oventrop

Regudis W-CE

Operating instructions EN

Regudis W-CE

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1. General information

The original operating instructions are written in German.

The operating instructions in other languages have been translated from German.

1.1 Validity of the instructions

These instructions are valid for the Regudis W-CE dwelling station in the following configuration levels:

1343929	Performance range 1 a	Dwelling station with heat exchanger, copper brazed
1343930	Performance range 1	Dwelling station with heat exchanger, copper brazed
1343931	Performance range 2	Dwelling station with heat exchanger, copper brazed
1343950	Performance range 1	Dwelling station with heat exchanger, copper brazed, Sealix® protective layer
1343951	Performance range 2	Dwelling station with heat exchanger, copper brazed, Sealix® protective layer
1343960	Performance range 1	Dwelling station without cold water outlet, heat exchanger copper brazed
1343961	Performance range 2	Dwelling station without cold water outlet, heat exchanger copper brazed

1.2 Scope of delivery

Check your delivery for transport damage and completeness.

The scope of delivery includes:

- Regudis W-CE dwelling station
- Operating instructions
- Fastening material
- 2x angle ball valves
- Adapter for heat meter temperature sensor
- Seal set

1.3 Contact

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GERMANY
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Technical customer service
Phone: +49 (0) 29 62 82-234

1.4 Symbols used

	Highlights important information and further additions.
▶	Action required
•	List
1 2	Fixed order. Steps 1 to X.
▷	Result of action

2. Safety-related information

2.1 Normative guidelines

Observe the legal framework conditions applicable at the installation site.

The currently valid standards, rules and guidelines apply.

2.2 Intended use

Operational safety is only guaranteed if the product is used as intended.

The dwelling station is an electronically controlled product assembly with heat exchanger for use in domestic areas (e.g. rental units in residential, commercial or business areas). The product assembly provides heated potable water (hot water) within a residential unit and distributes the heating water (max. 90 °C).

Only use the product as intended:

- In technically perfect condition.
- Within the scope of the prescribed conditions of use.
- When all safety devices are fully functional.
- Following all instructions.
- Safety- and hazard-conscious.
- At locations directly connected to the public low-voltage grid.

Any further and/or different use is considered unintended use.

Claims of any kind against the manufacturer and/or his authorised representatives for damage resulting from unintended use cannot be recognised.

Intended use also includes correct compliance with these instructions.

2.3 Modifications to the product

Modifications to the product are not permitted. Modifications to the product will invalidate the product guarantee. The manufacturer will not accept liability for damage and breakdowns caused by modifications to the product.

2.4 Warnings

Each warning contains the following elements:

Warning symbol SIGNAL WORD

Type and source of danger!
Possible consequences if the danger occurs or the warning is ignored.

! Ways to avoid the danger.

Signal words define the severity of the danger posed by a situation.

DANGER

Indicates an imminent danger with high risk. If the situation is not avoided, death or most serious bodily injuries will result.

WARNING

Indicates a possible danger with moderate risk. If the situation is not avoided, death or serious bodily injuries may result.

CAUTION

Indicates a possible danger with lower risk. If the situation is not avoided, minor and reversible bodily injuries will result.

NOTICE

Indicates a situation that can potentially result in damage to property if not avoided.

2.5 Safety devices

2.5.1 Automatic closing mechanism for the control valve

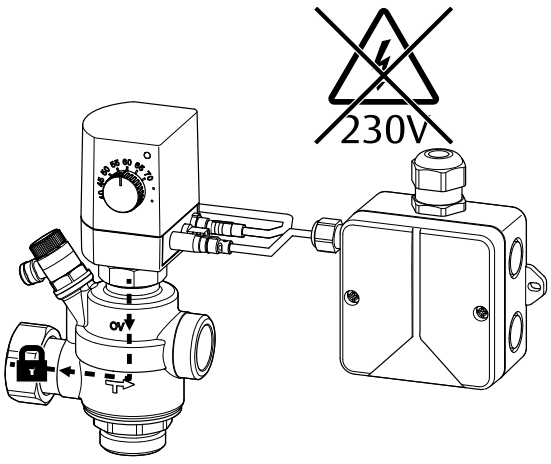


Fig. 1: Control valve closes in the event of a power failure

If the power supply is interrupted (failure 230 V), then the control valve closes permanently to completely interrupt the heating water flow into the heat exchanger. This excludes the possibility of uncontrolled heating of the potable water.

2.6 Safety instructions

We have developed this product in accordance with current safety requirements.

Observe the following instructions for safe use.

2.6.1 Danger due to insufficient personnel qualification

Work on this product may only be carried out by suitably qualified specialist tradespeople.

Due to their professional training and experience as well as knowledge of the relevant legal regulations, qualified specialist tradespeople are able to carry out work on the described product in a professional manner.

Qualified electricians
The following work may only be carried out by qualified electricians:

- Connection of the product to the power supply.

Due to their professional training and experience as well as knowledge of the relevant standards, qualified electricians are able to carry out work on electrical installations and connections. They must be able to recognise possible dangers independently.

Specialist sanitary, heating and air-conditioning tradespeople
The following work may only be carried out by specialist sanitary, heating and air-conditioning tradespeople:

- Mounting
- Commissioning
- Troubleshooting
- Maintenance
- Dismantling and disposal

Due to their professional training and experience as well as knowledge of the relevant standards, specialist sanitary, heating and air-conditioning tradespeople are able to carry out work on heating, cooling and potable water installations. They must be able to recognise possible dangers independently.

Operator
The following work may be carried out by the operator:

- Operation of the product

The operator must be instructed in the operation by specialist tradespeople.

2.6.2 Danger to life due to electric current

Work on the power supply may only be carried out by a qualified electrician.

! Disconnect the station from the power supply at all poles and secure it against being switched on again.

! Check that no voltage is present.

! Only mount the product in dry indoor areas.

2.6.3 Danger to life due to legionella formation

! Ensure the following:

- The temperature of the potable water in the cold water pipeline must not exceed 25 °C.
- The water in the potable water circuit must be completely replaced after 72 hours at the latest.
- When using the potable water circulation module, the hot water temperature must be at least 60 °C. The temperature difference between the hot water outlet of the heat exchanger and the return of the circulation pipe at the station must not exceed 5 °C.

Observe the relevant regulations (e.g. DVGW Code of Practice W551).

2.6.4 Risk of scalding due to hot water

Due to faulty settings or defects, the hot water temperature at the draw-off points can rise up to the heating water temperature in the buffer storage cylinder.

- ! If there is a risk of scalding in accordance with DIN EN 806 and DIN 1988 due to a high heating water temperature in the buffer storage cylinder, you must install scald protection at all draw-off points.
- ! If the heating water temperature in the buffer storage cylinder is low, resulting in a low hot water temperature without risk of scalding at the draw-off points, you must instruct the system operator to ensure the low heating water temperature in the buffer storage cylinder all year round.

2.6.5 Risk of injury from pressurised components

- ! Only carry out work on the heating circuit or the potable water circuit when the system is depressurised.
- ! Adhere to the permissible operating temperatures during operation.
- ! Install a non-shut off safety valve in the potable water heating system (regulation according to DIN EN 806-2).

2.6.6 Risk of burns due to unintentionally escaping hot media

- ! Only carry out work on the heating circuit of the potable water circuit when the system is depressurised.
- ! Allow the product to cool down before working on it.
- ! Check that the product is not leaking after work is complete.
- ! Wear safety goggles.

2.6.7 Risk of burns on hot components and surfaces

- ! Allow the product to cool down before working on it.
- ! Wear suitable protective clothing to avoid unprotected contact with hot fittings and system components.

2.6.8 Risk of injury due to weight of the product

- ! Always wear safety shoes during mounting.

2.6.9 Risk of injury from improper work

Stored energy, angular components, points and corners on and in the product can cause injuries.

- ! Ensure there is sufficient space before starting work.
- ! Handle open or sharp-edged components with care.
- ! Keep the working area tidy and clean to avoid sources of accidents.

2.6.10 Damage to property due to unsuitable location

- ! Do not install the product in rooms prone to frost.
- ! Do not install the product in rooms with corrosion-enhancing ambient air.
- ! Observe the notes on corrosion protection in the appendix.

2.6.11 Availability of the operating instructions

Every person who works with this product must have read and apply these operating instructions and all applicable instructions (e.g. accessories instructions).

The instructions must be available at the place of use of the product.

- ! Pass on these instructions and all applicable instructions (e.g. accessories instructions) to the operator.

3. Technical description

3.1 Design

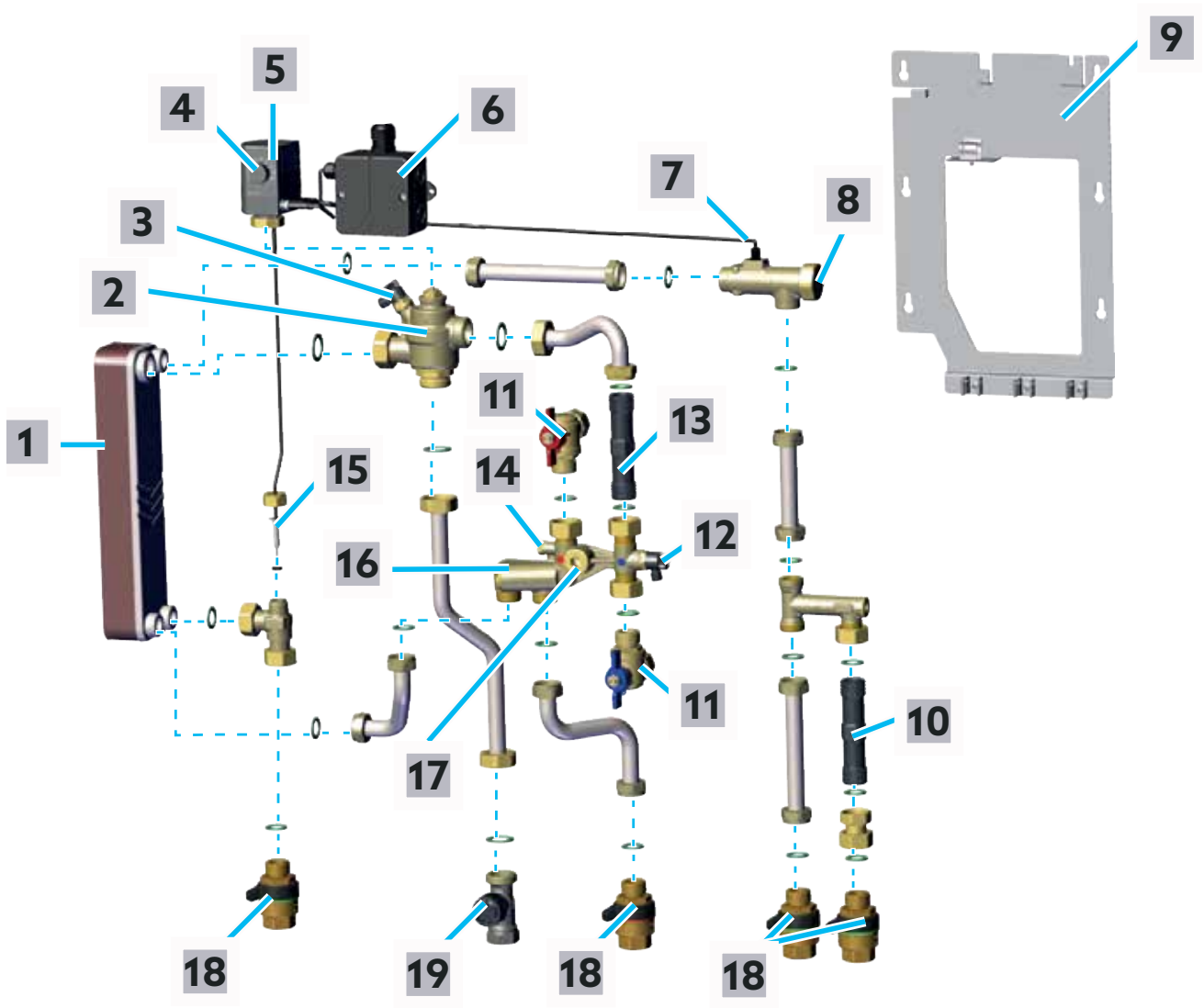


Fig. 2: Overview of the Regudis W-CE dwelling station

1 Heat exchanger

2 Control valve with integrated differential pressure and volume flow control

3 Vent valve in the heating circuit

4 Rotary knob

5 Actuator with integrated potable water temperature control

6 Connection box for power supply

7 Volume flow sensor

8 Connection for the circulation pipe

9 Base plate

10 Spacer for water meter

11 Angle ball valve

12 Drain valve in the primary circuit

13 Spacer for heat meter

14 Connection in the primary supply for temperature sensor of the heat meter

15 Hot water temperature sensor

16 Filter insert in the primary supply

17 Connection for derivative temperature control set

18 Ceramic disc valve

19 Zone valve for heating circuit control

3.2 Functional description

The Regudis W-CE dwelling station is an electronically controlled product assembly for use in domestic areas. The product assembly provides heated potable water (hot water) within a residential unit and distributes the heating water (max. 90° C) to radiators.

The decentralised hot water preparation of the dwelling station makes the storage of hot potable water unnecessary.

In the heat exchanger (1), potable water is heated according to the continuous flow principle only when it is needed. The demand for hot water is detected by the volume flow sensor (7).

The setpoint temperature for the hot water is adjusted with the rotary knob (4) on the actuator (5). During operation, the temperature sensor continuously measures the temperature of the hot water at the hot water outlet of the heat exchanger. The temperature sensor forwards this information to the electronic control.

The information from the volume flow sensor and the temperature sensor is passed on to the actuator by the electronic control.

The actuator opens and closes the control valve (2). Depending on the position of the control valve, more or less hot heating water flows from the primary supply into the heat exchanger as required.

In addition, the control valve keeps the necessary differential pressure in the system constant.

The heat output transferred to the potable water depends on the heating water quantity and the heating water temperature supplied to the heat exchanger.

A potable water priority circuit is integrated into the control valve, which ensures the provision of the required hot water quantity even in heating mode.

Optionally, an actuator can be mounted on the zone valve (19). This offers you the possibility to close the zone valve time-controlled.

The Regudis W-CE dwelling station is available in different performance ranges and versions (see charts in the appendix).

The performance ranges differ in terms of the size of the heat exchanger.

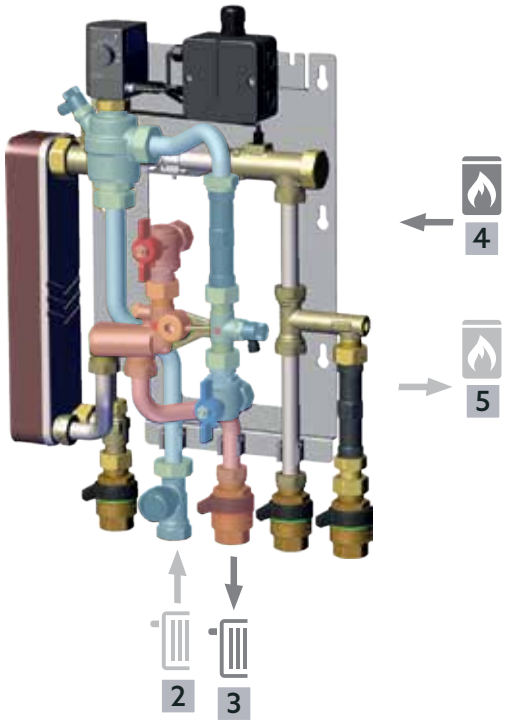


Fig. 3: Heating mode

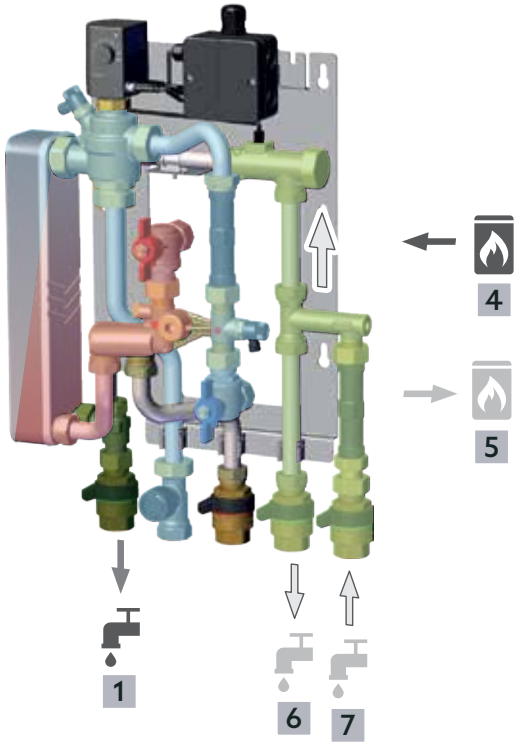


Fig. 4: Hot water mode

1 Hot water outlet

2 Heating circuit return

3 Heating circuit supply

4 Primary supply from the buffer storage cylinder

5 Primary return to the buffer storage cylinder

6 Cold water outlet

7 Cold water inlet from the house connection

3.3 Actuator with integrated potable water temperature control

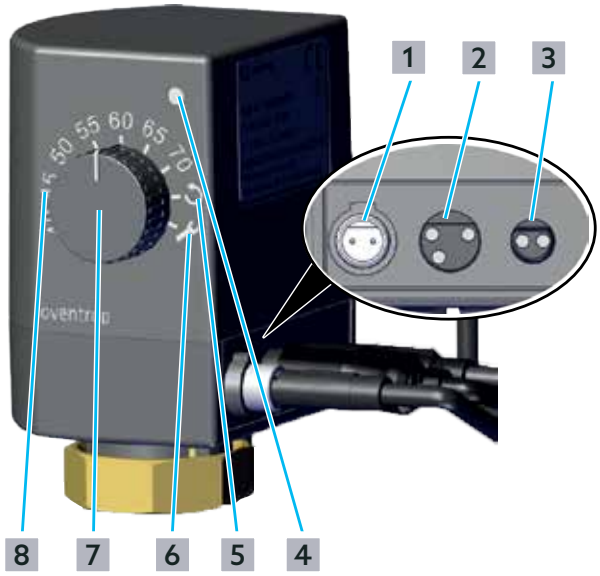


Fig. 5: Actuator with integrated potable water temperature control

1 Two-pole plug (power supply)

2 Three-pole socket (volume flow sensor)

3 Two-pole socket
(hot water temperature sensor)

4 Indicator light (LED)

5 Error reset index (only for specialist tradespeople)

6 Service mode index
(only for specialist tradespeople)

7 Rotary knob for hot water temperature,
error reset and service mode

8 Temperature scale for hot water temperature in °C
(here: 60 °C, factory setting)

Make sure the polarity is correct (the plugs are coded).

3.3.1 Service mode

The actuator is closed when delivered.

If you set the rotary knob to the service mode index (6) for more than 5 seconds, the actuator opens the control valve completely.

The service mode facilitates the dismantling of the actuator and can be helpful during commissioning to vent the primary circuit.

The control valve remains completely open until you turn the rotary knob back to the desired hot water temperature (< 70 °C).

3.4 Technical data

General information	
Max. operating pressure p_s	10 bar
Max. operating temperature t_s	90 °C
Ambient temperature T	2 to 35 °C
Electrical connection: Power supply unit	
Mains input voltage	100 to 240 V AC ±10 %
Mains input frequency	50 to 60 Hz
Output voltage	5 V DC +7.5 %, -5 %
Rated output current	max. 1200 mA
Protection type: Connection box	IP66
Protection class	II
Overvoltage category	III
Ambient temperature	0 to 60 °C
Electrical connection: Actuator	
Input voltage	5 V DC +7.5 %, -5 %
Power consumption	0.15 to 3 W
Protection type	IP54
Ambient temperature	0 to 60 °C
Dimensions	
Centre distance of the connections	26.5 mm
Centre distance to the wall	26.5 mm
Primary circuit (buffer storage cylinder)	
Fluid	Heating water according to VDI 2035/Ö-Norm H 5195-1, fluid category ≤ 3 according to EN 1717, observe the specifications of the Oventrop information sheet on corrosion protection in the appendix
Min. differential pressure	150 mbar
Max. differential pressure	2.0 bar
Min. flow temperature	See charts in the appendix.
Heating circuit (radiators)	
Medium	Same as in the primary circuit.

Max. volume flow	460 l/h
Differential pressure control	150 mbar
Potable water circuit	
Medium	Potable water (see Oventrop information sheet on corrosion protection in the appendix) *NOTICE* **Damage to the slide-in turbine due to chemical influences!** Additives for water treatment in high concentrations can damage the slide-in turbine. ! Ensure that the permissible limits for potable water are not exceeded.
Min. cold water pressure	See charts in the appendix.
Setting range	40 to 70 °C
Max. hot water volume flow	See charts in the appendix.
Material	
Heat exchanger copper brazed	Plates: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper
Heat exchanger copper brazed, Sealix® protective layer	Plate material: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper Protective layer: SiO2 basis
Pipes	Stainless steel 1.4404
Valves and fittings	Brass
Temperature sensor	Stainless steel 1.4404
Volume flow sensor	Brass and plastic
Spacers for meters	Plastic
Seals	EPDM and fibre materials
Torques	
Union nuts G ¾	45 Nm
Union nuts G 1	45 Nm
Spacers for meters ((10) and (13) in Fig. 2 on page 9)	30 Nm
Temperature sensor ((15) in Fig. 2 on page 9)	15 Nm
Filter insert ((16) in Fig. 2 on page 9)	15 Nm
Drain valve ((12) in Fig. 2 on page 9)	15 Nm
Vent valve ((3) in Fig. 2 on page 9)	15 Nm

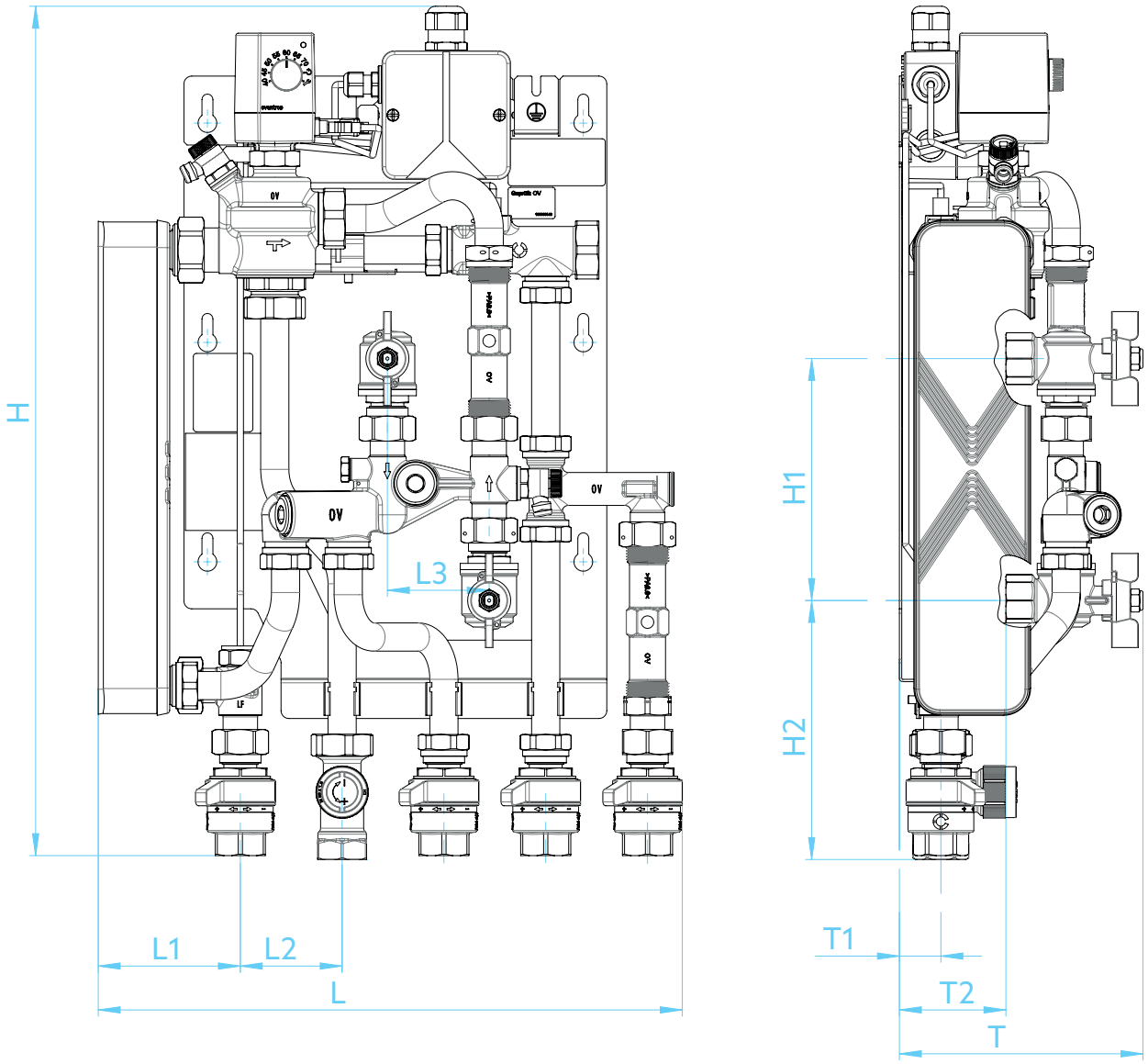


Fig. 6: Dimensions

Item no.	H	L	L1	L2	L3	H1	H2	T	T1	T2
Dwelling station with cold water outlet and spacer for water meter, performance range 1	542	373	91	65	65	154	165	156	26.5	68
Dwelling station with cold water outlet and spacer for water meter, performance range 2	542	394	112	65	65	154	165	156	26.5	68
Dwelling station without cold water outlet and spacer for water meter, performance range 1	542	325	91	65	65	154	165	156	26.5	68
Dwelling station without cold water outlet and spacer for water meter, performance range 2	542	346	112	65	65	154	165	156	26.5	68

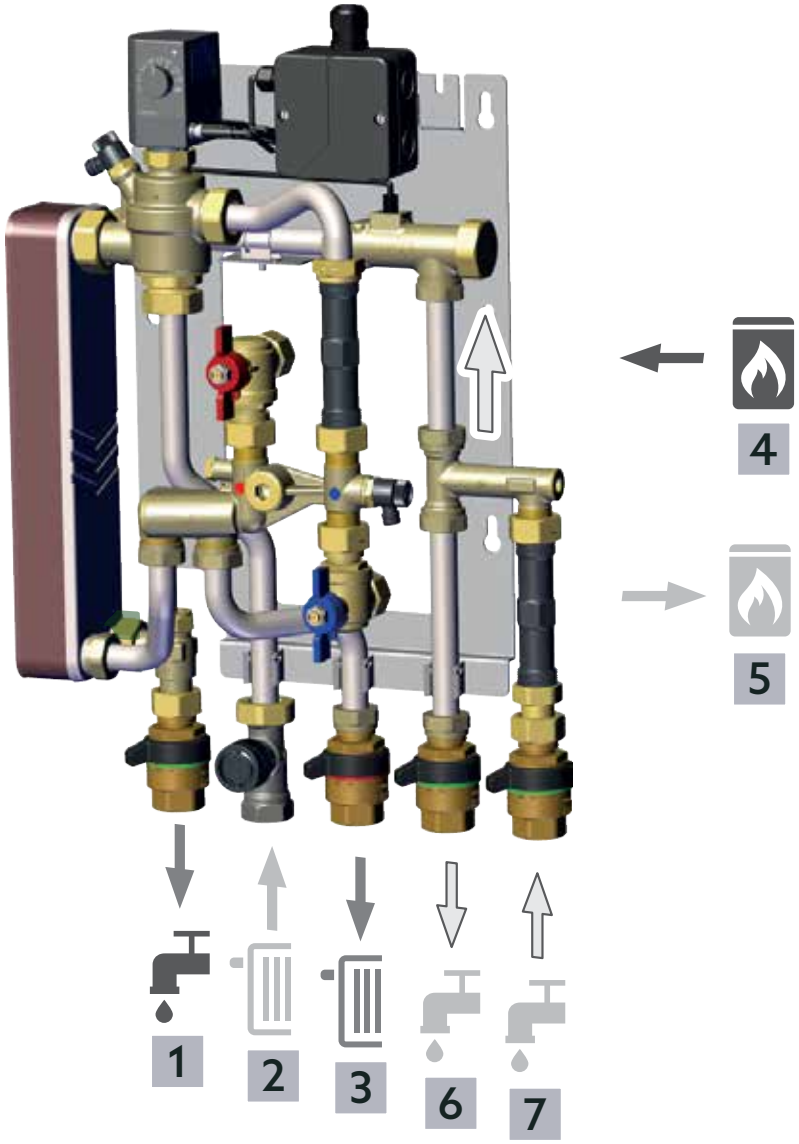


Fig. 7: ***Connection assignment***

1	Hot water outlet
2	Heating circuit return
3	Heating circuit supply
4	Primary supply from the buffer storage cylinder
5	Primary return to the buffer storage cylinder
6	Cold water outlet
7	Cold water inlet from the house connection
Light	Hot water
Dark	Cold water

4. Accessories and spare parts

4.1 Accessories

Designation	Item no.
Connection and shutoff set for the potable water circulation module	1344684
Potable water circulation module	1344555
Derivative temperature control set	1344490
Stainless steel spacer	1349052
Automatic air vent	1344460
Actuator	e. g. 1012452
Surface-mounted thermal insulation bonnet	1344870
Accessory set for equipotential bonding	1349983

4.2 Spare parts

Designation		Item no.
Heat exchanger copper brazed	Performance range 1	1344083
	Performance range 2	1344084
Heat exchanger copper brazed, Sealix®-protective layer	Performance range 1	1344093
	Performance range 2	1344094
Actuator with integrated potable water temperature control		1344491
Temperature sensor		1344494
Volume flow sensor in a housing		1344493
Filter insert		1344495
Control valve with integrated differential pressure and volume flow control		1344492
Sealing ring (5 pieces for G ¾ connections)		1344497
Sealing ring (5 pieces for G 1 connections)		1344498
Power supply unit 100 - 240 V, ~50 - 60 Hz		1344496

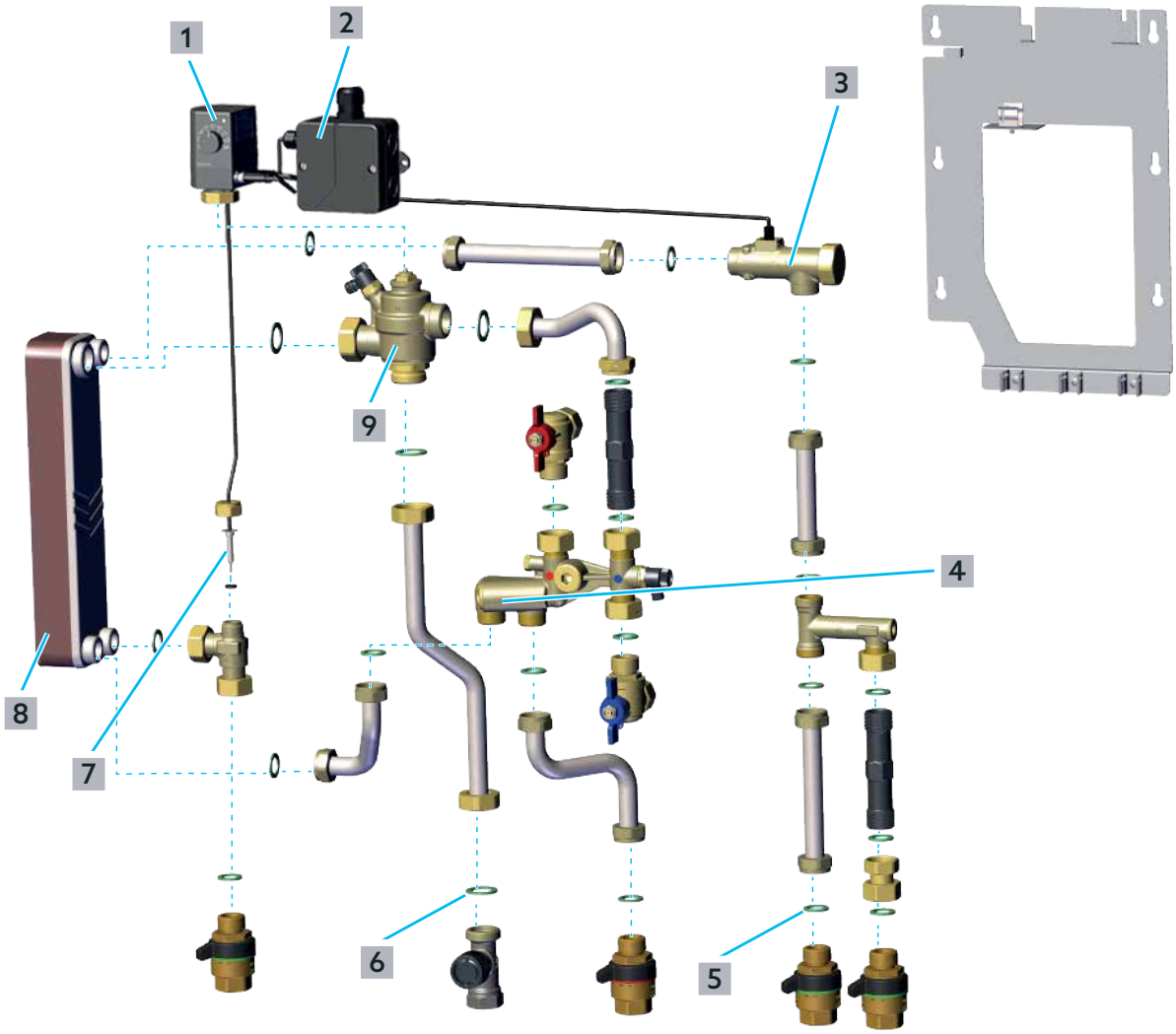


Fig. 8: Spare parts

1 Actuator with integrated potable water temperature control

2 Power supply unit 100 - 240 V, ~50 - 60 Hz (in connection box)

3 Volume flow sensor in a housing

4 Filter insert

5 Sealing ring (5 pieces for G ¾ connections)

6 Sealing ring (5 pieces for G 1 connections)

7 Temperature sensor

8 Heat exchanger

9 Control valve with integrated differential pressure and volume flow control

5. Transport and storage

Transport the product in its original packaging.
Store the product under the following conditions:

Temperature range	0 °C to +40 °C
Particles	Store in a dry and dust-protected place
Mechanical influences	Protected from mechanical shock
Radiation	Protected from UV rays and direct sunlight
Chemical influences	Do not store together with solvents, chemicals, acids, fuels or similar substances

6. Mounting

WARNING

Risk of injury from pressurised components!
Media escaping under pressure can cause injuries.

- ! Only carry out installation work when the system is depressurised.
- ! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.
- ! Any work on the system may only be carried out by specialist tradespeople.

CAUTION

Risk of injury due to the heavy weight of the station
The station is heavy. Falling down can cause injuries.

- ! Always wear safety shoes during mounting.

CAUTION

Risk of injury from improper work!
Angular components, points and corners on and in the product can cause injuries.

- ! Handle open or sharp-edged components with care.

6.1 Notes on mounting

Before mounting the station, make sure that:

- pipes have been laid to the installation site, and have been flushed and checked for leaks.
- a power cable and an earthing cable have been laid to the installation site.

For the electrical connection, observe chapter 5.3.2 of EN60204-1.

- Mount the station in a dry, frost-free room in which the ambient temperature does not exceed 35 °C during operation.
- Always mount the station upright, never inclined or lying down.
- The station must always be freely accessible even after mounting.

6.2 Mounting options

The dwelling station is suitable for mounting in different installation situations:

- In a supply shaft.
- Onto a wall, optionally with surface-mounted thermal insulation bonnet.

6.3 Wall mounting the dwelling station

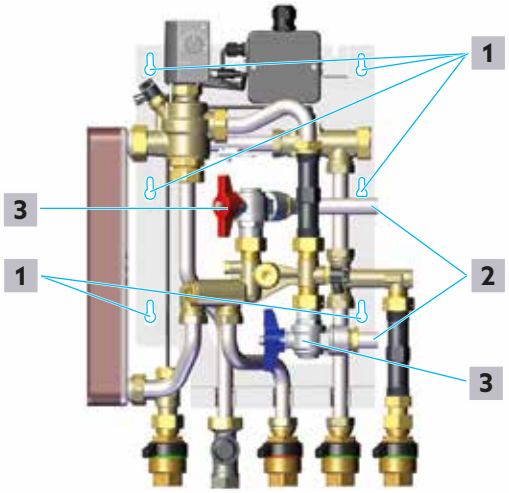


Fig. 9: Wall mounting

1 Fastening points
2 Supply pipes
3 Angle ball valve

1. Have suitable fastening material ready.
2. Lift the dwelling station onto the wall and align it horizontally.
3. Select at least two of the six possible fastening points (see Fig. 9 on page 17 (1)) and mark the drill holes through the bore holes in the base plate.
4. Lift the dwelling station from the wall.
5. Drill holes in the wall at the markings and insert the dowels.
6. Align the dwelling station horizontally on the wall and screw it on tightly with screws and washers in the dowels.

Position the angle ball valves so that the supply pipes (see Fig. 9 on page 17 (2)) can be routed to the dwelling station from the desired direction.

7 Mount the two angle ball valves (see Fig. 9 on page 17 (3)) with flat seal in an orientation that is easily accessible for further connection. (The figure shows an example of the connection from the right side)

▷ The dwelling station is mounted on the wall.

6.4 Mounting the heat meter

The factory-fitted meter spacers are used for commissioning/pressure testing and are not suitable for continuous operation. If no meters are fitted, use the stainless steel spacers from the accessories range.

The heat meter must have the following characteristics:

- Fast sampling rate (approx. 4 s)
- Housing length: 110 mm
- Connections: G ¾
- q_p = 1.5 m^3/h according to MID directive 2014/32/EU
- Integrated return temperature sensor
- Flow temperature sensor M10x1 according to DIN EN 1434-2, sensor type DS 27.5 (≤Ø5.6).
- No inlet or outlet sections required
- Lowest possible pressure loss

Suitable are, for example, heat meters that measure according to the ultrasonic principle and also record short water tapping.

WARNING

Risk of injury from pressurised components!
Media escaping under pressure can cause injuries.

! Only carry out installation work when the system is depressurised.

! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.

! Wear safety goggles.

CAUTION

Risk of scalding due to hot media!
If the station was in operation, there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Allow the system to cool down.

! Wear safety goggles.

CAUTION

Risk of burns on hot components!
Touching hot components can cause burns.

! Wear safety gloves.

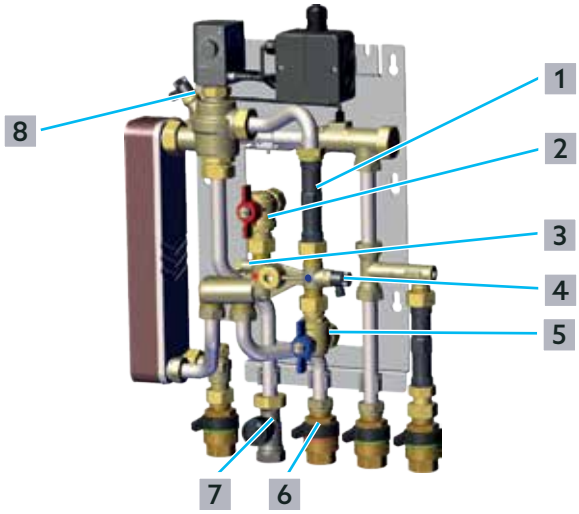


Fig. 10: Mounting the heat meter

1 Spacer
2 Primary supply
3 Plug
4 Drain valve
5 Primary return
6 Heating circuit supply
7 Heating circuit return
8 Vent valve

Please observe the separate operating instructions for the heat meter.

1 Close the angle ball valves in the primary supply ((2) in Fig. 10 on page 18) and primary return (5) as well as the ceramic disc valve in the heating circuit supply (6) and the zone valve in the heating circuit return (7).

2 Open the control valve ((2) in Fig. 2 on page 9) by disassembling the actuator ((5) in Fig. 2 on page 9).

Connect a hose line to the drain valve ((4) in Fig. 10 on page 18) in the primary circuit to make it easier to direct escaping water into a container.

Have a cloth and a container ready to catch any water that escapes.

3 Slowly open the vent valve ((8) in Fig. 10 on page 18) and the drain valve (4).

4 When the primary circuit above the drain valve is empty, close the drain valve (4) and the vent valve (8) again.

5 Remove the spacer (1) from the pipe.

6 Install the heat meter with seals in the pipe.

7 Unscrew the plug ((3) in Fig. 2 on page 9) from the connection for the temperature sensor of the heat

meter in the primary supply.

8 Screw the adapter into the connection in the primary supply (2).

9 Screw the temperature sensor into the adapter.

10 Slowly open the angle ball valves in the primary return (5) and primary supply (2).

11 Open the vent valve (8) slightly.

12 As soon as no more water escapes, close the vent valve.

13 Close the control valve ((2) in Fig. 2 on page 9) by mounting the actuator ((5) in Fig. 2 on page 9).

14 Check all components and screw connections for leaks.

15 Tighten any screw connections that are too loose.

16 Lead-seal the heat meter.

▷ The heat meter is mounted.

6.5 Mounting the water meter

The water meter must have the following characteristics:

- Housing length: 110 mm
- Connections: G ¾
- Q3 = 2.5 m^3/h according to MID directive 2014/32/EU

⚠ WARNING

Risk of injury from pressurised components!
Media escaping under pressure can cause injuries.

! Only carry out installation work when the system is depressurised.

! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.

! Wear safety goggles.

⚠ CAUTION

Risk of burns on hot components!
Touching hot components can cause burns.

! Wear safety gloves.

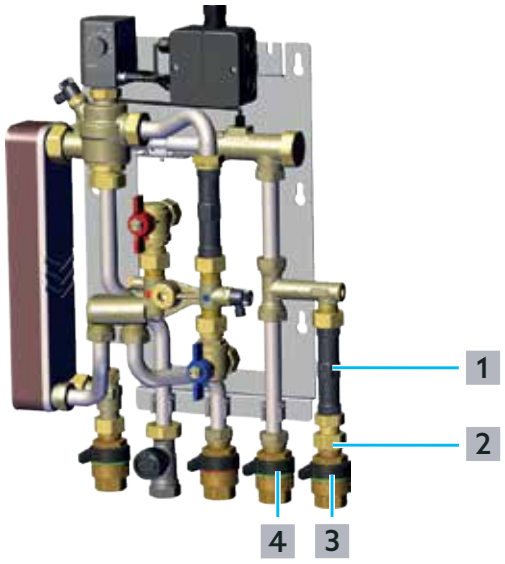


Fig. 11: Mounting the water meter

1 Spacer

2 Coupling

3 Cold water inlet

4 Cold water outlet

Please observe the separate operating instructions for the water meter.

Have a cloth and a container ready to catch any water that escapes.

1 Close the ceramic disc valves in the cold water inlet ((3) in Fig. 11 on page 19) and cold water outlet (4).

2 Open a draw-off point to depressurise the potable water circuit.

3 When the potable water circuit is depressurised, close the draw-off point again.

4 Loosen the union nut of the coupling (2).

5 Remove the spacer (1) with the coupling from the pipe.

6 Unscrew the coupling from the spacer.

7 Screw the coupling to the water meter.

8 Install the water meter in the pipe.

9 Slowly open the ceramic disc valves in the cold water outlet (4) and cold water inlet (3).

10 Check all components and screw connections for leaks.

11 Tighten any screw connections that are loose.

12 Lead-seal the water meter.

13 Open a draw-off point to vent the potable water pipe.

14 As soon as water escapes without bubbles, close the draw-off point again.

▷ The water meter is mounted.

6.6 Connecting the dwelling station electrically

DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

- ! Disconnect the station from the power supply at all poles an secure it against being switched on again.
- ! Check that no voltage is present.
- ! The connection may only be carried out by a qualified electrician.

6.6.1 Connecting the equipotential bonding

Protective equipotential bonding establishes a connection with good electrical conductivity between conductive bodies of electrical equipment and the main equipotential bonding bar (main earthing bar) of the building. (According to DIN VDE 0100, bodies are touchable conductive parts which, in contrast to the ""active parts"" of the equipment, can only be live as a result of a fault).

This measure serves to protect against electric shock and is standardised in IEC 60364-4-41:2005 and DIN VDE 0100-410:2007-06.

The technical design for equipotential bonding is standardised in IEC 60364-5-54:2011 and DIN VDE 0100-540:2012-06.

▶ Comply with applicable standards and country-specific regulations.

DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

- ! The connection may only be carried out by a qualified electrician.

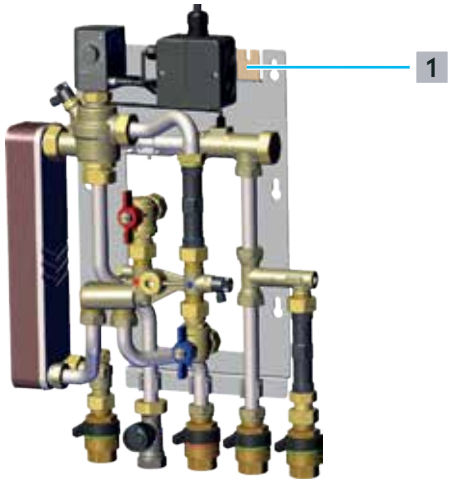


Fig. 12: Earthing the station

1 Position of the equipotential bonding

▶ Connect the accessory set for equipotential bonding to a suitable equipotential bonding bar in the building using a copper equipotential bonding conductor with a cross-section of at least 6 mm².

6.6.2 Connecting the dwelling station electrically

DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

- ! Disconnect the station from the power supply at all poles ans secure it against being switched on again.
- ! Check that no voltage is present.
- ! The connection box must only be opened by a qualified electrician.

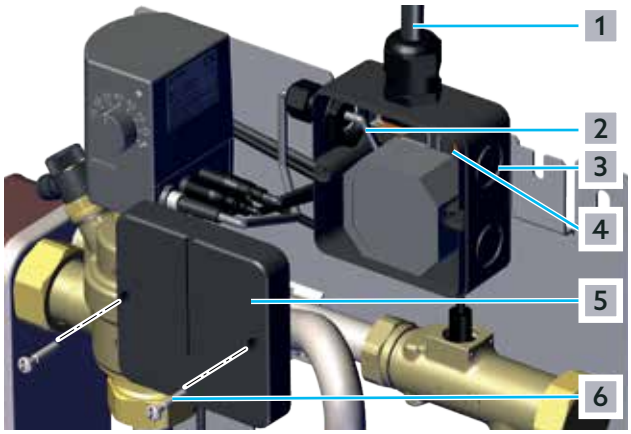


Fig. 13: Connecting the dwelling station electrically

1 Power supply cable

2 Power supply unit cable

3 Connection box

4 Connection terminals

5 Cover

6 Screws

1. Loosen the screws ((6) in Fig. 13 on page 20) and remove the cover (5) of the connection box (3).
2. Connect the power supply cable (1) to the prepared terminals (4) in the connection box.
3. Screw the cover onto the connection box.
4. Connect the dwelling station to the power supply.

▷ Mounting is complete.

7. Commissioning

⚠ CAUTION

Risk of scalding due to hot media!
During some work, the station has to remain in operation and there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Wear safety goggles during all work.

⚠ CAUTION

Risk of burns on hot components!
Touching hot components can cause burns.

! Wear safety gloves.

7.1 Filling and venting the heating circuit

⚠ CAUTION

Risk of scalding due to hot media!
If the heating system is already in operation and the connected buffer storage cylinder is hfeated, there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Check all screw connections during filling and tighten any leaking screw connections.

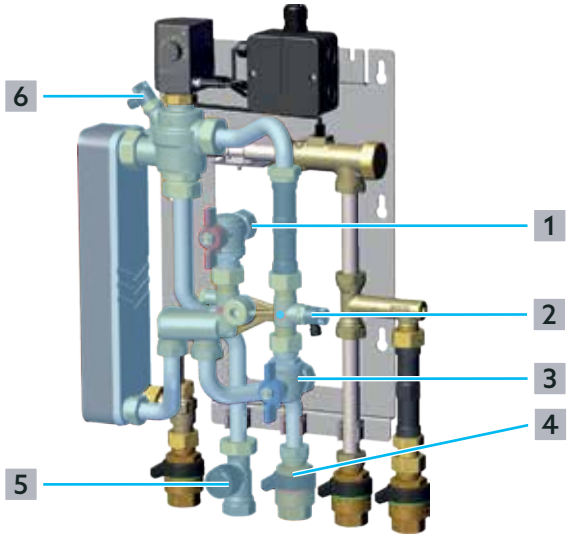


Fig. 14: Filling and venting the heating circuit

1 Primary supply from the buffer storage cylinder

2 Drain valve

3 Primary return to the buffer storage cylinder

4 Heating circuit supply

5 Heating circuit return

6 Vent valve

NOTICE

Risk of damage due to pressure surge!
The abrupt injection of water into the station can lead to damage, e.g. to the sensors or sealing points.

! Always open the shutoff valves slowly.

During filling and venting of the heating circuit, ensure that the primary circuit is filled and the system pressure is kept constant.

The actuator is closed when delivered. In the closed state, there is no flow through the heat exchanger. To allow flow through the heat exchanger, set the rotary knob of the actuator to the service mode index (see section 3.3.1 on page 11).

1. Check that the drain valve ((2) in Fig. 14 on page 21) and the vent valve (6) in the primary circuit are closed.
2. Open the ceramic disc valve in the heating circuit supply (4).
3. Open the zone valve in the heating circuit return (5).
4. Slowly open the angle ball valve in the primary supply (1) to fill the dwelling station.

Connect a hose line to the drain valve (2) in the primary circuit to make it easier to direct escaping water into a container.

Have a cloth and a container ready to catch any water that escapes.

5 Open the drain valve (2) in the primary circuit.

6 As soon as water escapes without bubbles, set the rotary knob ((7) in Fig. 5 on page 11) of the controller to the service mode index ((6) in Fig. 5 on page 11).

7 As soon as water escapes without bubbles, close the drain valve ((2) in Fig. 14 on page 21).

8 Open the vent valve (6) in the heating circuit slightly.

9 As soon as water escapes without bubbles, close the vent valve (6).

10 Set the rotary knob of the controller to the desired hot water temperature (< 70 °C).

11 Check all components and screw connections for leaks.

12 If necessary, tighten loosened screw connections and replace defective seals.

▷ Filling and venting of the heating circuit is complete.

Impurities in the pipe can lead to deposits in the filter. For filter cleaning, see section 8.5 on page 31.

7.2 Filling the potable water circuit

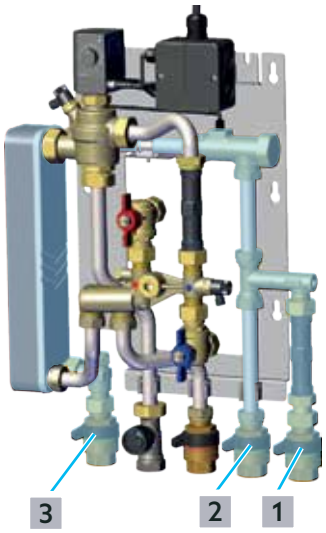


Fig. 15: Filling the potable water circuit

1 Cold water inlet

2 Cold water outlet

3 Hot water outlet

⚠ CAUTION

Risk of scalding due to hot media!
If the heating system is already in operation and the connected buffer storage cylinder is heated, there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Check all screw connections during filling and tighten any leaking screw connections.

NOTICE

Risk of damage due to pressure surge!
The abrupt injection of water into the station can lead to damage, e.g. to the sensors or sealing points.

! Always open the shutoff valves slowly.

1 Slowly open the ceramic disc valve in the cold water inlet ((1) in Fig. 15 on page 22) to fill the dwelling station.

2 Slowly open the ceramic disc valve in the hot water outlet (3).

3 Slowly open the ceramic disc valve in the cold water outlet (2).

4 Open the draw-off point furthest away and tap hot and cold water in succession until the potable water comes out without bubbles.

5 Close the draw-off point.

6 Check all components and screw connections for leaks.

7 If necessary, tighten loosened screw connections and replace defective seals.

▷ Filling of the potable water circuit is complete.

7.3 Venting the circulation pipe (if available)

⚠ CAUTION

Risk of scalding due to hot media!
If the heating system is already in operation and the connected buffer storage cylinder is heated, there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Close the angle ball valves in the primary supply and primary return.

! Allow the dwelling station to cool down.

! Wear safety goggles.

1 Open the vent valve on the circulation module.

2 Slowly open the ceramic disc valve in the circulation pipe.

3 As soon as water escapes without bubbles, close the vent valve.

4 Slowly open the angle ball valves in the primary return and primary supply.

▷ Venting of the circulation pipe is complete.

7.4 Setting the shutoff valves for operation

▶ Set the shutoff valves of the dwelling station for operation:

- The ceramic disc valves under the dwelling station must be open.
- The zone valve must be open.
- The vent valve and the drain valve must be closed.

▶ Set the heating system (e.g. pump and shutoff valve) for operation of the dwelling station.

7.5 Setting the hot water temperature

Fig. 16: Setting the hot water temperature

1 Actuator with integrated potable water temperature control

2 Rotary knob

DANGER

Danger to life due to legionella formation!
If the hot water temperature is too low, then legionella can form in systems with circulation pipe.

- ! For systems with a circulation pipe, set the hot water temperature on the actuator ((1) in Fig. 16 on page 23) to at least 60 °C.
- ! Make sure that the heating water temperature in the buffer storage cylinder is set to at least 60 °C.
- ! Check that the temperature difference between the hot water outlet of the heat exchanger (e.g. 60 °C) and the return of the circulation pipe at the dwelling station (≥ 55 °C) does not exceed 5 °C.

▶ Observe the notes on scald protection in section 2.6.4 on page 8.

▶ Set the desired hot water temperature with the rotary knob (2) on the actuator (1).

7.5.1 Sliding hot water temperature control

If the desired hot water temperature cannot be reached because the storage cylinder temperature is too low, the temperature setting on the actuator for the hot water is automatically reduced to the max. achievable value. This state is maintained until the storage cylinder temperature is sufficient to achieve the desired hot water temperature.

If necessary, check the set storage cylinder temperature.

7.6 Setting the derivative temperature control set (if available)

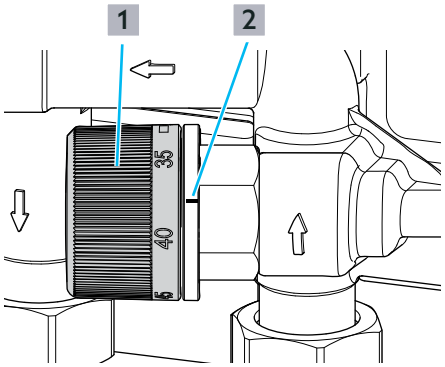


Fig. 17: Setting the derivative temperature control set

1 Handwheel

2 Scaled sleeve with marking

Do not set the temperature on the derivative temperature control higher than the hot water temperature set on the actuator.

A derivative temperature control set that is set too high causes a permanent bypass and leads to energy loss.

The derivative temperature control set is set too high if the value is higher than the possible primary flow temperature from the buffer storage cylinder.

▶ Set the temperature to the desired value on the handwheel ((1) in Fig. 17 on page 23) of the derivative temperature control set.

7.7 Teaching-in the actuator

Teaching-in of the actuator is mandatory for the intended function of the station.

The primary supply must be at operating temperature for the teach in-process.

- Open one or more hot water draw-off points and run the hot water at a constant hot water volume flow of more than 7 l/min for at least 5 minutes.

Meanwhile, the control parameters adapt to the conditions in the building's heating system.

7.8 Instructing the operator

Explain the function and operation of the product to the operator!

▷ Commissioning is complete.

8. Troubleshooting

8.1 Troubleshooting table

MALFUNCTION	CAUSE	REMEDY
No heating of the potable water (only cold water at the draw-off points, LED lights up green).	The volume flow sensor is contaminated or defective.	Clean the volume flow sensor (see section 8.4 on page 29). If this does not solve the problem, replace the volume flow sensor.
No heating of the potable water (only cold water at the draw-off points, LED off).	The actuator with integrated potable water control is not in operation (de-energised).	Check the power supply to the actuator and restore the power supply if necessary.
No heating of the potable water (only cold water at the draw-off points, LED flashes green).	There is an air inclusion in the heating circuit.	Vent the heating circuit (see section 7.1 on page 21).
	The filter insert in the primary supply is clogged.	Clean or replace the filter insert (see section 8.5 on page 31).
	The heating system has a malfunction.	Remedy the malfunction.
The hot water temperature at the draw-off point(s) drops.	The heating water temperature is too low.	Increase the heating water temperature in the buffer storage cylinder. If necessary, check the output of the heat generator.
	The storage cylinder capacity is not sufficient.	Check the system design and increase the storage cylinder capacity if necessary.
During tapping, hot water temperatures fluctuate.	The control parameters do not match the conditions present in the object.	Teach in the actuator (see section 7.7 on page 23) to adapt the control to the conditions in the building's heating system.
	The temperature sensor at the hot water outlet ((15) in Fig. 2 on page 9) is defective.	Replace the temperature sensor (item no. 1344494). If necessary, contact the technical customer service (see section 1.3 on page 6).
During circulation operation, the water at the draw-off point cools down abruptly.	Cold water flows directly into the circulation pipe instead of into the heat exchanger.	Check the function of the check valve of the potable water circulation module. Replace a defective check valve.
With larger draw-off quantities, the target temperature is no longer reached.	The heating water temperature is not sufficient for the requested draw-off quantity.	Increase the heating water temperature in the storage cylinder (see characteristic lines in appendix).
	The heat exchanger is contaminated or calcified.	Clean the heat exchanger (see section 8.3.2 on page 28).
	The volume flow of the heating water is too low.	Check the system design and increase the pump capacity in the primary supply from the buffer storage cylinder if required.
	The filter insert in the primary supply is contaminated.	Clean or replace the filter insert (see section 8.5 on page 31).
Leakage at the heat exchanger (external).	Leakage at the heat exchanger due to corrosion. This can be the result of a brazing material that is unsuitable for the potable water quality.	Replace the heat exchanger. The brazing material must be suitable for the potable water quality (see information sheet "Notes on corrosion protection" in the appendix).
Pressure increase in the primary circuit (potable water enters the primary circuit). The safety valve in the primary circuit may be triggered.		

MALFUNCTION	CAUSE	REMEDY
The hot water volume flow at the draw-off point is too low.	The heat exchanger is heavily calcified.	Decalcify the heat exchanger (see section 8.3.2 on page 28).
	The cold water pressure is too low (pressure reducer incorrectly set).	Check the setting of the pressure reducer and increase the setting if necessary.
The dwelling heating circuit does not get warm.	The filter insert in the primary supply is contaminated.	Clean or replace the filter insert (see section 8.5 on page 31).
	The zone valve is erroneously closed.	Open the zone valve.
The heat exchanger is also hot outside of hot water preparation. The water is heated in an uncontrolled manner.	The service mode is active.	Set the rotary knob to the desired hot water temperature (see section 8.2 on page 26).
	The control valve is contaminated or blocked.	Remove the actuator from the control valve. Manually push down the valve spindle several times to check that it moves smoothly. If the valve spindle is blocked, contact the technical customer service (see section 1.3 on page 6).

8.2 Status messages and error messages at the actuator

Fig. 18: Status messages and error messages at the actuator

1 Indicator light (LED)

2 Rotary knob

3 Error reset index (only for specialist tradespeople)

4 Service mode index (only for specialist tradespeople)

The indicator light ((1) in Fig. 18 on page 26) of the actuator shows status messages and error messages.

8.2.1 Status messages

Indicator light	Description
LED lights up green	Normal operation, no hot water tapping.
LED flashes green	Normal operation, hot water tapping.
LED lights up orange	Calibration run or service run.
LED lights up red	Service mode active, actuator fully retracted.

8.2.2 Error messages

Indicator light: Flash codes	Error	Description
1x orange, 1x red	Potable water temperature sensor	Sensor delivers incorrect or no measured values.
1x orange, 2x red	Actuator	Unexpected motor blockage during control mode.
1x orange, 3x red	Actuator	Calibration run failed.
1x orange, 4x red	Supply voltage	Supply voltage too high, too low or not available.
1x orange, 5x red	Internal energy store	Faulty energy store, fail-safe mode no longer possible.
1x orange, 6x red	Temperature sensor housing	Sensor delivers incorrect or no measured values.
1x orange, 7x red	Volume flow sensor	Implausible volume flow value.
1x orange, 8x red	Setpoint generator	Implausible setting.
1x orange, 9x red	Electronics	-
1x orange, 10x red	Internal memory (EEPROM)	Memory error
red; flashing	Temperature sensor housing	The temperature is outside the recommended ambient temperature (see section 3.4 on page 11)

8.2.3 Fail-safe mode

The fail-safe mode becomes active as soon as one of the listed errors occurs. In fail-safe mode, the actuator closes the control valve to prevent uncontrolled heating of potable water. The fail-safe mode is active as long as an error is present.

When the cause of the error has been corrected, most error messages are automatically reset and the fail-safe mode is deactivated. Only the actuator errors have to be reset manually by an error reset.

8.2.4 Error reset

If the rotary knob is set to the error reset index ((3) in Fig. 18 on page 26) for longer than 5 seconds, then the displayed error is reset and a calibration run is started. As long as the rotary knob is set to the error reset index, a calibration run of the actuator is started again and again, during which the closing point of the control valve is detected.

To perform the error reset, proceed as follows:

▶ Set the rotary knob to the error reset index for longer than 5 seconds to reset an error.

▶ After an error reset, set the rotary knob back to the desired hot water temperature (< 70 °C) to switch to normal operation.

If the power supply to the controller is interrupted and restored, then an error reset takes place automatically.

8.3 Calcification of the heat exchanger

⚠ DANGER

Danger to life due to electric current!
During some work, the actuator must remain in operation and the dwelling station must not be disconnected from the power supply. There is a risk of electric shock in the connection box.

! Do not open the connection box.

! The connection box must only be opened by a qualified electrician.

⚠ WARNING

Risk of injury from pressurised media!
Media escaping under pressure can cause injuries.

! Only carry out installation work when the system is depressurised.

! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.

! Wear safety goggles.

! Any work on the system may only be carried out by specialist tradespeople.

⚠ CAUTION

Risk of scalding due to hot media!
During some work, the station has to remain in operation and there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Allow the system to cool down.

! Wear safety goggles.

⚠ CAUTION

Risk of burns on hot components!
Touching hot components can cause burns.

! Wear safety gloves.

8.3.1 Recognising calcification

Due to the high temperatures in the dwelling station, calcification of the built-in heat exchanger cannot be avoided.

The following signs indicate calcification or contamination of the heat exchanger:

- With larger draw-off quantities, the temperature drops below the set hot water temperature.
- The set hot water temperature is only reached with small draw-off quantities.
- The hot water volume flow is reduced compared to the cold water volume flow.

If these symptoms occur, you must decalcify the potable water side or clean the primary circuit side of the heat exchanger.

8.3.2 Removing and cleaning the heat exchanger

⚠ DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

! Disconnect the station from the power supply at all poles and secure it against being switched on again.

! Check that no voltage is present.

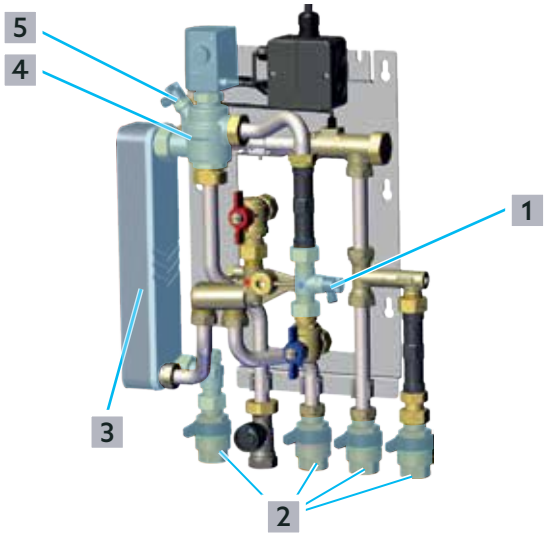


Fig. 19: Removing and cleaning the heat exchanger

1 Drain valve

2 Ceramic disc valve

3 Heat exchanger

4 Control valve with integrated differential pressure and volume flow control

5 Vent valve

⚠ CAUTION

Risk of scalding due to hot media!
When working on the station, there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Close all ceramic disc valves (2) below the dwelling station and allow the water in the dwelling station to cool down.

⚠ CAUTION

Risk of burns on the heat exchanger!
Components become very hot during operation and there is a risk of burns if touched.

! Allow the station cool down.

Incorrect cleaning/decalcification leads to damage to the natural passive layer and an increased risk of corrosion of the plate material.

1 Open the ceramic disc valve in the hot water outlet ((3) in Fig. 15 on page 22).

2 Open a draw-off point to depressurise the potable water circuit.

3 When the potable water circuit is depressurised, close the draw-off point again.

4 Disconnect the cables from the actuator.

5 Dismantle the actuator.

Connect a hose line to the drain valve ((1) in Fig. 19 on page 29) in the primary circuit to make it easier to direct escaping water into a container.

Have a cloth and a container ready to catch any water that escapes.

6 Open the vent valve (5) and the drain valve (1) to depressurise and drain the heating circuit.

7 Close the vent valve (5) and the drain valve (1).

8 Loosen the screw connections between the control valve (4) and the pipework.

9 Lift the control valve out of the station.

10 Loosen the screw connections between the heat exchanger (3) and the pipework.

11 Lift the heat exchanger out of the station.

12 Clean the heat exchanger with a suitable cleaning agent. Follow the cleaning agent manufacturer's instructions.

13 Lift the cleaned heat exchanger into the station.

The G 1 connection on the heat exchanger is intended for connection to the control valve.

14 Screw the heat exchanger to the pipework.

15 Mount the control valve (4) with actuator in the station.

16 Connect the cables to the actuator.

17 Fill the potable water circuit as described in section 7.2 on page 22.

18 Fill and vent the heating circuit as described in section 7.1 on page 21.

8.4 Inspecting and cleaning the volume flow sensor

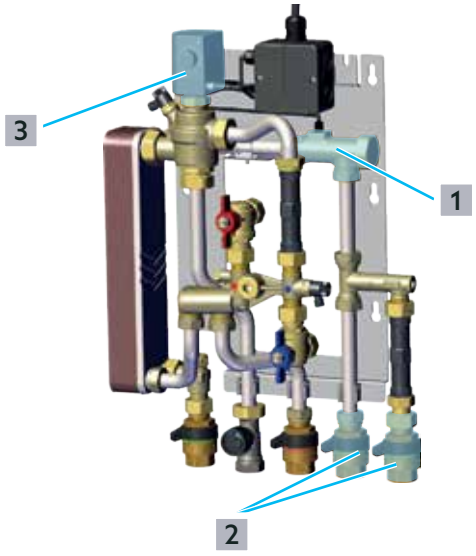


Fig. 20: Inspecting and cleaning the volume flow sensor

1 Volume flow sensor

2 Ceramic disc valve

3 Actuator with integrated potable water temperature control

8.4.1 Inspecting the volume flow sensor

A malfunction occurs when no hot water can be tapped at the draw-off points. This can have several causes (see section 8.1 on page 25).

▶ Rule out causes that are easy to determine, e.g. de-energised actuator ((3) in Fig. 20 on page 29) or missing contact of the signal line of the volume flow sensor.

▶ Check the volume flow sensor (1) for contamination by tapping potable water and observing the indicator light on the actuator:

- When no hot water is being tapped or outside circulation mode, the indicator light on the actuator is permanently green.
- When tapping hot water or during circulation mode, the indicator light flashes green.
- If the indicator light is permanently green when tapping hot water, the volume flow sensor may be contaminated.

If the volume flow sensor is contaminated, then the volume flow of the cold water inlet or of the cold water inlet with circulation pipe is not detected and no hot water tapping is registered. This means that the control is not activated and no energy is transferred to the potable water circuit in the heat exchanger.

8.4.2 Cleaning the volume flow sensor

⚠ DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

! Disconnect the station from the power supply at all poles and secure it against being switched on again.

! Check that no voltage is present.

If the volume flow sensor is contaminated:

1. Close the ceramic disc valves ((2) in Fig. 20 on page 29) in the cold water inlet and cold water outlet in the potable water circuit.
2. Open a draw-off point to depressurise the potable water circuit.
3. When the potable water circuit is depressurised, close the draw-off point again.

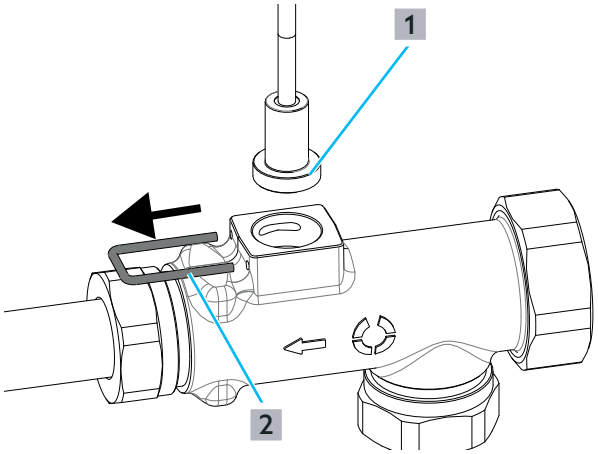


Fig. 21: Loosening the safety clip

1 Volume flow sensor

2 Safety clip

4. Loosen the safety clip ((2) in Fig. 21 on page 30) at the volume flow sensor (1).
5. Remove the volume flow sensor from the housing.

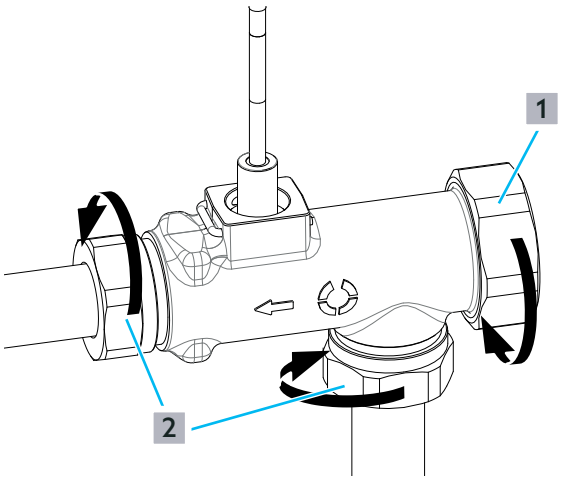


Fig. 22: Removing the volume flow sensor

1 Sealing cap

2 Union nut

6. Unscrew the sealing cap ((1) in Fig. 22 on page 30) for the circulation connection.
7. Loosen the union nuts (2) of the volume flow sensor and remove the volume flow sensor from the pipes.

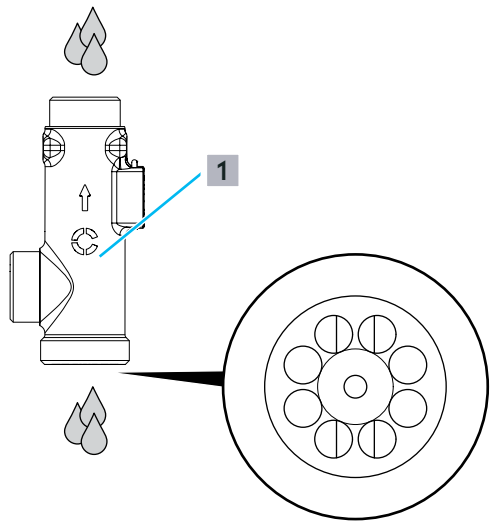


Fig. 23: Cleaning the volume flow sensor under running water

1 Volume flow sensor housing

NOTICE

Risk of damage to the slide-in turbine!
The slide-in turbine is a sensitive component that can be easily damaged. The turbine wheel must rotate freely and smoothly after cleaning.

- ! Do not use pointed objects when cleaning the slide-in turbine.

8 Hold the volume flow sensor housing ((1) in Fig. 23 on page 31) under running water in the opposite direction to the flow direction to remove residues such as hemp residues and to clean the slide-in turbine.

9 Blow into the slide-in turbine to check that the turbine wheel turns freely and smoothly. If this is not the case, replace the volume flow sensor.

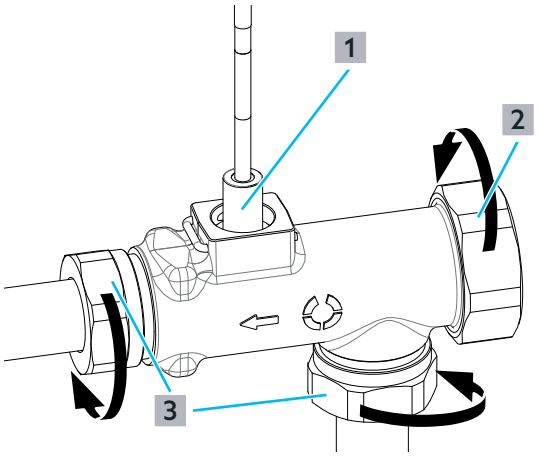


Fig. 24: Installing the volume flow sensor

1 Volume flow sensor

2 Sealing cap

3 Union nut

10 Screw the sealing cap ((2) in Fig. 24 on page 31) tightly onto the circulation connection.

11 Insert the volume flow sensor into the housing and secure it with the safety clip.

12 Fit the volume flow sensor (1) onto the pipes and tighten the union nuts (3) of the volume flow sensor.

13 Connect the plug connection to the actuator.

Make sure the polarity is correct (the plugs are coded, see Fig. 5 on page 11).

14 Open the shutoff valves.

15 Perform a functional test as described in section 8.4.1 on page 30.

▷ The volume flow sensor is cleaned.

8.5 Cleaning the filter insert

WARNING

Risk of injury from pressurised media!
Media escaping under pressure can cause injuries.

- ! Only carry out installation work when the system is depressurised.
- ! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.
- ! Wear safety goggles.
- ! Any work on the system may only be carried out by specialist tradespeople.

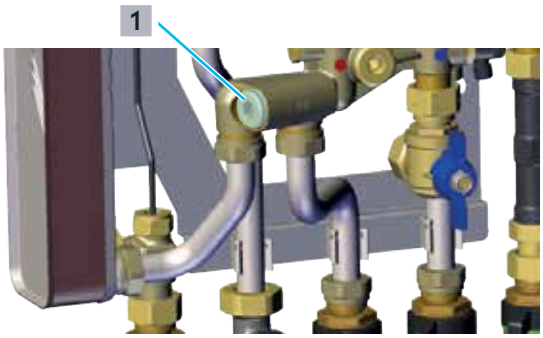


Fig. 25: Cleaning the filter insert

1 Plug

1 Close the angle ball valves in the primary supply ((1) in Fig. 14 on page 21) and primary return (3) as well as the ceramic disc valves in the heating circuit supply (4) and heating circuit return (5).

2 Slowly open the vent valve in the heating circuit ((3) in Fig. 2 on page 9) to depressurise the section.

3 Close the vent valve in the heating circuit.

4 Unscrew the plug ((1) in Fig. 25 on page 31) of the filter insert from the housing in the primary supply.

Have a cloth and a container ready to catch any water that escapes.

5 Pull the plug together with the screen out of the filter insert.

6 Clean the screen under running water.

7 Check the housing for dirt residues and remove them if necessary.

8 Slide the screen and the plug into the filter insert and screw the plug into the housing.

9 Slowly open the angle ball valves in the primary return and primary supply.

10 Open the vent valve in the heating circuit slightly.

11 As soon as water escapes without bubbles, close the vent valve.

12 Check all components and screw connections for leaks.

13 Tighten any screw connections that are too loose.

14 Check the system pressure and top up with heating water if necessary.

▷ The filter insert is cleaned.

9. Maintenance

DANGER

Danger to life due to electric current!
During some work, the actuator must remain in operation and the dwelling station must not be disconnected from the power supply. There is a risk of electric shock in the connection box.

! Do not open the connection box.

! The connection box must only be opened by a qualified electrician.

WARNING

Risk of injury from pressurised media!
Media escaping under pressure can cause injuries.

! Only carry out installation work when the system is depressurised.

! For retrofitting an existing system: Drain the system or shut off the supply pipes of the system section and depressurise the system section.

! Wear safety goggles.

! Any work on the system may only be carried out by specialist tradespeople.

CAUTION

Risk of scalding due to hot media!
During some work, the station has to remain in operation and there is a risk of scalding due to unintentional escape of hot water or water vapour.

! Allow the system to cool down.

! Wear safety goggles.

CAUTION

Risk of burns on hot components!
Touching hot components can cause burns.

! Wear safety gloves.

9.1 Leakage test (visual inspection)

Due to the temperature fluctuations caused by operation, we recommend that you check the screw connections and seals manually for correct functioning.

1 Check all connections to the outside to the pipework and inside the station for moisture.

2 If necessary, tighten loosened screw connections and replace defective seals.

Moisture associated with discolouration on the heat exchanger indicates external corrosion that necessitates replacement.

3 Check the heat exchanger for moisture and discolouration and replace a defective heat exchanger immediately.

9.2 Inspecting the electrical components and plug connections

Check plug connections annually for correct seating.

▶ Check the electrical components connected to the station for integrity and firm seating.

▶ Check the cable plug connections of all components connected to the actuator.

▶ Check the tight screw connection of the actuator on the control valve.

9.3 Checking the performance of the heat exchanger

To exclude calcification and contamination of the heat exchanger, we recommend that you check the performance of the heat exchanger annually.

1 Tap hot water at several draw-off points at the same time without adding cold water.

2 Measure the hot water temperature at the draw-off point furthest away from station.

3 Compare the measured hot water temperature with the hot water temperature set on the actuator.

The performance of the heat exchanger is correct if the measured hot water temperature is not more than 5 °C higher or lower than the hot water temperature set on the

actuator (e.g. 60 °C).
If the difference is more than 5 °C:

- Check the filter insert.
- Check the flow temperature.
- Check the volume flow sensor or differential pressure.
- Clean and decalcify the heating exchanger as described in section 8.3 on page 28.

10. Notes for the operator

The operator must have himself instructed by the specialist sanitary, heating and air-conditioning tradespeople in the safe and intended use of the station.

10.1 Setting the hot water temperature

Fig. 26: Setting the hot water temperature

1 Actuator with integrated potable water temperature control

2 Rotary knob

The hot water temperature can be set with the rotary knob (2) of the actuator (1) and is preset to 60 °C. The hot water temperature set and measured by the temperature sensor directly at the hot water outlet of the heat exchanger is slightly higher than the hot water temperature at the draw-off points.

1. Set the desired hot water temperature with the rotary knob of the actuator.
2. Tap hot water at the furthest draw-off point without adding cold water and check the hot water temperature. Adjust the hot water temperature if necessary.

Increasing the hot water temperature always means increasing the energy consumption and decreasing the hot water temperature always means saving energy.

10.2 Legionella prevention

Legionella multiply quickly if the hot potable water temperature is constantly too low or if the water is left standing for a longer time (> 72 h) without being tapped.

- Tap hot and cold water regularly to ensure that the potable water is replaced regularly and to prevent long periods of standstill of the potable water.
- Let the water run at all draw-off points for a short time after every standstill of 72 hours or more to replace the potable water in the pipes.

Only in systems with circulation pipe:

- Set the hot water temperature at the actuator to at least 60 °C.
- Make sure that the heating water temperature in the buffer storage cylinder is set to more than 60 °C.

Observe the relevant regulations (e.g. DVGW Code of Practice W551).

11. Dismantling and disposal

11.1 Dismantling

11.1.1 Disconnecting the dwelling station from the power supply

DANGER

Danger to life due to electric current!
There is a danger to life if live components are touched.

- ! Disconnect the station from the power supply at all poles and secure it against being switched on again.
- ! Check that no voltage is present.
- ! Dismantling may only be carried out by a qualified electrician.

1. Disconnect the system from the power supply.
2. Open the connection box.
3. Disconnect the station permanently from the power supply.

▷ The station is de-energised and can be dismantled.

11.1.2 Dismantling the dwelling station

CAUTION

Risk of injury from pressurised media!
Media escaping under pressure can cause injuries.

- ! Only carry out work when the system is depressurised.
- ! Close all shutoff valves of the dwelling station.
- ! Depressurise and drain the system section and the station.
- ! Wear safety goggles.
- ! Any work on the system may only be carried out by specialist tradespeople.

CAUTION

Risk of scalding due to hot media!
Escaping hot media can lead to scalding.

- ! Close all shutoff valves on the station and depressurise the station.
- ! Allow the water in the station to cool down.

CAUTION

Risk of burns from hot components!
Touching hot components can cause burns.

- ! Allow the station cool down.

▶ Dismantle the station.

▷ The station can be disposed of separately according to components.

11.2 Disposal

NOTICE

Risk of environmental pollution!
Incorrect disposal can lead to environmental damage.

- ! Dispose of packaging materials in an environmentally friendly manner.
- ! If possible, recycle the components.
- ! Dispose of non-recyclable components according to local regulations.

Directive 2012/19/EU WEEE:

- The "crossed-out wheeled bin" symbolises that you are legally obliged to dispose of old appliances separately from unsorted municipal waste. Incorrect disposal can lead to environmental damage.
- Remove used batteries and accumulators not enclosed in the old appliance as well as lamps from the old appliance without destroying them and dispose of them separately.
- You can hand in your old appliance free of charge within the framework of the possibilities provided by the public waste disposal authorities.
- Distributors with a sales area for electrical and electronic equipment of at least 400 square meters are obliged to take back your old appliance free of charge when you buy a similar new appliance (1:1 take-back). You can also return all old appliances to distributors free of charge if the external dimensions do not exceed 25 centimetres and the return is limited to three old appliances per type of appliance.
- Delete your personal data stored on the old device to be disposed of, if any, on your own responsibility.

12. Appendix

12.1 Advice regarding corrosion protection

oventrop

Valves, controls + systems

EN

Fresh water and dwelling stations
Advice regarding corrosion protection

The materials used in the Oventrop fresh water and dwelling stations are selected and processed in accordance with strict quality specifications. The material used for the heat exchanger plates (stainless steel 1.4401) has proven its worth in potable water installations over a long time. **Depending on the water quality, especially in case of high chloride concentrations > 100 mg/l, leaks caused by corrosion** at the heat exchanger can, however, not be excluded.

For this reason, the specifying engineer and/or the user of the system have to make sure that the fresh water and dwelling stations are only operated with **potable water** whose chemical composition **does not have a corrosive effect** on the components.

Consult your local water authority if necessary.

The below table shows limit values of substances in potable water when using heat exchangers with different **brazing materials** (copper, nickel or stainless steel).

It must be noted that **interactions** between certain substances in the water may have an adverse effect on the materials.

This concerns, amongst others, combinations of hydrogen carbonate with chloride and/or sulphate. (see next page).

The choice of a suitable heat exchanger therefore has to be carried out according to the water quality. Corresponding analyses can be obtained from your local water authority.

Demands on the water quality

		Stainless steel heat exchanger brazed with:		
SUBSTANCES	**CONCENTRATION** (mg/l or ppm)	**COPPER**	**NICKEL / STAINLESS STEEL**	**COPPER with Sealix® protective layer**
⚠ Chlorides (Cl^-) at 60 °C See chart on next page!	< 100 100 - 300 > 300	+ - -	+ - -	+ + 0
Hydrogen carbonate (HCO_3-)	< 70 70 - 300 > 300	0 + 0	+ + +	+ + +
Sulphate (SO_4^{2-})	< 70 > 70	+ -	+ +	+ +
HCO_3^- / SO_4^{2-}	> 1.0 < 1.0	+ -	+ +	+ +
Electrical conductivity at 20 °C	< 50 µS/cm 50 - 500 µS/cm > 500 µS/cm	0 + 0	+ + +	+ + +
pH In general, a low ph value (below 6) increases the risk of corrosion and a high ph value (above 7.5) reduces the risk of corrosion.	< 6.0 6.0 - 7.5 7.5 - 9.0 9.0 - 9.5 >9.5	0 0 + 0 0	0 + + + +	+ + + + 0
Free chlorine (Cl_2)	< 1 > 1	+ -	+ -	+ 0
Ammonium (NH_4^+)	< 2 2 - 20 > 20	+ 0 -	+ + +	+ + -
Hydrogen sulphide (H_2S)	< 0.05 > 0.05	+ -	+ +	+ 0
Free (aggressive) carbon dioxide (CO_2)	< 5 5 - 20 > 20	+ 0 -	+ + +	+ + +
Nitrate (NO_3^-)	< 100 > 100	+ 0	+ +	+ +
EXPLANATIONS:	+ Good resistance under normal conditions 0 Corrosion may arise - Use not recommended			

The chemical composition of the potable water may be subjected to temporal fluctuations.

Special advice regarding corrosion protection

NOTICE

High fluid temperatures (>60 °C) increase the risk of corrosion

- ▶ Do not set the hot water temperature and the flow temperature of the heating water higher than necessary.

NOTICE

Long stagnation periods increase the risk of corrosion

- ▶ Flush the installation manually or automatically at regular intervals if longer stagnation periods are to be expected continually (VDI/DVGW 6023).

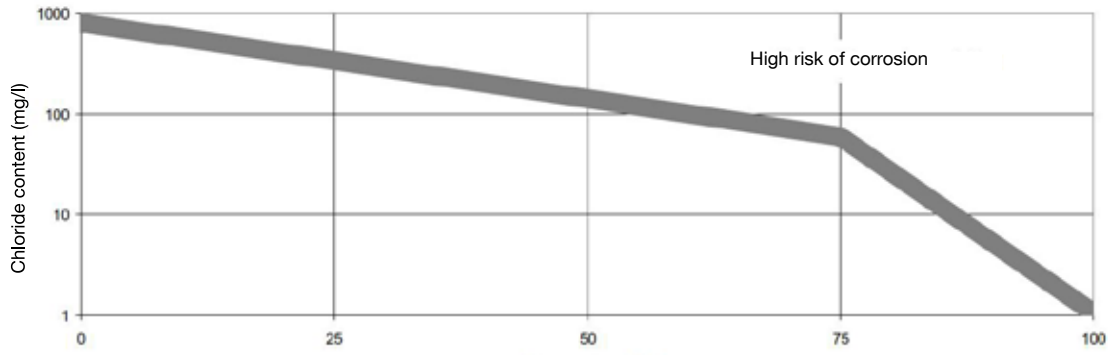
- Be careful in case of hydrogen carbonate/chloride combinations. **Low hydrogen carbonate contents combined with high chloride contents increase the risk of corrosion.**
- Be careful in case of hydrogen carbonate/sulphate combinations**. When using copper brazed heat exchangers, the hydrogen carbonate content in the water must not be lower than the sulphate content.** If this is the case, a nickel brazed, stainless steel brazed or a heat exchanger with protective layer has to be used.
- If the substances in the water are outside the indicated limit values, a **water treatment system** has to be installed, if required.

NOTICE

An incorrectly operated water treatment system may increase the risk of corrosion!

- **In case of mixed installations, the "flow rule" must be observed when using copper brazed heat exchangers in combination with galvanised steel pipes.** More detailed information can be obtained from the DIN EN 12502 standard.
- **Flush** all **supply pipes** before **installation** of the station (DIN EN 806-4), to remove any dirt particles and residues from the system**.**
- During **maintenance work** on the station, please consider that even **detergents may encourage corrosion of the heat exchanger**. In this context, observe the DVGW specifications, such as the work sheets W291 and W319.
- **When using a copper brazed heat exchanger without protective layer, the electrical conductivity of the water lies between 50 and 500 µS/cm**. Bear this in mind particularly in the context of water treatment according to VDI2035.

Premissible chloride content depending on the temperature



A heat exchanger with Sealix® protective layer minimises the risk of corrosion even in case of higher temperatures and chloride contents. Refer to the table “Demands on the water quality” for the respective limit values.

NOTICE

Corrosion and formation of stones in the system

- ▶ The specifying engineer and the user of the system are responsible for incorporating and evaluating substances and other factors in the water, which could influence corrosion and the formation of stones in the system. In critical water supply areas, the local water authority should be consulted.

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