; example*

Symbol	Unit	Description
AP HW	—	Circuit board hardware version
AP SW	—	Circuit board software version
HI HW	—	HMI controller hardware version.
HI SW	—	HMI controller software version.

- The LED indicator is continuously lit in yellow.
- Switch between the displayed information by pressing the **Up** and **Down** buttons.
- The large characters show the version number. The small characters alternate between the symbol and the unit.
- Pressing the **Back** button returns the screen to the previous menu.
- The screen is disabled if no button is operated for 30 seconds.

# 9. Warranty

All Itho Daalderop products are covered by a standard two-year factory warranty. During this period, the product or product component will be repaired or replaced free of charge. The warranty conditions include provisions and exclusions.

For the full warranty conditions and/or supplementary warranty terms or conditions, see the relevant product page on our website.

If there are problems with the operation of our product, we recommend that the consumer first reads the manual. If the problem persists, please contact the installer that installed the product or the Itho Daalderop service department. You can find the contact details at the back of this manual or on our website.

# 10. Declarations

## EC Declaration of Conformity

Itho Daalderop Group BV

PO Box 7

4000 AA Tiel

The Netherlands

Declares that the product

- Electric water heater - Smartboiler 30/50/80/120/150 Mono
- Electric water heater - Smartboiler 30/50/80/120/150 Mono Plus

conforms to the requirements of:

Directives	Harmonised European standards
<p><b>Directive 2009/125/EC (Ecodesign)</b> <i>establishing a framework for the setting of ecodesign requirements for energy-related products</i></p> <p><b>Commission delegated Regulation (EU) No. 812/2013</b> <i>supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of water heaters, hot water storage tanks and water heater and solar device packages</i></p> <p><b>Regulation (EU) No. 814/2013</b> <i>implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for water heaters and hot water storage tanks</i></p> <p><b>Regulation (EU) No. 2017/1369</b> <i>setting a framework for energy labelling and repealing Directive 2010/30/EU</i></p>	<ul style="list-style-type: none"> <li>• NEN-EN 50440:2016</li> </ul>
<p><b>Directive 2011/65/EU (RoHS)</b> <i>on the restriction of the use of certain hazardous substances in electrical and electronic equipment</i></p>	
<p><b>Directive 2014/30/EU (EMC)</b> <i>on the harmonisation of the laws of the Member States relating to electromagnetic compatibility</i></p>	<ul style="list-style-type: none"> <li>• NEN-EN 55014-1:2017</li> <li>• NEN-EN 55014-2:2015</li> <li>• NEN-EN-IEC 61000-3-2:2014</li> <li>• NEN-EN-IEC 61000-3-3:2013</li> </ul>
<p><b>Directive 2014/35/EU (LVD)</b> <i>on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits</i></p>	<ul style="list-style-type: none"> <li>• EN 60335-1:2012 +AC11:2014 +A11:2014 +A13:2017</li> <li>• EN 60335-2-21:2003 +A1:2005 +AC:2007 +A2:2008 +AC:2010</li> <li>• EN-IEC 62233:2008</li> </ul>

Tiel, 01 May 2020.

CE



René Megens  
Innovation Manager DHW & CH

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**The Netherlands**

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Website: [www.ithodaalderop.nl](http://www.ithodaalderop.nl)

*Consult your installer if you have any questions.  
If your installer is unknown, visit  
[www.ithodaalderop.nl/dealerlocator](http://www.ithodaalderop.nl/dealerlocator).*

**Belgium**

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