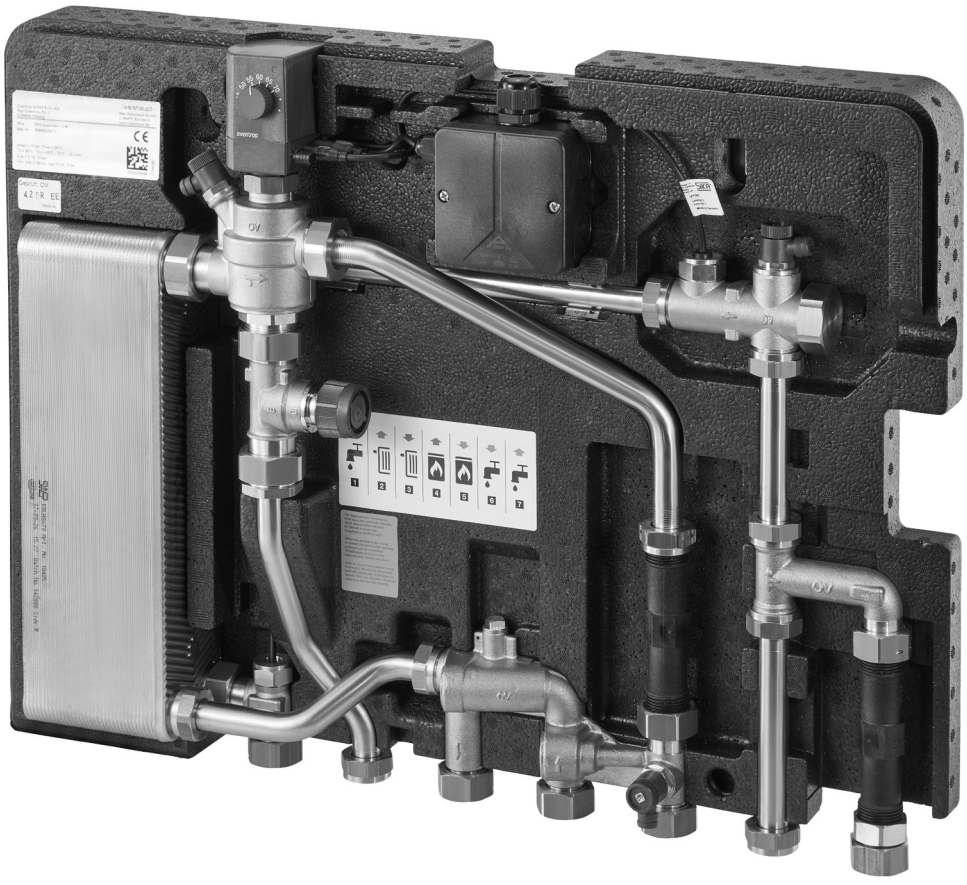
–weishaupt–

manual

Installation and operating instructions



WHI apartment dwelling station

83313802 ■ 1/2019-02

1. General information

The original operating instructions were drafted in German.

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

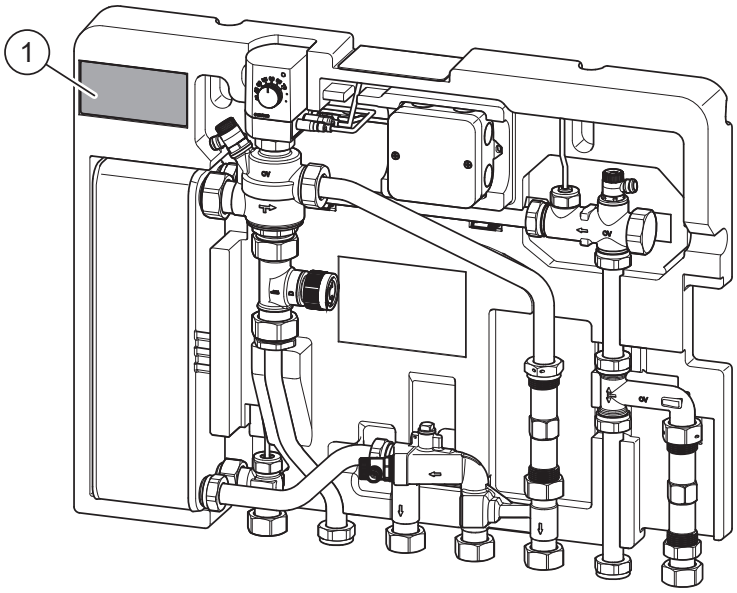
1.1 Validity of the operating instructions

These operating instructions apply to the following products:

WHI apartment 12
Copper-brazed heat exchanger (WHI apartment 12 #1)
Copper-brazed heat exchanger, Sealix® complete sealant (WHI apartment 12 #2)
WHI apartment 18
Copper-brazed heat exchanger (WHI apartment 18 #1)
Copper-brazed heat exchanger, Sealix® complete sealant (WHI apartment 18 #2)
WHI apartment 25
Copper-brazed heat exchanger (WHI apartment 25 #1)
Copper-brazed heat exchanger, Sealix® complete sealant (WHI apartment 25 #2)

1.2 Type plate

The type plate is located at the top left hand side of the lower shell.



Illustr. 1: Position of the type plate

(1) Type plate

1.3 Scope of delivery

Please check the delivery for any damage caused during transit and for completeness.

Items included in the delivery:

- WHI apartment dwelling station
- Installation and operating instructions
- Fixing material
- Sealing set
- EU declaration of conformity

1.4 Copyright and protective rights

These operating instructions are copyrighted. They are exclusively designed for persons involved with the product.

1.5 Declaration of conformity

Max Weishaupt GmbH hereby declares that this product complies with the basic requirements and other relevant provisions of the applicable EU directives.

The declaration of conformity is attached to the product.

1.6 Used symbols

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

2. Safety-related information

2.1 Normative directives

Observe the legal requirements applicable at the installation location.

The current standards, regulations and guidelines apply.

2.2 Correct use

Safety in operation is only guaranteed if the product is used correctly.

The station is an electronically controlled product assembly with heat exchanger for domestic use (e.g. rental units in residential and commercial buildings). The product assembly serves the supply of heated potable water (hot water) to a dwelling unit and the distribution of heating water (max. 90 °C) in a dwelling unit.

Always use the product correctly:

- In a technically perfect condition.
- Within the framework of the prescribed operating conditions.
- With all safety devices in fully operational condition.
- With due consideration of all installation and operating instructions.
- In awareness of safety and risks.
- At installation locations which are directly connected to the public low-voltage network.

Any other use of the product will be considered incorrect use.

Claims of any kind against the manufacturer and/or its authorised representatives due to damage caused by incorrect use will not be recognised.

Observance of the operating instructions is part of compliance with correct use.

2.3 Modifications to the product

Modifications to the product are not permitted. In the case of modifications to the product, the warranty will become void. The manufacturer will not accept liability for damage and malfunctions 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. ► Possibilities of avoiding the danger.

The signal words identify the severity of the danger arising from a situation.

Indicates an imminent danger with high risk. The situation will lead to death or serious injury if not avoided.

DANGER

Indicates a possible danger with moderate risk. It may lead to death or serious injury if the situation is not avoided

WARNING

Indicates a possible danger with lower risk. The situation may lead to minor and reversible injury if not avoided.

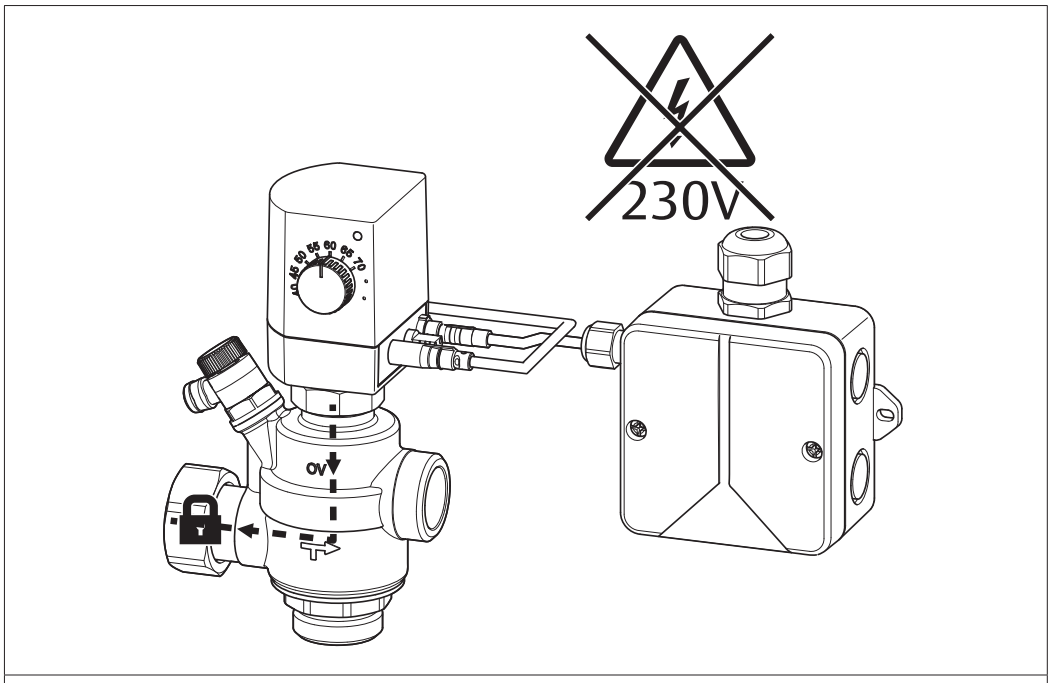
CAUTION

Indicates a situation that may lead to damage to property if not avoided.

NOTICE

2.5 Safety devices

2.5.1 Automatic closing mechanism for the control valve



Illustr. 2: Closure of the control valve in the event of a power failure

If the power supply is interrupted (failure 230 V), the control valve permanently closes so that the heating water supply to the heat exchanger is interrupted completely. An uncontrolled heating-up of the potable water is thus prevented.

2.6 Safety notes

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

Please note the following information concerning safe use.

2.6.1 Danger in case of inadequate personnel qualification

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

Electrician

The following work must only be carried out by a qualified electrician:

- Connecting the product to the power supply.

Due to professional training, knowledge and experience as well as knowledge of the relevant standards and regulations, the qualified electrician is in a position to carry out any work on electrical installations and connections. He has to recognize possible dangers.

Sanitary, heating and air-conditioning specialist

The following work must only be carried out by a qualified sanitary, heating and air-conditioning specialist:

- Installation.
- Commissioning.
- Troubleshooting.
- Maintenance.
- Removal and disposal.

Sanitary, heating and air-conditioning specialists are able to carry out work on heating and cooling systems as well as potable water installations as a result of their professional training, expertise, and experience, as well as their knowledge of the relevant standards and regulations. He has to recognize possible dangers.

User

The following work may be carried out by the user:

- Operation of the product.

The user must be informed how to operate the product by a qualified tradesperson.

Danger to life due to electric current

Any work on the power supply must only be carried out by a qualified electrician. The connection box must only be opened for accessory installation.

▶ Completely disconnect the station from the power supply and protect it against accidental restart.
▶ Check that no voltage is present.
▶ The product must only be installed in dry indoor areas.

2.6.2 Danger to life due to development of legionella

▶ The following must be ensured:
- The potable water temperature in the cold water riser must not exceed 25 °C.
- The water of the potable water circuit has to be exchanged completely at least once every 72 hours.

Observe the relevant regulations (e.g. DVGW work sheet W551).

2.6.3 Risk of scalding due to hot water

The setting or a defect of the controller may entail a rise of the hot water temperature at the draw off points up to the heating water temperature in the buffer storage cylinder.

According to DIN EN 806 and DIN 1988, all draw off points must be provided with a protection against scalding if there is a risk of scalding due to high heating water temperatures in the buffer storage cylinder.

▶ In case of low heating water temperatures in the buffer storage cylinder and resulting low hot water temperatures without risk of scalding at the draw off points, the user of the system has to be instructed so that the low heating water temperature in the buffer storage cylinder is guaranteed throughout the year.

2.6.4 Risk of injury from pressurised components

▶ Before starting work on the heating circuit or the potable water circuit, make sure that the system is depressurised.
▶ Observe the permissible operating temperatures during operation.
▶ Install a safety valve without isolating facility in the potable water heating installation (mandatory according to DIN EN 806-2).

2.6.5 Risk of burns due to an uncontrolled escape of hot fluids

▶ Before starting work on the heating circuit or the potable water circuit, make sure that the system is depressurised.
▶ Before starting work, let the product cool down.
▶ After all work has been completed, check the product for tightness.
▶ Wear safety goggles.

2.6.6 Risk of burns due to hot components and surfaces

- ▶ Before starting work, let the product cool down.
- ▶ Wear protective clothing to avoid unprotected contact with hot system components.
- ▶ Risk of injury from heavy station.
- ▶ Always wear safety shoes during installation.

2.6.7 Risk of injury in case of improper work

Stored residual energies, angular components points and edges at the outside and inside of the product may cause injuries.

- ▶ Before starting work, make sure that there is enough space.
- ▶ Handle open and hard-edged components with care.
- ▶ Make sure that the work place is tidy and clean to avoid accidents.

2.6.8 Damage to property due to an unsuitable installation location

- ▶ Do not install the product at locations prone to frost.
- ▶ Do not install the product at locations with corrosion-enhancing ambient air.
- ▶ Observe the advice regarding corrosion protection (see appendix).

2.6.9 Availability of the operating instructions

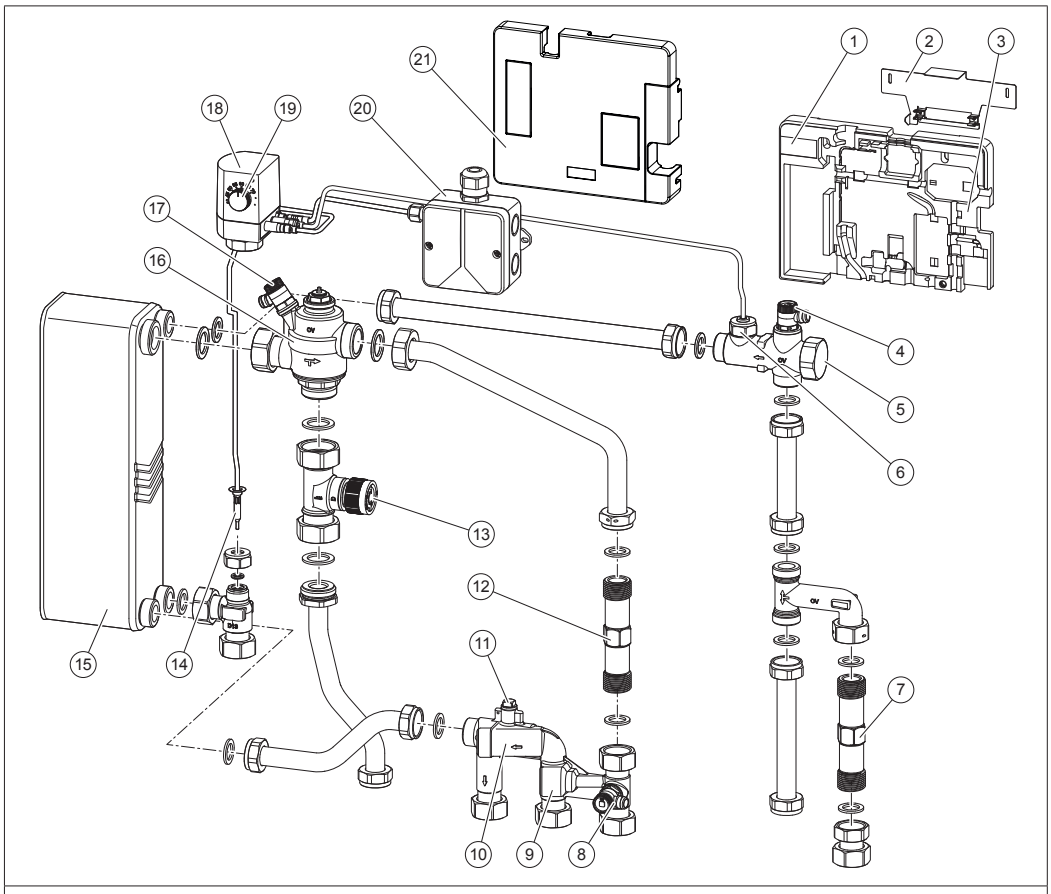
These operating instructions and all other relevant documents (e.g. accessory manuals) must be read and applied by any person working on the product.

The operating instructions must be available at the installation location.

- ▶ Hand these operating instructions and all other relevant documents (e.g. accessory manuals) over to the user.

3. Technical description

3.1 Design



Illustr. 3: Overview of the dwelling station

① Type plate

② Angled wall bracket

③ Heat-insulated lower shell

④ Venting valve in the potable water circuit

⑤ Connection for circulation pipe

⑥ Flow sensor

⑦ Spacer for water meter

⑧ Draining valve in the heating circuit

⑨ Connection for derivative temperature control set

⑩ Strainer in the primary supply

⑪ Connection in the primary supply for heat meter temperature sensor

⑫ Spacer for heat meter

⑬ Zone valve for heating circuit control

⑭ Hot water temperature sensor

⑮ Heat exchanger

⑯ Control valve with integrated differential pressure regulator and potable water priority function

⑰ Venting valve in the heating circuit

⑱ Electronic controller with actuator

⑲ Rotary knob

⑳ Connection box for supply voltage

㉑ Thermal insulation cover

3.2 Functional description

The dwelling station is an electronically controlled product assembly for domestic use. The product assembly serves the supply of heated potable water (hot water) to a dwelling unit and the distribution of heating water (max. 90° C) to the radiators in a dwelling unit. The heating water can also be supplied to a surface heating system (e.g. underfloor heating) with the help of an optional thermostatic mixer kit for off-peak heating circuit.

The station is equipped with decentralised hot water preparation which makes it unnecessary to store hot water.

Potable water is warmed up in the heat exchanger (15) according to the continuous flow principle only when it is needed. The hot water demand is detected by the flow sensor (6).

The target temperature for hot water is adjusted via the rotary knob (19) on the electronic controller (18). During operation, the temperature sensor continuously measures the hot water temperature at the hot water outlet of the heat exchanger. The temperature sensor transmits this information to the electronic controller.

The electronic control transmits the information gathered by the flow sensor and the temperature sensor to the actuator inside the controller.

The actuator opens and closes the control valve (16). Depending on the position of the control valve, a larger or smaller quantity of heating water is fed into the heat exchanger from the primary supply according to requirements.

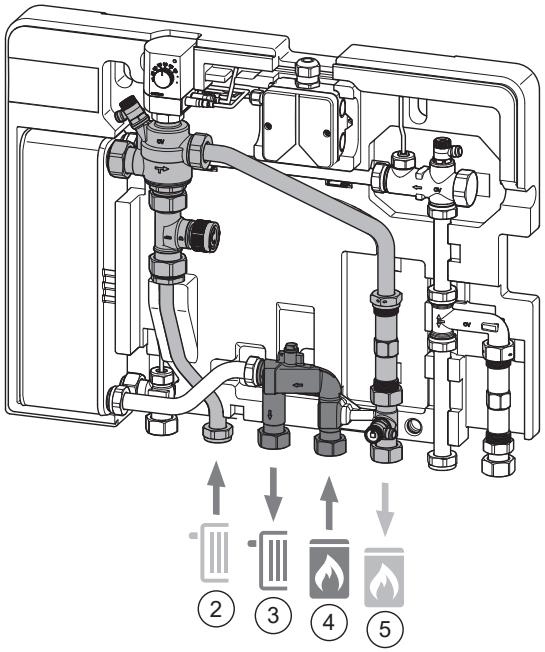
The control valve also keeps the required differential pressure in the system at a constant level.

The heat output transmitted to the potable water depends on the quantity of heating water and the heating water temperature which is supplied to the heat exchanger.

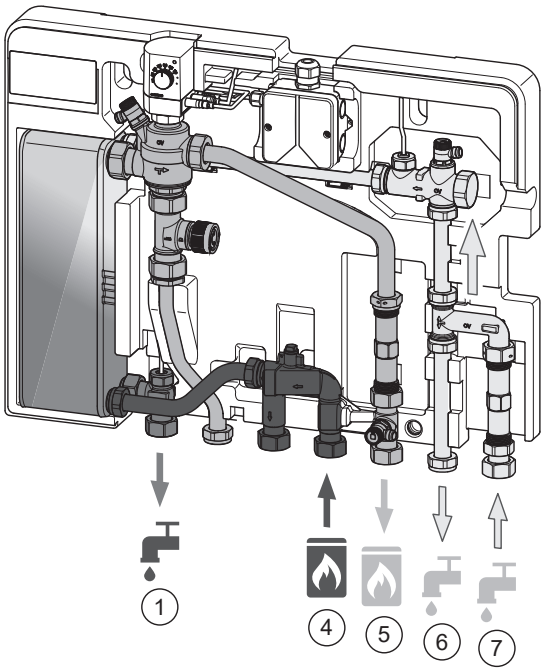
The dwelling station is available in various performance ranges which differ in terms of the size of the heat exchanger (see diagrams in the appendix).

The control valve features a potable water priority function ensuring the supply of the required hot water quantity during heating periods.

It is possible to attach an actuator to the zone valve (13) (optional). This gives you the option of closing the zone valve in a time controlled manner.



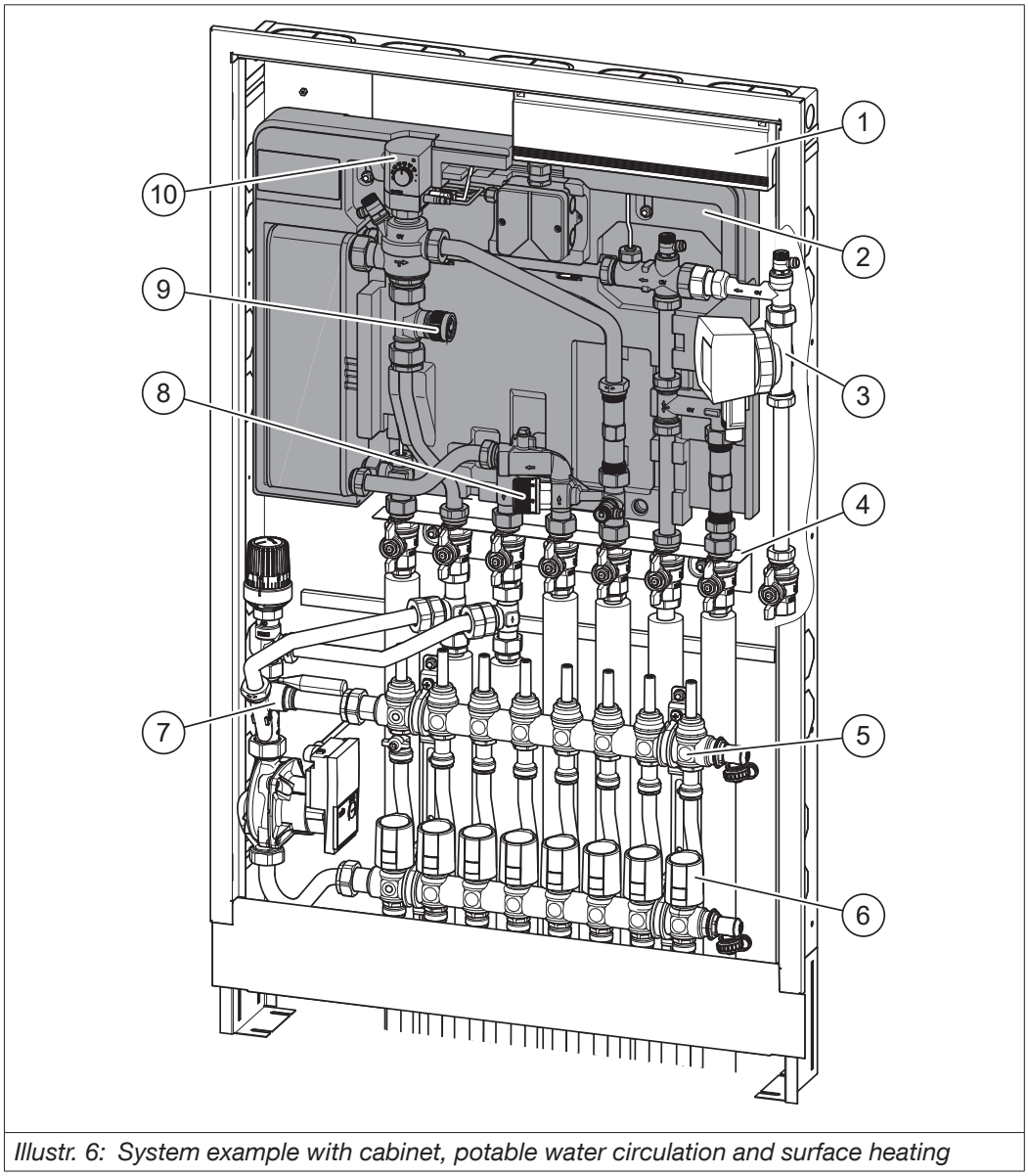
Illustr. 4: Heating periods



Illustr. 5: Hot water operation

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

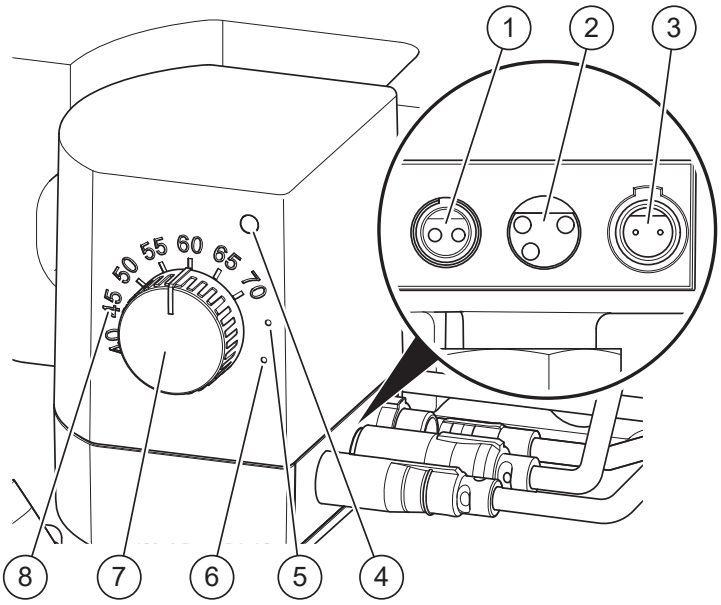
3.3 System example with cabinet



Illustr. 6: System example with cabinet, potable water circulation and surface heating

1. Connecting block for room thermostats and actuators
2. Station
3. Potable water circulation kit
4. Connection assembly for WHI apartment with 7 shut-offs
5. Distributor/collector for surface heating system
6. Actuator for surface heating system
7. Thermostatic mixer kit for off-peak heating circuit
8. Derivative temperature thermostat
9. Zone valve (as an option also with actuator)
10. Electronic controller with actuator

3.4 Electronic controller with actuator



Illustr. 7: Electronic controller for hot water temperature

1. Two-pin socket (hot water temperature sensor)
2. Three-pin socket (flow sensor)
3. Two-pin plug (power supply)
4. Indicator light (LED)
5. Error reset index (only for qualified installer)
6. Service mode index (only for qualified installer)
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)

3.4.1 Service mode

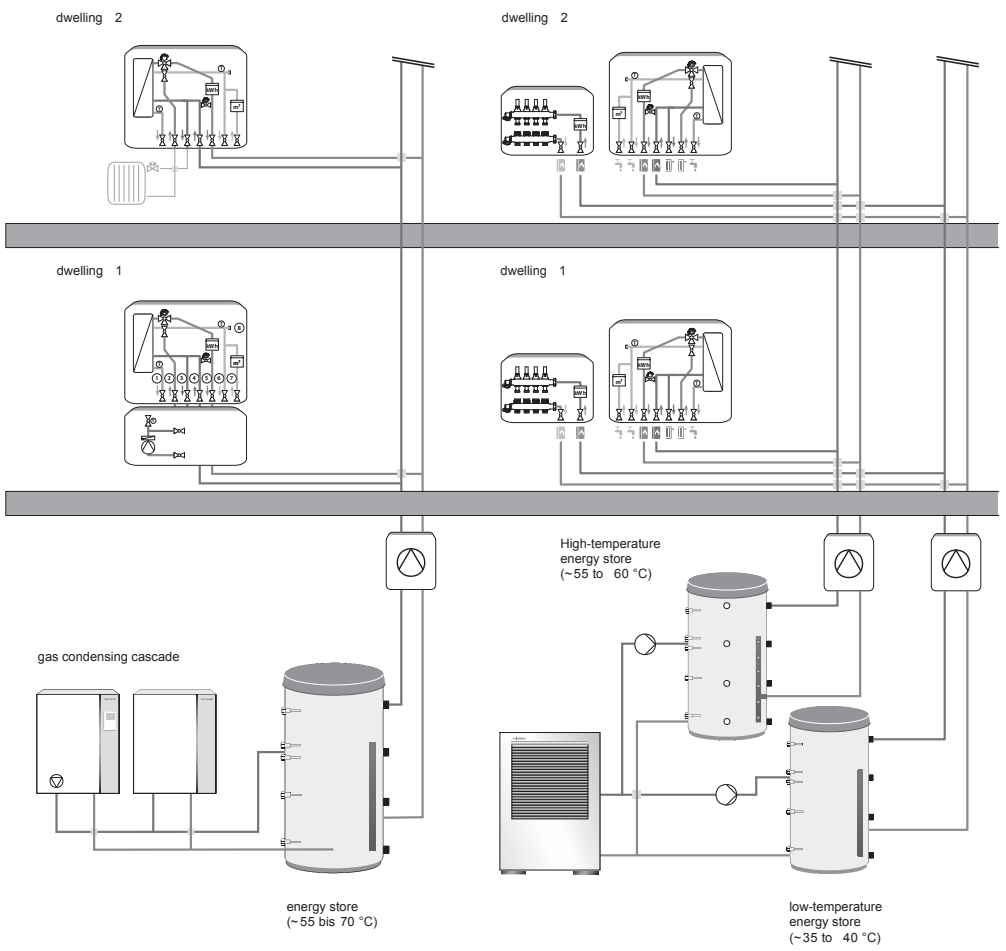
The electronic controller with actuator is closed on delivery.

When setting the rotary knob to the service mode index (6) for more than 5 seconds, the actuator will open the control valve completely.

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

The control valve will remain fully open until the rotary knob is set to the required hot water temperature (< 70 °C) again.

System diagram



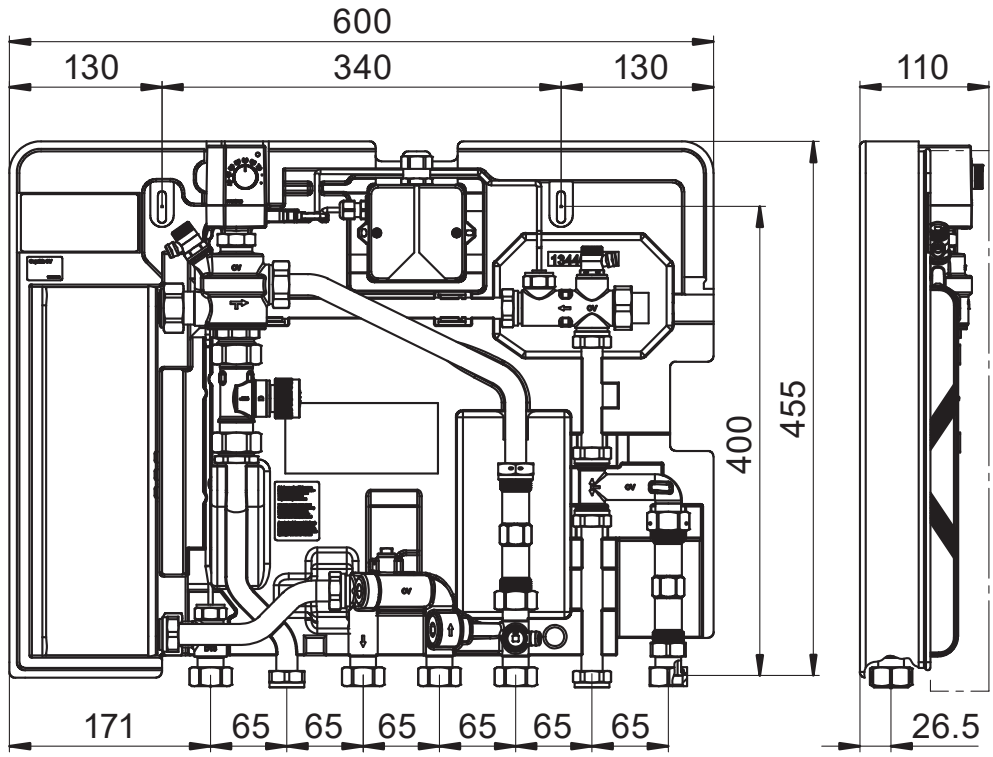
Illustr. 8: System diagram: dwelling station

3.5 Technical data

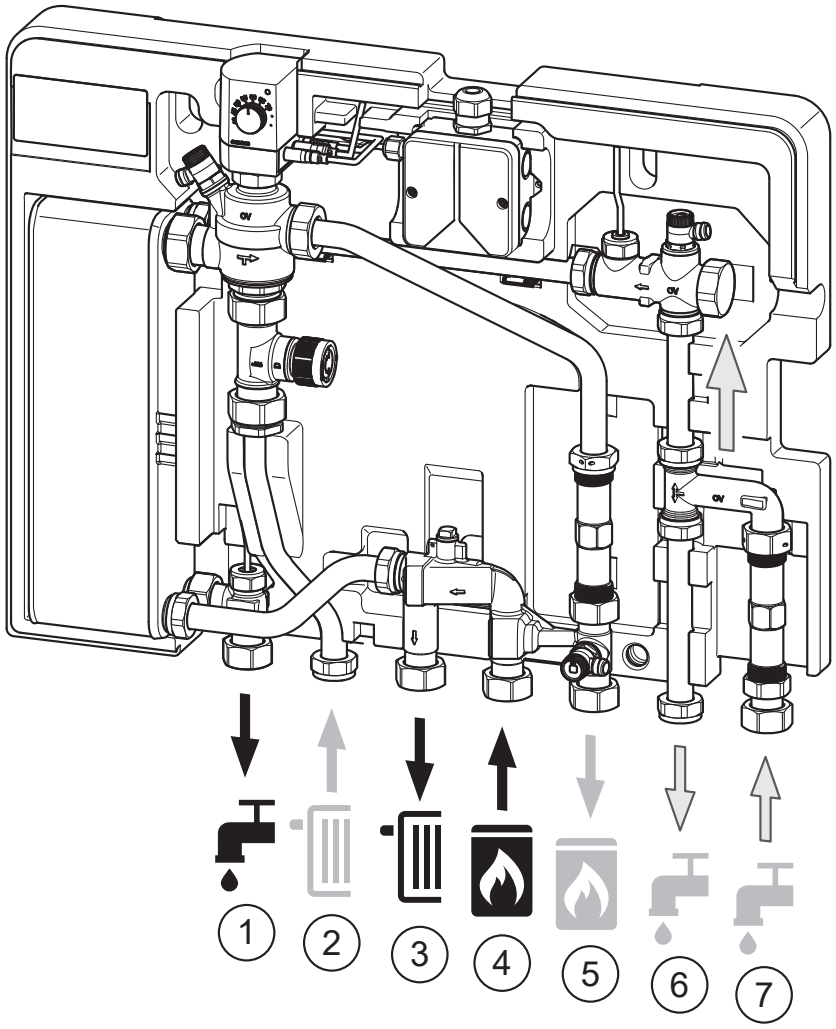
General information	
Max. operating pressure p_s	10 bar
Max. operating temperature t_s	90 °C
Ambient temperature T	2 up to 35 °C
Empty weight	WHI apartment 12: 7.7 kg WHI apartment 18: 8.8 kg WHI apartment 25: 10.2 kg
Electrical connection: Power pack	
Mains input voltage	100 up to 240 V AC ±10 %
Mains input frequency	50 up to 60 Hz
Output voltage	5 V DC +7.5 %, -5 %
Nominal output voltage	max. 1200 mA
Protection: Connection box	IP65
Protection class	II
Overvoltage category	III
Ambient temperature	0 up to 60 °C
Electrical connection: Actuator	
Input voltage	5 V DC +7.5 %, -5 %
Power consumption	0.15 up to 3 W
Protection	IP54
Ambient temperature	0 up to 60 °C
Dimensions	
Width x Height x Depth	600 x 455 x 110 mm
Connections	G ¾ union nut, flat-sealing
Axis distance of connections	65 mm
Axis distance to wall	26.5 mm
Primary CIRCUIT (buffer storage cylinder)	
Fluid	Heating water in accordance with VDI 2035/ ÖNORM H 5195-1; fluid category ≤ 3 in accordance with EN 1717; observe the advice on corrosion protection (see 12.6 on page 95)
Min. differential pressure	150 mbar
Max. differential pressure	2.0 bar
Min. flow temperature	See charts in appendix.
heating circuit (radiators)	
Fluid	Same as primary circuit.
Max. Volume flow	600 l/h

Differential pressure control	150 mbar
Potable water circuit	
Fluid	Potable water; observe the advice on corrosion protection (see 12.6 on page 95) NOTICE **Damage to measuring turbine caused by chemical influences!** Water treatment additives in high concentration can damage the measuring turbine. ▶ Ensure that permitted limits are not exceeded.
Min. cold water pressure	See charts in appendix.
Control range	40 up to 70 °C
Max. Hot water volume flow	See charts in appendix.
Material	
Copper-brazed heat exchanger	Plates: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper
Copper-brazed heat exchanger, Sealix-®complete sealant	Plates: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper Complete sealant: SiO_2
Pipes	Stainless steel 1.4404
Valves and fittings	Brass and bronze
Temperature sensor	Stainless steel 1.4404
Flow sensor	Brass and plastic
Spacers for meters **(not suitable for continuous operation)**	Plastic
Seals	EPDM and fibre materials
Thermal insulation	EPP

Tightening torques	
G ¾ union nuts	45 Nm
Union nuts G1	45 Nm
Spacers for meters (7, 12 in Illustr. 3 on page 14)	30 Nm
Temperature sensor (14)	15 Nm
Flow sensor (6)	15 Nm
Strainer (10)	15 Nm
Draining valve (8)	15 Nm
Venting valves (4, 17)	15 Nm



Illustr. 9: Dimensions



Illustr. 10: Connection assignment

①	Hot water outlet
②	Heating circuit return
③	Heating circuit supply
④	Primary supply from buffer storage cylinder
⑤	Primary return to buffer storage cylinder
⑥	Cold water outlet
⑦	Cold water supply from house connection
Black	Hot water
Grey	Cold water

4. Accessories and spare parts

CAUTION

Risk of injury from incorrect accessories and spare parts!

Incorrect or faulty accessories and spare parts may lead to damage, operational failure and malfunctions and therefore increase the risk of injury.

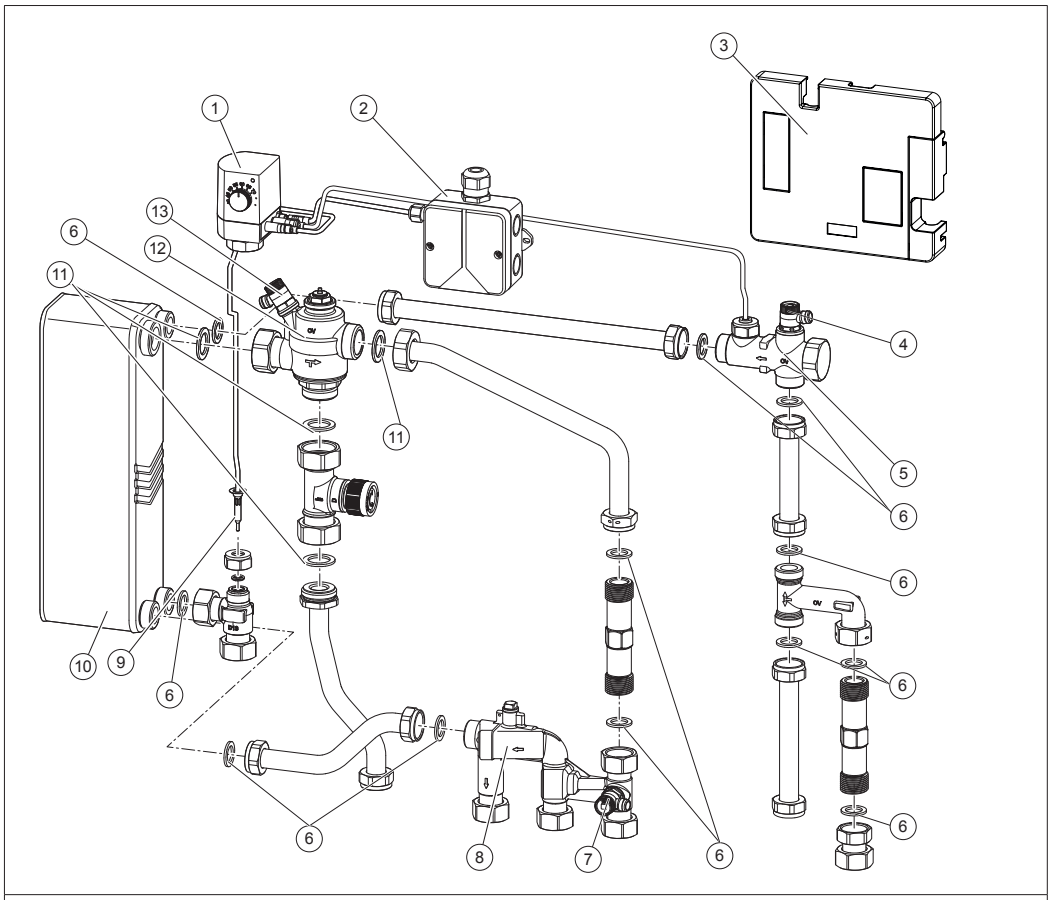
Only use original spare parts of the manufacturer.

- ▶ If possible, only use original accessories of the manufacturer or suitable accessories.

Accessories

Connection assembly for WHI apartment with 7 shut-offs
Shut-off for circulation kit
Thermostatic mixer kit for off-peak heating circuit
Expansion kit for constant temperature heating circuit
Circulation kit
Connection kit for 4-wire system
Flush-mounted cabinet for WHI apartment
Surface-mounted cabinet for WHI apartment
Meter spacer
Derivative temperature thermostat
Stainless steel heating circuit distributor for underfloor heating
Flush-mounted distribution cabinet
Surface-mounted distribution cabinet
Cylinder lock for surface-mounted distribution cabinet for underfloor heating
Cylinder lock for station cabinets and flush-mounted distribution cabinet
Connecting block 230V for 10 heating circuits
Actuator 230V, M30 x 1.5
Room thermostat 230V
Analogue time switch (day/week)

Spare parts

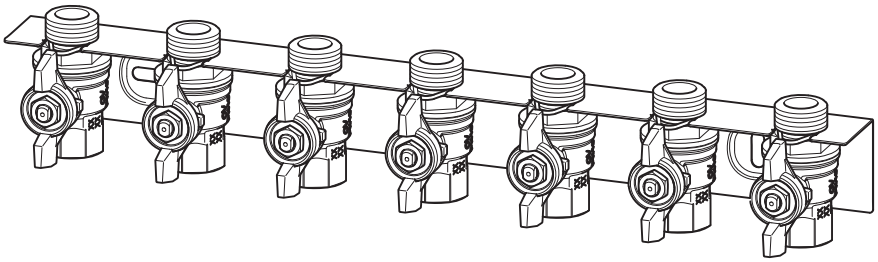


Illustr. 11: Spare parts

Item number	Spare part	-w-Item number
Not shown on drawing	Nameplate -w- 94 x 34	40900025377
Not shown on drawing	Wago 3-pole connecting socket terminal	730131
①	Actuator controller 5V DC	40900025087
②	Mains adapter 5V DC with cable	40900025297
③	EPP thermal insulation cover for WHI apartment	40900025502
④	Drain cock with O-ring G1/2 male	40900025177
⑤	Flow sensor housing	40900025092
⑥	Seal 17 x 24 x 2 (3/4") AFM-34/2	40900021107
⑦	Draining valve with O-ring G3/8 male	40900025277
⑧	Strainer for WHI apartment incl. O-ring	40900025267
⑨	PT1000 temperature sensor, plug-in	40900025097

⑩	Plate heat exchanger, WHI apartment 12 #1	40900025017
	Plate heat exchanger, WHI apartment 18 #1	40900025027
	Plate heat exchanger, WHI apartment 25 #1	40900025037
	Plate heat exchanger, WHI apartment 12 #2	40900025047
	Plate heat exchanger, WHI apartment 18 #2	40900025057
	Plate heat exchanger, WHI apartment 25 #2	40900025067
⑪	Seal 21 x 30 x 2 (1") AFM-34/2	40900021117
⑫	Control valve for WHI apartment DN25	40900025082
⑬	Draining valve with O-ring G1/4 male	40900025137

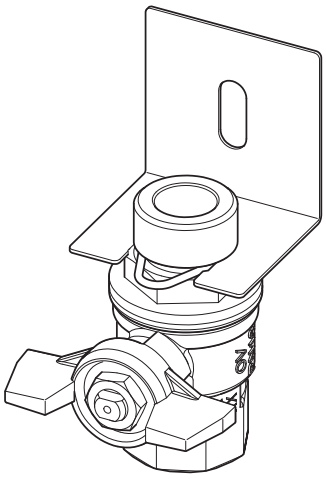
4.1 Connection assembly for WHI apartment with 7 shut-offs



Illustr. 12: Connection assembly for WHI apartment with 7 shut-offs

The connection assembly consists of 7 ball valves for isolating all connections of the station. The ball valves are premounted on a bracket for an accurate fit.

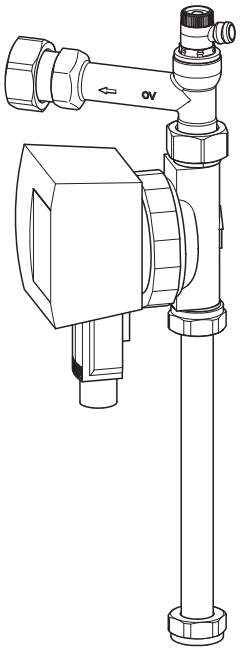
4.2 Shut-off for circulation kit



Illustr. 13: Shut-off for circulation kit

The shut-off for the Circulation kit consists of a ball valve premounted on a bracket.

4.3 Circulation kit

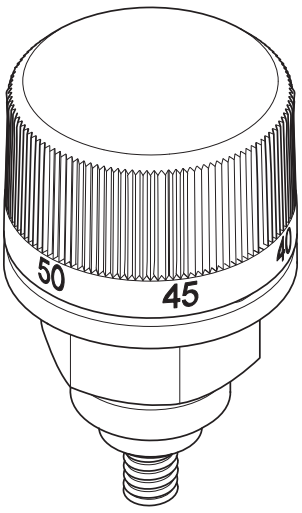


Illustr. 14: Circulation kit

The circulation kit ensures an immediate time-controlled supply of hot water even at remote draw off points.

Legal requirements, such as the Potable Water Ordinance and the DVGW work sheet W551, call for the installation of a circulation pipe in large installations with a water volume of more than 3 litres between the potable water heater and at least one draw off point.

4.4 Derivative temperature thermostat

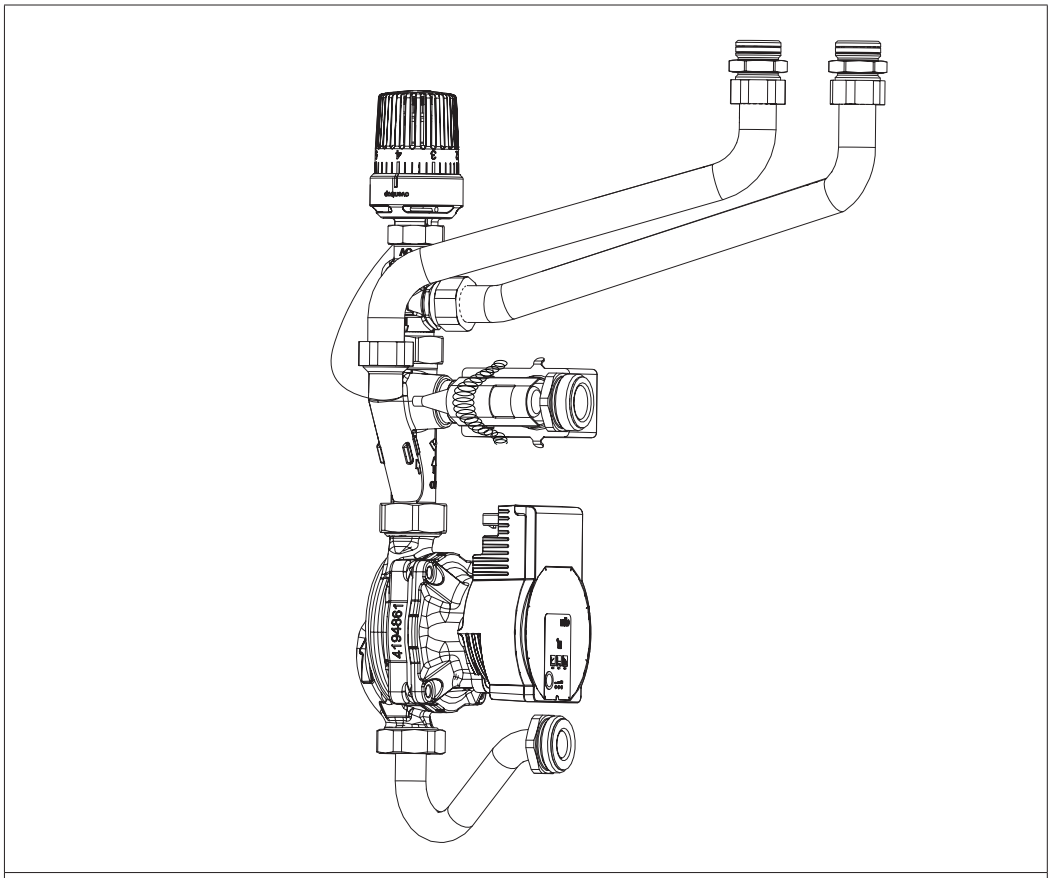


Illustr. 15: Derivative temperature thermostat

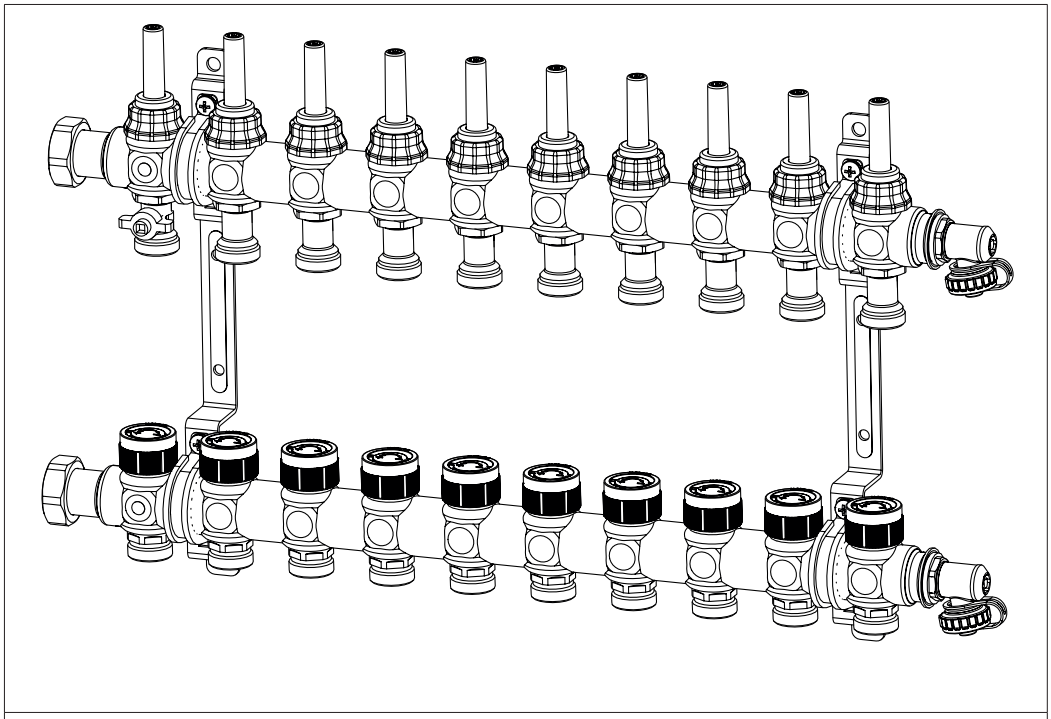
The derivative temperature thermostat serves to quickly supply hot potable water outside of the heating periods via a thermostatically adjustable heating bypass.

4.5 Thermostatic mixer kit for off-peak heating circuit

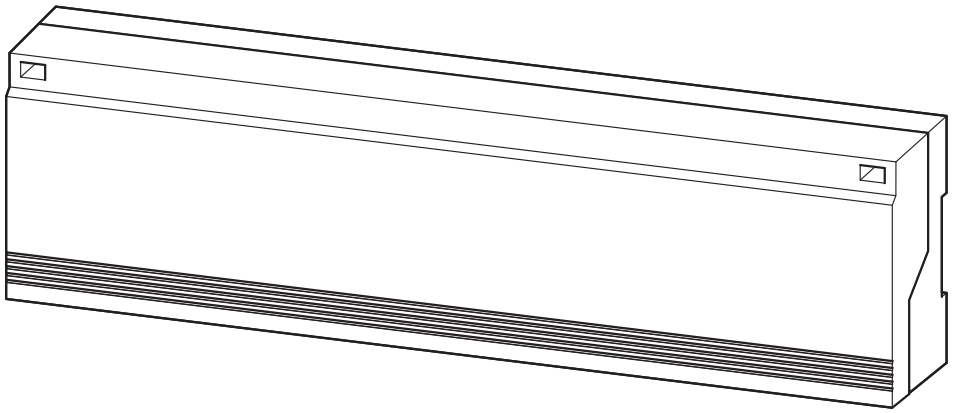
The thermostatic mixer kit for off-peak heating circuit (25 °C to 50 °C) is an addition to the station for surface heating systems.



Illustr. 16: Thermostatic mixer kit for off-peak heating circuit

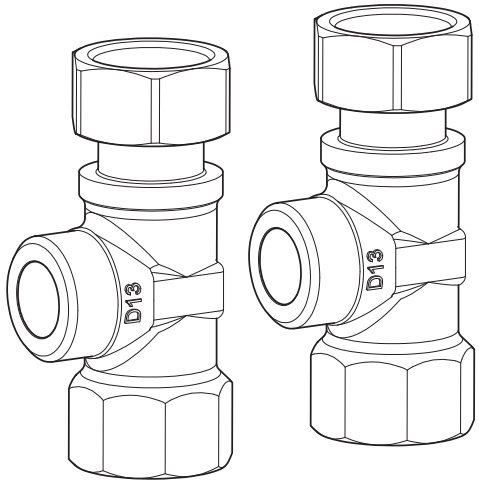


Illustr. 17: Stainless steel heating circuit distributor for underfloor heating



Illustr. 18: Connecting block 230V for 10 heating circuits

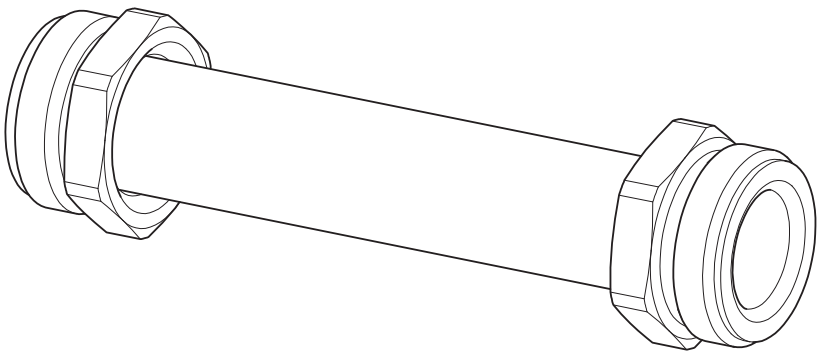
4.6 Expansion kit for constant temperature heating circuit



Illustr. 19: Expansion kit for constant temperature heating circuit

The expansion kits for the connection of a constant temperature heating circuit (e.g. for towel radiators) when using the thermostatic mixer kit (see Illustr. 16).

Meter spacer



Illustr. 20: Meter spacer

Stainless steel spacer for the replacement of the plastic spacers for water meters and heat meters.

5. Transport and storage

Transport the product in the original packaging.

The product must be stored under the following conditions:

Temperature range	0 °C up to +40 °C.
Particles	Dry and free from dust
Mechanical influences	Protected from mechanical agitation
Radiation	Protected from UV rays and direct sunlight
Chemical influences	Do not store together with solvents, chemicals, acids, fuels or similar substances

6. Installation

WARNING

Risk of injury from pressurised components!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Have all work on the system carried out by a sanitary, heating and air-conditioning specialist.

CAUTION

Risk of injury from heavy station!

The station is heavy. Falling down may lead to injuries.

- ▶ Always wear safety shoes during installation.

CAUTION

Risk of injury in case of improper work

Angular components, protrusions and edges both inside and outside the product may cause injuries.

- ▶ Handle open and hard-edged components with care.

6.1 Advice regarding installation

Before installing the station make sure that:

the pipework to the installation location is laid, flushed and leak tested.

- the power cable and earth cable to the installation location are laid.

Observe chapter 5.3.2 of EN 60204-1 for the electrical connection.

- Install the product assembly in a dry and frost-free place. Make sure that the ambient temperature during operation does not exceed 40 °C.
- Always install the station in a vertical position and never in an inclined or lying position.
- The station must always be accessible.

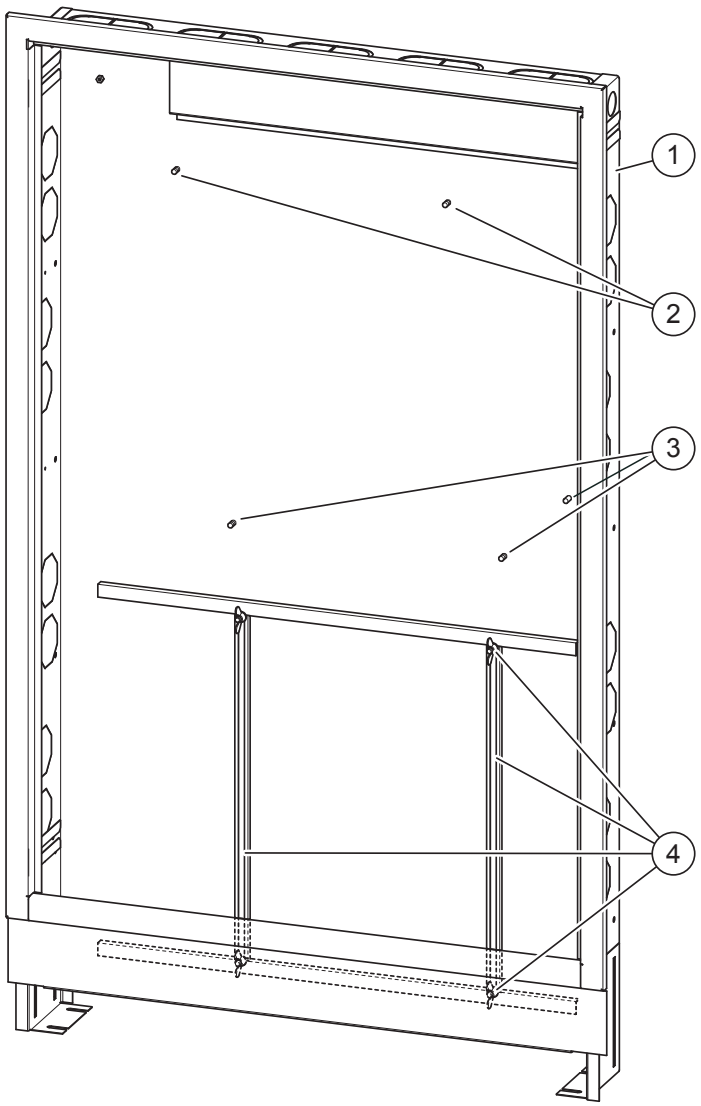
6.2 Installation options

The station allows for different installation options:

- In a surface-mounted cabinet.
- In a flush-mounted cabinet.
- Onto a wall, optionally with surface-mounted cover.

6.3 Installing the station and accessories in a cabinet

6.3.1 Installing the cabinet



Illustr. 21: Preparing the cabinet

(1) Cabinet

(2) Threaded bolts for the station

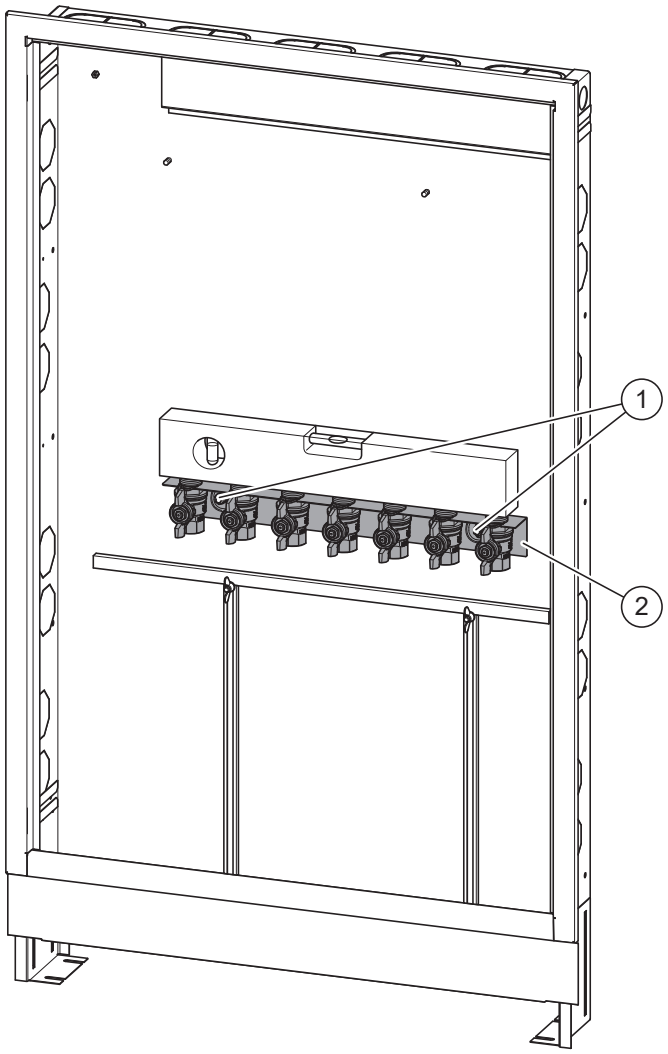
(3) Threaded bolts for the ball valve connector set

(4) Horizontal and vertical mounting rail for the distributor/collector

Please observe the separate installation and operating instructions of the cabinet.

▶ Install the cabinet as described in the separate installation and operating instructions of the cabinet.

6.3.2 Installing the connection assembly



Illustr. 22: Installing the connection assembly

(1) Threaded bolts

(2) Connection assembly

Please observe the separate installation and operating instructions for the connection assembly.

Mounting materials are included with the cabinet.

1. Push the rubber washers onto the threaded bolts (1) in the cabinet.
2. Push the connection assembly (2) onto the threaded bolts.
3. Align the connection assembly horizontally.
4. Push the washers onto the threaded bolts.
5. Screw the connection assembly onto the threaded bolts using the hex nuts.
6. Close all ball valves.
7. Connect the pipework to the ball valves.

The screed panel can be removed for the purpose of pipe assembly. It must be installed during masonry, plastering and screed work.

▷ The connection assembly is installed in the cabinet.

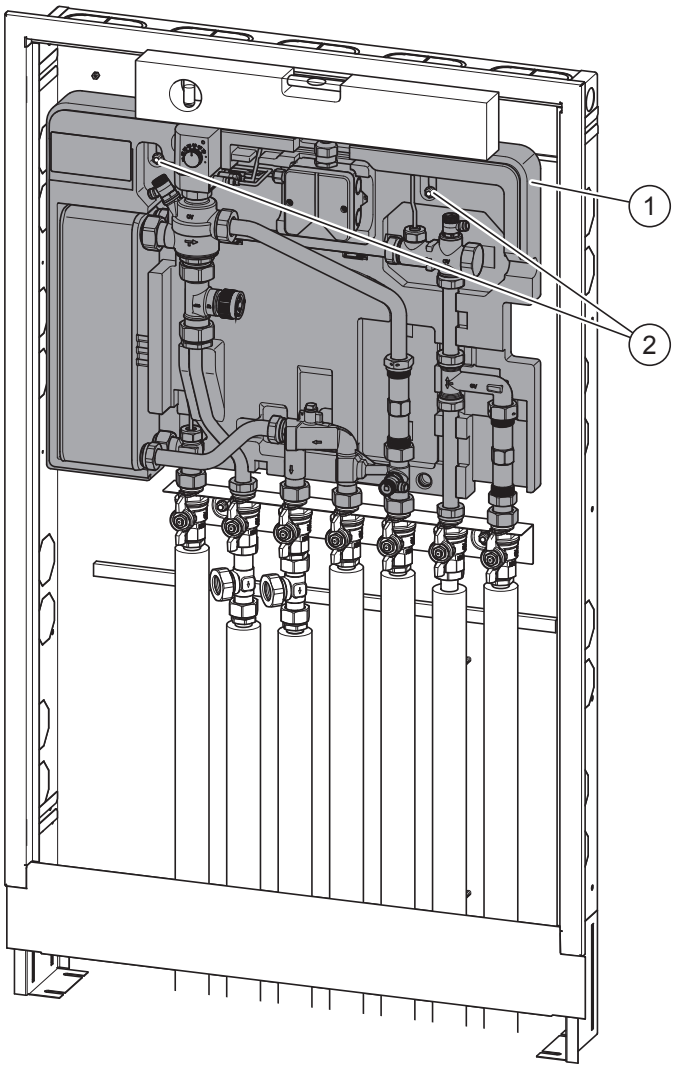
6.3.3 Installing the expansion kit for constant temperature heating circuit

Only when using an additional constant temperature heating circuit in combination with a thermostatic mixer kit:

Please observe the separate installation and operating instructions for the expansion kit.

▶ Fit the T-pieces to the heating circuit return and heating circuit supply.

6.3.4 Installing the dwelling station



Illustr. 23: Installing the station

① Dwelling station

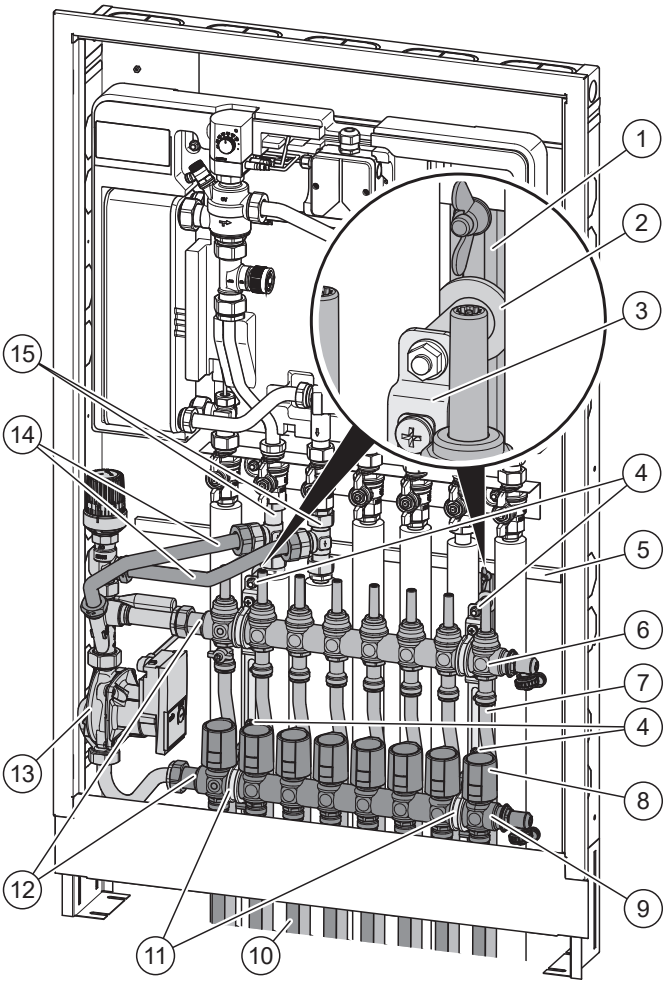
② Threaded bolts

Mounting materials are included with the cabinet.

1. Push the rubber washers onto the threaded bolts (2) in the cabinet.
2. Position the seals onto the individual ball valves of the connection assembly.
3. Push the upper part of the station (1) onto the threaded bolts (2) and the lower part onto the ball valve connections in the cabinet.
4. Align the station horizontally.
5. Screw the station onto the ball valves.
6. Push the washers onto the threaded bolts.
7. Screw the station onto the threaded bolts using the hex nuts.

▷ The station is installed in the cabinet.

6.3.5 Installing the thermostatic mixer kit for off-peak heating circuit



Illustr. 24: Installing the thermostatic mixer kit for off-peak heating circuit

① Vertical mounting rail

② Distance sleeve

③ Distributor bracket

④ Screws with distance sleeve

⑤ Horizontal mounting rail

⑥ Upper distributor (heating circuit supply)

⑦ Pipework

⑧ Actuator

⑨ Lower distributor (heating circuit return)

⑩ Pipework

⑪ Distributor bracket

⑫ Connections for thermostatic mixer kit for off-peak heating circuit

⑬ Thermostatic mixer kit for off-peak heating circuit

⑭ Flexible pipe

⑮ Expansion kit for constant temperature heating circuit

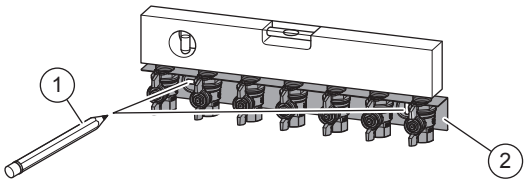
Please observe the separate installation and operating instructions for the thermostatic mixer kit.

1. Align the vertical mounting rails (1) in the horizontal mounting rails (5) so that they fit the brackets (3 and 11) of the distributor/collector.
2. Loosely screw the brackets (3) with distance sleeves (2) onto the prepared vertical mounting rails (1).
3. Loosely mount the upper distributor (6) into the brackets (3). Position the sealing surface of the connection (12) of the upper distributor (6) at a distance of about 165 mm to the left cabinet wall.
4. Screw the vertical mounting rails (1) onto the horizontal mounting rails (5).
5. Align the upper distributor (6) horizontally.
6. Using the screws with distance sleeves, screw the brackets (3) onto the vertical mounting rails (1).
7. Connect the pipework (7) to the upper distributor (6).
8. Loosely mount the lower distributor (9) into the brackets (11).
9. Connect the pipework (10) to the lower distributor (9).
10. Screw the distributor (6) and collector (9) onto the brackets (3 and 11).
11. Mount the thermostatic mixer kit (13) onto the connections (12) of the distributor (6) and collector (9).
12. Connect the thermostatic mixer kit (13) to the station's connection assembly via the flexible pipes (14). For use of the expansion kit for constant temperature heating circuit (15) only: Connect the thermostatic mixer kit (13) to the side connections of the expansion kit.
13. If any: Fit the actuators (8) to the lower distributor (9).

▷ The thermostatic mixer kit is installed in the cabinet.

6.4 Mounting the station on a wall

Mounting the connection assembly on a wall



Illustr. 25: Mounting the connection assembly on a wall

(1) Drill holes

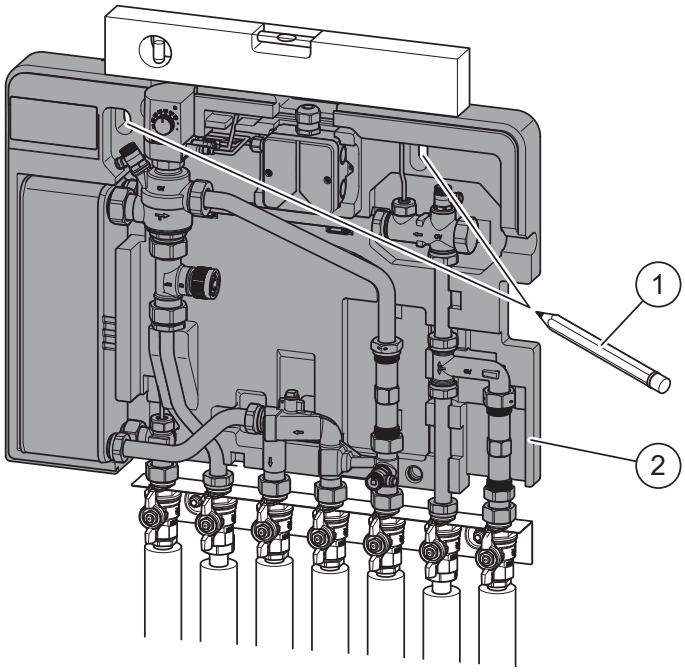
(2) Mounting rail

Please observe the separate installation and operating instructions for the connection assembly.

1. Place suitable fixing material ready.
2. Position the connection assembly horizontally on the wall.
3. Mark the drill holes (1) through the boreholes in the mounting rail (2).
4. Drill the holes and equip them with dowels.
5. Align the connection assembly horizontally on the wall and fix the connection assembly in the dowels with help of screws and washers.
6. Close all ball valves.
7. Connect the pipework to the ball valves.

▷ The connection assembly is mounted on the wall.

6.4.1 Mounting the station on a wall

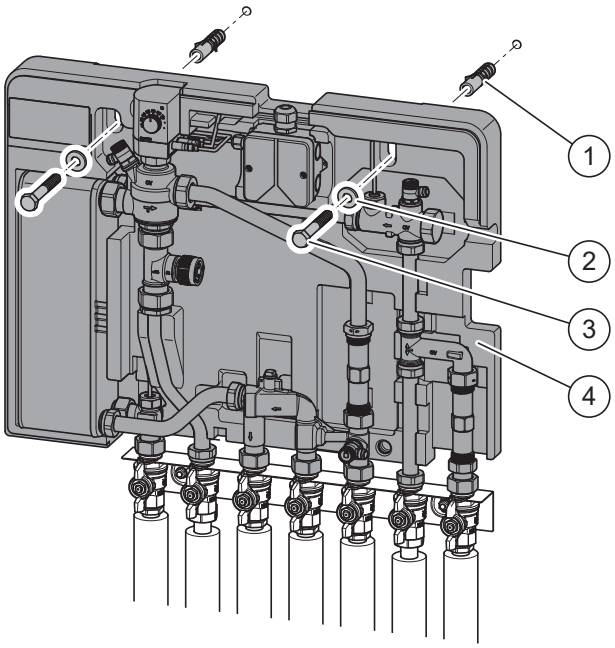


Illustr. 26: Aligning and marking the station's position

(1) Boreholes

(2) Station

1. Place suitable fixing material ready.
2. Mount the station (2) onto the ball valve connections and position the station horizontally onto the wall.
3. Mark the drill holes through the bore holes (1) in the lower shell and the angled wall bracket.
4. Remove the station from the wall.



Illustr. 27: Installing the station

① Dowels

② Washers

③ Screws

④ Station

5. Drill the holes and equip them with dowels (1).

Ensure that dirt does not get into the ball valves.

6. Mount the station (4) onto the ball valve connections.
7. Align the station horizontally on the wall and fix it in the dowels through the lower shell and the wall bracket with the help of screws (3) and washers (2).

▷ The station is fixed on the wall.

6.5 Installing the heat meter

The factory-installed meter spacers are intended for commissioning and pressure testing of the station and are not suitable for continuous operation. If no meters are installed, then the stainless steel spacers which are part of the accessories should be used.

The heat meter must feature the following characteristics:

- Quick sampling rate (about 4 s).
- Housing length: 110 mm.
- Connections: G¾.
- q_p = 1.5 m³/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.
- No inlet or outlet pipes required.
- Pressure loss as low as possible.

Heat meters, such as those measuring according to the ultrasonic principle and detecting even small draw off quantities, are suitable.

WARNING

Risk of injury from pressurised components!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.

CAUTION

Risk of scalding due to hot fluids!

If the station was in operation, there is a risk of scalding due to escaping hot water or water steam.

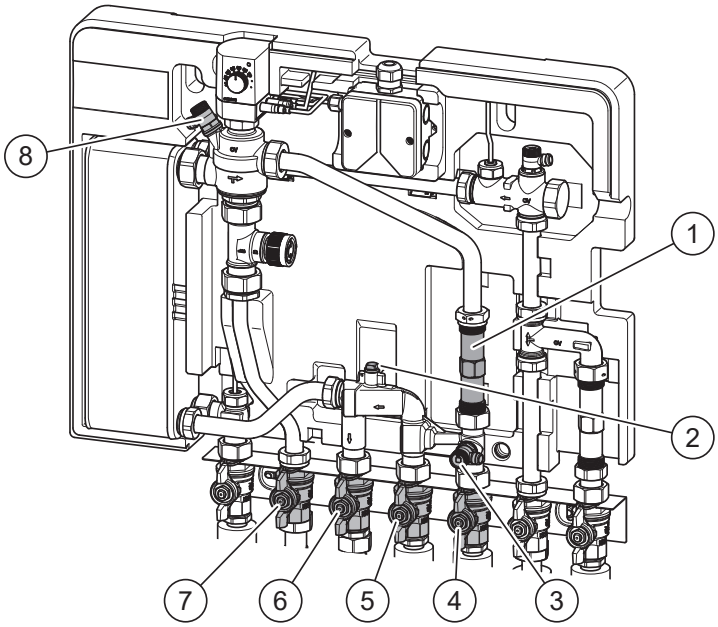
- ▶ Let the installation cool down.
- ▶ Wear safety goggles.

CAUTION

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

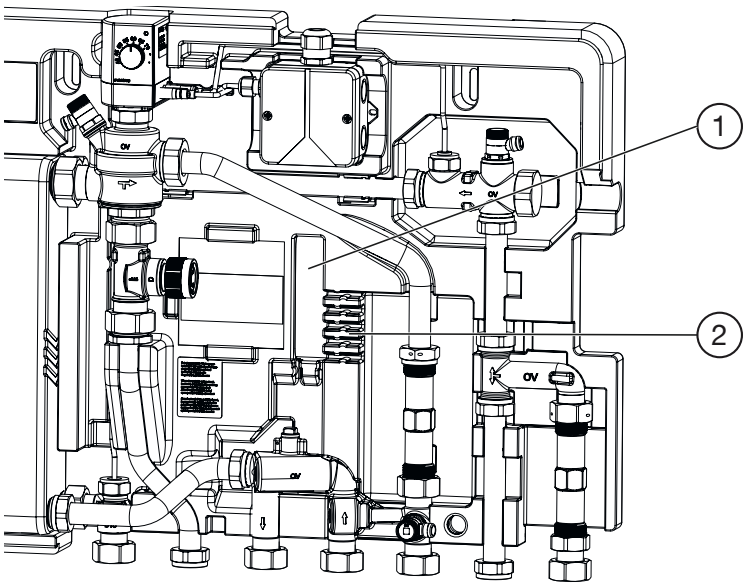


Illustr. 28: Installing the heat meter

1. Spacer
2. Plug
3. Draining valve
4. Primary return
5. Primary supply
6. Heating circuit supply
7. Heating circuit return
8. Venting valve

Please observe the separate installation and operating instructions of the heat meter.

1. Close the ball valves in the primary supply (5), primary return (4), heating circuit supply (6) and heating circuit return (7).
2. Open the venting valve (8) and the draining valve (3) in the primary circuit slowly.
3. If the primary circuit above the draining valve is empty, close the draining valve (3) and the venting valve (8) again.
4. Remove the spacer (1) from the pipe.
5. Install the heat meter with seals in the pipe.
6. Unscrew the plug (2) from the connection for the temperature sensor of the heat meter in the primary supply.
7. Screw the temperature sensor into the connection in the primary supply.
8. Open the ball valve in the primary return (4) and primary supply (5) slowly.
9. Slightly open the venting valve (8) in the heating circuit.
10. Close the venting valve as soon as air no longer escapes.
11. Check all components and couplings for leaks.
12. Tighten any loose couplings.
13. Lead lock the heat meter.



Illustr. 29: Opening and cable routing in the lower shell

(1) Opening

(2) Cable routing

14. Feed the individual cables through the cable routing (2) to secure them.
15. Bundle the cables together and push them through the opening (1) behind the lower shell.
16. The heat meter is installed.

6.6 Installing the water meter

The water meter must feature the following characteristics:

- Housing length: 110 mm
- Connections: G¾
- Q_3 = 2.5 m³/h according to MID Directive 2014/32/EU

WARNING

Risk of injury from pressurised components!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.

CAUTION

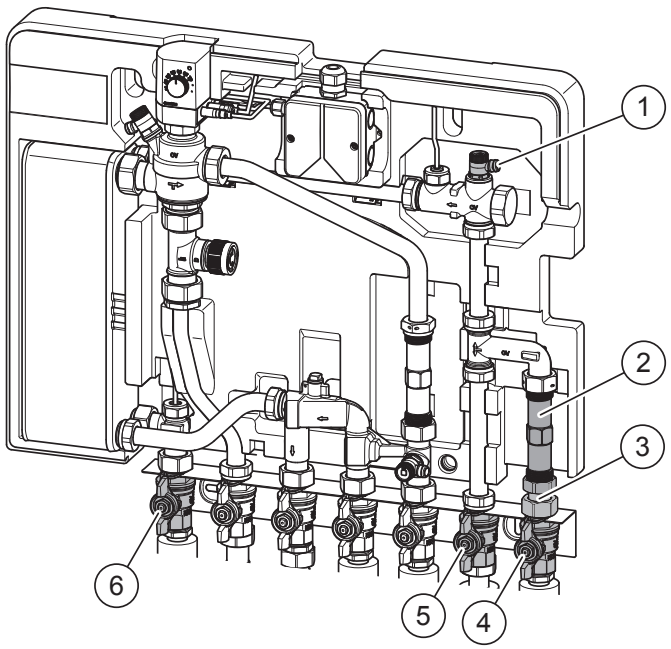
Risk of scalding due to hot fluids!

If the station was in operation, there is a risk of scalding due to escaping hot water or water steam.

- ▶ Let the installation cool down.
- ▶ Wear safety goggles.

Risk of burns due to hot components!
An unprotected contact with hot components may lead to burns.
► Wear safety gloves.

CAUTION



Illustr. 30: Installing the water meter

1. Venting valve
2. Spacer
3. Screw
4. Cold water supply
5. Cold water outlet
6. Hot water outlet

Please observe the separate installation and operating instructions of the water meter.

Keep a rag at hand to catch escaping water.

1. Close the ball valves in the cold water supply (3), cold water outlet (4) and hot water outlet (5).
2. Open the venting valve (1) in the potable water circuit slightly.
3. Close the venting valve once the section of the system is depressurised.
4. Loosen the union nut of the screw fitting (6).
5. Remove the spacer (2) with the screw fitting from the pipe.
6. Remove the screw fitting from the spacer.
7. Screw the screw fitting onto the water meter.

8. Install the water meter in the pipe.
9. Open the ball valves in the cold water outlet (4), hot water outlet (5) and cold water supply (3) slowly.
10. Open the venting valve (1) in the potable water circuit slightly.
11. Close the venting valve as soon as bubble-free water escapes.
12. Check all components and couplings for leaks.
13. Tighten any loose couplings.
14. Lead lock the water meter.
15. Connect the pump to the system control.

▷ The water meter is installed.

6.7 Installing the circulation kit (optional)

WARNING

Risk of injury from pressurised components!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.

CAUTION

Risk of scalding due to hot fluids!

If the station was in operation, there is a risk of scalding due to escaping hot water or water steam.

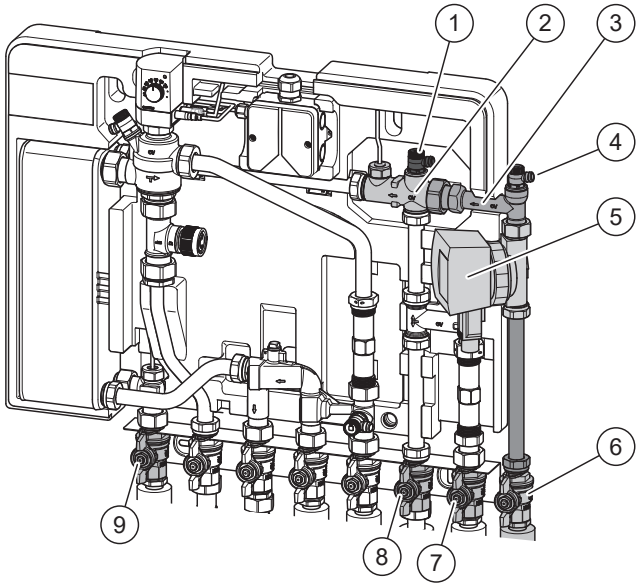
- ▶ Let the installation cool down.
- ▶ Wear safety goggles.

CAUTION

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.



Illustr. 31: Installing the circulation kit

1. Venting valve
2. Flow sensor
3. Circulation pipe
4. Venting valves
5. Pump
6. Connection assembly
7. Cold water supply
8. Cold water outlet
9. Hot water outlet

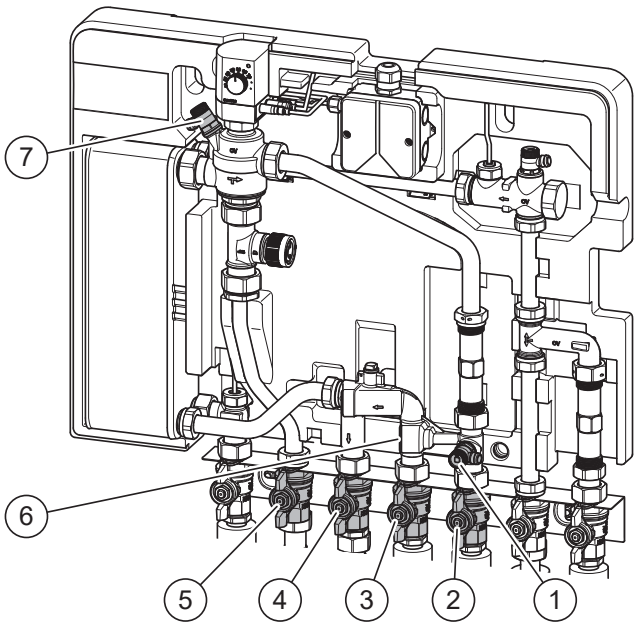
Please observe the separate installation and operating instructions for the circulation kit.

1. Close the ball valves in the cold water supply (7), cold water outlet (8) and hot water outlet (9).
2. Install the shut-off for the circulation kit (6) at an axis distance of 65 mm to the cold water supply of the station. In case of installation in a cabinet, mount the shut-off onto the pre-assembled threaded bolts.
3. Open the venting valve (1) in the potable water circuit slightly.
4. Close the venting valve once the section of the system is depressurised.
5. Unscrew the cap for the circulation connection from the flow sensor (2).
6. Screw the circulation pipe (3) onto the flow sensor.
7. Open the ball valves in the circulation pipe (6), cold water outlet (8), hot water outlet (9) and cold water supply (7) slowly.
8. Open the venting valves (1 and 4) in the potable water circuit slightly.
9. Close the venting valves as soon as bubble-free water escapes.
10. Check all components and couplings for leaks.
11. Tighten any loose couplings.

12. Connect the pump (5) to the system control.

▷ The circulation kit is installed.

6.8 Installing the derivative temperature thermostat



Illustr. 32: Draining the station (primary circuit)

(1) Draining valve

(2) Primary return

(3) Primary supply

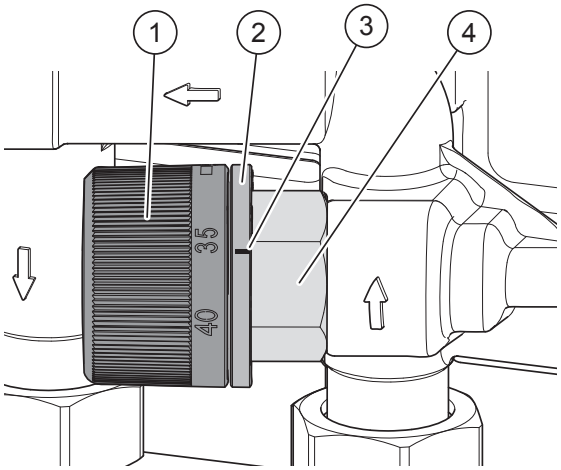
(4) Heating circuit supply

(5) Heating circuit return

(6) Plug

(7) Venting valve

1. Close the ball valves in the primary supply (3), primary return (2), heating circuit supply (4) and heating circuit return (5).
2. Open the venting valve (7) and the draining valve (1) in the primary circuit slowly.
3. If the primary circuit above the draining valve is empty, close the draining valve (1) and the venting valve (7) again.
4. Unscrew the plug (6) from the connection of the pipe in the primary supply.



Illustr. 33: Installing the derivative temperature thermostat

1. Cap
2. Index ring
3. Index
4. Valve

Please observe the separate installation and operating instructions for the derivative temperature thermostat.

5. Screw the valve (4) of the derivative temperature thermostat into the connection of the pipe.
6. Mount the index ring (2) onto the valve so that the index (3) is clearly visible from the front.
7. Align the cap (1) so that the index points to 35 °C and fit the cap onto the valve.
8. Open the ball valves in the primary return (1 in Illustr. 32 on page 45) and primary supply (2 in Illustr. 32 on page 45) slowly.
9. Completely open the derivative temperature control set.
10. Slightly open the venting valve (7 in Illustr. 32 on page 45) in the primary circuit.
11. Close the venting valve as soon as bubble-free water escapes.
12. Check all components and couplings for leaks.
13. Tighten any loose couplings.

▷ The derivative temperature thermostat is installed.

Consult 7.6 on page 57.

6.9 Establishing the electrical connection to the station

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the station from the power supply and protect it against accidental restart.
- ▶ Check that no voltage is present.
- ▶ The electrical connection must only be established by a qualified electrician.

6.9.1 Connecting the equipotential bonding

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

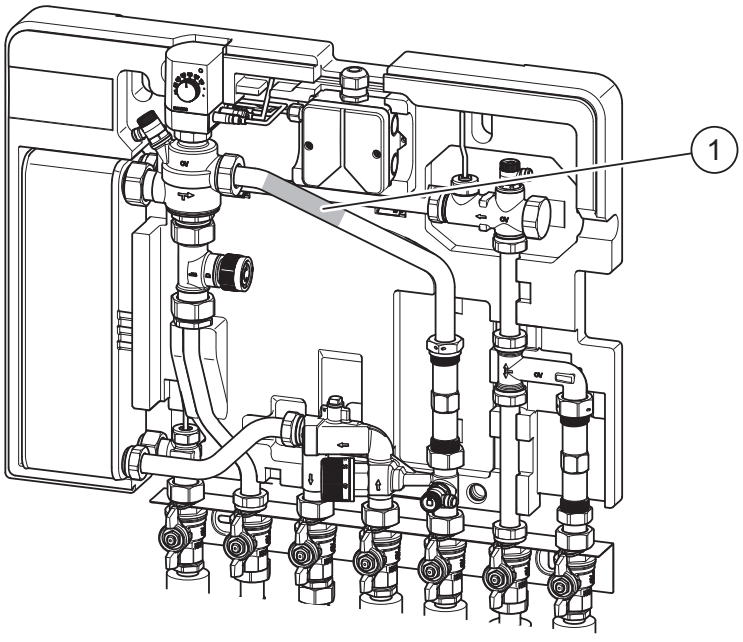
- ▶ The electrical connection must only be established by a qualified electrician.

Protective equipotential bonding ensures a connection with good electrical conductivity between the exposed conductive parts of electrical equipment and the main equipotential bonding rail (main earthing rail) of the building. (In accordance with DIN VDE 0100, elements are exposed conductive parts which, in contrast to "live parts", can only be live as a result of a fault.)

This measure serves to protect against electric shock and is standardised in accordance with 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.

- ▶ Observe the valid standards and local regulations.
- ▶ Use an equipotential bonding conductor made of copper with a minimum cross section of 6 mm².



Illustr. 34: Earthing the station

- If the equipotential bonding of the station is not in an earthed cabinet, then install an earthing clip (Ø 18 mm) to the pipework of the station in the area highlighted in grey (1).
- Connect the earthing clips to a suitable equipotential bonding rail in the building using an equipotential bonding conductor made of copper with a minimum cross section of 6 mm^2.

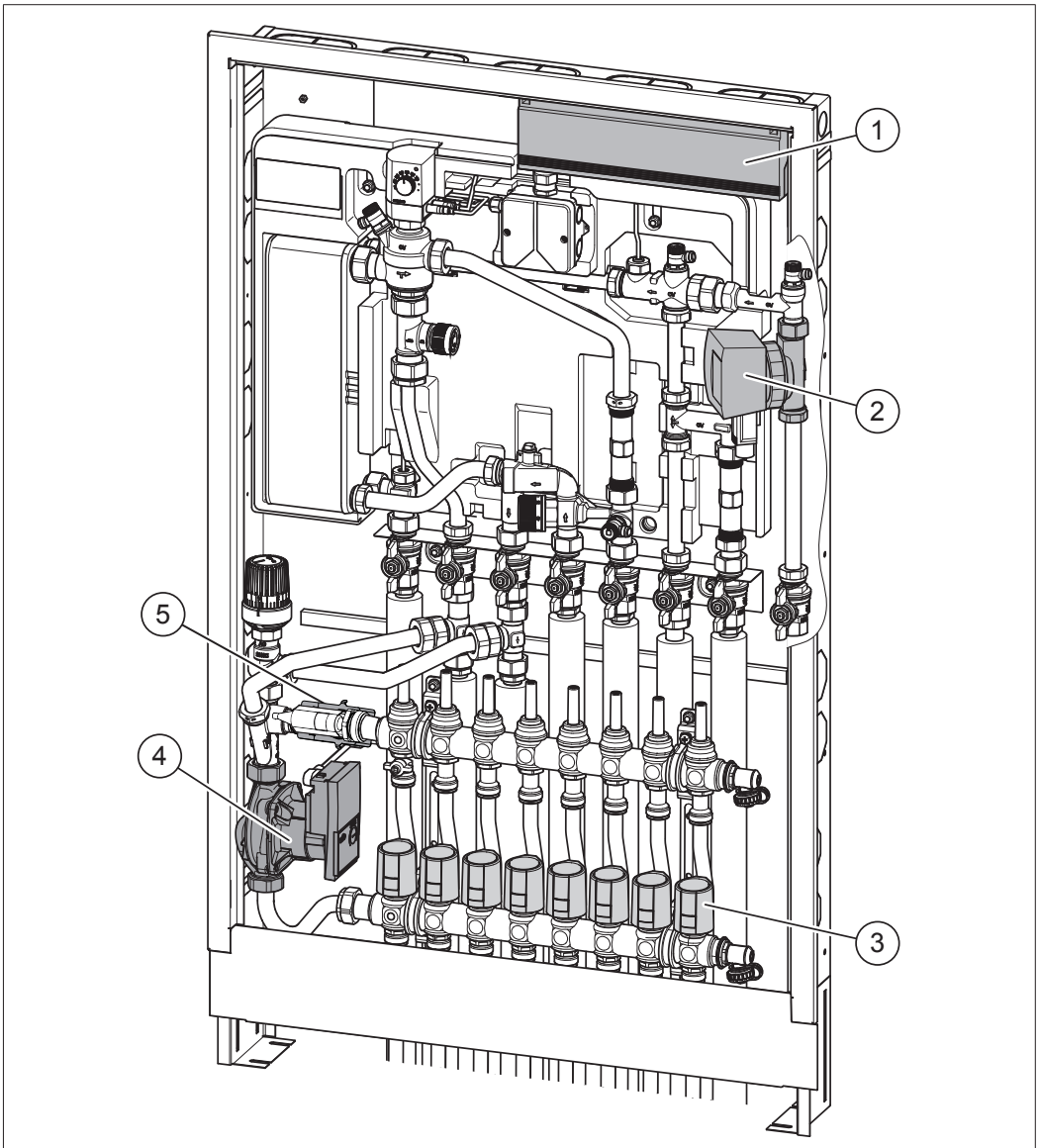
6.9.2 Establishing the electrical connection to the actuators and pump (if any)

Danger to life due to electric current!

Danger to life due to contact with live components.

- The electrical connection must only be established by a qualified electrician.

DANGER



Illustr. 35: Establishing the electrical connection to the actuator and pumps

(1) Connecting block for room thermostats and actuators

(2) Circulation pump

③ Actuators for surface heating system

④ Pump for surface heating system

⑤ Contact thermostat

Please observe the separate installation and operating instructions for the pump and the actuators.

▶ Connect the pump (4), actuators (3) and contact thermostat (5) to the power supply in the connecting block (1) according to the separate operating instructions.

6.9.3 Establishing the electrical connection to the circulation pump (if any)

Please observe the separate installation and operating instructions for the circulation kit.

▶ Connect the circulation pump (2) to the power supply according to the separate installation and operating instructions.

▶ If present, set the optional time switch according to the separate installation and operating instructions.

6.9.4 Establishing the electrical connection to the station

DANGER

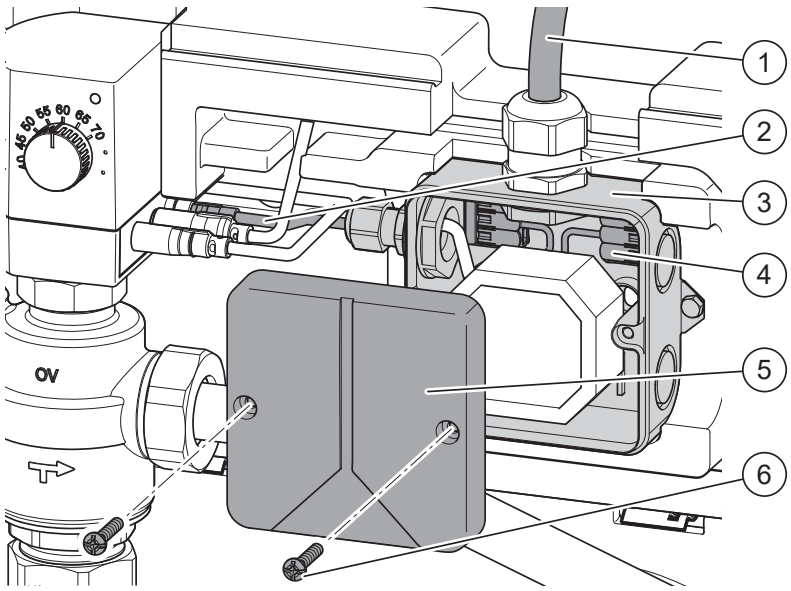
Danger to life due to electric current!

Danger to life due to contact with live components.

▶ Completely disconnect the station from the power supply and protect it against accidental restart.

▶ Check that no voltage is present.

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



Illustr. 36: Establishing the electrical connection to the station

① Power supply cable

② Power pack cable

③ Connection box

④ Terminals

⑤ Cover

⑥ Screws

1. Loosen the screws (6) 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. Insert the socket of the power pack cable (2) into the two-pin plug on the controller.

Observe the correct polarity (the plug is coded).

5. Connect the station to the power supply.

▷ Installation is completed.

7. Commissioning

CAUTION

Risk of scalding due to hot fluids!

During some work, the station has to remain in operation and there is a risk of scalding due to escaping hot water or water steam.

▶ Wear safety goggles during all work.

CAUTION

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

▶ Wear safety gloves.

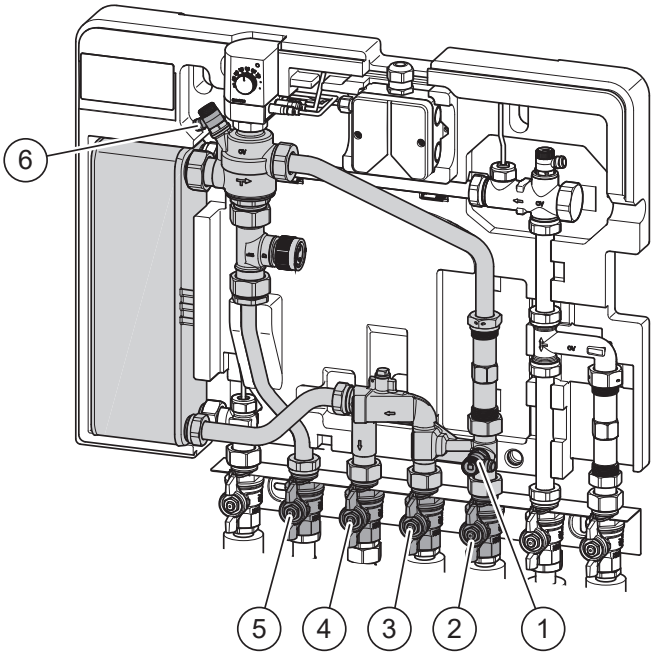
7.1 Filling and bleeding the heating circuit

CAUTION

Risk of scalding due to hot fluids!

If the station is in operation and the connected buffer storage cylinder is heated, there is a risk of scalding due to escaping hot water or water steam.

▶ During filling, check all couplings and tighten any leaking couplings.



Illustr. 37: Filling the heating circuit

① Draining valve

② Ball valve in the primary return

③ Ball valve in the primary supply

④ Ball valve in the heating circuit supply

⑤ Ball valve in the heating circuit return

⑥ Venting valve in the heating circuit

Risk of damage due to pressure impacts!

A sudden filling of the installation with water may lead to damage, for instance to the sensors or sealing points.

NOTICE

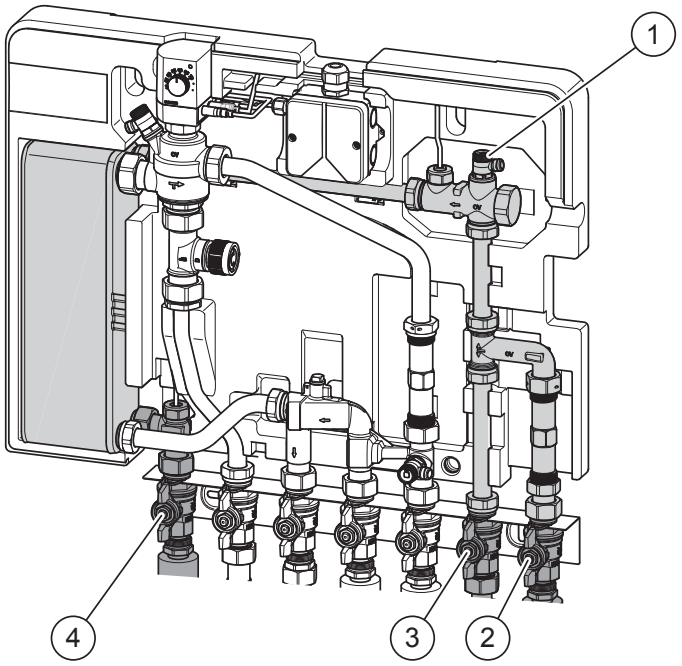
▶ Always open the ball valves slowly.

The actuator is closed on delivery. When closed, there is no flow in the heat exchanger. To initiate the flow in the heat exchanger, switch the actuator to service mode (see 3.4.1 on page 18).

1. Ensure that the draining valve (1) in the heating circuit is closed.
2. Open the ball valve (4) in the heating circuit supply.
3. Open the ball valve (5) in the heating circuit return.
4. Open the ball valve (2) in the primary return slowly.
5. Slowly open the ball valve (3) in the primary supply to fill up the station.
6. Set the rotary knob (7 in Illustr. 7 on page 18) of the controller to the service mode index (6 in Illustr. 7 on page 18).
7. Turn the pump on to bleed the heating circuit.
8. Open the venting valve (6) in the heating circuit slightly.
9. Close the venting valve as soon as bubble-free water escapes.
10. Set the rotary knob (7 in Illustr. 7 on page 18) of the controller to the required hot water temperature (< 70 °C).
11. Check all components and couplings for leaks.
12. Tighten any loose couplings and replace defective seals.

▷ Filling and bleeding of the heating circuit is completed.

7.2 Filling and bleeding of the potable water circuit



Illustr. 38: Filling the potable water circuit

1. Venting valve in the potable water circuit
2. Ball valve in the cold water supply from the house connection
3. Ball valve in the cold water outlet
4. Ball valve in the hot water outlet

CAUTION

Risk of scalding due to hot fluids!

If the station is in operation and the connected buffer storage cylinder is heated, there is a risk of scalding due to escaping hot water or water steam.

▶ During filling, check all couplings and tighten any leaking couplings.

NOTICE

Risk of damage due to pressure impacts!

A sudden filling of the installation with water may lead to damage, for instance to the sensors or sealing points.

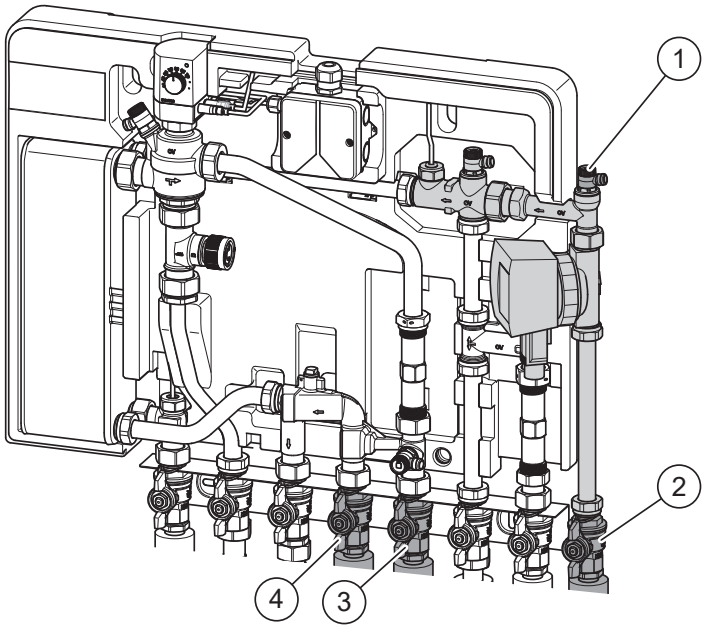
▶ Always open the ball valves slowly.

1. Open the ball valve (2) in the cold water supply slowly to fill up the station.
2. Open the ball valve (4) in the hot water outlet slowly.
3. Open the venting valve (1) slightly.
4. Close the venting valve as soon as bubble-free water escapes.
5. Open the draw off point at the most remote location and draw off hot water until bubble-free hot water escapes.
6. Open the ball valve (3) in the cold water outlet slowly.

7. Open the draw off point of the most remote location and draw off cold water until bubble-free cold water escapes.
8. Close the draw off point.
9. Check all components and couplings for leaks.
10. Tighten any loose couplings and replace defective seals.

▷ Filling and bleeding of the potable water circuit is completed.

7.3 Bleeding the circulation pipe (if any)



Illustr. 39: Filling the circulation pipe

① Venting valve in the circulation pipe

② Ball valve in the circulation pipe

③ Ball valve in the primary return

④ Ball valve in the primary supply

CAUTION

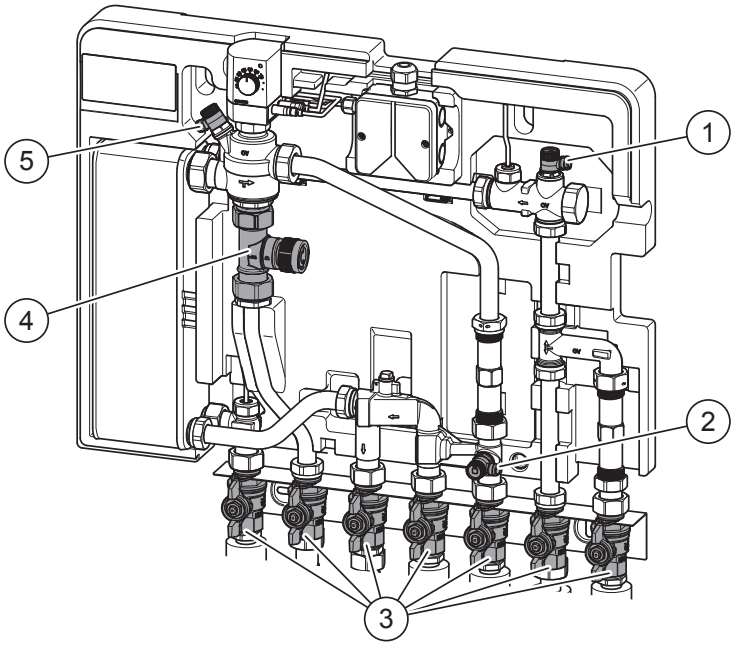
Risk of scalding due to hot fluids!

If the station is in operation and the connected buffer storage cylinder is heated, there is a risk of scalding due to escaping hot water or water steam.

- ► Close the ball valves in the primary supply (4) and primary return (3).
- ► During filling, check all couplings and tighten any leaking couplings.
- ► Wear safety goggles.

1. Open the venting valve (1) in the circulation pipe.
2. Open the ball valve (2) in the circulation pipe slowly.
3. Close the venting valve as soon as bubble-free water escapes.
4. Open the ball valves in the primary return (3) and primary supply (4) slowly.
5. Bleeding of the circulation pipe is completed.

7.4 Setting components for operation



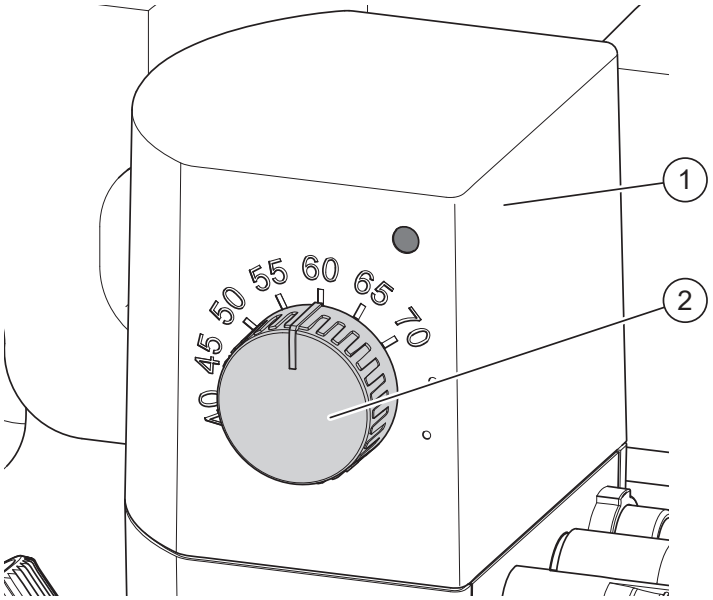
Illustr. 40: Setting the ball valves and valves

1. Venting valve
2. Draining valve
3. Ball valve
4. Zone valve
5. Venting valve

▶ Set the ball valves and valves of the station for operation:

- The ball valves (3) below the station must be in the open position (in vertical position).
- The zone valve (4) must be open.
- The venting valves (1, 5) and the draining valve (2) must be closed.
- Set the heating system (e.g. pump and isolation devices) for the operation of the station.

7.5 Setting the hot water temperature



Illustr. 41: Setting the hot water temperature

(1) Controller

(2) Rotary knob

DANGER

Danger to life due to development of legionella!

If the hot water temperature is too low, legionella may develop in installations with circulation pipe.

- In installations with circulation pipes, set the hot water temperature at the controller to at least 60 °C.
- Please 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 station does not exceed 5 °C (≥ 55 °C).

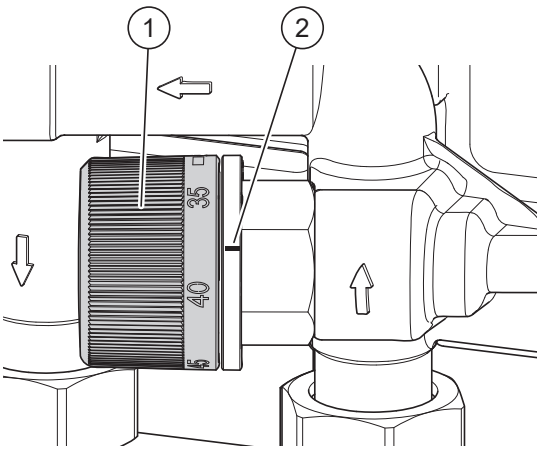
- Please observe the advice regarding protection against scalding in paragraph 2.6.3 on page 12.
- Set the required hot water temperature with the help of the rotary knob (2) at the controller (1).

7.5.1 Variable hot water temperature control

7.5.2 If the required hot water temperature cannot be reached due to a storage temperature that is too low, the hot water temperature will be automatically reduced to the maximum possible value. This will be maintained until the storage temperature for the required hot water temperature is sufficient.

If necessary, check the storage temperature setting.

7.6 Setting the derivative temperature thermostat



Illustr. 42: Setting the derivative temperature thermostat

(1) Handwheel

(2) Scale sleeve with marking

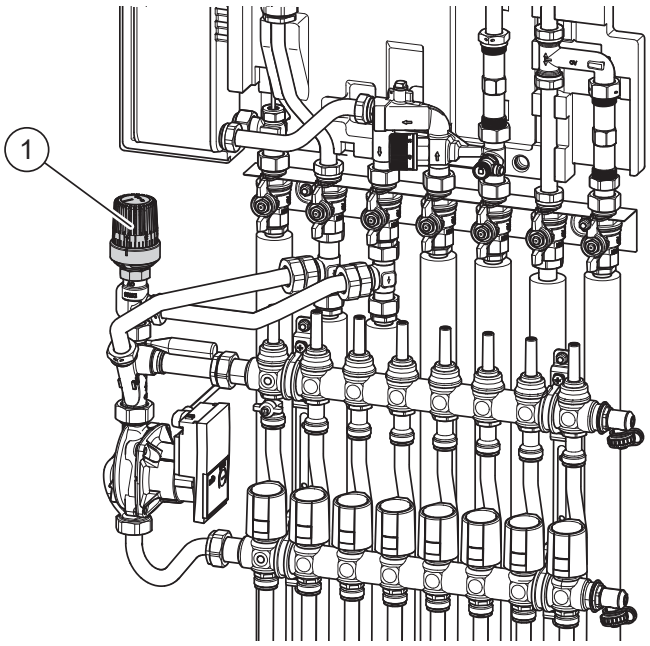
Do not set the derivative temperature thermostat to a higher temperature than the hot water temperature set at the controller.

A derivative temperature thermostat that is set too high causes a permanent by-pass and leads to power loss.

If the value is higher than the potential primary supply temperature from the buffer storage cylinder, then the derivative temperature thermostat is set too high.

▶ Set the cap (1) of the derivative temperature thermostat to the required temperature value.

7.7 Setting the heating circuit temperature (if mixer kit present)



Illustr. 43: Setting the heating circuit temperature

(1) Temperature regulator

▶ Set the heating circuit temperature on the temperature regulator (1) of the thermostatic mixer kit to the required temperature.

Please observe the separate installation and operating instructions for the thermostatic mixer kit.

7.8 Adapting the controller

Adapting the controller is absolutely crucial for the station to function correctly.

The heating supply flow must be set to the operating temperature for the adaptation process.

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

In the meantime, adapt the controller parameters to the conditions in the heating system of the building.

7.9 Instructing users

Inform the user as to the function and operation of the product!

▷ Commissioning is completed.

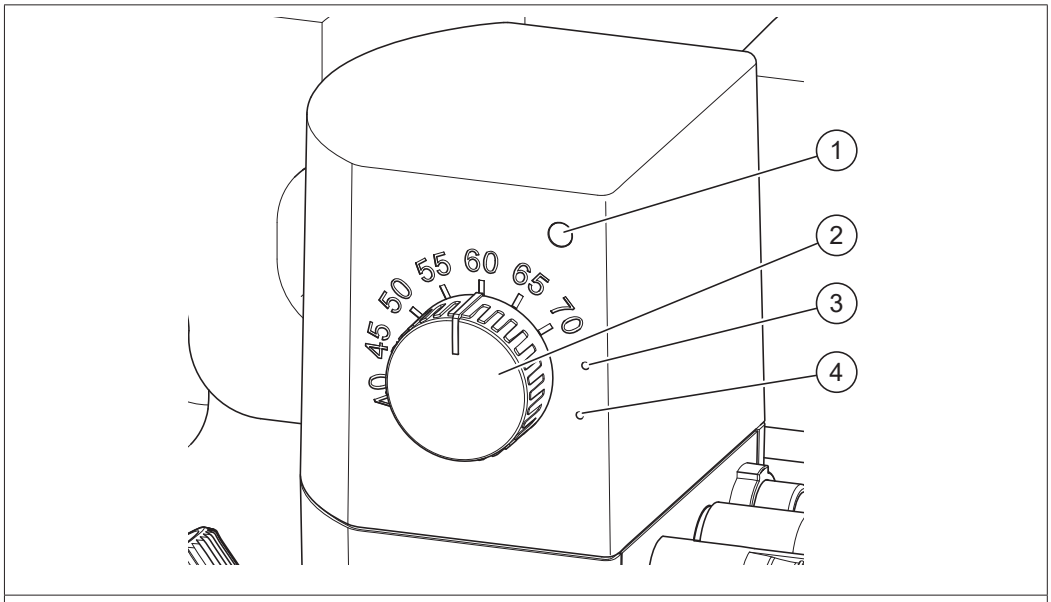
8. Troubleshooting

8.1 Troubleshooting table

Malfunction	Cause	Remedy
Potable water is not heated (only cold water at the draw off points).	Flow sensor soiled or defective.	Clean flow sensor (see paragraph 8.4 on page 66). Replace flow sensor if malfunction persists.
	Controller deactivated (disconnected from power supply).	Check power supply of controller and re-connect to power supply if required.
	Airlock in heating circuit.	Bleed heating circuit (see paragraph 7.1 on page 51).
	Strainer in primary supply blocked.	Clean or replace the strainer (see paragraph 8.5 on page 70).
	The heating system has a malfunction.	Troubleshoot the malfunction.
Hot water temperature at draw off point(s) drops.	Heating water temperature too low.	Increase heating water temperature in the buffer storage cylinder. Check capacity of the heat generator if required.
	Insufficient storage cylinder content.	Check system design and increase storage cylinder content if required.
Fluctuating hot water temperatures when drawing off water.	Control parameters do not match conditions in the building.	Adapt the controller (see paragraph 7.8 on page 58) to adjust the control system to the conditions in the heating system of the building.
The water at the draw off point cools down suddenly during circulation operation.	Cold water enters the circulation pipe and not the heat exchanger.	Check function of the check valve of the circulation module (see paragraph 9.1 on page 73). Replace defective check valve.
The target temperature is no longer reached if draw off quantities are higher.	Too low heating water temperature for the required draw off quantity.	Increase heating water temperature in the buffer storage cylinder (see characteristic lines in appendix).
	Heat exchanger soiled or calcified.	Clean heat exchanger (see paragraph 8.3.2 on page 64).
	Volume flow of heating water too low.	Check system design and increase pump output in the primary supply from the buffer storage cylinder if required.
	Strainer in the primary supply soiled.	Clean or replace the strainer (see paragraph 8.5 on page 71).
Leakage at the outside of heat exchanger.	Leakage at heat exchanger due to corrosion. This may result from solder material which does not match the potable water quality.	Replace heat exchanger. The used brazing material has to match the potable water quality (see information sheet "Important advice regarding corrosion protection" in appendix).
Pressure increase in the heating circuit (potable water enters the primary circuit). Safety valve in the primary circuit opens.		

Malfunction	Cause	Remedy
Too low hot water volume flow at the draw off point.	Heat exchanger strongly calcified.	Decalcify the heat exchanger (see paragraph 8.3.2 on page 64).
	Cold water pressure too low (wrongly set pressure reducer).	Check setting of pressure reducer and increase if required.
Dwelling heating circuit does not get warm.	Strainer in the primary supply soiled.	Clean or replace the strainer (see paragraph 8.5 on page 71).
	The zone valve is closed incorrectly.	Open the zone valve.
	If operating with the thermostatic mixer kit: the components are incorrectly set or defective.	Check the settings or replace defective components. Please observe the separate installation and operating instructions for the thermostatic mixer kit.
Heat exchanger becomes hot outside hot water preparation. Uncontrolled warming up of water.	Service mode active.	Set the rotary knob to the required hot water temperature (see paragraph 8.2 on page 61).
	Control valve soiled or blocked.	Remove actuator from the control valve. Press valve stem down several times to check smooth running of the stem. Contact technical service in case of a stiff valve stem (see paragraph 1.4 on page 8).

8.2 Status messages and error messages



Illustr. 44: Status messages and error messages on the controller

① Indicator light (LED)

② Rotary knob

③ Error reset index (only for qualified installer)

④ Service mode index (only for qualified installer)
(see 3.4.1 on page 18)

The indicator light (1) at the controller indicates status messages and error messages.

Status messages

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

Error messages

Indicator light: Flash codes	Error	Description
1x orange, 1x red	Potable water temperature sensor	Sensor supplies wrong or no measured values.
1x orange, 2x red	Actuator	Unexpected blocking of the motor during control operation.
1x orange, 3x red	Actuator	Calibration run failed.
1x orange, 4x red	Supply voltage	Supply voltage too high, too low or not existing.
1x orange, 5x red	Internal energy store	Faulty energy store, fail-safe mode no longer possible.
1x orange, 6x red	Housing temperature sensor	Sensor supplies wrong or no measured values.
1x orange, 7x red	Flow sensor	Implausible volume flow value.
1x orange, 8x red	Nominal value generator	Implausible setting.

Error messages

Indicator light: Flash codes	Error	Description
1x orange, 9x red	Electronics	-
1x orange, 10x red	Internal memory (EEPROM)	Memory error

8.2.1 Fail-safe mode

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

Once the error has been remedied, most of the error messages will be reset automatically and the fail-safe mode will be deactivated. Only the error messages of the actuator have to be reset manually.

8.2.2 Error reset

When setting the rotary knob to the error reset index (3) for more than 5 seconds, the indicated error will be reset automatically and a calibration run will be launched. As long as the rotary knob is set to the error reset index (3), a calibration run of the actuator detecting the closing point of the control valve will be launched again and again.

If the power supply of the controller is interrupted and restored again, an error reset will be carried out, too.

- ▶ To reset an error, set the rotary knob to the error reset index (3) for more than 5 seconds.
- ▶ After having reset an error, turn the rotary knob to the required hot water temperature (< 70 °C) to return to normal operation.

8.3 Calcification of the heat exchanger

DANGER

Danger to life due to electric current!

During some work, the controller has to remain in operation and the 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 fluids!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.
- ▶ Have all work on the system carried out by a sanitary, heating and air-conditioning specialist.

CAUTION

Risk of scalding due to hot fluids!

During some work, the station has to remain in operation and there is a risk of scalding due to escaping hot water or water steam.

- ▶ Let the installation cool down.
- ▶ Wear safety goggles.

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

▶ Wear safety gloves.

CAUTION

8.3.1 Detecting calcification

Due to the high temperatures in the station, a calcification of the installed heat exchanger cannot be excluded in general. This especially applies when installing a circulation pipe.

The following signs indicate a soiled or calcified heat exchanger:

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

If these symptoms appear, you should inspect the heat exchanger and decalcify or clean it if necessary.

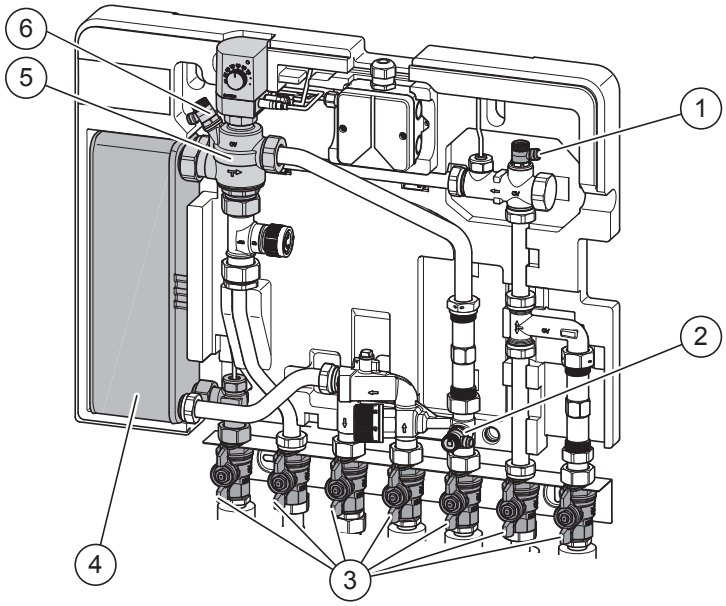
8.3.2 Removing and cleaning the heat exchanger

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the station from the power supply and protect it against accidental restart.
- ▶ Check that no voltage is present.



Illustr. 45: Removing the heat exchanger

1. Venting valve
2. Draining valve
3. Ball valve
4. Heat exchanger
5. Control valve
6. Venting valve

CAUTION

Risk of scalding due to hot fluids!

When working on the station, there is risk of scalding due to escaping hot water or water steam.

- ▶ Close all ball valves (3) under the station and let the water in the station cool down.

Risk of burns from hot heat exchanger!

Components get very hot during operation and an unprotected contact may lead to burns.

▶ Let the station cool down.

CAUTION

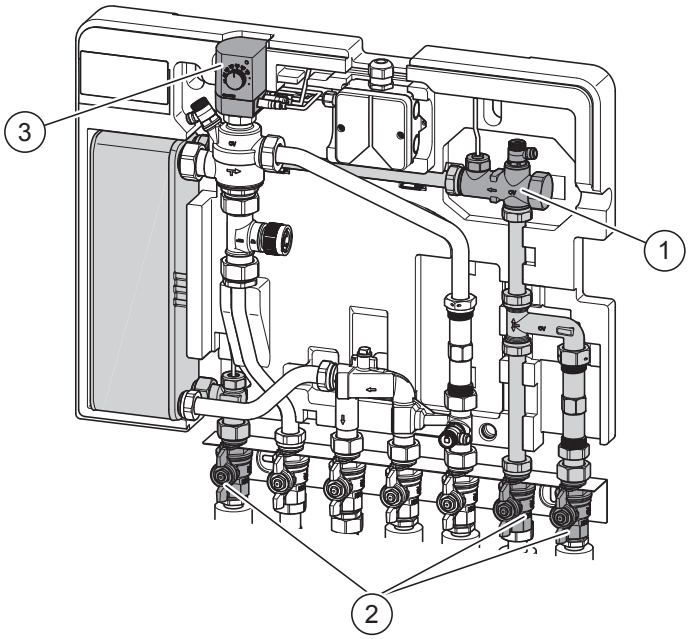
Cleaning/decalcification that is improperly performed causes damage to the natural passive layer and an increased risk of corrosion to the plate materials.

1. Open the venting valve (1) at the flow sensor to depressurise the potable water circuit.
2. Open the venting valve (6) and the draining valve (2) to depressurise and drain the heating circuit.
3. Disconnect the cables from the controller.
4. Loosen the couplings between the control valve (5) and the pipework.
5. Remove the control valve with controller from the station.
6. Loosen the fittings between the heat exchanger (4) and the pipework.
7. Remove the heat exchanger from the station.
8. Clean the heat exchanger with a suitable detergent. Observe the instructions of the manufacturer of the detergent.
9. Mount the cleaned heat exchanger into the station.

The G1 connection on the heat exchanger is designed to connect to the control valve.

10. Screw the heat exchanger to the pipework.
11. Mount the control valve (5) with controller into the station.
12. Connect the controller cables.
13. Fill and bleed the potable water circuit as described under paragraph 7.2 on page 53.
14. Fill and bleed the heating circuit as described under paragraph7.1 on page 51.

8.4 Inspecting and cleaning the flow sensor



Illustr. 46: Closing the ball valves in the potable water circuit

(1) Flow sensor

(2) Ball valve

(3) Controller

8.4.1 Inspecting the flow sensor

A malfunction has occurred if no hot water is available at the draw off points. This may occur for several reasons (see 8.1 on page 59).

Exclude easily determinable reasons, such as a disconnected controller (3) or a missing contact of the signal line of the flow sensor.

- ▶ Check the flow sensor (1) for impurities by drawing off potable water while observing the indicator light at the controller:
- ▶ If no hot water is drawn off or there is no circulation operation, the indicator light at the controller glows green.
- If hot water is drawn off or circulation operation is active, the indicator light flashes green.
- If the indicator light glows green when drawing off hot water, the flow sensor may be soiled.

If the flow sensor is soiled, the volume flow of the cold water supply or of the cold water supply with circulation pipe will not be detected and a hot water consumption will not be registered. As a result, the controller will not be activated and no heat will be transferred from the heat exchanger to the potable water circuit.

8.4.2 Cleaning the flow sensor

DANGER

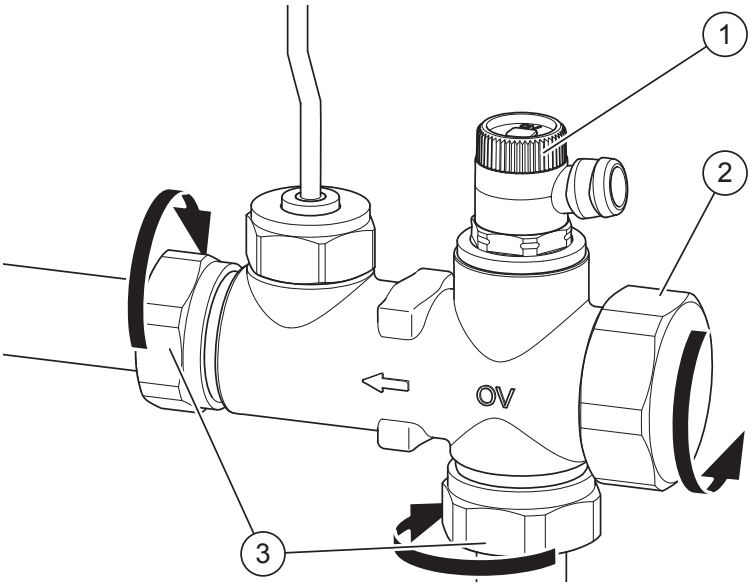
Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the station from the power supply and protect it against accidental restart.
- ▶ Check that no voltage is present.

If the flow sensor is soiled:

1. Close the ball valves (see Illustr. 46 (2)) in the potable water circuit.



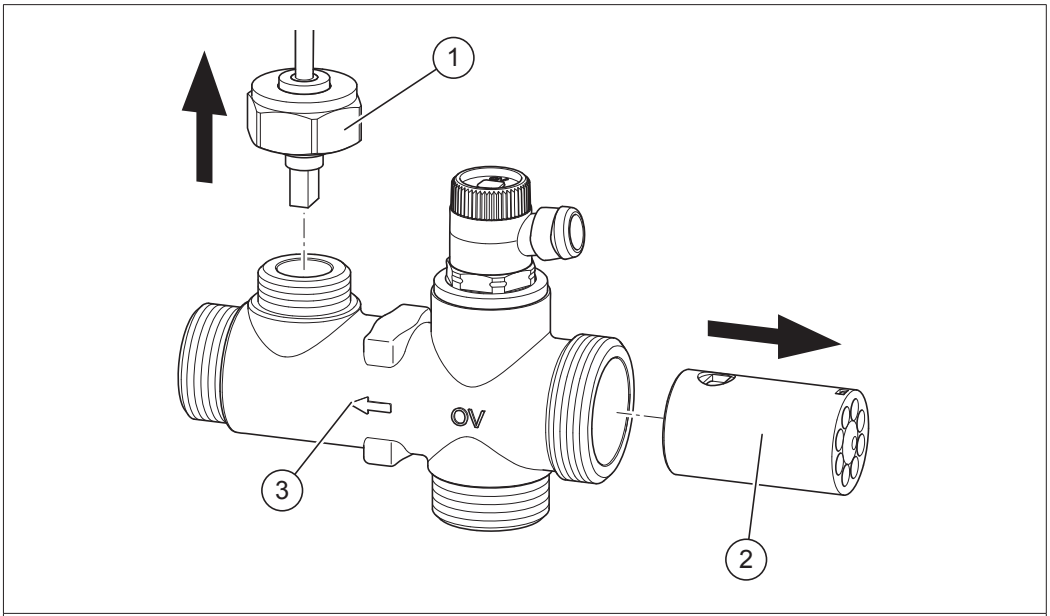
Illustr. 47: Removing the flow sensor

(1) Venting valve

(2) Cap

(3) Union nut

2. Open the venting valve (see Illustr. 47 (1)) at the flow sensor to depressurise the pipe.
3. Close the venting valve.
4. Unscrew the cap (see Illustr. 47 (2)) for the circulation connection.
5. Loosen the union nuts (see Illustr. 47 (3)) of the flow sensor and remove the flow sensor from the pipes.



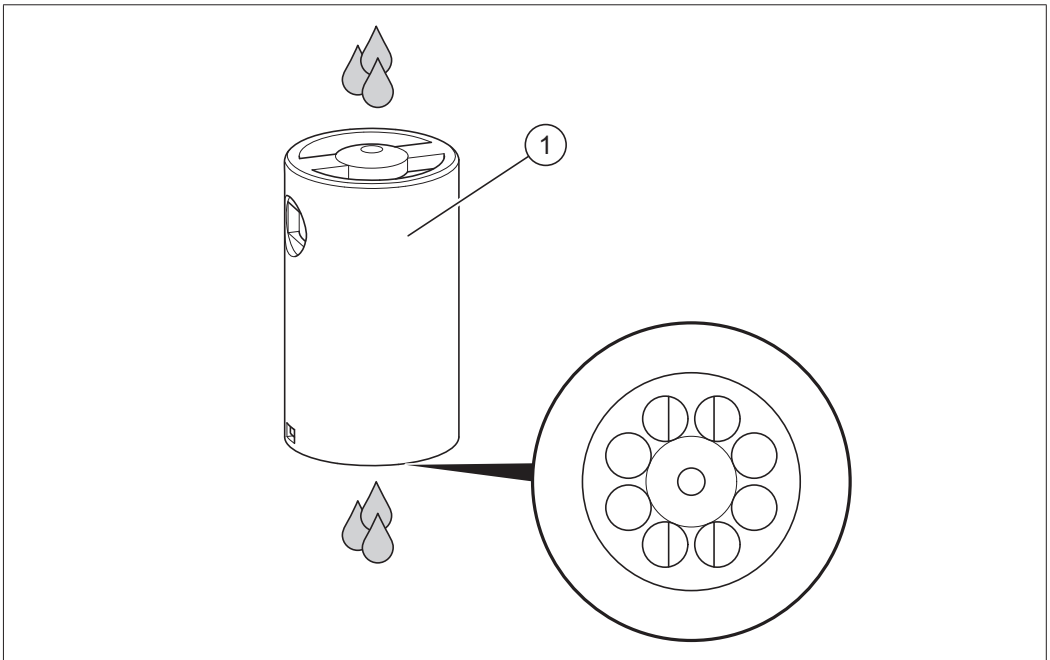
Illustr. 48: Removing the sleeve

(1) Union nut

(2) Sleeve

(3) Housing

6. Loosen the union nut (see Illustr. 48 (1)) of the sensor and remove the sensor from its housing (see Illustr. 48 (3)).
7. Remove the internal sleeve (see Illustr. 48 (2)) with measuring turbine from the housing (see Illustr. 48 (3)).



Illustr. 49: Cleaning the measuring turbine under running water

(1) Measuring turbine

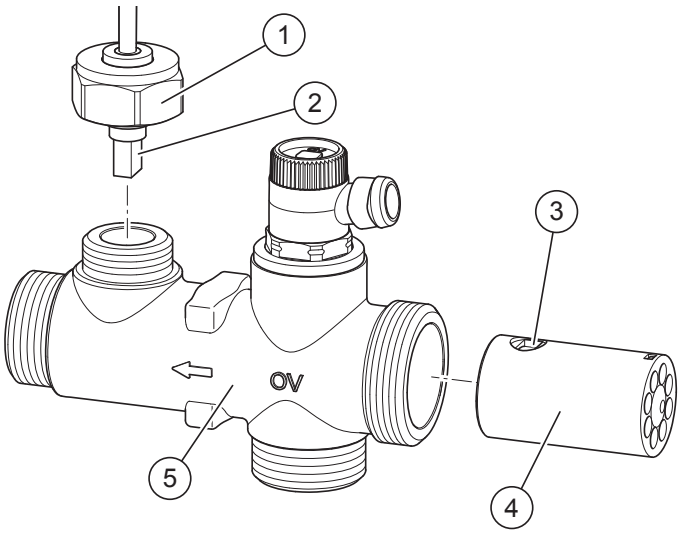
Risk of damage to the measuring turbine!

The measuring turbine is a sensitive component which can be easily damaged. After cleaning, please make sure that the turbine wheel can be turned easily.

NOTICE

▶ Do not use pointed objects when cleaning the measuring turbine.

8. Hold the sleeve (see Illustr. 49 (1)) under running water – against the flow direction – to remove impurities such as hemp residues and to clean the sleeve and measuring turbine.
9. Blow into the sleeve to check whether the turbine wheel turns easily. If this is not the case, replace the flow sensor.



Illustr. 50: Aligning the sleeve and sensor

① Union nut

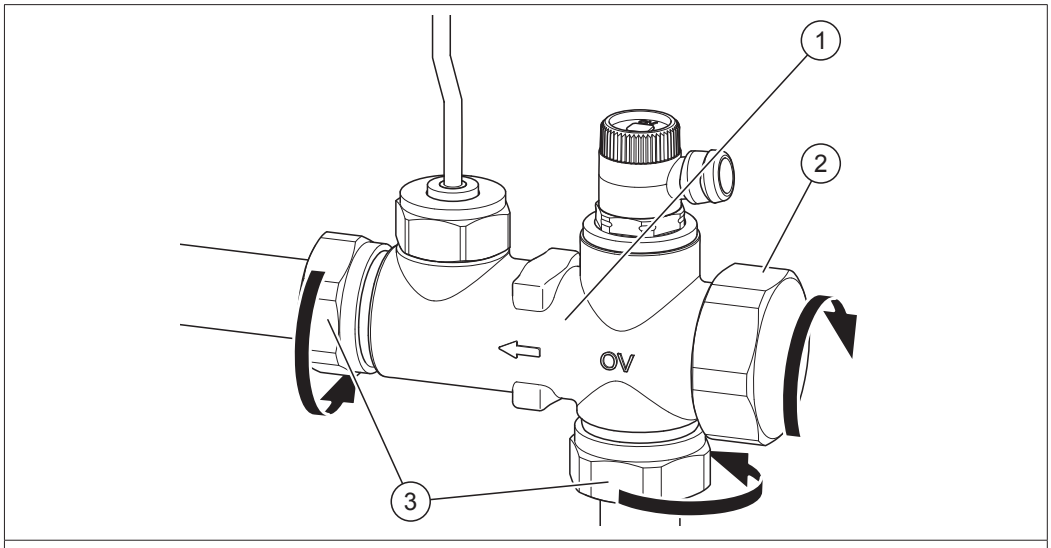
② Sensor

③ Opening

④ Sleeve

⑤ Housing

10. Roughly align the sleeve (see Illustr. 50 (4)) and insert the sleeve into the housing (see Illustr. 50 (5)).
11. Align the sleeve and sensor so that the sensor (see Illustr. 50 (2)) is fully inserted in the opening (3) in the sleeve.
12. Tighten the union nut (see Illustr. 50 (1)) of the sensor.



Illustr. 51: Installing the flow sensor

① Flow sensor

② Cap

③ Union nut

13. Screw the cap (see Illustr. 51 (2)) onto the circulation connection.
14. Mount the flow sensor (see Illustr. 51 (1)) onto the pipe and tighten the union nuts (see Illustr. 51 (3)) of the flow sensor.
15. Open the ball valves.
16. Carry out a functional test as described under Illustr. 32 on page 45.

▷ The flow sensor is cleaned.

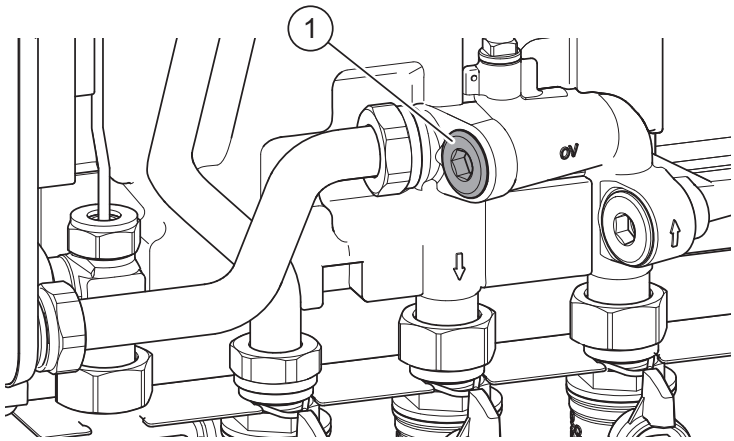
8.5 Cleaning the strainer

WARNING

Risk of injury from pressurised fluids!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.
- ▶ Have all work on the system carried out by a sanitary, heating and air-conditioning specialist.



Illustr. 52: Cleaning the strainer

(1) Plug

1. Close the ball valves in the primary supply, primary return, heating circuit supply and heating circuit return.
2. Open the venting valve and the draining valve in the primary circuit slowly.
3. If the primary circuit above the draining valve is empty, close the draining valve and the venting valve again.
4. Unscrew the plug (1) from the housing of the strainer in the primary supply.

Keep a rag at hand to catch escaping water.

5. Remove the plug together with the screen from the strainer.
6. Clean the screen under running water.
7. Check the housing for dirt deposits and remove if present.
8. Insert the screen and the plug into the strainer and screw the plug into the housing.
9. Open the ball valves in the primary return and the primary supply slowly.
10. Slightly open the venting valve in the primary circuit.
11. Close the venting valve as soon as bubble-free water escapes.
12. Check all components and couplings for leaks.
13. Tighten any loose couplings.
14. Check the system pressure and refill the heating water if necessary.

▷ The strainer is cleaned.

9. Maintenance

DANGER

Danger to life due to electric current!

During some work, the controller has to remain in operation and the 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 fluids!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work, make sure that the system is depressurised.
- ▶ When upgrading an existing installation: Drain the system or close the supply pipes of the section of the system and depressurise it.
- ▶ Wear safety goggles.
- ▶ Have all work on the system carried out by a sanitary, heating and air-conditioning specialist.

CAUTION

Risk of scalding due to hot fluids!

During some work, the station has to remain in operation and there is a risk of scalding due to escaping hot water or water steam.

- ▶ Let the installation cool down.
- ▶ Wear safety goggles.

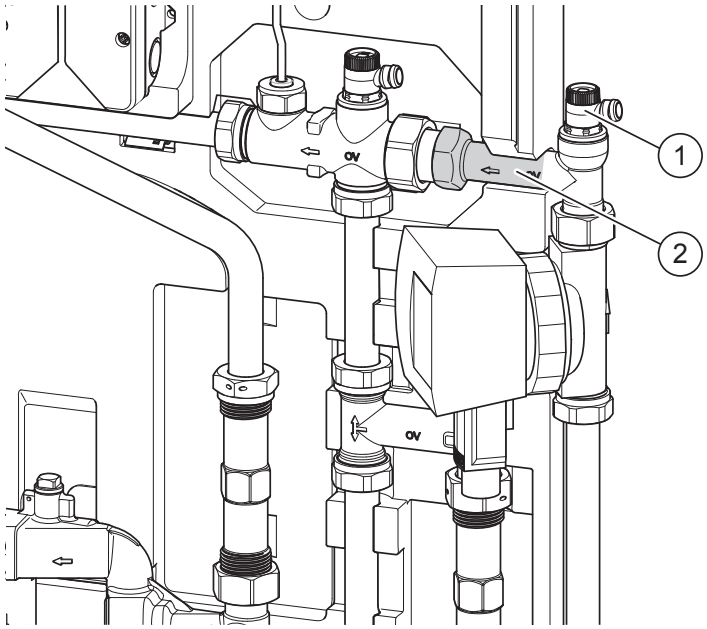
CAUTION

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

9.1 Functional test of the check valve of the potable water circulation kit



Illustr. 53: Functional test of the check valve

(1) Venting valve

(2) Check valve

Only in case of installation of a potable water circulation kit:

Please observe the separate installation and operating instructions for the potable water circulation kit.

In accordance with DIN EN 806, you must test the check valve (2) of the potable water circulation kit every year to ensure it is functioning correctly:

1. Close the ball valves of the hot water outlet and of the potable water circulation kit.
2. Open the venting valve (1) on the potable water circulation kit to depressurise the circulation pipe.

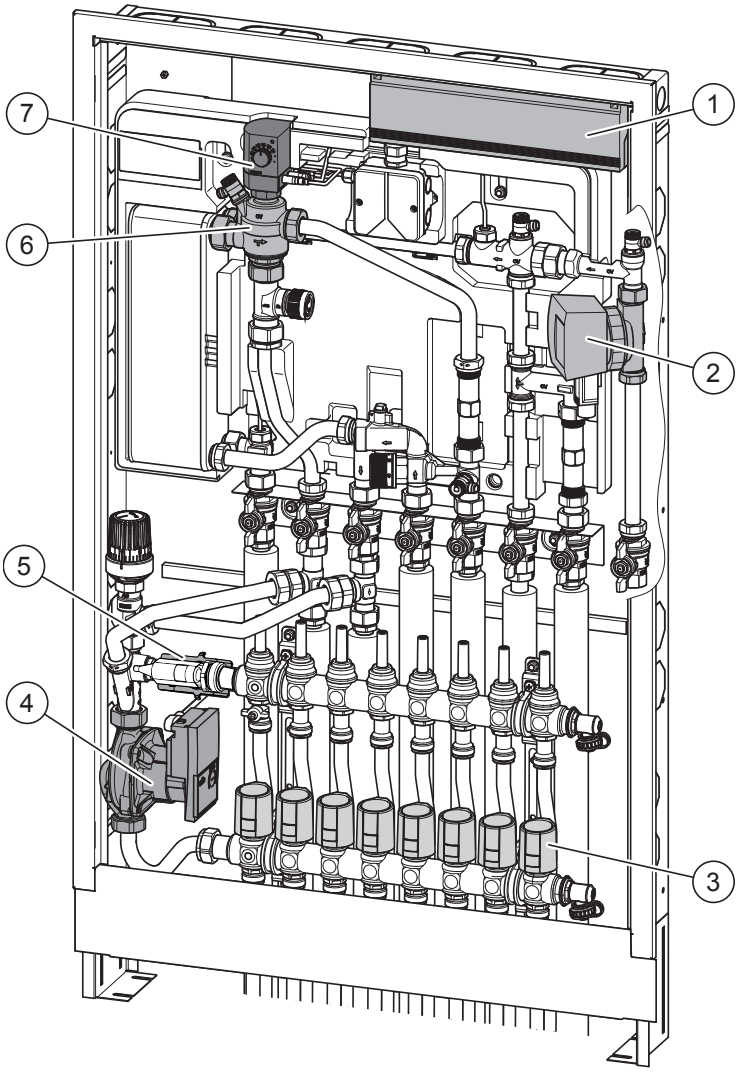
If potable water escapes from the venting valve continuously, the check valve is defective and must be replaced.

9.2 Leakage test (visual inspection)

Due the operational temperature changes, we recommend checking the couplings and seals every year to ensure they are functioning correctly.

1. Check all connection points to the pipework and inside the station for damp zones.
2. Tighten any loose couplings and replace defective seals.
3. Damp zones in connection with discolourations at the heat exchanger indicate an external corrosion calling for the replacement of the heat exchanger.
4. Check the heat exchanger for damp zones and discolourations and replace any defective heat exchanger immediately.

9.3 Inspecting the electrical components and plug-in connections



Illustr. 54: Inspecting the electrical components

1. Connecting block
2. Pump potable water circulation kit
3. Actuators
4. Pump of the thermostatic mixer kit for off-peak heating circuit
5. Contact thermostat
6. Control valve
7. Controller

We recommend checking electrical components and plug-in connections every year for correct seating.

- ▶ Check the electrical components (1, 2, 3, 4, 5) connected to the station for integrity and firm seating.
- ▶ Check the cable plug-in connections of all components connected to the controller (7).
- ▶ Check the firm connection of the controller with actuator on the control valve (6).

9.4 Performance test of the heat exchanger

We recommend to check the performance of the heat exchanger every year to make sure that it is not calcified or soiled.

1. Draw off hot water at several draw off points simultaneously without adding cold water.
2. Measure the hot water temperature at the draw off point at the most remote location of the station.
3. Compare the measured hot water temperature with the hot water temperature set at the controller.

The performance of the heat exchanger is correct if the measured hot water temperature is no more than 5 °C higher or lower than the hot water temperature set at the controller (e.g. 60 °C).

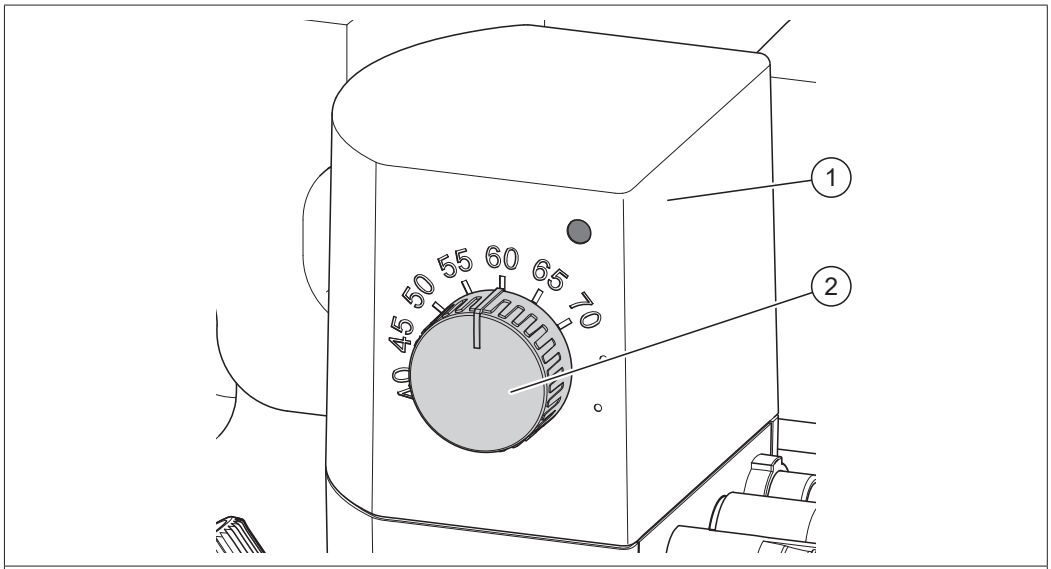
If the difference is more than 5 °C:

- ▶ Check strainer and clean it if necessary (see 8.5 on page 71).
- ▶ Clean and decalcify the heat exchanger as described under paragraph 8.3 on page 62.
- ▶ Check the heating water supply (e.g. flow temperature, pump settings).

10. Advice for the user

The user has to ask the sanitary, heating and air-conditioning specialist to inform him as to the safe and correct use of the station.

10.1 Setting the hot water temperature



Illustr. 55: Setting the hot water temperature

(1) Controller

(2) Rotary knob

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

Set the required hot water temperature with the help of the rotary knob of the controller.

4. Draw off hot water at the draw off point at the most remote location without adding cold water and check the hot water temperature. Adjust the hot water temperature if required.

An increase of the hot water temperature always means an increase of the energy consumption and a reduction of the hot water temperature always means a reduction of the energy consumption.

10.2 Legionella prevention

Legionella multiply rapidly if the hot water temperature is constantly too low or if no water is drawn off over a longer period (> 72 h).

- ▶ Draw off hot and cold water at regular intervals so that a regular exchange of the potable water is guaranteed and longer stagnation periods are avoided.
- ▶ If no potable water has been drawn off for more then 72 h, draw off hot and cold water at all draw off points for a short time to exchange the water in the pipework.

Only in installations with circulation pipe:

- ▶ Set a minimum hot water temperature of 60 °C at the controller.
- ▶ 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 work sheet W551).

11. Removal and disposal

11.1 Removal

11.1.1 Disconnecting the station from the power supply

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the station from the power supply and protect it against accidental restart.
- ▶ Check that no voltage is present.
- ▶ Removal must be carried out by a qualified electrician only.

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

▷ The station is without current and can be removed

11.1.2 Removing the station

CAUTION

Risk of injury from pressurised fluids!

Fluids escaping under pressure may lead to injuries.

- ▶ Before starting work make sure that the system is depressurised.
- ▶ Close the ball valves at the station.
- ▶ Depressurise and drain off the section of the system and the station.
- ▶ Wear safety goggles.
- ▶ Have all work on the system carried out by a sanitary, heating and air-conditioning specialist.

CAUTION

Risk of scalding due to hot fluids!

Escaping hot fluids may lead to scalding.

- ▶ Close all ball valves at the station and depressurise the station.
- ▶ Let the water in the station cool down.

CAUTION

Risk of burns due to hot components!

An unprotected contact with hot components may lead to burns.

- ▶ Let the station cool down.

▶ Remove the station.

▷ The components of the station can be disposed of separately.

11.2 Disposal

NOTICE

Risk of environmental pollution!

Incorrect disposal (for instance with the standard waste) may lead to environmental damage.

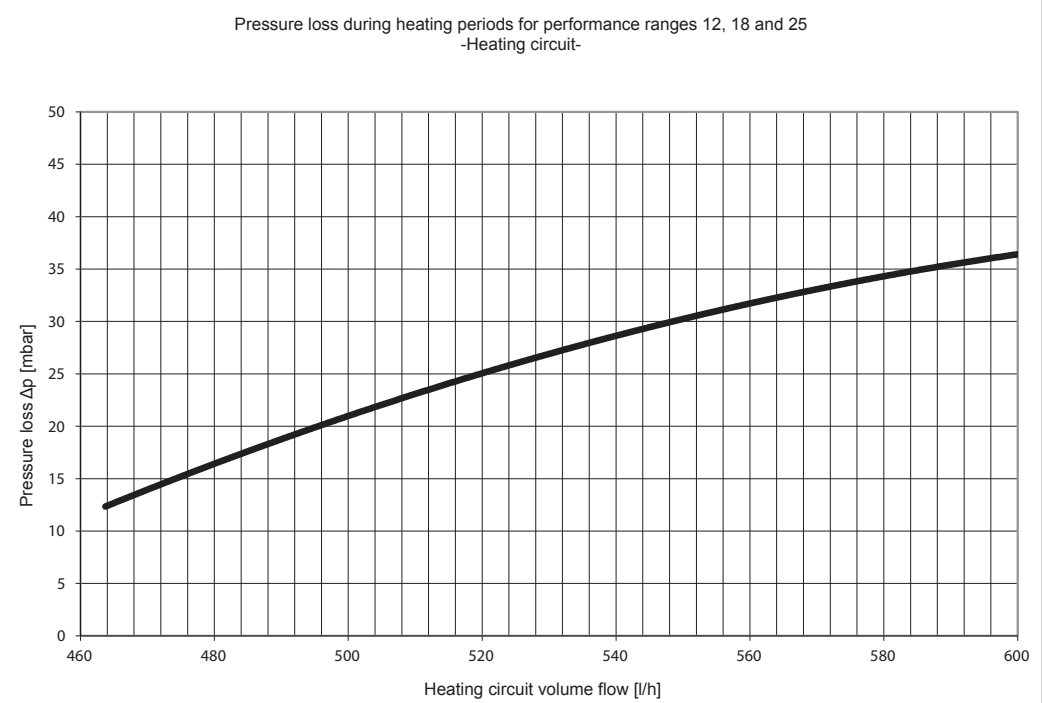
- ▶ Dispose of the components professionally.

If no return or disposal agreement has been made, the station has to be disposed of:

- ▶ Separate all components according to their material.
- ▶ If possible, recycle the components.
- ▶ Dispose of components which cannot be recycled according to the local regulations. Disposal with the standard waste is inadmissible.

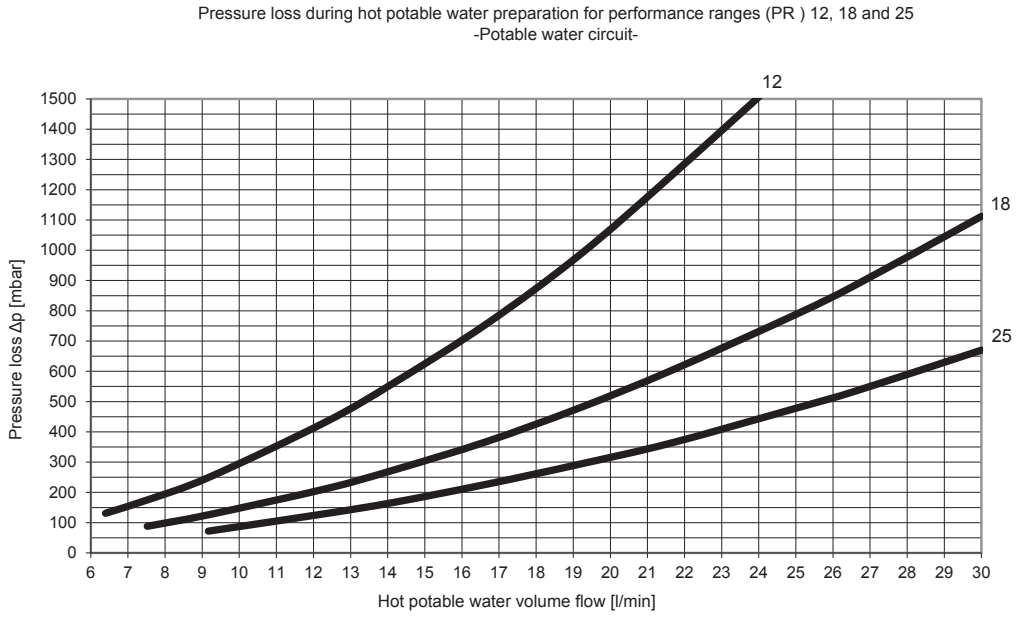
12. Appendix

12.1 Characteristic line for heating periods

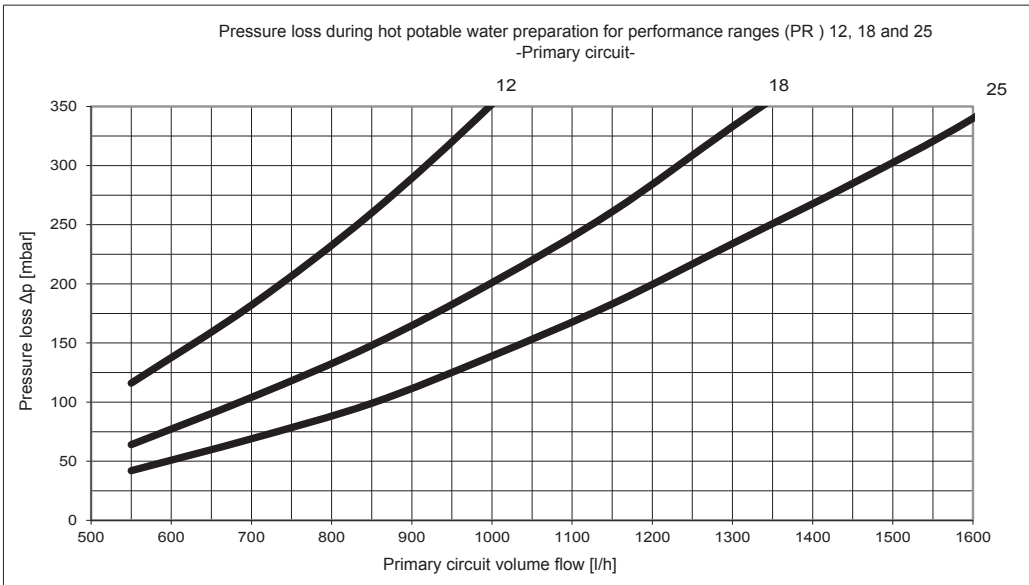


Illustr. 56: Pressure loss during heating periods

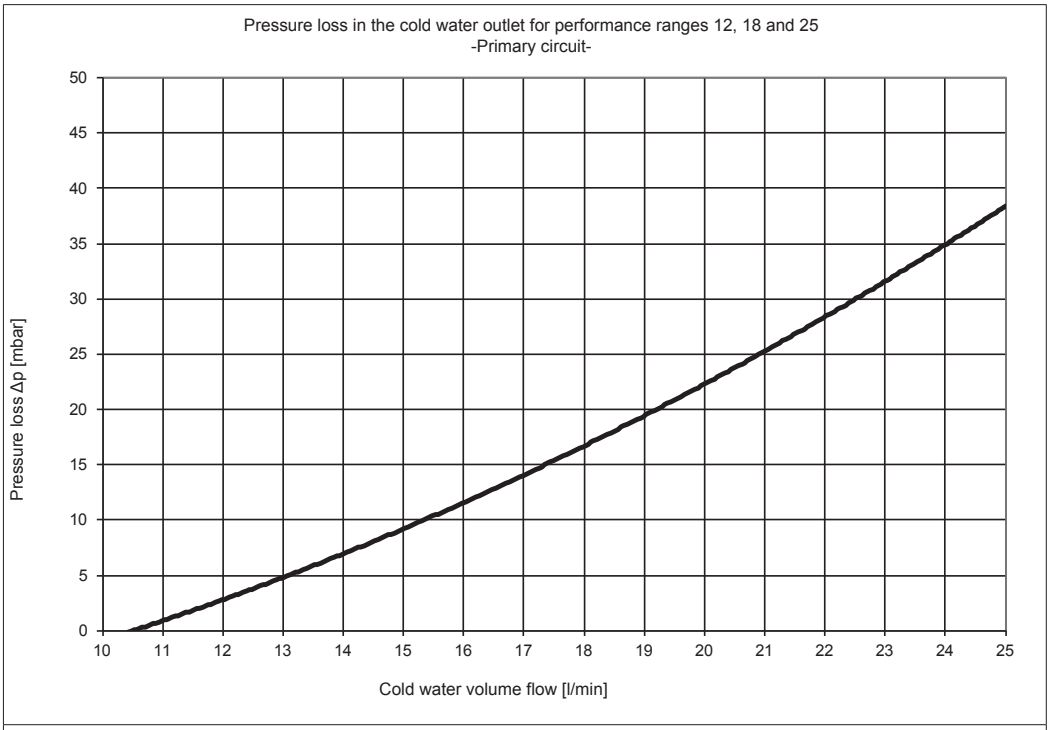
12.2 Characteristic lines for potable water operation



Illustr. 57: Pressure loss in the potable water circuit

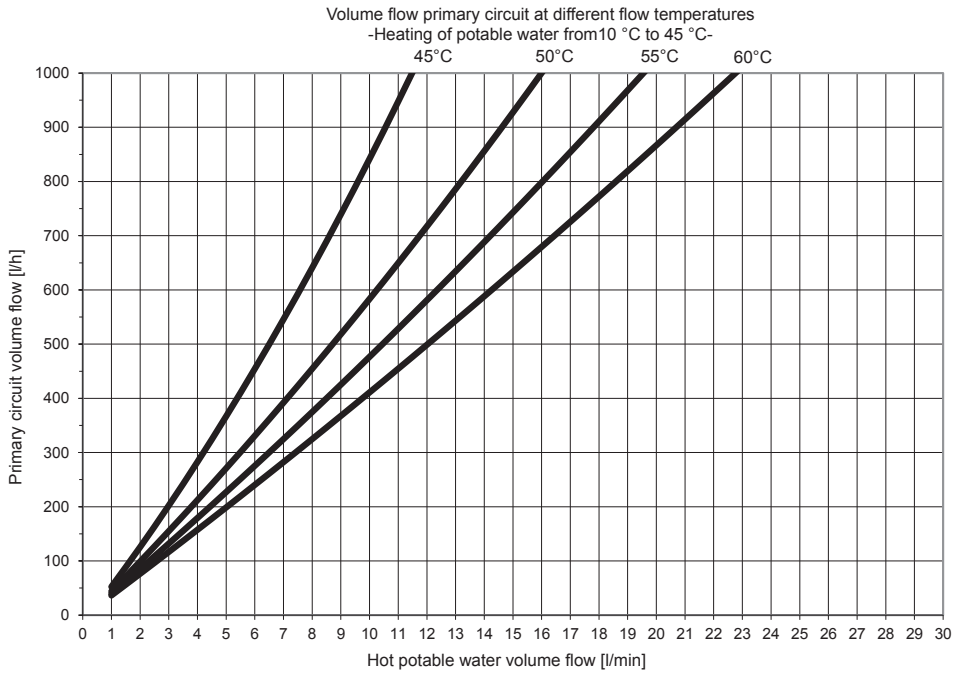


Illustr. 58: Pressure loss in the primary circuit

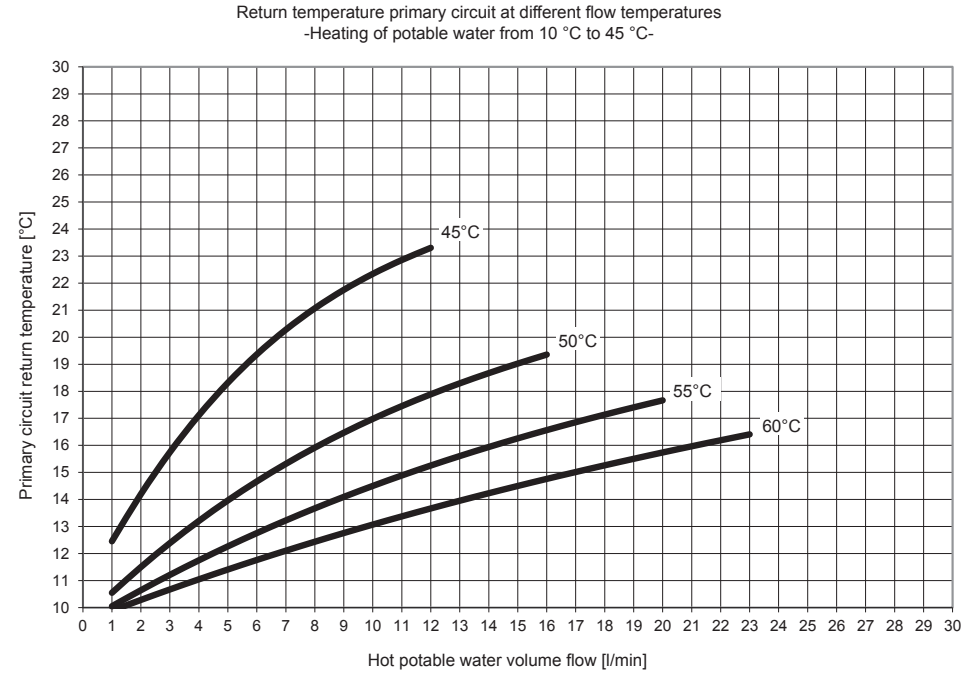


Illustr. 59: Pressure loss in the cold water outlet

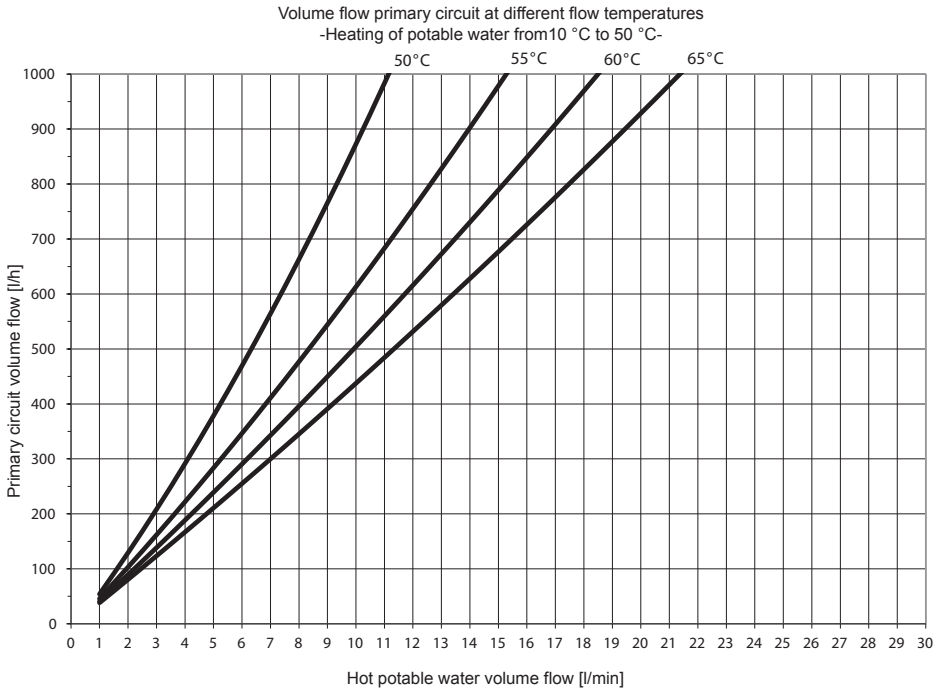
12.3 Characteristic lines for WHI apartment 12



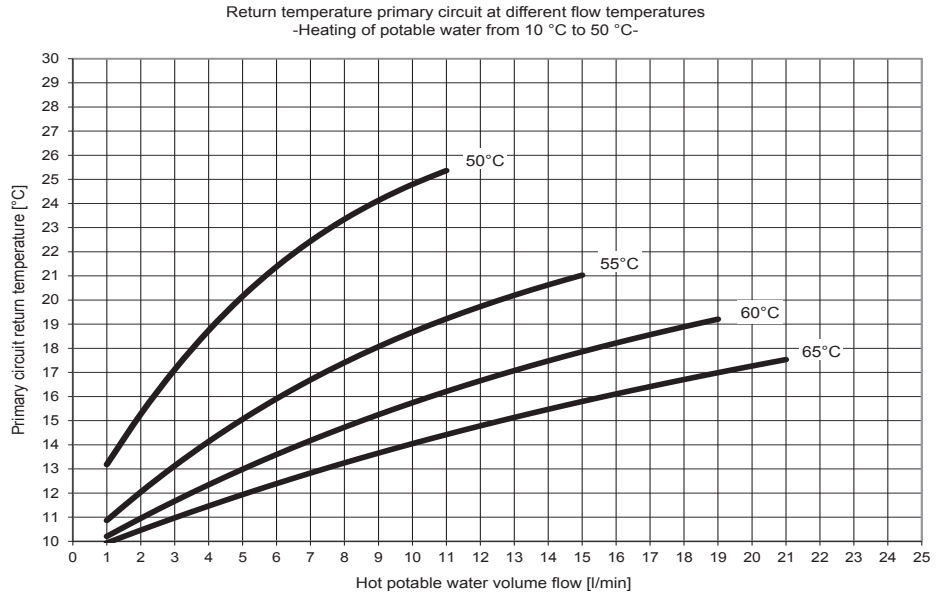
Illustr. 60: WHI apartment 12, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



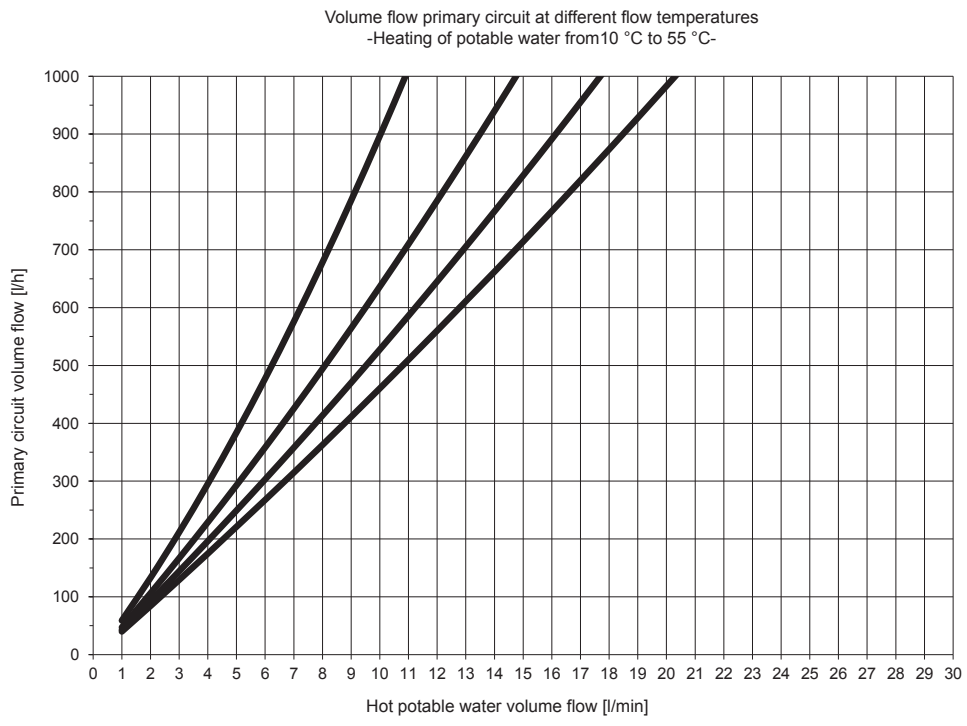
Illustr. 61: WHI apartment 12, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



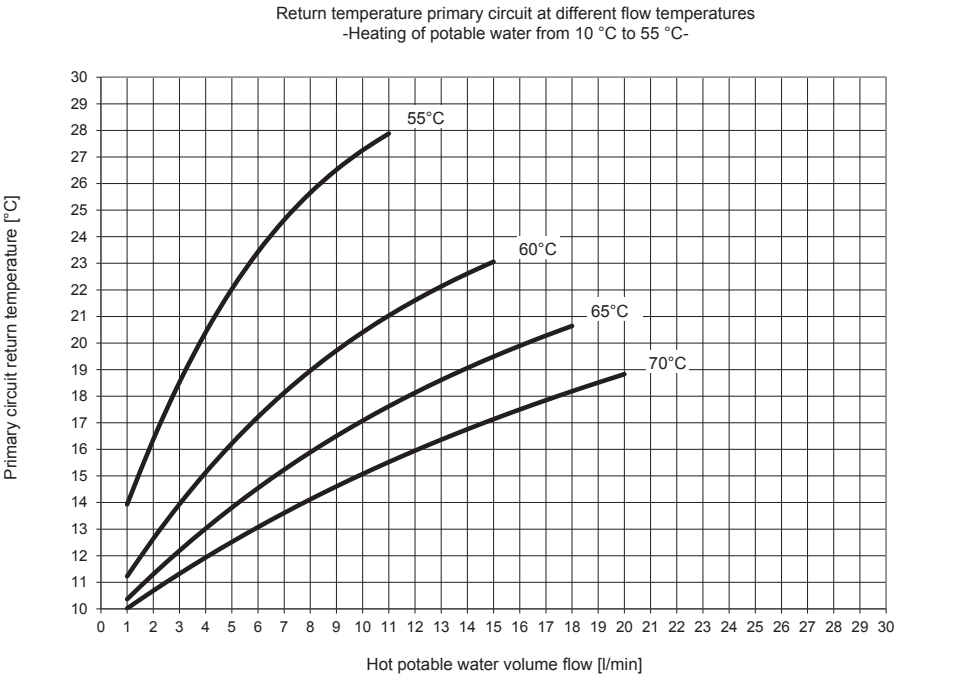
Illustr. 62: WHI apartment 12, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



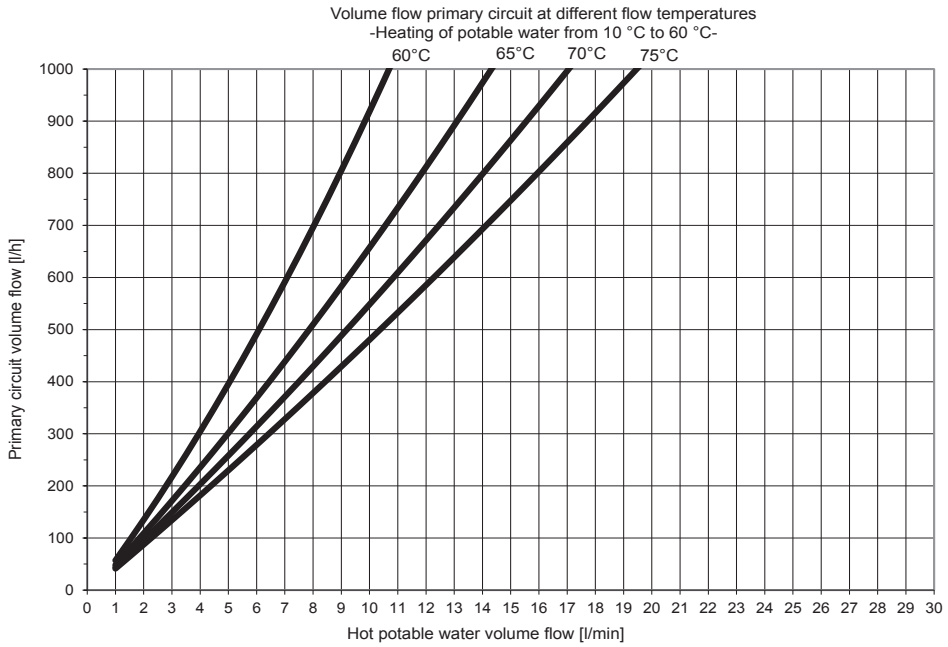
Illustr. 63: WHI apartment 12, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



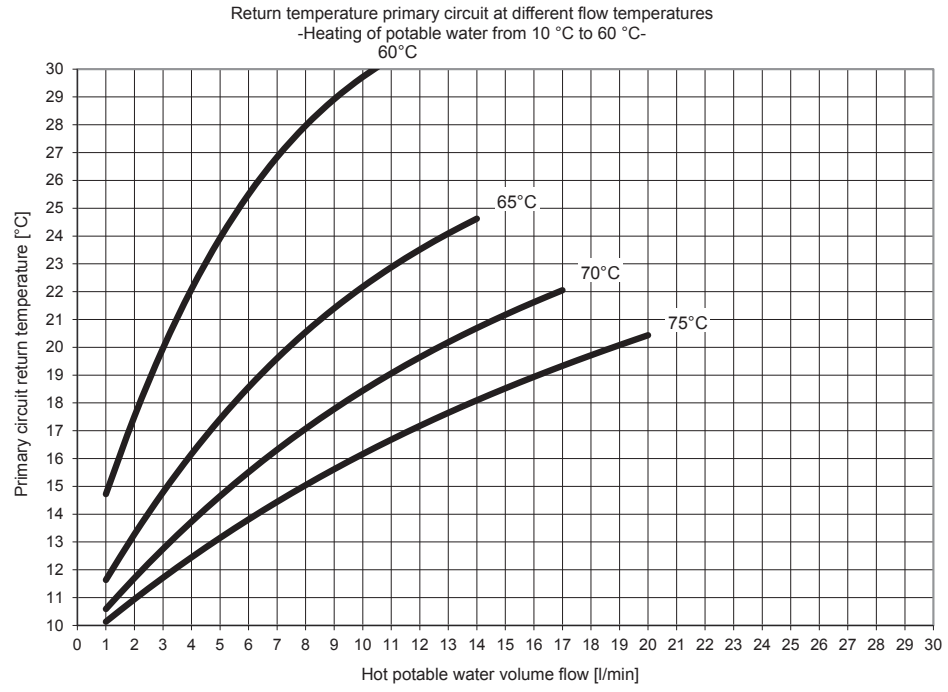
Illustr. 64: WHI apartment 12, heating of potable water to 55 °C (performance indicators as per SPF test procedure)



Illustr. 65: WHI apartment 12, heating of potable water to 55 °C (performance indicators as per SPF test procedure)

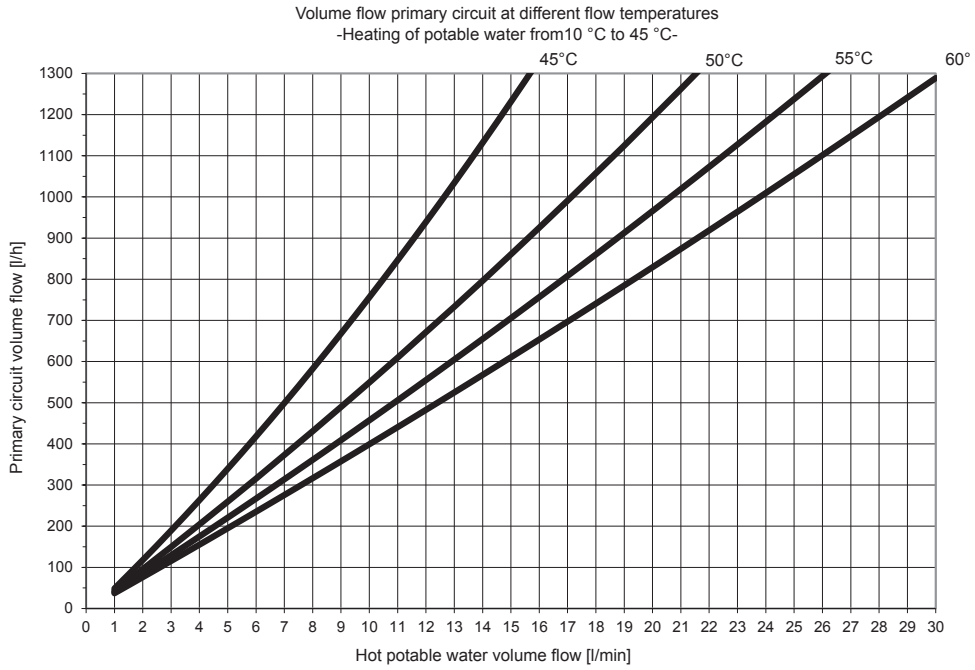


Illustr. 66: WHI apartment 12, heating of potable water to 60 °C (performance indicators as per SPF test procedure)

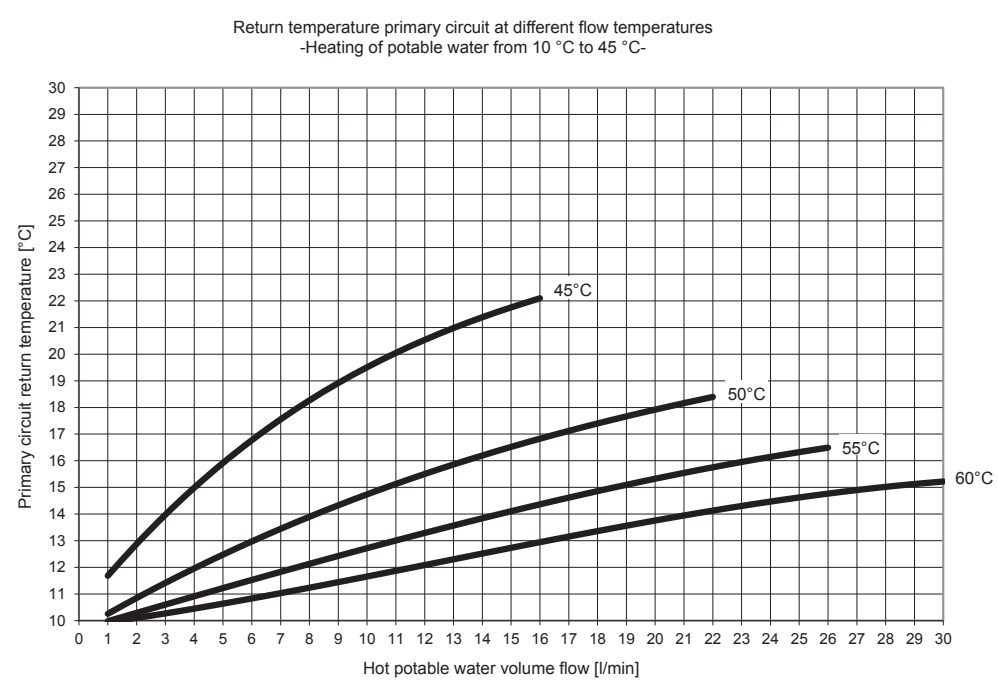


Illustr. 67: WHI apartment 12, heating of potable water to 60 °C (performance indicators as per SPF test procedure)

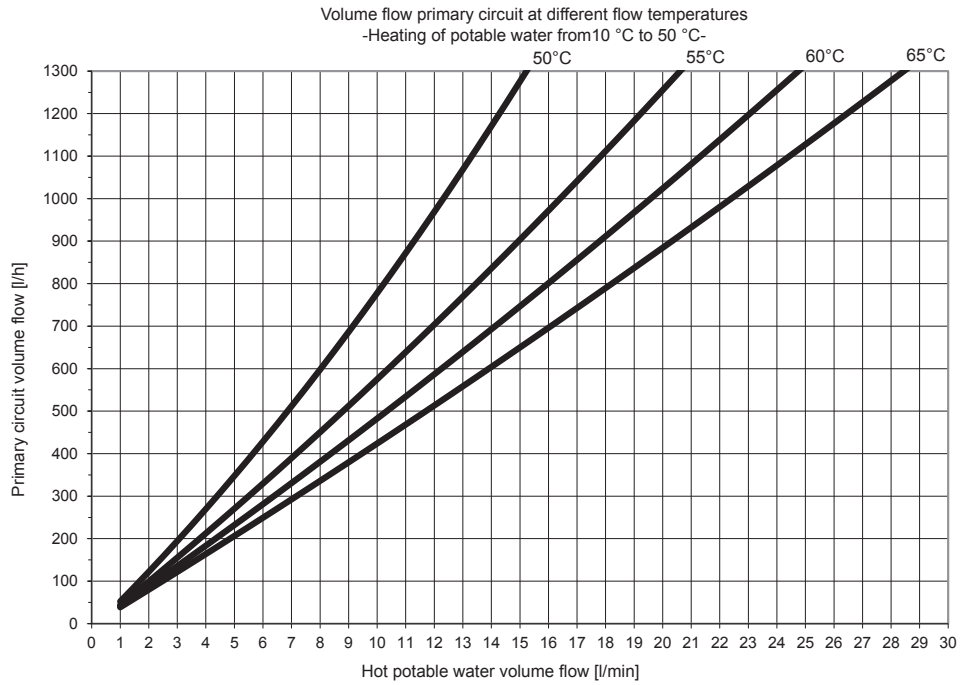
12.4 Characteristic lines for WHI apartment 18



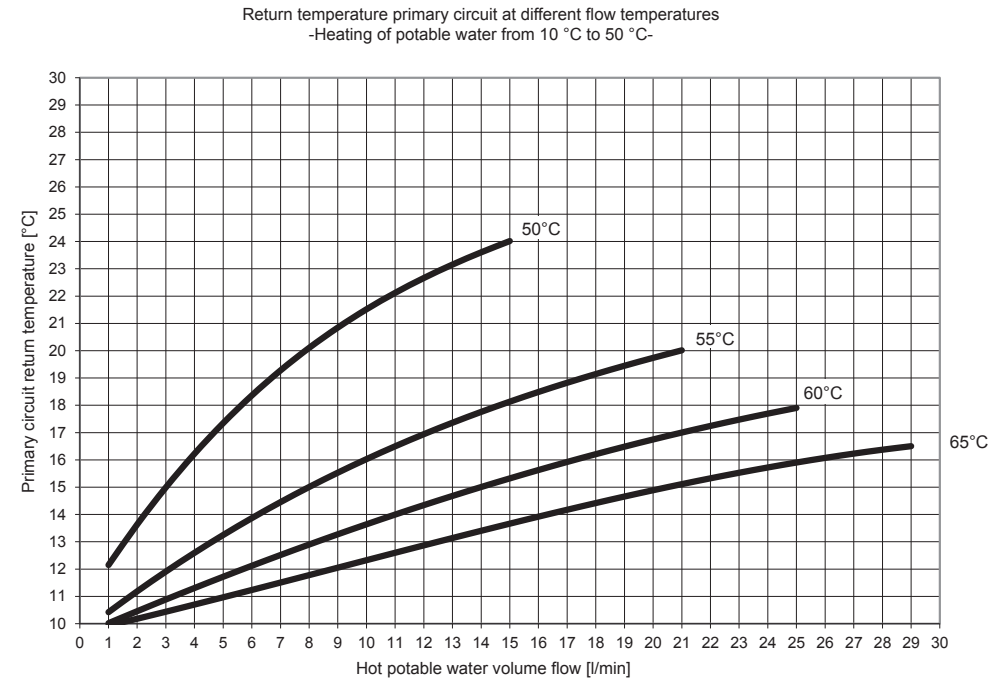
Illustr. 68: WHI apartment 18, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



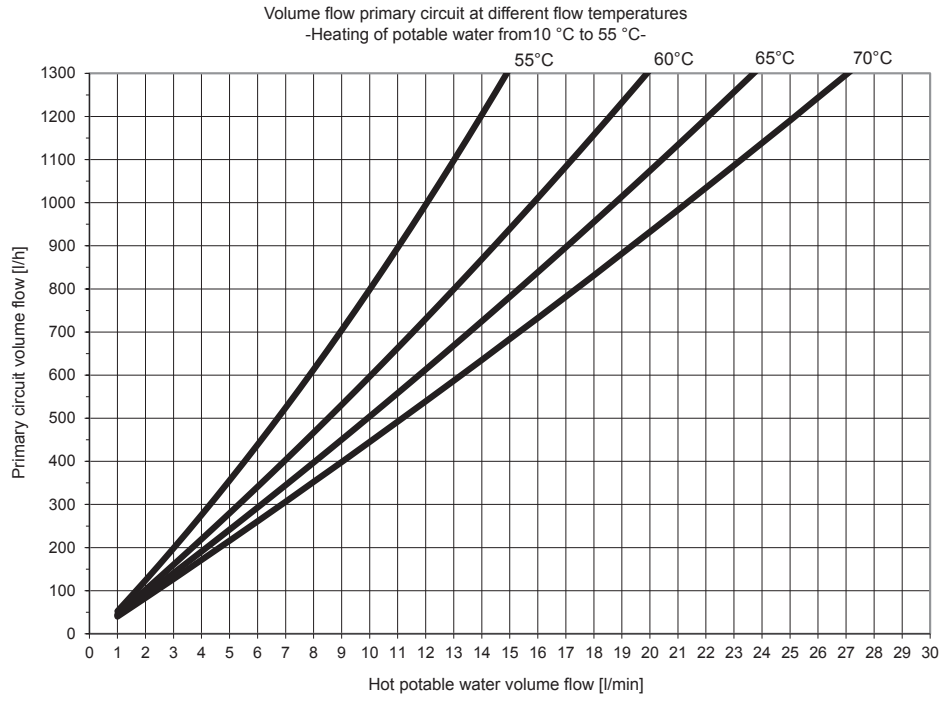
Illustr. 69: WHI apartment 18, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



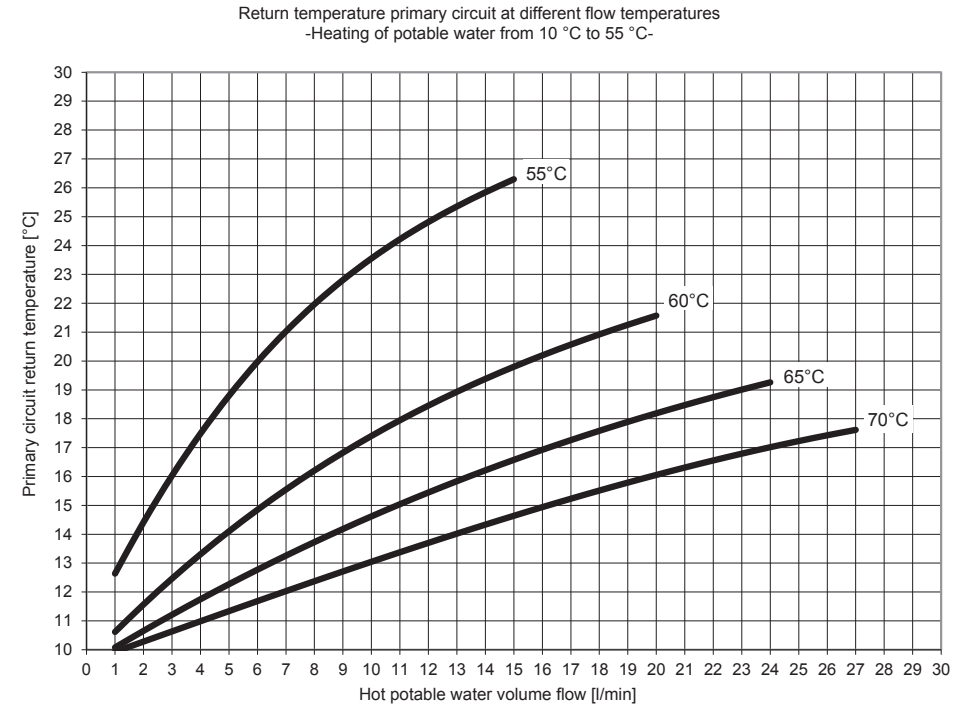
Illustr. 70: WHI apartment 18, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



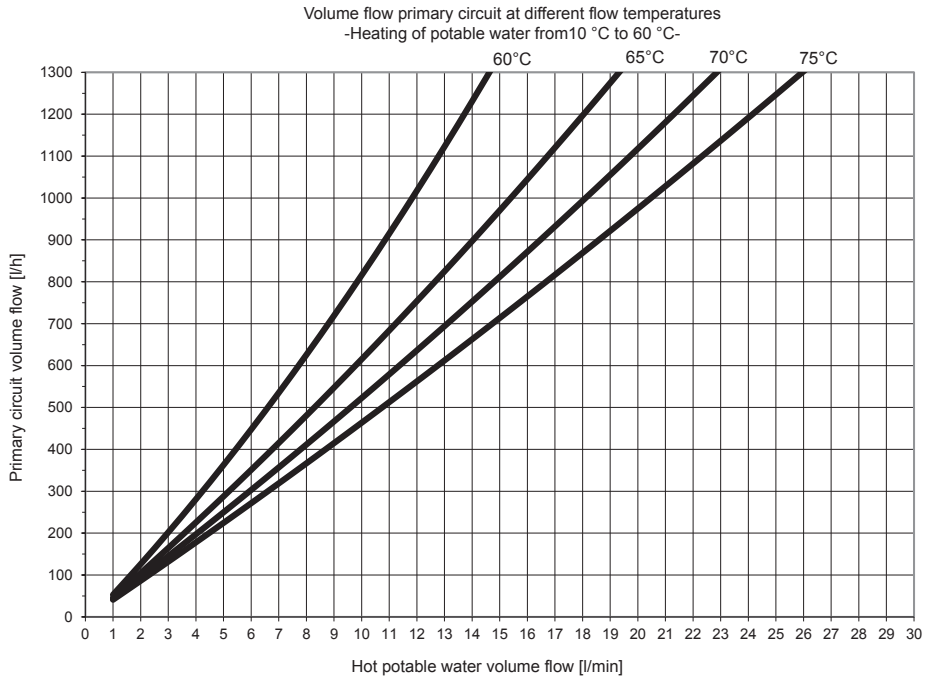
Illustr. 71: WHI apartment 18, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



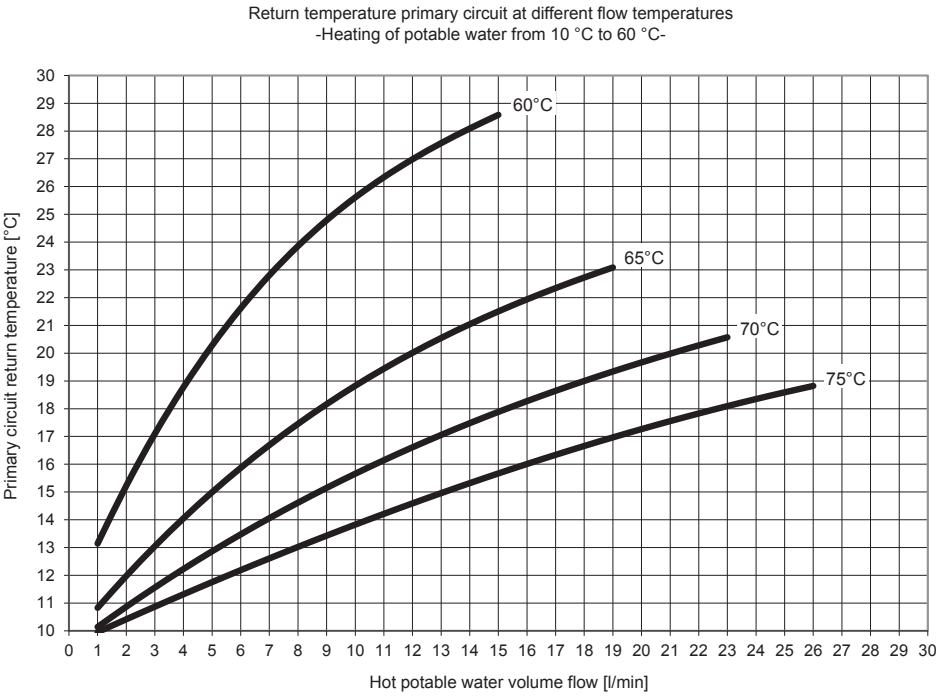
Illustr. 72: WHI apartment 18, heating of potable water to 55 °C (performance indicators as per SPF test procedure)



Illustr. 73: WHI apartment 18, heating of potable water to 55 °C (performance indicators as per SPF test procedure)

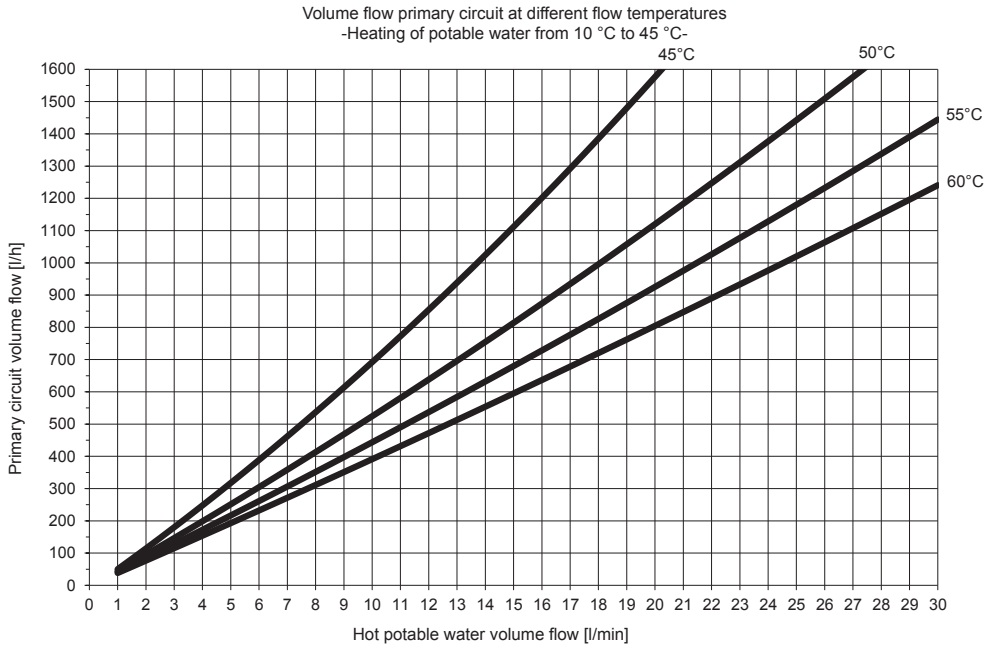


Illustr. 74: WHI apartment 18, heating of potable water to 60 °C (performance indicators as per SPF test procedure)

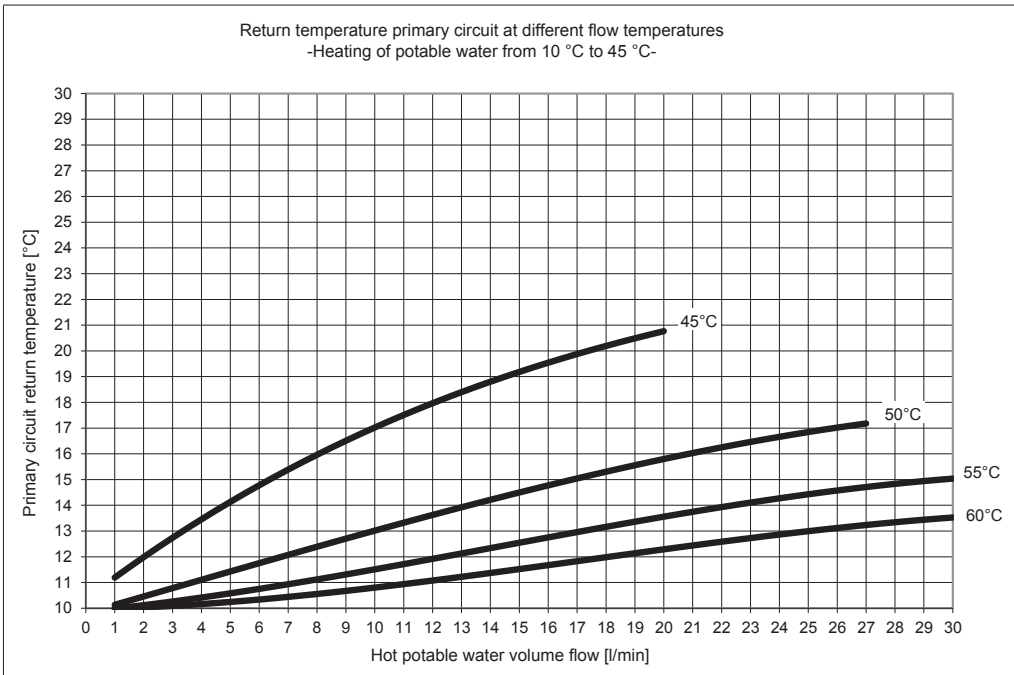


Illustr. 75: WHI apartment 18, heating of potable water to 60 °C (performance indicators as per SPF test procedure)

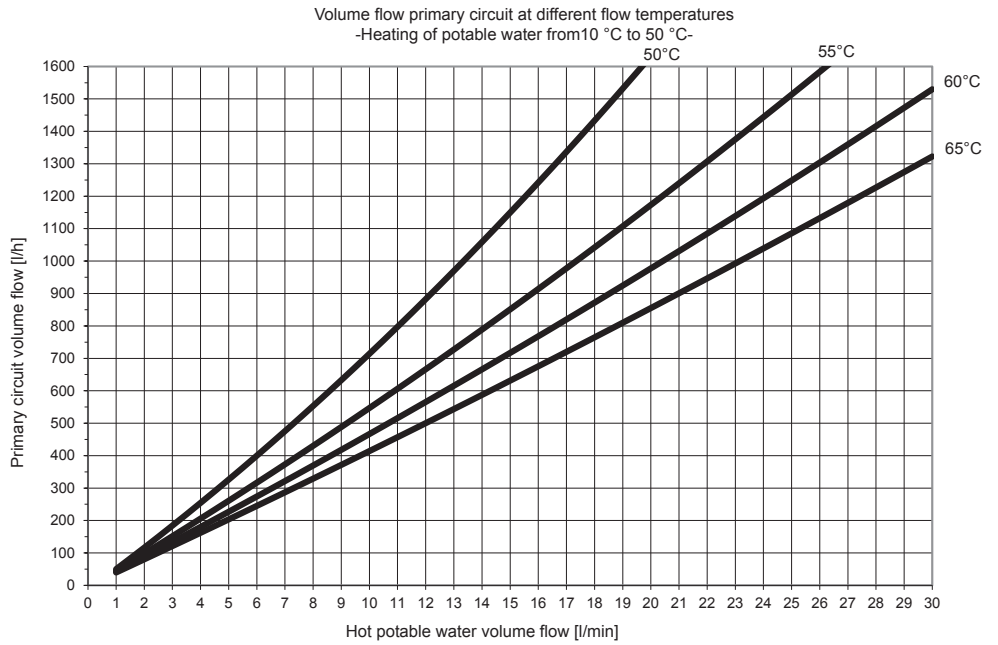
12.5 Characteristic lines for WHI apartment 25



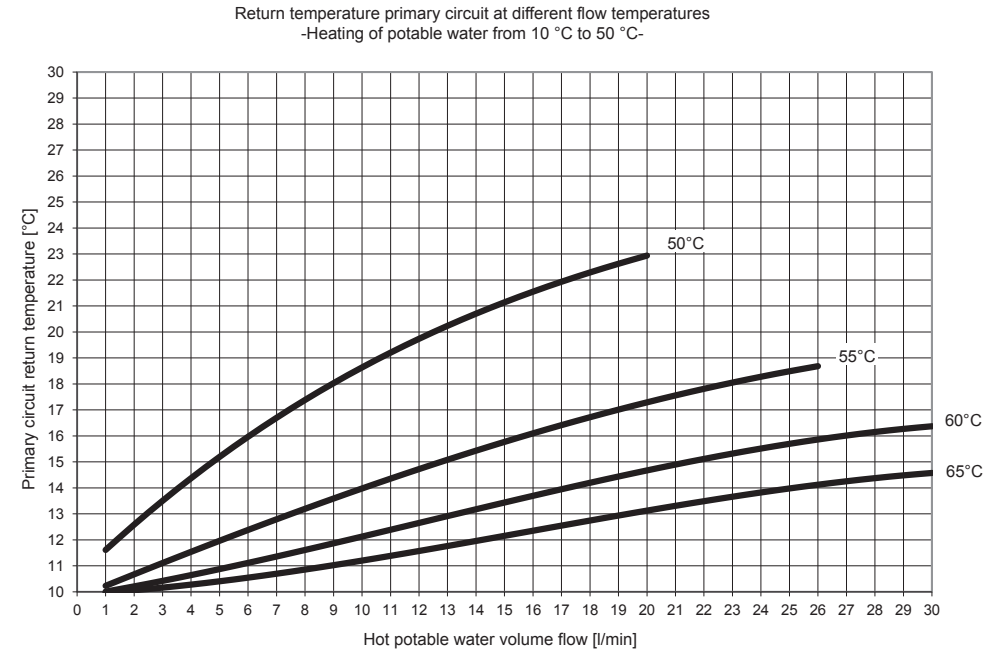
Illustr. 76: WHI apartment 25, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



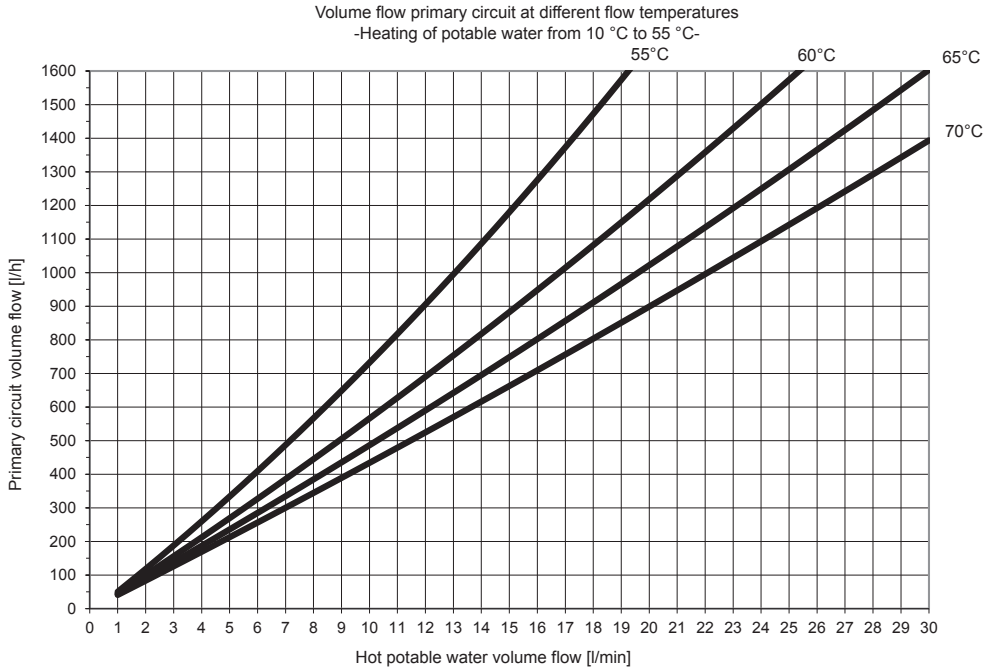
Illustr. 77: WHI apartment 25, heating of potable water to 45 °C (performance indicators as per SPF test procedure)



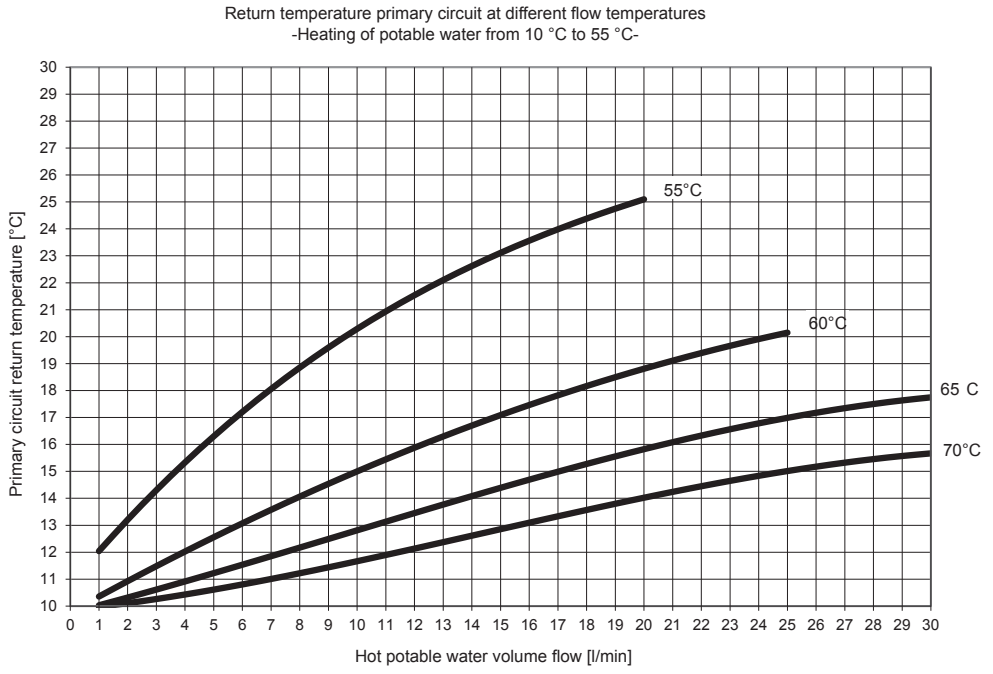
Illustr. 78: WHI apartment 25, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



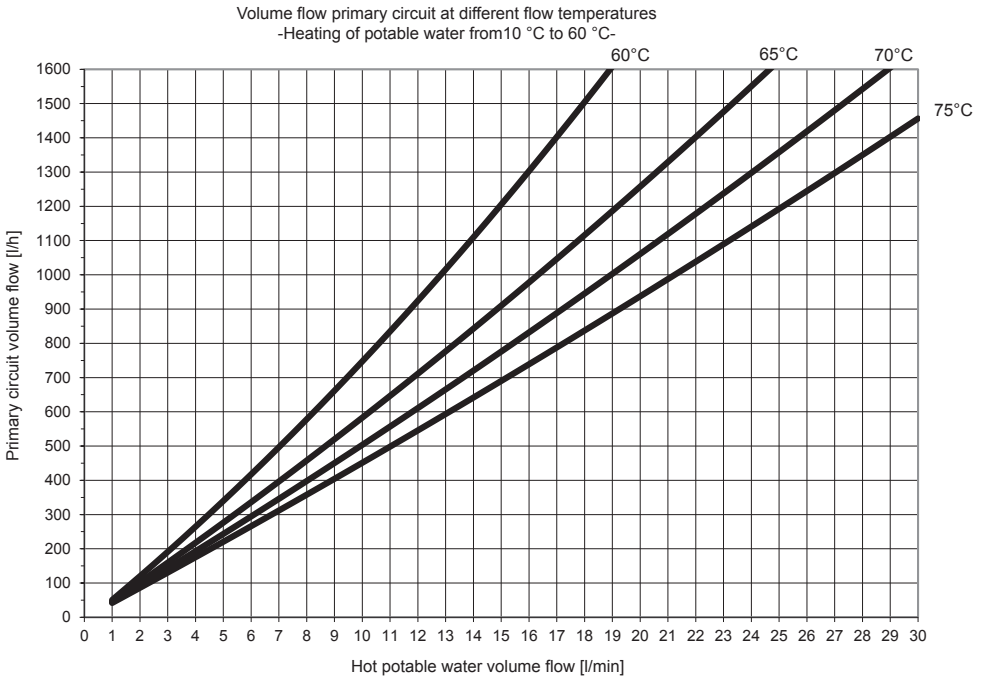
Illustr. 79: WHI apartment 25, heating of potable water to 50 °C (performance indicators as per SPF test procedure)



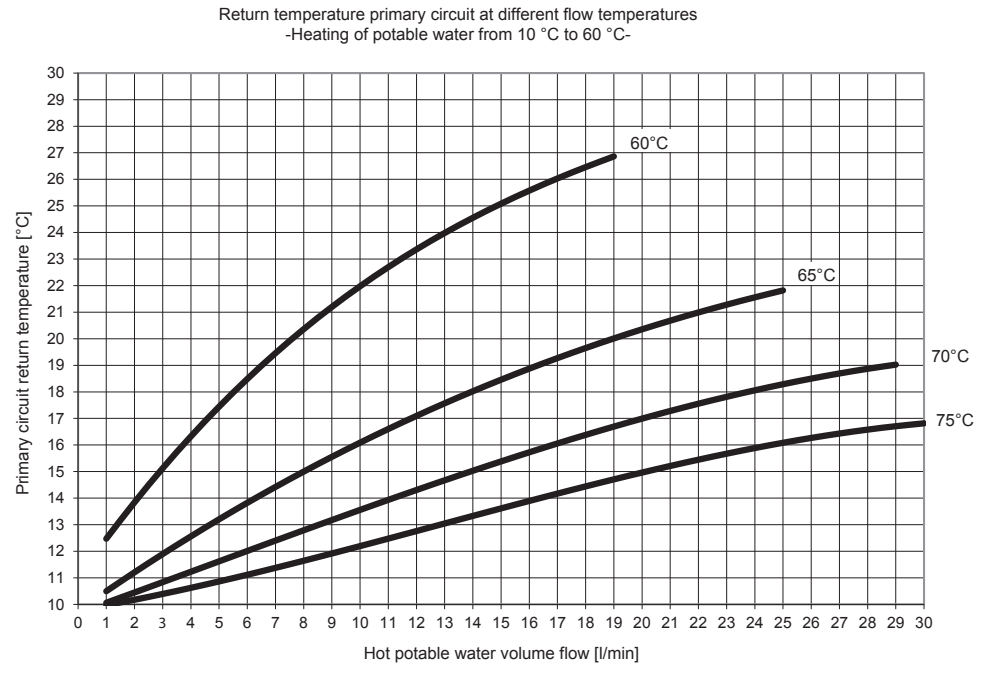
Illustr. 80: WHI apartment 25, heating of potable water to 55 °C (performance indicators as per SPF test procedure)



Illustr. 81: WHI apartment 25, heating of potable water to 55 °C (performance indicators as per SPF test procedure)



Illustr. 82: WHI apartment 25, heating of potable water to 60 °C (performance indicators as per SPF test procedure)



Illustr. 83: WHI apartment 25, heating of potable water to 60 °C (performance indicators as per SPF test procedure)

12.6 Advice regarding corrosion protection

The materials used in Weishaupt fresh water and dwelling stations are selected and processed based on strict quality requirements. The plate material (stainless steel 1.4401) used in the heat exchanger has proven its durability in potable water applications. Despite this, **depending on the water quality, and in particular in the case of high chloride concentrations > 100 mg/l**, it is possible that **corrosion may cause leakages** from the heat exchangers.

It is therefore very important that the system's planner and/or operator ensure that the fresh water and dwelling stations are only operated using **potable water** of a chemical composition which is **non-corrosive** for the station's components.

If necessary, consult your local water supply company.

The following table contains thresholds for substances in potable water when using heat exchangers with different **solder materials** (copper, nickel or stainless steel).

It is important to note that **interactions** may occur between certain substances in water that can cause considerable damage to the materials used.

This includes, among others, the combination of hydrogen carbonate with chloride and/or sulphate (see following page).

A suitable heat exchanger must therefore be selected on the basis of the water characteristics and the substances it contains. Your local water supply company will provide corresponding analyses on request.

Water quality requirements

		Stainless steel heat exchanger soldered with:	
SUBSTANCE	**CONCENTRATION** (mg/l or ppm)	**COPPER**	**COPPER fully sealed**
⚠ Chloride (Cl^-) at 60 °C See diagram on reverse!	< 100 100 – 150 > 150	+ - -	+ + 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 lower pH value (below 6) increases the risk of corrosion, while a high pH value (over 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
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 -	+ + +

		Stainless steel heat exchanger soldered with:	
SUBSTANCE	**CONCENTRATION** (mg/l or ppm)	**COPPER**	**COPPER fully sealed**
Nitrate (NO_3^-)	< 100 > 100	+ 0	+ +
NOTES:	+ Good durability under normal conditions 0 Corrosion may occur - Not recommended for use		

Further advise regarding corrosion protection

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

▶ Do not set the hot water temperature or the heating water flow temperature too high.

NOTICE

Long periods of stagnation increase the risk of corrosion

▶ Flush the system on a regular basis – either manually or automatically – if regular long periods of stagnation are to be expected (VDI/DVGW 6023).

NOTICE

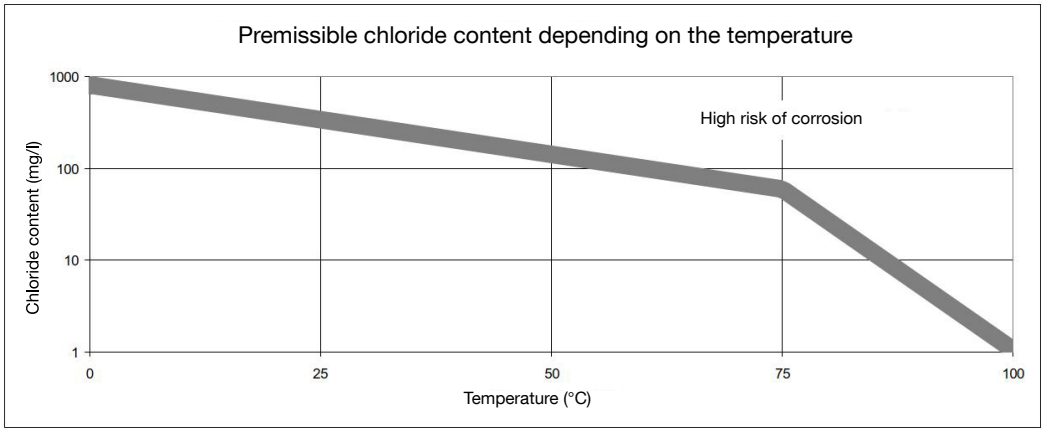
- As a fundamental rule, you should take particular care when combining hydrogen carbonate and chloride. **Low hydrogen carbonate content combined with high a chloride content increases the risk of corrosion.**
- Take particular care when combining hydrogen carbonate and sulphate**. If using copper-brazed heat exchangers, the hydrogen carbonate content in the water must not be less than the sulphate content.** If this does occur, then a nickel, stainless steel or fully sealed heat exchanger must be used instead.
- If the thresholds for substances in water are not observed, a **water treatment system** may need to be installed.

If a water treatment system is operated incorrectly, it can increase the risk of corrosion!

NOTICE

- **For mixed installations, the so-called "flow rule" must be observed when using copper-brazed heat exchangers in conjunction with galvanised steel pipes.** Further information in this regard is provided in DIN EN 12502.
- **Rinse all of the station's pipework** before **installation** (DIN EN 806-4) to remove any dirt particles and residues from the system.
- When performing **maintenance** on the station, remember that **cleaning agents can lead to corrosion of the heat exchanger**. Observe the provisions set down by the German Technical and Scientific Association for Gas and Water (DVGW) in this regard, e.g. Worksheets W291 and W319.

- **When using a copper-brazed heat exchanger that is not fully sealed, the electrical conductivity of the water can vary between 50 and 500 µS/cm**. Bear this in mind in particular in the context of water treatment pursuant to VDI2035.



NOTICE

Corrosion and scale formation in the system

▶ It is the responsibility of the system's planner and the system's operator to take substances in water and factors which could influence corrosion and scale formation into account and to evaluate their impact on their respective situation. Therefore, in areas where water supply is critical, it is crucial to consult the local water supply company in advance.

Change of legal form from 22.11.2024: Max Weishaupt SE

Max Weishaupt GmbH · 88475 Schwendi

Weishaupt close by? Addresses, telephone numbers etc. can be found at www.weishaupt.de

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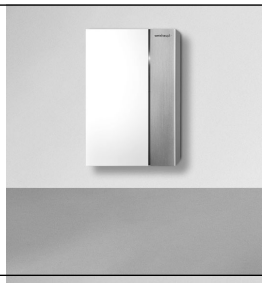
From control panels to complete building management systems - at Weishaupt you can find the entire spectrum of modern control technology. Future orientated, economical and flexible.

Service

Weishaupt customers can be assured that specialist knowledge and tools are available whenever they are needed. Our service engineers are fully qualified and have extensive product knowledge, be it for burners, heat pumps, condensing boilers or solar collectors.



Wall-hung condensing boilers for gas **up to 240 kW**

The wall-hung condensing boilers WTC-GW have been developed to meet the highest demands in ease of operation and efficiency. Modulating operation means these units operate quietly and economically.

Floor-standing condensing boilers for oil and gas **up to 1,200 kW**

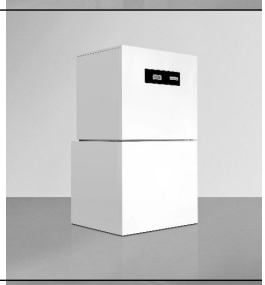
The floor-standing condensing boilers WTC-GB (up to 300 kW) and WTC-OB (up to 45 kW) are efficient, low in pollutants and versatile in use.
Even the largest capacities can be covered by cascading up to four gas condensing boilers.

Solar systems

The stylish flat-plate collectors are the ideal complement for any Weishaupt heating system. They are suitable for solar water heating and for combined heating support. With versions for on-roof, in-roof and flat roof installations, solar energy can be utilised on almost any roof.

Water heaters/Energy storage

The diverse program of potable water and energy storage for various heat sources includes storage volumes of 70 to 3,000 litres. In order to minimize storage losses, potable water cylinders from 140 to 500 litres are available with highly efficient insulation using vacuum insulation panels.



Heat pumps **up to 180 kW**

The heat pump range offers solutions for the utilisation of heat from the air, the soil or ground water.
Some systems are also suitable for cooling buildings.

Geothermal probe drilling

With its daughter company, BauGrund Süd, Weishaupt also offers geothermal probe and well drilling. With the experience of more than 10,000 systems and more than 2 million meters of drilling, BauGrund Süd offers a comprehensive service program.

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