

**BEDIENUNG UND INSTALLATION
OPERATION AND INSTALLATION
UTILISATION ET INSTALLATION
BEDIENING EN INSTALLATIE**

Elektronisch geregelter Mini-Durchlauferhitzer | Electronically controlled mini instantaneous water heater | Mini chauffe-eau instantané à régulation électronique | Elektronisch geregelde mini-doorstomer

- » DEM 3
- » DEM 4
- » DEM 6
- » DEM 7

STIEBEL ELTRON

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GUARANTEE | ENVIRONMENT AND RECYCLING

SPECIAL INFORMATION

- The appliance may be used by children aged 3 and up 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 resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.
- The tap can reach temperatures of up to 55 °C. There is a risk of scalding at outlet temperatures in excess of 43 °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 mains voltage.
- Connect the appliance permanently to fixed wiring, exception DEM 3.
- In the case of damage, the power cable must only be replaced by a qualified contractor authorised by the manufacturer using the original spare part.
- Secure the appliance as described in chapter “Installation / Installation”.
- Observe the maximum permissible pressure (see chapter “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 chapter “Operation” is intended for appliance users and qualified contractors.

The chapter “Installation” is intended for qualified contractors.

**Note**

Read these instructions carefully before using the appliance and retain them for future reference.

Pass on the instructions to a new user if required.

1.1 Safety instructions

1.1.1 Structure of safety instructions

**KEYWORD** 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 Keywords

KEYWORD	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.

OPERATION

Safety

1.2 Other symbols in this documentation



Note

Notes are bordered by horizontal lines above and below the text. General information is identified by the symbol shown on the left.

- Read these texts carefully.

Symbol



Material losses
(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



Note

Unless specified otherwise, all dimensions are given in mm.

2. Safety

2.1 Intended use

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

This appliance is suitable for heating domestic hot water or for reheating preheated water. The appliance is designed for one hand washbasin.

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

2.2 General safety instructions



DANGER Scalding

The tap can reach temperatures of up to 55 °C. There is a risk of scalding at outlet temperatures in excess of 43 °C.

**WARNING Injury**

The appliance may be used by children aged 3 and up 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 resulting risks. Children must never play with the appliance. Children must never clean the appliance or perform user maintenance unless they are supervised.

**DANGER Electrocutation**

Any damaged power cables must be replaced by a qualified electrician. This prevents potential hazards from arising.

**Material losses**

Protect the appliance and tap against frost.

**Material losses**

Only use the special aerator provided. Prevent scale build-up at the tap outlets (see chapter "Cleaning, care and maintenance").

2.3 Test symbols

See type plate on the appliance. certificate has been issued for these appliances, as verification of their suitability regarding noise emissions.

3. Appliance description

The electronically controlled mini instantaneous water heater maintains a constant outlet temperature up to its output limit, irrespective of the inlet temperature.

This appliance has been factory-set to the outlet temperature required for washing hands. Once this temperature has been reached, the PCB automatically reduces the output. The output is matched to the required temperature, this prevents the temperature being exceeded.

The appliance heats the water directly at the draw-off point as soon as the tap is opened. The short pipe runs ensure that energy and water losses are minimal.

The DHW output depends on the cold water temperature, the heating output and the flow rate.

The bare wire heating system is suitable for hard and soft water areas. This heating system has a low susceptibility to scale build-up. The heating system ensures quick and efficient DHW provision at the hand washbasin.

Your qualified contractor can adjust the maximum temperature and flow rate (see chapter "Commissioning / Settings").

Fitting the special aerator supplied provides an optimum water jet.

OPERATION

Settings

4. Settings

The appliance heating system switches on automatically as soon as you open the DHW valve at the tap or activate the sensor of a sensor tap. The water is heated. The water temperature can be adjusted at the tap:

For initial flow rate and flow rate limiting, see chapter “Specification”.

Increasing the temperature

- ▶ Reduce the flow rate at the tap.

Reducing the temperature

- ▶ Open the tap further or add more cold water.

Following an interruption of the water supply

See chapter “Commissioning / Recommissioning”.

5. Cleaning, care and maintenance

- ▶ Never use abrasive or corrosive cleaning agents. A damp cloth is sufficient for cleaning the appliance.
- ▶ Check the taps/valves regularly. Limescale deposits at the spouts can be removed using commercially available descaling agents.
- ▶ Have the electrical safety of the appliance regularly checked by an electrician.

- ▶ Regularly descale or replace the special aerator (see chapter “Appliance description / Accessories”).

6. Troubleshooting

Problem	Cause	Remedy
The appliance will not start despite the DHW valve being fully open.	No power to the appliance.	Check the fuses/MCBs in your fuse box.
	The aerator in the tap is scaled up or dirty.	Clean and/or descale the aerator or replace the special aerator.
	The water supply has been interrupted.	Vent the appliance and the cold water inlet line (see chapter “Settings”).
The required temperature is not being reached.	The maximum temperature set inside the appliance is too low.	Have your qualified contractor adjust the maximum temperature.
	The appliance is at its output limit.	Reduce the flow rate.

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

DEM . . Nr.: 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.



Material losses

Observe the max. permissible inlet temperature. Higher temperatures may damage the appliance. You can limit the inlet temperature by means of a central thermostatic valve (see chapter "Appliance description / Accessories").



WARNING Electrocutation

This appliance contains capacitors which are discharged when disconnected from the power supply. The capacitor discharge voltage may briefly reach > 34 V DC.

7.2 Instructions, standards and regulations



Note

Observe all applicable national and regional regulations and instructions.

The specific electrical resistance of the water must not fall below that stated on the type plate. In a linked water network, factor in the lowest electrical resistance of the water (see chapter "Specification / Data table"). Your water supply utility will advise you of the specific electrical water resistance or conductivity.

8. Appliance description

8.1 Standard delivery

The following are delivered with the appliance:

- Sieve inside the cold water inlet
- Special aerator
- Connection hose 3/8, 500 mm long, with gaskets*
- Tee 3/8*
- Company logo for oversink installation

*for the connection as pressure-tested appliance

INSTALLATION

Preparations

8.2 Accessories

Special aerator



Note

Fitting the special aerator supplied provides an optimum water jet.

Non-pressurised taps

- WSN 10 / WSN 20 - Sensor tap for washbasins
- MAW Wall mounted tap for oversink installation
- MAZ Twin lever basin tap
- MAE Mono lever basin tap

Pressure-tested tap

- WSH 10 / WSH 20 - Sensor tap for washbasins

ZTA 3/4 - central thermostatic valve

Thermostatic valve for central premixing, for example for operating an instantaneous water heater with a solar thermal system.

9. Preparations

- ▶ Flush the water line thoroughly.

Water installation

A safety valve is not required.

Taps

- ▶ Use suitable taps (see chapter “Appliance description / Accessories”).

10. Installation

10.1 Installation site

Install the appliance in a room free from the risk of frost and near the draw-off tap.

Ensure that the lateral fixing screws for the cover are always accessible.

The appliance is suitable for undersink installation (water connections at the top) and oversink installation (water connections at the bottom).



DANGER Electrocutation

The adjusting screw for setting the flow rate is 'live', and the IP25 protection is only given when the appliance back panel is fitted.

INSTALLATION

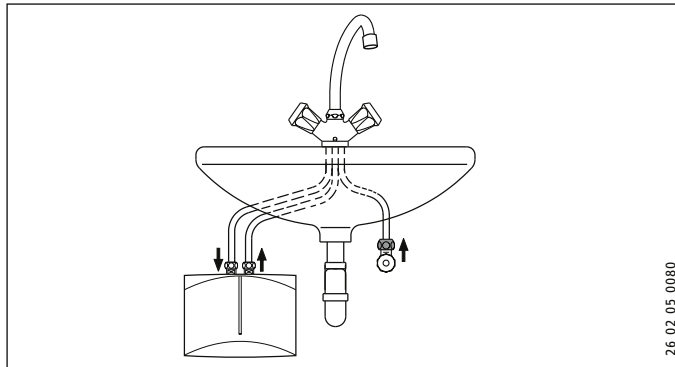
Installation

► Always fit the appliance back panel.

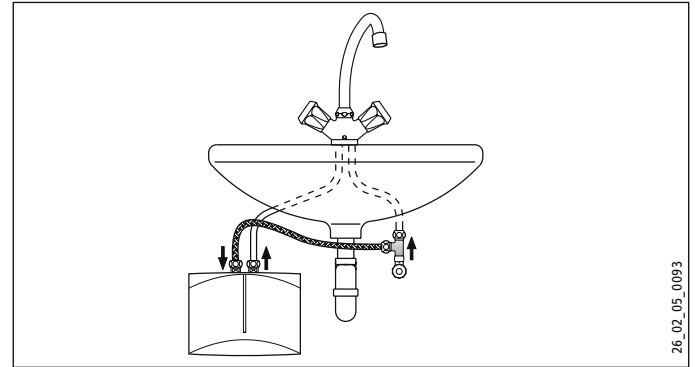
10.2 Installation options

10.2.1 Undersink installation

Non-pressurised, with non-pressurised tap



Pressure-tested, with pressure-tested tap



INSTALLATION

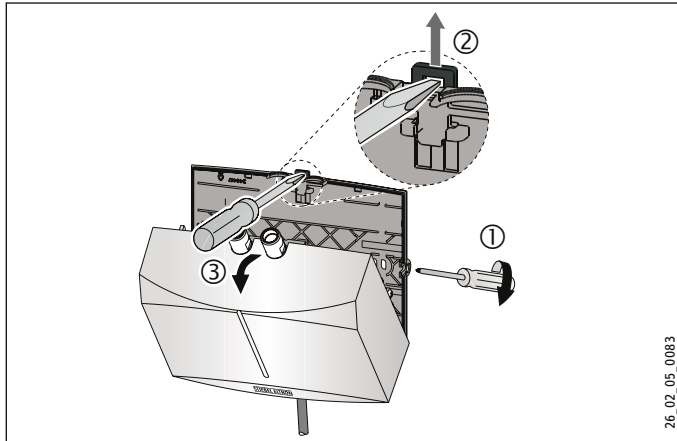
Installation

Appliance installation



Note

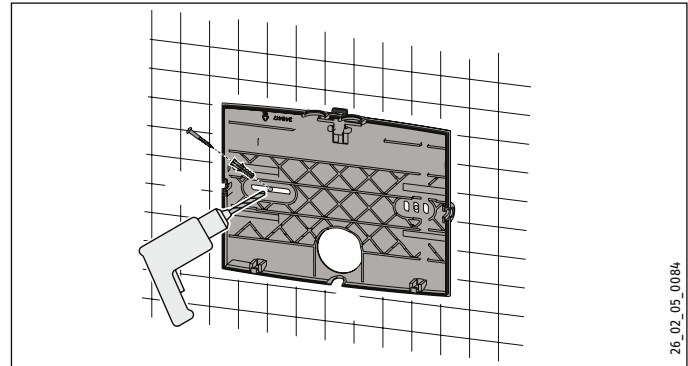
- ▶ Mount the appliance on the wall.
The wall must have a sufficient load-bearing capacity.



- ▶ Undo the cover fixing screws by two turns.
- ▶ Undo the snap fastener using a screwdriver.
- ▶ Remove the appliance cover with the heater towards the front.

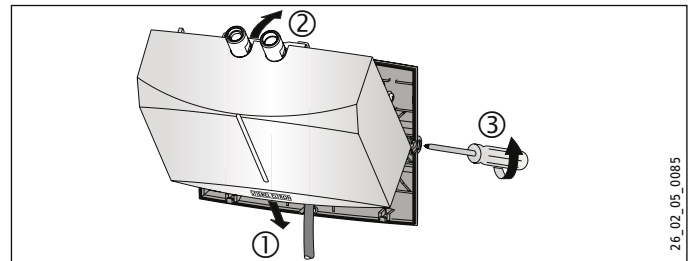
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- ▶ Using pliers, break out the knock-out for the power cable in the appliance cover. Correct the contours with a file if necessary.



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- ▶ Use the appliance back panel as a drilling template.
- ▶ Secure the appliance back panel to the wall with suitable rawl plugs and screws.



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INSTALLATION

Installation

- ▶ Route the power cable through the cable entry in the back panel.
- ▶ Hook in the appliance cover with the heater at the bottom.
- ▶ Click the heater into place using the snap fastener.
- ▶ Secure the appliance cover with the cover fixing screws.

Tap installation

- ▶ Install the tap. For this, also observe the tap operating and installation instructions.



Material losses

- ▶ When making the connections, counter the torque on the appliance using a size 14 spanner.

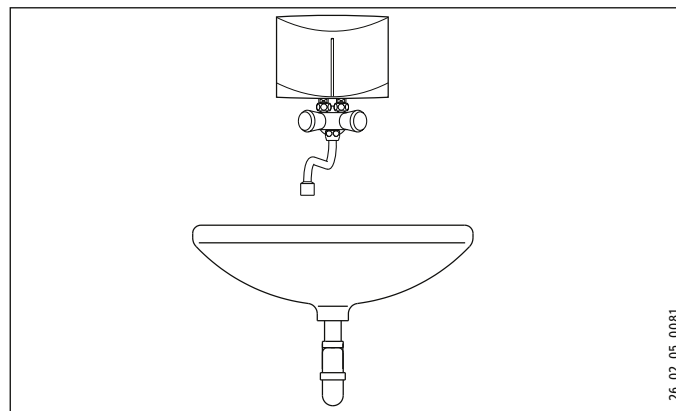
Pressure-tested tap



Note

- ▶ Fit the 3/8 connection hose provided and the 3/8 tee.

10.2.2 Oversink installation, non-pressurised, with non-pressurised tap



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ENGLISH

Tap installation

- ▶ Install the tap. For this, also observe the tap operating and installation instructions.



Material losses

- ▶ When making the connections, counter the torque on the appliance using a size 14 spanner; see chapter "Installation alternatives / Undersink installation".

INSTALLATION

Installation

Appliance installation

- ▶ Fit the appliance to the tap with the water connections.

10.3 Connecting the power supply



DANGER Electrocutation

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



DANGER Electrocutation

Ensure that the appliance is earthed.

Ensure the appliance can be separated from the power supply by an isolator that disconnects all poles with at least 3 mm contact separation.



DANGER Electrocutation

The appliances are delivered with a power cable (DEM 3 with plug).

Connection to a permanent power supply is possible, provided the fixed cable has a cross-section that is at least equal to that of the standard power cable of the appliance. A maximum cross-section of 3 x 6 mm² may be used.

- ▶ If the appliance is installed over the sink, route the power cable behind the appliance.



Material losses

When making the connection to a standard safety socket (in the case of a power cable with plug), ensure that the socket is freely accessible after the appliance has been installed.



Material losses

Take note of the type plate. The specified voltage must match the mains voltage.

- ▶ Connect the power cable as shown in the wiring diagram (see chapter “Specification / Wiring diagram”).

INSTALLATION

Commissioning

11. Commissioning

11.1 Initial start-up



- ▶ Fill the appliance by running the tap several times until the pipework and appliance are free of air.
- ▶ Carry out a tightness check.
- ▶ Insert the power cable plug, if present, into the standard safety socket or set the fuse/MCB.
- ▶ Check the function of the appliance.
- ▶ In the case of oversink installation, affix the company logo supplied over the existing company logo.

11.2 Appliance handover

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

11.3 Recommissioning



Material losses

Following an interruption of the water supply, recommission the appliance by carrying out the following steps, in order to prevent irreparable damage to the bare wire heating system.

- ▶ Isolate the appliance from the power supply. Pull the power cable plug, if present, from the socket, or remove the fuse/reset the MCB.
- ▶ See chapter “Initial start-up”.

11.4 Settings

You can alter the maximum flow rate and temperature.



DANGER Electrocution

The flow rate and temperature may only be adjusted if the appliance is isolated from the power supply.

- ▶ Isolate all poles of the appliance from the power supply.

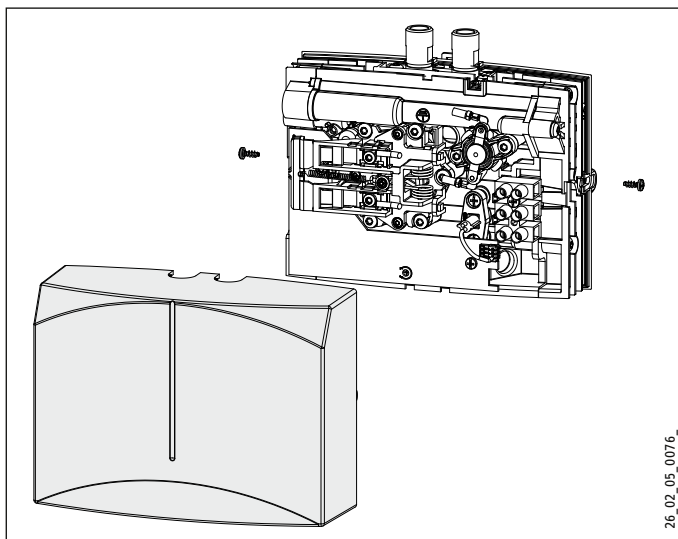


DANGER Electrocution

The adjusting screw for changing the flow rate and the potentiometer for setting the temperature are live if the appliance has not been isolated from the power supply.

INSTALLATION

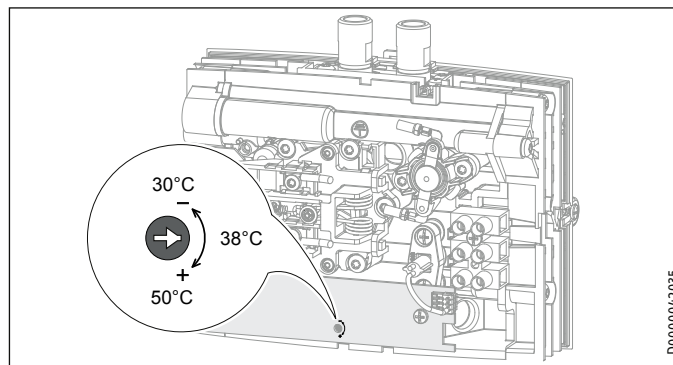
Commissioning



- ▶ Remove the appliance cover.

Setting the maximum temperature

Factory setting: 38 °C



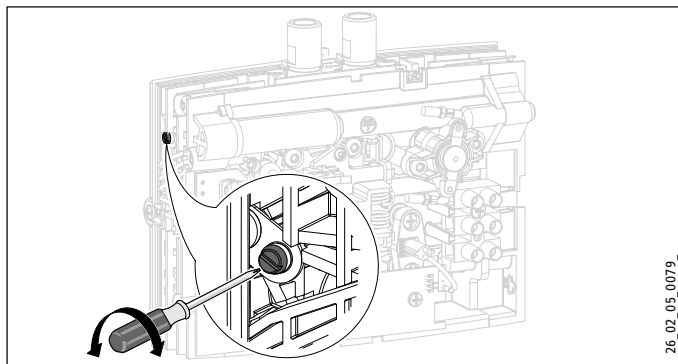
- ▶ Using a screwdriver, set the potentiometer to the maximum required temperature.
- ▶ Fit the appliance cover.

INSTALLATION

Shutting down

Limiting the flow rate

Factory setting: Maximum flow rate



- ▶ Using the adjusting screw, set the maximum required flow rate:
 - Lowest flow rate = wind the screw in as far as it will go.
 - Highest flow rate = wind the screw out as far as it will go.
- ▶ Fit the appliance cover.

12. Shutting down

- ▶ Isolate the appliance from the power supply by means of the fuse/MCB in your fuse box or by pulling the power cable plug from the socket.
- ▶ Drain the appliance (see chapter “Maintenance”).

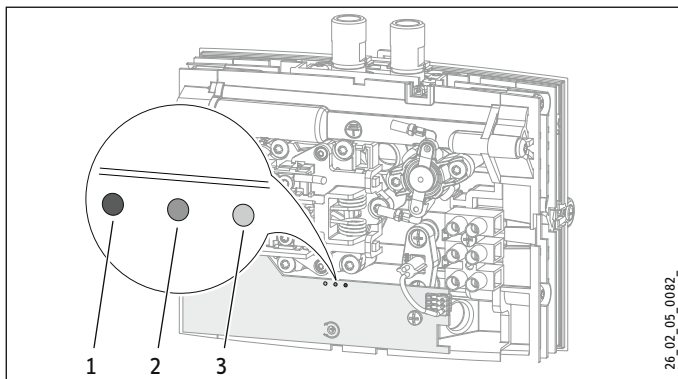
13. Troubleshooting

Problem	Cause	Remedy
The appliance will not start despite the DHW valve being fully open.	The aerator in the tap is scaled up or dirty.	Clean and/or descale the aerator or replace the special aerator.
	The flow rate is set too low.	Increase the flow rate.
	The sieve in the cold water line is blocked.	Clean the sieve after shutting off the cold water inlet line.
	The heater is faulty.	Check the resistance of the heating system and replace the appliance if required.
	The safety pressure limiter has responded.	Remedy the cause of the fault. Isolate the appliance from the power supply and depressurise the water line. Activate the safety pressure limiter.
The required temperature is not being reached.	The appliance operates at its output limit.	Reduce the flow rate.

INSTALLATION

Troubleshooting

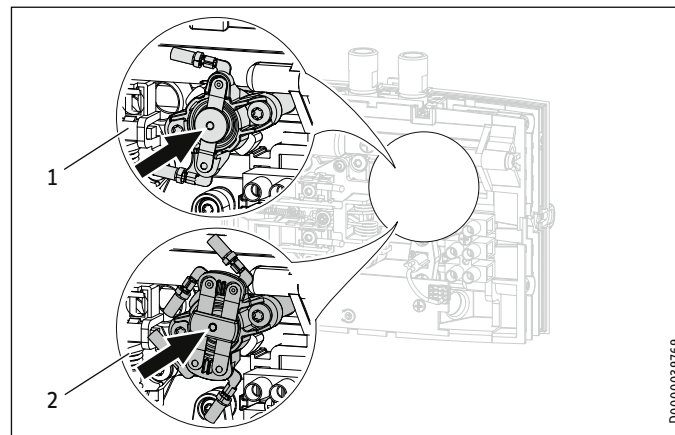
LED indicators



- 1 Illuminates red in the case of a fault
- 2 Illuminates yellow during heating operation
- 3 Flashes green if the PCB is receiving power

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Activating the safety pressure limiter



- 1 1-pole safety pressure limiter DEM 4 / DEM 6
- 2 2-pole safety pressure limiter DEM 3 / DEM 7

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14. Maintenance



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

14.1 Draining the appliance



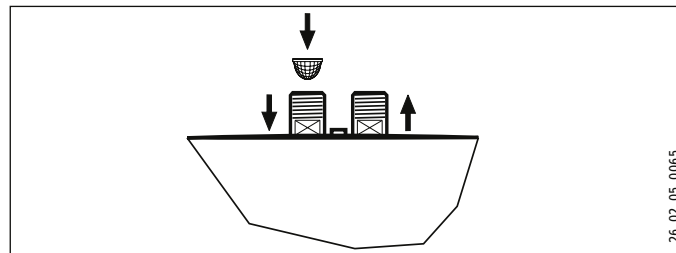
DANGER Scalding
Hot water may escape during the draining process.

If the appliance needs to be drained for maintenance or to protect the whole installation when there is a risk of frost, proceed as follows:

- ▶ Close the shut-off valve in the cold water inlet line.
- ▶ Open the draw-off valve.
- ▶ Undo the water connections on the appliance.

14.2 Cleaning the strainer

You can clean the fitted strainer after removing the cold water supply pipe.



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14.3 Tests in accordance with VDE 0701/0702

Earth conductor check

- ▶ Check the earth conductor (in Germany e.g. DGUV A3) on the earth conductor contact of the power cable and on the appliance connector.

Insulation resistance

Due to the electronic control of this appliance, an insulation resistance test to VDE 0701/0702 cannot be carried out.

- ▶ To check the effectiveness of the insulating properties of the appliance, we recommend conducting a differential current test of the earth conductor current / leakage current to VDE 0701/0702 (Fig. C.3b).

INSTALLATION Specification

14.4 Appliance storage

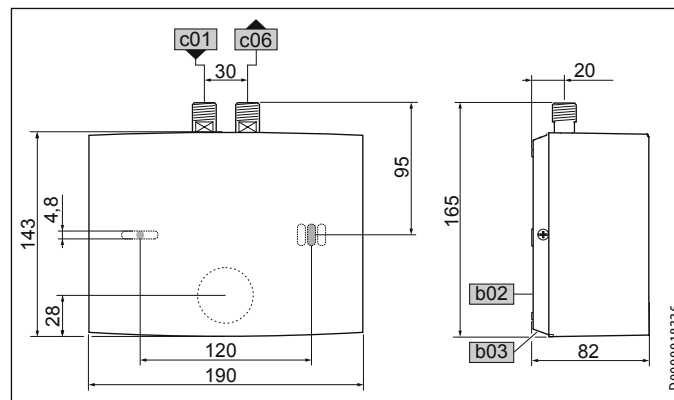
- ▶ Store the dismantled appliance in a room free from the risk of frost, as water residues remaining inside the appliance can freeze and cause damage.

14.5 Replacing the power cable for the DEM 6

- ▶ If replacing the cable for the DEM 6, use a power cable with 4 mm² cross-section.

15. Specification

15.1 Dimensions and connections



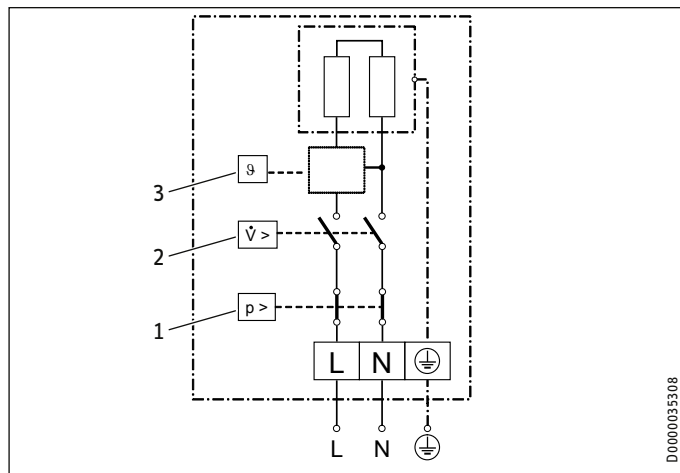
		DEM
b02	Entry electrical cables I	
b03	Entry electrical cables II	
c01	Cold water inlet	Male thread G 3/8 A
c06	DHW outlet	Male thread G 3/8 A

INSTALLATION Specification

15.2 Wiring diagram

15.2.1 DEM 3

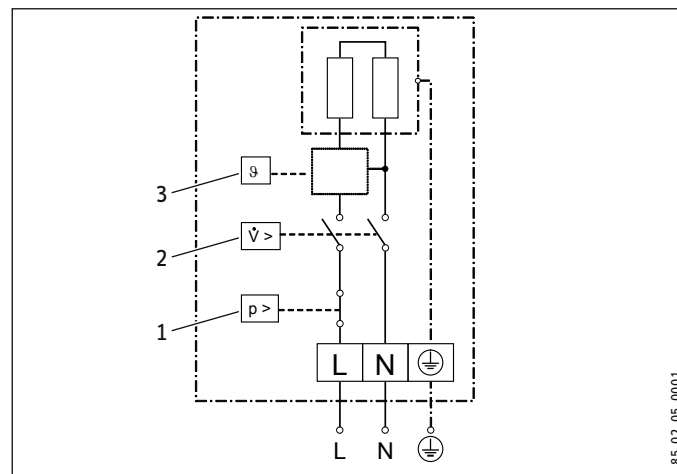
1/N/PE ~ 200-240 V



- 1 Safety pressure limiter
- 2 Pressure differential switch
- 3 PCB with outlet temperature sensor

15.2.2 DEM 4 and DEM 6

1/N/PE ~ 200-240 V



- 1 Safety pressure limiter
- 2 Pressure differential switch
- 3 PCB with outlet temperature sensor

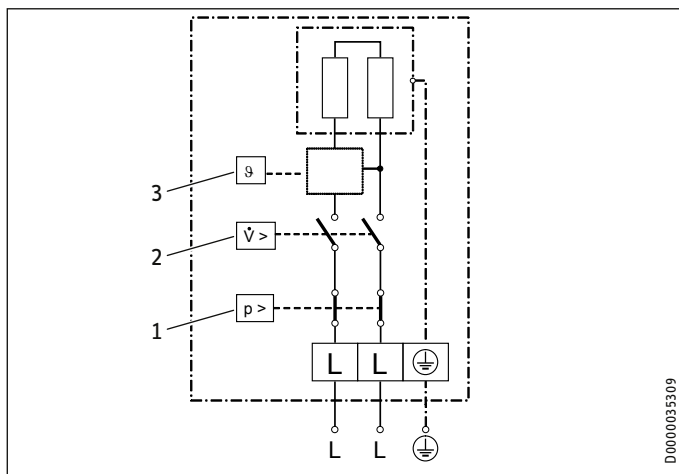


Material losses

- ▶ In the case of a permanent power supply, connect the power cable according to the designations on the socket terminals.

INSTALLATION Specification

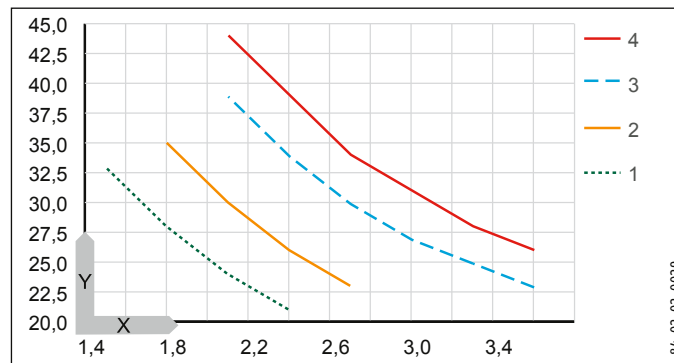
15.2.3 DEM 7 2/PE ~ 380-415 V



- 1 Safety pressure limiter
- 2 Pressure differential switch
- 3 PCB with outlet temperature sensor

15.3 Increasing the temperature

At 230 V / 400 V, the following water temperature increases occur:



- X Flow rate in l/min
Y Temperature increase in K
- 1 3.5 kW - 230 V
 - 2 4.4 kW - 230 V
 - 3 5.7 kW - 230 V
 - 4 6.5 kW - 400 V

Example DEM 3 with 3.5 kW

Flow rate	l/min	2.0
Increasing the temperature	K	25
Cold water supply temperature	°C	12
Maximum possible outlet temperature	°C	37

INSTALLATION

Specification

15.4 Application areas

For the specific electrical resistance and specific electrical conductivity, see “Data table”.

Standard specification at 15 °C			20 °C			25 °C		
Spec. re- sistance $\rho \geq$	Spec. conduc- tivity $\sigma \leq$		Spec. re- sistance $\rho \geq$	Spec. conduc- tivity $\sigma \leq$		Spec. re- sistance $\rho \geq$	Spec. conduc- tivity $\sigma \leq$	
Ωcm	mS/m	$\mu\text{S/cm}$	Ωcm	mS/m	$\mu\text{S/cm}$	Ωcm	mS/m	$\mu\text{S/cm}$
1000	100	1000	890	112	1124	815	123	1227
1300	77	769	1175	85	851	1072	93	933

INSTALLATION Specification

15.5 Energy consumption data

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

		DEM 3	DEM 4	DEM 6	DEM 7
		231001	231002	231215	232769
Manufacturer		STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON	STIEBEL ELTRON
Load profile		XXS	XXS	XXS	XS
Energy efficiency class		A	A	A	A
Energy conversion efficiency	%	39	39	39	40
Annual power consumption	kWh	478	478	478	467
Default temperature setting	°C	38	38	38	38
Sound power level	dB(A)	15	15	15	15
Special information on measuring efficiency		None	None	None	None
Daily power consumption	kWh	2.200	2.200	2.200	2.130

15.6 Data table

		DEM 3				DEM 4				DEM 6				DEM 7	
		231001				231002				231215				232769	
Electrical details															
Rated voltage	V	200	220	230	240	200	220	230	240	200	220	230	240	380	400
Rated output	kW	2.7	3.2	3.53	3.8	3.3	4.0	4.4	4.8	4.3	5.2	5.7	6.2	5.9	6.5
Rated current	A	13.3	14.5	15.2	15.8	16.7	18.2	19.1	20.0	21.6	23.6	24.7	25.8	15.5	16.3
MCB/fuse rating	A	16	16	16	16	20	20	20	20	25	25	25	32	16	20
Frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/-	50/-
Phases		1/N/PE				1/N/PE				1/N/PE				2/PE	
Specific resistance $\rho_{15} \geq$ (at $\vartheta_{\text{cold}} \leq 25$ °C)	Ω cm	1000				1000				1000				1000	
Specific conductivity $\sigma_{15} \leq$ (at $\vartheta_{\text{cold}} \leq 25$ °C)	$\mu\text{S/cm}$	1000				1000				1000				1000	
Specific resistance $\rho_{15} \geq$ (at $\vartheta_{\text{cold}} \leq 50$ °C)	Ω cm	1300				1300				1300				1300	

INSTALLATION Specification

		DEM 3				DEM 4				DEM 6			DEM 7
Specific conductivity $\sigma_{15} \leq$ (at \varnothing cold ≤ 50 °C)	$\mu\text{S/cm}$	770				770				770			770
Max. mains impedance at 50Hz	Ω	0.091	0.083	0.079	0.076	0.072	0.065	0.063	0.06	0.056	0.051	0.049	0.047
Max. mains impedance at 380 V / 50Hz	Ω												0.236
Max. mains impedance at 400V / 50Hz	Ω												0.225
Connections													
Water connection		G 3/8 A				G 3/8 A				G 3/8 A			G 3/8 A
Application limits													
Max. permissible pressure	MPa	1				1				1			1
Max. inlet temperature for reheating	°C	50				50				50			50
Values													
Max. permissible inlet temperature	°C	55				55				55			55
Temperature setting range. DHW	°C	30-50				30-50				30-50			30-50
ON	l/min	>1.5				>1.8				>2.2			>2.2
Pressure drop at flow rate	MPa	0.05				0.06				0.07			0.07
Flow rate for pressure drop	l/min	1.5				1.8				2.2			2.2
Flow rate limit at	l/min	2.0				2.2				3.2			3.2
DHW delivery	l/min	2.0				2.5				3.2			3.7
$\Delta\vartheta$ at DHW delivery	K	25				25				25			25
Hydraulic data													
Rated capacity	l	0.1				0.1				0.1			0.1
Versions													
Oversink installation		X				X				X			X
Undersink installation		X				X				X			X
Open vented type		X				X				X			X
Sealed unvented type		X				X				X			X
Protection class		1				1				1			1
Insulation block		Plastic				Plastic				Plastic			Plastic
Heating system heat generator		Bare wire				Bare wire				Bare wire			Bare wire
Cap and back panel		Plastic				Plastic				Plastic			Plastic

		DEM 3	DEM 4	DEM 6	DEM 7
Colour		white	white	white	white
IP-Rating		IP25	IP25	IP25	IP25
Dimensions					
Height	mm	143	143	143	143
Width	mm	190	190	190	190
Depth	mm	82	82	82	82
Length of connecting cable	mm	700	700	700	700
Weights					
Weight	kg	1.5	1.5	1.5	1.5



Note

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.