

## Installation instructions



electronicVED

VED E ../7 INT II

**EXP (en)**

**Publisher/manufacture**

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## 1 Safety

### 1.1 Action-related warnings

#### Classification of action-related warnings

The action-related warnings are classified in accordance with the severity of the possible danger using the following warning signs and signal words:

#### Warning symbols and signal words



#### **Danger!**

Imminent danger to life or risk of severe personal injury



#### **Danger!**

Risk of death from electric shock



#### **Warning.**

Risk of minor personal injury



#### **Caution.**

Risk of material or environmental damage

### 1.2 Intended use

There is a risk of injury or death to the user or others, or of damage to the product and other property in the event of improper use or use for which it is not intended.

**Vaillant electronicVED** electric instantaneous water heaters must only be used to heat up drinking water.

**Vaillant electronicVED** electric instantaneous water heaters are suitable for use only in an enclosed, frost-free room in a domestic environment.

**Vaillant electronicVED** electric instantaneous water heaters are not suitable for operation in secondary circulation lines.

Intended use includes the following:

- observance of accompanying operating, installation and servicing instructions for the product and any other system components
- installing and fitting the product in accordance with the product and system approval
- compliance with all inspection and maintenance conditions listed in the instructions.

Intended use also covers installation in accordance with the IP code.

Any other use that is not specified in these instructions, or use beyond that specified in this document shall be considered improper use. Any direct commercial or industrial use is also deemed to be improper.

#### **Caution.**

Improper use of any kind is prohibited.

### 1.3 General safety information

#### 1.3.1 Risk caused by inadequate qualifications

The following work must only be carried out by competent persons who are sufficiently qualified to do so:

- Set-up
  - Dismantling
  - Installation
  - Start-up
  - Inspection and maintenance
  - Repair
  - Decommissioning
- ▶ Observe all instructions that are included with the product.
  - ▶ Proceed in accordance with current technology.
  - ▶ Observe all applicable directives, standards, laws and other regulations.

#### 1.3.2 Risk of material damage caused by frost

- ▶ Do not install the product in rooms prone to frost.

#### 1.3.3 Risk of death from electric shock

There is a risk of death from electric shock if you touch live components.

Before commencing work on the product:

- ▶ Disconnect the product from the power supply by switching off all power supplies at all poles (electrical partition with a contact gap of at least 3 mm, e.g. fuse or circuit breaker).
- ▶ Secure against being switched back on again.
- ▶ Check that there is no voltage.





## 1 Safety

### 1.3.4 Risk of death from electric shock from live lines and connections

The drinking water that is used must demonstrate a specific resistance of  $\geq 900 \Omega$  at  $15^\circ\text{C}$ . Otherwise, the product must not be used.

- ▶ Before installing the unit, ask your water company to inform you about the water resistance and conductivity.

### 1.3.5 Risk of being scalded by hot water

The outlet temperatures at the draw-off points can be up to approx.  $60^\circ\text{C}$ .

- ▶ When using the product, ensure that you do not scald yourself.
- ▶ If you want to be protected from scalding, set the maximum temperature of the product to  $43^\circ\text{C}$ .

### 1.3.6 Risk of being scalded by hot water

If a solar thermal energy system is connected upstream, hot water temperatures of over  $43^\circ\text{C}$  could be generated even if the scald protection function is set.

If a solar thermal energy system is connected upstream of the product, the inlet temperature must be limited by including precautionary features in the design (e.g. a mixer valve).

- ▶ Install a mixer valve to limit the inlet temperature to  $25^\circ\text{C}$ .

### 1.3.7 Risk of being burned or scalded by hot components

- ▶ Only carry out work on these components once they have cooled down.

### 1.3.8 Risk of material damage caused by using an unsuitable tool

- ▶ Use the correct tool to tighten or loosen threaded connections.

### 1.4 Regulations (directives, laws, standards)

- ▶ Observe the national regulations, standards, guidelines and laws.



## 2 Notes on the documentation

### 2.1 Observing other applicable documents

- ▶ You must observe all the operating and installation instructions included with the system components.

### 2.2 Storing documents

- ▶ Pass these instructions and all other applicable documents on to the system operator.

### 2.3 Validity of the instructions

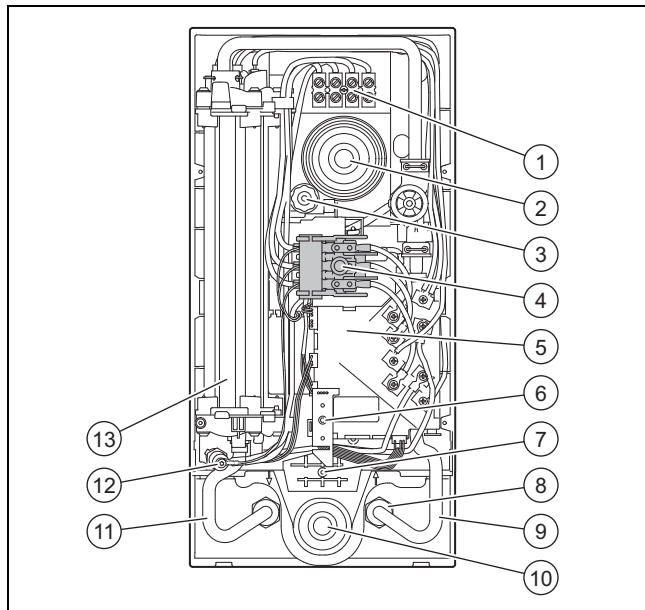
These instructions apply only to:

#### Product article number

VED E 18/7 INT II	0010023714
VED E 21/7 INT II	0010023715
VED E 24/7 INT II	0010023716
VED E 27/7 INT II	0010023717

## 3 Product description

### 3.1 Overview



- |  |   |
|--|---|
| 1 Mains connection terminal                  | 7 Optional space underneath for the mains connection terminal |
| 2 Top cable duct                             | 8 Filter  |
| 3 Adjustment spindle                         | 9 Cold water connection                                       |
| 4 Safety switch                              | 10 Bottom cable duct  |
| 5 Electronics                                | 11 Hot water connection                                       |
| 6 Temperature selector (infinitely variable) | 12 Safety overheat cut-off device                             |
|  | 13 Heating block  |

### 3.2 Function

The product heats up drinking water via a bare wire in the heating block using the flow-through principle.

The drinking water can be drawn from several draw-off points.

The electronics measure the temperature of the water in the cold water supply and the water volume flow. The electrical performance that is required to heat the water to the required hot water temperature is calculated using these two values. The temperature can be set to any value between 30 °C and 60 °C on the product's temperature selector.

The hot water temperature depends on:

- Water inlet temperature
- Water outlet volume
- Performance category of the unit

If the set hot water temperature is not reached, reduce the water volume.

### 3.3 Information on the data plate

Symbol	Meaning
	The VDE GS mark confirms that the unit complies with standards and has been tested for safety.
	Symbol confirming conformity with the electromagnetic compatibility standard
	Read all of the instructions.
	Barcode with serial number, The 7th to 16th digits of the serial number form the article number

### 3.4 CE label



The CE label shows that the products comply with the basic requirements of the applicable directives as stated on the identification plate.

The declaration of conformity can be viewed at the manufacturer's site.

## 4 Set-up

### 4 Set-up

#### 4.1 Checking the scope of delivery

- ▶ Check that the scope of delivery is complete.

Quantity	Description
1	<b>electronicVED</b> electric instantaneous water heater
1	Operating instructions and installation instructions
1	Bag containing fixing material (2 bolts, 2 rawl plugs, 3 seals, 1 special fixing screw)
1	R 1/2 cold water connection piece with a cold water stop valve
1	R 1/2 hot water connection piece
2	Double nipple
1	Installation plate
1	Installation template

#### 4.2 Selecting an installation location

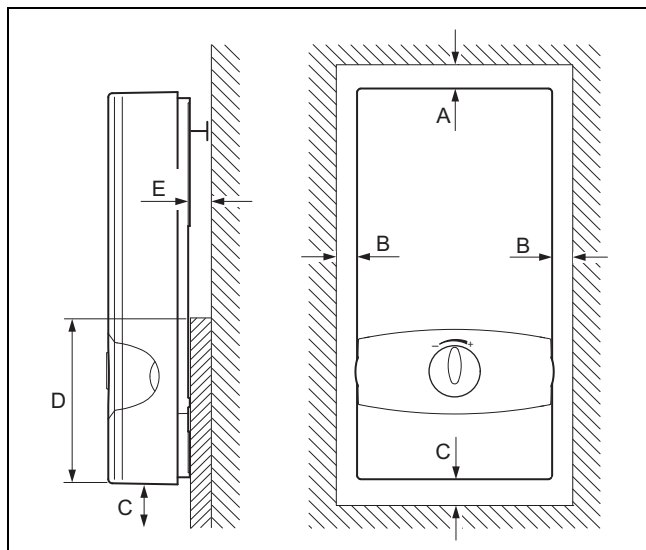
- ▶ Install the product as close as possible to the draw-off points that are used most frequently.



#### Note

The product may also be installed above baths or in a shower area.

#### 4.3 Installation clearances

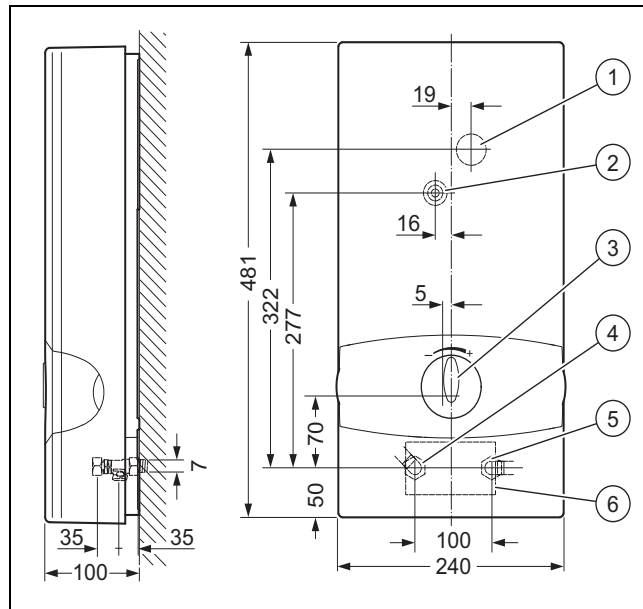


- |   |                 |   |                 |
|---|-----------------|---|-----------------|
| A | At least 50 mm  | D | At least 130 mm |
| B | At least 50 mm  | E | Maximum 22 mm   |
| C | At least 120 mm |   |                 |

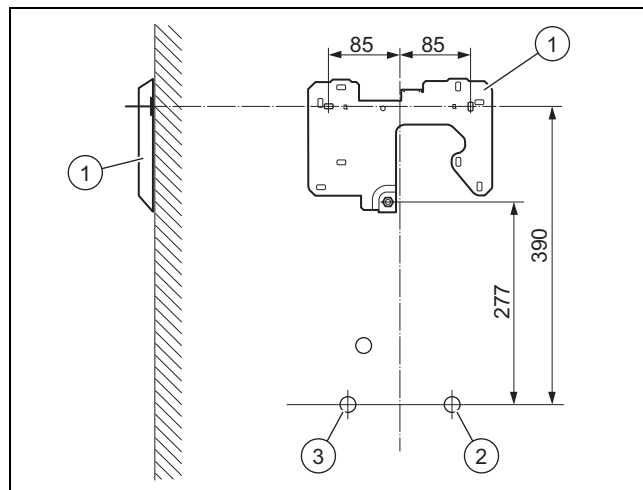
The bottom section of the product (**D**) must be level with the product's bearing area on the wall;

#### 4.4 Installing the product on the wall

##### 4.4.1 Product and connection dimensions

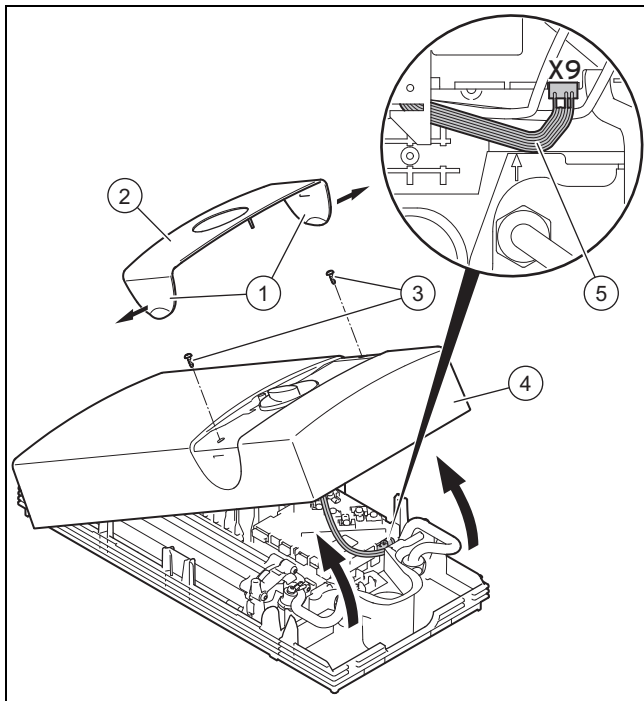


- |   |                            |   |                             |
|---|----------------------------|---|-----------------------------|
| 1 | Top cable duct             | 5 | R 1/2 cold water connection |
| 2 | Central attachment         | 6 | Bottom cable duct           |
| 3 | Temperature selector       | 7 | R 1/2 outside thread        |
| 4 | R 1/2 hot water connection |   |                             |



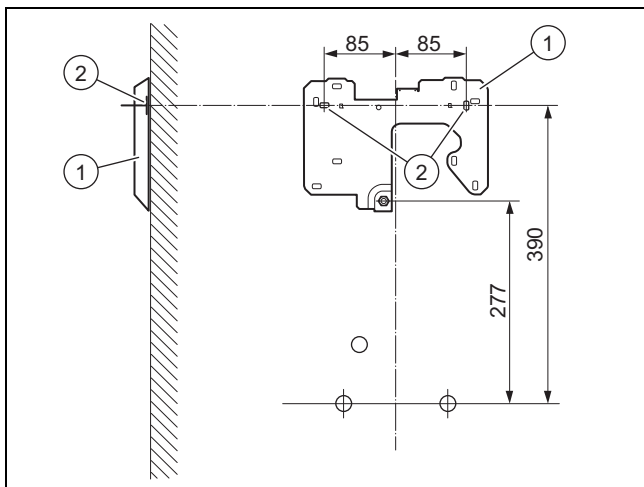
- |   |                       |   |                      |
|---|-----------------------|---|----------------------|
| 1 | Installation plate    | 3 | Hot water connection |
| 2 | Cold water connection |   |                      |

#### 4.4.2 Removing the product casing



1. Grip the two straps (1) on the panel (2).
2. Splay the two straps (pull them away from the product).
3. Remove the panel (2).
4. Undo the two screws (3).
5. Fold up the cover (4).
6. Pull the temperature selector plug from the electronics (slot X9) in the product (5).
7. Remove the cover (4) from the product.

#### 4.4.3 Installing the product



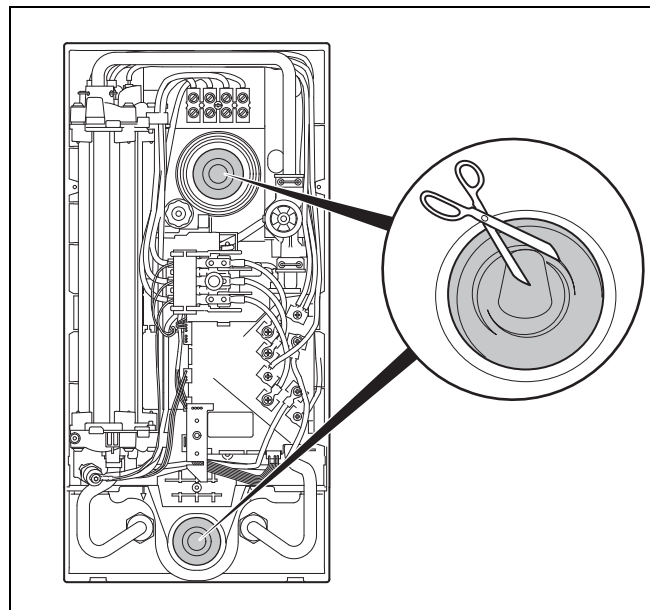
1. Hold the installation template against the wall and mark the fixing points.
  - Product alignment: Vertically on the wall



**Note**

When replacing a product, you can use the drill holes from the previous installation provided these are compatible with the additional holes in the installation plate.

2. Use rawl plugs and screws to secure the installation plate (1) to the fixing points (2).



**Danger!**

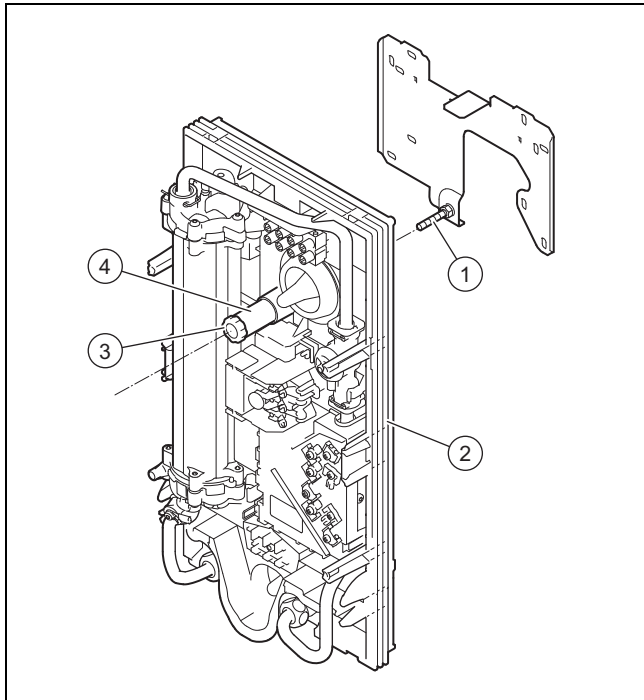
**Risk of electric shock caused by penetrating water**

The cable duct prevents water from penetrating along the mains connection cable and into the product. If the cable duct is completely cut away, water can very easily penetrate and damage the product and may cause a potentially lethal electric shock.

- ▶ Never cut off the cable duct completely.
- ▶ Cut the end of the cable duct in such a way that the sleeve tightly surrounds the mains connection cable.

3. Fold the cable duct up or down depending on the location of the mains connection cable.
4. Feed the cable through the cable duct and into the product's interior.

## 5 Installation



5. Fit the product (2) to the retaining screw (1) on the installation plate.
6. Use the adjustment spindle (4) to adjust the product.
7. Use the fixing screw (3) to secure the product.

## 5 Installation

- ▶ Flush the cold water pipes thoroughly before installation.

### 5.1 Connecting the hot and cold water



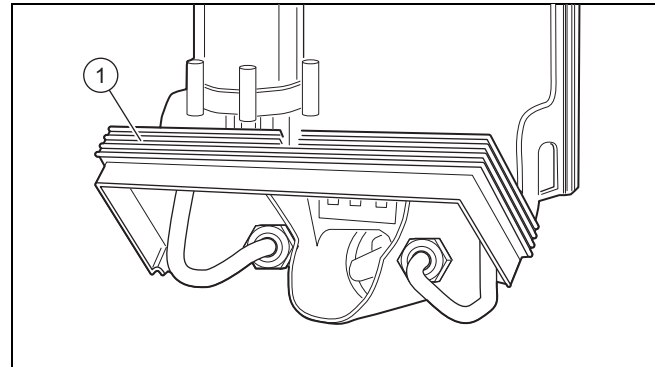
#### Caution.

#### Possible damage caused by unsuitable plastic pipes.

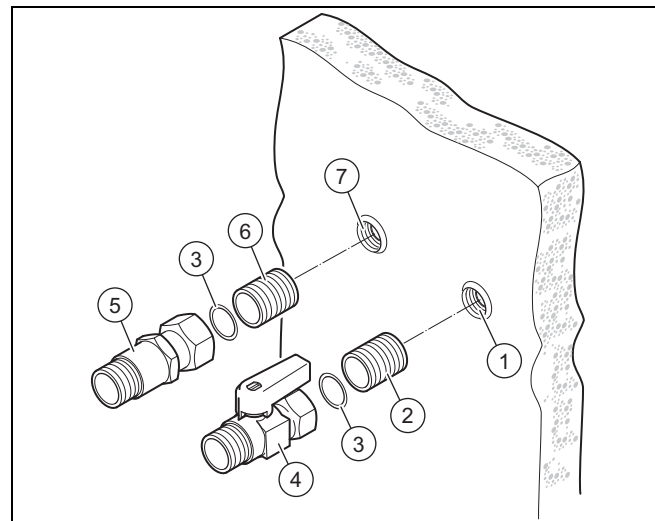
Damage may be caused by unsuitable plastic pipes.

- ▶ Use only plastic pipes that are permitted for normal operation at 65 °C.
- ▶ Use only plastic pipes that can withstand at least one hour at a maximum temperature of 95 °C and a maximum pressure of 1 MPa (10 bar) (check the manufacturer's specifications).
- ▶ When using plastic pipes, ensure that they conform with DIN 16893 and DIN 16892 (check the manufacturer's specifications).

1. Note the water connections for the installation:
  - An expansion relief valve on the cold water pipe is not required.
  - All cold and hot water pipes can be made of steel, copper or plastic.



2. To simplify installing the water connection, the bottom section of product frame can be folded up (1).
  - **Do not remove the folding frame.**



#### Caution.

#### Risk of damage caused by leaks.

Mechanical tension on supply lines may cause leaks and damage to the product.

- ▶ Avoid mechanical tension on supply lines.

3. Put hemp on the two double nipples (2) and (6) and use the connections to screw the double nipples to the wall (1) and (7).
4. Insert the seals (3) in the cap nuts of the cold (4) and hot water connections (5).
5. Screw the cold water connection piece (4) to the cold water connection double nipple (2) in the wall (1).
6. Screw the hot water connection piece (5) to the hot water connection double nipple (6) in the wall (7).
7. Insert a seal into the cap nut of the unit-side hot water connection.





**Caution.**

**Risk of damage due to pipes being blocked by foreign bodies in the water**

A water filter that stops foreign bodies entering the product must be fitted to the cold water flow. The product must not be used without a water filter. A water filter has been installed inside the product's cold water pipe at the factory.

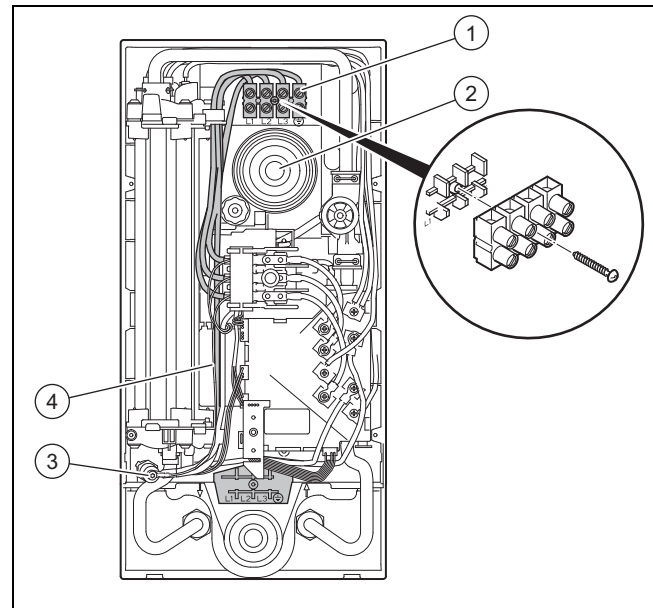
- ▶ During installation, check that the water filter is present.

8. After installing the water connection, fold the lower section of the product frame back until it engages.

**5.2 Connecting the product to the electricity supply**

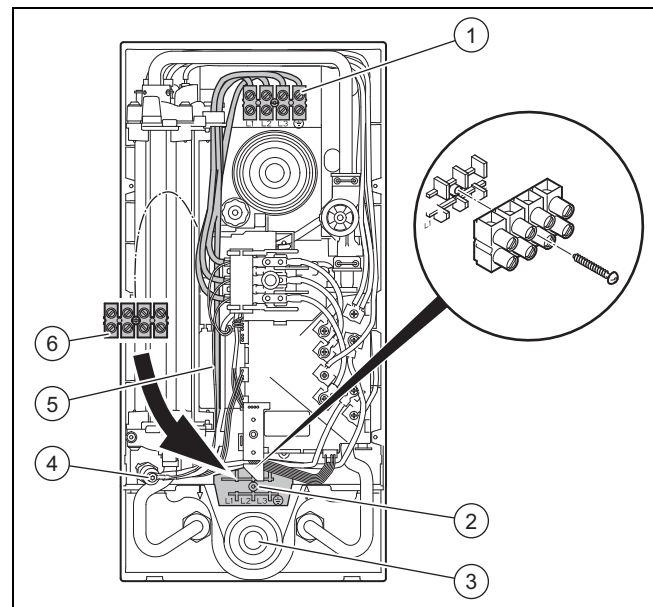
1. Note the specifications on the identification plate when carrying out the electrical installation.
2. Note:
  - The product must be installed using a permanent connection.
  - The permanent connection must be equipped with a customer-supplied partition that has a contact opening of at least 3 mm on all lines (e.g. via a line protection switch).
  - The product must be connected to the protective conductor.
  - The product is delivered pre-assembled. When carrying out the electrical installation, only the electricity supply line needs to be fed into the product through one of the two cable ducts and connected.
  - The electrical connection must be secured to the upper section of the product at the factory. If required, the connection can be routed in the lower section. The electrical supply line is then guided through the lower cable duct.

**5.2.1 Carrying out the top electrical connection**



1. Guide the electrical supply line through the upper cable duct (2).
2. Connect the individual conductors to L1, L2, and L3 on the mains connection terminal (1).
3. Connect the protective conductor (4) (3).

**5.2.2 Carrying out the bottom electrical connection**



1. Guide the electrical supply line through the lower cable duct (3).
2. Unscrew the mains connection terminal (1).
3. Route the mains connection terminal (6), including the internal cable, to the lower position (2) in the product.
4. Screw the mains connection terminal to the lower position (2).
5. Check whether the cables for the mains connection terminal are routed correctly.
6. Connect the individual conductors to L1, L2, and L3 on the mains connection terminal (1).
7. Connect the protective conductor (5) (4).

## 6 Start-up

### 5.2.3 Installing an optional load-shedding relay

If required, a load-shedding relay that conforms with current standards can be connected to the product. The role of the relay is to switch off other power consumers while hot water is being drawn off via the product so that the house installation is not overloaded. The load-shedding relay must fulfil the following criteria:

- Pull-in current < 15 A
- Continuous current > 50 A
- ▶ Install the load-shedding relay in the L2 outer conductor.
- ▶ If the product is a replacement product, also replace the load-shedding relay.

## 6 Start-up

### 6.1 Removing air pockets from the product



#### Caution.

#### Risk of damage from heating wire dry fire

If the air pockets have not been removed from the product before it is started up, there is a risk of heating wire dry fire and damage to the product.

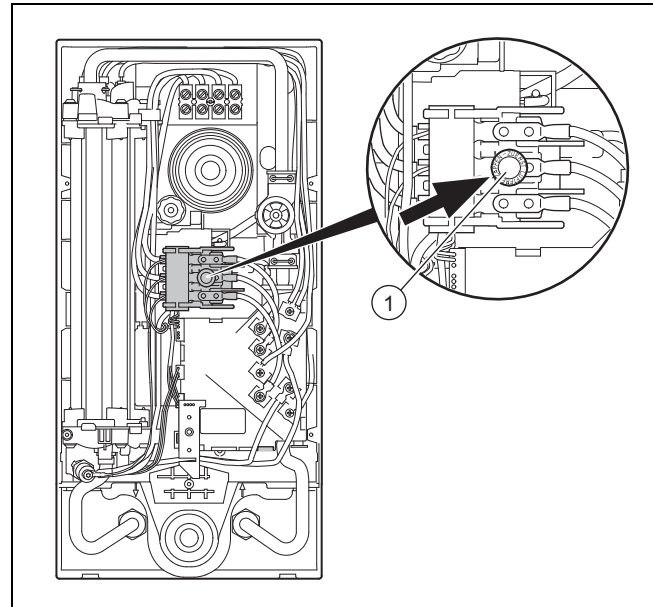
- ▶ Disconnect all supply lines from the power supply.
- ▶ Secure the product against being unintentionally switched back on again.
- ▶ Check that there is no voltage in the supply lines and connections.
- ▶ Check that the product is de-energised.

1. Open the cold water stop valve in the cold water pipe.
2. Open the hot water stop valve for at least one minute.
3. Close and open the hot water draw-off valve several times.



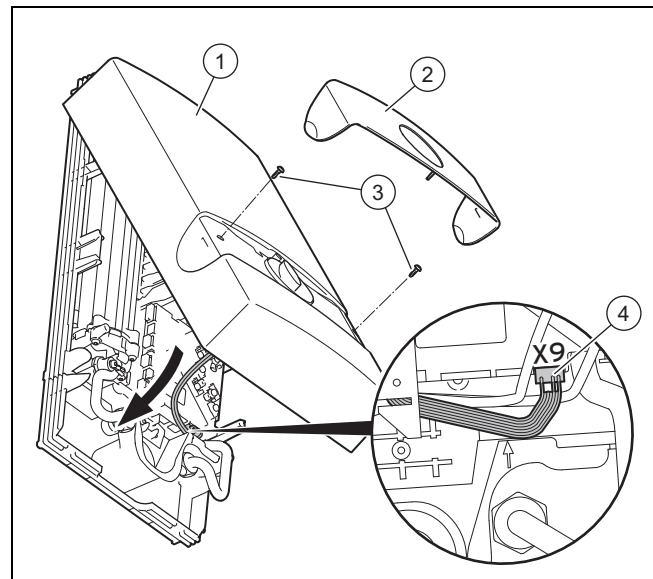
#### Note

In normal operating mode, the product will not need to be purged again.



4. Press the safety switch (1).

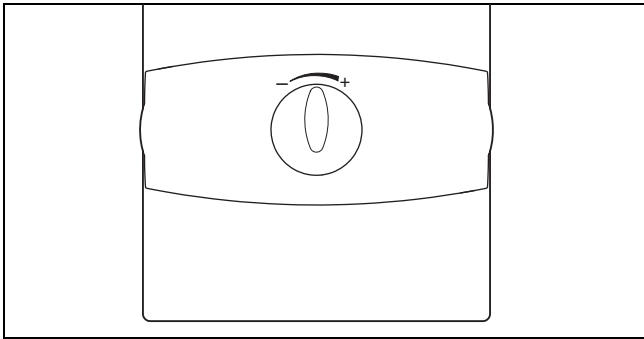
### 6.2 Fitting the product casing



If the cable for the temperature selector is not plugged into the electronics, the electronics cannot regulate the power. The outlet temperature is 30 °C.

- ▶ Plug the cable (4) for the temperature selector into slot X9 in the electronics.
- ▶ Put the product casing (1) on.
- ▶ Tighten the two screws (3).
- ▶ Grip the panel (2) using the two straps.
- ▶ Splay the two straps (slightly pull the panel apart).
- ▶ Put the panel (2) on.
- ▶ Close the hot water draw-off valve.
- ▶ Connect the product to the power mains (switch on the fuse).

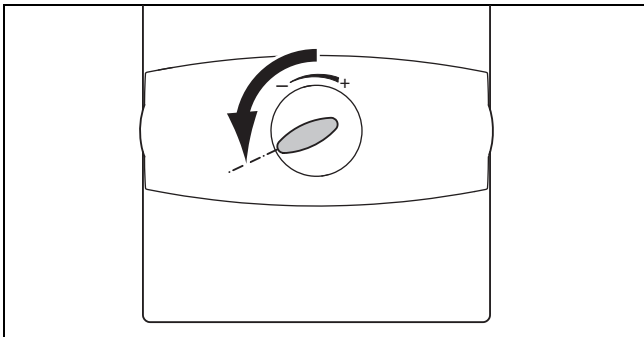
## 6.3 Checking the system's functionality



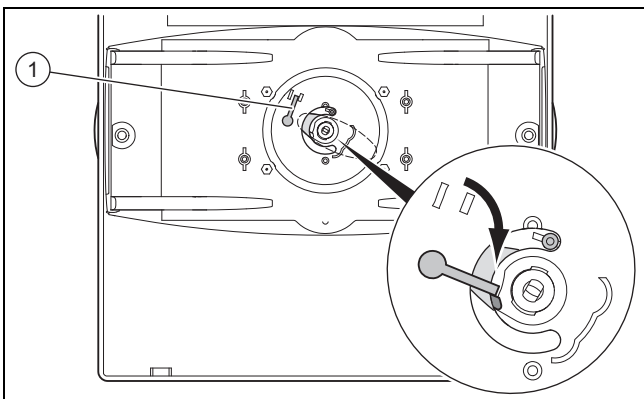
1. Connect the product to the power mains (switch on the fuse).
2. Check the product's power while water is running at a draw-off point.
3. Turn the temperature selector from hot (left-hand stop = approx. 30 °C) to hot (right-hand stop = approx. 60 °C).

## 6.4 Activating the scald protection function

1. Disconnect the product from the power supply.
2. Remove the product casing (→ Page 7).



3. Turn the temperature selector as far as it will go in an anti-clockwise direction.



4. Move the red lever (1) at the back of the product casing.
  - ◁ This activates the scald protection function and ensures that the outlet temperature does not exceed 43 °C.
5. Refit the product casing (→ Page 10).
6. Connect the product to the power mains (switch on the fuse).

## 7 Handing over to the operator

1. Provide the operator with all relevant instructions and unit documentation for safe-keeping.
2. Go through the operating instructions with the operator.
3. Answer any questions they may have.
4. Draw special attention to the safety instructions which the operator must follow.
5. Inform the operator that there is a risk of scalding when the hot water temperature exceeds 43 °C.
6. Inform the operator that they must not attempt to repair the product under any circumstances.
7. Inform the operator that they must not remove the product casing.
8. Inform the operator of the necessity to ensure that the system is regularly inspected/maintained and that this must only be carried out by a competent person (inspection/maintenance contract).

## 8 Recycling and disposal

### Disposing of the packaging

- ▶ Dispose of the packaging correctly.
- ▶ Observe all relevant regulations.

## 9 Troubleshooting

### 9.1 Detecting and rectifying faults

Fault	Possible cause	Troubleshooting
Product disconnected from the power supply	Building's fuse has been tripped	▶ Replace the electronics system.
	The safety switch in the product has been triggered	▶ Replace the electronics system.
No hot water; the water remains cold	Product is disconnected from the power supply	▶ Check L1, L2 and L3 against PE (230 V) and L1, L2 and L3 (400 V). ▶ If there is no voltage, proceed as described under the fault "Product disconnected from the power supply".
	The measured value on the heating block (connection 1 against connection 4) is greater than 200 Ω	▶ Replace the heating block.
	No relay clicking on the electronics when the draw-off starts	▶ Replace the impeller.
	Other cause	▶ Replace the electronics system.
The water does not become hot enough	The set target temperature or volume flow are not set correctly	▶ Set the target temperature to approx. 40 °C and the volume flow to approx. 5 l/min.

## 10 Inspection and maintenance

Fault	Possible cause	Troubleshooting
The water does not become hot enough	The measured value on the heating block (connection 1 against connection 4) is greater than 200 Ω	▶ Replace the heating block.
	The relay only clicks on the electronics when there is more than 4 l/min	▶ Replace the impeller.
	Other cause	▶ Replace the electronics system.

### 9.2 Procuring spare parts

The original components of the product were also certified by the manufacturer as part of the declaration of conformity. If you use other, non-certified or unauthorised parts during maintenance or repair work, this may void the conformity of the product and it will therefore no longer comply with the applicable standards.

We strongly recommend that you use original spare parts from the manufacturer as this guarantees fault-free and safe operation of the product. To receive information about the available original spare parts, contact the contact address provided on the reverse of these instructions.

- ▶ If you require spare parts for maintenance or repair work, use only the spare parts that are permitted for the product.

## 10 Inspection and maintenance

- ▶ Carry out a function check and visual inspection of the product every three years.
- ▶ If the water is extremely calciferous, you must de-scale the product more frequently.

If the water has a large volume of suspended matter, the water filter in the cold water flow must be replaced more frequently. At the same time, the water filter has a sealing function.



### Caution.

#### Risk of damage caused by leaks

After changing the water filter in the cold water flow, leaks may occur due to the new filter being installed incorrectly.

- ▶ When installing a new water filter in the cold water flow, make sure that the filter is correctly positioned in the pipe and that the connection is sealed.

- ▶ Replace the water filter in the cold water flow.
- ▶ Check for deposits in the hot water pipe between the heating block and the hot water connection.
- ▶ When re-assembling the product, insert a new flat seal into the hot water connection.
- ▶ Check whether it is necessary to de-scale the product.
- ▶ De-scale the product as required.

- ▶ If the product needs to be completely de-scaled, attach a de-scaling pump between the cold and hot water connection.
- ▶ After de-scaling the product, flush it thoroughly with water.
- ▶ After de-scaling, remove any air pockets from the product (→ Page 10).

## 11 Decommissioning

### 11.1 Temporarily decommissioning the product

1. Disconnect the product from the power supply.
2. Close the cold water stop valve.

### 11.2 Permanently decommissioning the product

1. Disconnect the product from the power supply.
2. Close the cold water stop valve.
3. Loosen the cold water and hot water connections.
4. Capture the residual water (up to 0.4 litres) that is left inside the product using a suitable vessel.
5. Remove the product.

## 12 Customer service

For contact details for our customer service department, you can write to the address that is provided on the back page, or you can visit [www.vaillant.com](http://www.vaillant.com).

13 Technical data

	Unit	E 18/7 INT II	E 21/7 INT II	E 24/7 INT II	E 27/7 INT II
For supplying	—	One or more draw-off points <sup>1)</sup>			
Design	—	Product for wall-mounting			
Equipment	—	Bare wire heating coil			
Capacity	l	0.4			
Width	mm	240			
Height	mm	481			
Depth	mm	100			
Weight (filled)	kg	4.4			
Performance characteristics	—	Electronically regulated output			
Water inlet temperature	°C	1 ... 25			
Minimum start-up flow	l/min	3			
Switch-off water volume	l/min	2.5			
Minimum start-up pressure	MPa (bar)	> 0.015 (> 0.15)			
Max. water flow rate	l/min	7			9
Rated overpressure	MPa (bar)	1 (10)			
Rated power	kW	18	21	24	27
Minimum water resistance at 15 °C	Ω·cm	≥ 900			
Measuring voltage	—	3/PE ~ 400 V; 50 Hz			
Safety	—	Complies with international safety regulations; radio-shielded; does not affect the mains supply			
IP rating	—	IP 25 = Sprayed-water protection			
<sup>1)</sup> Closed product (pressurised)					







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**Supplier**

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