

# DHB 12 Si, DHB 18 Si, DHB 21 Si, DHB 24 Si, DHB 27 Si thermo control

Deutsch

## Gebrauchs- und Montageanweisung

English

## Instructions for Use and Installation

Français

## Instructions d'utilisation et de montage

Nederlands

## Gebruiks- en montagehandleiding

Español

## Instrucciones de uso y montaje

Polski

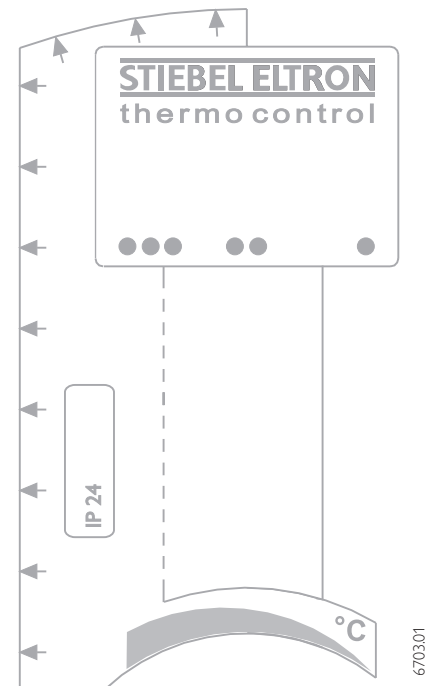
## Instrukcja użytkowania i montażu

Česky

## Návod k montáži a používání

Русский

## Руководство по монтажу и эксплуатации



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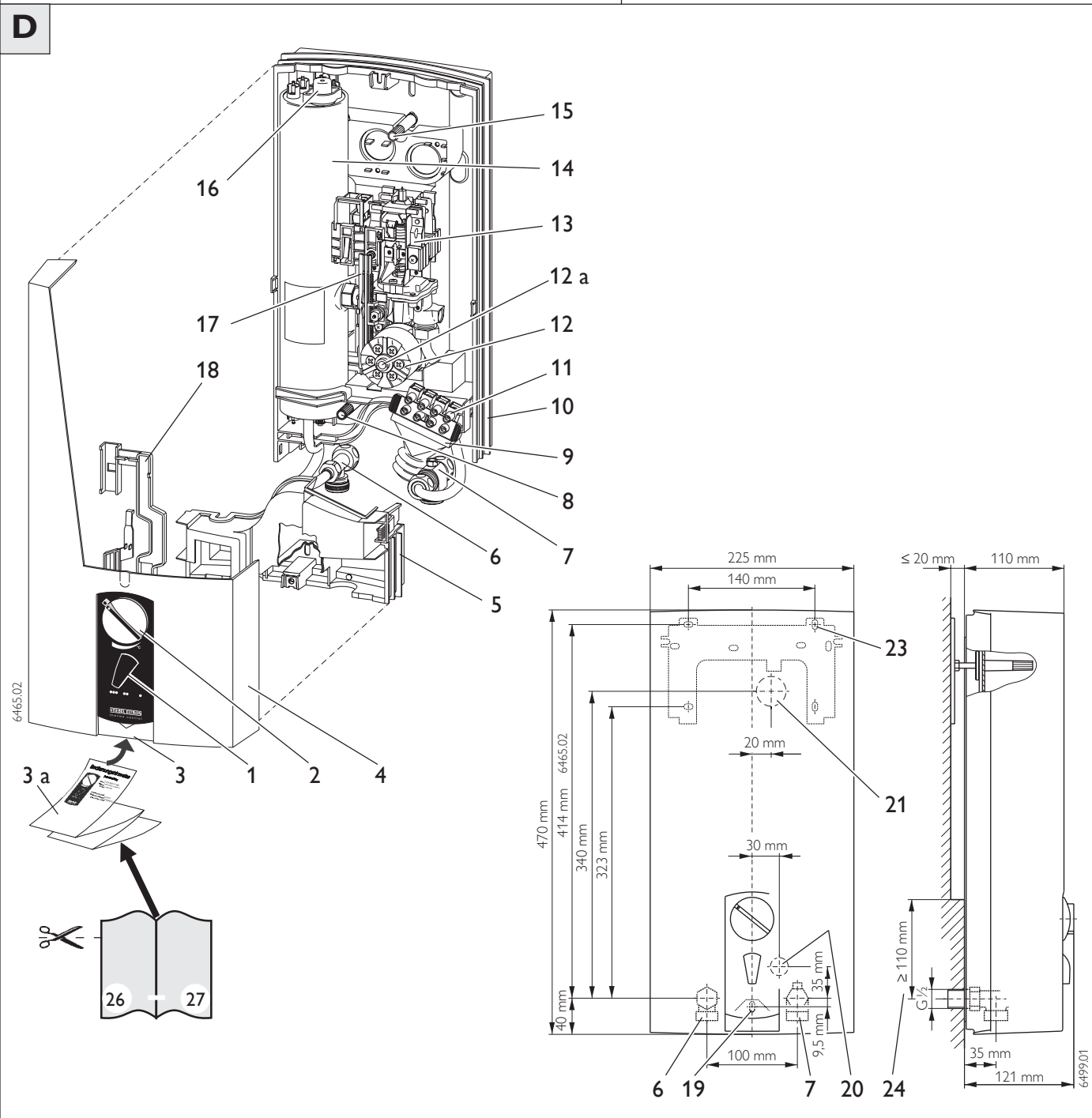
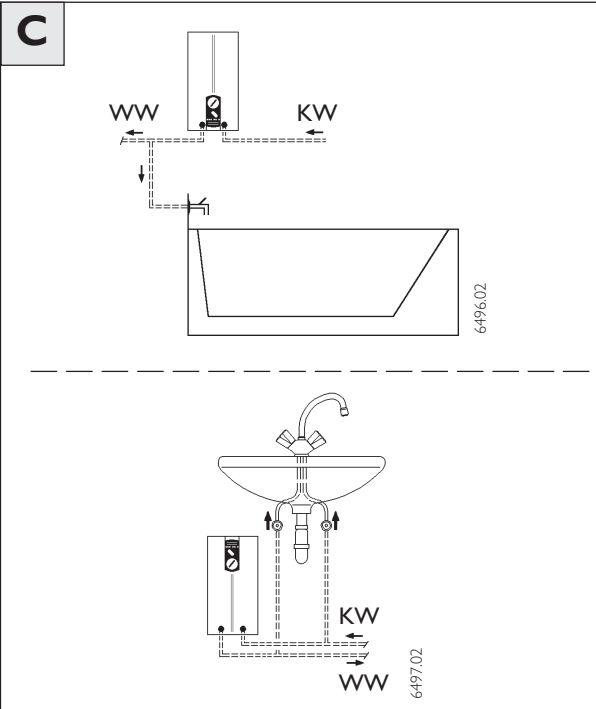
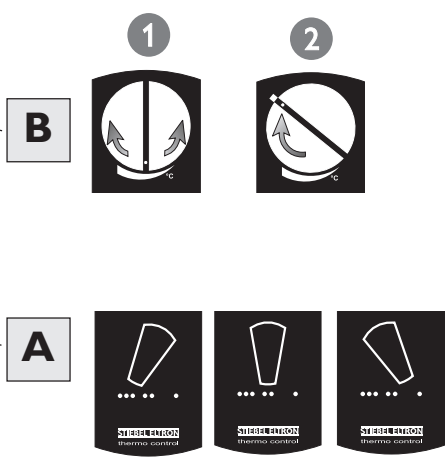
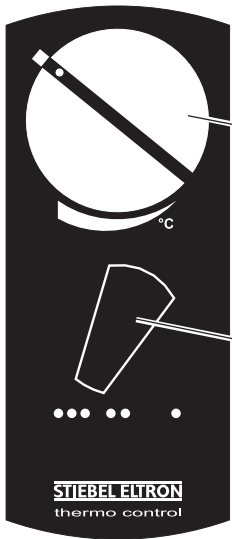
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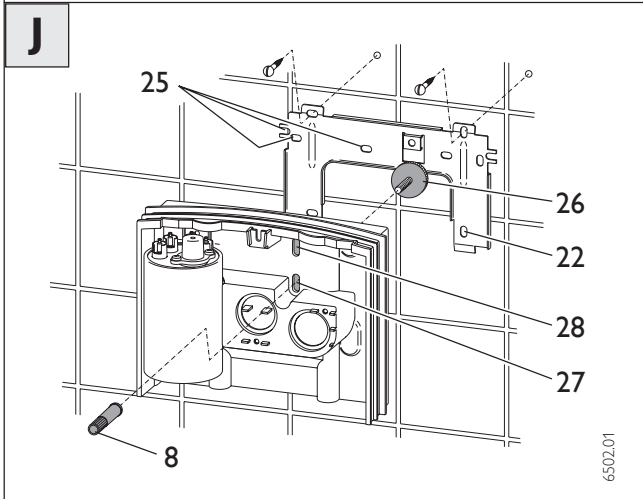
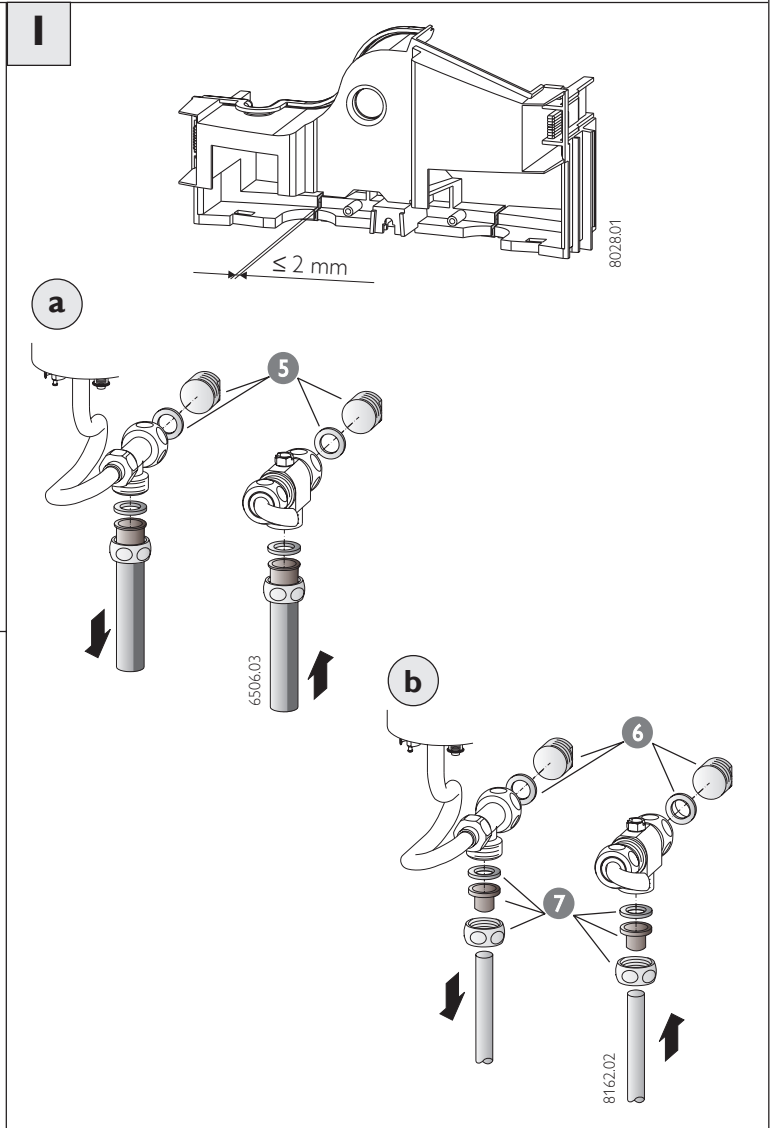
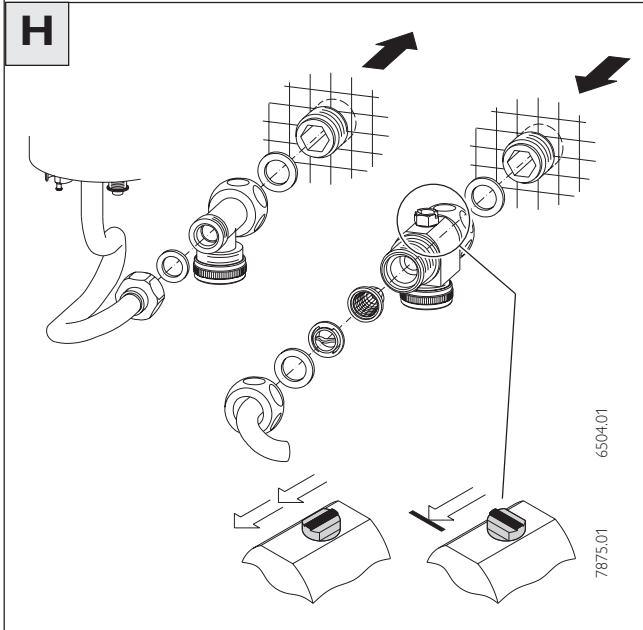
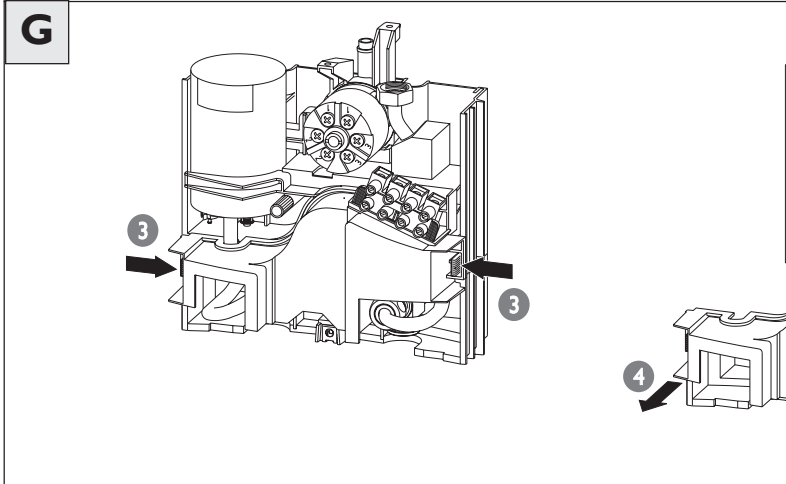
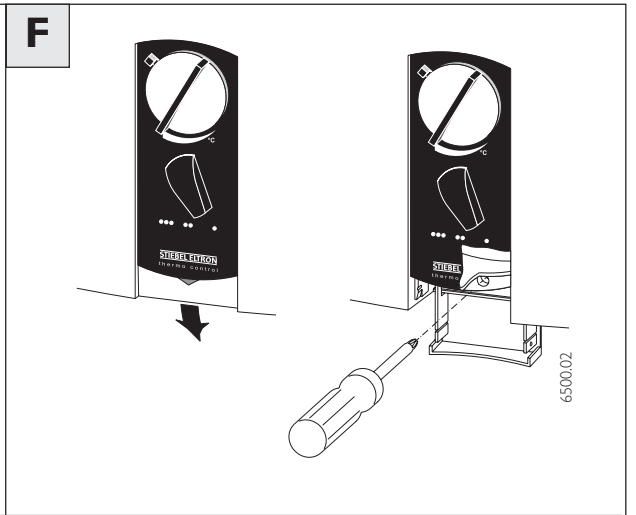
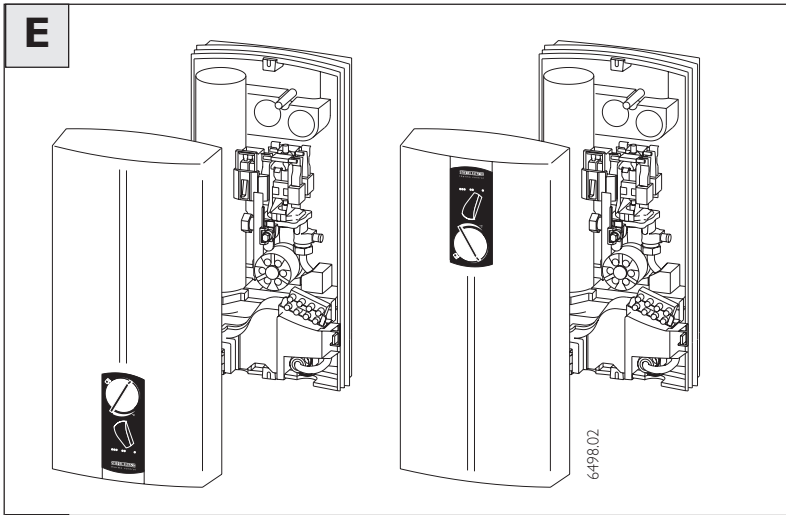
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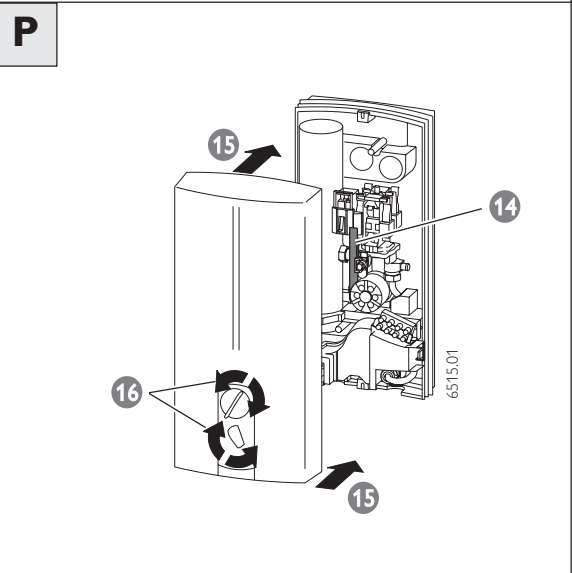
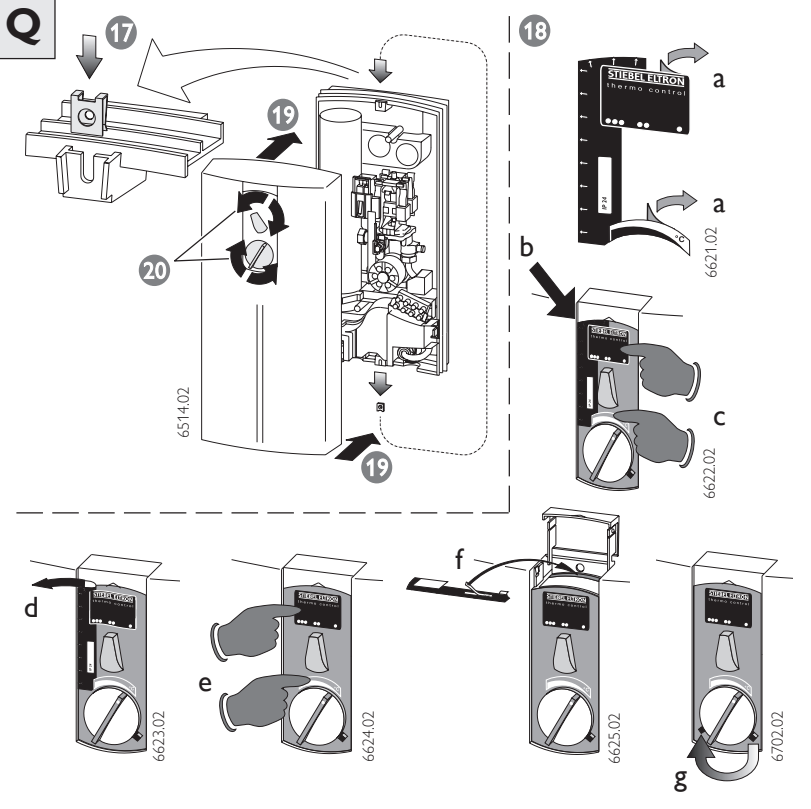
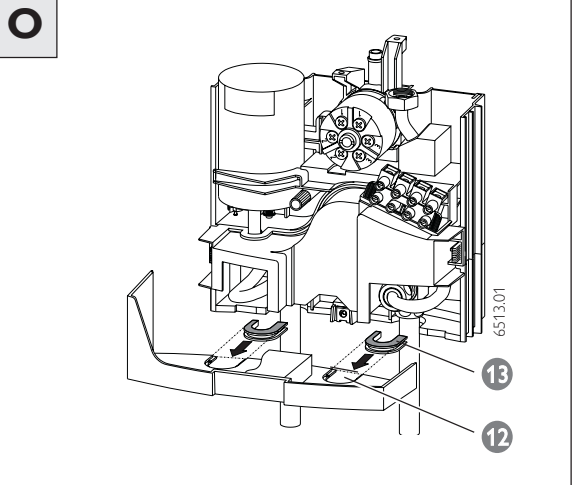
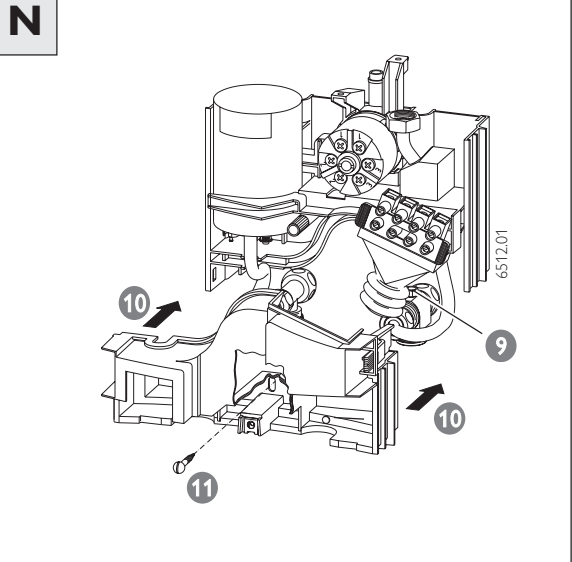
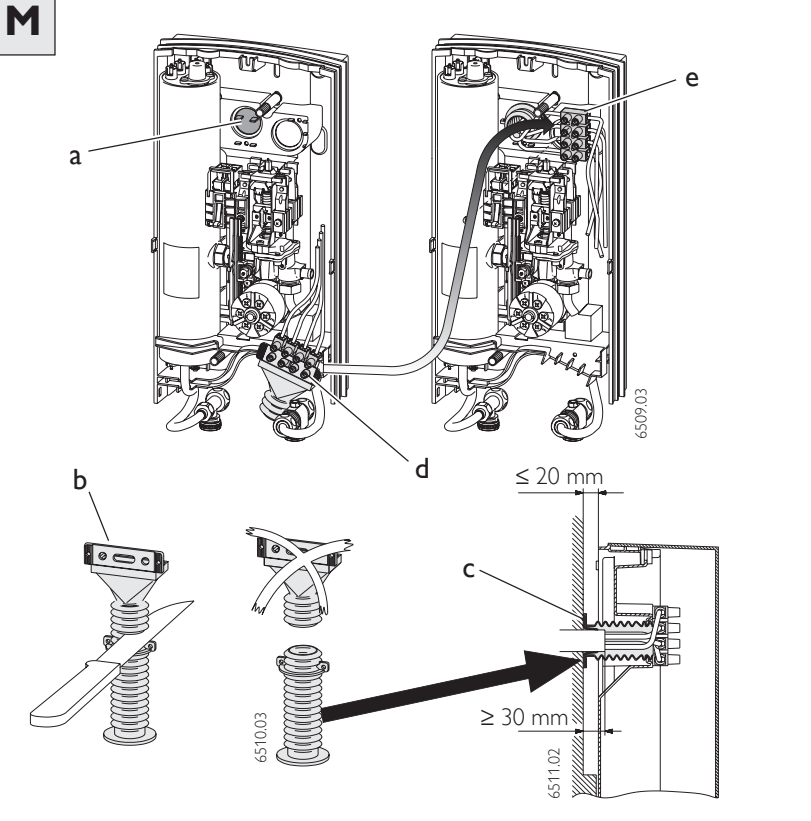
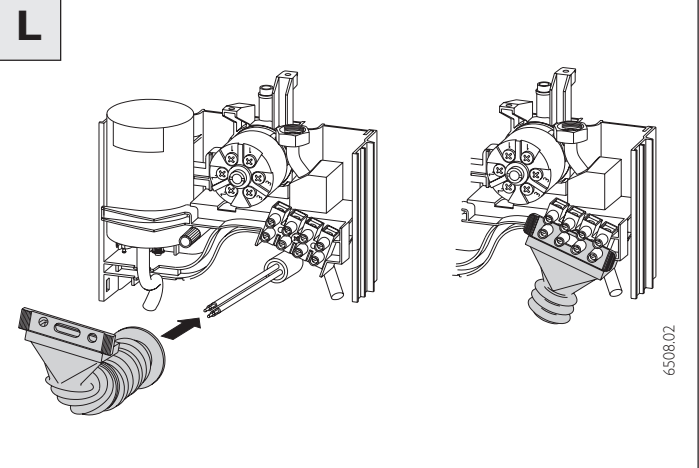
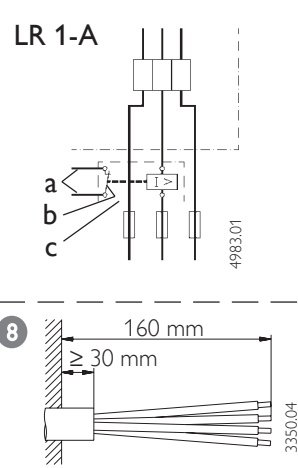
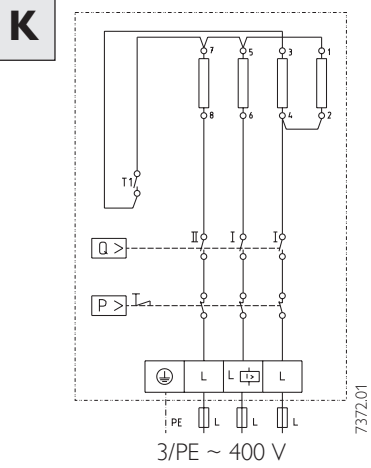
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# 1. Operating instructions for the user and the qualified installer

## Description

The DHB hydraulically-controlled instantaneous water heater heats the water when the required volume of water flows through the device.

### Important information - in brief

#### Power selector switch **A**

⇒ To change the heating output to the required level.

#### Shower comfort switch **B**

⇒ For even more comfort when showering.

## Operation

### Power selector switch **A**

#### ●●● Full output

⇒ Automatic output modulation in 2 stages, depending on the water volume, greatest temperature increase, 1/2 or full load.

#### ●● Energy saving

⇒ Automatic output modulation in 2 stages, energy saving with 1/3 or 2/3 heating load (summer operation).

#### ● Half load

⇒ Fine adjustment to max. 1/2 heating load, full heating capacity blocked (constant low water requirement).

### Shower comfort switch **B**

#### 1 Variable setting

⇒ Fine adjustment of water volume and temperature when showering, with hot water tap fully opened.

#### 2 Latching position

⇒ For high temperatures, or with low pressure in the hot water system.

## Trouble-shooting in the event of problems

- Set the output selector switch to the basic setting ●●●.
- Set the shower comfort switch to the basic position 2.
- Check fuses.
- Check the fittings and shower head for lime scale or dirt.

See page 15 for more fault-finding information.

## Recommended settings

### • for supplying bathroom and kitchen:

#### Power selector switch **A**:

⇒ Position ●●●

#### Shower comfort switch **B**:

⇒ Latching position 2.

⇒ The desired temperature is adjusted at the fitting.

### • For supplying bathroom only:

#### Power selector switch **A**:

⇒ Filling bath, position ●●●.

⇒ Showering in summer, position ●●.

#### Shower comfort switch **B**:

⇒ Hot water valve fully open.

⇒ With sufficient pressure in the water system, adjust the shower temperature with the shower comfort switch.

### • Operation with two-handle fitting/ mono-bloc mixer

The DHB automatically controls the individual heat output depending on the water flow rate (Stages I and II) through the device. To do this, a minimum volume is required for actuation (see "Technical Data").

#### Sink:

⇒ Open the hot water tap of the two-handle fitting or set the mono-bloc mixer to the Hot setting. With a low flow volume, the device will switch on heating stage I. By reducing the flow at the hot water tap, the output temperature can be increased, and reduced by opening the tap further.

#### Shower/bath/basin:

⇒ With the hot water tap fully open/mono-bloc mixer at the hot setting, the device will operate automatically in Stage II. The output temperature and hot water volume can be changed by means of the shower comfort switch **B** or by mixing in cold water at the fitting.

### • Operation with thermostatic fitting:

#### Power selector switch **A**:

⇒ Position ●●● or ●●

Take note of the instructions provided by the manufacturer of the fitting.

⇒ The desired temperature at other tap points is adjusted at the fitting.

#### Shower comfort switch **B**:

⇒ Always in the latching position 2

- **With low pressure** in the water system, the shower comfort switch is to be set to the latching position 2.

The pressure loss in the downstream fitting and in the hand-held shower in particular, influences the temperature selection possibility at the shower comfort switch. Use hand-held showers with low pressure loss (see page 14 for Relexa hand-held shower).

## Energy saving tip

The position ●● saves energy and water when showering, especially in Summer. For filling the bath, the power stage ●●● is recommended (shorter filling time).



## Important information



When selecting the temperature at the draw-off fitting, water temperatures of over 60 °C may be reached. For this reason, children should be kept away from the fitting, due to the risk of scalding.

Air in the cold water pipe will destroy the bare-wire heating system of the DHB. If the water supply to the DHB has been interrupted, for example due to the risk of frost or work on the water pipe, the following steps must be carried out before the system is used again:

1. Disconnect the supply or disconnect the fuses.
2. Open a hot water tap downstream of the device for as long as is necessary for the device and the cold water pipe to be freed of air.
3. Reconnect the supply or connect the fuses again.

### Hot water output

Depending on the time of year, a variety of cold water supply temperatures can be obtained which in turn give the following maximum flow volumes or mixed water volumes (see table 1).

$\vartheta_1$  = Cold water inlet temperature

$\vartheta_2$  = Mixing water temperature.

$\vartheta_3$  = Outlet temperature.

Useful temperatures:

- Approx. 38 °C: E.g. for shower, hand washing, bath filling, etc.
- Approx. 60 °C: For kitchen washing and when using thermostat fittings (shower comfort switch in latching position 2).

$\vartheta_2 = 38\text{ °C}$  (Mixing water temperature)

kW	11,1	18	21	24	27
$\vartheta_1$ l/min					
6 °C	4,9	8,0	9,4	10,7	12,1
10 °C	5,7	9,2	10,7	12,3	13,8
14 °C	6,6	10,7	12,5	14,3	16,1

$\vartheta_3 = 60\text{ °C}$  (Outlet temperature)

kW	11,1	18	21	24	27
$\vartheta_1$ l/min					
6 °C	2,9	4,8	5,6	6,4	7,2
10 °C	3,1	5,2	6,0	6,9	7,7
14 °C	3,5	5,6	6,5	7,5	8,4

Table 1

### Maintenance



Maintenance work may only be carried out by a qualified installer.

An overview of faults which you can rectify yourself is provided on page 15.

### Care

A damp cloth is all that is needed to care for the housing. Do not use any abrasive or aggressive cleaning agents.

### Instructions for use and installation



Keep these instructions in a safe place, and give them to the new owner if you move house; if maintenance or repair work is required, let the qualified installer have them for reference.



## 2. Installation instructions for the qualified installer


### Structure **D** and **J**

- 1 Power selector switch
- 2 Shower comfort switch
- 3 Cover cap (cover securing screw)
- 3a Short operating instructions (inside)
- 4 Cover
- 5 Lower part of the back plate
- 6 Hot water connection
- 7 Cold water connection (3-way cut-off)
- 8 Fastening screw assembly support (service)
- 9 Cable grommet
- 10 Upper part of the back plate
- 11 Terminal block
- 12 Safety pressure limiter (AD 3)
- 12a Reset button for safety pressure limiter (in the event of a fault)
- 13 Differential pressure switch/flow regulator MRS
- 14 Heating system
- 15 Fastening screw
- 16 System pressure switch
- 17 Toothed bar
- 18 Setting lever
- 19 Lower part of device fixing assembly
- 20 Electricity supply concealed in lower area of device
- 21 Electricity supply concealed in upper area of device
- 22 Device fixing point for replacement against DHA
- 23 Device fixing point on top in new installation
- 24 Dimension for installation, "wall flush fitting"
- 25 Fixing holes for replacing third-party products
- 26 Knurled nut for rear wall alignment in the event of tiles being uneven
- 27 Knock-out point for fitting bracket provided with DHB 12-27 Si and for installed DHB and DHF fitting bracket in the event of replacement
- 28 Knock-out point for installed fitting bracket of Stiebel Eltron DHE

### Fittings

- Fittings for open units are not permitted!
- In case of low water pressure hand-held showers with low pressure loss must be fitted see "Special fittings" page 14.
- Stiebel Eltron twin-handle fittings for instantaneous water heater see "Special fittings" page 14.
- One-hand mixer and thermostatic fittings must be suitable for hydraulically controlled instantaneous water heaters.
- **Practical hints:**  
So that the switch-on quantities (see Table 2) of stage **I** and **II** are safely reached, the pressure losses of the instantaneous water heater, fitting, hand-held shower, shower hose and the pipe network must be taken into account upon installation. Typical pressure loss values for a shower water quantity of approx. 10 l/min:
  - one-hand mixer . . . . . 0.04 - 0.08 MPa
  - thermostatic fittings . . . . . 0.03 - 0.05 MPa
  - hand-held shower . . . . . 0.03 - 0.15 MPa

### Important information

 Air in the cold water pipe will destroy the bare-wire heating system of the DHB. If the water supply to the DHB has been interrupted, for example due to the risk of frost or work on the water pipe, the following steps must be carried out before the system is used again:

1. Disconnect supply or disconnect the fuses.
  2. Open a hot water tap downstream of the device for as long as is necessary for the device and the cold water pipe to be freed of air.
  3. Reconnect the supply or connect the fuses again.
- The device is suitable for hot water production (potable supply), and is to be installed in enclosed, frost-free rooms, as close as possible to the outlet point (uninstalled devices are to be stored in a frost-free place, because there will always be residual water left in the unit).
  - All information in these Instructions for Use and Installation must be followed carefully. They provide important information with regard to safety, operation, installation, and maintenance of the device.

### Short description

The Stiebel Eltron DHB instantaneous water heater is a hydraulically-controlled pressure device for heating cold water in accordance with DIN 1988, with which one or more outlet points can be supplied.

The flow regulator (MRS), which can be adjusted by means of the shower comfort switch:

- keeps the flow volume constant in the event of pressure fluctuations in the water mains, and therefore keeps the output temperature constant;
- limits the flow volume (latching position) and therefore guarantees, even in winter, an adequate temperature increase.

The bare-wire heating system is enclosed within a pressure-resistant copper sheathing. The heating system is especially suitable for hard water, i.e. containing lime (for areas of operation see Table 2).

### Regulations and specifications

- The installation (water and electrical installation) and the first-time operation and maintenance of this device may only be carried out by a qualified installer, in accordance with these instructions.
- Regulations of the local energy supply company
- Specifications of the water supply company concerned
- Fit the device with the lower section flush with the wall (respect dimension  $\geq 110$  mm (24)). Also secure the device at the bottom (19).

#### Other points to be noted:

- The device rating plate
- Technical data:  
The specific electrical resistance of the water must not be less than that indicated on the device rating plate. With a water mains network, the lowest electrical resistance of the water is to be taken into account (see table 2). You can find out the specific electrical resistance or electrical conductivity of the water from the water supply company.


#### • Water Connection

- **Materials suitable for cold water connection**  
Steel, Copper or Plastic pipe system
- **Materials suitable for hot water connection**  
Copper or Plastic  
Installation with an approved plastic piping system is possible.

- A safety valve is not required.
- Operation with pre-heated water of more than 25 °C is not permitted.
- Accompanying pipe heating (trace heating) is not permitted.
- Fittings for open devices are not permitted.

#### • Electrical Connection

- Electrical connection only to a permanent connection.
- The device must be capable of being isolated from the mains, for example by fuses, with an isolating distance of at least 3 mm.

 The device must be connected to the protective earth conductor.

## Technical data

Type	DHB 12 Si	DHB 18 Si	DHB 21 Si	DHB 24 Si	DHB 27 Si	
Design	closed					
Rated content	0.4 l					
Weight	5 kg					
Rated overpressure	1 MPa (10 bar) *					
Protection class as per VDE	1					
Protection mode as per VDE	IP 25 IP 24 for under-sink installation with rotated cover					
Test marks	See device rating plate					
Water connection (external thread)	G 1/2					
Electrical connection	3/PE ~ 400 V					
Heating output	Stage	I / II	I / II	I / II	I / II	
Setting of power selector switch	●●● kW	5.6 / 11.1	9 / 18	10.5 / 21	12 / 24	13.5 / 27
	●● kW	3.7 / 8.8	7 / 15	7 / 17	7.5 / 19	7.5 / 20
	● kW	5.6 / -	9 / -	10.5 / -	12 / -	13.5 / -
Switching volumes	Stage I l/min	> 3.0	> 3.4	> 3.6	> 3.8	> 4.0
	Stage II l/min	> 3.4 - 12	> 5.1 - 12	> 5.6 - 12	> 6.3 - 12	> 7.0 - 12
Switch-on flow pressure (pressure loss) at flow volume **l/min	MPa	0.5	0.65	0.8	0.95	1.15
	3.4	5.1	5.6	6.3	7.0	

\* if the water pressure is above 1 MPa, a pressure limiting valve has to be installed

\*\* Shower comfort switch in latching position


## Operation ranges for instantaneous water heater related to the specific electrical conductivity / specific electrical resistance of the water

Type	Indicated as	Operation ranges for different reference temperatures *** of the water analysis under Standards data		
		at 15 °C	20 °C	25 °C
DHB 12 Si	Specific electrical resistance corresponds to specific electrical conductivity	≥ 1000 Ωcm	≥ 890 Ωcm	≥ 815 Ωcm
		≤ 100 mS/m	≤ 112 mS/m	≤ 123 mS/m
		≤ 1000 µS/cm	≤ 1124 µS/cm	≤ 1127 µS/cm
DHB 18 – 27 Si	Specific electrical resistance corresponds to specific electrical conductivity	≥ 900 Ωcm	≥ 800 Ωcm	≥ 735 Ωcm
		≤ 111 mS/m	≤ 125 mS/m	≤ 136 mS/m
		≤ 1110 µS/cm	≤ 1250 µS/cm	≤ 1360 µS/cm

\*\*\* Note: The values for the specific electrical resistance or the electrical conductivity will be determined in a different manner from region to region, at differing temperatures. This must be taken into account in the assessment.

Table 2

## Installation location

 The DHB is to be installed vertically in accordance with **C** (over-sink or under-sink) in an indoor, frost-free location as close as possible to the outlet points. In the case of under-sink installation, it will not be possible to rotate the cover **E** (not the back plate).

## Preparing for installation:

- **F** Open the cover cap, release the securing screw, and remove the cover.
- **G** Remove the lower part of the back plate by pressing the two engagement hooks **3** forwards **4**.
- Determine the knock-out point on the back plate of the device for securing to the fixing bracket **J**:
  - Knock out position **27** when using the fixing bracket provided.
  - Knock out position **28** when installing

the device on the existing Stiebel Eltron DHE fixing bracket.


- Flush through the cold water pipe thoroughly.
- Install the water connection components in accordance with **H** or **I**. Take note of the arrows indicating direction of flow.
- When replacing devices DHB-S, DHB-SK, and DHF by a DHB-Si, the cold water 3-way shutoff valve can continue to be used.
- With the aid of the installation template, determine the position of the cable feed (concealed connection) and of the fixing bracket.
- Cut the electrical connection cable **K** to length and strip the insulation.
- Secure the fixing bracket **J** in the appropriate manner. If replacing a Stiebel Eltron DHA instantaneous water heater, the existing fixing holes (**22**) can be used, and the fixing holes (**25**) if replacing a device of a third-party manufacturer.

- Secure the device with the screw (**8**) on the fixing bracket. By using the knurled nut (**26**), any unevenness in the wall surface, for example due to tiles being offset, can be compensated for, up to a maximum of 20 mm **D** (illustration below).

## Water connection

The 3-way valve should not be used as an isolation valve!

- **Concealed screw connection H**  
Fit the components supplied with the device.
- **Surface screw connection I**

 The IP 25 protection mode (Jet-waterproof) is guaranteed in the case of the following connection.

- a** With a Stiebel Eltron surface-type tap fitting WKMD or WBMD (see "Special Accessories" page 14):
1. Saw the rear wall lower part to size in order to facilitate installation (cutting width max. 2 mm).
  2. Use water plugs G ½ **5**. Water plugs fall within the scope of supply of the Stiebel Eltron WKMD and WBMD fittings. In the case of third party tap fittings, the special accessory module with 2 water plugs (see "2.12 Special accessories") is required.
- b** In the case of surface-type installation (see "Special accessories" page 14):
1. Saw the rear wall lower part to size in order to facilitate installation (cutting width max. 2 mm).
  2. Use water plugs G ½ **6**.
  3. Use ½" union nuts with inlets for Ø 12 mm diameter soldered joints **7**. Make a junction with 12 mm copper pipe.


## Electrical connection **K**

- In the case of concealed installation, the insulated connection cable **8** must project at least 30 mm, out of the wall.
- Priority circuit:

In combination with other electrical devices, such as electrical storage heaters, the load shedding relay is to be fitted:

- a Control cable to the protective contactor of the second device (e.g. electrical storage heater).
- b Control contact, opens when the DHB is switched on.
- c Load shedding relay (see page 14).

**Load shedding occurs when the DHB is operated.**

 The load shedding relay may only be connected to the middle phase of the device terminal block.

- **Connection in the lower part of the device L**.

In the state as delivered, the device is ready for electrical connection in the lower part.

- Fit the device as shown in the illustration.
- To seal against water penetration, the cable grommet supplied must be used.
- Connect the connecting cable in accordance with **K** to the terminal block.

See page 14 for completing installation.

- Connection in the upper part of the device **M**.

Prepare the device for electrical connection in the upper part.

1. Break through the marked inlet aperture in the rear plate (a) of the device.
2. Shorten the cable grommet for providing the seal (b), wet it on the inside with a lubricating agent for better fitting (ease of sliding), and fit it in the back plate (c).
3. Release terminal block (d).
4. Fit the terminal block (e) in the upper part of the device. Care is to be taken to ensure that the switching leads do not project over the back plate of the device.

### Carry out the electrical connection

To provide protection against water penetration, the cable grommet provided must be fitted in accordance with **M** and the dimensions respected.

Establish the electrical connection in accordance with **K**.

### Concluding the installation **N**

9. Open the 3-way shutoff valve.
10. Secure the lower part of the back plate.
11. Fit the lower fixing screw.

- Only for water connection on surface **O**

With the water connection on the surface, break through the knock-out apertures **12** in the cover in an appropriately clean manner, using a file if necessary. The guide pieces **13** provided with the device should be engaged in the penetration apertures.

- Only for installation over-sink **P**

14. Bring the inside toothed bar into the middle position.
15. Fit the cover, secure the screw, and close the cover cap.
16. Turn the shower comfort switch and power selector switch to the left and right stops (internal setting lever will engage).

- Only for installation under-sink **Q**

**!** If installed with the cover rotated, the device has the protection mode IP 24 (protected against spray water).

17. Move the snap nut from the bottom to the top.
18. Cover over the cover label (Stiebel Eltron, Temperature trail and rating plate) using the adhesive label supplied (backing film serves as fitting aid):
  - a. Remove protective film
  - b. Align the label
  - c. Press the label in place
  - d. Draw off the backing film
  - e. Press the label in place
  - f. Cover over IP 25 on the rating plate with IP 24
  - g. Move the lever to the left engagement position.
19. Mount cover, tighten screw and close the cover cap.
20. Rotate the shower comfort switch and power selector switch to the left and right stops (inside setting lever engages).

### Initial operation

1. Fit device in position.
2. Fill device with water.
3. Engage the power selector switch **A** and shower comfort switch **B** by rotating it to the left and right and then bring it into the basic setting.
4. Connect the fuses.
5. Check function.

### Handing the device over to the customer

1. Select basic position **A** and **B**.
2. Explain the positions of the power selector switch and the shower comfort switch (see page 11).

**!** If the water pressure is low, move the shower comfort switch into the engagement position **2** and set the power selector switch to position **●●**.

3. Draw the attention of the user to the risk of scalding.
4. Indicate the location of the short operating instructions in the cover (**3 a**), if necessary choose a different language (see the middle part of these operating and installation instructions).

### Accessories

Two-handle pressure fittings

- Kitchen fitting WKMD, Order No. 07 09 17
- Bath fitting WBMD, Order No. 07 09 18
- Grohe Relaxa hand-held shower, plastic, chrome-plated with especially low pressure loss (0.02 MPa at 10 l/min), Order No. 06 85 21.  
Area of use:  
With particularly low supply pressure in the water installation, a clearly improved temperature stability will be achieved when showering.
- Load-shedding relay LR 1-A, Order No. 00 17 86  
Priority circuit of the DHB with simultaneous operation, for example, of electrical storage heaters.  
For connection of LR 1-A, see **K**.

- Pipe set  
Gas device replacement, for DHB - Si, Order No. 07 35 28  
Surface connection with cold water on the left and hot water on the right side.
- Pipe set  
Installation under-sink, for DHB - Si, Order No. 07 05 65  
Connections: Surface fitting, G 3/8, top.
- Set of two units, water blanking plugs G 1/2 **I**, Order No. 07 40 19 **5**  
Required for water installation with fittings on surface or beneath it, not with WKMD or WBMD.

- Surface installation kit **I**

Order No. 07 40 19

- 2 pieces, blanking disks G 1/2 **6**
- 2 pieces, connection piece 1/2" with insert for solder connection **7**.

Not necessary for Stiebel Eltron WKMD and WBMD tap fittings.

### 3. Guarantee

For guarantees please refer to the respective terms and conditions of supply for your country.

**!** The installation, electrical connection and first operation of this appliance should be carried out by a qualified installer.

The company does not accept liability for failure of any goods supplied which have not been installed and operated in accordance with the manufacturer's instructions.

### 4. Environment and recycling

Please help us to protect the environment by disposing of the packaging in accordance with the national regulations for waste processing.

### 5. Servicing instructions

**R** qualified installer

Removing the components from the back panel:

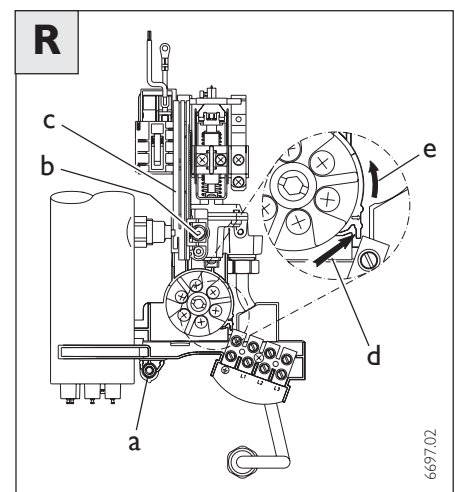
1. Release the central fastening screw assembly, item (a).
2. Pivot the module carrying components out of the back panel.

Fitting the disengaged toothed bar

1. Rotate the toothed wheel (b) in the clockwise direction by hand, as far as the stop.
2. Slide the toothed bar (c) in from above.

Replace the safety pressure limit switch (AD 3).

1. Press the engagement hooks (d) in the direction of the arrow
2. Rotate AD 3, item (e) counter-clockwise (bayonet fitting).



**6. Fault-finding - user**

Fault	Cause	Rectification
The heating system in the DHB does not come on, despite the hot water tap being opened fully.	The flow volume required to turn on the heating system has not been attained. <ul style="list-style-type: none"> <li>– Dirt contamination or lime scale on the percolators in the fittings or the shower heads.</li> <li>– Shower comfort switch in wrong position.</li> </ul>	<ul style="list-style-type: none"> <li>– Clean and/or descale.</li> <li>– Move the shower comfort switch <b>B</b> to the latching position <b>2</b>.</li> </ul>

**7. Fault-finding - qualified installer**

Fault	Cause	Rectification
Differential switch/flow regulator (MRS switching system) does not come on, despite the hot water tap being opened fully.	The flow volume required to turn on the heating system has not been attained. <ul style="list-style-type: none"> <li>– Dirt filter ( <b>H</b> ) blocked.</li> <li>– Toothed bar ( <b>17</b> ) not engaged.</li> </ul>	<ul style="list-style-type: none"> <li>– Clean the filter intake after unblocking the cold water pipe.</li> <li>– Remove the cover. Move the toothed bar into the middle position and refit the cover. Rotate the shower comfort switch and power selector switch to the left and right stops (inner setting lever engages) and bring it into the basic setting.</li> </ul>
No hot water, despite the fact that the differential switch can be heard switching on.	<ul style="list-style-type: none"> <li>– The safety pressure limiter (AD 3) has switched the device off for safety reasons.</li> </ul>	<ul style="list-style-type: none"> <li>– Eliminate the cause of the fault (e.g. defective pressure spray), press blue button on the safety pressure limiter ( <b>12 a</b> ), but only with the tap open and the device free of pressure.</li> </ul>
Heater not switching on / no hot water.	<ul style="list-style-type: none"> <li>– No power supply.</li> <li>– Heating system defective.</li> </ul>	<ul style="list-style-type: none"> <li>– Check fuses.</li> <li>– Measure the resistance of the heating element, change if necessary.</li> </ul>