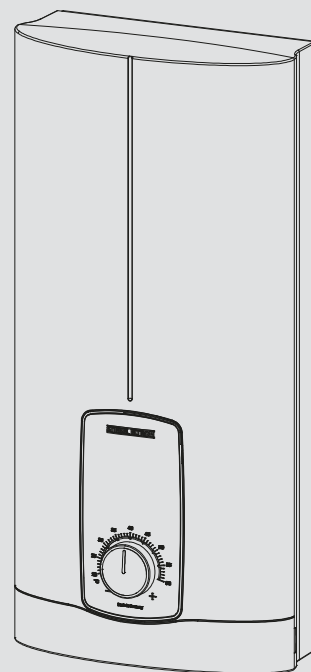


**BEDIENUNG UND INSTALLATION
OPERATION AND INSTALLATION
UTILISATION ET INSTALLATION
BEDIENING EN INSTALLATIE
操作與安裝**

Elektronisch geregelter Komfort-Durchlauferhitzer | Electronically controlled comfort instantaneous water heater | Chauffe-eau instantané confort à régulation électronique | Elektronisch regelde comfort-doorstomer | 電子調節的舒適型即熱式熱水器

- » DHB 18/21/24 ST Trend
- » DHB 27 ST Trend



STIEBEL ELTRON

TABLE OF CONTENTS

SPECIAL INFORMATION

OPERATION

1. General information	26
1.1 Safety instructions	26
1.2 Other symbols in this documentation	26
1.3 Units of measurement	26
2. Safety	26
2.1 Intended use	26
2.2 General safety instructions	26
2.3 Test mark	27
3. Appliance description	27
4. Settings	27
4.1 Selecting the set temperature	27
4.2 Recommended settings	27
5. Cleaning, care and maintenance	28
6. Troubleshooting	28

INSTALLATION

7. Safety	28
7.1 General safety instructions	28
7.2 Shower operation	28
7.3 Instructions, standards and regulations	28
8. Appliance description	29
8.1 Standard delivery	29
8.2 Accessories	29
9. Preparation	29
9.1 Installation site	29
9.2 Minimum clearances	30
9.3 Water installation	30
10. Installation	30
10.1 Standard installation	30
11. Commissioning	33
11.1 Preparation	33
11.2 Initial start-up	34
11.3 Recommissioning	34
12. Shutting down the system	34
13. Installation alternatives	34
13.1 Electrical connection from above on unfinished walls	35
13.2 Electrical connection on unfinished walls from below with short power cable	35
13.3 Electrical connection, surface-mounted	35
13.4 Connecting a load shedding relay	36
13.5 Water installation, surface-mounted	36
13.6 Water installation on finished walls with solder/press fittings	36
13.7 Fitting appliance cover for water installation on finished walls	36
13.8 Lower back panel section installation with threaded fittings on finished walls	37
13.9 Wall mounting bracket when replacing an appliance	37
13.10 Installation with offset tiles	37
13.11 Rotated appliance cover	37
13.12 Operation with preheated water	37
13.13 Horizontal installation of the appliance	38

14. Service information	38
15. Troubleshooting	39
16. Maintenance	39
17. Specification	40
17.1 Dimensions and connections	40
17.2 Wiring diagram	40
17.3 DHW output	40
17.4 Application areas / conversion table	41
17.5 Pressure drop	41
17.6 Fault conditions	41
17.7 Energy consumption data	41
17.8 Data table	42

GUARANTEE

ENVIRONMENT AND RECYCLING

SOFTWARE COPYRIGHT

SPECIAL INFORMATION

- The appliance may be used by children aged 3 and older and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.
- During operation, the tap can reach temperatures up to 70 °C. There is a risk of scalding at outlet temperatures in excess of 43 °C.
- The appliance is suitable for supplying a shower (shower operation). If the appliance is also or exclusively used for shower operation, the qualified contractor must adjust the temperature setting range to 55 °C or less using the internal anti-scalding protection on the appliance. When using preheated water, ensure that the inlet temperature does not exceed 55 °C.
- Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.
- The specified voltage must match the power supply.
- The appliance must be connected to the earth conductor.
- The appliance must be permanently connected to fixed wiring.
- Secure the appliance as described in chapter "Installation / Installation".
- Observe the application limits (see chapter "Installation / Specification / Data table").
- The specific water resistivity of the mains water supply must not be undershot (see chapter "Installation / Specification / Data table").
- Drain the appliance as described in chapter "Installation / Maintenance / Draining the appliance".

OPERATION

1. General information

The chapters "Special information" and "Operation" are intended for appliance users and qualified contractors.

The chapter "Installation" is intended for qualified contractors.



Notice

Read these instructions carefully before using the appliance and retain them for future reference.
Pass on these instructions to a new user if required.

1.1 Safety instructions

1.1.1 Structure of safety instructions



SIGNAL WORD Type of risk

Here, possible consequences are listed that may result from failure to observe the safety instructions.

► Steps to prevent the risk are listed.

1.1.2 Symbols, type of risk

Symbol	Type of risk
	Injury
	Electrocution
	Burns (burns, scalding)

1.1.3 Signal words

SIGNAL WORD	Meaning
DANGER	Failure to observe this information will result in serious injury or death.
WARNING	Failure to observe this information may result in serious injury or death.
CAUTION	Failure to observe this information may result in non-serious or minor injury.

1.2 Other symbols in this documentation



Notice

General information is identified by the adjacent symbol.
► Read these texts carefully.

Symbol	Meaning
	Property damage (appliance damage, consequential losses and environmental pollution)
	Appliance disposal

► This symbol indicates that you have to do something. The action you need to take is described step by step.

1.3 Units of measurement



Notice

All measurements are given in mm unless stated otherwise.

2. Safety

2.1 Intended use

This appliance is suitable for heating domestic hot water or for reheating preheated water. The appliance can supply one or more draw-off points.

Water will not be reheated if the maximum inlet temperature for reheating is exceeded.

The appliance is intended for domestic use. It can be used safely by untrained persons. The appliance can also be used in non-domestic environments, e.g. in small businesses, as long as it is used in the same way.

Any other use beyond that described shall be deemed inappropriate. Observation of these instructions and of the instructions for any accessories used is also part of the correct use of this appliance.

2.2 General safety instructions



CAUTION Burns

During operation, the tap can reach temperatures up to 70 °C.

There is a risk of scalding at outlet temperatures in excess of 43 °C.



CAUTION Burns

If children or persons with limited physical, sensory or mental capabilities use the appliance, a permanent and unchangeable temperature limit is necessary. Ask a qualified contractor to set the internal anti-scalding protection.



CAUTION Burns

If operating with preheated water, e.g. if using a solar thermal system, observe the following information:
The DHW temperature may exceed the set temperature or a set temperature limit.

► In this case, limit the temperature with an upstream central thermostatic valve.



WARNING Injury

The appliance may be used by children aged 3 and older and persons with reduced physical, sensory or mental capabilities or a lack of experience and know-how, provided that they are supervised or they have been instructed on how to use the appliance safely and have understood the potential risks. Children must never play with the appliance. Cleaning and user maintenance must not be carried out by children without supervision.



Property damage

The user should protect the appliance and its tap against frost.

2.3 Test mark

See type plate on the appliance.

3. Appliance description

The appliance switches on automatically as soon as you open the hot water valve on the tap. When you close the tap, the appliance switches off again automatically.

The appliance heats water as it flows through it. The set temperature is adjustable. Upwards of a certain flow rate, the control unit selects the required heating output, subject to the temperature selected and the cold water temperature.

The electronically controlled instantaneous water heater with automatic output matching maintains a consistent outlet temperature. It does so irrespective of the inlet temperature, up to the maximum output of the appliance.

If the appliance is operated with preheated water and the inlet temperature exceeds the set temperature, the water is not heated further.

Heating system

The bare wire heating system is enclosed within a pressure-tested plastic jacket. The heating system with its stainless steel heater spiral is suitable for hard and soft water areas and is largely insensitive to scale build-up. The heating system ensures rapid and efficient DHW provision.



Notice

The appliance is equipped with an air detector that largely prevents damage to the heating system. If, during operation, air is drawn into the appliance, the appliance shuts down heating output for one minute to protect the heating system.

Following an interruption of the water supply



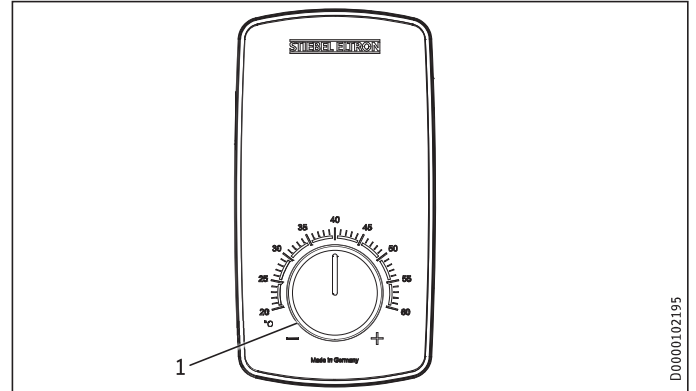
Property damage

To ensure that the bare wire heating system is not damaged following an interruption to the water supply, the appliance must be recommissioned by taking the following steps.

- ▶ Disconnect the appliance from the power supply by removing the fuses/tripping the MCBs.
- ▶ Open and close all connected draw-off valves several times for at least one minute until all air has been purged from the pipework and the appliance.
- ▶ Switch on the power supply again.

4. Settings

4.1 Selecting the set temperature



- 1 Temperature selector for selecting the set temperature: 20 - 60 °C in increments of 1 °C



Notice

If the outlet temperature is not high enough when the draw-off valve is fully open and the temperature selector is set to maximum, then more water is flowing through the appliance than can be heated by the heating system (appliance working at maximum output).

- ▶ Reduce the water volume until the preferred temperature delivery is achieved.

4.2 Recommended settings

Your instantaneous water heater offers maximum precision and maximum convenience in DHW provision. Should you nonetheless operate the appliance with a thermostatic valve, we recommend that you:

- ▶ Adjust the set temperature on the appliance to over 50 °C. Then set the required set temperature on the thermostatic valve.

Saving energy

The following recommended settings will result in the lowest energy consumption:

- 38 °C for hand washbasins, showers, bath
- 55 °C for kitchen sinks

Temperature limit via internal anti-scalding protection (qualified contractor)

If required, the qualified contractor can set a permanent temperature limit, for example in nurseries, hospitals, etc.

When supplying a shower, the appliance temperature setting range must be adjusted by the qualified contractor to 55 °C or less.

Limiting it in this way prevents water from flowing out of the appliance at temperatures which could cause injury.

Recommended setting for operation with a thermostatic valve and water preheated by solar energy

- ▶ Set the temperature at the appliance to the maximum temperature.

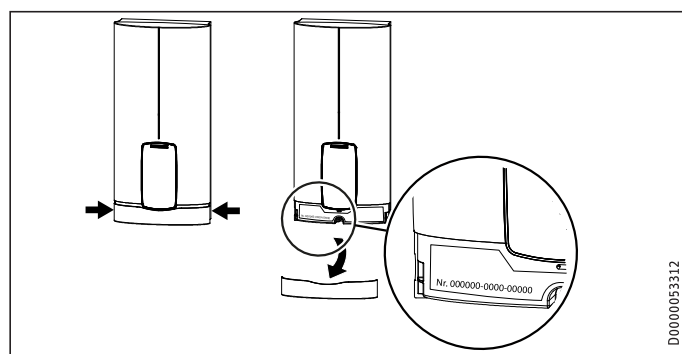
5. Cleaning, care and maintenance

- ▶ Never use abrasive or corrosive cleaning agents. A damp cloth is sufficient for cleaning the unit.
- ▶ Check the taps regularly. Limescale deposits at the tap outlets can be removed using commercially available descaling agents.

6. Troubleshooting

Problem	Cause	Remedy
The appliance will not start despite the DHW valve being fully open.	There is no power.	Check the fuses / MCBs in your fuse box / distribution board.
	The aerator in the tap or the shower head is scaled up or dirty.	Clean and/or descale the aerator or shower head.
	The water supply has been interrupted.	Vent the appliance and the cold water supply line.
When hot water is being drawn off, cold water flows for a short period.	The air sensor is detecting air in the water. It briefly switches off the heating output.	The appliance restarts automatically after 1 minute.
The preferred temperature cannot be set.	Internal anti-scalding protection is activated.	The internal anti-scalding protection can only be adjusted by qualified contractors.

If you cannot remedy the fault, contact your qualified contractor. To facilitate and speed up your enquiry, please provide the serial number from the type plate (000000-0000-000000).



INSTALLATION

7. Safety

Only a qualified contractor should carry out installation, commissioning, maintenance and repair of the appliance.

7.1 General safety instructions

We guarantee trouble-free function and operational reliability only if original accessories and spare parts intended for the appliance are used.



Property damage

Observe the maximum inlet temperature. Higher temperatures may damage the appliance. You can limit the maximum inlet temperature by installing a central thermostatic valve.



WARNING Electrocutation

This appliance contains capacitors which are discharged when disconnected from the power supply. The capacitor discharge voltage may briefly exceed > 60 V DC.

7.2 Shower operation



CAUTION Burns

▶ When supplying a shower, set the internal anti-scalding protection to 55 °C or less; see chapter "Commissioning / Preparations".

When operating with preheated water, for example when using a solar thermal system, ensure that the inlet temperature does not exceed 55 °C.

▶ Limit the inlet temperature with an upstream central thermostatic valve.

7.3 Instructions, standards and regulations



Notice

Observe all applicable national and regional regulations and instructions.

- The IP 24 / IP 25 protection rating can only be ensured with a correctly fitted cable grommet.
- The electrical resistivity of the water must not fall below that stated on the type plate. In a linked water network, take into consideration the lowest electrical resistivity of the water. Your water supply utility will advise you of the electrical resistivity or conductivity of the water in your area.

8. Appliance description

8.1 Standard delivery

The following are delivered with the appliance:

- Wall mounting bracket
- Installation template
- 2 twin nipples
- 3-way ball shut-off valve for cold water
- Tee for domestic hot water
- Flat gaskets
- Strainer
- Plastic profile washer
- Plastic connection pieces / installation aid
- Cover and back panel guides
- Jumper for internal anti-scalding protection
- Jumper for output changeover (only with DHB 18/21/24 ST Trend)

8.2 Accessories

Taps

- MEKD mono lever kitchen pressure tap
- MEBD mono lever bath pressure tap

Water plugs G 1/2 A

If you use taps other than the recommended pressure taps on finished walls, please use the plugs.

Installation set, surface-mounted

- Solder fitting – copper pipe for soldered connection Ø 12 mm
- Press fitting – copper pipe
- Press fitting – plastic pipe (suitable for Viega: Sanfix-Plus or Sanfix-Fosta)

Universal mounting frame

- Mounting frame with electrical connections

Pipe assembly for undersink appliances

You will need the undersink installation set if you make the water connections (G 3/8 A) at the top of the appliance.

Pipe assembly for offset installation

Use this pipe assembly if you intend to offset the appliance by up to 90 mm downwards from the water connection.

Pipe assembly for replacing a gas water heater

You will need this pipe assembly set if the existing installation has gas water heater connections (cold water connection on the left-hand side, DHW connection on the right-hand side).

Pipe assembly for DHB water plug-in couplings

Use the water plug-in couplings if the existing installation contains water plug-in connections from a DHB water heater.

Load shedding relay (LR 1-A)

The load shedding relay for installation in the distribution board provides priority control for the instantaneous water heater when other appliances, such as electric storage heaters, are being operated simultaneously.

9. Preparation

9.1 Installation site



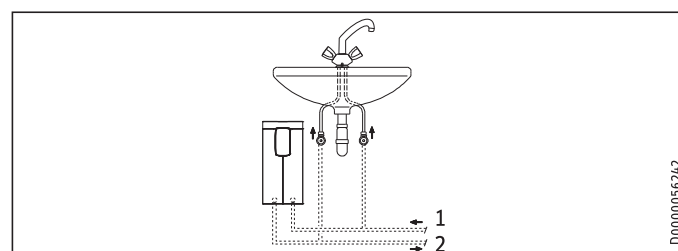
Property damage

Install the appliance in a room that is free from the risk of frost.

- Always install the appliance vertically and near the draw-off point. For horizontal installation, see chapter "Installation alternatives / Horizontal installation of the appliance".

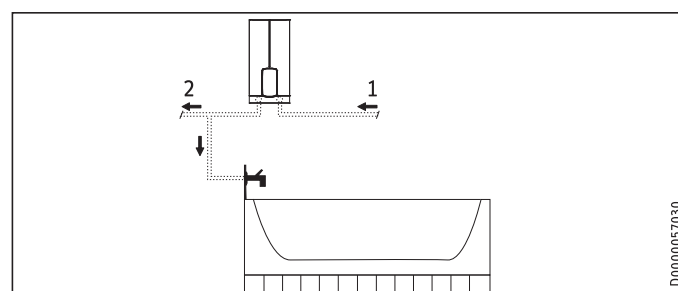
The appliance is suitable for undersink and oversink installation.

Undersink installation



- 1 Cold water inlet
- 2 DHW outlet

Oversink installation



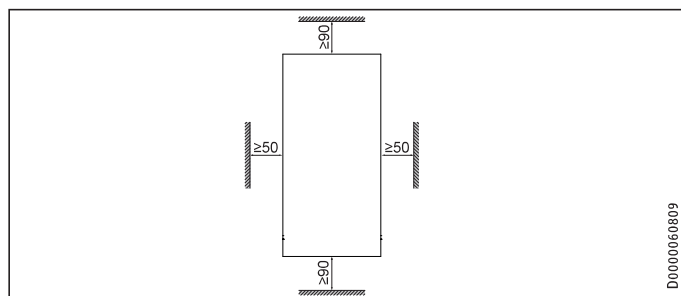
- 1 Cold water inlet
- 2 DHW outlet



Notice

- Mount the appliance on the wall. The wall must have sufficient load bearing capacity.

9.2 Minimum clearances



- Maintain the minimum clearances to ensure trouble-free operation of the appliance and facilitate maintenance work.

9.3 Water installation

- Flush the water line thoroughly.

Taps

Use appropriate pressure taps. Open vented taps are not permissible.



Notice

Never use the 3-way ball shut-off valve in the cold water inlet to reduce the flow rate. The 3-way ball shut-off valve is intended only to shut off the cold water inlet.

Permissible water line materials

- Cold water supply line:
Pipes made from galvanised steel, stainless steel, copper or plastic
- DHW outlet line:
Pipes made from stainless steel, copper or plastic



Property damage

If plastic pipework systems are used, take into account the maximum inlet temperature and the maximum permissible pressure.

Flow rate

- Ensure that the flow rate for switching on the appliance is achieved.
- If the required flow rate is not achieved when the draw-off valve is fully open, increase the water line pressure. If the flow rate is still not achieved, remove the flow limiter (see chapter "Installation / Installation / Removing the flow limiter").

10. Installation

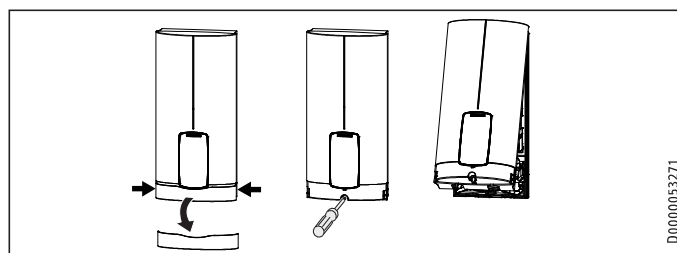
Factory settings		DHB 18/21/24 ST Trend	DHB 27 ST Trend
Internal anti-scalding protection	°C	60	60
Connected load	kW	21	27
Adjustable connected load		x	-

Standard installation		DHB 18/21/24 ST Trend	DHB 27 ST Trend
Electrical connection from below, flush-mounted		x	x
Water connection, flush-mounted		x	x

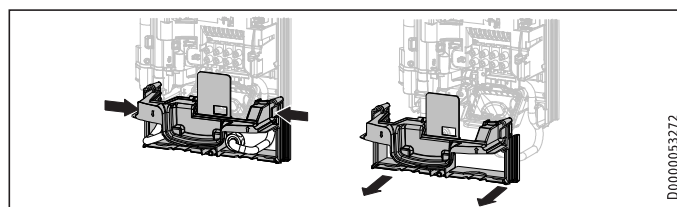
For further installation options, see chapter "Alternative installation methods".

10.1 Standard installation

Opening the appliance

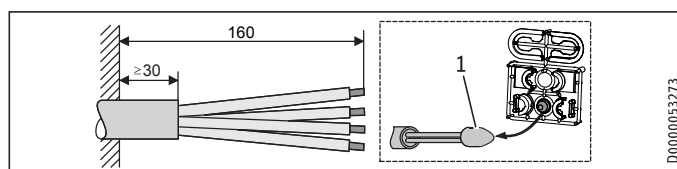


- Open the appliance by holding the fascia at the side and pulling forwards away from the appliance cover. Undo the screw. Pivot open the appliance cover.



- Remove the back panel by pressing the two locking tabs and pulling the lower back panel section forwards.

Preparing the power cable for installation on unfinished walls, from below



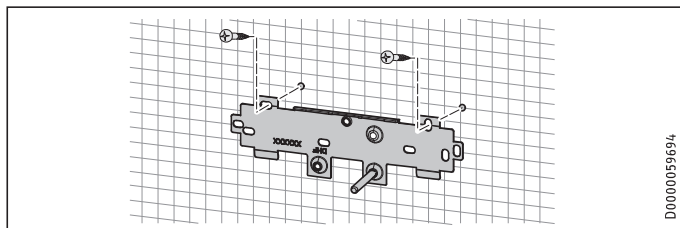
- 1 Cable entry installation aid

- Prepare the power cable.

INSTALLATION

Installation

Fitting the wall mounting bracket



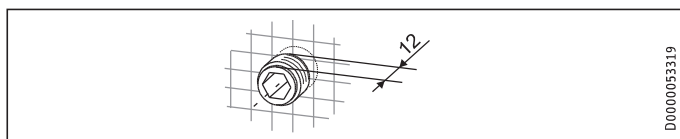
- ▶ Mark out the holes for drilling using the installation template. If the appliance is to be installed on finished walls, also mark out the fixing hole in the lower section of the template.
- ▶ Drill the holes and secure the wall mounting bracket at 2 points using suitable fixing materials (screws and rawl plugs are not part of the standard delivery).
- ▶ Fit the wall mounting bracket.

Installing the twin nipples



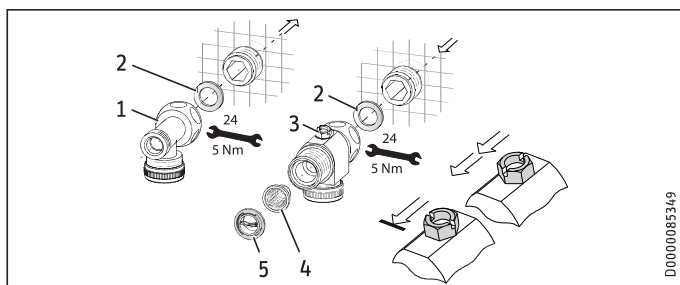
Property damage

Carry out all water connection and installation work in accordance with regulations.



- ▶ Seal and insert the twin nipples.

Making the water connection



- 1 DHW with tee
- 2 Gasket
- 3 Cold water with 3-way ball shut-off valve
- 4 Strainer
- 5 Plastic profile washer

- ▶ Secure the tee and 3-way ball shut-off valve, each with a flat gasket, to the twin nipple.



Property damage

The strainer must be fitted for the appliance to function.

- ▶ When replacing an appliance, check whether the strainer is installed.

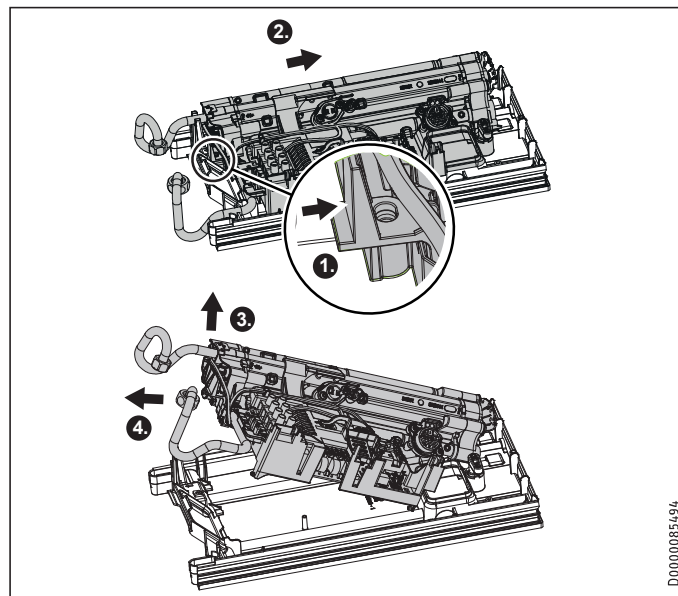
Removing the flow limiter



Notice

If you are using a thermostatic valve, you must not remove the flow limiter.

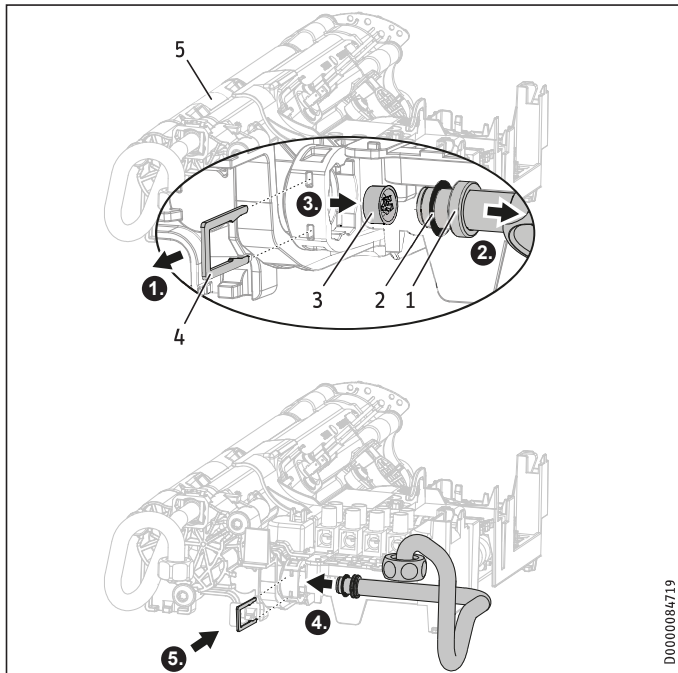
If the flow rate is too low, remove the flow limiter. To do this, remove the function module from the appliance back panel.



- ▶ Release the locking tab.
- ▶ Push the function module on the back panel gently backwards.
- ▶ Remove the function module from the appliance back panel by pulling it slightly forwards and lifting it off.

INSTALLATION

Installation



- 1 Cold water pipe bend with recess for spring clip
- 2 O-ring
- 3 Flow limiter
- 4 Spring clip
- 5 Heater

- Remove the cold water pipe bend and the O-ring.
- Remove the flow limiter from the cold water inlet of the heater using a pointed object or suitable pliers.
- Fit the cold water pipe bend with the O-ring.



Property damage

The O-ring must be fitted to prevent the appliance from leaking.

- As part of installation, check that the O-ring is in place.

- Secure the cold water pipe bend with the spring clip.



Property damage

Ensure that the spring clip is located behind the recess in the pipe bend and that it is securely holding the pipe bend in place.

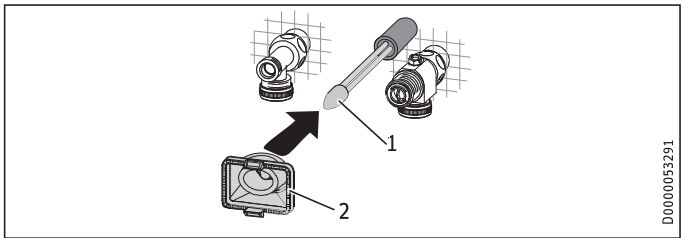
- Fit the function module on the appliance back panel in reverse order until it clicks into place.

Installing the appliance



Notice

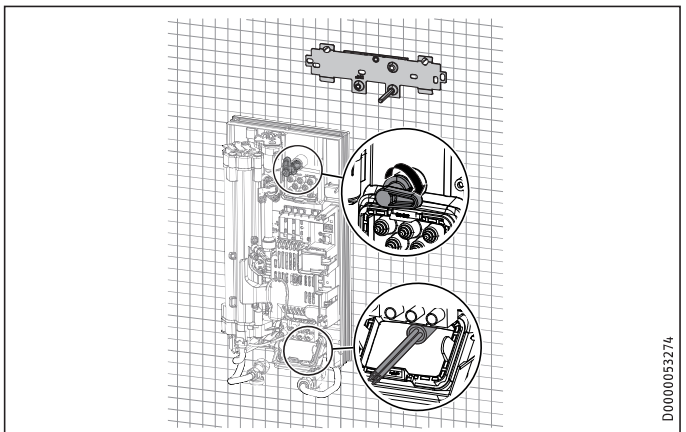
If you are installing the appliance with flexible pipe connections, also secure the back panel with a screw.



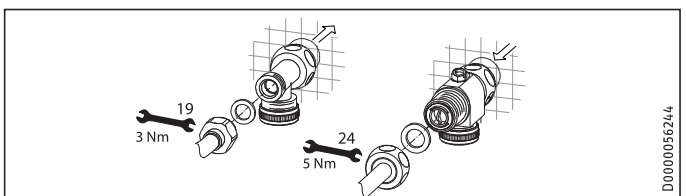
- 1 Cable entry installation aid
- 2 Cable grommet

Use the installation aid for easier wiring access through the cable grommet (see plastic parts set supplied).

- Remove the cable grommet from the back panel.
- Pull the cable grommet over the cable sheath of the power cable. For large cable cross-sections, enlarge the hole in the cable grommet if necessary.



- Remove the transport protection plugs from the appliance pipe connections.
- Bend the power cable 45° upwards.
- Route the power cable and cable grommet through the back panel from the rear.
- Install the appliance on the threaded studs of the wall mounting bracket.
- Press the back panel firmly into place, aligning it correctly.
- Lock the fixing toggle by turning it 90° clockwise.
- Pull the cable grommets into the back panel until both locking tabs engage.



- Fit the pipe connections with flat gaskets onto the water connections.
- Open the 3-way ball shut-off valve or the shut-off valve in the cold water supply line.

INSTALLATION

Commissioning

Making the electrical connection



WARNING Electrocutation
Carry out all electrical connection and installation work in accordance with relevant regulations.



WARNING Electrocutation
The connection to the power supply must be in the form of a permanent connection in conjunction with the removable cable grommet. Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.



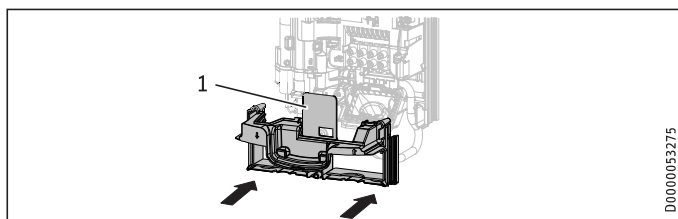
WARNING Electrocutation
Ensure that the appliance is connected to the earth conductor.



Property damage
Observe the type plate. The specified rated voltage must match the power supply.

- Connect the power cable to the mains terminal.

Fitting the lower back panel section



1 Diffuser on lower back panel

- Fit the lower back panel section into the back panel. Check that both locking tabs are engaged.
- Align the mounted appliance by undoing the fixing toggle, aligning the power supply and back panel, and then re-tightening the fixing toggle. If the back panel does not sit flush against the wall, you can secure the appliance at the bottom with an additional screw.

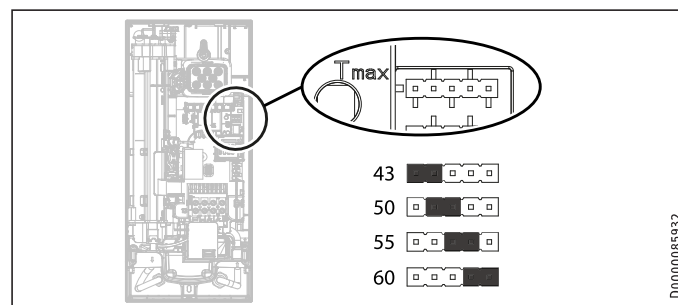


Property damage
The cover plate of the lower back panel section must not bend when installed.

11. Commissioning

11.1 Preparation

Internal anti-scalding protection via jumper slot



- Install the anti-scalding protection setting jumper in the required position (= temperature in °C) on the pin strip.

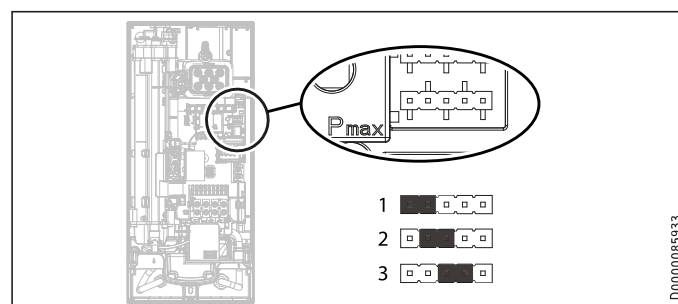
Jumper position	Description
43	For example in nurseries, hospitals, etc.
50	
55	Max. for shower operation
60	Factory setting
No jumper	Limited to 43 °C



CAUTION Burns
If operating with preheated water, e.g. if using a solar thermal system, the internal anti-scalding protection can be overridden.
► In this case, limit the temperature with an upstream central thermostatic valve.

Changing the connected load via jumper slot; only with DHB 18/21/24 ST Trend

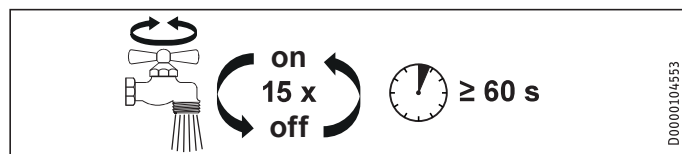
If you select a connected load other than the factory setting for appliances with selectable connected load, you will need to reposition the jumper.



- Install the jumper in the required position on the pin strip.

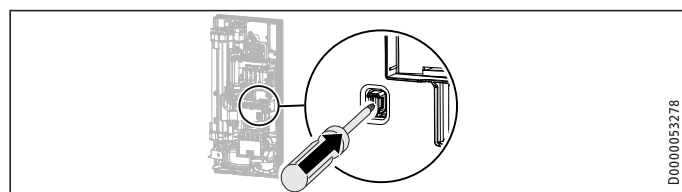
Jumper position	Connected load
1	18 kW
2 (factory setting)	21 kW
3	24 kW
No jumper	18 kW

11.2 Initial start-up



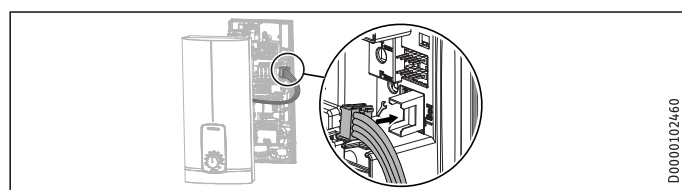
D0000104553

- ▶ Open and close all connected draw-off valves several times for at least one minute until all air has been purged from the pipework and the appliance.
- ▶ Carry out a tightness check.



D0000053278

- ▶ Activate the safety switch by firmly pressing the reset button (the appliance is delivered with the safety switch disabled).



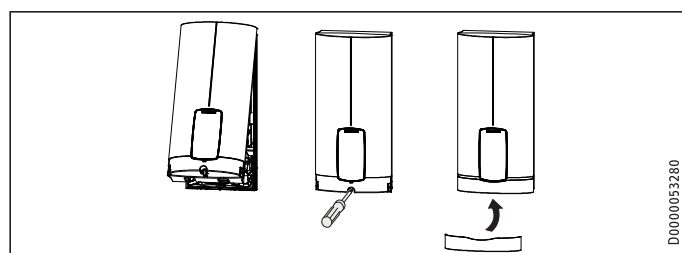
D0000102460

- ▶ Connect the programming unit connecting cable to the PCB.



Notice

For undersink installation, the appliance cover should be turned the other way up for easier operation; see chapter "Installation alternatives / Rotated appliance cover".



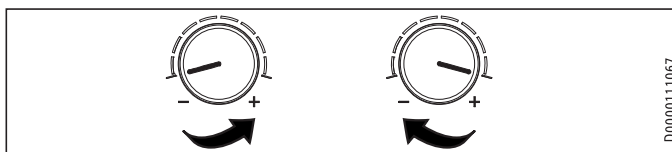
D0000053280

- ▶ Hook the appliance cover at the top rear into the back panel. Pivot the appliance cover downwards. Check that the appliance cover is securely seated both top and bottom.
- ▶ Tick the selected connected load and rated voltage on the appliance cover type plate (on both sides). Use a ballpoint pen to do this.
- ▶ Secure the appliance cover with the screw.
- ▶ Fit the fascia to the appliance cover.
- ▶ Remove the protective film from the user interface.



D0000053281

- ▶ Switch on the power supply.
- ▶ Ensure that the programming unit is functioning correctly.



D000011067

- ▶ Turn the temperature selector to its left-hand and right-hand end-stop.

11.2.1 Appliance handover

- ▶ Explain the appliance function to users and familiarise them with how it works.
- ▶ Make users aware of potential dangers, especially the risk of scalding.
- ▶ Hand over the instructions.

11.3 Recommissioning



Property damage

To ensure that the bare wire heating system is not damaged following an interruption to the water supply, the appliance must be recommissioned by taking the following steps.

- ▶ Disconnect the appliance from the power supply by removing the fuses/tripping the MCBs.
- ▶ Open and close all connected draw-off valves several times for at least one minute until all air has been purged from the pipework and the appliance.
- ▶ Switch on the power supply again.

12. Shutting down the system

- ▶ Isolate all poles of the appliance from the power supply.
- ▶ Drain the appliance (see chapter "Maintenance / Draining the appliance").

13. Installation alternatives

Overview of installation alternatives

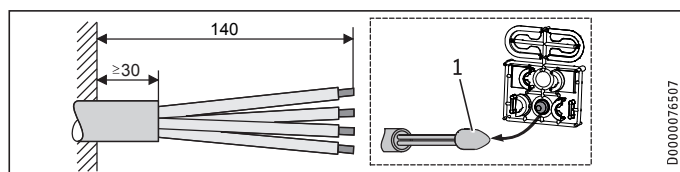
Electrical connection	IP rating
On unfinished walls, connected from above	IP 25
On unfinished walls, connected from below, short power cable	IP 25
Surface-mounted	IP 24
Water connection	IP rating
Surface-mounted	IP 24
Other	IP rating
Installation with offset tiles	IP 25
Rotated appliance cover	IP 25
Horizontal installation of the appliance	IP 24



WARNING Electrocutation

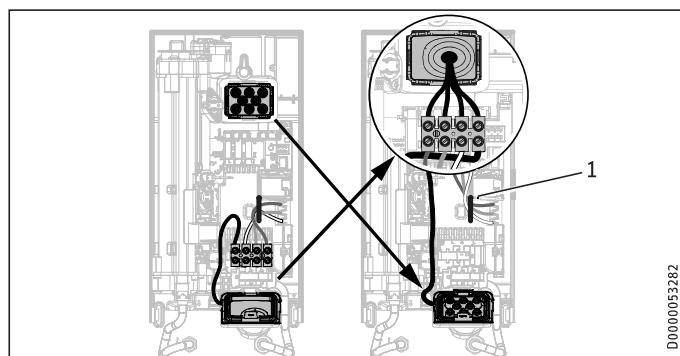
Before any work on the appliance, disconnect all poles from the power supply.

13.1 Electrical connection from above on unfinished walls



1 Cable entry installation aid

- Prepare the power cable.



1 Cable routing

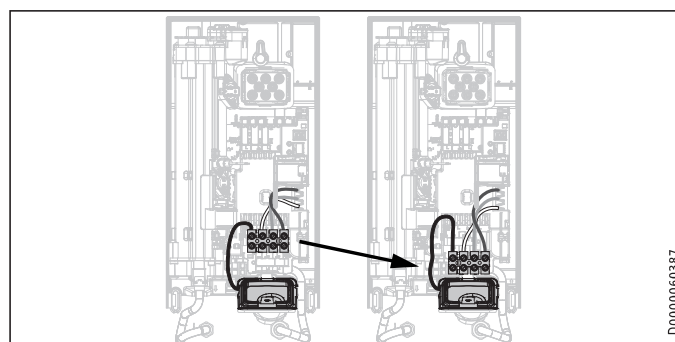
- Reposition the mains terminal from the bottom to the top. To do this, undo the fixing screw. Turn the mains terminal with connecting cables 180° clockwise. Route the cable around the cable guide when doing so. Secure the mains terminal in place.
- Replace the cable grommets.
- Install the cable grommet from the top at the bottom.
- Pull the cable grommet over the cable sheath of the power cable.
- Install the appliance on the threaded studs of the wall mounting bracket.
- Push the back panel firmly against the wall. Lock the fixing toggle by turning it 90° clockwise.
- Pull the cable grommets into the back panel until both locking tabs engage.
- Connect the power cable to the mains terminal.



WARNING Electrocutation

The connecting wires must not protrude beyond the level of the mains terminal.

13.2 Electrical connection on unfinished walls from below with short power cable



- Reposition the mains terminal further downwards. To do this, undo the fixing screw. Secure the mains terminal in place.

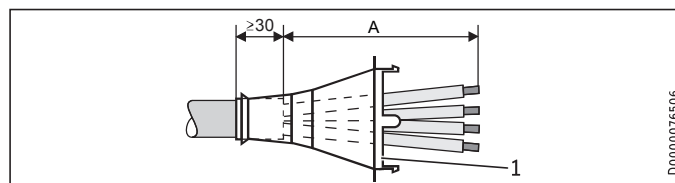
13.3 Electrical connection, surface-mounted



Notice

This type of connection changes the IP rating of the appliance.

- Change the type plate. Cross out "IP 25" and mark the box "IP 24". Use a ballpoint pen to do this.



1 Cable grommet

Electrical connection, surface-mounted	Dimension A
Positioned in lower section of appliance	160
Positioned in upper section of appliance	110

- Prepare the power cable. Fit the cable grommet.



Property damage

If you break out the wrong knock-out in the back panel/appliance cover by mistake, you must use a new back panel/appliance cover.

- Cleanly cut and break out the required cable entries from the back panel and appliance cover (for the positions, see chapter "Specification / Dimensions and connections"). Deburr any sharp edges with a file.
- Route the power cable through the cable grommet.
- Connect the power cable to the mains terminal.

13.4 Connecting a load shedding relay

Install a load shedding relay in the distribution board in conjunction with other electric appliances, e.g. electric storage heaters. The relay responds when the instantaneous water heater starts.



Property damage

Connect the phase that switches the load shedding relay to the indicated terminal of the mains terminal in the appliance (see chapter "Specification / Wiring diagram").

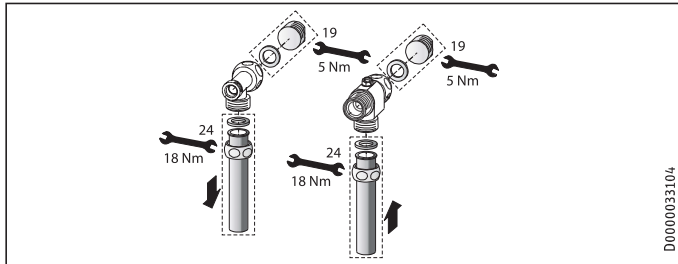
13.5 Water installation, surface-mounted



Notice

This type of connection changes the IP rating of the appliance.

- Change the type plate. Cross out "IP 25" and mark the box "IP 24". Use a ballpoint pen to do this.

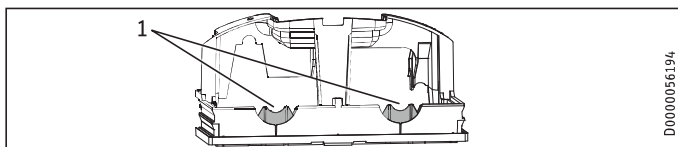


- Fit water plugs with gaskets to seal the concealed connections. All taps obtained as accessories are supplied with plugs and gaskets in the standard delivery. For pressure taps other than those recommended by us, plugs and gaskets can be ordered as accessories.
- Fit a suitable pressure tap.
- Push the lower back panel section under the connection pipes of the tap and push it into the back panel.
- Secure the connection pipes to the tee and the 3-way ball shut-off valve.



Notice

You can break off the pipe fitting tabs on the lower back panel section if required.



1 Tab

13.6 Water installation on finished walls with solder/press fittings



Notice

This type of connection changes the IP rating of the appliance.

- Change the type plate. Cross out "IP 25" and mark the box "IP 24". Use a ballpoint pen to do this.

You can connect copper or plastic pipes with the accessories "solder fitting" or "press fitting".

With "solder fitting" with threaded fitting for 12 mm copper pipes, proceed as follows:

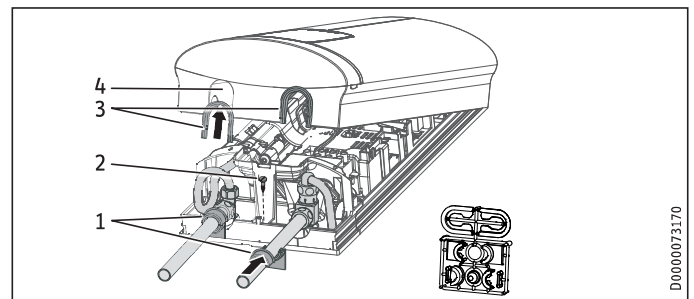
- Push the union nuts over the connection pipes.
- Solder the inserts to the copper pipes.
- Push the lower back panel section under the connection pipes of the tap and push it into the back panel.
- Secure the connection pipes to the tee and the 3-way ball shut-off valve.



Notice

Observe the tap manufacturer's instructions.

13.7 Fitting appliance cover for water installation on finished walls



- 1 Back panel guides
- 2 Screw
- 3 Cover guides with sealing lips on the pipe side
- 4 Pipe knock-out

- Cleanly saw and break out the pipe knock-outs in the appliance cover. If necessary, use a file.
- Click the cover guides into place in the knock-outs.

Only if using the "solder fitting" accessory and with precise adherence to all installation dimensions:

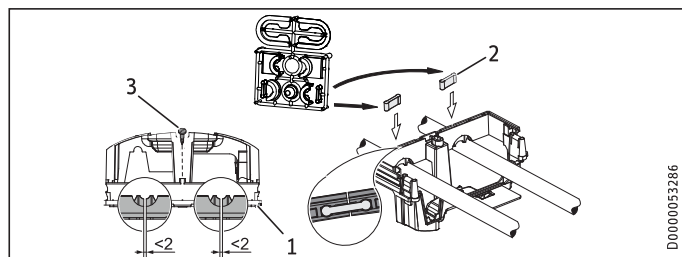
- Break the sealing lips out of the cover guides.
- Position the back panel guides on the pipes. Push them together. Then push the guides against the back panel as far they will go.
- Secure the lower back panel section with a screw.



Notice

You can use the cover guides with sealing lips to compensate for a slight offset of the connection pipes and/or if using the "press fitting" accessory. In this case, the back panel guides are not fitted.

13.8 Lower back panel section installation with threaded fittings on finished walls



- 1 Lower back panel section
- 2 Connection piece in the standard delivery
- 3 Screw

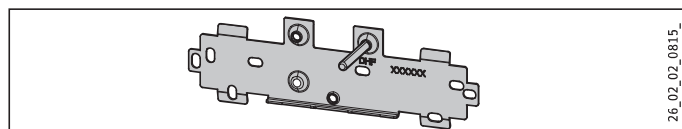
If using threaded fittings on finished walls, the lower back panel section can also be installed after fitting the taps. To do this, carry out the following steps:

- ▶ Cut open the lower back panel section.
- ▶ Fit the lower back panel section by bending it out at the sides and guiding it over the pipes.
- ▶ Insert the connection pieces into the lower back panel section from behind.
- ▶ Click the lower back panel section into place.
- ▶ Secure the lower back panel section with a screw.

13.9 Wall mounting bracket when replacing an appliance

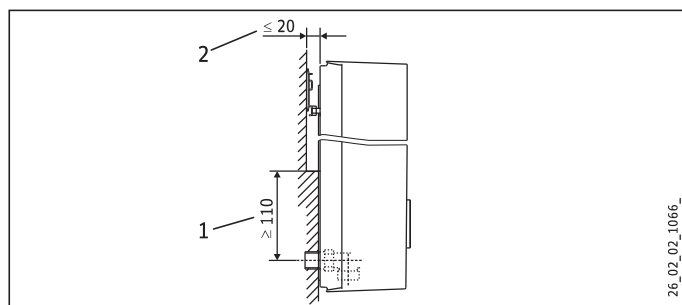
An existing STIEBEL ELTRON wall mounting bracket may be used when replacing appliances (except the DHF instantaneous water heater), as long as the fixing screw is in the lower right position.

Replacing a DHF instantaneous water heater



- ▶ Reposition the fixing screw on the wall mounting bracket (the fixing screw has a self-tapping thread).
- ▶ Rotate the wall mounting bracket 180° and mount it on the wall (the DHF logo is then turned towards you).

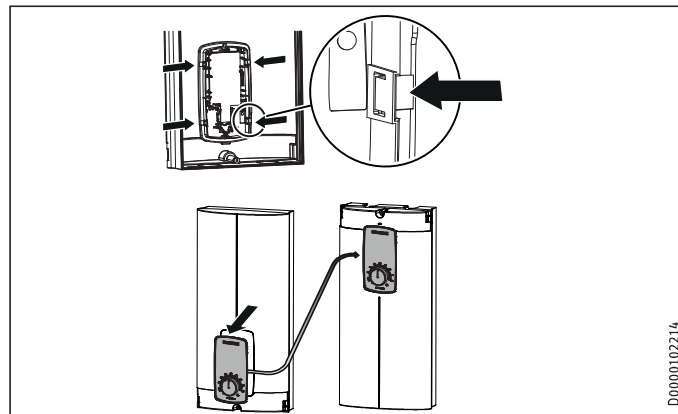
13.10 Installation with offset tiles



- 1 Minimum contact area of the appliance
 - 2 Maximum tile offset
- ▶ Adjust the wall clearance. Lock the back panel in place using the fixing toggle (turn 90° clockwise).

13.11 Rotated appliance cover

The appliance cover should be turned the other way up for undersink installation.



- ▶ Remove the programming unit from the appliance cover by pressing the locking tabs and removing the programming unit.
- ▶ Turn the appliance cover (not the appliance) the other way up and refit the programming unit. Push the programming unit home in parallel until all locking tabs engage. When engaging the locking tabs, apply counter pressure by pushing against the appliance cover from the inside.



WARNING Electrocutation

All 4 locking tabs on the programming unit must click into place. The locking tabs must be complete and undamaged. If the programming unit is not inserted correctly, user protection against contact with live components cannot be ensured.

- ▶ Insert the connecting cable plug of the programming unit into the PCB (see chapter "Commissioning / Initial start-up").
- ▶ Hook the appliance cover in at the bottom. Pivot the appliance cover up to the back panel.
- ▶ Secure the appliance cover.
- ▶ Fit the cover onto the appliance cover.

13.12 Operation with preheated water

You can limit the maximum inlet temperature by installing a central thermostatic valve.

13.13 Horizontal installation of the appliance



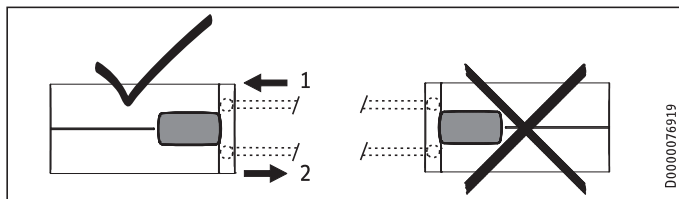
Notice

For the horizontal installation alternative, please note the following points:

- Installation is only permissible with direct wall mounting. The universal mounting frame cannot be used.
- The installation versions "Installation with offset tiles" and "Rotated appliance cover" are not permissible.
- This type of connection changes the IP rating of the appliance. Cross out "IP 25" on the type plate and mark the box "IP 24". Use a ballpoint pen to do this.

Horizontal installation

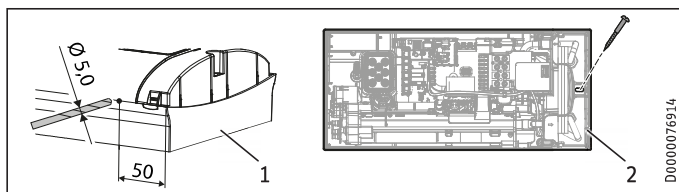
The appliance can also be mounted horizontally on the wall (turned 90° to the left, with the water connections on the right). The installation, water and electrical connections are described in chapters "Standard installation" and "Installation alternatives".



- 1 Cold water inlet
- 2 DHW outlet

Preparation

The appliance cover must be provided with a condensate drain opening of min. Ø 5.0 mm to max. Ø 6.0 mm at the marked position.



- 1 Appliance cover with opening for condensate drain
- 2 Back panel with additional fixing screw

- Drill a hole from the outside through the dismantled appliance cover at the marked point. Alternatively, you can punch a hole in the appliance cover from the inside at the marked point. In this case, you must then enlarge the hole to the required diameter from the outside. Deburr any sharp edges with a file.
- Secure the appliance back panel with an additional screw.

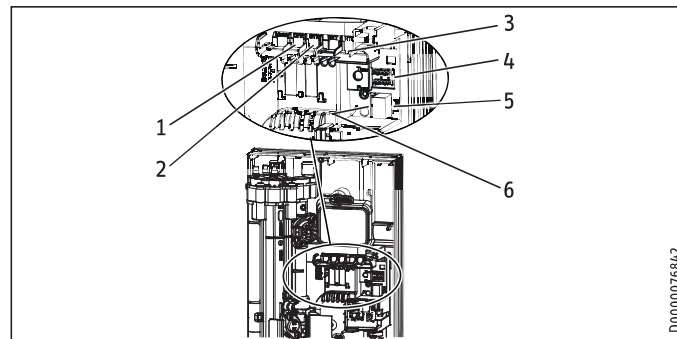


Property damage

An appliance cover with an existing condensate drain opening must no longer be used for vertical installation of the appliance.

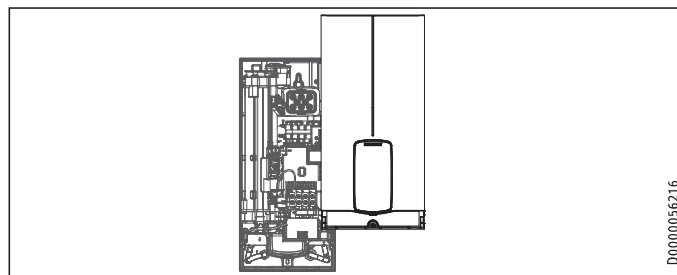
14. Service information

Overview of connections



- 1 Flow sensor
- 2 High limit safety cut-out, automatic reset
- 3 NTC sensor
- 4 Pin strips for connected load and anti-scalding protection
- 5 Programming unit plug-in position
- 6 Diagnostic traffic light

Appliance cover retainer



INSTALLATION

Troubleshooting

15. Troubleshooting



WARNING Electrocutation

To test the appliance, it must be connected to the power supply.



Notice

When testing the appliance using the diagnostic traffic light, water must be flowing.

Signals of the diagnostic traffic light (LED)

	red	Lights up in the event of a fault
	yellow	Lights up in heating mode/ flashes when output limit reached
	green	Flashing: Appliance connected to power supply

Diagnostic traffic light (draw-off mode)	Fault	Cause	Remedy
No LED lights up	Appliance does not heat up	One or more mains power supply phases are missing PCB faulty	Check the fuses in the distribution board Replace the function module
Green flashing, yellow off, red off	No DHW	Appliance starting flow rate not reached; shower head/aerator scaled up Appliance starting flow rate not reached; strainer in cold water inlet dirty Flow meter not plugged in Flow meter faulty or dirty PCB faulty	Descal/replace the shower head/aerator Clean the strainer Check plug-in connection; correct if necessary Replacing the flow meter Replace the function module
Green flashing, yellow on, red off	No DHW; outlet temperature does not match set value	Tap faulty Outlet sensor faulty Heating system faulty PCB faulty	Replace tap Replacing the outlet sensor Replace the function module Replace the function module
Green flashing, yellow flashing, red off	No DHW; outlet temperature does not match set value	Appliance at its output limit Appliance at its output limit Heating system faulty	Reduce flow rate; install flow limiter Check jumper position for connected load Replace the function module
Green flashing, yellow off, red on	No DHW; outlet temperature does not match set value	One or more mains power supply phases are missing Air detection has responded Safety switch not activated during "Commissioning"	Check the fuses in the distribution board Continue drawing water for >1 min Activate the safety switch by firmly pressing the reset button

Diagnostic traffic light (draw-off mode)	Fault	Cause	Remedy
		Safety switch was triggered by high limit safety cut-out	Check high limit safety cut-out (plug-in connection, connecting cable); activate safety switch
		Safety switch responds again after high limit safety cut-out has been checked; high limit safety cut-out	Replace high limit safety cut-out; activate safety switch and draw off water at the maximum set value for >1 min
		Safety switch responds again; PCB faulty	Replace the function module
		Short circuit in outlet sensor	Check outlet sensor; replace if necessary
		PCB faulty	Replace the function module

16. Maintenance



WARNING Electrocutation

Before any work on the appliance, disconnect all poles from the power supply.

This appliance contains capacitors which are discharged when disconnected from the power supply. The capacitor discharge voltage may briefly exceed > 60 V DC.

Draining the appliance

The appliance can be drained for maintenance work.



WARNING Burns

Hot water may escape when you drain the appliance.

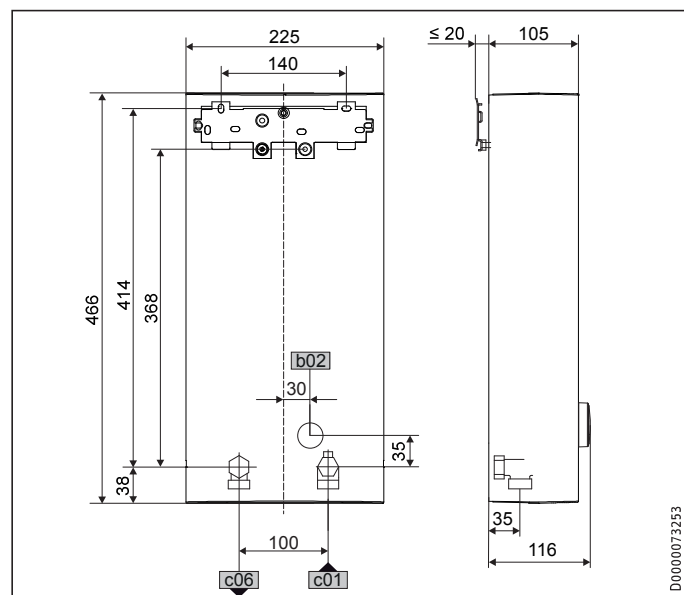
- ▶ Close the 3-way ball shut-off valve or the shut-off valve in the cold water supply line.
- ▶ Open all draw-off valves.
- ▶ Undo the pipe connections from the appliance.
- ▶ Store the dismantled appliance free from the risk of frost, as water residues remaining inside the appliance can freeze and cause damage.

Clean the strainer

If the strainer in the threaded cold water fitting is dirty, clean it. Close the 3-way ball shut-off valve or the shut-off valve in the cold water supply line before removing, cleaning and refitting the strainer.

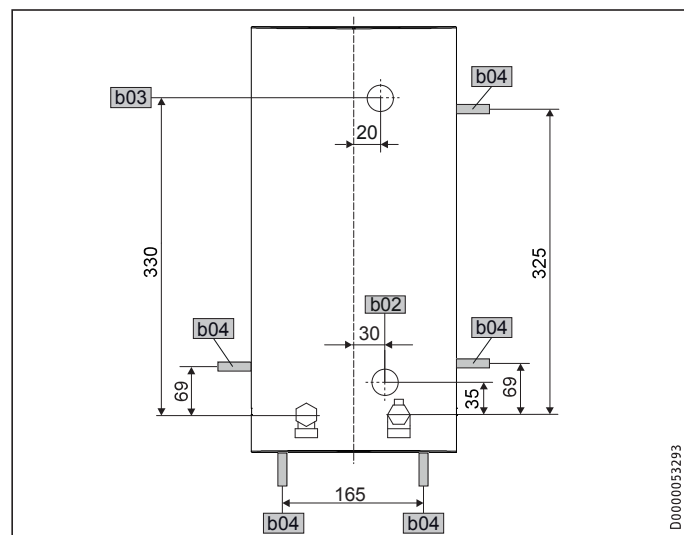
17. Specification

17.1 Dimensions and connections



		DHB ST Trend
b02	Entry electrical cables I	Flush-mounted
c01	Cold water inlet	Male thread G 1/2
c06	DHW outlet	Male thread G 1/2

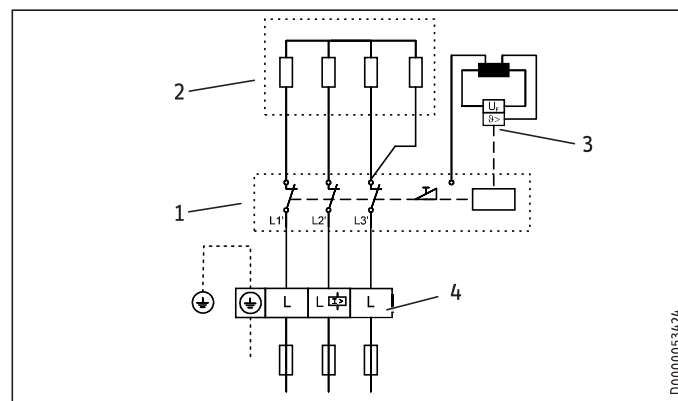
Alternative connection options



		DHB ST Trend
b02	Entry electrical cables I	Flush-mounted
b03	Entry electrical cables II	Flush-mounted
b04	Entry electrical cables III	Surface-mounted

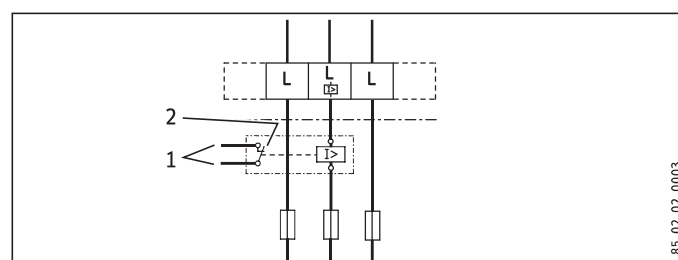
17.2 Wiring diagram

3/PE ~ 380-415 V



- 1 Power PCB with integral safety switch
- 2 Bare wire heating system
- 3 High limit safety cut-out
- 4 Mains terminal

Priority control with LR 1-A



- 1 Control cable to the contactor of the second appliance (e.g. electric storage heater)
- 2 Control contact drops out when switching the instantaneous water heater on

17.3 DHW output

The DHW output is subject to the connected power supply, the appliance's connected load and the cold water inlet temperature. The rated voltage and rated output can be found on the type plate.

Connected load in kW			38 °C DHW output in L/min.			
Rated voltage			Cold water inlet temperature			
380 V	400 V	415 V	5 °C	10 °C	15 °C	20 °C
DHB 18/21/24 ST Trend						
16.2			7.0	8.3	10.1	12.9
19.0			8.2	9.7	11.8	15.1
21.7			9.4	11.1	13.5	17.2
	18.0		7.8	9.2	11.2	14.3
	21.0		9.1	10.7	13.0	16.7
	24.0		10.4	12.2	14.9	19.0
		19.4	8.4	9.9	12.0	15.4
		22.6	9.8	11.5	14.0	17.9
		25.8	11.2	13.2	16.0	20.5
DHB 27 ST Trend						
24.4			10.6	12.4	15.2	19.4
	27.0		11.7	13.8	16.8	21.4

INSTALLATION

Specification

Connected load in kW			50 °C DHW output in l/min.			
Rated voltage			Cold water inlet temperature			
380 V	400 V	415 V	5 °C	10 °C	15 °C	20 °C
DHB 18/21/24 ST Trend						
16.2			5.1	5.8	6.6	7.7
19.0			6.0	6.8	7.8	9.0
21.7			6.9	7.8	8.9	10.3
	18.0		5.7	6.4	7.3	8.6
	21.0		6.7	7.5	8.6	10.0
	24.0		7.6	8.6	9.8	11.4
		19.4	6.2	6.9	7.9	9.2
		22.6	7.2	8.1	9.2	10.8
		25.8	8.2	9.2	10.5	12.3
DHB 27 ST Trend						
	24.4		7.7	8.7	10.0	11.6
	27.0		8.6	9.6	11.0	12.9

17.4 Application areas / conversion table

Electrical resistivity and electrical conductivity

Standard specification at 15 °C			20 °C			25 °C		
Resistivity $\rho \geq$	Conductivity $\sigma \leq$		Resistivity $\rho \geq$	Conductivity $\sigma \leq$		Resistivity $\rho \geq$	Conductivity $\sigma \leq$	
Ωcm	mS/m	$\mu\text{S/cm}$	Ωcm	mS/m	$\mu\text{S/cm}$	Ωcm	mS/m	$\mu\text{S/cm}$
900	111	1111	800	125	1250	735	136	1361

17.5 Pressure drop

Taps

Tap pressure drop at a flow rate of 10 l/min		
Mono lever mixer tap, approx.	MPa	0.04 - 0.08
Thermostatic valve, approx.	MPa	0.03 - 0.05
Shower head, approx.	MPa	0.03 - 0.15

Sizing the pipework

When calculating the size of the pipework, an appliance pressure drop of 0.1 MPa is recommended.

17.6 Fault conditions

In the event of a fault, loads up to 80 °C at a pressure of 1.0 MPa can occur briefly in the installation.

17.7 Energy consumption data

Product datasheet: Conventional water heaters to regulation (EU) no. 812/2013 | 814/2013 / (S.I. 2019 No. 539 / Schedule 2)

		DHB 18/21/24 ST Trend	DHB 27 ST Trend
		204202	204203
Manufacturer		STIEBEL ELTRON	STIEBEL ELTRON
Load profile		S	S
Energy efficiency class		A	A
Energy conversion efficiency	%	38	38
Annual power consumption	kWh	481	482
Default temperature setting	°C	60	60
Sound power level	dB(A)	15	15
Special information on measuring efficiency		Measured with integral flow limiter, at maximum output and maximum set value	Measured with integral flow limiter and at maximum set value
Daily power consumption	kWh	2.215	2.223

INSTALLATION Specification

17.8 Data table

		DHB 18/21/24 ST Trend			DHB 27 ST Trend	
		204202			204203	
Electrical data						
Rated voltage	V	380	400	415	380	400
Rated output	kW	16.2/19/21.7	18/21/24	19.4/22.6/25.8	24.4	27
Rated current	A	27.6/29.5/33.3	29/31/35	30.1/32.2/36.3	37.1	39
Fuse protection	A	32/32/35	32/32/35	32/32/40	40	40
Frequency	Hz	50/60	50/60	50/-	50/-	50/-
Phases				3/PE		3/PE
Resistivity ρ15 ≥	Ω cm			900		900
Conductivity σ15 ≤	μS/cm			1111		1111
Max. mains impedance at 50 Hz	Ω	0.248	0.236	0.227	0.221	0.210
Versions						
Heating system, heat generator				Bare wire		Bare wire
Insulating block				Plastic		Plastic
Adjustable connected load				X		-
Temperature setting	°C			20-60		20-60
Protection class				1		1
Cover and back panel				Plastic		Plastic
IP rating				IP 25		IP 25
Colour				white		white
Connections						
Water connection				G 1/2		G 1/2
Application limits						
Max. permissible pressure	MPa			1		1
Max. inlet temperature for reheating	°C			55		55
Values						
Max. inlet temperature (e.g. pasteurisation)	°C			70		70
On	l/min			>2.5		>2.5
Flow rate limit at	l/min			8.0		9.0
Flow rate at 28 K	l/min			9.2/10.7/12.3 (400 V)		13.8 (400 V)
Flow rate at 50 K	l/min			5.2/6.0/6.9 (400 V)		7.7 (400 V)
Pressure drop for flow rate at 50 K (without flow limiter)	MPa			0.06/0.08/0.1		0.13
Pressure drop for flow rate at 50 K (with flow limiter)	MPa			0.1/0.13/0.17		0.2
Hydraulic data						
Nominal capacity	l			0.4		0.4
Dimensions						
Height	mm			466		466
Width	mm			225		225
Depth	mm			116		116
Weights						
Weight	kg			2.90		2.90



Notice

The appliance conforms to IEC 61000-3-12.

Guarantee

The guarantee conditions of our German companies do not apply to appliances acquired outside of Germany. In countries where our subsidiaries sell our products a guarantee can only be issued by those subsidiaries. Such guarantee is only granted if the subsidiary has issued its own terms of guarantee. No other guarantee will be granted.

We shall not provide any guarantee for appliances acquired in countries where we have no subsidiary to sell our products. This will not affect warranties issued by any importers.

Environment and recycling

We would ask you to help protect the environment. After use, dispose of the various materials in accordance with national regulations.

Information on the appliance software

Stiebel Eltron appliances may contain software of external suppliers (third party suppliers) which may be partly also be subject to an Open Source license. Some Open Source licenses are subject to the obligation to state the software, its authors as well as the licenses that apply to the software and to additionally provide the software as a source code or to offer to provide the source code. Stiebel Eltron therefore provides further information regarding third supplier software that it uses under the link <https://www.stiebel-eltron.com/en/info/Licenses.html> and also offers the source code there, if applicable. The software is provided only for compliance with the obligations under the Open Source licenses.

Deutschland
STIEBEL ELTRON GmbH & Co. KG
Dr.-Stiebel-Straße 33 | 37603 Holzminden
Tel. 05531 702-0 | Fax 05531 702-480
info@stiebel-eltron.de
www.stiebel-eltron.de

Verkauf Tel. 05531 702-110 | Fax 05531 702-95108 | info-center@stiebel-eltron.de
Kundendienst Tel. 05531 702-111 | Fax 05531 702-95890 | kundendienst@stiebel-eltron.de
Ersatzteilverkauf Tel. 05531 702-120 | Fax 05531 702-95335 | ersatzteile@stiebel-eltron.de

Australia
STIEBEL ELTRON Australia Pty. Ltd.
6 Prohasky Street | Port Melbourne VIC 3207
Tel. 03 9645-1833 | Fax 03 9645-4366
info@stiebel.com.au
www.stiebel.com.au

Austria
STIEBEL ELTRON Ges.m.b.H.
Gewerbegebiet Neubau-Nord
Margaritenstraße 4 A | 4063 Hörsching
Tel. 07221 74600-0 | Fax 07221 74600-42
info@stiebel-eltron.at
www.stiebel-eltron.at

Belgium
STIEBEL ELTRON bvba/sprl
't Hofveld 6 - D1 | 1702 Groot-Bijgaarden
Tel. 02 42322-22 | Fax 02 42322-12
info@stiebel-eltron.be
www.stiebel-eltron.be

China
STIEBEL ELTRON (Guangzhou) Electric
Appliance Co., Ltd.
Rm 102, F1, Yingbin-Yihao Mansion, No. 1
Yingbin Road
Panyu District | 511431 Guangzhou
Tel. 020 39162209 | Fax 020 39162203
info@stiebeleltron.cn
www.stiebeleltron.cn

Czech Republic
STIEBEL ELTRON spol. s r.o.
K Háji 946 | 155 00 Praha 5 - Stodůlky
Tel. 251116-111 | Fax 235512-122
info@stiebel-eltron.cz
www.stiebel-eltron.cz

Finland
STIEBEL ELTRON OY
Kapinakuja 1 | 04600 Mäntsälä
Tel. 020 720-9988
info@stiebel-eltron.fi
www.stiebel-eltron.fi

France
STIEBEL ELTRON SAS
7-9, rue des Selliers
B.P 85107 | 57073 Metz-Cédex 3
Tel. 0387 7438-88 | Fax 0387 7468-26
info@stiebel-eltron.fr
www.stiebel-eltron.fr

Hungary
STIEBEL ELTRON Kft.
Gyár u. 2 | 2040 Budaörs
Tel. 01 250-6055 | Fax 01 368-8097
info@stiebel-eltron.hu
www.stiebel-eltron.hu

Japan
NIHON STIEBEL Co. Ltd.
Kowa Kawasaki Nishiguchi Building 8F
66-2 Horikawa-Cho
Saiwai-Ku | 212-0013 Kawasaki
Tel. 044 540-3200 | Fax 044 540-3210
info@nihonstiebel.co.jp
www.nihonstiebel.co.jp

Netherlands
STIEBEL ELTRON Nederland B.V.
Daviottenweg 36 | 5222 BH 's-Hertogenbosch
Tel. 073 623-0000 | Fax 073 623-1141
info@stiebel-eltron.nl
www.stiebel-eltron.nl

Poland
STIEBEL ELTRON Polska Sp. z O.O.
ul. Działkowa 2 | 02-234 Warszawa
Tel. 022 60920-30 | Fax 022 60920-29
biuro@stiebel-eltron.pl
www.stiebel-eltron.pl

Slovakia
TATRAMAT - ohrievače vody s.r.o.
Hlavná 1 | 058 01 Poprad
Tel. 052 7127-125 | Fax 052 7127-148
info@stiebel-eltron.sk
www.stiebel-eltron.sk

Switzerland
STIEBEL ELTRON AG
Industrie West
Gass 8 | 5242 Lupfig
Tel. 056 4640-500 | Fax 056 4640-501
info@stiebel-eltron.ch
www.stiebel-eltron.ch

Thailand
STIEBEL ELTRON Asia Ltd.
469 Moo 2 Tambol Klong-Jik
Amphur Bangpa-In | 13160 Ayutthaya
Tel. 035 220088 | Fax 035 221188
info@stiebeleltronasia.com
www.stiebeleltronasia.com

United Kingdom and Ireland
STIEBEL ELTRON UK Ltd.
Unit 12 Stadium Court
Stadium Road | CH62 3RP Bromborough
Tel. 0151 346-2300 | Fax 0151 334-2913
info@stiebel-eltron.co.uk
www.stiebel-eltron.co.uk

United States of America
STIEBEL ELTRON, Inc.
17 West Street | 01088 West Hatfield MA
Tel. 0413 247-3380 | Fax 0413 247-3369
info@stiebel-eltron-usa.com
www.stiebel-eltron-usa.com