oventrop

Valves, controls + systems

EN

Fresh water station “Regumaq X-25”

Operating instructions

Content

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 “Regumaq X-25” station for hot potable water preparation.

1.2 Type plate

The type plate is affixed externally to the bottom left of the front insulation shell.

1.3 Extent of supply

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

Items included in the delivery:

- Product assembly with controller
- Fixing material
- Angled wall bracket
- 4x ring gaskets
- Operating instructions

1.4 Contact

OVENTROP GmbH & Co. KG

Paul-Oventrop-Straße 1

59939 Olsberg

GERMANY

Technical services

Telephone: +49 (0) 29 62 82-234

1.5 Declaration of conformity

Oventrop GmbH & Co. KG hereby declares that this product complies with the basic requirements and other relevant provisions of the EC Directives concerned.

The declaration of conformity can be obtained from the manufacturer.

1.6 Used symbols

	Highlights 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 Correct use

Operating safety 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).

Use the product:

- In a technically perfect condition.
- At installation locations which are directly connected to the public low-voltage network

The passage of media other than heating water through the storage cylinder and fresh water through the potable water circuit will be considered incorrect. A direct connection of the fresh water station to local and/or district heating networks may lead to malfunctions. Parallel operation with other heating system components such as heating circuit stations is not permitted.

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 accepted.

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

2.2 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 breakdowns caused by modifications to the product.

2.3 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.

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

⚠ WARNING
Indicates a possible danger with moderate risk. The situation may lead to death or serious injury if not avoided.

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

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

2.4 Safety notes

The product is manufactured in accordance with the latest technical standards and is safe to use. However, residual dangers to people and property may occur during installation and operation.

2.4.1 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 in the potable water circuit must be exchanged completely at least once every 72 hours.
- The hot water temperature must not drop below 60 °C when using a circulation pipe. The temperature **difference** between the hot water outlet of the heat exchanger and the return of the circulation pipe at the station must not exceed 5 °C.

2.4.2 Danger to life due to electric current

- ▶ Ensure that the product can be disconnected from the power supply at any time.
- ▶ Do not put the product into operation if there are visible signs of damage.

The controller only has to be opened when using accessory components. This means that work on the power supply is only necessary when using accessory components.

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

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

2.4.3 Danger in case of inadequate personnel qualification

Any work on this product must only be carried out by qualified tradesmen.

As a result of their professional training and experience as well as their knowledge of the relevant legal regulations, qualified tradesmen are able to carry out any work on the described product professionally.

User

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

2.4.4 Risk of scalding due to hot water

The setting or a defect of the controller may entail a rise in 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 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.

2.4.5 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 (DIN EN 806-2).

2.4.6 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.
- ▶ Check that the product is not leaking after work is complete.
- ▶ Wear safety goggles.

2.4.7 Risk of burns due to hot components and surfaces

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

2.4.8 Risk of injury due to the weight of the product

- ▶ Always wear safety shoes during installation.

2.4.9 Risk of injury in case of improper work

Stored residual energies, angular components, points, and edges on and in 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.

2.4.10 Damage to property due to an unsuitable installation location

- ▶ Do not install the product in locations prone to frost.
- ▶ Do not install the product in wet or damp environments.
- ▶ Do not install the product in spaces with corrosion-enhancing ambient air. Observe the advice regarding corrosion protection (see appendix).
- ▶ Ensure that the product is not exposed to any sources of strong electromagnetic radiation.

2.4.11 Damage to property due to incorrect operation

- ▶ Do not close the secondary ball valves during operation.

2.4.12 Availability of the operating instructions

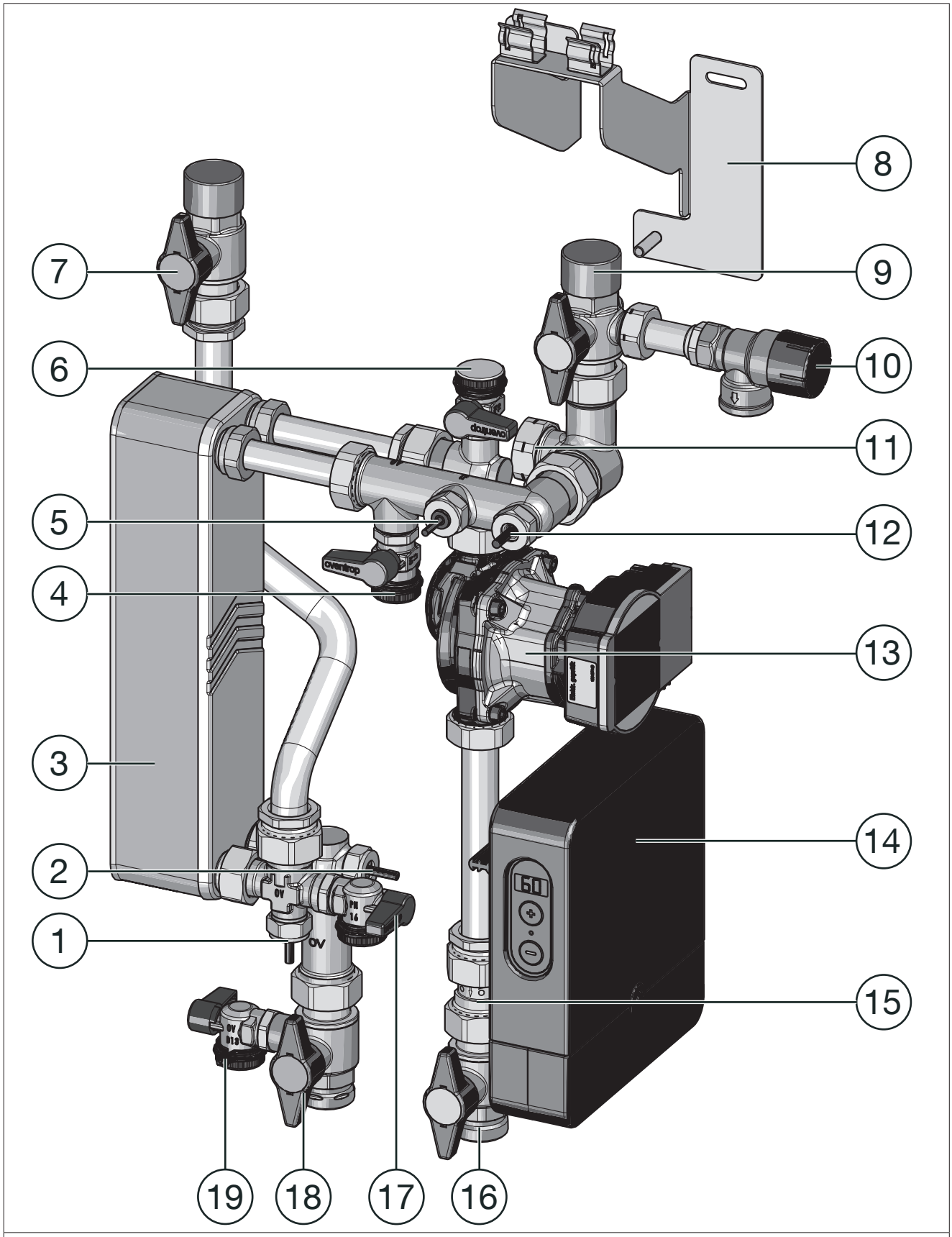
These operating instructions and all other relevant documents (e.g. operating instructions of accessories) must be read and applied by any person working on the product.

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 Construction



Illust. 1: "Regumaq X-25"

(1)	Temperature sensor for potable hot water S2
(2)	Temperature sensor for storage cylinder circuit S1
(3)	Heat exchanger
(4)	Fill and drain ball valve for potable cold water
(5)	Flow sensor for potable water circuit VTY 20
(6)	Fill and drain ball valve for storage cylinder circuit return
(7)	Isolating ball valve for potable hot water
(8)	Wall bracket
(9)	Isolating ball valve for potable cold water
(10)	Safety valve for potable water circuit (10 bar)
(11)	Connection for circulation pipe
(12)	Temperature sensor for potable cold water / circulation, S3
(13)	Storage cylinder circuit circulation pump
(14)	Controller
(15)	Non-return check valve in storage cylinder circuit
(16)	Isolating ball valve for storage cylinder circuit return
(17)	Fill and drain ball valve for potable hot water
(18)	Isolating ball valve for storage cylinder circuit supply
(19)	Fill and drain ball valve for storage cylinder circuit supply

3.2 Functional description

The “Regumaq X-25” is an electronically controlled product assembly complete with heat exchanger for potable water heating according to the continuous flow principle. Potable water is only heated up when it is needed. This station dispenses with the need to store hot potable water in a storage cylinder. The station facilitates a demand-based heat supply – even when potable water consumption is very low.

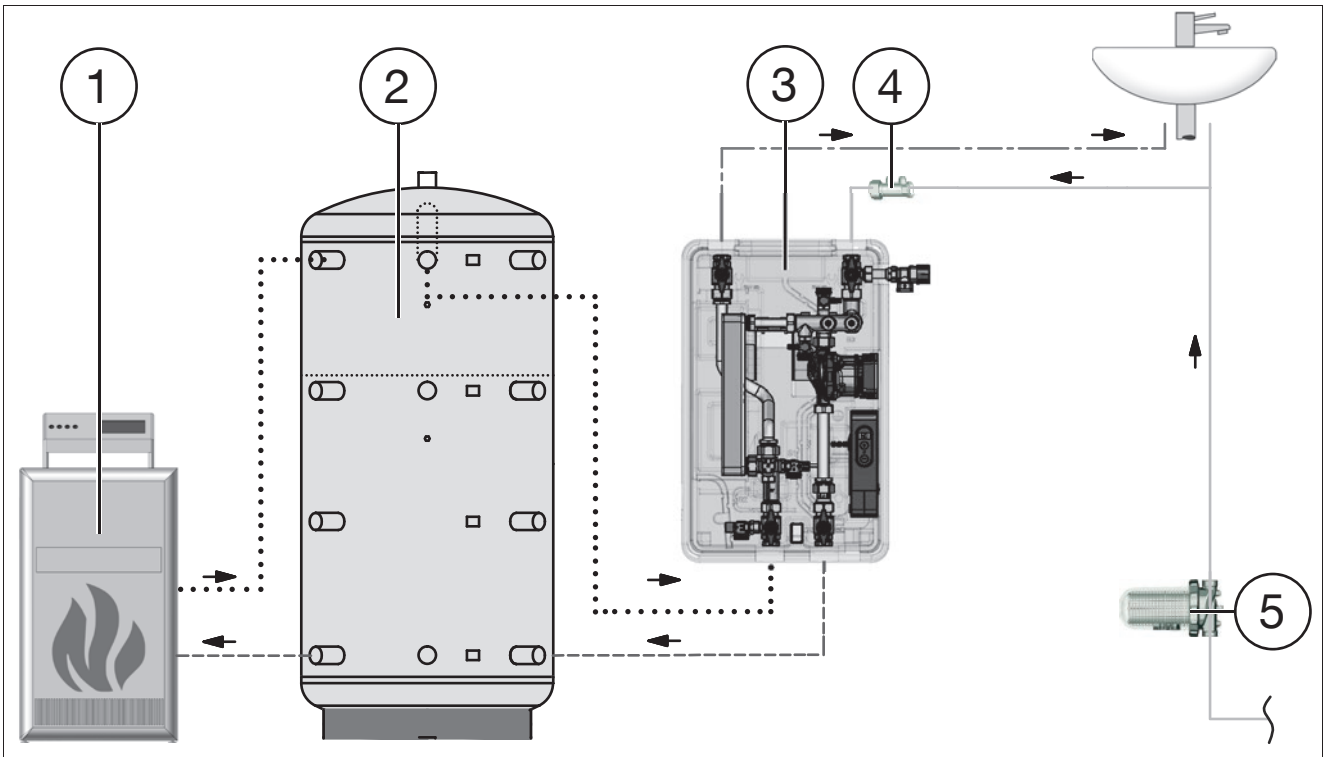
The integrated heat exchanger provides a system separation between the potable water circuit and the storage cylinder circuit.

At a fixed potable water temperature of 60 °C and a storage cylinder temperature of 75 °C, the hot potable water discharge capacity can vary between 1 and 25 l/min. This is provided by means of the controller regulating the circulation pump to a (variable) speed in order to feed heating water from the connected buffer storage cylinder to the heat exchanger as needed. The controller calculates the pump speed necessary to achieve the desired potable water temperature on the basis of the actual values for the volume flow and the temperature (of the potable water) recorded by the sensors.

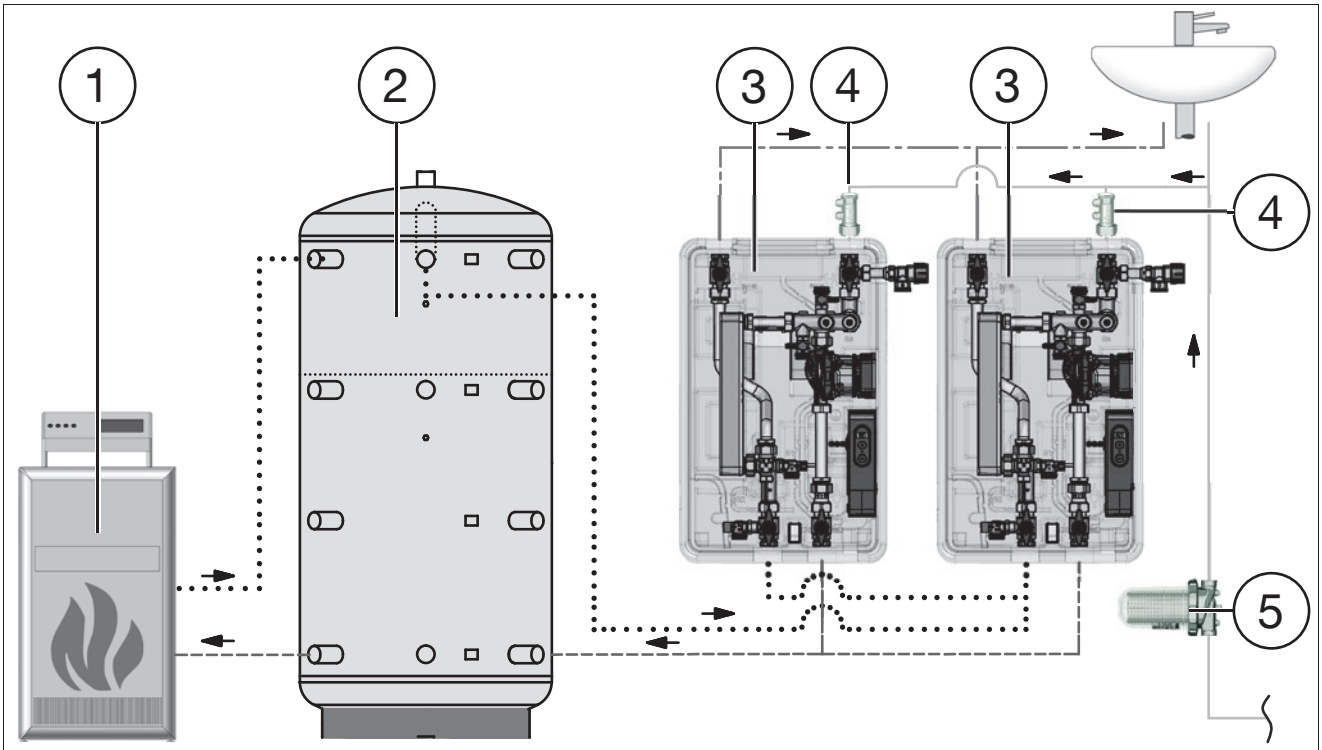
Example:

A simultaneous draw-off at several delivery points and the associated higher consumption of hot potable water directly triggers a higher pump speed to feed more heating water into the heat exchanger. This transfers more heat to the potable water circuit accordingly.

3.3 System diagram



Illust. 2: System diagram with one “Regumaq X-25” fresh water station



Illust. 3: System diagram with two “Regumaq X-25” fresh water stations

(1)	Heat generator
(2)	Buffer storage cylinder
(3)	“Regumaq X-25”
(4)	“Aquastrom R” non-return check valve
(5)	“Aquanova Magnum” water filter
•••••••••	Storage cylinder circuit supply
_ _ _ _ _ _ _	Storage cylinder circuit return
———	Potable cold water (PWC)
——·——	Potable hot water (PWH)
→	Direction of flow

When operating several “Regumaq X-45” stations in parallel, connect the stations to the pipework according to the Tichelmann system to guarantee a constant circulation through the stations with the lowest possible resistance.

3.4 Example of the application

Design temperatures: 60°C hot water; 75°C flow temperature storage cylinder circuit

(design according to DIN 1988-300)

Number of “X-45” stations	Residential building	Hospital room	Hotel room	Communal shower facility	Buffer storage cylinder volume [l]	Required boiler capacity [kW]
	1 Washbasin (WB) 1 Kitchen sink (KS) 1 Shower (S)	1 WB 1 S	1 WB 1 S	Number of showers at 6 l/ min 60° PWH (Simultaneity factor 80 %)		
1	**3**	**4**	**3**	**5**	**500**	**17**
2	**14**	**19**	**12**	**10**	**800**	**33**

3.5 Technical data

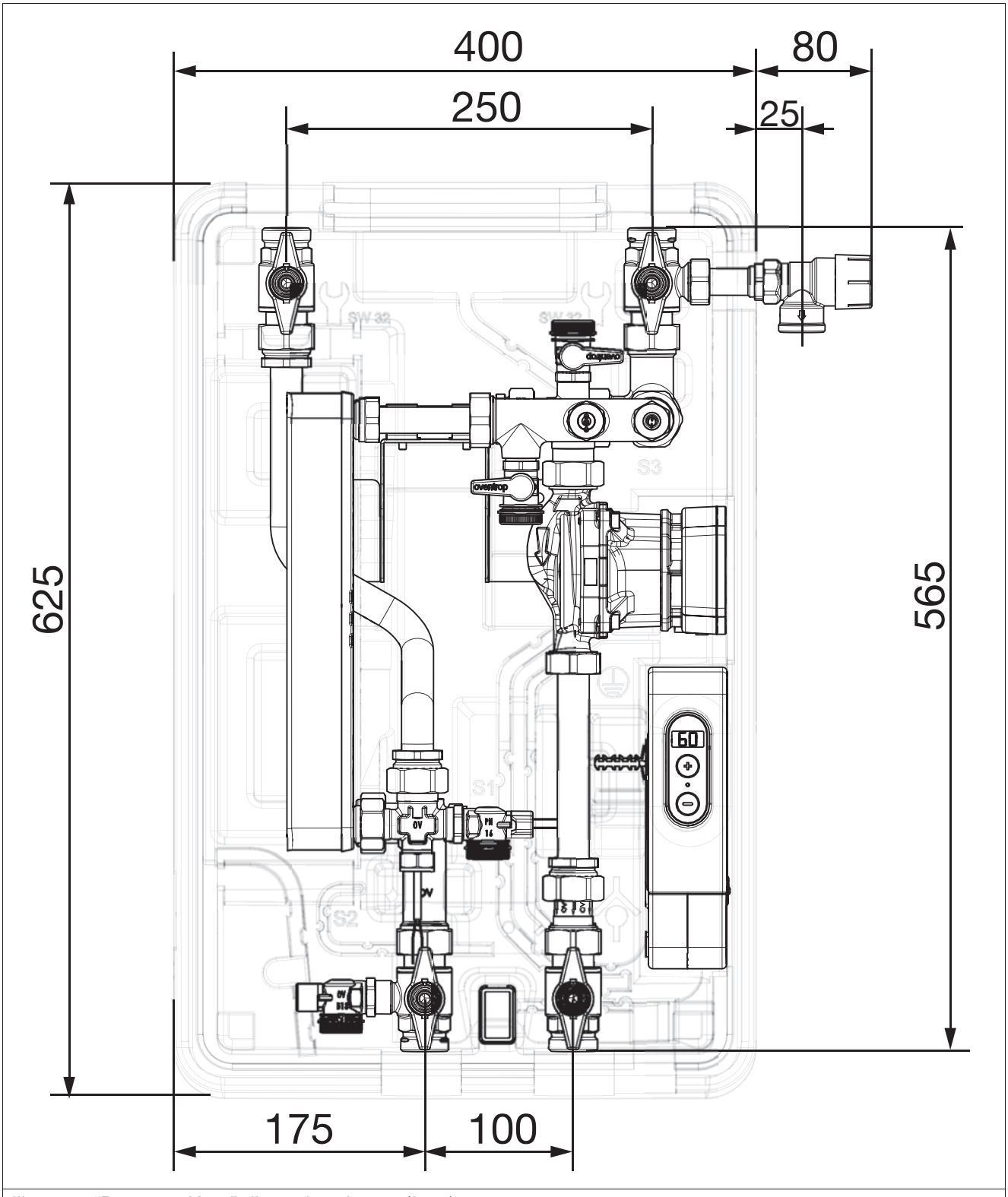
General information	
Max. operating pressure (ps**)**	10 bar
Max. operating temperature (ts**)**	95 °C
Ambient temperature	2 – 35 °C
Empty weight	Approx. 13 kg
Connections	
Storage cylinder circuit, potable water circuit, circulation	G1 male thread high sealing level
Fill and drain ball valves	G ¾ male thread, for hose connections
Storage cylinder circuit	
Fluid	Heating water in accordance with VDI 2035/ ÖNORM H 5195-1; fluid category ≤ 3 in accordance with EN 1717; see Oventrop information sheet on corrosion protection in the appendix
kv value	2,67 m³/h
Pump	Wilo Para 15-130/8-75/ UN-9 Power consumption during operation 2–75 W

Potable water circuit	
Fluid	Potable water (see Oventrop information sheet on corrosion protection in the appendix) ***Notice*** **Damage to measuring turbine caused by chemical influences!** Water treatment additives in high concentrations can damage the measuring turbine. ▶ Ensure that the permitted limits for potable water are not exceeded.
Discharge capacity (where Δ T = 15K)	1–25 l/min
kv value	1.88 m³/h
Safety valve	10 bar
- General temperature range: **- Controller presetting:**	20 – 75 °C 20 – 60 °C
Material	
Valves and fittings	Brass / dezincification-resistant brass
Seals	Fibre material
Insulation	EPP
Pipes	Stainless steel 1.4404

Heat exchanger copper brazed	Plates: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper
Heat exchanger copper-brazed, with Sealix® protective layer	Plates: Stainless steel 1.4401 Connections: Stainless steel 1.4404 Brazing material: Copper Protective layer: SIO^2-based
Dimensions	
Width/Height/Depth	400/625/240 mm
Pipe distance to connections (primary)	100 mm
Pipe distance to connections (secondary)	250 mm
Centre distance to wall (primary)	105 mm
Centre distance to wall (secondary)	65 mm
Distance between sealing surfaces Primary to secondary side	565 mm
Tightening torques	
G¾ collar nuts	45 Nm
G1 collar nuts	45 Nm
Temperature sensor	15 Nm
Flow sensor	15 Nm

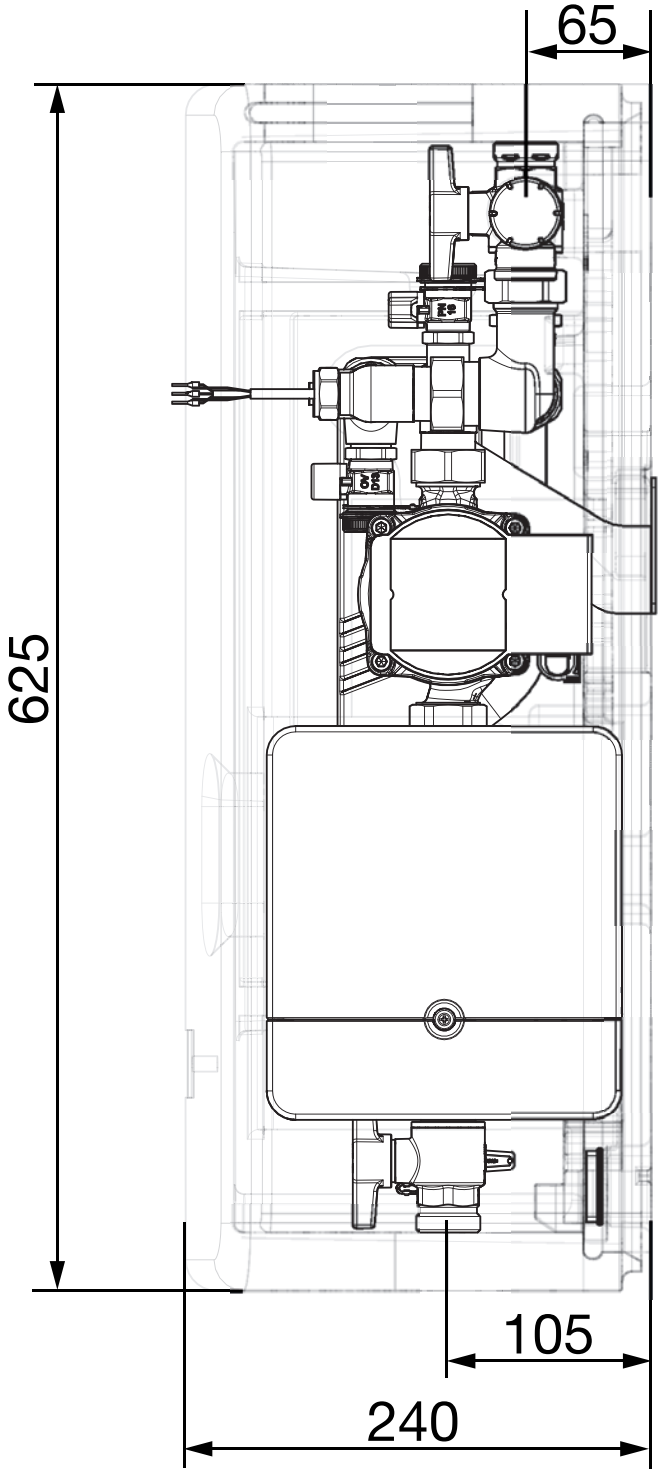
Controller	
Inputs	3x Pt1000 temperature sensors, 1x Sika flow sensor
Outputs	1x solid-state relay and 1x PWM output
Switching capacity	1 (1) A 240 V~ (solid-state relay)
Total switching capacity	1 A 240 V~
Supply	100–240 V~ (50–60 Hz)
Type of connection	X
Operation mode	Type 1.C.Y
Rated surge voltage	2.5 kV
Fuse	T4AH250V
Data interface	LIN bus
Housing	Plastic, PC-ABS and PMMA
Display	2x 7-segment displays, 1x operating control LED
Operation	2 buttons
Protection	IP 22 / DIN EN 60529
Protection class	I
Degree of contamination	2
Dimensions	183 x 203 x 54 mm

3.5.1 Front view



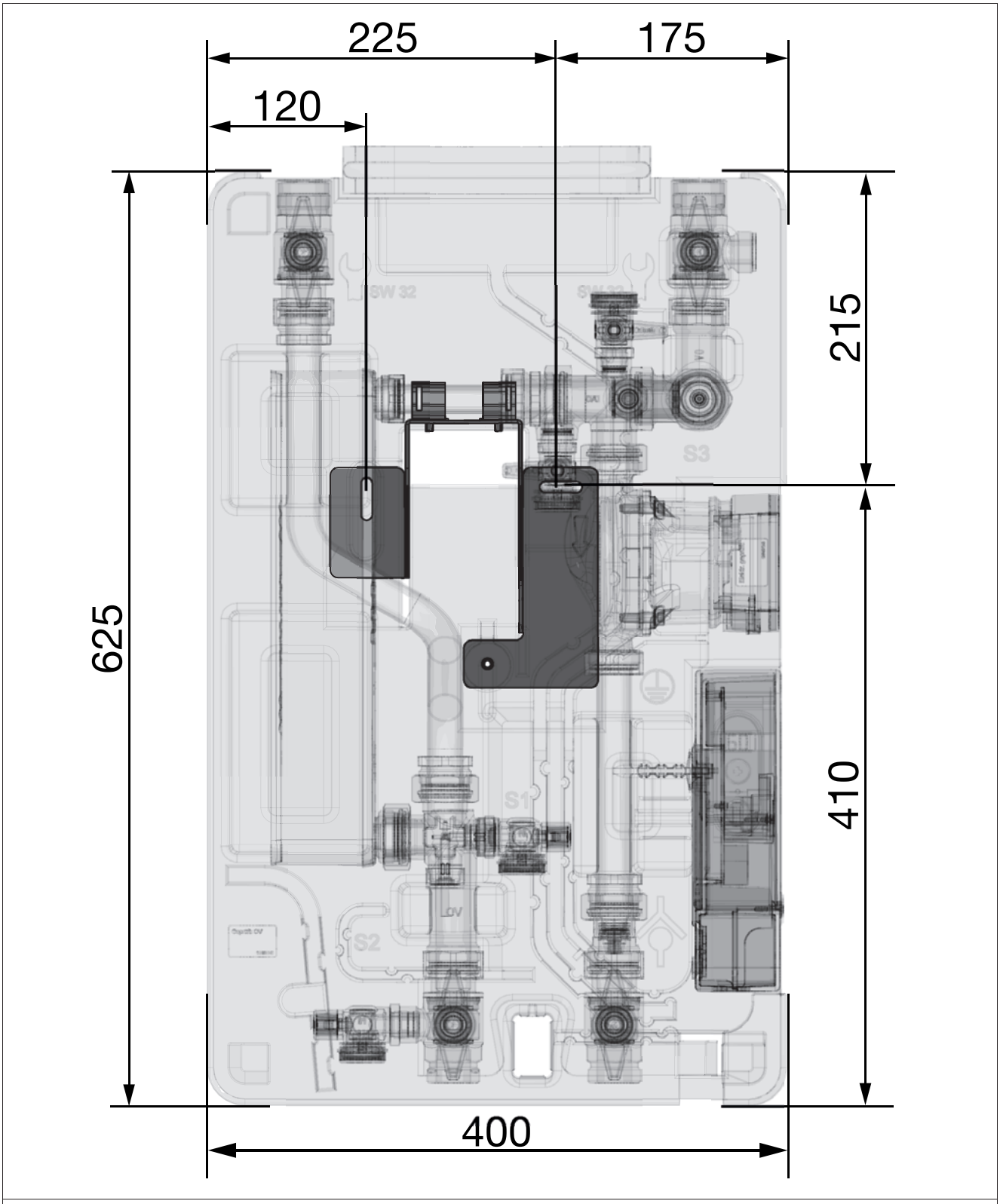
Illust. 4: “Regumaq X-25” dimensions in mm (front)

3.5.2 Side view



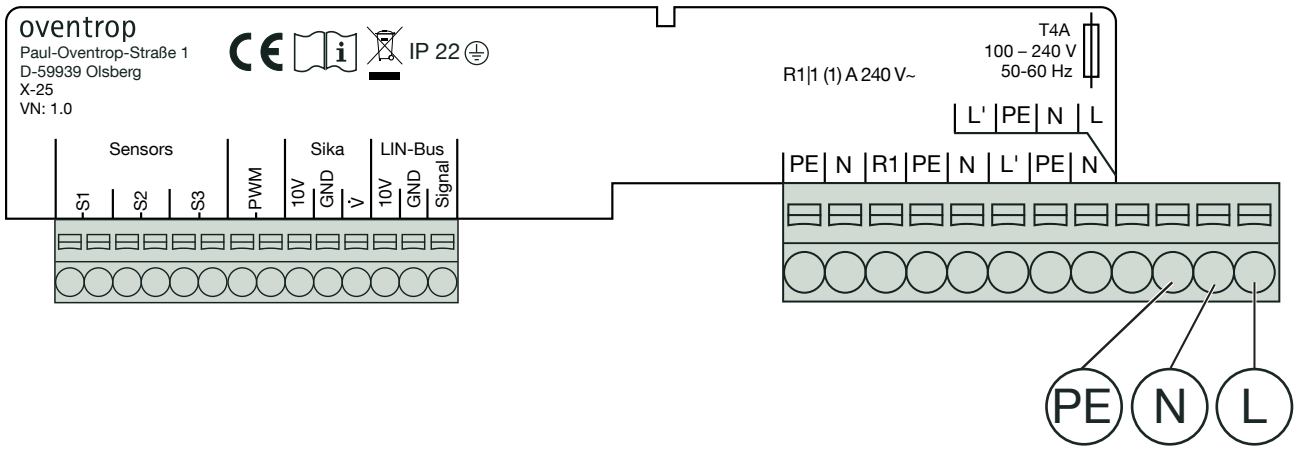
Illust. 5: “Regumaq X-25” dimensions in mm (side)

3.5.3 Wall bracket



Illust. 6: “Regumaq X-25” dimensions in mm (wall bracket)

3.6 Controller terminal assignment



Illust. 7: Terminal allocation

Sensors		
S1	Storage cylinder supply	Connections for the temperature sensors **with any polarity** at terminals S1 to S3.
S2	Hot water	
S3	Cold water	
Control output for a high-efficiency pump		
PWM	Control output for a high-efficiency pump.	
Flow sensor		
10 V		Connection for the flow sensor **observing the prescribed polarity** at the 10 V, V̇ and GND terminals.
V̇	Volume flow	
GND		
Interface for LIN bus pump		
10 V	Connection for the LIN bus pump **observing the prescribed polarity** at the 10 V, GND and signal terminals.	
GND		
Signal		
Power supply 100–240 V~ (50–60 Hz)		
PE	Earth conductor ⏚	
N	Neutral conductor	
R1	Conductor relay 1	
PE	Earth conductor ⏚	
N	Neutral conductor	
L‘	Phase (permanently live, fused contact)	
PE	Earth conductor ⏚	
N	Neutral conductor	
L‘	Phase (permanently live, fused contact)	
PE	Earth conductor ⏚	
N	Neutral conductor	
L	Power supply phase	

4. Accessories and spare parts

You can find the current accessories and spare part list on our homepage.

www.oventrop.com/qr/1381125

CAUTION

Risk of injury from incorrect accessories and spare parts!

Incorrect or faulty accessories and spare parts may lead to damages, operational failure and malfunctions, which increases the risk of injury.

- Only use original spare parts from the manufacturer.
- As far as possible, only use original accessories from the manufacturer or other suitable accessories.

4.1 Potable water circulation set

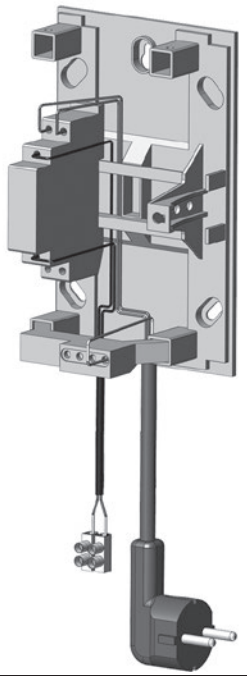
Accessories	Item no.
Potable water circulation set with pump	1381150
Potable water circulation set without pump	1381152

4.2 Sealing set

Accessories	Item no.
Sealing set 5 X G1	1344498
Sealing set 5 X G ¾	1344497

4.3 Load relay

If components (such as pumps or electrical immersion heater) with a rated current exceeding 1 ampere are connected to the controller, this may cause damage to the controller. In this case, the Oventrop load relay must be inserted between.



Illust. 8: Load relay (item no. 1152089)

4.4 Water sampling valve Aquastrom P

Illust. 9: Water sampling valve

Size	Connection	Item no.
DN 8	G ¼ M	4209102
DN 10	G ⅜ M	4209103

The lower shell contains a bracket for the discharge elbow of the water sampling valve (see Illust. 16 on page 25).

4.5 Non-return check valve Aquastrom R

Size	Connection	Item no.
DN 20	G 1 M x G 1 M	4208706
DN 25	G 1¼ M x G 1¼ M	4208708
DN 20	G 1 c/nut x G 1 M	4208606
DN 25	G 1¼ c/nut x G 1¼ M	4208608

4.6 Strainer

Illust. 10: Strainer

Size	Connection	Item no.
DN 20	G ¾ F x G ¾ F	1120006
DN 25	G 1 F x G 1 F	1120008

4.7 Water filter Aquanova Magnum

Illust. 11: “Aquanova Magnum” water filter

Size	Connection	Item no.
DN 25	Rp 1 F x Rp 1 F	6120008
DN 32	Rp 1¼ F x Rp 1¼ F	6120010
DN 40	Rp 1½ F x Rp 1½ F	6120012
DN 50	Rp 2 F x Rp 2 F	6120016
DN 20	R ¾ M x R ¾ M	6122006
DN 25	R 1 M x R 1 M	6122008
DN 32	R 1¼ M x R 1¼ M	6122010
Filter insert		6125101

4.8 Grounding clip

Accessories	Item no.
Grounding clip	1359995

4.9 Connection fittings

	Connection	Item no.
Connection fitting	R ¾ M x G c/nut	4201473
Solder tailpipe	Ø22mm x G c/nut	4202074

5. Transport and storage

Temperature range	0 – 40 °C
Relative air humidity	Max. 95 %
Particles	Store dry and free from dust
Mechanical influences	Protect from mechanical agitation
Weather influences	Do not store outdoors
	Protect from direct sunlight
Chemical influences	Do not store together with aggressive fluids

6. Installation

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the product from the power supply.
- ▶ Check that no voltage is present.
- ▶ Secure the product against switching back on.
- ▶ The product may only be installed in dry indoor areas.

WARNING

Risk of injury from pressurised components!

Fluids escaping under pressure may lead to injuries.

- ▶ Only ever carry out installation work when the system is depressurised.

If refitting an existing system:

- ▶ Drain the system or close the supply pipes of the section of the system and depressurise it.

CAUTION

Risk of injury from heavy station!

The station is heavy. If it falls down, it may lead to injuries.

- ▶ Always wear safety shoes during installation.

6.1 Advice regarding installation

The fresh water station is not to be considered in isolation but rather always in conjunction with other components in the heating system.

- ▶ Ensure the design of the buffer storage cylinder and the heat generator is suited to the performance characteristics of the fresh water station and the specific consumption behaviour within the building.
- ▶ When planning the heat generator, also consider the energy consumption for the heating period.

NOTICE	
	Damage to property caused by system overpressure! The safety valve only protects the potable water circuit within the fresh water station. ▶ Also equip the potable water system with an additional (without isolating facility) safety valve in accordance with DIN EN 806-2.

NOTICE	
	Damage to property caused by frost or overheating! Frost or excessive ambient temperatures may damage the station components ▶ Install the station in a dry and frost-free place. Make sure that the ambient temperature during operation does not exceed 35 °C.

- ▶ Before installing the station, make sure that the pipework to the installation location is laid, flushed and leak tested.
- ▶ Before installing the station, make sure that the power cable and grounding cable are routed to the installation location.
- ▶ Always install the station in a vertical position – never in an inclined or lying position.
- ▶ The station must always be accessible – even after installation.
- ▶ The station should be installed as closely to the buffer storage cylinder as possible. The pipe connection must have a nominal diameter of at least DN 20.

6.2 Wall attachment of the station

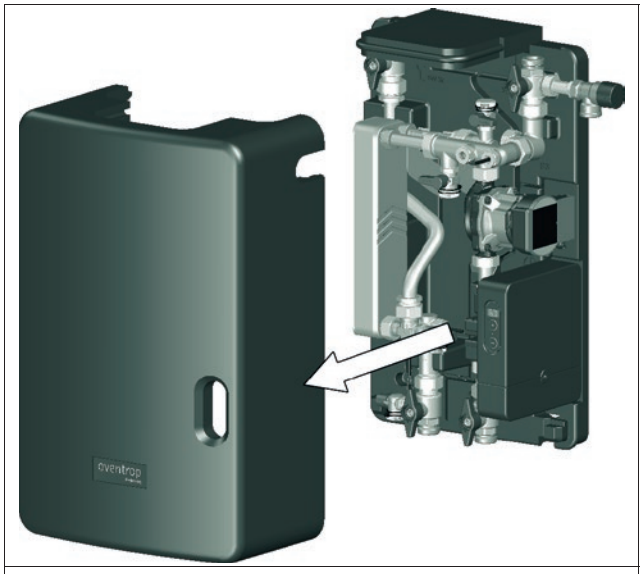
6.2.1 Required tools

Wall attachment requires the following tools:

- Pipe wrench
- Spirit level
- Drill (8 mm masonry drill)
- 10 mm spanner / reversible ratchet with SW 10 socket wrench insert
- 32 mm spanner
- 38 mm spanner
- 4 mm key for screws with hexagon socket
- Marker pen

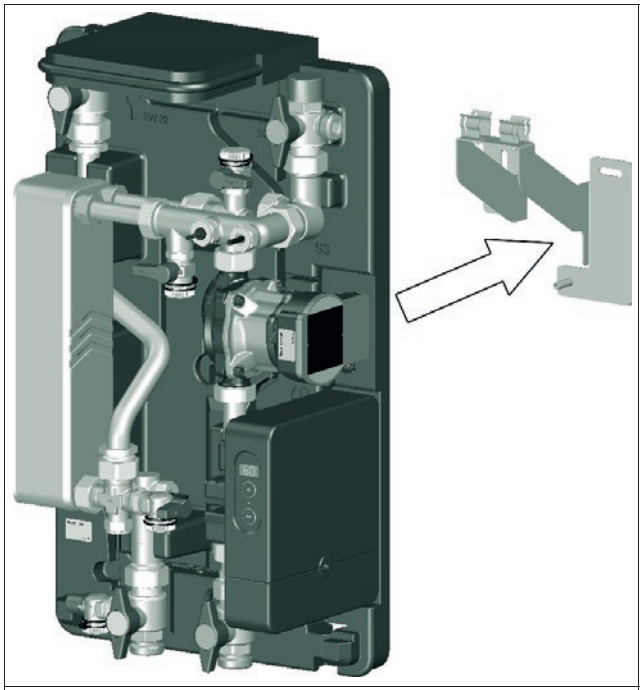
6.2.2 Installation

1. Pull the product out of the cardboard.
2. Lift off the upper shell (see Illust. 12)



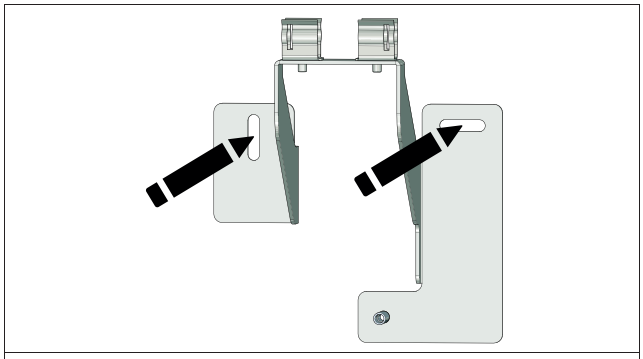
Illust. 12: Removal of the front insulation shell

3. Remove the wall bracket.



Illust. 13: Removal of the wall bracket

4. Hold the wall bracket horizontally against the wall to use it as a drilling jig.
5. Mark the spots for two holes

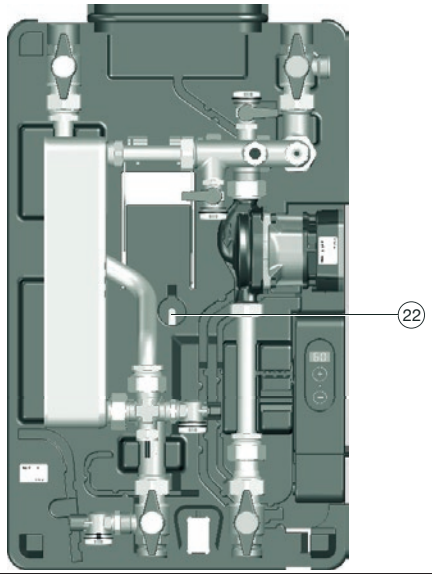


Illust. 14: Use of the wall bracket as a drilling jig

6. Drill the corresponding holes (ø 8 mm) and insert the dowels.
7. Screw the wall bracket into place with two 10x60 mm screws and washers (supplied).
8. Mount the product assembly on the wall bracket.

	Ensure that the bracket audibly locks into place. Ensure the station is seated securely on the bracket.

9. Insert the washer into the designated contour in the lower shell.



Illust. 15: Position of the washer

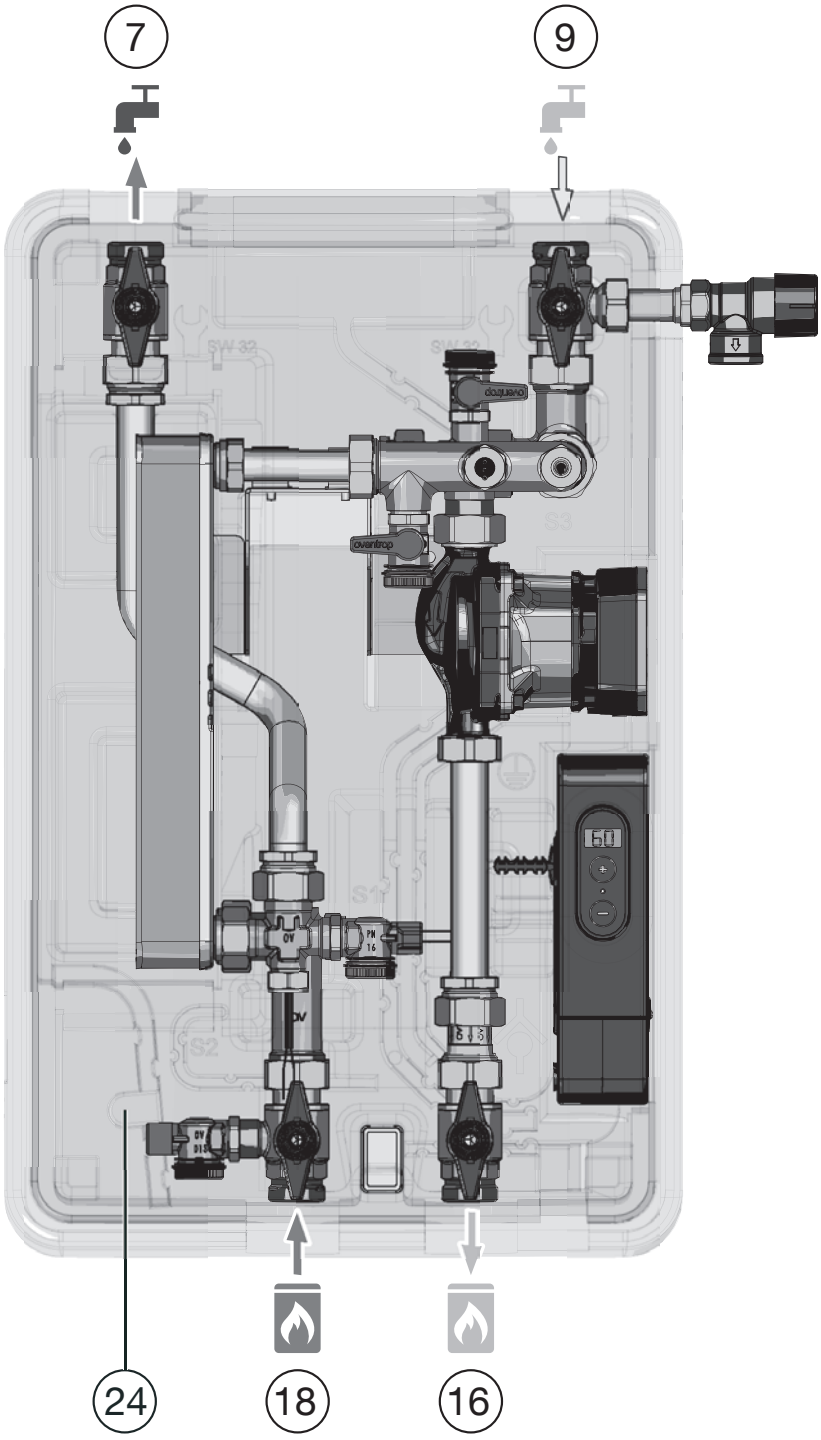
(22)	Position of the washer

10. Fix the lower shell with the screw with hexagon socket (M5 x 20). Tighten the screw until metallic stop.

▷ This completes the wall attachment of the fresh water station. The next step involves the pipework.

6.3 Pipework

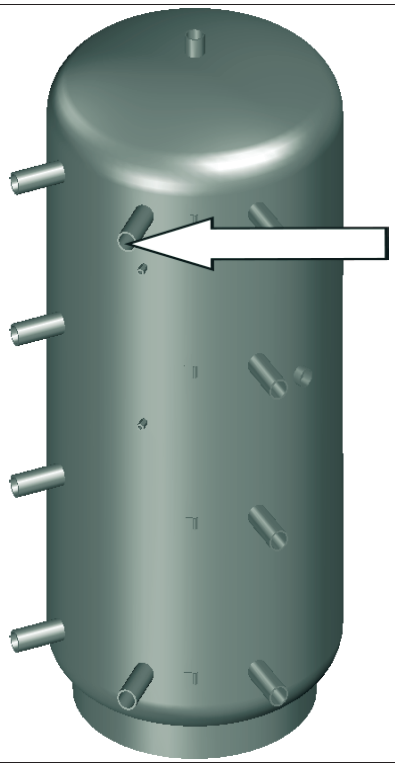
All four connections for the incoming and outgoing pipework feature G1 dimensions (flat sealing male thread).



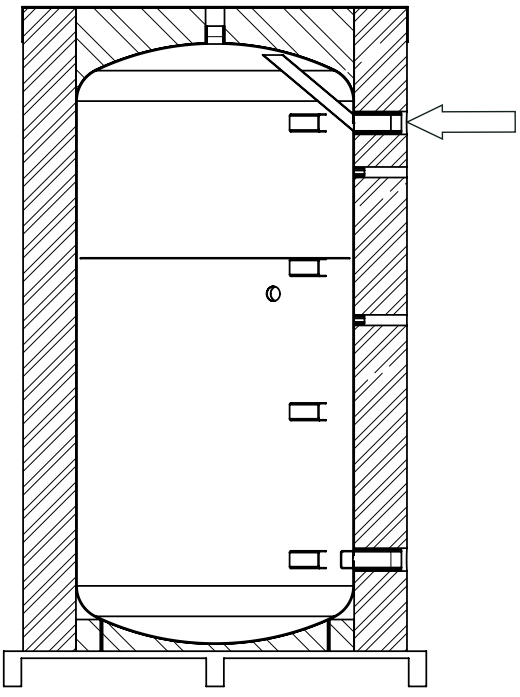
Illust. 16: Functional description

(7)	Potable hot water return
(9)	Potable cold water supply
(16)	Storage cylinder circuit return
(18)	Storage cylinder circuit supply
(24)	Bracket for discharge elbow for water sampling valve

- The “storage cylinder circuit supply” for the fresh water station may only be connected to a connection pipe for the buffer storage cylinder in isolation (as per the hydraulic decoupling principle). A shared connection with other components in the heating system (via T-piece, for example) is not permitted.
- Note the nominal widths in the lower shell for the spanners to be used.
- We recommend using a strainer in the storage cylinder circuit supply.
- If required, install an additional potable water filter (TF) (Oventrop accessories) as closely as possible to the cold water connection for the station.
- When using a circulation pipe, install, if required, a strainer which is suitable for potable water in the supply pipe for the circulation set to ensure no particles or foreign bodies enter the measuring turbine.
- Install a check valve (Position (4) in Illust. 3 on page 13) in the potable water (hot) supply (position (9) in Illust. 16 on page 25), to separate the cold potable water from the water that has already been heated in the station.
- When operating the fresh water station with Oventrop buffer storage cylinders in the “Hydrocor HP” series, be sure to connect the “storage cylinder circuit supply” to the central connection pipe.
- Install a bleeder at the upper torispherical head of the storage cylinder.
- While the station is running in circulation operation, the water in the circulation circuit expands in the event of temperature increases and the station safety valve is activated. Install an expansion tank that is suitable for potable water to prevent overpressure in the circulation circuit.



Illust. 17: Connection of the storage cylinder supply to the buffer storage cylinder



Illust. 18: Internal structure of the buffer storage cylinder

6.4 Protective equipotential bonding/Grounding

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 grounding 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 accordance with 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.

DANGER

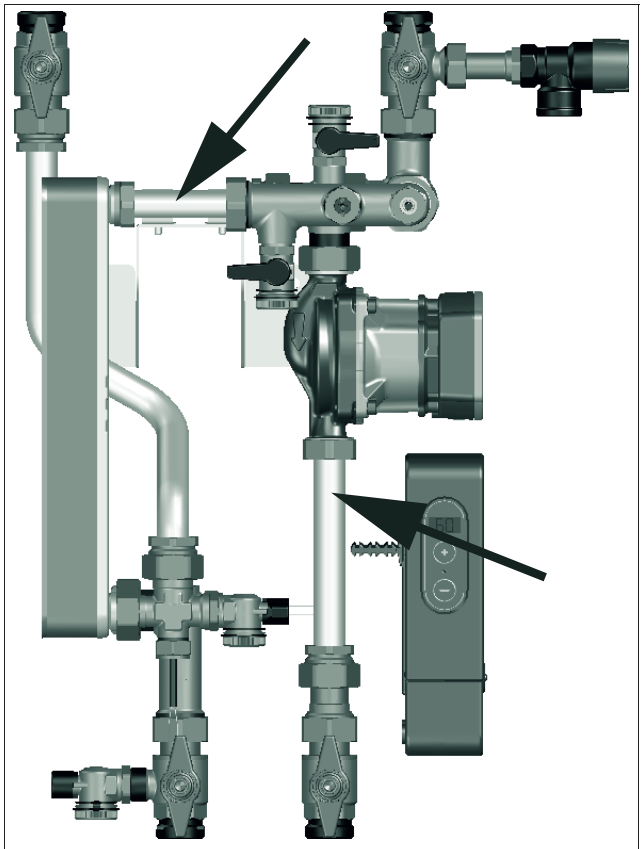
Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the product from the power supply.
- ▶ Check that no voltage is present.
- ▶ Secure the product against switching back on.
- ▶ The product may only be installed in dry indoor areas.

Since the circulation pump cannot be considered electrically conductive, it is necessary to connect the pipework to the equipotential bonding rail in front of and behind the pump. This can be performed outside or inside of the station. Illust. 19 shows suitable installation points inside the station for the grounding clips.

- ▶ Attach the corresponding grounding clips to the station pipework.
  Grounding clips are available as accessories.

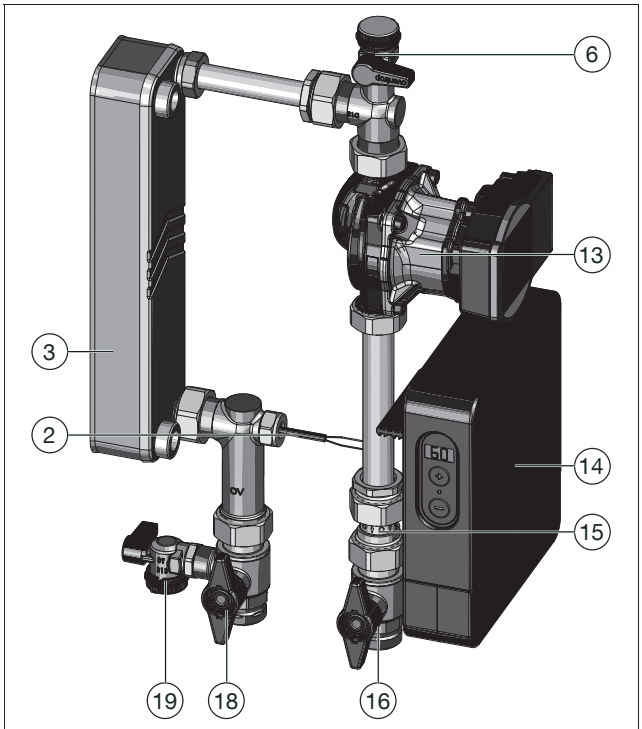


Illust. 19: Equipotential bonding

- ▶ Connect the grounding 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 mm².

7. Commissioning

7.1 Filling and bleeding of the storage cylinder circuit



Illust. 20: Filling and bleeding of the storage cylinder circuit

(2)	Temperature sensor for storage cylinder circuit S1
(3)	Heat exchanger
(6)	Fill and drain ball valve for storage cylinder circuit return
(13)	Circulation pump for storage cylinder circuit
(14)	Controller
(15)	Non-return check valve in storage cylinder circuit
(16)	Isolating ball valve for storage cylinder circuit return
(18)	Isolating ball valve for storage cylinder circuit supply
(19)	Fill and drain ball valve for storage cylinder circuit supply

CAUTION

Risk of scalding due to hot fluids!

If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

NOTICE

Risk of damage due to pressure surge!

Sudden filling of the station can cause damage, for instance to the sensors or sealing points.

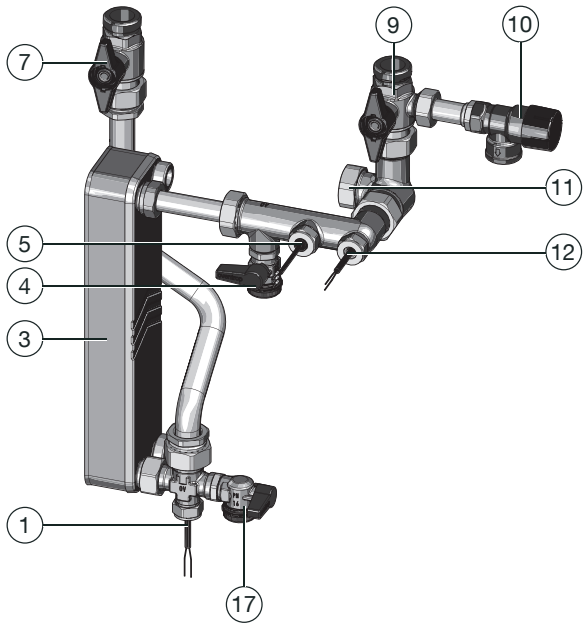
- ▶ Always open and close ball valves slowly.

1. Open the isolating ball valve for the storage cylinder circuit supply slowly (see position (18) in Illust. 20 and in Illust. 1 on page 10).
2. Unscrew the cap of the fill and drain ball valve for the storage cylinder circuit return (see position 6 in Illust. 20 and in Illust. 1 on page 10).
3. Connect a flushing hose to the fill and drain ball valve for the storage cylinder circuit return.
4. Open the fill and drain ball valve for the storage cylinder circuit return a little until air escapes.
5. Close the fill and drain ball valve of the storage cylinder circuit return as soon as only water starts to escape.
6. Remove the flushing hose and screw the cap back on for the fill and drain ball valve for the storage cylinder circuit return.
7. Open the isolating ball valve for the storage cylinder circuit return slowly (see position (16) in Illust. 20 and in Illust. 1 on page 10).

During draw off operation, any remaining air in the storage cylinder circuit is transported to the storage cylinder by the volume flow

- ▶ Repeat the bleeding process if noises persist within the pipe as a result of airlocks.

7.2 Filling and bleeding of the potable water circuit



Illust. 21: Filling and bleeding of the potable water circuit

(1)	Temperature sensor for potable hot water S2
(3)	Heat exchanger
(4)	Fill and drain ball valve for potable cold water
(5)	Flow sensor for potable water VTY 20
(7)	Isolating ball valve for potable hot water
(9)	Isolating ball valve for potable cold water
(10)	Safety valve for potable water circuit (10 bar)
(11)	Connection for circulation pipe
(12)	Temperature sensor for potable cold water / circulation, S3
(17)	Fill and drain ball valve for potable hot water

CAUTION

Risk of scalding due to hot fluids!

If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

NOTICE

Risk of damage due to pressure surge!

Sudden filling of the station can cause damage, for instance to the sensors or sealing points.

- ▶ Always open and close ball valves slowly.

1. Open the isolating ball valve for potable hot water slowly (see position (7) in Illust. 21 and in Illust. 1 on page 10).
2. Open the isolating ball valve for potable cold water slowly (see position (9) in Illust. 21 and in Illust. 1 on page 10).
3. Carry out a draw off operation.

During draw off operation, any remaining air in the potable water circuit is drained via the draw-off point.

- ▶ If noises persist within the potable water circuit as a result of airlocks, open the fill and drain ball valve for potable hot water slightly until only water escapes (see position (17) in Illust. 21 and in Illust. 1 on page 10) .

7.3 Electrical connection

Once the power supply has been established, the controller goes through an initialisation phase.

NOTICE

Malfunctions caused by electromagnetic fields

Strong electromagnetic fields can affect the controller function.

- ▶ Ensure that the product is not exposed to any sources of strong electromagnetic radiation.

Refer to the accessory operating instructions when using a potable water circulation set.

It must be possible to disconnect the product from the mains at any time.

- ▶ Ensure the power plug is connected in a way that means it is accessible at all times.
- ▶ If this is not possible, install a switch that can be accessed at any time. In this case, the product must be capable of being disconnected entirely from the mains via an additional device with an isolating distance of least 3 mm and/or with a disconnecting device (fuse) according to the applicable installation regulations.

7.3.1 Power supply via pre-assembled power supply cable

A fused shock-proof socket must be available at the installation site.

- ▶ Close the thermal insulation of the station by fitting the upper shell.
- ▶ Insert the plug of the pre-assembled power cable into a shock-proof socket.

7.3.2 Power supply without pre-assembled power supply cable

If the pre-assembled shock-proof plug cannot be used, the power supply may only be established by a qualified electrician.

DANGER

Danger to life due to electric current!

Danger to life due to contact with live components.

- ▶ Completely disconnect the product from the power supply.
- ▶ Check that no voltage is present.
- ▶ Secure the product against switching back on.
- ▶ The product may only be installed in dry indoor areas.

NOTICE

Damage to electronic components due to electrostatic discharge!

- ▶ Before touching the inside of the housing, take suitable equipotential bonding measures. Touch a grounded component, such as a tap or radiator.

It must be possible to disconnect the product from the mains at any time.

- ▶ Install a switch that can be accessed at any time. The product must be capable of being disconnected entirely from the mains via an additional device with an isolating distance of least 3 mm and/or with a disconnecting device (fuse) according to the applicable installation regulations.

The controller holder in the lower shell is designed in such a way that you can easily secure the controller in a convenient position without the need for tools.

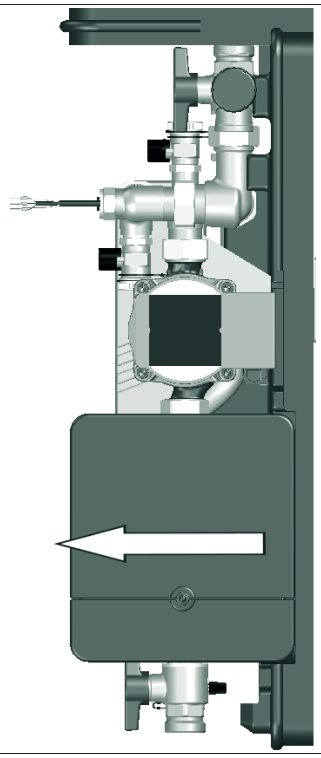
1. Carefully remove the controller from the lower shell as shown in Illust. 22

NOTICE

Damage to the electrical lines and connections caused by tensile forces!

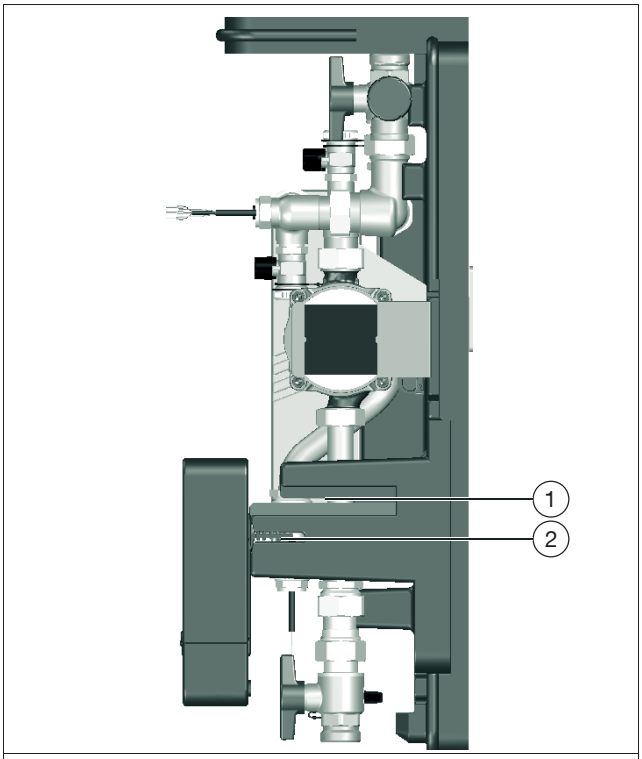
Electric lines and/or connections can break if the tensile forces applied are too strong.

- ▶ Ensure that the cables connected to the controller are not subjected to any tension.



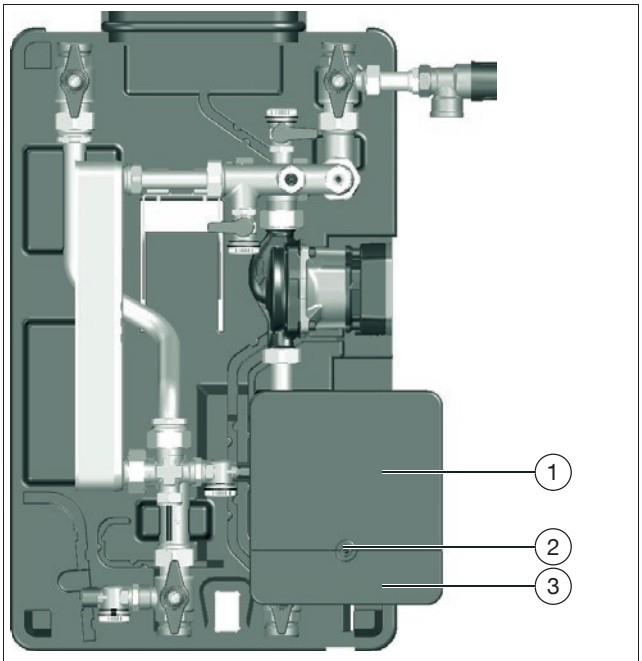
Illust. 22: Removal of the controller from the lower shell

2. Rotate the controller and secure it in the installation position as shown in Illust. 23.



Illust. 23: Installation position

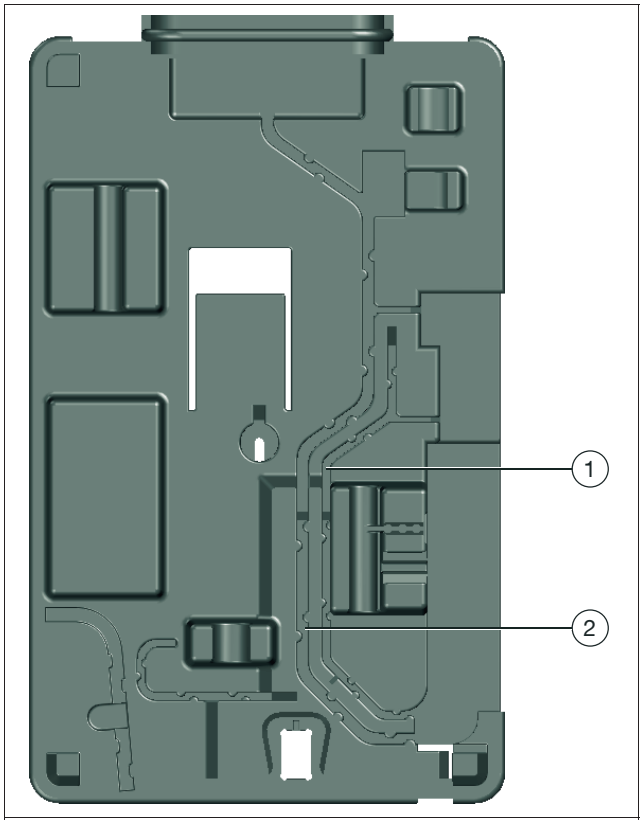
(1)	Opening for operation position
(2)	Opening for installation position



Illust. 24: Opening the controller

(1)	Connection panel cover
(2)	Torx screw
(3)	Supply pipe cover

3. Remove the screw (see position (2) in Illust. 24) and put it to one side.
4. Slide the connection panel cover (see position (1) in Illust. 24) upwards until it audibly locks into place.
5. Fold down the supply pipe cover (see position (3) in Illust. 24).
6. Guide the power line through the designated opening in the cover.
7. Establish the electrical connections according to the terminal allocation (see Illust. 7 on page 19).
8. Secure the power line in place with a suitable cable tie to relieve tension.
9. Close the supply pipe cover and connection panel cover.
10. Tighten the screw.
11. Put the controller back from the installation position to the operating position (see Illust. 22 on page 30).
12. Lay the electrical lines in the designated channels in the lower shell.



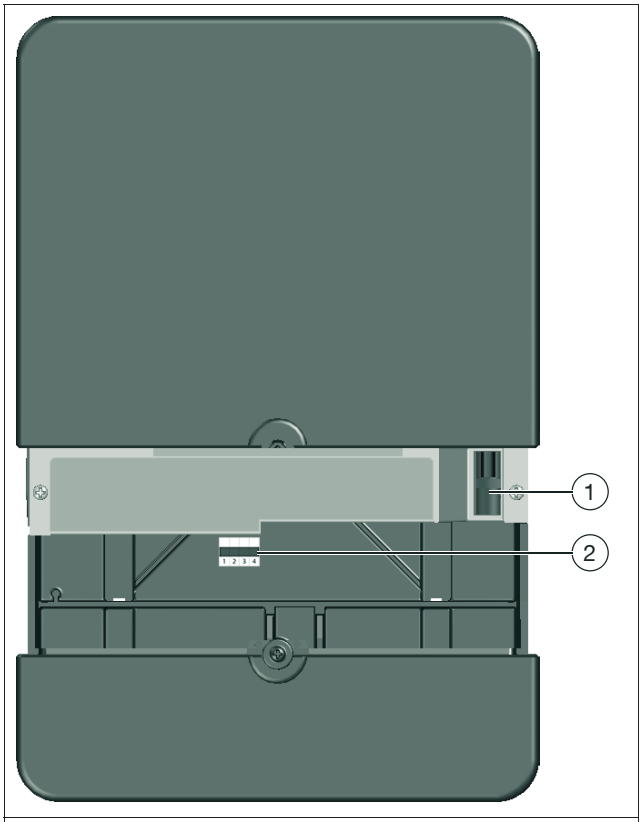
Illust. 25: Cable channels of the lower shell

(1)	Channel for sensor and control lines
(2)	Channel for 230V line

13. Connect the power supply.

▷ The station is ready for operation.

7.4 Configuration of the circulation function (optional)



Illust. 26: Fuse holder and DIP panel

(1)	Fuse holder
(2)	DIP panel

If you are using the circulation set, you can configure the function using DIP switches.

Please observe the operating instructions supplied with the circulation set.

1. Completely disconnect the controller (all poles) from the power supply.
2. Open the connection panel cover as described in steps 1 to 4 in section 7.3 on page 29.
3. Configure the DIP switch according to the required functions (see section 7.4.1).
4. Close the connection panel cover.
5. Tighten the screw.
6. Connect the power supply.

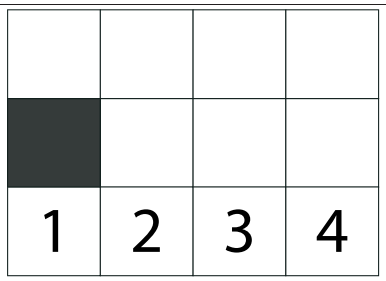
7.4.1 Activation of the circulation function

Observe the position of the DIP panel in Illust. 26.

7.4.1.1 Deactivation of the circulation

The circulation function is deactivated at the factory (see Illust. 27).

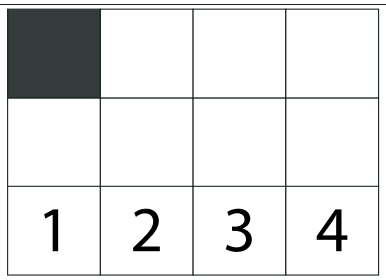
► Set DIP switch 1 to “OFF”



Illust. 27: Deactivated circulation

7.4.1.2 Activation of the circulation

► Set DIP switch 1 to “ON”



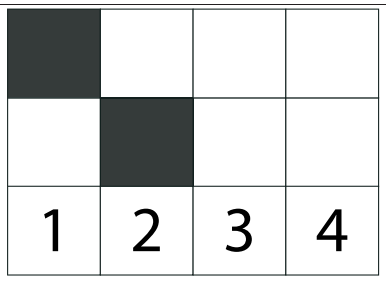
Illust. 28: Activated circulation

7.4.2 Operating mode of the circulation pump

7.4.2.1 24-hour circulation operation:

24-hour operation means that the circulation pump runs for 24 hours a day without interruptions or a shut-off parameter.

► Set DIP switch 1 to “ON” and DIP switch 2 to “OFF”.



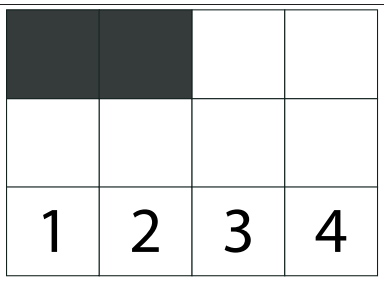
Illust. 29: 24-hour circulation operation

7.4.2.2 Thermally regulated circulation:

The circulation pump is controlled depending on the temperature measured by the temperature sensor for potable cold water / circulation, S3 (see position (12) in Illust. 1 on page 10).

- The pump is switched on when the measured value reaches 6 kelvin below the set nominal value.
- The pump is switched off when the measured value reaches 2 kelvin below the set nominal value.

▶ Set the DIP switches 1 and 2 to “ON”



Illust. 30: Thermally regulated circulation

7.4.2.3 Extension of the maximum adjustable temperature

The maximum possible output temperature in the controller is preset to 60 °C at the factory. If your application requires higher temperatures, you have the option to increase the maximum temperature to up to 75 °C.

CAUTION

Risk of scalding due to excessively hot potable water at the draw-off points!

A controller setting or defect may cause the hot water temperature at the draw-off points to rise to roughly the same temperature as the storage cylinder water.

- ▶ According to DIN EN 806 and DIN 1988, all draw-off points must be provided with protection against scalding if there is a risk of scalding due to high heating water temperatures in the buffer storage cylinder.
- ▶ If you do not apply scalding protection to all draw-off points, reduce the temperature of the storage cylinder circuit so far that the temperature in the storage cylinder – and therefore the potable water temperature – cannot pose any risk of scalding.
- ▶ Instruct the user of the system to ensure the storage cylinder temperature remains low all year round.

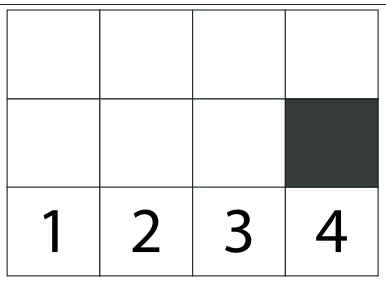
NOTICE

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

- ▶ Do not set the hot water temperature any higher than absolutely necessary.

7.4.2.4 Fluid temperature up to 60°C

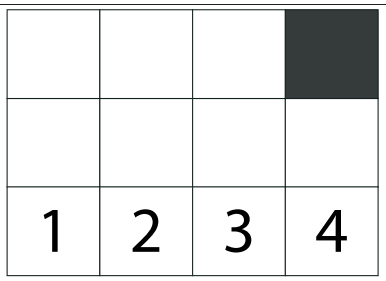
▶ Set DIP switch 4 to “OFF”



Illust. 31: Hot water temperature up to 60 °C (standard)

7.4.2.5 Fluid temperature up to 75°C

▶ Set DIP switch 4 to “ON”



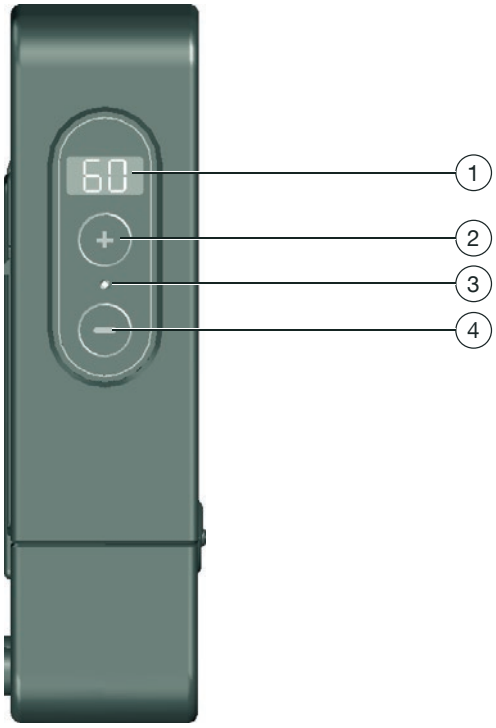
Illust. 32: Hot water temperature up to 75 °C

7.5 Handover to the user

- ▶ Once commissioning is complete, complete the handover report as soon as possible. The relevant form can be found in the appendix. Sign the report and provide the user with a copy.
- ▶ Hand these operating instructions and all other relevant documents (e.g. accessory manuals) over to the user. These operating instructions must be available at the installation location.

8. Operation

8.1 Setting of the nominal hot water temperature



Illust. 33: Displays and operating elements

(1)	Nominal hot water temperature and status display
(2)	Button (+) for increasing the set value
(3)	Control LED
(4)	Button (-) for decreasing the set value

- The hot water temperature can be adjusted between 25 °C and 75 °C.
- The default hot water temperature is 60 °C.

▶ Press the “+” or “-” button to increase or reduce the hot water temperature accordingly.

▷ The displayed temperature is saved after 5 seconds of inactivity.

CAUTION

Risk of scalding due to excessively hot potable water at the draw-off points!

A controller setting or defect may cause the hot water temperature at the draw-off points to rise to roughly the same temperature as the storage cylinder water.

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

▶ If you do not apply scalding protection to all draw-off points, reduce the temperature of the storage cylinder circuit so far that the temperature in the storage cylinder – and therefore the potable water temperature – cannot pose any risk of scalding.

▶ Instruct the user of the system to ensure the storage cylinder temperature remains low all year round.

- Sustained pressing of the “+” or “-” button causes a continuous increase or decrease in the numbers on the display.
- If the power supply fails during configuration, the previous value remains stored.
- The display turns off after 30 seconds of inactivity. Press a button to display the current set value.

8.2 Emergency operation (manual operation)

Emergency operation ensures hot water can be prepared even in the event of a sensor failure.

Emergency operation means that the speed of the primary pump is fixed at 50 % of the power. The LED flashes green/red when emergency operation is active.

CAUTION

Risk of scalding due to excessively hot potable water at the draw-off points!

In emergency operation, the primary pump pumps uncontrolled water from the storage cylinder through the heat exchanger. In extreme cases, this can lead to the water at the draw-off points reaching roughly the same temperature as the storage cylinder water.

- ▶ In emergency operation, reduce the temperature of the storage cylinder circuit so far that the temperature in the storage cylinder does not exceed the desired potable water temperature.
- ▶ Only use emergency operation temporarily to provisionally ensure the supply of potable hot water. Replace the defective sensor immediately and restore regular pump operation.

Emergency operation can be activated and/or deactivated via the DIP switch (see position (2) in Illust. 26 on page 32).

DANGER

Danger to life due to electric current!

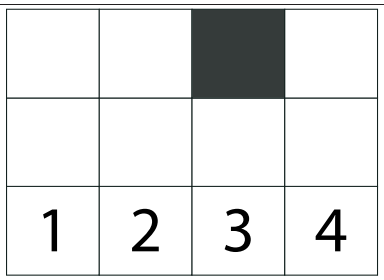
Danger to life due to contact with live components.

- ▶ Completely disconnect the product from the power supply.
- ▶ Check that no voltage is present.
- ▶ Secure the product against switching back on.
- ▶ The product may only be installed in dry indoor areas.

NOTICE

Damage to electronic components due to electrostatic discharge!

- ▶ Before touching the inside of the housing, take suitable equipotential bonding measures. Touch a grounded component, such as a tap or radiator.



Illust. 34: Emergency operation

8.3 Anti-lock protection

The anti-lock protection serves to prevent the primary pump from seizing up after extended periods of downtime.

24 hours after the end of the last time it was activated, the pump will be switched on for 5 seconds.

8.4 Displays

The nominal temperature and error codes are displayed in the nominal hot water temperature and error display (see Illust. 33 on page 34).

Errors are signaled in combination with the control LED. (Observe the troubleshooting table in section 9.1 on page 37).

8.4.1 Error messages on the display

Error code	Error	LED display
E1	S1, Sensor storage cylinder supply defective	Red (flashing)
E2	S2, Sensor hot water temperature defective	Red (flashing)
E3	S3, Sensor cold water/ circulation defective	Red (flashing)
E4	(LIN) pump error	Red (flashing)

The error message is automatically reset once the error has been resolved.

8.4.2 Control LED

Colour	Constantly lit	Flashing
Green	All OK	
Red/ green		Emergency operation active

8.5 Replacement of the fuse

The controller is protected with a fuse (see position (1) in Illust. 26 on page 32).

The fuse holder includes a spare fuse in the scope of delivery.

⚠ DANGER	
	Danger to life due to electric current! Danger to life due to contact with live components. ▶ Completely disconnect the product from the power supply. ▶ Check that no voltage is present. ▶ Secure the product against switching back on. ▶ The product may only be installed in dry indoor areas.

NOTICE	
	Damage to electronic components due to electrostatic discharge! ▶ Before touching the inside of the housing, take suitable equipotential bonding measures. Touch a grounded component, such as a tap or radiator.

1. Completely disconnect the controller (all poles) from the power supply.
2. Remove the screw (see position (2) in Illust. 24) and put it to one side.
3. Slide the connection panel cover (see position (1) in Illust. 24) upwards until it audibly locks into place.
4. Pull the fuse holder forwards out of the base.
5. Replace the fuse.
6. Close the connection panel cover.
7. Fix the cover in place by tightening the screw.
8. Restore the power supply.

9. Troubleshooting

9.1 Troubleshooting table

MALFUNCTION	CAUSE	REMEDY
The display is permanently off.	The controller is in standby mode.	Press a button to activate the display.
	The power supply to the controller is interrupted.	Connect the power supply.
	The controller fuse is defective.	Replace the fuse (see section 8.5 on page 35).
There are audible pump noises and noises that arise due to airlocks.	The system has not been bled.	Bleed the system (see section 7.1 on page 28 for the storage cylinder circuit and section 7.2 on page 29 for the potable water circuit).
The potable water is not heated. Only cold water is available at the draw-off points.	The flow sensor is soiled or defective.	Clean the flow sensor or replace a defective flow sensor (see …
	The controller is not in operation (deactivated).	Check the controller power supply and restore it if necessary. Replace the fuse if necessary (see section 8.5 on page 35).
	There is an airlock in the storage cylinder circuit.	Check the bleeders in the storage cylinder circuit for correct position, function and open position.
	The circulation pump in the storage cylinder circuit is defective (no pump operation for drawing off hot water).	Replace the circulation pump in the storage cylinder circuit.
The hot water temperature drops at the draw-off point(s).	The heating water temperature in the buffer storage cylinder is too low.	- Increase the buffer storage cylinder temperature. - Check the capacity of the heat generator.
	Insufficient storage cylinder capacity.	- Increase the storage cylinder capacity. - Check the system design.
The water at the draw-off point cools down suddenly during circulation operation.	Cold water enters the circulation pipe directly and not the heat exchanger. The check valve for the circulation pipe (accessory) is soiled or defective.	Clean the check valve or replace it.
The target temperature is no longer reached if draw off quantities are higher.	The storage cylinder temperature is too low for the required draw off quantity.	Increase the heating water temperature in the buffer storage cylinder.
	The heat exchanger is soiled.	Clean the storage cylinder circuit side of the heat exchanger.
	The heat exchanger is calcified.	Decalcify the potable water side of the heat exchanger.

MALFUNCTION		CAUSE	REMEDY
The LED on the controller flashes red.	E1	S1, Sensor storage cylinder supply defective	Replace the sensor.
An error code appears on the display.	E2	S2, Sensor hot water temperature defective	Replace the sensor.
(The error message is automatically reset once the error has been resolved.)	E3	S3, Sensor cold water/circulation defective	Replace the sensor.
	E4	(LIN) pump error	Replace the pump.
Water escaping or leakage outside the heat exchanger. Pressure increase in the storage cylinder circuit (potable water enters the storage cylinder circuit). The safety valve in the storage cylinder circuit opens.		Leakage from the heat exchanger due to corrosion. This may be due to the heat exchanger not being suitable for the potable water quality.	Replace the heat exchanger. The brazing material used for the new heat exchanger has to match the potable water quality (see information sheet “Important advice regarding corrosion protection” in appendix).
The discharge capacity is too low at the draw-off points.		The heat exchanger is severely calcified.	Decalcify the potable water side of the heat exchanger.
		The cold water pressure is too low (wrongly set pressure reducer).	Check the setting of the pressure reducer. Increase the pressure if necessary.

9.2 Nominal resistances of the temperature sensors

°C	Ω Pt1000
-10	961
-5	980
0	1000
5	1019
10	1039
15	1058
20	1078
25	1097
30	1117
35	1136
40	1155
45	1175
50	1194
55	1213
60	1232
65	1252
70	1271
75	1290
80	1309
85	1328
90	1347
95	1366
100	1385
105	1404
110	1423
115	1442

9.3 Decalcification of the heat exchanger

If, during operation, you notice that the potable water is no longer heated to the required temperature although the controller does not display a fault and you did not change the temperature settings, it may be the case that limescale deposits have formed in the heat exchanger.

Due to the high temperatures in fresh water stations, calcification of the installed heat exchangers cannot be ruled out in general. This applies in particular when installing a circulation pipe.

NOTICE

Risk of environmental pollution

Decalcification chemicals can cause environmental damage if not disposed of properly.

- ▶ Please observe the disposal instructions provided by the manufacturer of the anti-liming agent.

You can decalcify the heat exchanger once it has been removed or even while it is installed.

9.3.1 Decalcification of the potable water side after installation

CAUTION

Risk of scalding due to hot fluids!

If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

NOTICE

Risk of damage due to pressure surge!

Sudden filling of the station with water may lead to damage, for instance to the sensors or sealing points.

- ▶ Always open and close ball valves slowly.

1. Completely disconnect the controller (all poles) from the power supply.
2. Close the isolating ball valve for potable hot water (position 7 in Illust. 1 on page 10).
3. Close the isolating ball valve for potable cold water (position 9 in Illust. 1 on page 10).
4. Close the isolating ball valve for the storage cylinder circuit return (position 16 in Illust. 1 on page 10).
5. Close the isolating ball valve for the storage cylinder circuit supply (see position 18 in Illust. 1 on page 10).
6. Unscrew the caps of the fill and drain ball valves for the potable water circuit (positions 4 and 17 in Illust. 1 on page 10).
7. Connect a flushing hose to each of the fill and drain ball valves (positions 4 and 17 in Illust. 1 on page 10).

Please observe the flow direction of the anti-liming agent. It must run in the opposite direction to the intended flow of potable water in the potable water circuit.

Only use anti-liming agents that have been approved by the DVGW for decalcification of the heat exchanger, such as those with a citric acid base. Please observe the DVGW worksheets W 291 and 319!

8. Open the ball valves slowly (positions 4 and 17 in Illust. 1 on page 10) to initiate the flushing process with the anti-liming agent.
9. End the flushing process once the prescribed exposure time has elapsed.

The exposure times are dependent on the anti-liming agent in use. Anti-liming agents may need to be heated up. Please observe the instructions provided by the manufacturer of the anti-liming agent!

10. Drain the fluid and the flushed limescale from the flushing circuit.

Flushing with a lye

11. Neutralise the potable water circuit by flushing with a lye.
12. Close the upper fill and drain ball valve.
13. Remove the flushing hoses.

▷ The decalcification flushing is complete.

Flushing the potable water circuit with potable water

14. Close the draining hose for potable water at the lower fill and drain ball valve.
15. Open the isolating ball valve for potable cold water a little (position 9 in Illust. 1 on page 10).

▷ The heat exchanger is flushed with potable water.

16. Wait at least a minute.
17. Close the fill and drain ball valve (position 17 in Illust. 1 on page 10).
18. Remove the draining hose.
19. Refit the caps of the fill and drain ball valves.

▷ The decalcification process of the potable water circuit with installed heat exchanger is complete.

9.3.2 Cleaning of the heat exchanger (storage cylinder circuit side)

A loss of performance may even be attributable to impurities at the storage cylinder circuit side. As an additional measure, the storage cylinder circuit should always be flushed first before considering a replacement of the heat exchanger.

⚠ CAUTION
Risk of scalding due to hot fluids! If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam. ► Allow the system to cool down. ► Wear safety goggles.

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

1. Completely disconnect the controller (all poles) from the power supply.
2. Close the isolating ball valve for potable hot water (position (7) in Illust. 1 on page 10).
3. Close the isolating ball valve for potable cold water (position (9) in Illust. 1 on page 10).
4. Close the isolating ball valve for the storage cylinder circuit return (position (16) in Illust. 1 on page 10).
5. Close the isolating ball valve for the storage cylinder circuit supply (see position (18) in Illust. 1 on page 10).
6. Unscrew the caps of the fill and drain ball valves (positions (6) and (19) in Illust. 1 on page 10).
7. Connect a flushing hose to each of the fill and drain ball valves (positions (6) and (19) in Illust. 1 on page 10).
8. Open the ball valves slowly (positions (6) and (19) in Illust. 1 on page 10) to initiate the flushing process. Flush for at least 5 minutes.
9. Drain the fluid and the flushed residue from the flushing circuit.
10. Close the upper fill and drain ball valve (position (6) in Illust. 1 on page 10).
11. Close the fill and drain ball valve (position 6 in Illust. 1 on page 10).
12. Remove the flushing hoses.
13. Refit the caps of the fill and drain ball valves.

NOTICE
Risk of damage due to pressure surge! Sudden filling of the station with water may lead to damage, for instance to the sensors or sealing points. ► Always open and close ball valves slowly.

14. Open the isolating ball valves (positions 7, 9, 16 and 18 in Illust. 1 on page 10).
15. Restore the power supply for the fresh water station.

▷ The flushing process is complete.

9.3.3 Decalcification of the dismounted heat exchanger

CAUTION

Risk of scalding due to hot fluids!

If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

NOTICE

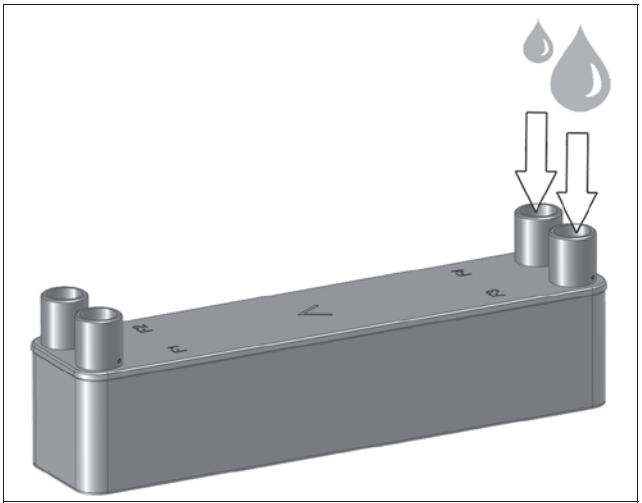
Risk of damage due to pressure surge!

Sudden filling of the station with water may lead to damage, for instance to the sensors or sealing points.

- ▶ Always open and close ball valves slowly.

1. Completely disconnect the controller (all poles) from the power supply.
2. Close the isolating ball valve for potable hot water (position 7 in Illust. 1 on page 10).
3. Close the isolating ball valve for potable cold water (position 9 in Illust. 1 on page 10).
4. Close the isolating ball valve for the storage cylinder circuit return (position 16 in Illust. 1 on page 10).
5. Close the isolating ball valve for the storage cylinder circuit supply (see position 18 in Illust. 1 on page 10).
6. Unscrew the caps of the fill and drain ball valves (positions 4, 6, 17 and 19 in Illust. 1 on page 10).
7. Connect a draining hose to each of the fill and drain ball valves (positions 17 and 19 in Illust. 1 on page 10).
8. Open the fill and drain ball valves to empty the pipes and the heat exchanger.
9. Loosen all four collar nuts from the heat exchanger using SW 32 and 38 spanners.
10. Carefully remove the heat exchanger and lay it on an even surface with the connections facing up.

Only use anti-liming agents that have been approved by the DVGW for decalcification of the heat exchanger, such as those with a citric acid base. Please observe the DVGW worksheets W 291 and 319!



Illust. 35: Decalcification of the dismounted heat exchanger

11. Fill both of the heat exchanger circuits with anti-liming agent.
12. End the process once the prescribed exposure time has elapsed.

The exposure times are dependent on the anti-liming agent in use. Anti-liming agents may need to be heated up. Please observe the instructions provided by the manufacturer!

13. Drain the anti-liming agent.
14. Neutralise both of the heat exchanger circuits by flushing with a lye.
15. Flush both of the heat exchanger circuits with potable water for at least a minute.

Once removed, the flat seals cannot be reused. Use new seals for reassembly (see „4.2 Sealing set“ auf Seite 20).

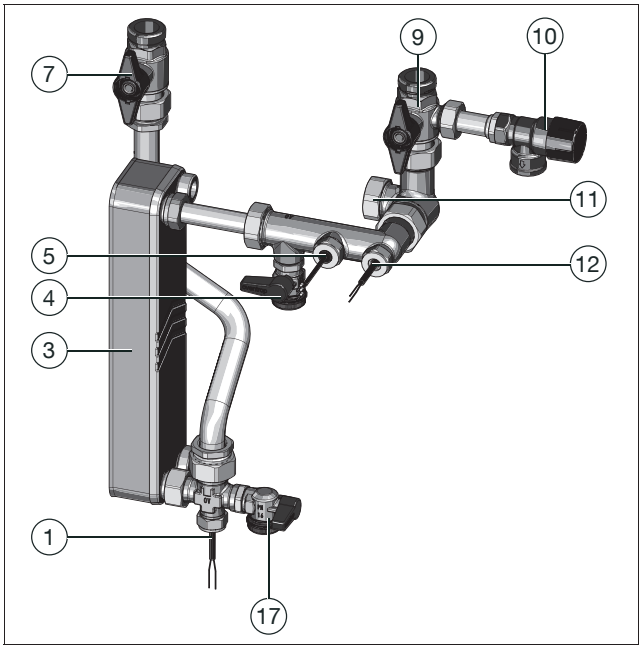
16. Reinstall the heat exchanger in the station by following this sequence in reverse order.
17. Bleed the potable water circuit (see section 7.2 on page 29) and the storage cylinder circuit (see section 7.1 on page 28).

9.4 Cleaning of the flow sensor

A breakdown has occurred if no potable hot water can be added at the draw-off points. This can be caused by a number of reasons as shown in the troubleshooting table in section 9.1 on page 37.

▶ If easily identifiable causes such as a disconnected controller can be excluded, check the flow sensor for contamination.

	A contaminated sensor means that the volume flow of the cold water supply or of the cold water supply with circulation pipe will no longer be detected. The consequence of this is that no more drawing off can be registered and the circulation pump for the storage cylinder circuit is no longer activated. No more heat will be transferred from the heat exchanger to the potable water circuit.



Illust. 36: Potable water circuit

(1)	Temperature sensor for potable hot water S2
(3)	Heat exchanger
(4)	Fill and drain ball valve for potable cold water
(5)	Flow sensor for potable water circuit VTY 20
(7)	Isolating ball valve for potable hot water
(9)	Isolating ball valve for potable cold water
(10)	Safety valve for potable water circuit (10 bar)
(11)	Connection for circulation pipe
(12)	Temperature sensor for potable cold water / circulation, S3
(17)	Fill and drain ball valve for potable hot water

9.4.1 Required tools

- 24, 37 and 38 mm spanner
- Fuse tongs J2 (e.g. EAN 4003773048534).

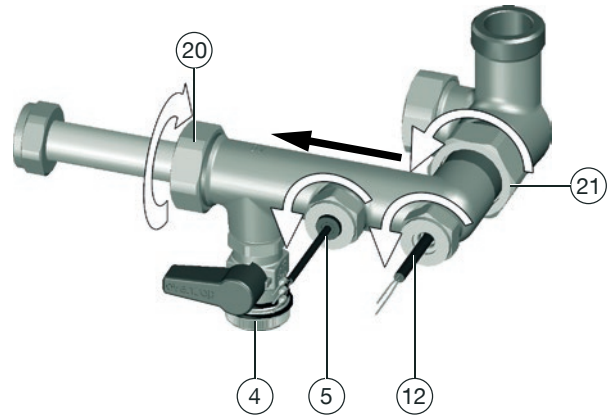
9.4.2 Cleaning of the measuring turbine

⚠ CAUTION	
	Risk of scalding due to hot fluids! If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam. ▶ Allow the system to cool down. ▶ Wear safety goggles.

⚠ CAUTION	
	Risk of burns due to hot components! Any unprotected contact with hot components may lead to burns. ▶ Wear safety gloves.

NOTICE	
	Risk of damage due to pressure surge! Sudden filling of the station with water may lead to damage, for instance to the sensors or sealing points. ▶ Always open and close ball valves slowly.

1. Completely disconnect the controller (all poles) from the power supply.
2. Close the isolating ball valve for potable hot water slowly (see position (7) in Illust. 36 and in Illust. 1 on page 10).
3. Close the isolating ball valve for potable cold water slowly (see position (9) in Illust. 36 and in Illust. 1 on page 10).
4. Unscrew the cap of the lower fill and drain ball valve (see position 17 in Illust. 36 and in Illust. 1 on page 10).
5. Close the draining hose for potable water at the lower fill and drain ball valve (position (17) in Illust. 36 and in Illust. 1 on page 10).
6. Open the lower fill and drain ball valve for potable cold water (see position 17 in Illust. 36 and in Illust. 1 on page 10).



Illust. 37: Cleaning of the measuring turbine

(4)	Fill and drain ball valve for potable cold water
(5)	Flow sensor for potable water circuit VTY 20
(12)	Temperature sensor for potable cold water / circulation, S3
(20)	Collar nut heat exchanger side
(21)	Collar nut potable water supply

7. Loosen the collar nut of the flow sensor (position (5) in Illust. 37) with an 24 mm spanner.
8. Loosen the collar nut of the temperature sensor for potable cold water / circulation (position (12) in Illust. 37)
9. Remove the flow sensor (position (5)) and the temperature sensor for potable cold water / circulation (position (12)) carefully from the system component.
10. Remove the O-rings and keep these safe from contamination until required again for reassembly.
11. Loosen the collar nut potable water supply (position (21) in Illust. 37) with a 38 mm spanner.
12. Loosen the collar nut heat exchanger side (position (20) in Illust. 37) with a 37 mm spanner.
13. Remove the system component carefully from the station.

NOTICE

Overheating of the measuring turbine!

The bearing of the measuring turbine is cooled by the water flow during operation. The use of compressed air for cleaning can lead to irreparable damage due to overheating.

- ▶ Clean the measuring turbine with running water only.

14. Clean the sleeve with measuring turbine. Remove any residue such as hemp remains with (running) water.
    Direct the flowing water through the system component in the opposite direction to the flow (from position (20) to position (21) in Fig. Illust. 37). This is where a water hose with an appropriate spray nozzle is particularly suitable.
15. Check whether the measuring turbine is free from extraneous substances and running smoothly once again.
16. If the cleaning process was successful, reinstall the system component by following this sequence in reverse order.

If the measuring turbine is still blocked, the sleeve with measuring turbine must be removed as described in section 9.4.2.1.

Once removed, the flat seals cannot be reused. Use new seals for reassembly (see „4.2 Sealing set“ auf Seite 20).

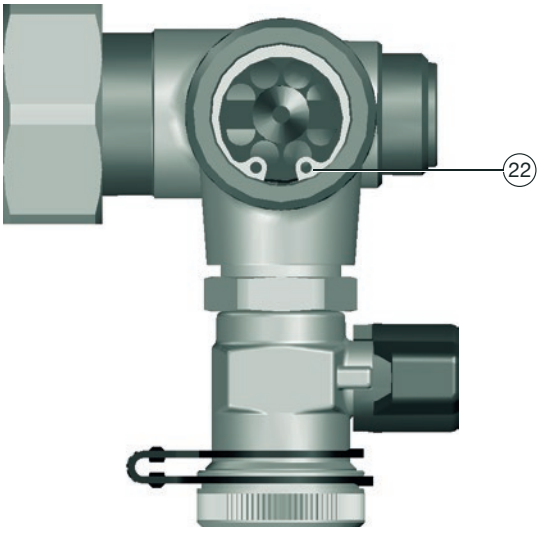
17. Close the lower fill and drain ball valve for potable cold water (see position 17 in Illust. 36 and in Illust. 1 on page 10).
18. Bleed the potable water circuit (see section 7.2 on page 29)
19. Restore the power supply.

9.4.2.1 Removal of the sleeve with measuring turbine

Required tools

- Locking ring pliers J2 (e.g. EAN 4003773-048534).

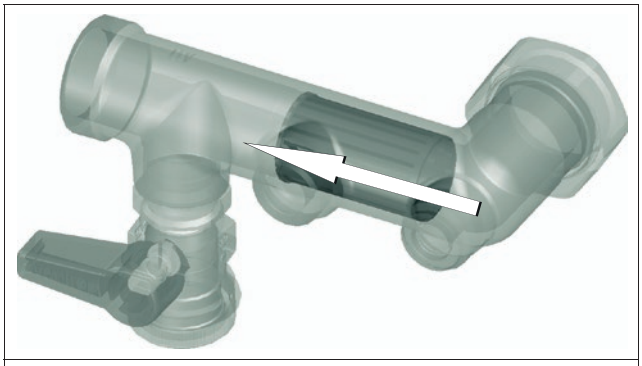
1. Loosen the locking ring (see position (22) in Illust. 38) using appropriate locking ring pliers.



Illust. 38: Locking ring

(22)	Locking ring

2. Remove the locking ring.



Illust. 39: Removal of the sleeve with measuring turbine

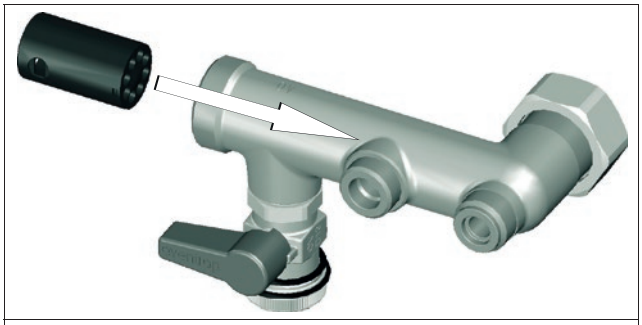
3. Carefully push the sleeve with measuring turbine out by hand in the direction of flow until it moves freely.
4. Remove the sleeve with measuring turbine.

NOTICE	
	Overheating of the measuring turbine! The bearing of the measuring turbine is cooled by the water flow during operation. The use of compressed air for cleaning can lead to irreparable damage due to overheating. ▶ Clean the sleeve with measuring turbine with running water only.

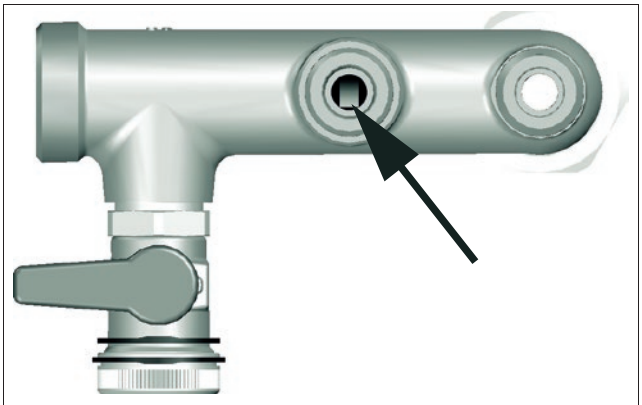
5. Clean the sleeve with measuring turbine. Remove any residue such as hemp remains with (running) water.
   Direct the flowing water through the sleeve in the opposite direction to the flow. This is where a water hose with an appropriate spray nozzle is particularly suitable.
6. Check whether the measuring turbine is free from extraneous substances and running smoothly once again.
7. If the measuring turbine cannot be disassembled even once it has been removed, the sleeve with measuring turbine must be replaced.

9.4.2.2 Installation of the measuring turbine

	Once removed, the flat seals cannot be reused. Use new seals for reassembly (see „4.2 Sealing set“ auf Seite 20).



Illust. 40: Installation of the measuring turbine



Illust. 41: Correct positioning of the measuring turbine

1. Reinstall the sleeve with measuring turbine back in the system component by following this sequence in reverse order.

	Ensure the opening for the measuring sensor is in the correct position (see Illust. 41). The opening must be positioned directly beneath the opening for the measuring sensor to be installed.

2. Insert the locking ring (see position 22 in Illust. 38 on page 43).
3. Reinstall the system component by following this sequence in reverse order.
4. Install the flow sensor (position (5) in Illust. 37) and the temperature sensor for potable cold water / circulation (position (12) in Illust. 37).

	Observe the correct positioning of the O-rings.

5. Close the lower fill and drain ball valve for potable cold water (see position 17 in Illust. 36 and in Illust. 1 on page 10).
6. Bleed the potable water circuit (see section 7.2 on page 29)
7. Restore the power supply.

10. Maintenance

CAUTION

Risk of scalding due to hot fluids!

If the station has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Wear safety gloves.

10.1 Maintenance

Carry out the following maintenance work once a year.

Each time maintenance work is complete, complete the handover report as soon as possible. The relevant form can be found in the appendix. Sign the report and provide the user with a copy.

10.1.1 Leak check (visual inspection)

- ▶ Check all external interfaces to the pipework and inside the station for damp zones. Tighten up the screws if necessary or replace any defective seals.
- ▶ Check the heat exchanger for damp areas.

Damp areas are a sign of corrosion – particularly when coupled with discoloration. Any leaking heat exchangers must be replaced.

10.1.2 System pressure check

- ▶ Compare the actual values in the storage cylinder and potable water circuit with the last maintenance or transfer report.
- ▶ Adjust any deviations in the potable water circuit using the pressure reducer.
- ▶ If the pressure in the storage cylinder circuit is too low, increase the water pressure.
- ▶ If the pressure in the storage cylinder circuit is too high, there could be a corrosion problem in the heat exchanger. Any defective heat exchangers must be replaced.

10.1.3 Functional check of the safety valves (potable water circuit)

Check the function of the safety valves at six-month intervals in accordance with DIN EN 806-5.

10.1.4 Water sampling

If required by law for your application environment, take samples from the potable water circuit in your installation at the prescribed intervals.

This involves connecting a water sampling valve (PV, see Illust. 9) to the hot water outlet port of the heat exchanger (position (17) in Illust. 1 on page 10).

A further sample must be taken at the furthest away draw-off point.

If an additional pipe is used for circulation, connect a third water sampling valve to the connection provided and take a corresponding water sample there.

10.1.5 Actuation of the four isolating ball valves

NOTICE

Risk of damage due to pressure surge!

Sudden filling of the station with water may lead to damage, for instance to the sensors or sealing points.

- ▶ Always open and close ball valves slowly.

Actuate the four isolating ball valves during the course of maintenance (positions (7), (9), (16) and (18) in Illust. 1 on page 10). This allows deposits to be removed and keeps the valves and fittings fit for use.

10.1.6 Electronic components and plug-in connections

Check:

- the cable plug-in connections of all components connected to the controller for tightness and intactness.
- the correct positioning of the temperature sensors.

10.1.7 Functional check of the check valve of the circulation set

If a circulation set is used in the potable water system, check the check valve for correct function. Please observe the documentation for the potable water circulation set.

The annual check of the check valve is a normative requirement in accordance with DIN EN 806-5.

10.1.8 Replacement of the potable water filter insert

As part of the maintenance process, also take account of the potable water filter installed in the cold water supply for the station.

- ▶ Replace the filter insert with a new one every year (item no. 6125101).

11. Advice for the user

Contact a sanitary, heating and air-conditioning specialist for instruction on how to use the station safely and correctly and how to carry out the necessary maintenance work!

- ▶ Carry out a visual inspection at least once a month. Be sure to check whether any fluid is leaking. Notify the relevant installation company in the event of any water leakages.
- ▶ Once every six months, activate the safety valve in the station (see position 10 in Illust. 1 on page 10). This involves rotating the plastic cap of the valve anticlockwise until it audibly clicks.

General notes on setting the potable water temperature

A potable water temperature of 60 °C is preset by default in the controller. You do however have the option of increasing the potable water temperature at the draw-off points using the controller. As this temperature is recorded via a sensor at the hot water outlet for the heat exchanger, this is incongruous with the hot water temperatures recorded at the draw-off points.

If you would like to increase the water temperature at the draw-off points, you can increase the nominal potable water temperature using the “+” button (in intervals of 5 °C, for example).

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.

CAUTION

Risk of scalding due to excessively hot potable water at the draw-off points!

A controller setting or defect may cause the hot water temperature at the draw-off points to rise to roughly the same temperature as the storage cylinder water.

- ▶ According to DIN EN 806 and DIN 1988, all draw-off points must be provided with protection against scalding if there is a risk of scalding due to high heating water temperatures in the buffer storage cylinder.
- ▶ If you do not apply scalding protection to all draw-off points, reduce the temperature of the storage cylinder circuit so far that the temperature in the storage cylinder – and therefore the potable water temperature – cannot pose any risk of scalding.

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 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 water at all draw-off points for a short time to exchange the water in the pipework.
- ▶ The hot water temperature must not drop below 60 °C when using a circulation pipe.

12. Removal and disposal

If the fresh water station reaches the end of its useful life or has suffered an irreparable defect, it must be dismantled and disposed of in an environmentally friendly manner or else its components must be recycled.

12.1 Dismantling of the fitting

12.1.1 Disconnection of 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 product from the power supply.
- ▶ Check that no voltage is present.
- ▶ Secure the product against switching back on.
- ▶ The product may only be installed in dry indoor areas.

- ▶ Disconnect the station permanently from the power supply.

▷ The station is disconnected from the power supply and can be removed.

12.1.2 Removal of 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.
- ▶ Wear safety goggles.

CAUTION

Risk of scalding due to hot fluids!

If the system has been in operation, there is a risk of scalding due to the unintentional discharge of hot water or steam.

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

CAUTION

Risk of burns due to hot components!

Any unprotected contact with hot components may lead to burns.

- ▶ Allow the system to cool down.
- ▶ Wear safety gloves.

- ▶ Remove the station.

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

12.2 Disposal

NOTICE

Risk of environmental pollution!

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

- ▶ Dispose of packaging material in an environmentally friendly manner.
- ▶ Dispose of the components appropriately.

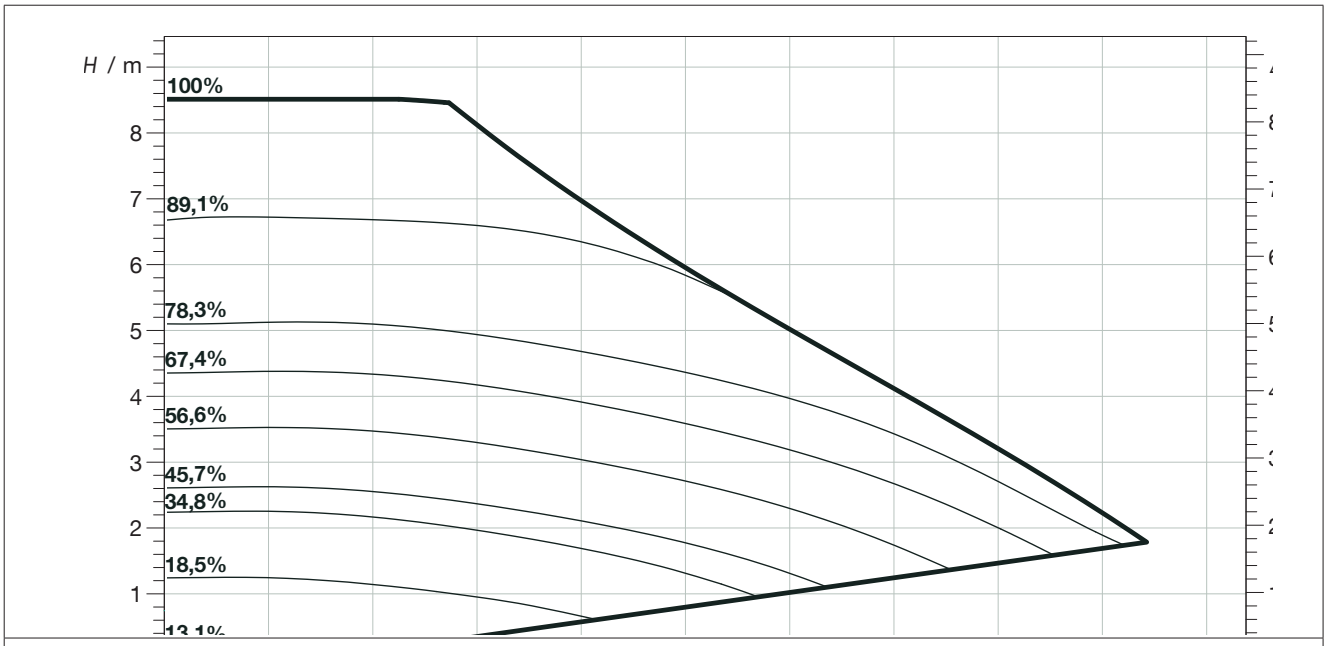
If no return or disposal agreement has been made, you must dispose of the fitting yourself.

- ▶ Return components to the recycling system if possible.
- ▶ Dispose of components that cannot be recycled according to the local regulations. Disposal in the standard waste is not permitted.

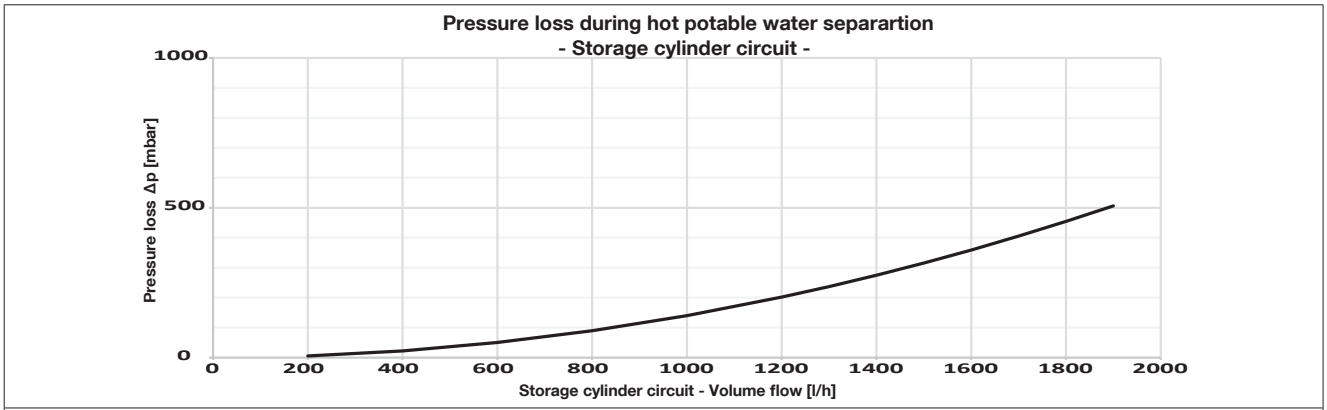
13. Illustration index

14. Appendix

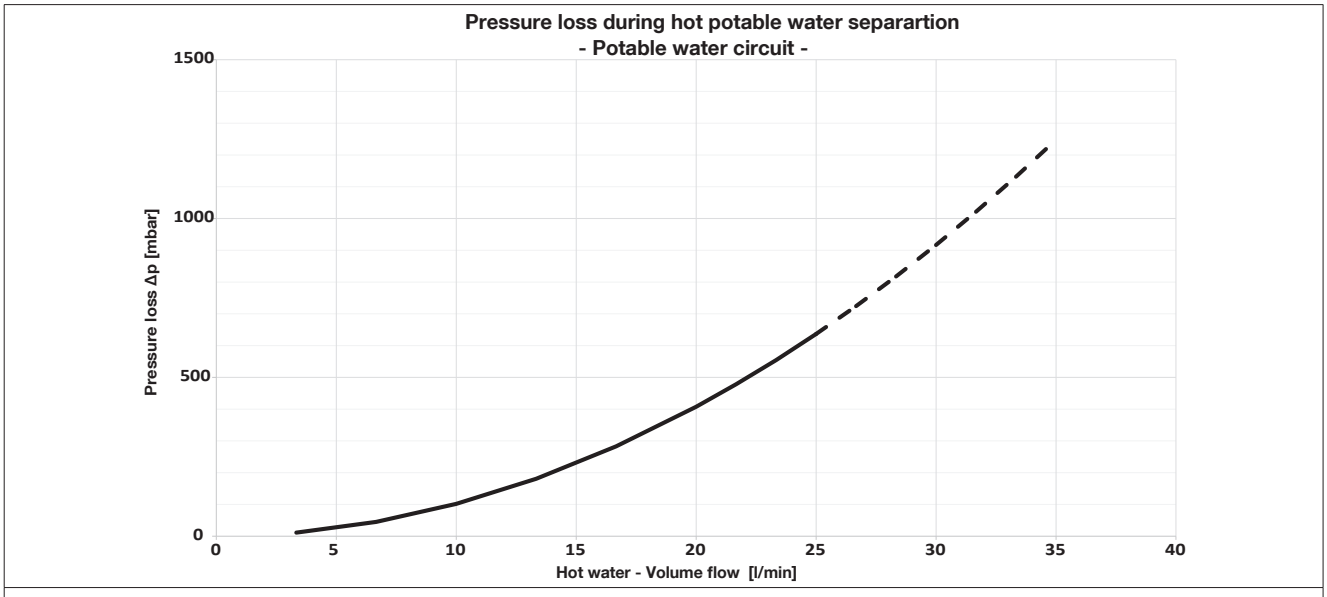
14.1 Characteristic line for Wilo circulation pump



Illust. 42: Characteristic line for Wilo circulation pump (storage cylinder circuit)



Illust. 43: Characteristic line pressure loss during hot potable water preparation (storage cylinder circuit)

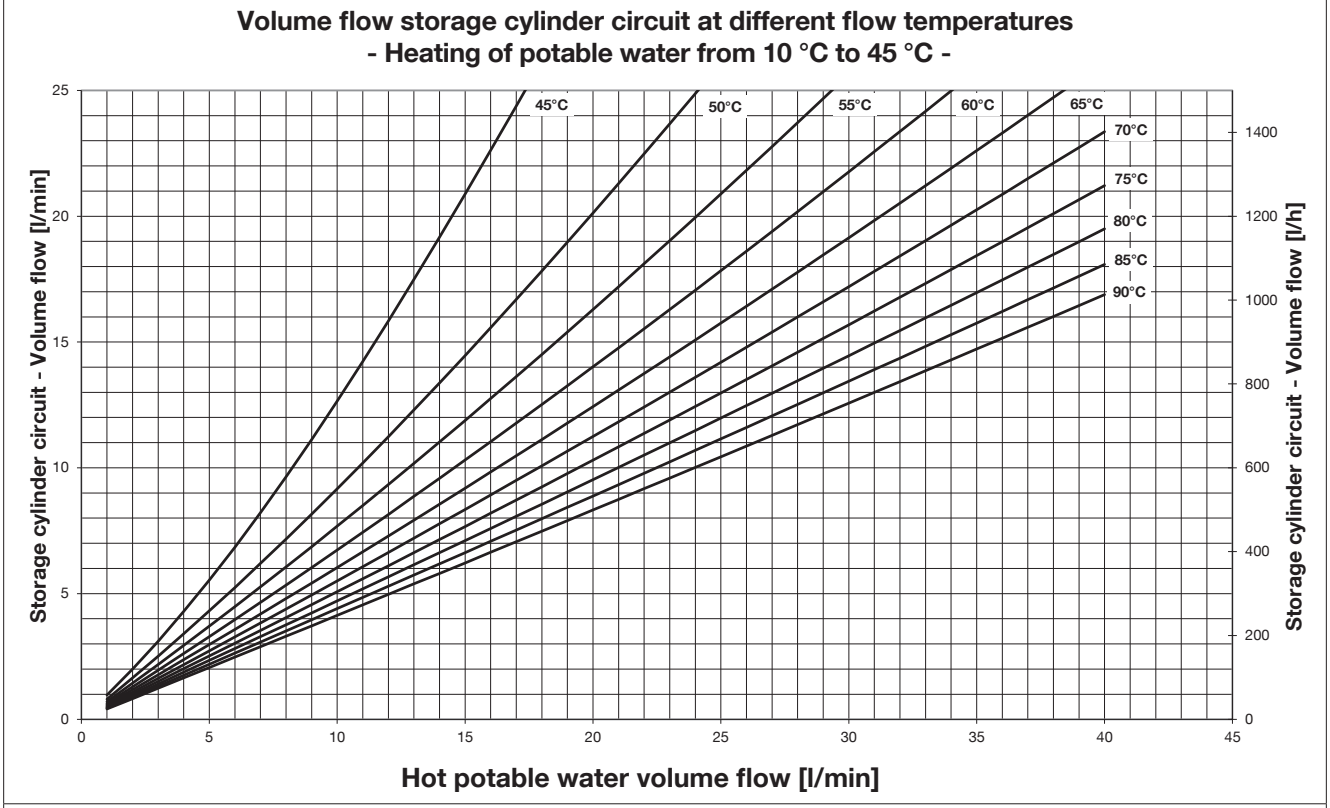


Illust. 44: Characteristic line pressure loss during hot potable water preparation (potable water circuit)

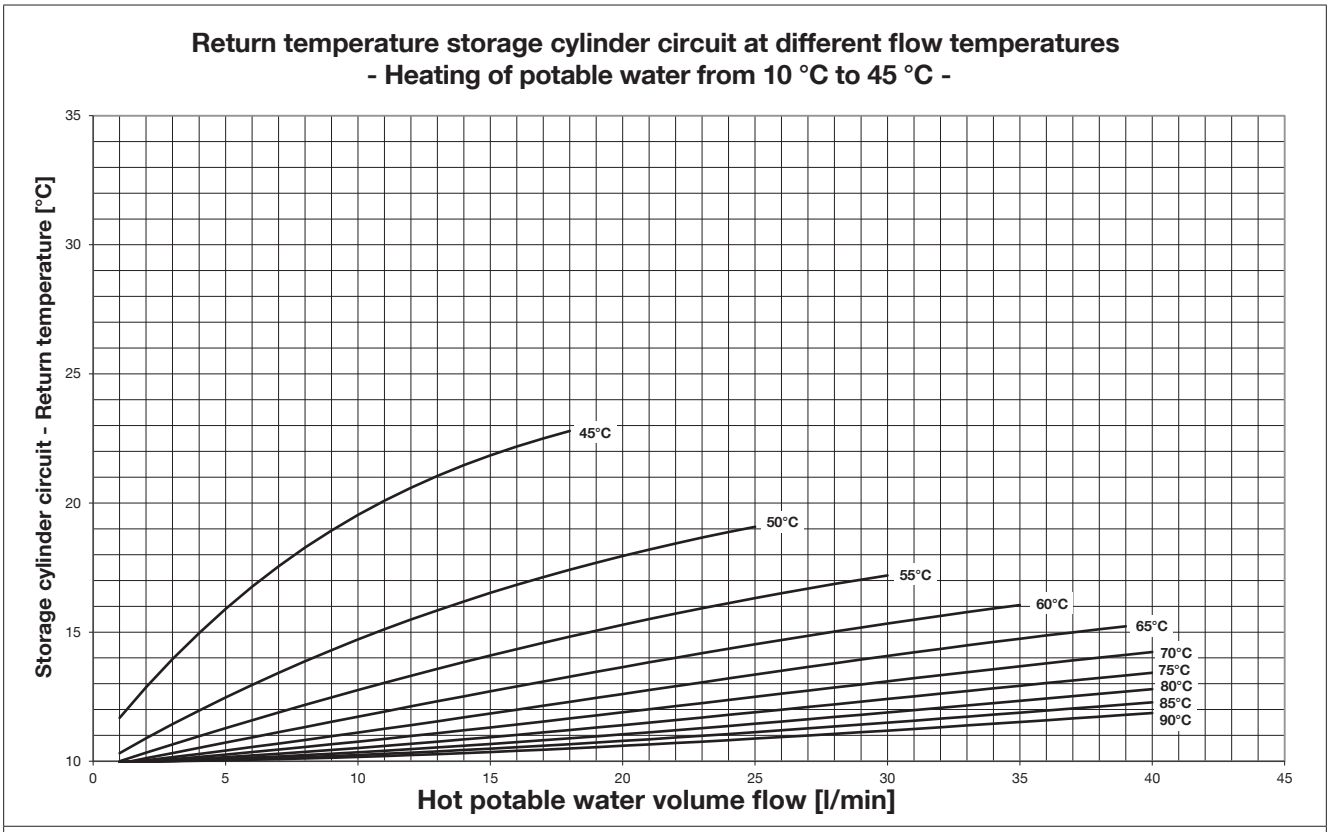
14.2 Characteristic lines for potable water heating

14.2.1 Heating of potable water from 10 °C to 45 °C

Performance data according to SPF test procedure.



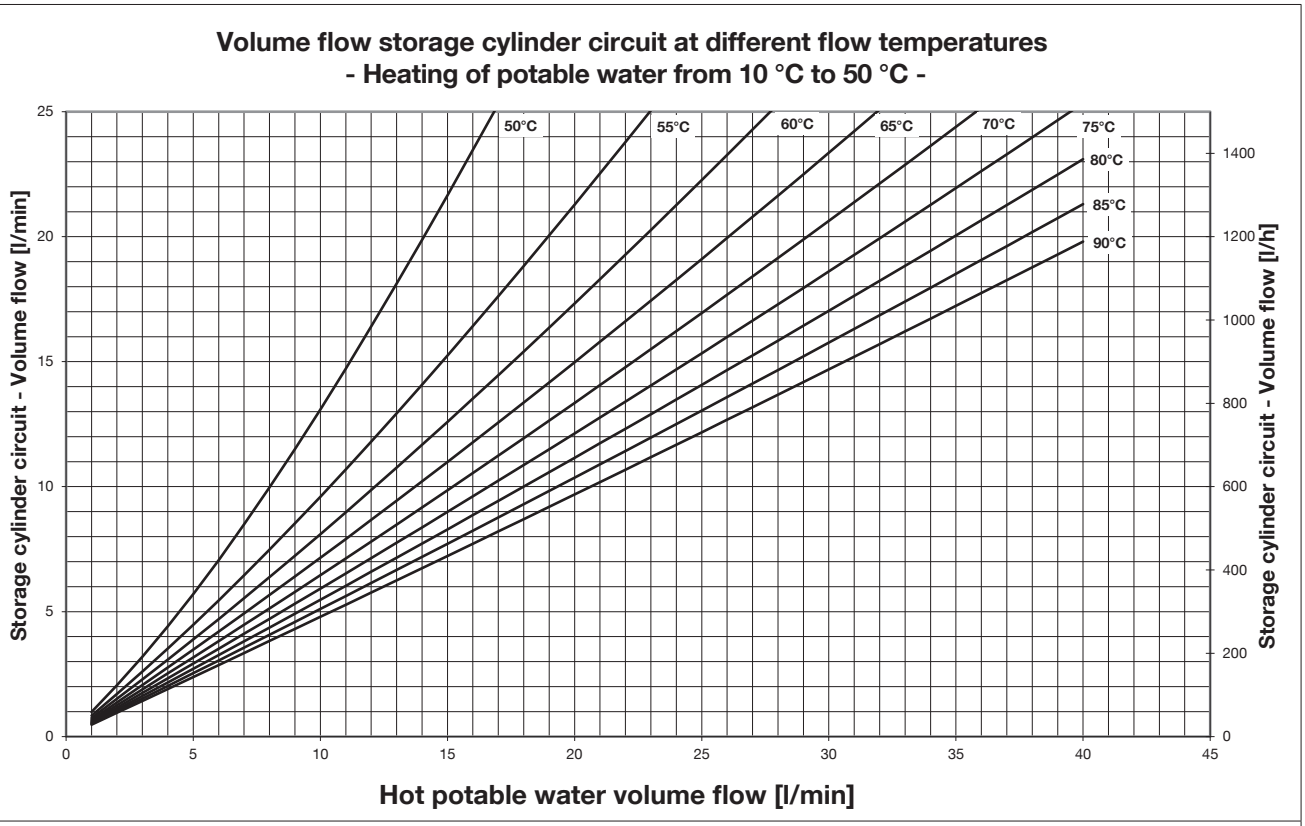
Illust. 45: Storage cylinder circuit volume flow – potable water heating to 45 °C



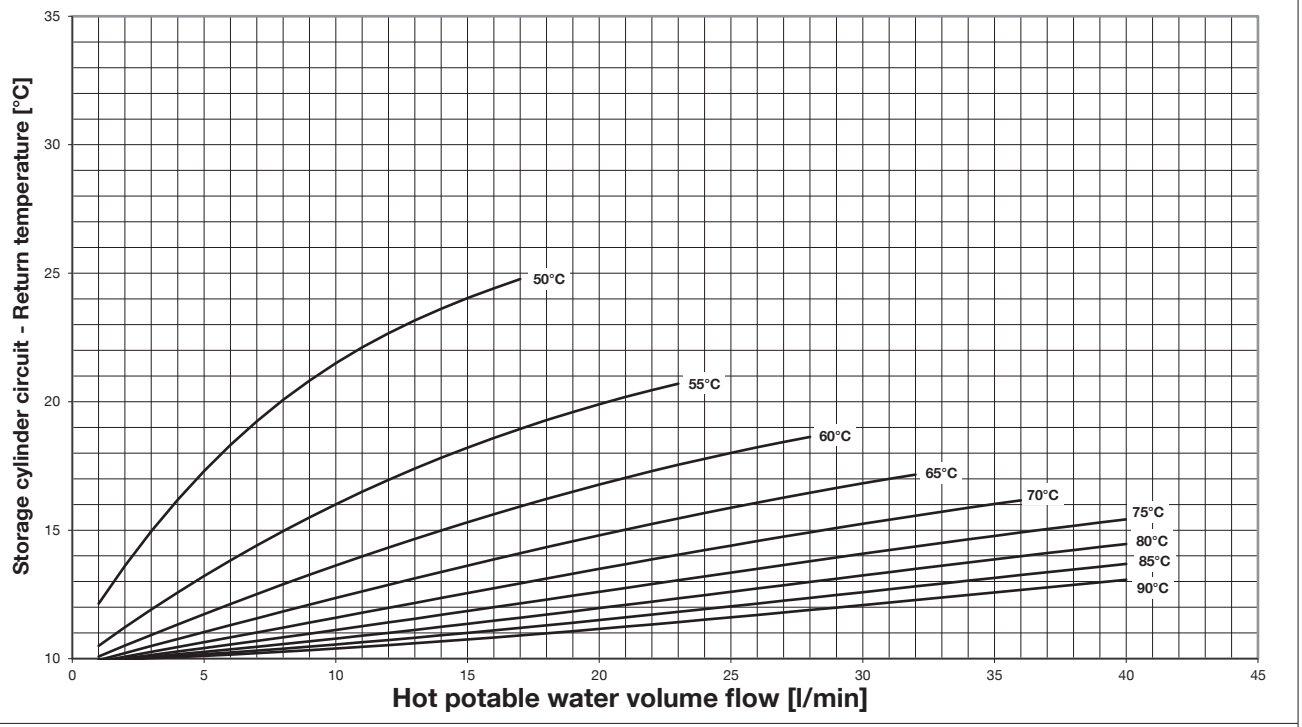
Illust. 46: Storage cylinder circuit return temperature – potable water heating to 45 °C

14.2.2 Heating of potable water from 10 °C to 50 °C

Performance data according to SPF test procedure.



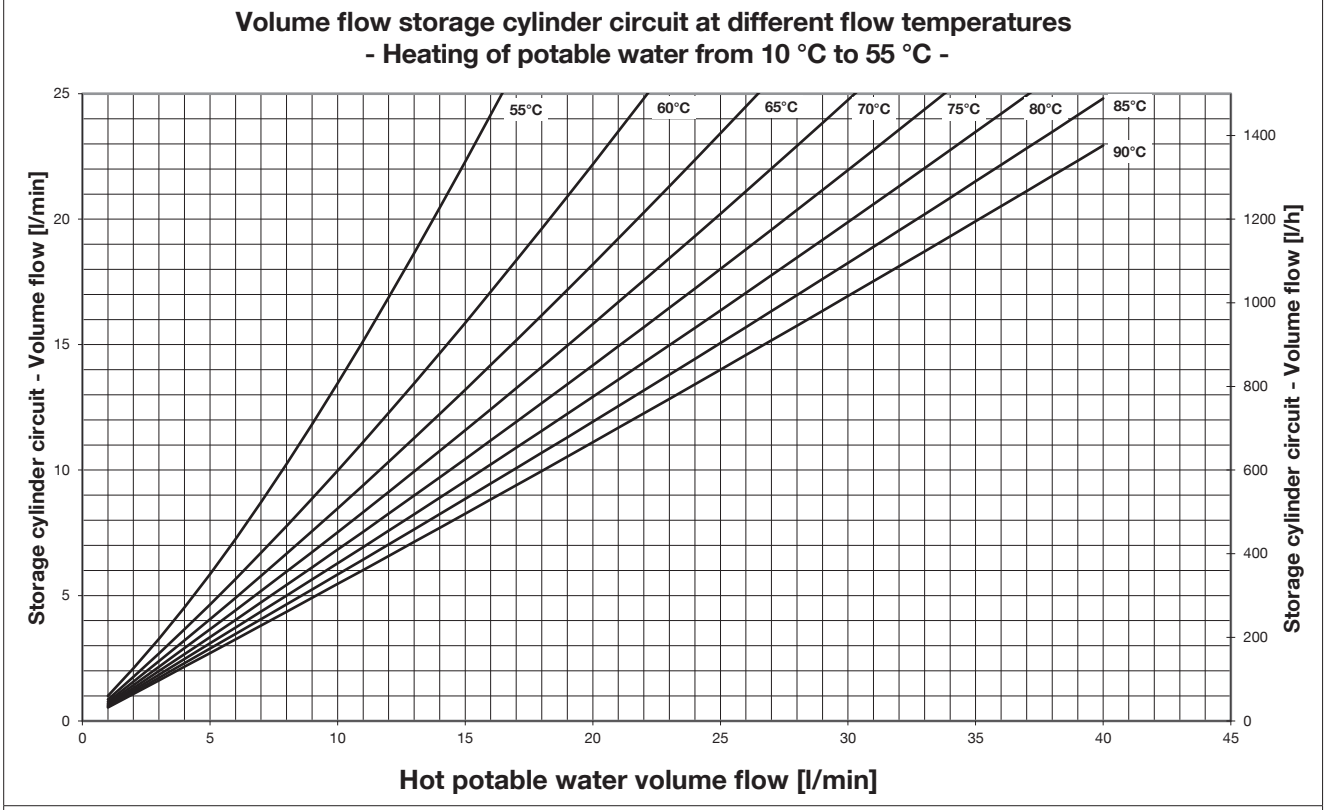
Illust. 47: Storage cylinder circuit volume flow – potable water heating to 50 °C



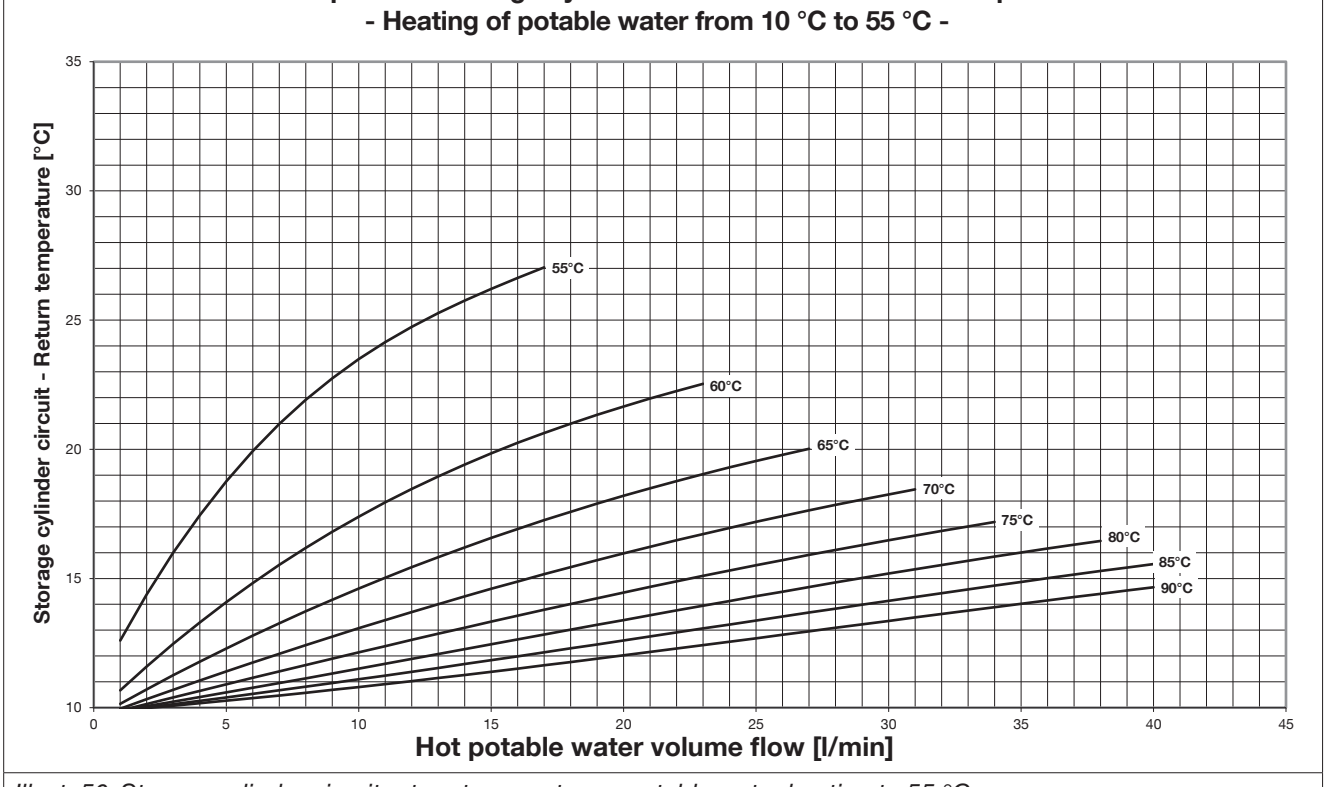
Illust. 48: Storage cylinder circuit return temperature – potable water heating to 50 °C

14.2.3 Heating of potable water from 10 °C to 55 °C

Performance data according to SPF test procedure.



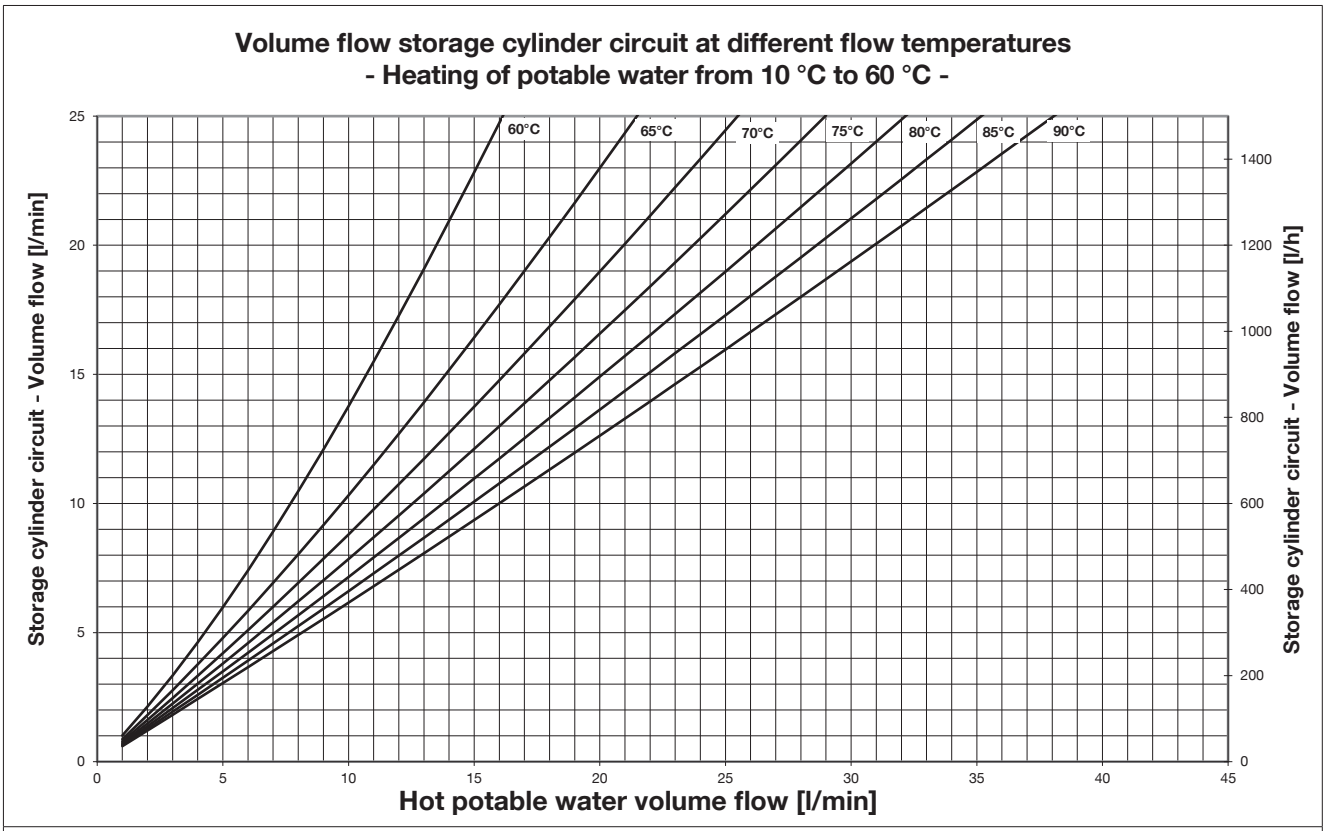
Illust. 49: Storage cylinder circuit volume flow – potable water heating to 55 °C



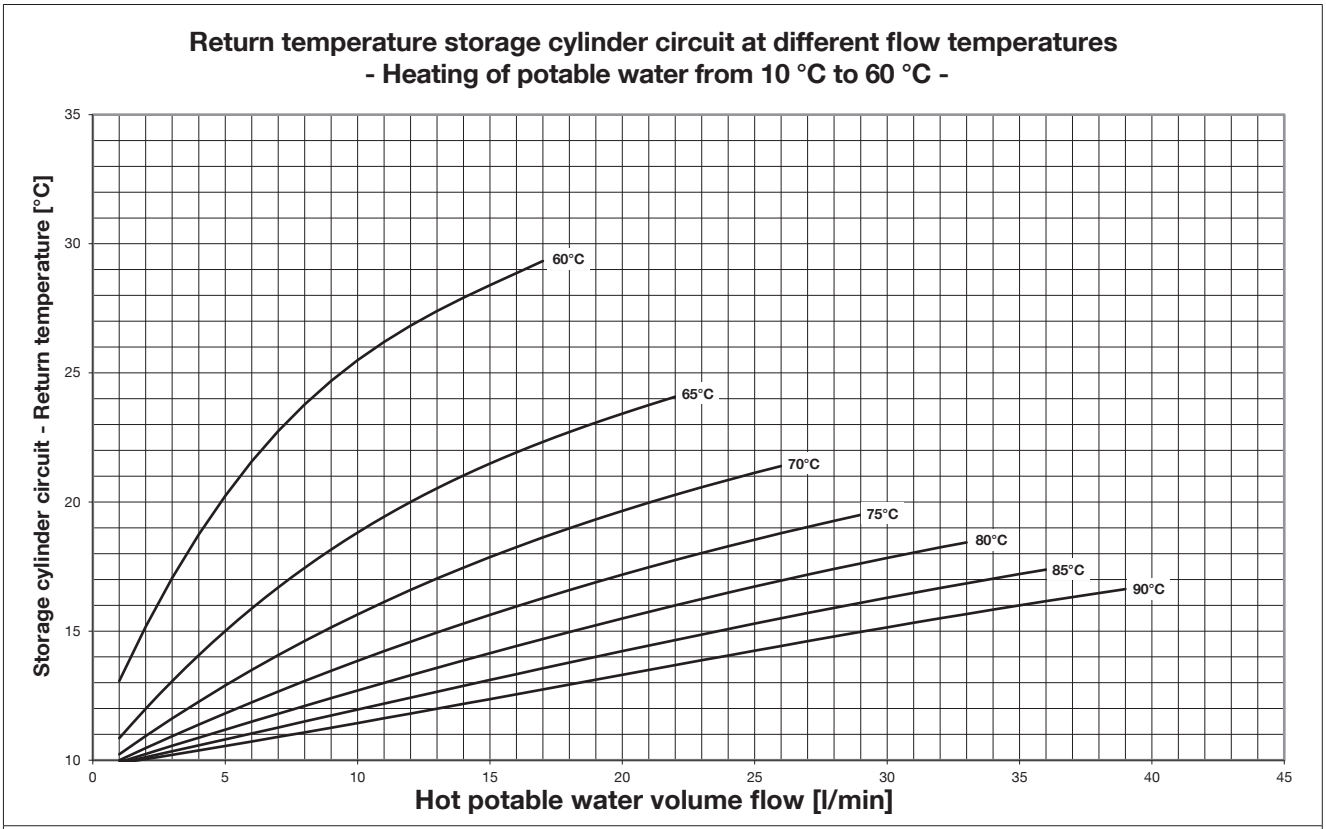
Illust. 50: Storage cylinder circuit return temperature – potable water heating to 55 °C

14.2.4 Heating of potable water from 10 °C to 60 °C

Performance data according to SPF test procedure.



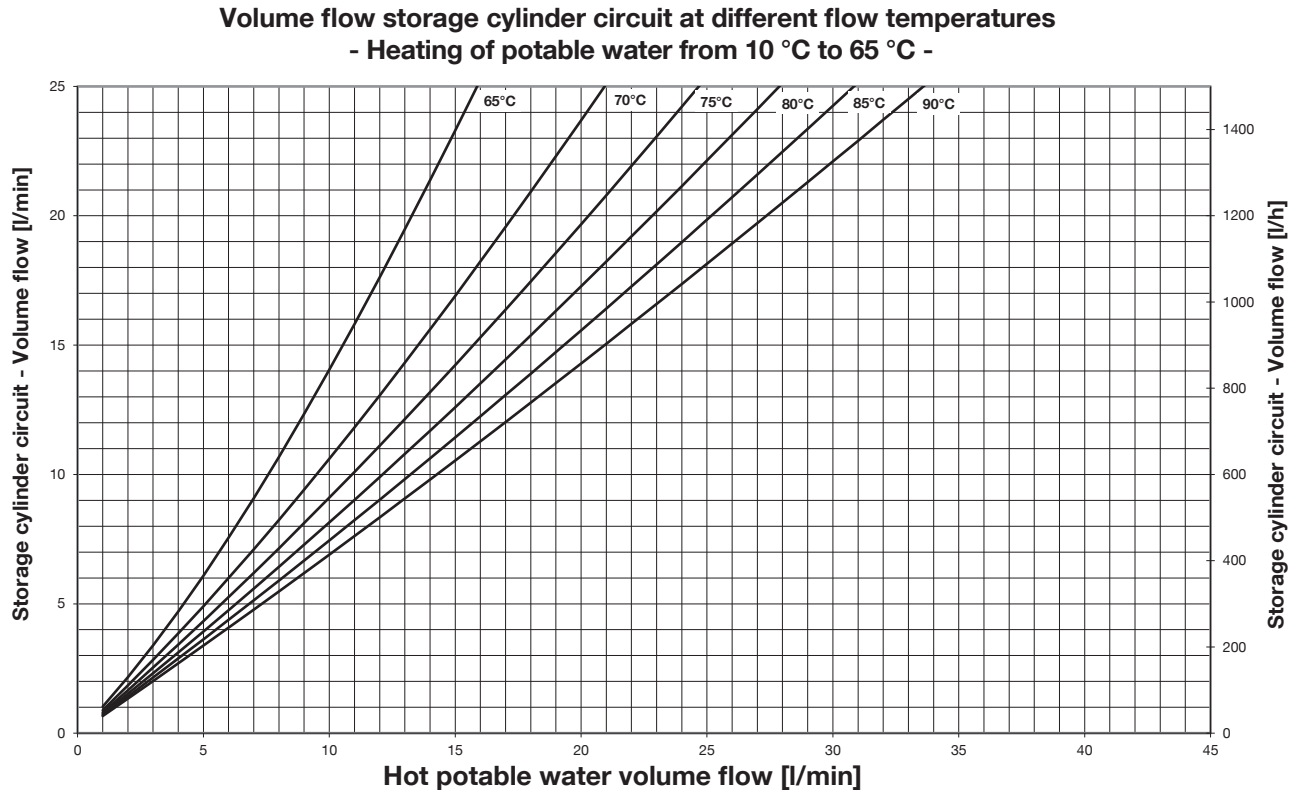
Illust. 51: Storage cylinder circuit volume flow – potable water heating to 60 °C



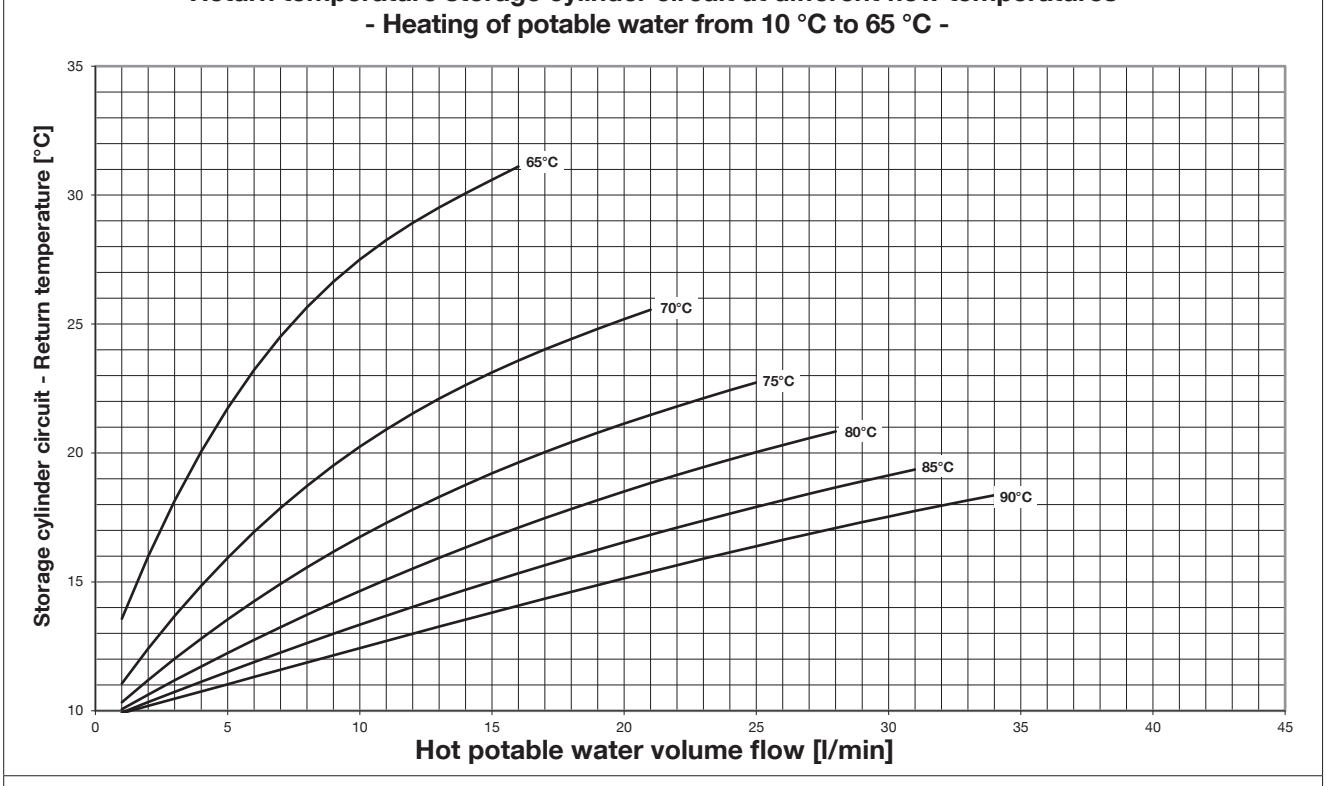
Illust. 52: Storage cylinder circuit return temperature – potable water heating to 60 °C

14.2.5 Heating of potable water from 10 °C to 65 °C

Performance data according to SPF test procedure.



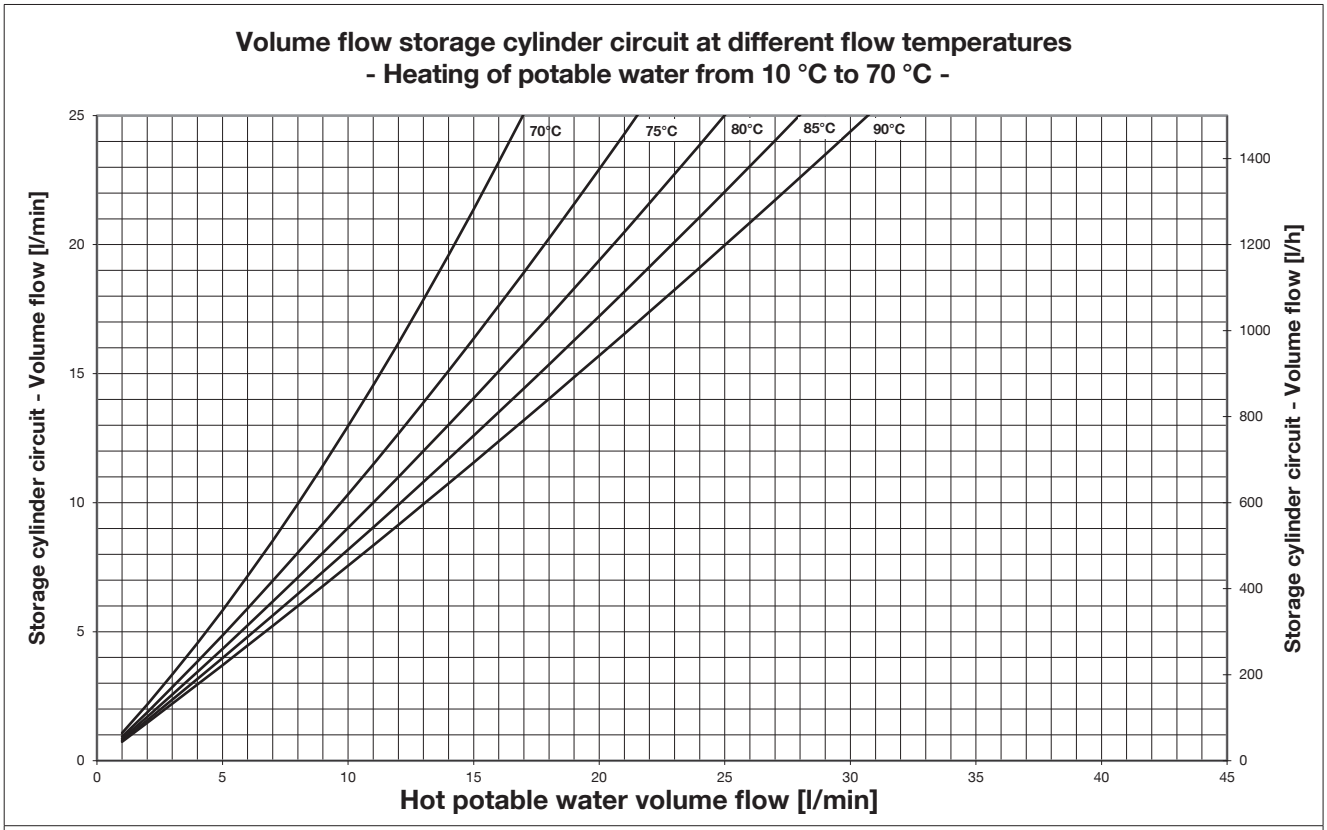
Illust. 53: Storage cylinder circuit volume flow – potable water heating to 65 °C



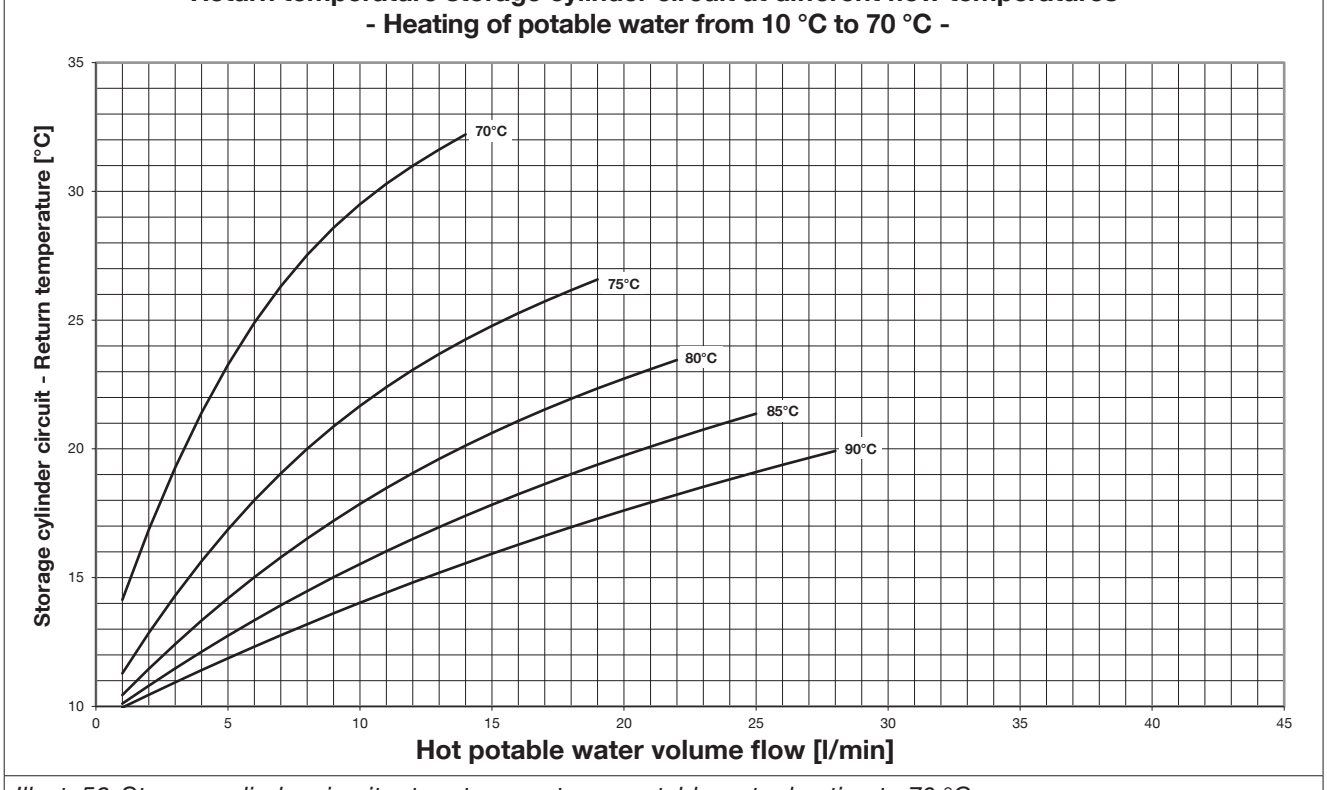
Illust. 54: Storage cylinder circuit return temperature – potable water heating to 65 °C

14.2.6 Heating of potable water from 10 °C to 70 °C

Performance data according to SPF test procedure.



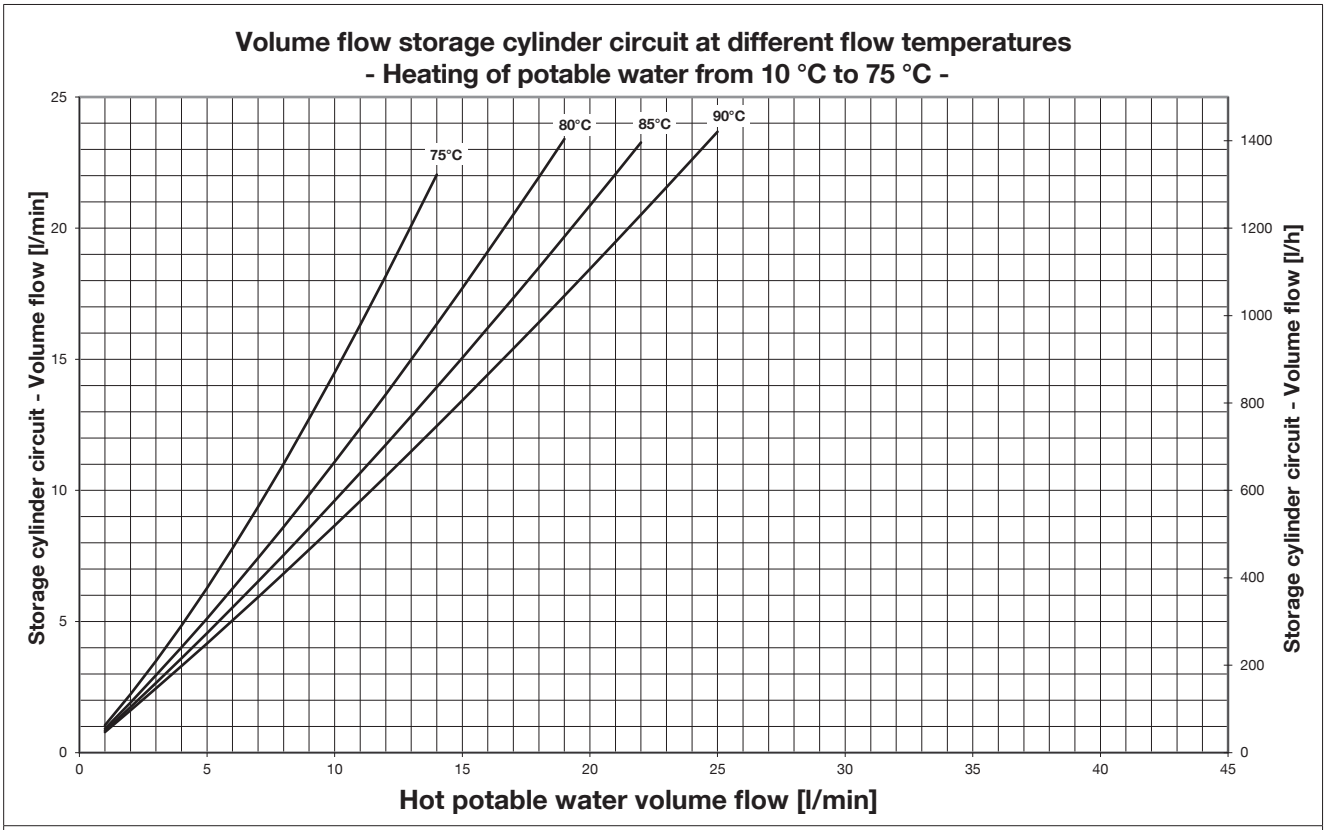
Illust. 55: Storage cylinder circuit volume flow – potable water heating to 70 °C



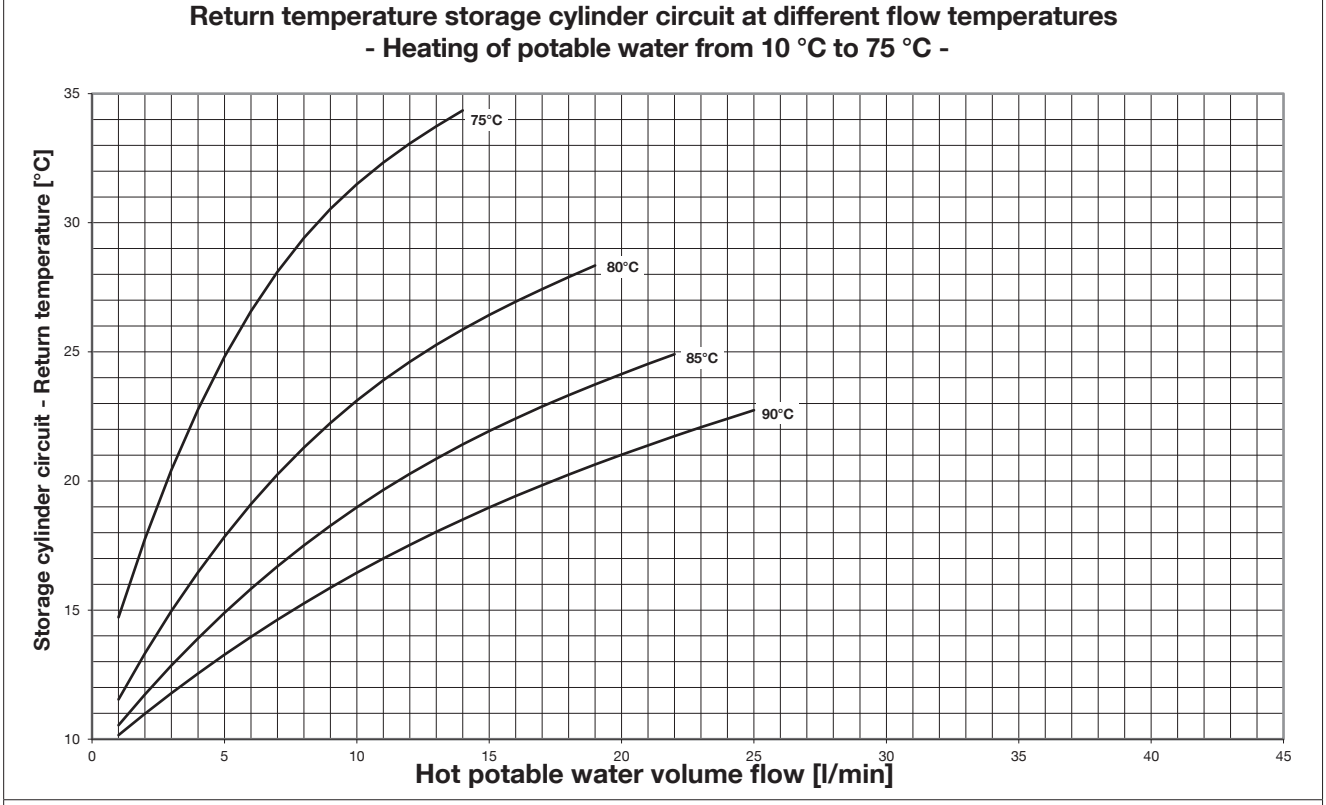
Illust. 56: Storage cylinder circuit return temperature – potable water heating to 70 °C

14.2.7 Heating of potable water from 10 °C to 75 °C

Performance data according to SPF test procedure.



Illust. 57: Storage cylinder circuit volume flow – potable water heating to 75 °C



Illust. 58: Storage cylinder circuit return temperature – potable water heating to 75 °C

14.3 EU Declaration of conformity

oventrop

EU Declaration of Conformity

Product identification:	Fresh water station "Regumaq X-25"
Manufacturer:	Oventrop GmbH & Co. KG
Adress:	Paul-Oventrop-Straße 1 59939 Olsberg GERMANY

This declaration of conformity is issued under sole responsibility of the manufaturer.

Object of the declaration:

Item no.	Type
1381125	copper brazed plate heat exchanger
1381127	fully sealed plate heat exchanger

The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:

Machinery directive

DIRECTIVE **2006/42/EC** OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006on machinery, and amending Directive 95/16/EC (recast)

The conformity of the product described above with the provisions of the applied Directive(s) is demonstrated by compliance with the following Standards/ regulations:

DIN EN ISO 12100:2010 + AC:2013

DIN EN 60204-1:2007 + A1:2009 + AC:2010

DIN EN 60670-1:2014

DIN EN 60730-1:2016

Electromagnetic Compatibility Directive

DIRECTIVE **2014/30/EU** OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

The conformity of the product described above with the provisions of the applied Directive(s) is demonstrated by compliance with the following Standards/ regulations:

EN 55014-1:2006 + A1:2009 + A2:2011

EN 55014-2:1997 + A1:2001 + A2:2008

EN 61000-3-2:2014

EN 61000-3-3:2013

DIN EN 60730-1:2016

RoHS

DIRECTIVE **2011/65/EU** OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

Pressure Equipment directive

These articles fall under **Article 4(3)** of the Pressure Equipment Directive **2014/68/EU** and are designed and manufactured in accordance with good engineering practice.

59939 Olsberg, 24.05.2019
Signed for and behalf of:
Oventrop GmbH & Co. KG

i.V. .....
Michael Pehl
Head of serial development

i.V. .....
Dipl.-Ing. Thomas Droste
Group Leader Development

The materials used in the Oventrop fresh water and dwelling stations are selected and processed in accordance with strict quality specifications. 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 for the plant engineer and/or user to ensure that the fresh water and dwelling stations are only operated using **potable water** of a chemical composition that is **non-corrosive** for the station 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 **brazing 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 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**	**NICKEL / STAINLESS STEEL**	**COPPER with protective layer**
⚠ Chloride (Cl^-) at 60 °C See diagram on the 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 As a general rule, 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 + + + +	+ + + + 0
Free chlorine (Cl_2)	<1 >1	+ -	+ -	+ 0
Ammonium (NH_4^+)	<2 2–20 >20	+ 0 -	+ + +	+ + -
Hydrogen sulphide (H_2S)	<0.05 >0.05	+ -	+ +	+ 0
Free (aggressive) carbon dioxide (CO_2)	<5 5–20 >20	+ 0 -	+ + +	+ + +
Nitrate (NO_3^-)	<100 >100	+ 0	+ +	+ +
NOTES:	+ Good durability under normal conditions 0 Corrosion may occur - Not recommended for use			

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

Further advice regarding corrosion protection

NOTICE

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

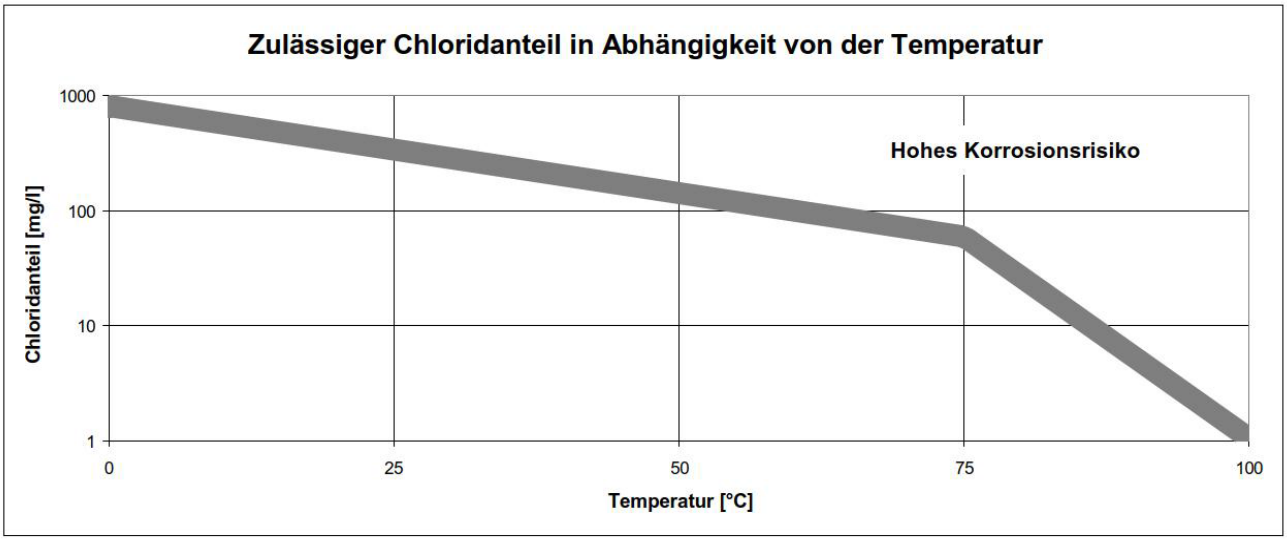
- ▶ Flush the system on a regular basis – either manually or automatically – if regular long periods of stagnation are to be expected (VDI/DVGW 6023).

- 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 heat exchanger or one with protective layer must be used instead.
- If the thresholds for substances in water are not observed, a **water treatment system** may need to be installed.

NOTICE

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

- **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.
- **Flush 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 **detergents 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 without a protective layer, the electrical conductivity of the water varies between 50 and 500 µS/cm**. Bear this in mind in particular in the context of water treatment pursuant to VDI 2035.



NOTICE

Corrosion and scale formation in the system

- ▶ It is the responsibility of the plant engineer and the user of the system to take into account substances in water and factors that could influence corrosion and scale formation and to evaluate their impact on their respective situation. It is therefore crucial to consult the local water supply company in advance in areas where water supply is critical.

oventrop

Fresh water station “Regumaq X-25” Handover report

Date:	
Installation site address / building	
User address	
Installation company address	
“Regumaq X-25” serial number	

	If there are any steps you do not complete or if you respond with ‘No’, please explain in the comments field!	Tick as appropriate or enter a value/number		Comments/settings
		Yes	**No**	
Installation of potable water station				
1	Number of installed stations			
2	Number of stations with circulation			
3	Designation of circulation pump(s) when not using the Oventrop circulation set.			
4	When installing several stations			
4.1	Was the Tichelmann system used for the pipework?	☐	☐	
4.2	Were check valves installed in the potable water supply (PWC)?	☐	☐	
5	Was an additional safety valve with adequate dimensions installed in the potable water circuit?	☐	☐	
6	System pressure on the potable water side	**bar**		
7	Was an expansion tank installed in the potable water circuit?	☐	☐	
8	System pressure on the storage cylinder side	**bar**		
9	Was the storage cylinder side bled?	☐	☐	
10	Was the functionality of the bleeder(s) checked?	☐	☐	
11	Performance, type and version of the heat generator	**kW**		
12	Storage cylinder volume	**l**		
13	Was/were the station(s) hydraulically decoupled when connected?	☐	☐	
14	When using Oventrop storage cylinders. Has (Have) the station(s) been connected according to the specifications?	☐	☐	
15	Was an adequately dimensioned expansion tank installed in the storage cylinder circuit?	☐	☐	
16	Which nominal temperature was set on the heat generator for the storage cylinder?	**°C**		
17	Are all ball valves open?	☐	☐	

If there are any steps you do not complete or if you respond with 'No', please explain in the comments field!		Tick as appropriate or enter a value/number		Comments/settings
		Yes	**No**	
Controller settings				
1	Which potable water temperature was set?		**°C**	
2	Was the circulation activated (see the circulation section in the controller operating instructions)?	☐	☐	
2.1	Which mode was activated?			
3	Is the controller LED lit up green?	☐	☐	
4	Have additional changes been made to the controller settings?	☐	☐	

If there are any steps you do not complete or if you respond with 'No', please explain in the comments field!		Tick as appropriate or enter a value/number		Comments/settings
		Yes	**No**	
Final inspection				
1	Was the installation checked for leaks (DIN EN 806)?	☐	☐	
2	Was commissioning carried out in accordance with the operating instructions?	☐	☐	

Instruction/Handover	
The installer is responsible for briefing the user on the functions and intended use of the fresh water station.	☐
The installer is responsible for pointing out the correct operation of potable water installations to the user.	☐
The installer has provided the user with the necessary documents.	☐

Information on correct operation of potable water systems:

- Stagnation must be avoided; a regular exchange of the potable water must be ensured
- TPWH must be maintained at >= 60 °C at the hot water outlet
- The circulation system must be designed in such a way that the potable water temperature does not fall more than 5 K below the station outlet temperature of >= 60 °C
- TPWC must be maintained at < 25 °C at the cold water outlet

Installer / Installation company

_____

Date / Signature / Stamp

User

Handover report received

_____

Date / Signature

oventrop

Fresh water station “Regumaq X-25” Maintenance report

Date:	
Installation site address / building	
User address	
Installation company address	
“Regumaq X-25” serial number	

	If there are any steps you do not complete or if you respond with ‘No’, please explain in the comments field!	Tick as appropriate or enter a value/number		Comments/settings
		Yes	**No**	
System information				
1	Number of installed stations			
2	Number of stations with circulation			
3	Designation of circulation pump(s)			
4	System pressure on the potable water side		**bar**	
5	System pressure on the storage cylinder side (Be sure to **compare with the handover report**. Take a look at the troubleshooting table in the event of deviations)		**bar**	
6	Performance, type and version of the heat generator		**kW**	
7	Storage cylinder volume		**l**	
8	Which nominal temperature was set on the heat generator for the storage cylinder?		**°C**	

Maintenance work				
1	Was the station checked for leaks (visual inspection)?	☐	☐	
2	Were the electronic components checked for tightness and intactness?	☐	☐	
3	Was a functional check carried out on the safety valve (DIN EN 806-5)?	☐	☐	
4	Was a functional check carried out on the check valve for the circulation pipe (DIN EN 806-5)?	☐	☐	
5	Was the potable water circuit sampled for microbiological examination (TrinkwV 2012)?	☐	☐	
6	Was the heat exchanger checked for external impermeability?	☐	☐	

If there are any steps you do not complete or if you respond with 'No', please explain in the comments field!		Tick as appropriate or enter a value/number		Comments/settings
		Yes	**No**	
7	Was a functional check carried out to review performance (see operating instructions for functional check)?	☐	☐	
8	Were all ball valves checked for ease of movement?	☐	☐	
9	If there were any strainers installed on site, have they been cleaned?	☐	☐	
10	Are all isolating valves open?	☐	☐	
11	Was the storage cylinder side bled and were the bleeders checked for opening and functionality?	☐	☐	
12	Were the controller values compared with the details in the handover report (document any deviations in the comments)?	☐	☐	

Maintenance work				
1	Which potable water temperature was entered?		**°C**	
2	Was circulation activated?	☐	☐	
2.1	Which mode was activated?			
3	Is the controller LED lit up green?	☐	☐	
4	Have additional changes been made to the controller settings?	☐	☐	

Repair work (only complete in the event of repairs or component replacements)				
1	Which component was replaced?			
1.1	Reason for replacement			
2	Which component was replaced?			
2.1	Reason for replacement			
3	Which component was replaced?			
3.1	Reason for replacement			
4	Was commissioning carried out in accordance with the operating instructions after having completed the repair work?	☐	☐	

Instruction/Handover	
The installer has informed the user about the maintenance work that has been completed.	☐
The installer has informed the user about potential modifications and repair work.	☐
The installer has provided the user with the necessary documents.	☐

Information on correct operation of potable water systems:

- Stagnation must be avoided; a regular exchange of the potable water must be ensured
- TPWH must be maintained at >= 60 °C at the hot water outlet
- The circulation system must be designed in such a way that the potable water temperature does not fall more than 5 K
- below the station outlet temperature of >= 60 °C
- TPWC must be maintained at < 25 °C at the cold water outlet

Installer / Installation company

_____

Date / Signature / Stamp

User

Maintenance report received

_____

Date / Signature

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

138112581 V01.10.2019