oventrop

# Regudis W-HTE GT

Operating instructions EN

# Regudis W-HTE GT

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# 1. General information

The original operating instructions are written in German.

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

## 1.1 Validity of the instructions

These instructions are valid for the Regudis W-HTE GT dwelling station.

| Performance range 1 | |
|---|---|
| Heat exchanger copper brazed | Item no. 1344230 |
| Heat exchanger copper brazed, Sealix® protective layer | Item no. 1344250 |
| **Performance range 2** | |
| Heat exchanger copper brazed | Item no. 1344231 |
| Heat exchanger copper brazed, Sealix® protective layer | Item no. 1344251 |

## 1.2 Type plate

The type plate is located at the top left-hand side of the base plate.

*Fig. 1: Position of the type plate*

**1** Type plate

## 1.3 Scope of delivery

Check your delivery for transport damage and completeness.

The scope of delivery includes:

- Dwelling station Regudis W-HTE GT
- Operating instructions
- Fastening material
- Seal set
- Adapter for temperature sensor

## 1.4 Contact

OVENTROP GmbH & Co. KG
Paul-Oventrop-Straße 1
59939 Olsberg
GERMANY
www.oventrop.com

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

## 1.5 Symbols used

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

# 2. Safety-related information

## 2.1 Normative guidelines

Observe the legal framework conditions applicable at the installation site.

The currently valid standards, rules and guidelines apply.

## 2.2 Intended use

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

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

Only use the product as intended:

- In technically perfect condition.
- Within the scope of the prescribed conditions of use.
- When all safety devices are fully functional.
- Following all instructions.
- Safety- and hazard-conscious.

At locations directly connected to the public low-voltage grid.

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

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

Intended use also includes correct compliance with these instructions.

## 2.3 Modifications to the product

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

## 2.4 Warnings

Each warning contains the following elements:

**Warning symbol SIGNAL WORD**

**Type and source of danger**

Possible consequences if the danger occurs or the warning is ignored.

! Ways to avoid the danger.

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

**DANGER**

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

**WARNING**

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

**CAUTION**

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

***NOTICE***

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

## 2.5 Safety devices

### 2.5.1 Automatic closing mechanism for the control valve

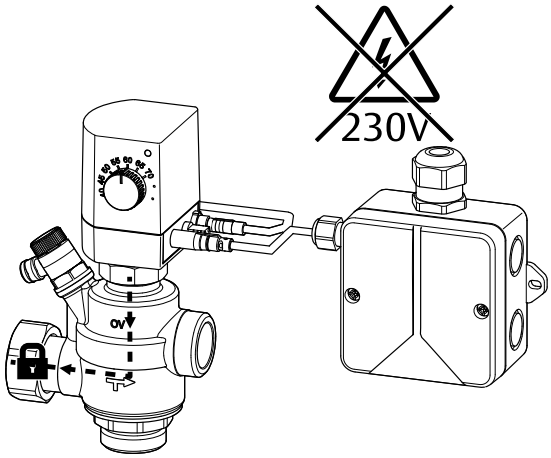



*Fig. 2: Control valve closes in the event of a power failure*

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

## 2.6 Safety instructions

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

Observe the following instructions for safe use.

### 2.6.1 Danger due to insufficient personnel qualification

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

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

**Qualified electricians**

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

- Connection of the product to the power supply.

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

**Specialist sanitary, heating and air-conditioning tradespeople**

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

- Mounting
- Commissioning
- Troubleshooting

- Maintenance
- Dismantling and disposal

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

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

- Operation of the product

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

### 2.6.2 Danger to life due to electric current

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

- ! Disconnect the dwelling station from the power supply at all poles and secure it against being switched on again.
- ! Check that no voltage is present.
- ! Only mount the product in dry indoor areas.

### 2.6.3 Danger to life due to legionella formation

- ! Ensure the following:
- The temperature of the potable water in the cold water pipe must not exceed 25 °C.
- The water in the potable water circuit must be completely replaced after 72 hours at the latest.

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

### 2.6.4 Risk of scalding due to hot water

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

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

### 2.6.5 Risk of injury from pressurised components

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

### 2.6.6 Risk of burns due to unintentionally escaping hot media

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

### 2.6.7 Risk of burns on hot components and surfaces

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

### 2.6.8 Risk of injury due to weight of the product

- ! Always wear safety shoes during mounting.

### 2.6.9 Risk of injury from improper work

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

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

### 2.6.10 Damage to property due to unsuitable location

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

### 2.6.11 Availability of the operating instructions

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

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

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

# 3. Technical description

## 3.1 Design

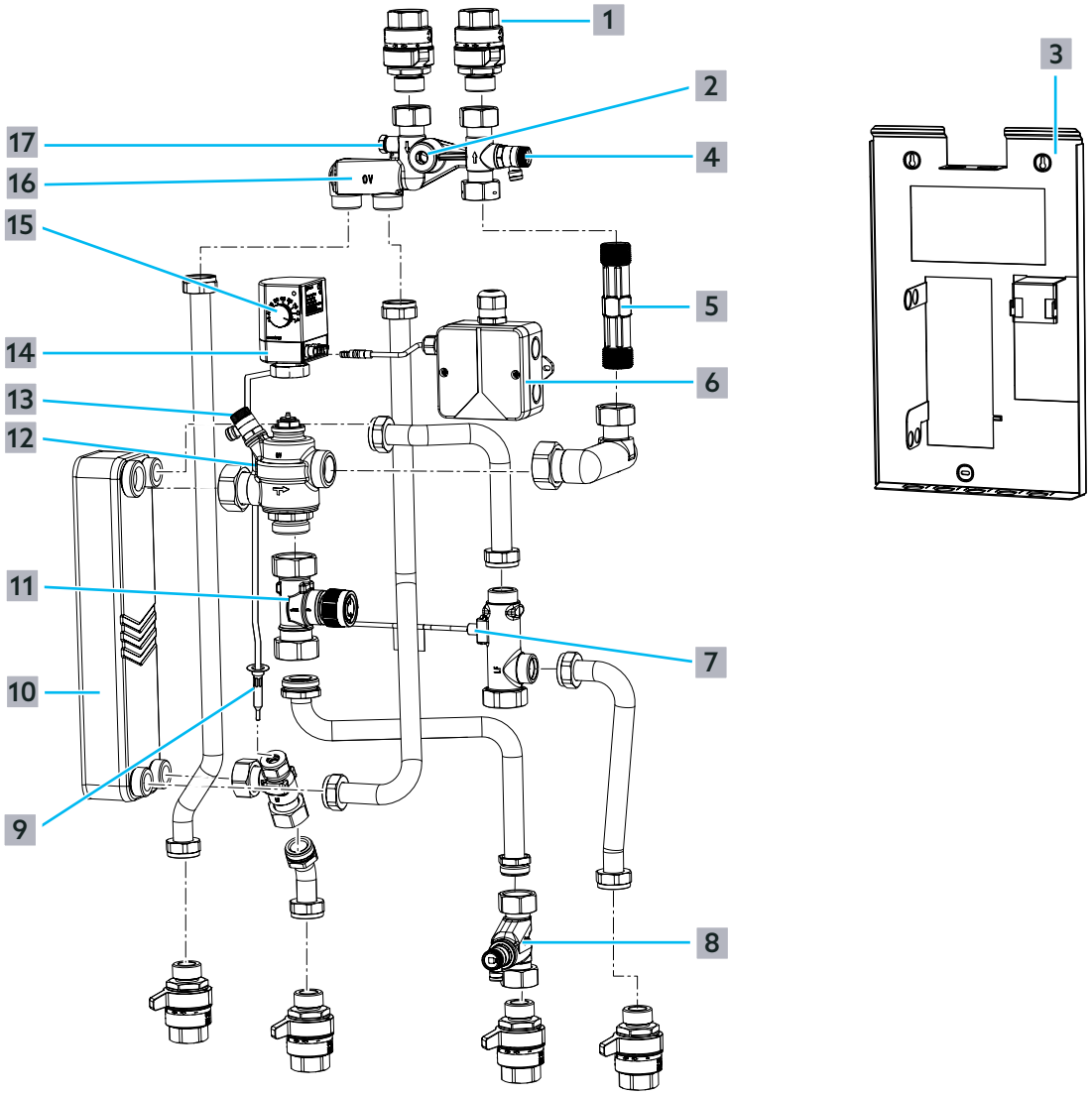



*Fig. 3: Overview of the Regudis W-HTE GT dwelling station*

**1** Ceramic disc valve
**2** Connection for derivative temperature control set
**3** Base plate
**4** Vent valve in the primary circuit
**5** Spacer for heat meter
**6** Connection box for power supply
**7** Volume flow sensor
**8** Drain valve in the heating circuit with filter insert
**9** Hot water temperature sensor
**10** Heat exchanger
**11** Zone valve for heating circuit control
**12** Control valve with integrated differential pressure and volume flow control
**13** Vent valve in the heating circuit
**14** Actuator with integrated potable water temperature control
**15** Rotary knob
**16** Filter insert in the primary supply
**17** Connection in the primary supply for the temperature sensor of the heat meter

## 3.2 Functional description

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

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

In the heat exchanger (10), potable water is heated according to the continuous flow principle only when it is needed. The demand for hot water is detected by the volume flow sensor (7).

The setpoint temperature for the hot water is adjusted with the rotary knob (15) on the actuator (14). During operation, the temperature sensor continuously measures the temperature of the hot water at the hot water outlet of the heat exchanger. The temperature sensor forwards this information to the electronic control.

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

The actuator opens and closes the control valve (12). Depending on the position of the control valve, more or less hot heating water flows from the primary supply into the heat exchanger according to demand.

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

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

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

Optionally, an actuator can be mounted on the zone valve (11). This offers you the possibility to close the valve in a time-controlled manner.

The Regudis W-HTE GT dwelling station is available in different performance ranges. The performance ranges differ due to the size of the heat exchanger (see chart in the appendix).

## 3.3 Actuator with integrated potable water temperature control

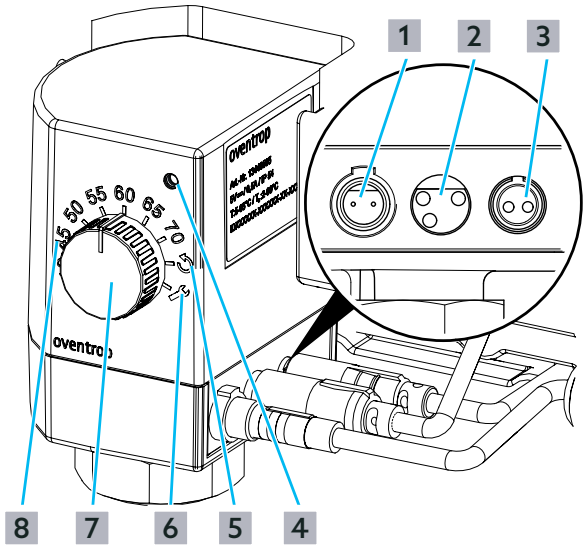



*Fig. 4: Actuator with integrated potable water temperature control*

**1** Two-pole plug (power supply)

**2** Three-pole socket (volume flow sensor)

**3** Two-pole socket (hot water temperature sensor)

**4** Indicator light (LED)

**5** Error reset index (only for specialist tradespeople)

**6** Service mode index (only for specialist tradespeople)

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

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

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

### 3.3.1 Service mode

The actuator is closed when delivered.

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

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

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

## 3.4 Technical data

| General information | | |
|---|---|---|
| Max. operating pressure $p_s$ | 10 bar | |
| Max. operating temperature $t_s$ | 90 °C | |
| Ambient temperature T | 2 to 35 °C | |
| Empty weight | Dwelling station | Performance range 1: 13.3 kg |
| | | Performance range 2: 14.4 kg |
| | Surface-mounted bonnet | 10 kg |

| Electrical connection: Power supply unit | |
|---|---|
| Mains input voltage | 100 to 240 V AC ±10 % |
| Mains input frequency | 50 to 60 Hz |
| Output voltage | 5 V DC +7.5 %, -5 % |
| Rated output current | max. 1200 mA |
| Protection type: Connection box | IP66 |
| Protection class | II |
| Overvoltage category | III |
| Ambient temperature | 0 to 60 °C |

| Electrical connection: Actuator | |
|---|---|
| Input voltage | 5 V DC +7.5 %, -5 % |
| Power consumption | 0.15 to 3 W |
| Protection type | IP54 |
| Ambient temperature | 0 to 60 °C |

| Dimensions | |
|---|---|
| Width x Height x Depth | 440 x 1050 x 155 mm |
| Connections | G ¾ internal thread |
| Centre distance of the connections | 65 mm |
| Centre distance to the wall | 35 mm |

| Primary circuit (buffer storage cylinder) | |
|---|---|
| Fluid | Heating water according to VDI 2035/Ö-Norm H 5195-1 (Austrian standard), fluid category ≤ 3 according to EN 1717, observe the specifications of the Oventrop information sheet on corrosion protection in the appendix. |
| Min. differential pressure | 150 mbar |
| Max. differential pressure | 2.0 bar |
| Min. flow temperature | See charts in the appendix. |

| Heating circuit (radiators) | |
|---|---|
| Fluid | Same as in the primary circuit. |
| Max. volume flow | 460 l/h |
| Differential pressure control | 150 mbar |

| Potable water circuit | |
|---|---|
| Fluid | Potable water (see Oventrop information sheet on corrosion protection in the appendix).<br>***NOTICE***<br>**Damage to the slide-in turbine due to chemical influences!**<br>Additives for water treatment in high concentrations can damage the slide-in turbine.<br>! Ensure that the permissible limits for potable water are not exceeded. |
| Min. cold water pressure | See charts in the appendix. |
| Setting range | 40 to 70 °C |
| Max. hot water volume flow | See charts in the appendix. |

| Material | |
|---|---|
| Heat exchanger copper brazed | Plates:<br>Stainless steel 1.4401<br>Connections:<br>Stainless steel 1.4404<br>Brazing material: Copper |
| Heat exchanger copper brazed with Sealix®-protective layer | Plate material:<br>Stainless steel 1.4401<br>Connections:<br>Stainless steel 1.4404<br>Brazing material: Copper<br>Protective layer: SiO2 basis |
| Pipes | Stainless steel 1.4404 |
| Valves and fittings | Brass |
| Temperature sensor | Stainless steel 1.4404 |
| Volume flow sensor | Brass and plastic |

| | |
|---|---|
| Spacer for heat meter | Plastic |
| Seals | EPDM and fibre materials |
| **Torques** | |
| Union nuts G ¾ | 45 Nm |
| Union nuts G 1 | 45 Nm |
| Spacer for heat meter ((5) in Fig. 3 on page 10) | 30 Nm |
| Temperature sensor ((9) in Fig. 3 on page 10) | 15 Nm |
| Filter insert ((16) in Fig. 3 on page 10) | 15 Nm |
| Vent and drain valve ((4), (8), (13) in Fig. 3 on page 10) | 15 Nm |

### 3.4.1 Dimensions in mm

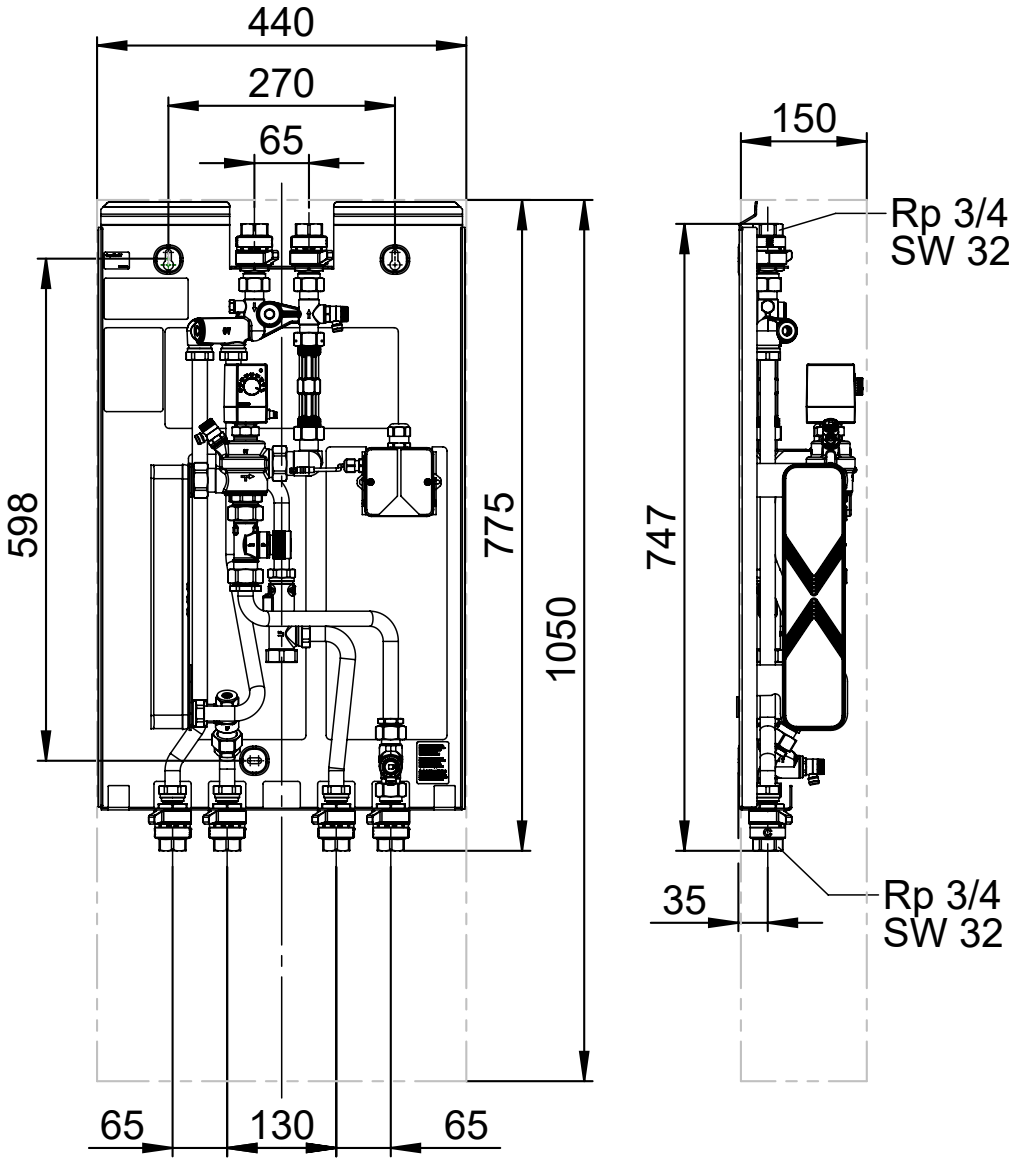



*Fig. 5: Dimensions*

# 4. Accessories and spare parts

## 4.1 Accessories

| Designation | Item no. |
|---|---|
| Derivative temperature control set | 1344490 |
| Stainless steel spacer | 1349052 |
| Actuator for zone valve | e. g. 1012452 |
| Earthing clamp | 1341092 |

## 4.2 Spare parts

| Designation | | Item no. |
|---|---|---|
| Heat exchanger copper brazed | Performance range 1 | 1344083 |
| | Performance range 2 | 1344084 |
| Heat exchanger copper brazed with Sealix®-protective layer | Performance range 1 | 1344093 |
| | Performance range 2 | 1344094 |
| Actuator with integrated potable water temperature control | | 1344491 |
| Temperature sensor | | 1344494 |
| Volume flow sensor in a housing | | 1344693 |
| Slide-in turbine for volume flow sensor | | 1344694 |
| Hall effect sensor for volume flow sensor | | 1344695 |
| Filter insert | | 1344495 |
| Control valve with integrated differential pressure and volume flow control | | 1344492 |
| Sealing ring (5 pieces for G ¾ connections) | | 1344497 |
| Sealing ring (5 pieces for G 1 connections) | | 1344498 |
| Power supply unit 100 - 240 V, ~50 - 60 Hz | | 1344496 |

## 4.3 Derivative temperature control set

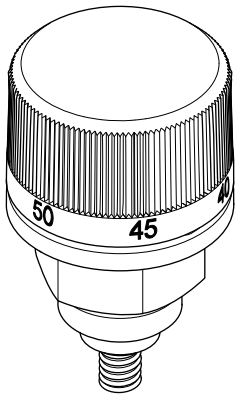



*Fig. 6: Derivative temperature control set*

The derivative temperature control set (item no. 1344490) is used to quickly provide hot potable water outside the heating mode by means of a thermostatically adjustable heating bypass.

## 4.4 Stainless steel spacer

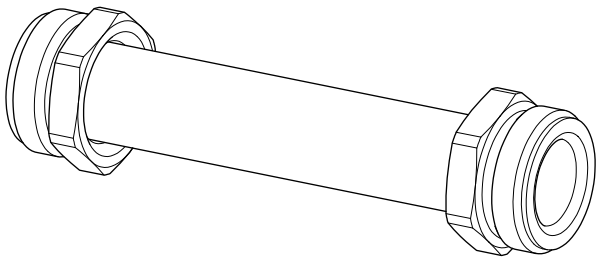


*Fig. 7: Stainless steel spacer*

Stainless steel spacer (Item-no. 1349052) for replacing the plastic spacer for the heat meter.

# 5. Transport and storage

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

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

# 6. Mounting

**WARNING**

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

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

**CAUTION**

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

- ! Always wear safety shoes during mounting.

**CAUTION**

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

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

## 6.1 Notes on mounting

A suitable mounting location for the dwelling station is the previous position of the gas boiler.

- Before mounting the dwelling station, make sure that pipes have been laid to the installation site, and have been flushed and checked for leaks.
- Before mounting the dwelling station, make sure that a power cable and an earthing cable have been laid to the installation site.
- There are recesses for cable entry in the upper and lower part of the surface-mounted bonnet and in the base plate.
- The cable's outer sheath must be able to withstand temperatures of up to 90 °C.

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

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

## 6.2 Piping

*Fig. 8: Connection assignment*

**1** Primary supply from the buffer storage cylinder

**2** Primary return to the buffer storage cylinder

**3** Heating circuit return

**4** Cold water inlet from the house connection

**5** Hot water outlet

**6** Heating circuit supply

## 6.3 Wall mounting the dwelling station

### 6.3.1 Wall mounting the dwelling station

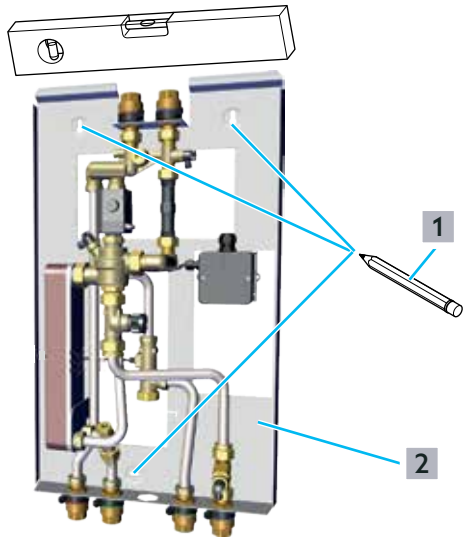



*Fig. 9: Aligning and marking the dwelling station*

**1** Bore holes

**2** Base plate

1 Have suitable fastening material ready.

2 Position the dwelling station horizontally on the wall.

3 Mark the drill holes through the upper area of the bore holes (1) in the base plate (2).

4 Lift the dwelling station from the wall.

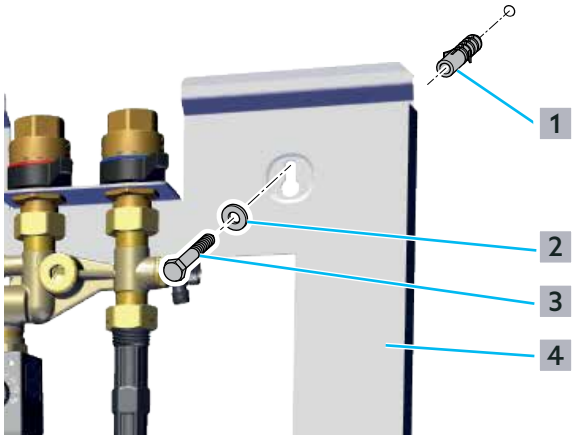



*Fig. 10: Wall mounting the dwelling station*

**1** Dowel

**2** Washer

**3** Screw

**4** Dwelling station

5 Drill holes in the wall at the markings and insert the dowels (1).

Make sure that no dirt enters the pipework.

6 Screw the two upper screws with washers into the dowels. Leave the screws protruding from the wall by approximately 5 mm.

7 Lift the dwelling station onto the wall and position the bore holes in the base plate on the screws.

8 Align the dwelling station on the wall.

9 Tighten the screws firmly.

10 Screw the lower screw with the washer into the dowel and tighten the screw firmly.

▷ The dwelling station is mounted on the wall.

## 6.4 Mounting the heat meter

The factory-fitted meter spacer is used for commissioning/pressure testing and is not suitable for continuous operation. If no meter is fitted, us the stainless steel spacer from the accessories range.

The heat meter must have the following characteristics:

- Fast sampling rate (approx. 4 s)
- Housing length: 110 mm
- Connections: G ¾
- $q_p$ = 1.5 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 27.5 (≤Ø5.6).
- No inlet or outlet sections required
- Lowest possible pressure loss

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

**⚠ WARNING**

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

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

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

! Wear safety goggles.

**CAUTION**

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

- ! Allow the system to cool down.
- ! Wear safety goggles.

**CAUTION**

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

- ! Wear safety gloves.

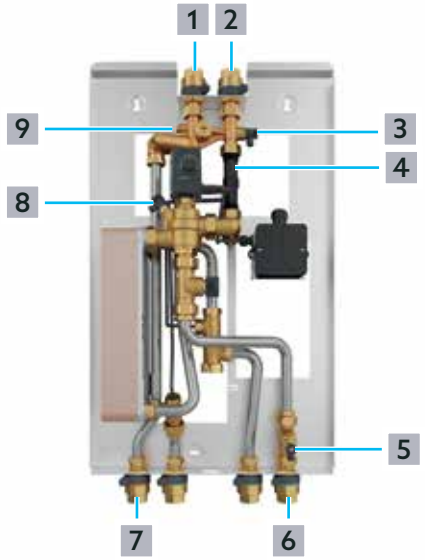



*Fig. 11: Mounting the heat meter*

**1** Primary supply
**2** Primary return
**3** Vent valve in the primary circuit
**4** Spacer
**5** Drain valve
**6** Heating circuit return
**7** Heating circuit supply
**8** Vent valve in the heating circuit
**9** Plug

Please observe the separate operating instructions of the heat meter.

1 Close the ceramic disc valves in the primary supply (1), primary return (2), heating circuit supply (7) and heating circuit return (6).

Connect a hose line to the drain valve (5) in the primary circuit to make it easier to direct escaping water into a container.

2 Slowly open the vent valve (3) and the drain valve (5).
3 When the heating circuit above the drain valve is empty, close the drain valve (5) and the vent valve (3) again.
4 Remove the spacer (4) from the pipe.
5 Install the heat meter with seals in the pipe.

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

6 Unscrew the plug (9) from the connection for the temperature sensor of the heat meter in the primary supply and put it aside.
7 Screw the enclosed adapter for the temperature sensor into the connection that has become free.
8 Screw the temperature sensor into the adapter.
9 Slowly open the ceramic valve discs in the primary return (2) and primary supply (1).
10 Open the vent valve (8) slightly.
11 As soon as no more air escapes, close the vent valve (8).
12 Slowly open the ceramic disc valves in the heating circuit return (6) and heating circuit supply (7).
13 Open the vent valve (3) slightly.
14 As soon as no more air escapes, close the vent valve (3).
15 Check all components and screw connections for leaks.
16 Tighten any screw connections that are too loose.
17 Seal the heat meter.
▷ The heat meter is mounted.

## 6.5 Connecting the dwelling station electrically

**DANGER**

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

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

### 6.5.1 Connecting the equipotential bonding

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

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

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

▶ Comply with applicable standards and country-specific regulations.

**DANGER**

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

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

*Fig. 12: Earthing the dwelling station*

▶ Mount an earthing clamp (Ø 18 mm) on the dwelling station's pipework in the area marked in grey (1).

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

### 6.5.2 Connecting the dwelling station electrically

**DANGER**

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

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

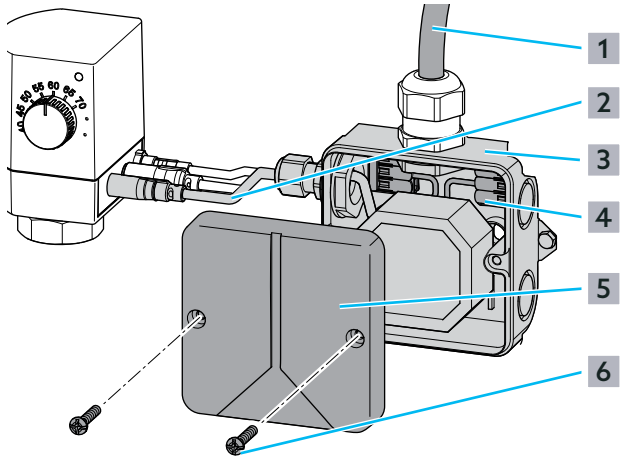



*Fig. 13: Connecting the dwelling station electrically*

**1** Power supply cable
**2** Power supply unit cable
**3** Connection box
**4** Connection terminals
**5** Cover
**6** Screw

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. Connect the dwelling station to the power supply.

▷ Mounting is complete.

# 7. Commissioning

**CAUTION**

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

! Wear safety goggles during all work.

**CAUTION**

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

! Wear safety gloves.

## 7.1 Filling and venting the heating circuit

**CAUTION**

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

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

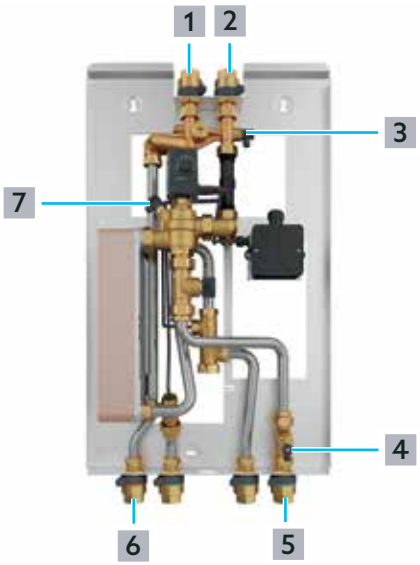



*Fig. 14: Filling and venting the heating circuit*

**1** Primary supply

**2** Primary return

**3** Vent valve

**4** Drain valve

**5** Heating circuit return

**6** Heating circuit supply

**7** Vent valve

**NOTICE**

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

! Always open the ceramic disc valves slowly.

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

1. Check that the drain valve (4) and the vent valves ((3) and (7)) in the primary circuit are closed.
2. Open the ceramic disc valve in the heating circuit supply (6).
3. Open the ceramic disc valve in the heating circuit return (5).
4. Slowly open the ceramic disc valve in the primary supply (1) to fill the dwelling station.

Connect a hose line to the drain valve (3) in the primary circuit to make is easier to direct escaping water into a container.

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

5. Open the vent valve (3) in the primary circuit.
6. As soon as water escapes without bubbles, set the rotary knob ((7) in Fig. 4 on page 11) of the actuator to the service index mode ((6) in Fig. 4 on page 11).
7. As soon as water escapes without bubbles, close the vent valve (3).
8. Open the vent valve (7) in the primary circuit slightly.
9. As soon as water escapes without bubbles, close the vent valve (7).
10. Set the rotary knob ((7) in Fig. 4 on page 11) of the actuator to the desired hot water temperature (< 70 °C).
11. Check all components and screw connections for leaks.
12. If necessary, tighten loosened screw connections and replace defective seals.

▷ Filling and venting of the heating circuit is complete.

## 7.2 Filling the potable water circuit

*Fig. 15: Filling the potable water circuit*

**1** Hot water outlet

**2** Cold water inlet

**⚠ CAUTION**

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

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

**NOTICE**

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

! Always open the ceramic disc valves slowly.

1. Slowly open the ceramic disc valve in the cold water inlet (2) to fill the dwelling station.
2. Slowly open the ceramic disc valve in the hot water outlet (1).
3. Open the draw-off point furthest away and tap hot water until the potable water comes out without bubbles.
4. Close the draw-off point.
5. Check all components and screw connections for leaks.
6. If necessary, tighten loosened screw connections and replace defective seals.

▷ Filling of the potable water circuit is complete.

## 7.3 Setting the ceramic disc valves for operation

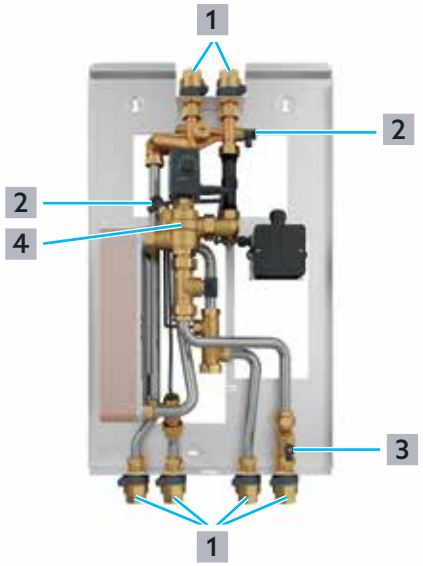



*Fig. 16: Setting the ceramic disc valves*

**1** Ceramic disc valve

**2** Vent valve

**3** Drain valve

**4** Zone valve

Set the ceramic disc valves and valves of the dwelling station for operation:

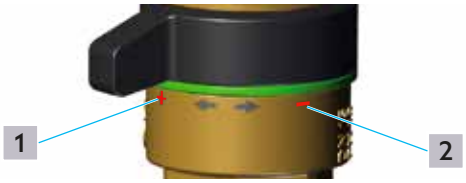



*Fig. 17: Handle position open / closed*

**1** Handle position open

**2** Handle position closed

The ceramic disc valves on the dwelling station must be open (see Fig. 17).

- The zone valve ( (4) in Fig. 16 on page 20) must be open.
- The vent valves ((2) in Fig. 16 on page 20) and the drain valve ((3) in Fig. 16 on page 20) must be closed.

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

## 7.4 Setting the hot water temperature

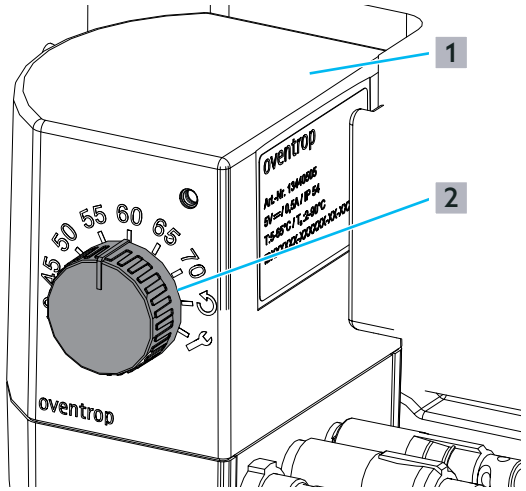



*Fig. 18: Setting the hot water temperature*

**1** Actuator with integrated potable water temperature control

**2** Rotary knob

- Observe the notes on scald protection in section 2.6.4 on page 9.
- Set the desired hot water temperature with the rotary knob (2) on the actuator (1).

### 7.4.1 Sliding hot water temperature control

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

If necessary, check the set storage cylinder temperature.

## 7.5 Setting the derivative temperature control set (if available)

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

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

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

- Set the temperature to the desired value on the handwheel of the derivative temperature control set.

## 7.6 Teaching-in the actuator

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

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

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

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

## 7.7 Mounting the surface-mounted bonnet

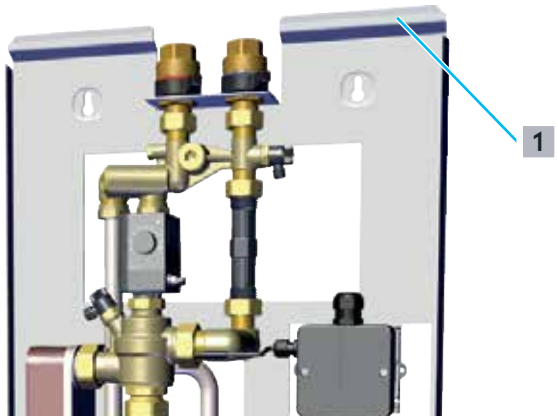



*Fig. 19: Mounting the surface-mounted bonnet*

**1** Bevelling on the base plate

1. Place the surface-mounted bonnet from above on the bevelling of the base plate (1). There are magnetic points on the lower part of the surface-mounted bonnet. They hold the surface-mounted bonnet in position.

## 7.8 Instructing the operator

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

▷ Commissioning is complete.

# 8. Troubleshooting

## 8.1 Troubleshooting table

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| No heating of the potable water (only cold water at the draw-off points, LED lights up green). | The volume flow sensor is contaminated or defective. | Clean the volume flow sensor (see section 8.4 on page 27). If this does not solve the problem, replace the volume flow sensor. |
| No heating of the potable water (only cold water at the draw-off points, LED off). | The actuator with integrated potable water control is not in operation (de-energised). | Check the power supply to the actuator and restore the power supply if necessary. |
| No heating of the potable water (only cold water at the draw-off points, LED flashes green). | There is an air inclusion in the heating circuit. | Vent the heating circuit (see section 7.1 on page 19). |
| | The filter insert in the primary supply is clogged. | Clean or replace the filter insert (see section 8.5.1 on page 29). |
| | The heating system has a malfunction. | Remedy the malfunction. |
| The hot water temperature at the draw-off point(s) drops. | The heating water temperature is too low. | Increase the heating water temperature in the buffer storage cylinder. If necessary, check the output of the heat generator. |
| | The storage cylinder capacity is not sufficient. | Check the system design and increase the storage cylinder capacity if necessary. |
| During tapping, hot water temperatures fluctuate. | The control parameters do not match the conditions present in the object. | Teach in the actuator (see section 7.6 on page 21) to adapt the control to the conditions in the building's heating system. |
| | The temperature sensor at the hot water outlet ((9) in Fig. 3 on page 10) is defective. | Replace the temperature sensor (item no. 1344494).<br>If necessary, contact the technical customer service (see section 1.4 on page 7). |
| With larger draw-off quantities, the target temperature is no longer reached. | The heating water temperature is not sufficient for the requested draw-off quantity. | Increase the heating water temperature in the storage cylinder (see characteristic lines in appendix). |
| | The heat exchanger is contaminated or calcified. | Clean the heat exchanger (see section 8.3.2 on page 26). |
| | The volume flow of the heating water is too low. | Check the system design and increase the pump capacity in the primary supply from the buffer storage cylinder if required. |
| | The filter insert in the primary supply is contaminated. | Clean or replace the filter insert (see section 8.5.1 on page 29). |
| Leakage at the heat exchanger (external). | Leakage at the heat exchanger due to corrosion. This can be the result of a brazing material that is unsuitable for the potable water quality. | Replace the heat exchanger. The brazing material must be suitable for the potable water quality (see information sheet "Notes on corrosion protection" in the appendix). |
| Pressure increase in the primary circuit (potable water enters the primary circuit). The safety valve in the primary circuit may be triggered. | | |
| The hot water volume flow at the draw-off point is too low. | The heat exchanger is heavily calcified. | Decalcify the heat exchanger (see section 8.3.2 on page 26). |
| | The cold water pressure is too low (pressure reducer incorrectly set). | Check the setting of pressure reducer and increase the setting if necessary. |

| MALFUNCTION | CAUSE | REMEDY |
|---|---|---|
| The dwelling heating circuit does not get warm. | The filter insert in the primary supply is contaminated. | Clean or replace the filter insert (see section 8.5.1 on page 29). |
| | The zone valve is erroneously closed. | Open the zone valve. |
| The heat exchanger is also hot outside of hot water preparation. The water is heated in an uncontrolled manner. | The service mode is active. | Set the rotary knob to the desired hot water temperature (see section 8.2 on page 23). |
| | The control valve is contaminated or blocked. | Dismantle the actuator from the control valve. Manually push down the valve spindle several times to check that it moves smoothly. If the valve spindle is blocked, contact the technical customer service (see section 1.4 on page 7). |

## 8.2 Status messages and error messages at the actuator

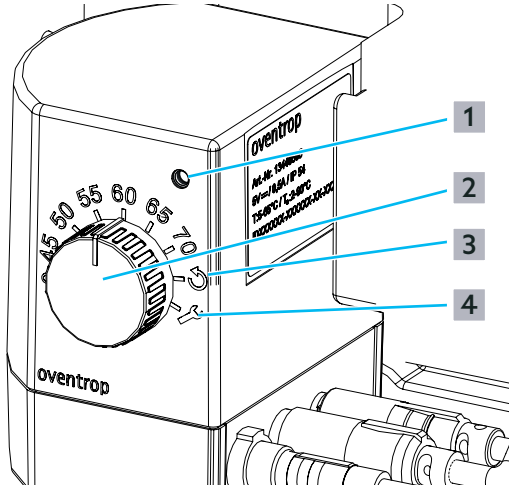



*Fig. 20: Status messages and error messages at the actuator*

**1** Indicator light (LED)

**2** Rotary knob

**3** Error reset index (only for specialist tradespeople)

**4** Service mode index (only for specialist tradespeople)

The indicator light (1) of the actuator shows status messages and error messages.

### 8.2.1 Status messages

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

### 8.2.2 Error messages

| Indicator light: Flash codes | Error | Description |
|---|---|---|
| 1x orange, 1x red | Potable water temperature sensor | Sensor delivers incorrect or no measured values. |
| 1x orange, 2x red | Actuator | Unexpected motor blockage during normal operation. |
| 1x orange, 3x red | Actuator | Calibration run failed. |
| 1x orange, 4x red | Supply voltage | Supply voltage too high, too low or not available. |
| 1x orange, 5x red | Internal energy storage | Faulty energy storage, fail-safe mode no longer possible. |
| 1x orange, 6x red | Temperature sensor housing | Sensor delivers incorrect or no measured values. |
| 1x orange, 7x red | Volume flow sensor | Implausible volume flow value. |
| 1x orange, 8x red | Setpoint generator | Implausible setting. |
| 1x orange, 9x red | Electronics | - |
| 1x orange, 10x red | Internal memory (EEPROM) | Memory error |
| red; flashing | Temperature sensor housing | The temperature is outside the recommended ambient temperature (see section 3.4 on page 12) |

### 8.2.3 Fail-safe mode

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

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

### 8.2.4 Error reset

If the rotary knob is set to the error reset index ((3) in Fig. 20 on page 23) for longer than 5 seconds, then the displayed error is reset and a calibration run is started. As long as the rotary knob is set to the error reset index ((3) in Fig. 20 on page 23), a calibration run of the actuator is started again and again, during which the closing point of the control valve is detected.

To perform the error reset, proceed as follows:

▶ Set the rotary knob to the error reset index ((3) in Fig. 20 on page 23) for longer than 5 seconds to reset an error.

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

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

## 8.3 Calcification of the heat exchanger

**DANGER**

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

! Do not open the connection box.

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

**WARNING**

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

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

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

! Wear safety goggles.

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

**CAUTION**

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

! Allow the system to cool down.

! Wear safety goggles.

**CAUTION**

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

! Wear safety gloves.

### 8.3.1 Recognizing calcification

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

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

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

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

### 8.3.2 Removing and cleaning the heat exchanger

**DANGER**

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

- ! Disconnect the dwelling station from the power supply at all poles and secure it against being switched on again.
- ! Check that no voltage is present.

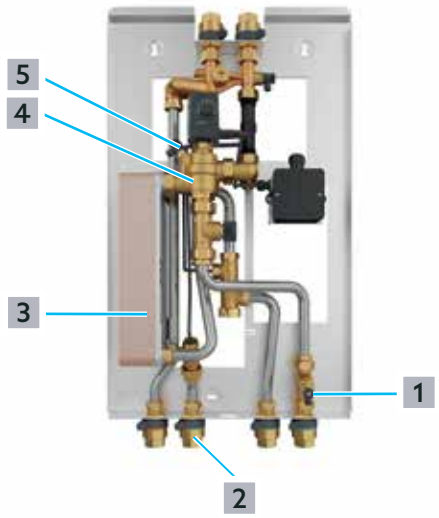



*Fig. 21: Removing and cleaning the heat exchanger*

1 Drain valve
2 Ceramic disc valve - Hot water outlet
3 Heat exchanger
4 Control valve with integrated differential pressure and volume flow control
5 Vent valve

**CAUTION**

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

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

**CAUTION**

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

- ! Allow the dwelling station to cool down.

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

1. Open the ceramic disc valve - hot water outlet (2).
2. Open a draw-off point to depressurise the potable water circuit.
3. When the potable water circuit is depressurised, close the draw-off point again.
4. Disconnect the cables from the actuator.
5. Dismantle the actuator.

Connect a hose line to the drain valve (1) in the heating circuit to make it easier to direct escaping water into a container.

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

6. Open the vent valve (5) and the drain valve (1) to depressurise and drain the heating circuit.
7. Close the vent valve (5) and the drain valve (1).
8. Loosen the screw connections between the control valve (4) and the pipework.
9. Lift the control valve out of the dwelling station.
10. Loosen the screw connections between the heat exchanger (3) and the pipework.
11. Lift the heat exchanger out of the dwelling station.
12. Clean the heat exchanger with a suitable cleaning agent. Follow the cleaning agent manufacturer's instructions.
13. Lift the cleaned heat exchanger into the dwelling station.

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

14. Screw the heat exchanger to the pipework.
15. Mount the control valve (4) with actuator in the dwelling station.
16. Connect the cables to the actuator.
17. Fill the potable water circuit as described in section 7.2 on page 20.
18. Fill and vent the heating circuit as described in section 7.1 on page 19.

## 8.4 Inspecting and cleaning the volume flow sensor

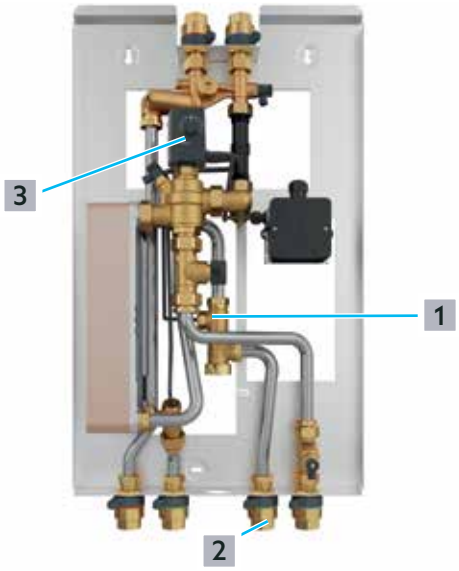



*Fig. 22: Inspecting and cleaning the volume flow sensor*

**1** Volume flow sensor

**2** Ceramic disc valve - Cold water inlet

**3** Actuator with integrated potable water temperature control

### 8.4.1 Inspecting the volume flow sensor

A malfunction occurs when no hot water can be tapped at the draw-off points. This can have several causes (see section 8.1 on page 22).

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

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

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

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

### 8.4.2 Cleaning the volume flow sensor

**⚠ DANGER**

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

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

! Check that no voltage is present.

If the volume flow sensor is contaminated:

1 Close the ceramic disc valve - cold water inlet ((2) in Fig. 22 on page 27) in the potable water circuit.

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

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

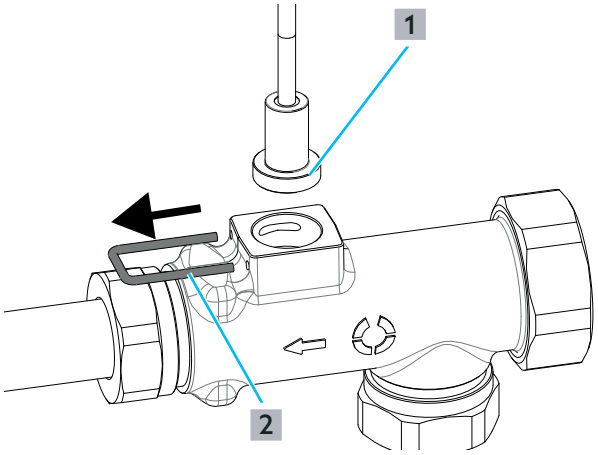



*Fig. 23: Loosening the safety clip*

**1** Volume flow sensor

**2** Safety clip

4 Loosen the safety clip (2) at the volume flow sensor (1).

5 Remove the volume flow sensor from the housing.

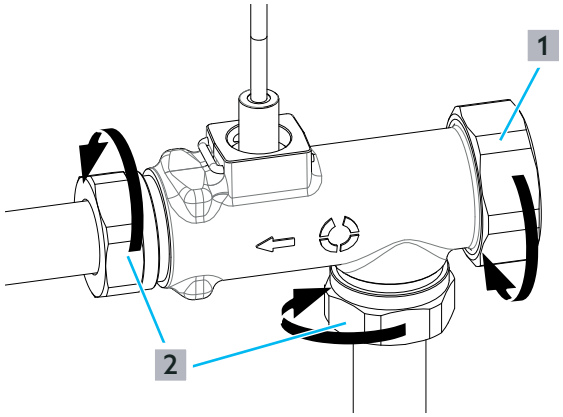



*Fig. 24: Removing the volume flow sensor*

**1** Sealing cap

**2** Union nut

6 Unscrew the sealing cap (1).

7 Loosen the union nuts (2) of the volume flow sensor and remove the volume flow sensor from the pipes.

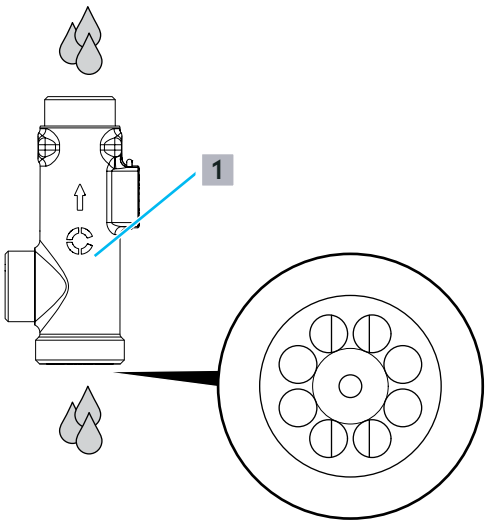



*Fig. 25: Cleaning the volume flow sensor under running water*

**1** Volume flow sensor housing

**NOTICE**

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

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

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

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

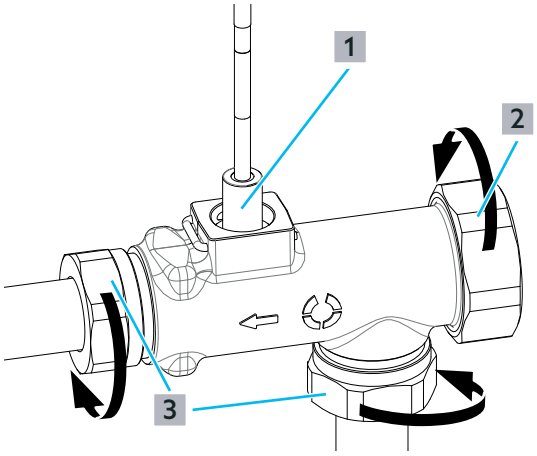



*Fig. 26: Installing the volume flow sensor*

**1** Volume flow sensor

**2** Sealing cap

**3** Union nut

10 Screw the sealing cap (2) tight.

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

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

13 Connect the plug connection to the actuator.

Make sure the polarity is correct (the plugs are coded, see Fig. 4 on page 11).

14 Open the ceramic disc valves.

15 Perform a functional test as described in section 8.4.1 on page 27.

▷ The volume flow sensor is cleaned.

## 8.5 Cleaning the filter inserts

### 8.5.1 Cleaning the filter insert in the primary supply

**WARNING**

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

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

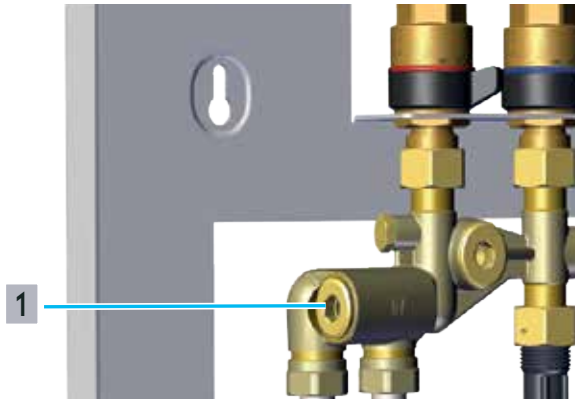



*Fig. 27: Position of the filter insert in the primary supply*

**1** Plug

1. Close the ceramic disc valves in the primary supply ((1) in Fig. 8 on page 15), primary return ((2) in Fig. 8 on page 15), heating circuit supply ((6) in Fig. 8 on page 15) and heating circuit return ((3) in Fig. 8 on page 15).
2. Slowly open the vent valve in the heating circuit ((13) in Fig. 3 on page 10) to depressurise the section.
3. Close the vent valve in the heating circuit.

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

4. Unscrew the plug (1) of the filter insert from the housing in the primary supply.
5. Pull the plug together with the screen out of the housing.
6. Clean the screen under running water.
7. Check the housing for dirt residues and remove them if necessary.
8. Slide the screen and the plug into the housing and screw the plug into the housing.
9. Slowly open the ceramic disc valves in the primary return ((2) in Fig. 8 on page 15) and the primary supply ((1) in Fig. 8 on page 15).
10. Open the vent valve in the heating circuit slightly.
11. As soon as water escapes without bubbles, close the vent valve.
12. Check all components and screw connections for leaks.
13. Tighten any screw connections that are loose.
14. Check the system pressure and top up with heating water if necessary.

▷ The filter insert is cleaned.

### 8.5.2 Cleaning the filter insert in the heating circuit return

**WARNING**

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

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

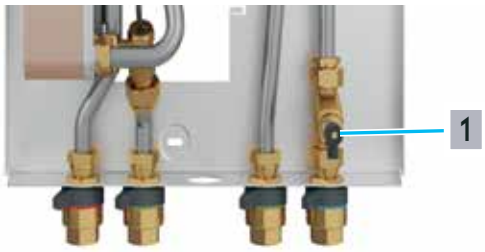



*Fig. 28: Position of the filter insert in the heating circuit return*

**1** Drain valve

1. Close the ceramic disc valves in the primary supply ((1) in Fig. 8 on page 15), primary return ((2) in Fig. 8 on page 15), heating circuit supply ((6) in Fig. 8 on page 15) and heating circuit return ((3) in Fig. 8 on page 15).

Connect a hose line to the drain valve (1) in the heating circuit to make it easier to direct escaping water into a container.

Have a cloth and a container ready to catch any water that escapes.Fig. 28

2. Open the vent valve ((4) in Fig. 3 on page 10) and the drain valve (1) to depressurise and drain the heating circuit.
3. Close the vent valve and the drain valve.

4 Unscrew the drain valve (1) from the housing in the heating circuit return.

5 Pull the drain valve together with the screen out of the housing.

6 Clean the screen under running water.

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

8 Slide the screen and the drain valve into the housing and screw the drain valve into the housing.

9 Open the ceramic disc valves in the primary supply ((1) in Fig. 8 on page 15), primary return ((2) in Fig. 8 on page 15), heating circuit supply ((6) in Fig. 8 on page 15) and heating circuit return ((3) in Fig. 8 on page 15)

10 Open the vent valve ((4) in Fig. 3 on page 10).

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

12 Check all components and screw connection for leaks.

13 Tighten any screw connections that are too loose.

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

▷ The filter insert is cleaned.

# 9. Maintenance

**DANGER**

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

- ! Do not open the connection box.
- ! The connection box must only be opened by a qualified electrician.

**WARNING**

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

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

**CAUTION**

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

- ! Allow the system to cool down.
- ! Wear safety goggles.

**CAUTION**

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

- ! Wear safety gloves.

## 9.1 Leakage test (visual inspection)

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

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

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

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

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

## 9.2 Inspecting the electrical components and plug connections

Check plug connections annually for correct seating.

- Check the cable plug connections of all components connected to the actuator.
- Check the tight screw connection of the actuator on the control valve ((14) and (12) in Fig. 3 on page 10).

## 9.3 Testing the performance of the heat exchanger

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

1. Tap hot water at several draw-off points at the same time without adding cold water.
2. Measure the hot water temperature at the draw-off point furthest away from the dwelling station.
3. Compare the measured hot water temperature with the hot water temperature set on the actuator.

The performance of the heat exchanger is correct if the measured hot water temperature is not more than 5 °C higher or lower than the hot water temperature set on the actuator (e.g. 60 °C).

If the difference is more than 5 °C:

- Check the filter insert.
- Check the flow temperature.
- Check the volume flow sensor or differential pressure.
- Clean and decalcify the heating exchanger as described in section 8.3 on page 25.

# 10. Notes for the operator

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

## 10.1 Setting the hot water temperature

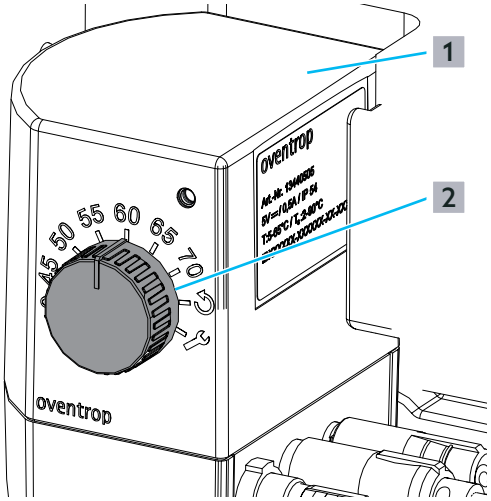



*Fig. 29: Setting the hot water temperature*

**1** Actuator with integrated potable water temperature control

**2** Rotary knob

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

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

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

## 10.2 Legionella prevention

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

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

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

# 11. Dismantling and disposal

## 11.1 Dismantling

### 11.1.1 Disconnecting the dwelling station form the power supply

**DANGER**

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

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

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

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

### 11.1.2 Dismantling the dwelling station

**CAUTION**

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

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

**CAUTION**

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

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

**CAUTION**

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

- ! Allow the dwelling station to cool down.

▶ Dismantle the dwelling station.

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

## 11.2 Disposal

*NOTICE*

**Risk of environmental pollution!**
Incorrect disposal (for instance with domestic waste) can lead to environmental pollution.

- ! Dispose of the components properly.

Unless a take-back or disposal agreement has been made, dispose of the dwelling station.

▶ Separate all components according to constituent parts.

▶ If possible, recycle the components.

▶ Dispose of non-recyclable components according to local regulations. Disposal with domestic waste is not permitted.

# 12. Appendix

## 12.1 Characteristic line for heating mode

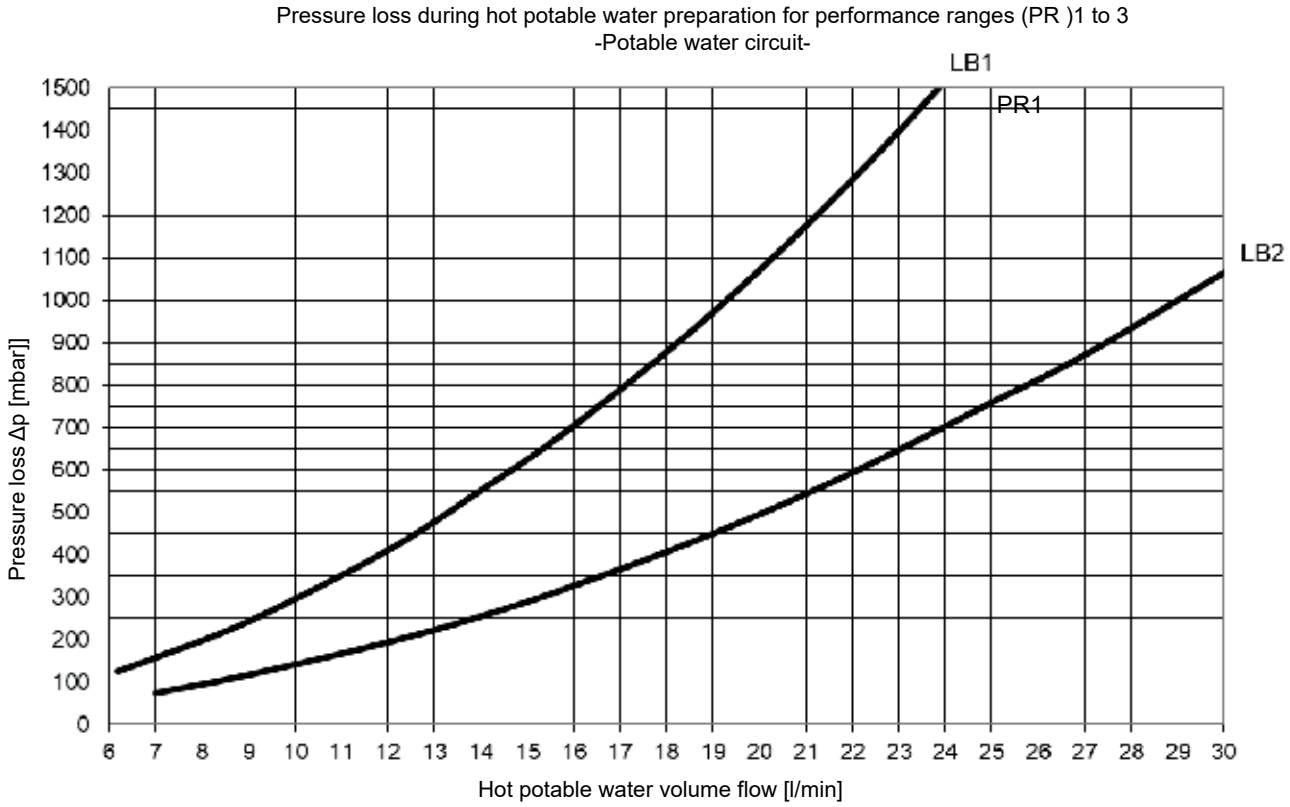



*Fig. 30: Pressure loss during heating mode*

## 12.2 Characteristic lines for potable water mode

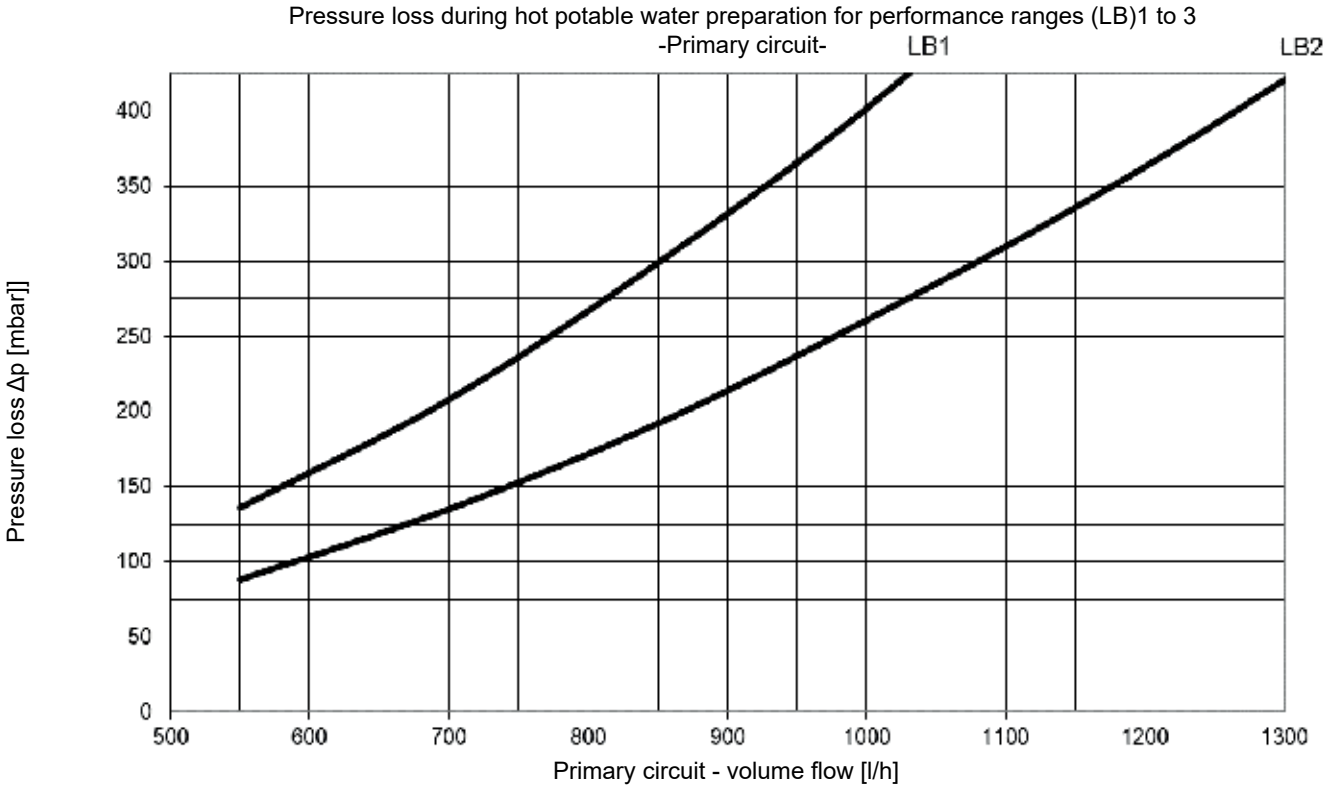



*Fig. 31: Pressure loss in the potable water circuit*

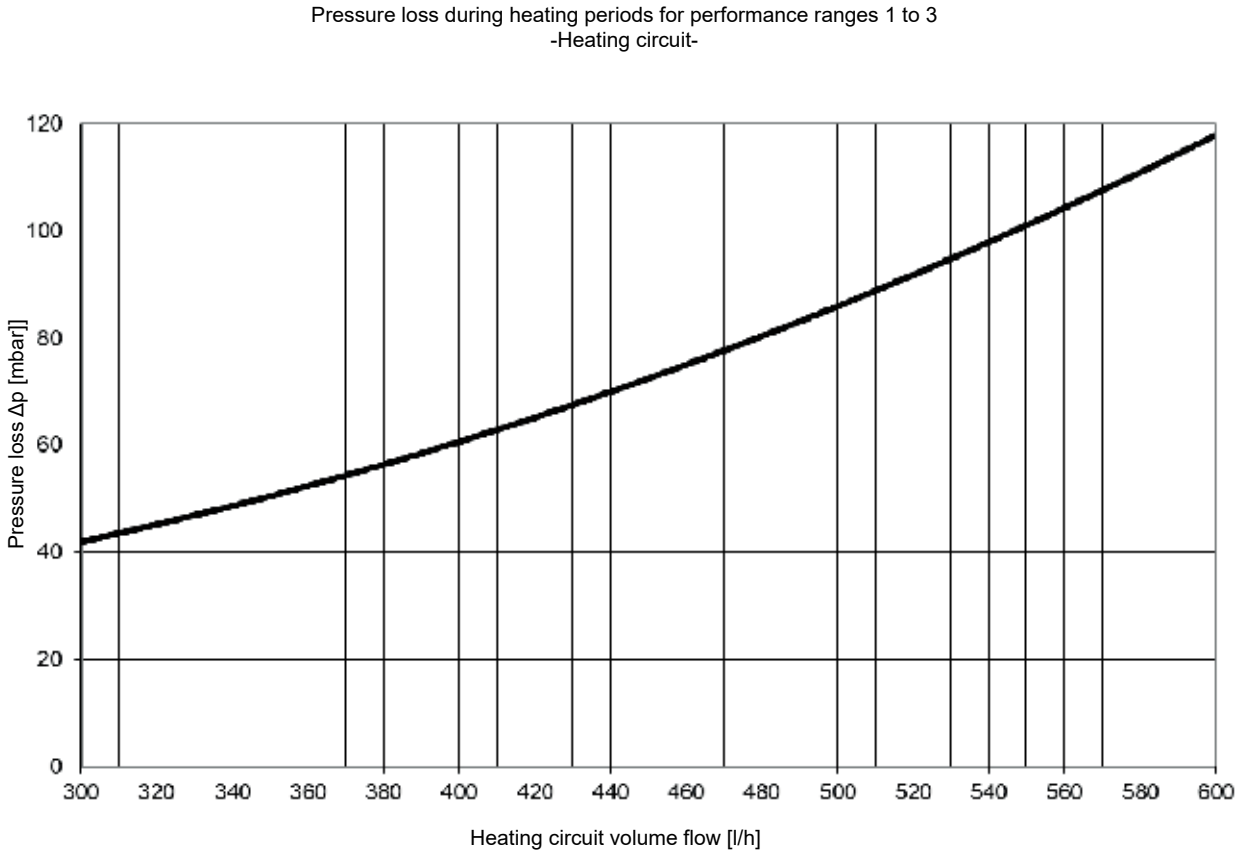



*Fig. 32: Pressure loss in the primary circuit*

## 12.3 Characteristic lines for performance range 1

Performance data according to SPF test procedure.

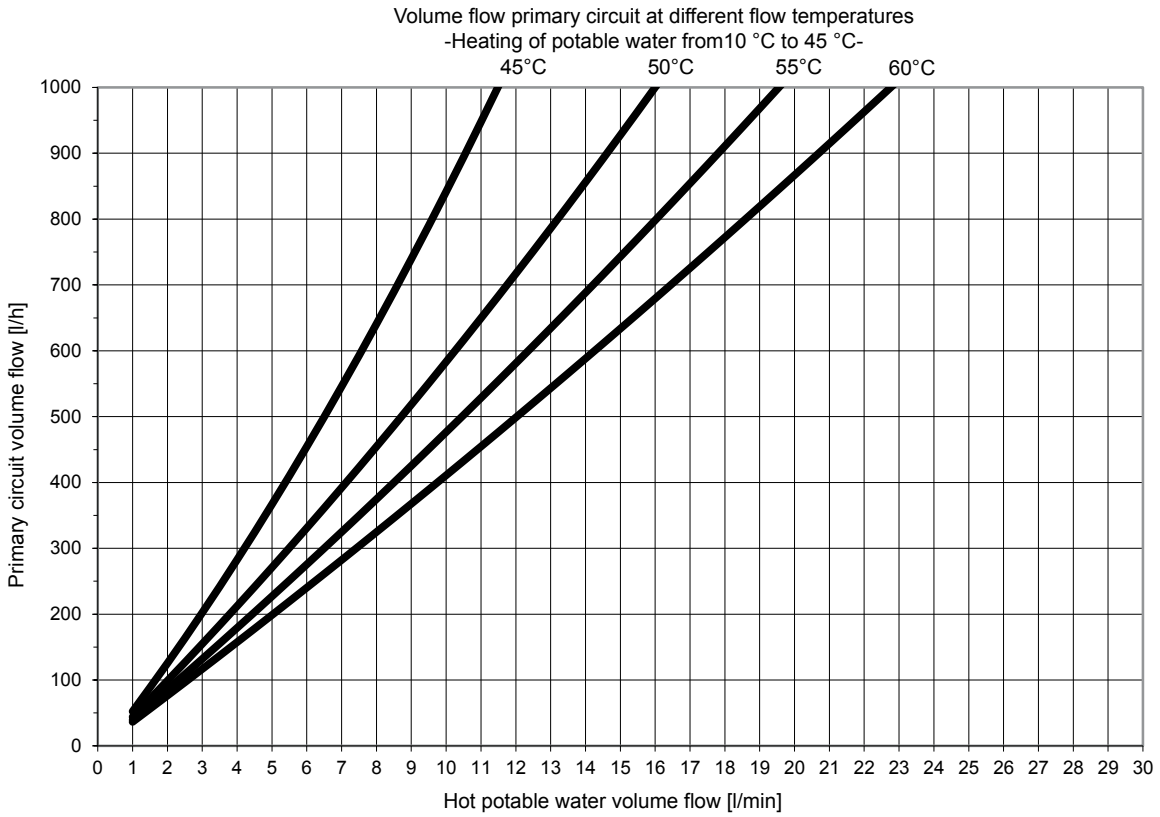



*Fig. 33: Performance range 1, heating of potable water to 45 °C*

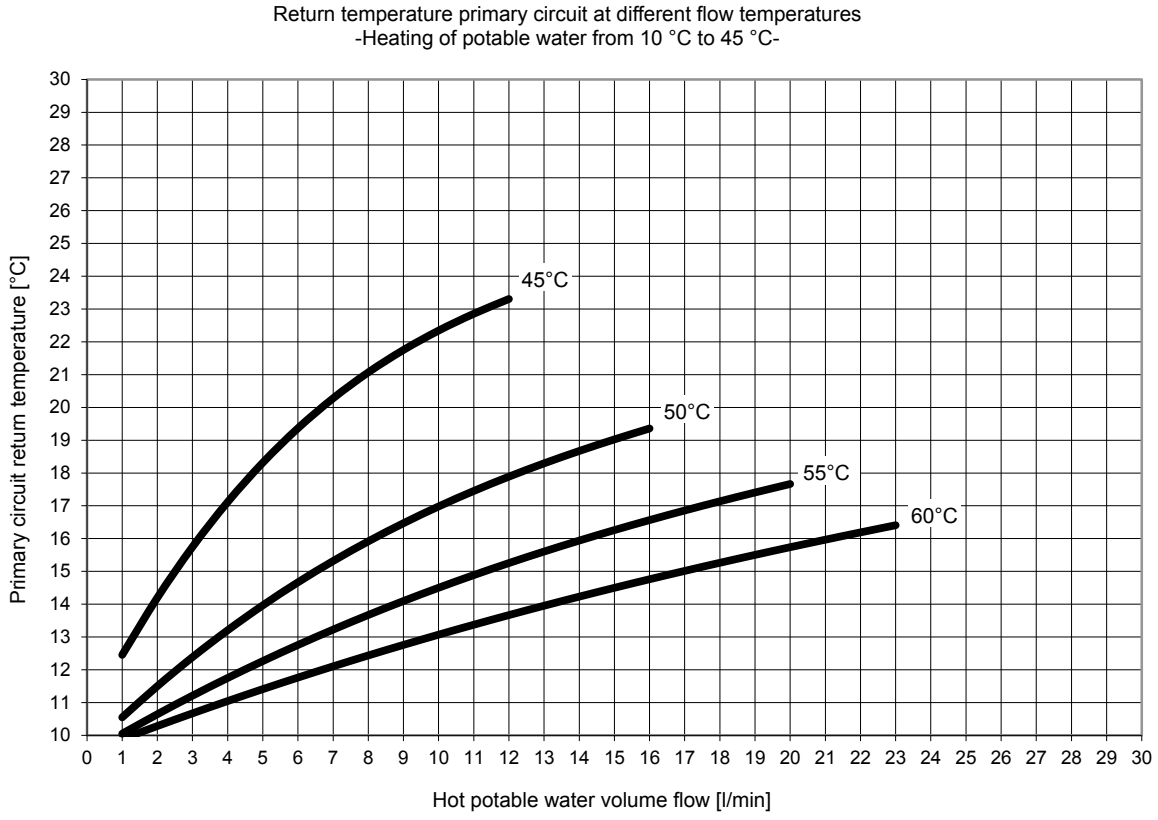



*Fig. 34: Performance range 1, heating of potable water to 45 °C*

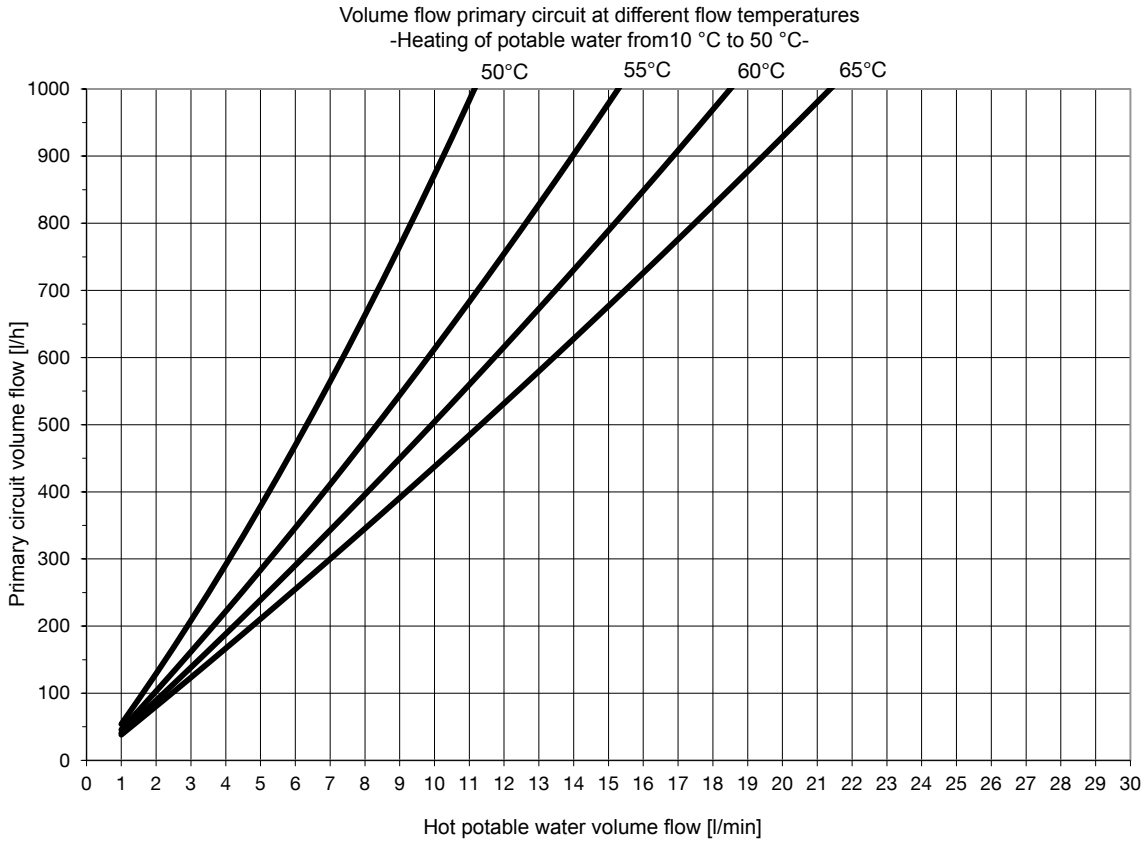



*Fig. 35: Performance range 1, heating of potable water to 50 °C*

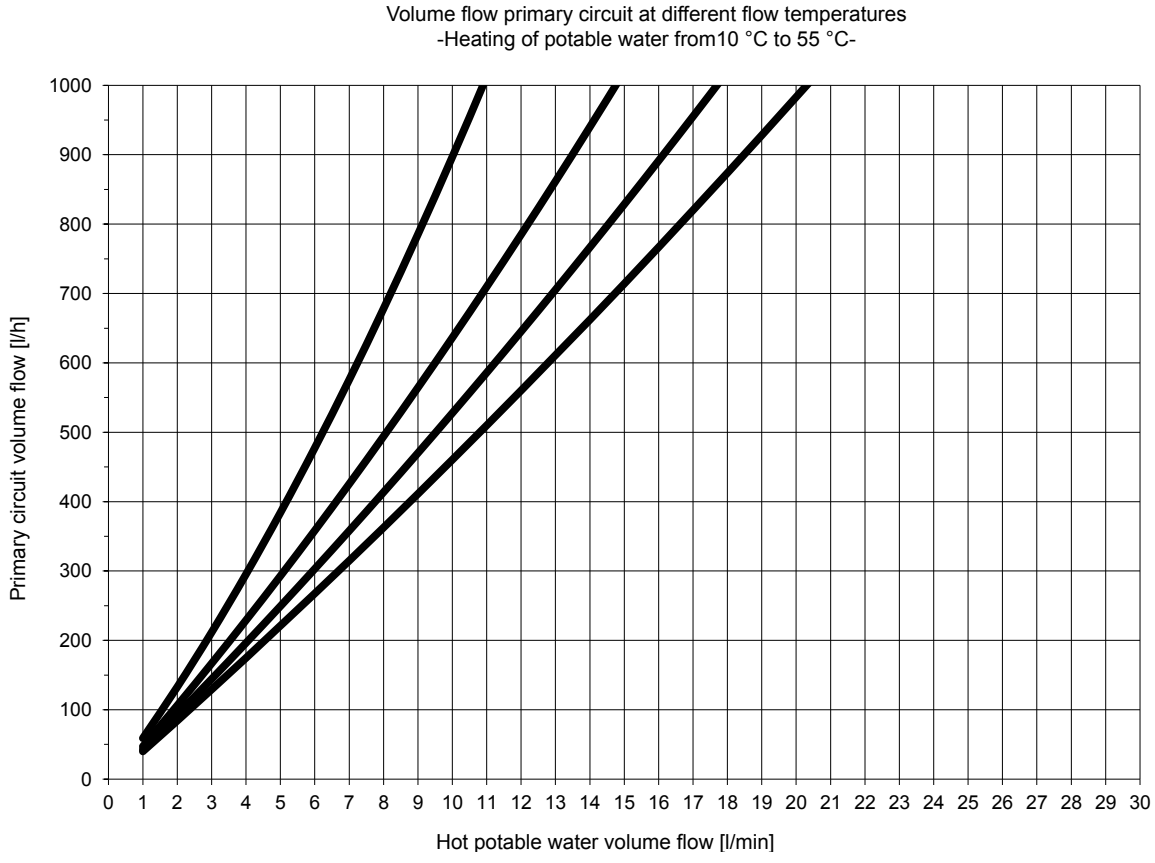



*Fig. 36: Performance range 1, heating of potable water to 55 °C*

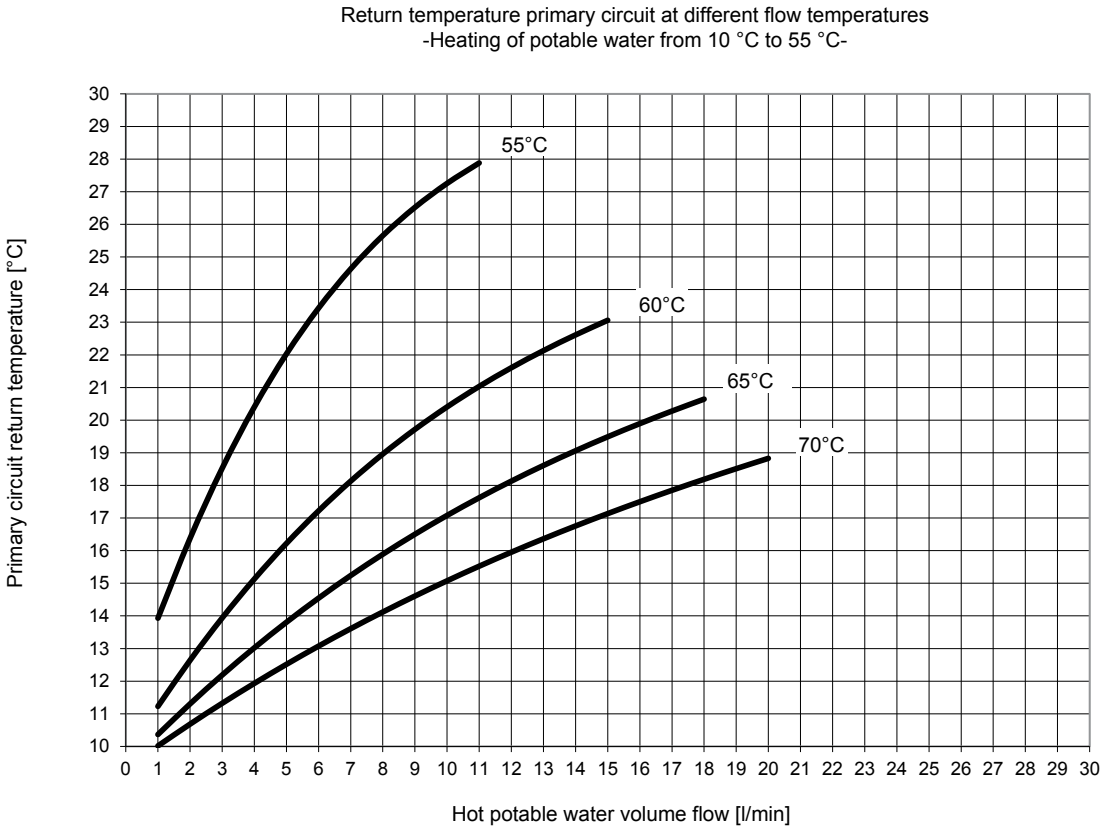



*Fig. 37: Performance range 1, heating of potable water to 55 °C*

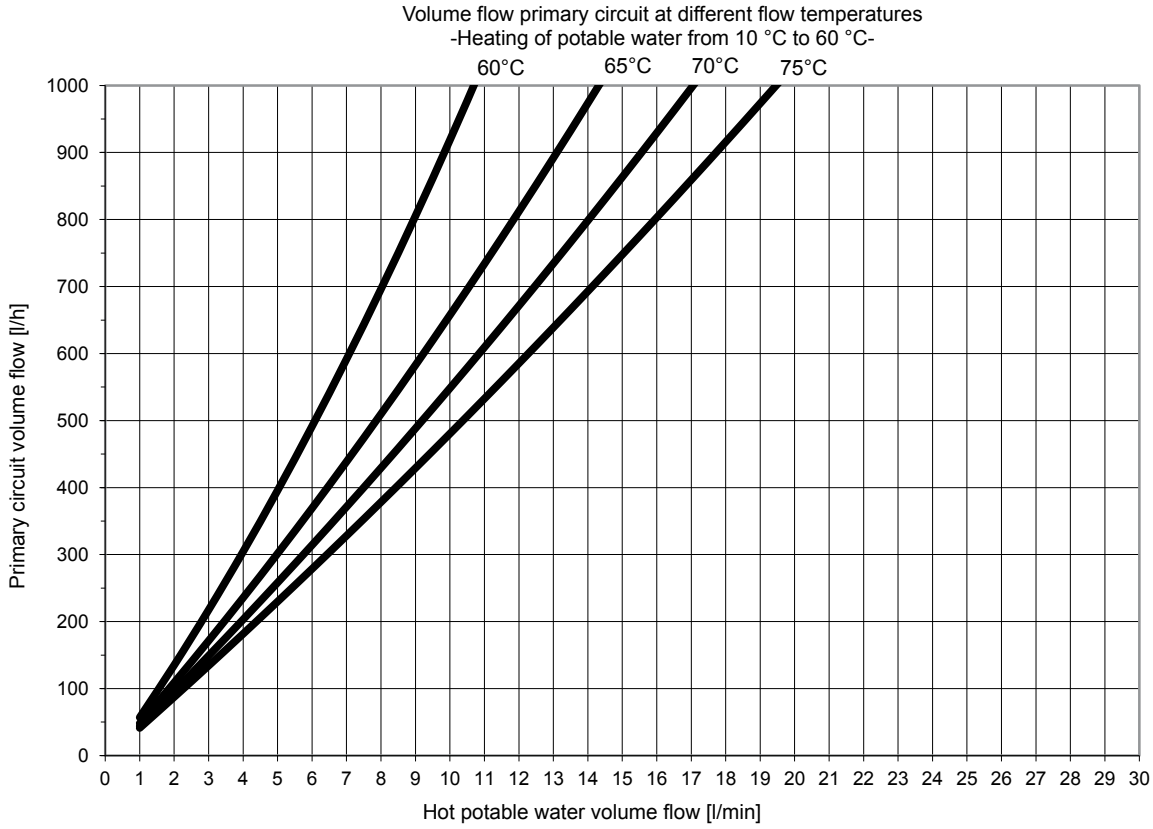



*Fig. 38: Performance range 1, heating of potable water to 60 °C*

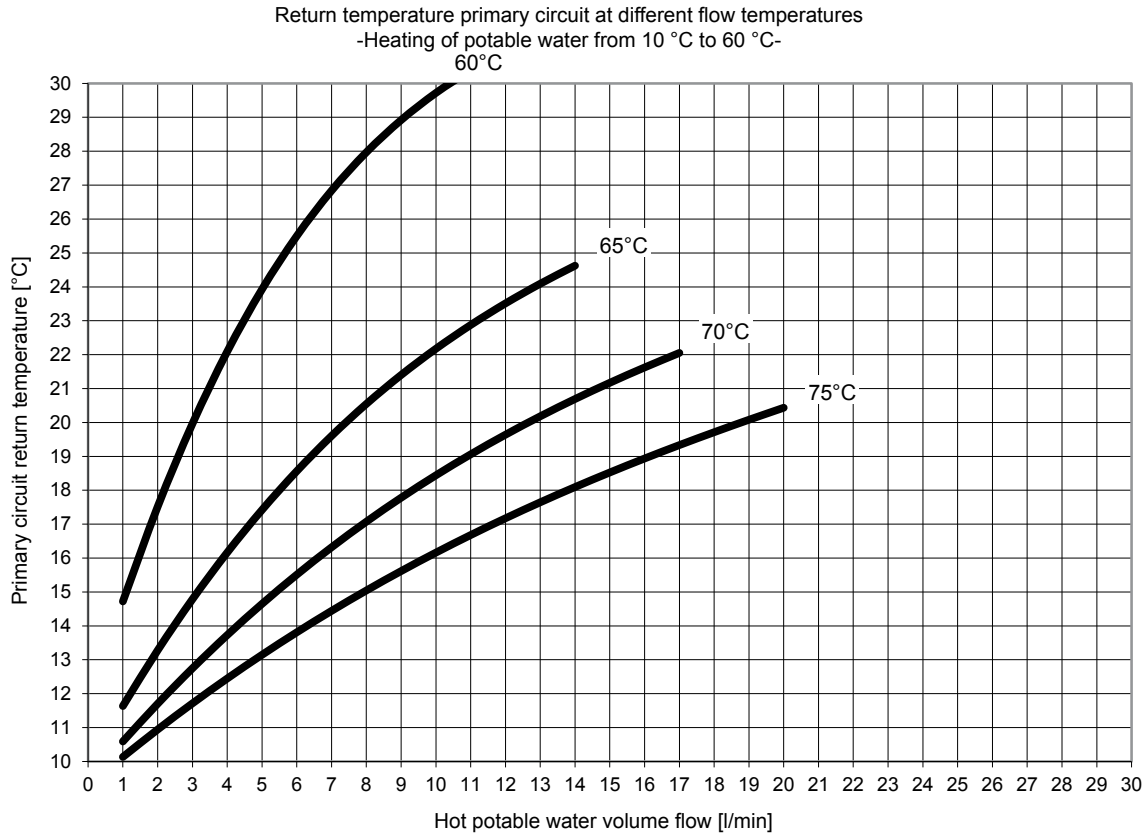



*Fig. 39: Performance range 1, heating of potable water to 60 °C*

## 12.4 Characteristic lines for performance range 2

Performance data according to SPF test procedure.

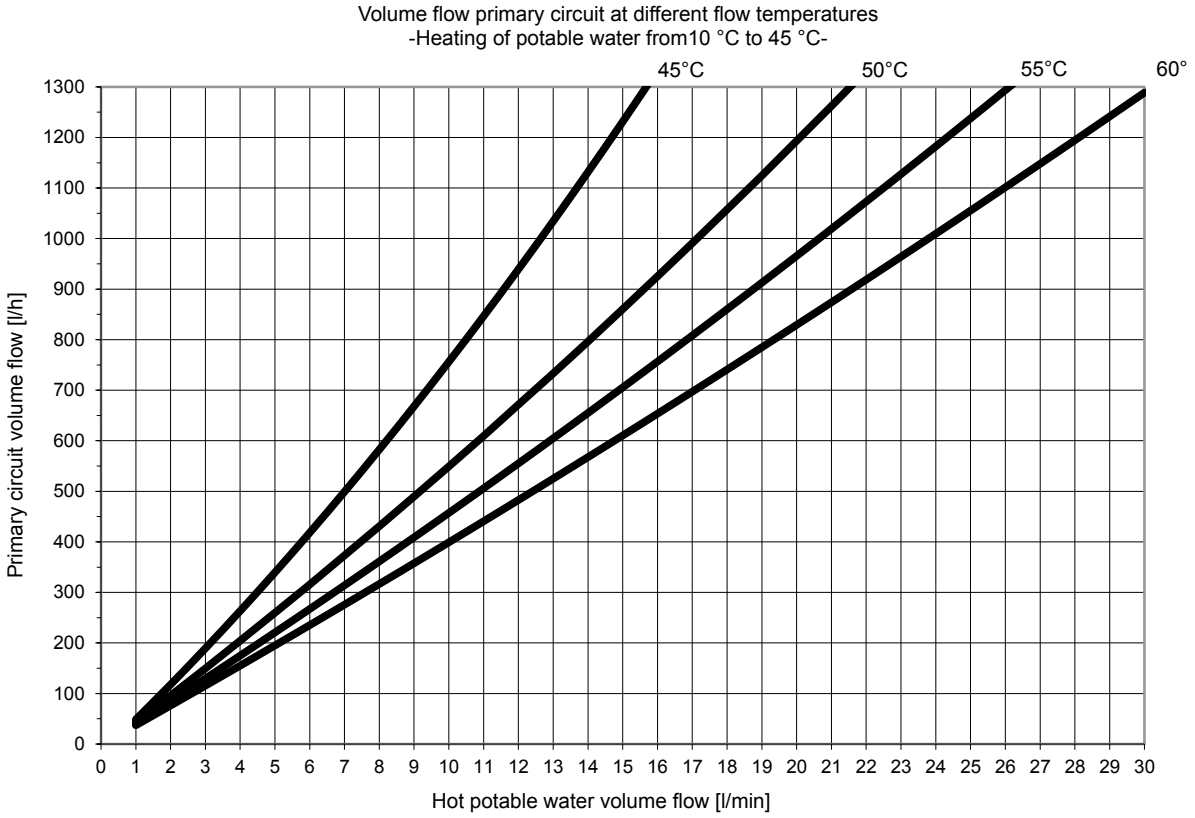



*Fig. 40: Performance range 2, heating of potable water to 45 °C*

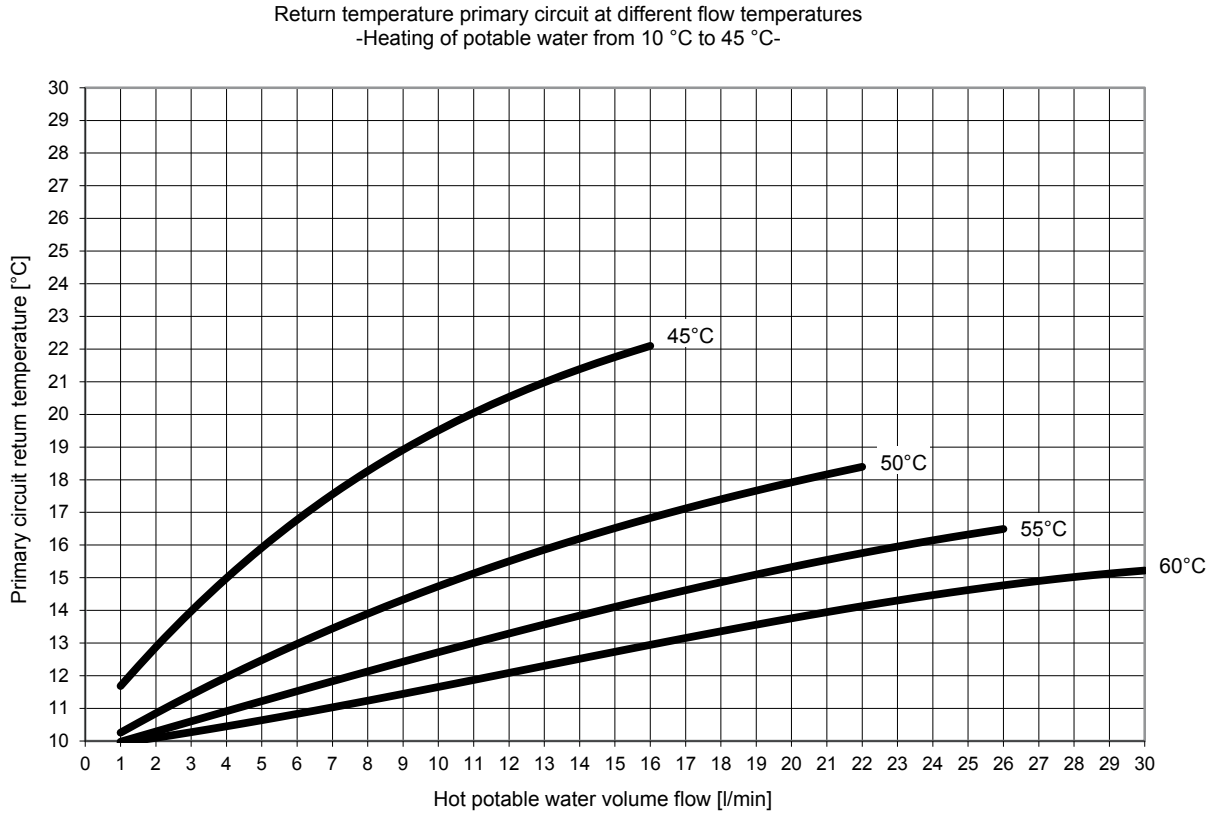



*Fig. 41: Performance range 2, heating of potable water to 45 °C*

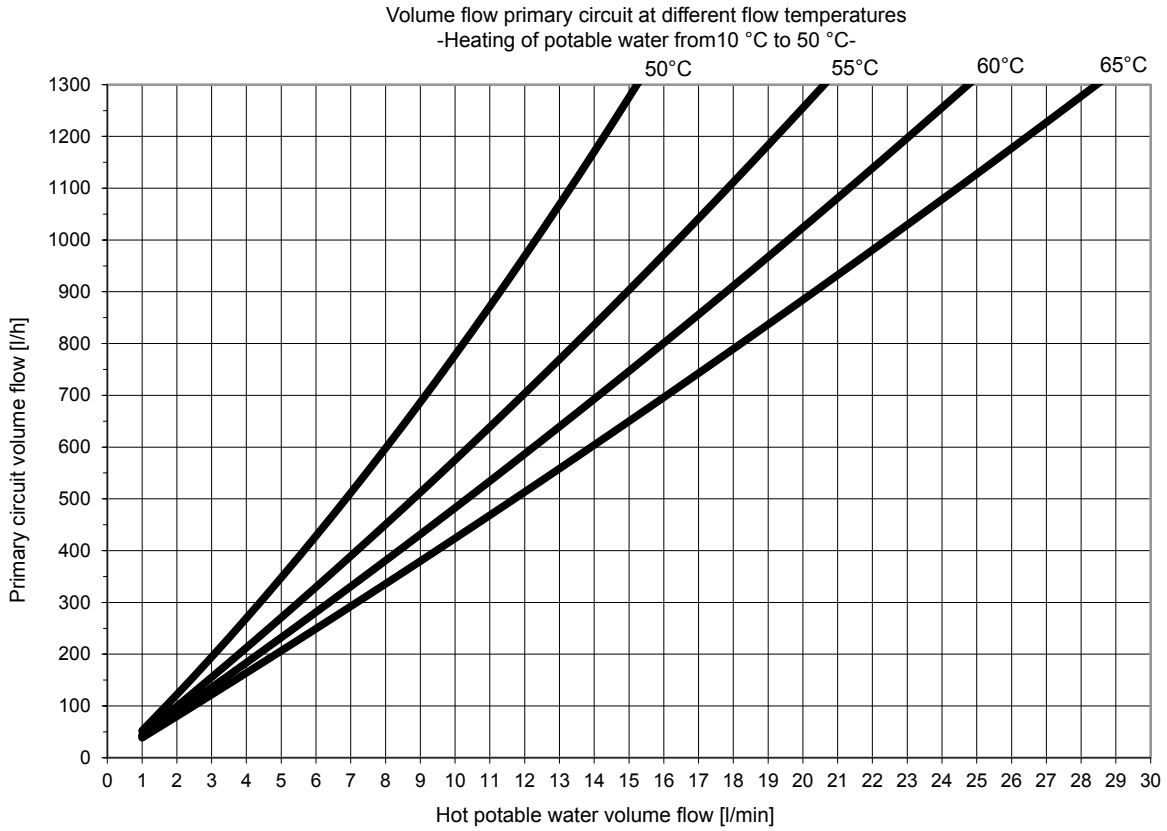



*Fig. 42: Performance range 2, heating of potable water to 50 °C*

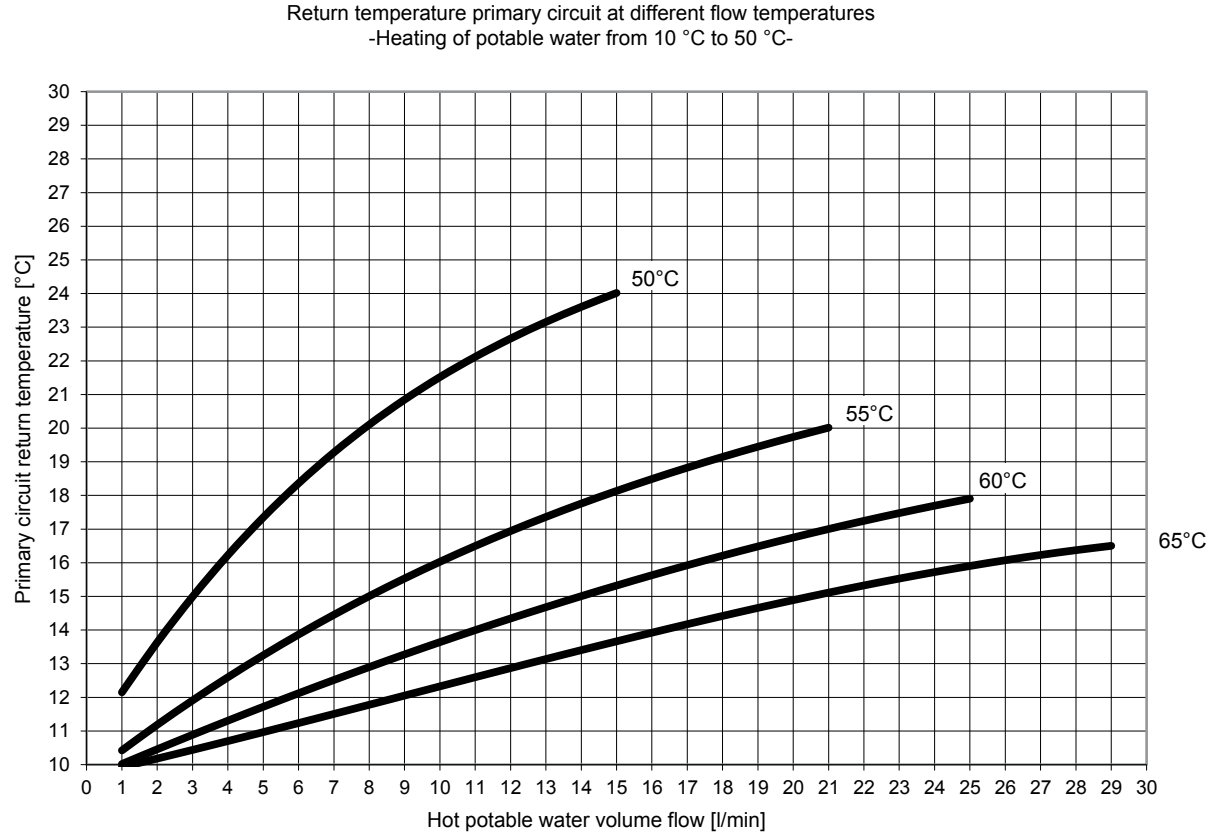



*Fig. 43: Performance range 2, heating of potable water to 50 °C*

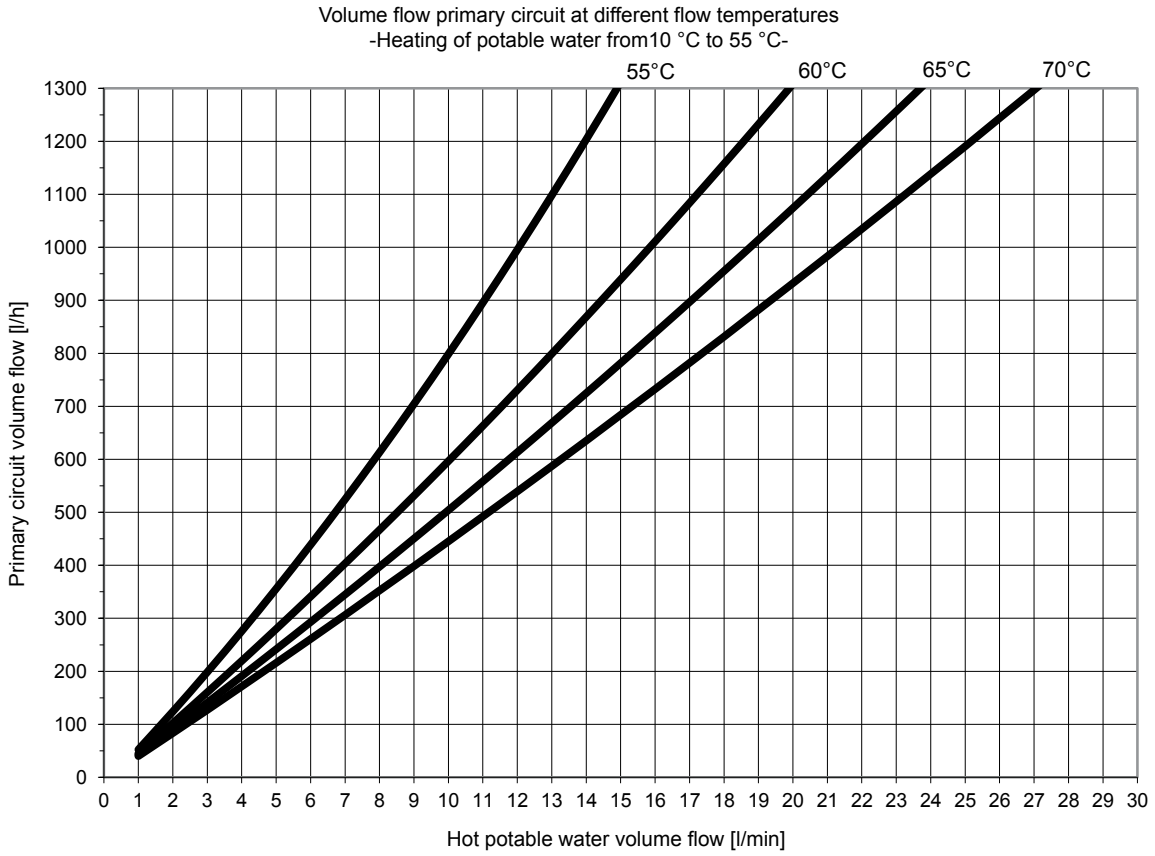



*Fig. 44: Performance range 2, heating of potable water to 55 °C*

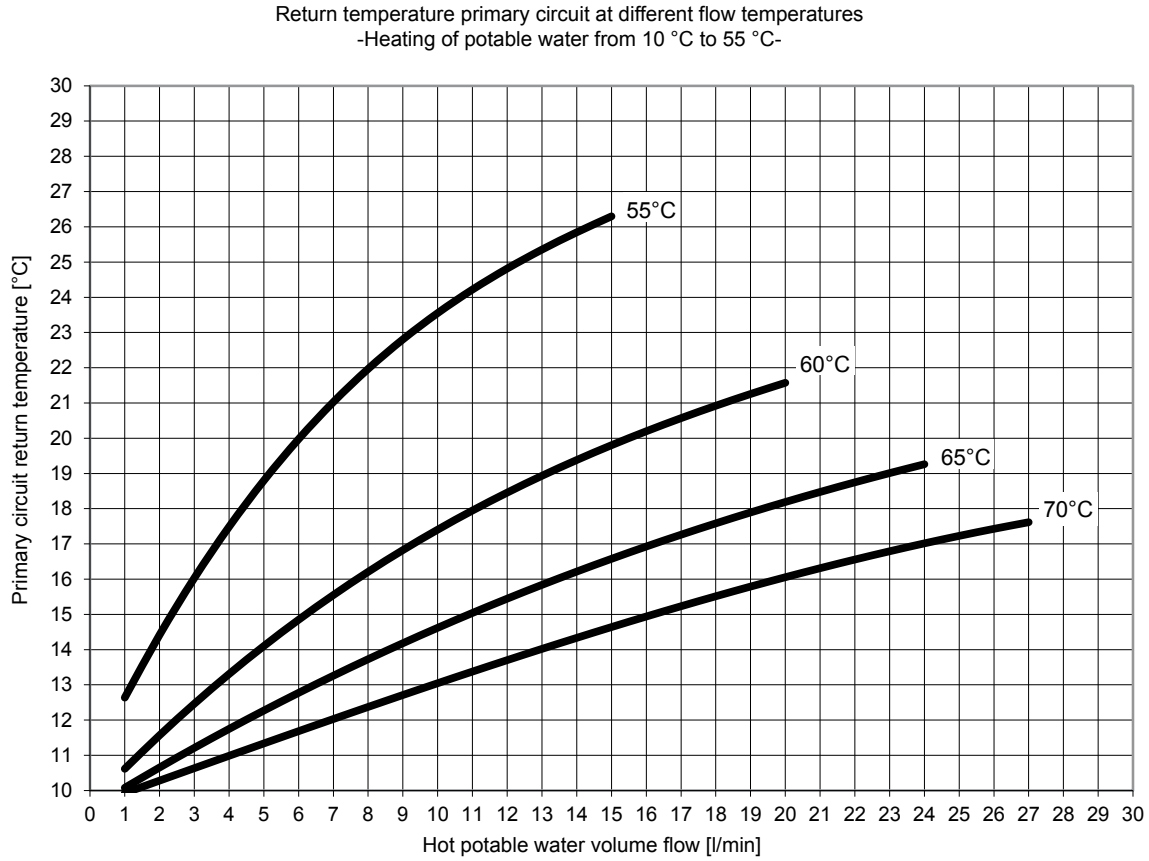



*Fig. 45: Performance range 2, heating of potable water to 55 °C*

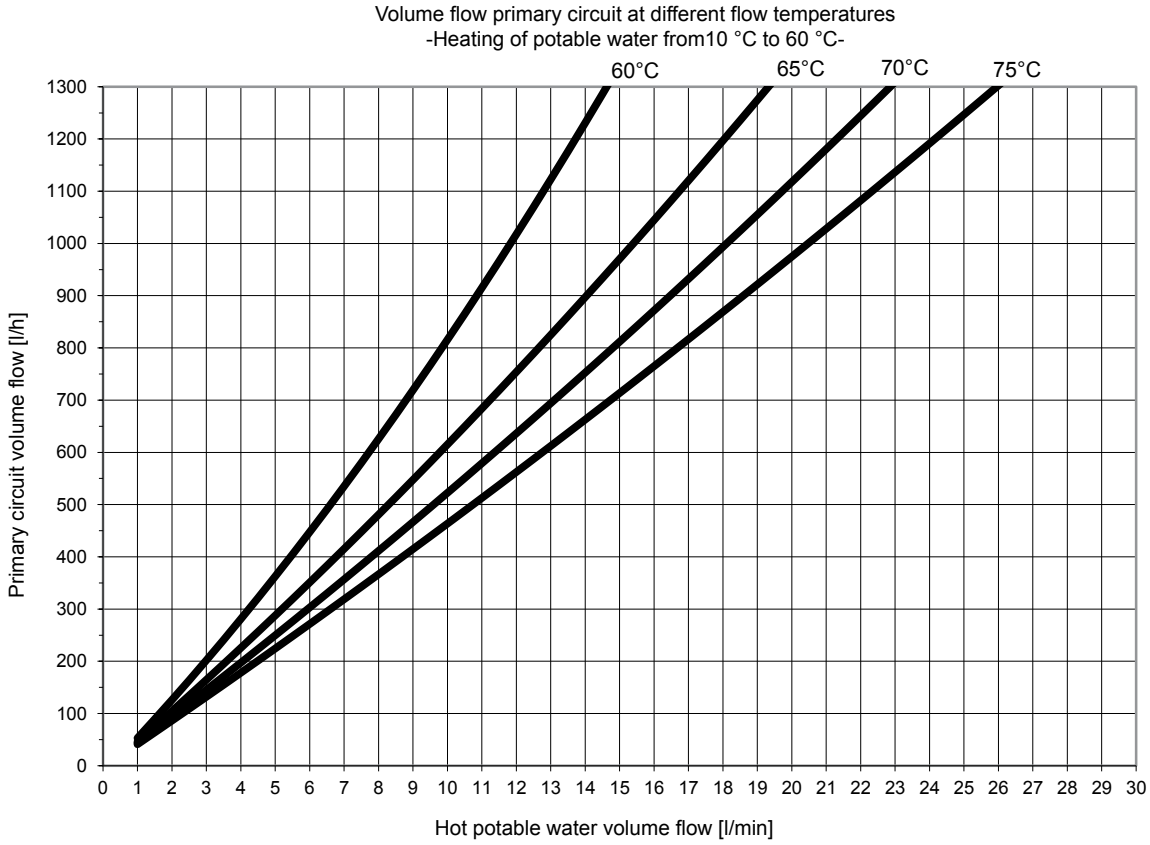



*Fig. 46: Performance range 2, heating of potable water to 60 °C*

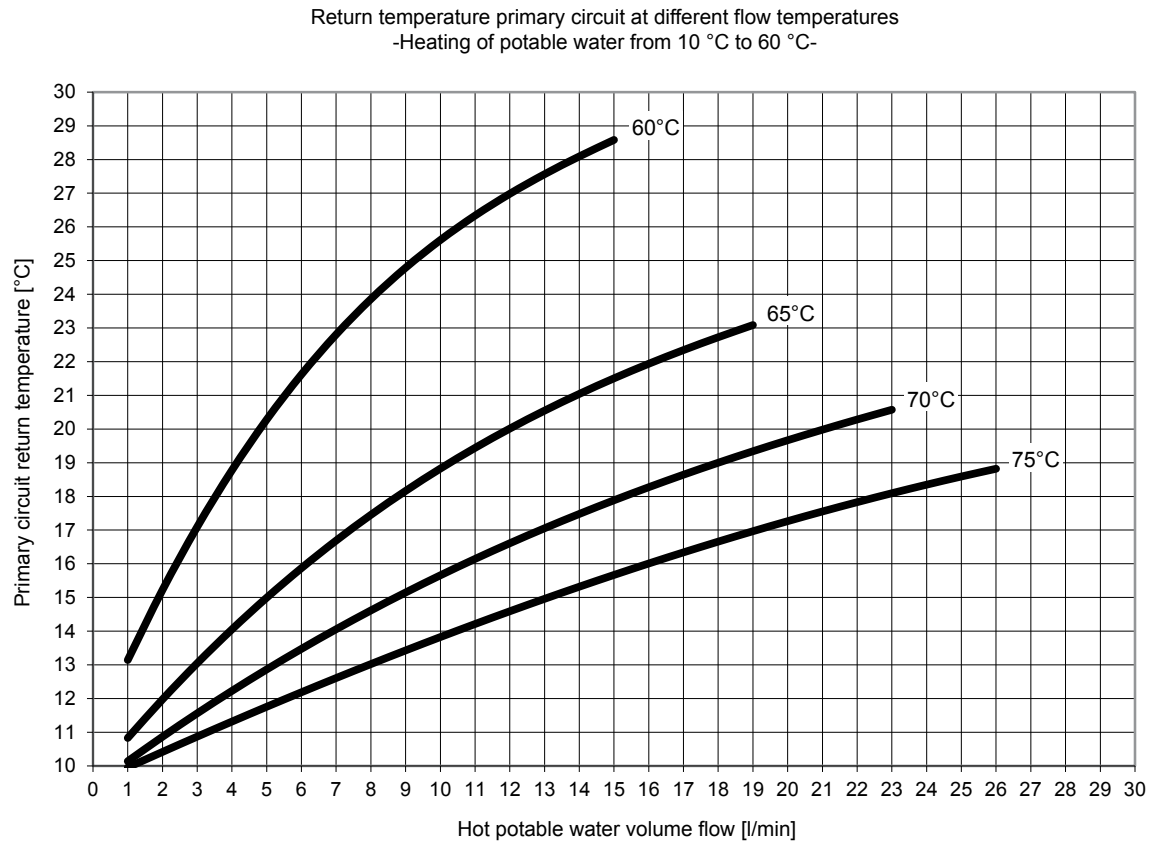



*Fig. 47: Performance range 2, heating of potable water to 60 °C*

## 12.5 Advice regarding corrosion protection

oventrop

Valves, controls + systems

EN

Fresh water and dwelling stations
**Advice regarding corrosion protection**

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

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

Consult your local water authority if necessary.

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

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

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

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

## Demands on the water quality

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

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

## Special advice regarding corrosion protection

**NOTICE**

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

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

**NOTICE**

**Long stagnation periods increase the risk of corrosion**

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

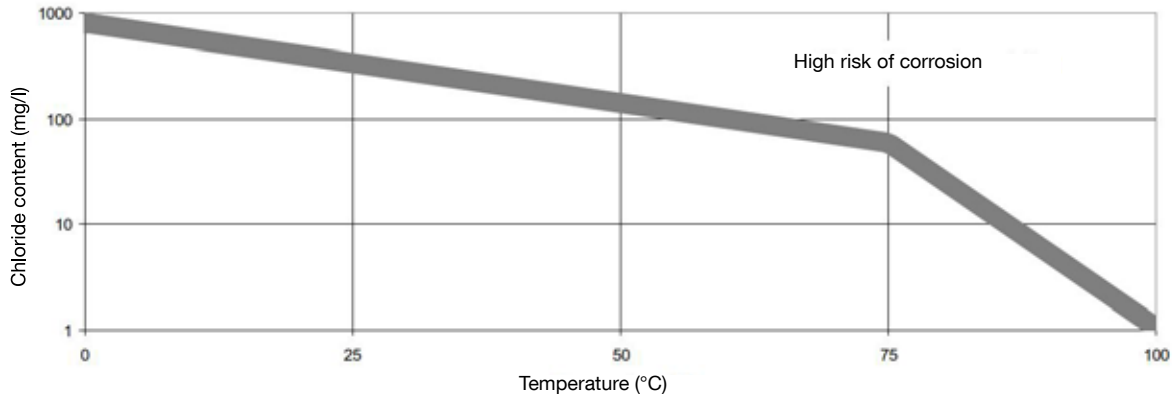
- Be careful in case of hydrogen carbonate/chloride combinations. **Low hydrogen carbonate contents combined with high chloride contents increase the risk of corrosion.**
- Be careful in case of hydrogen carbonate/sulphate combinations**. When using copper brazed heat exchangers, the hydrogen carbonate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

**NOTICE**

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

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

Premissible chloride content depending on the temperature




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

**NOTICE**

**Corrosion and formation of stones in the system**

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

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