FRIWAC Series

Electronically controlled domestic fresh water unit

Installation and operating manual (translated from the original operating manual)

WattsWater.eu

Content

1 General information

1.1 Important notes about the Installation and Operating Manual

NOTICE **The operator is responsible for ensuring adherence to the local laws and regulations (e.g. accident prevention regulations, etc.).**
Incorrect operation or operating the domestic fresh water unit contrary to the specifications shall void all rights to any warranty claim.

This Installation and Operating Manual

- is part of the domestic fresh water unit
- contains instructions and information for the safe and correct installation and commissioning of the domestic fresh water unit
- must be available to all users throughout the entire service life of the domestic fresh water unit
- is intended for trained personnel who are familiar with the applicable standards and provisions and, in particular, with the relevant safety concepts and the operation and maintenance of the domestic fresh water unit
- is protected by copyright and may not be altered without the manufacturer's permission

1.2 Product conformity

This domestic fresh water unit conforms to the 2006/42/EC machinery directive.

1.3 Product features

Domestic fresh water unit with built-in controller for sanitary domestic hot water generation using the instantaneous water heater principle. Domestic fresh water units of the FRIWAC Series are available in the following variants: FRIWAC WT26 and FIRWAC WT40.

- Compact, space-saving design
- EPP insulation shell
- Electronic draw-off temperature control
- All system connections with 1" union nut, flat sealing
- Stainless steel pipework

1.4 Scope of delivery

- Domestic fresh water unit with EPP insulation shell
- Wall mounting set
- Operating instructions: FRIWAC domestic fresh water unit, circulation pump, controller

2 Safety

2.1 Safety notices

⚠ DANGER **DANGER indicates an imminent danger that may cause serious physical injury or death if the appropriate safety precautions are not in place.**

⚠ WARNING **WARNING indicates a danger arising through incorrect behaviour (e.g. misuse, disregarding notices, etc.) that may cause serious physical injury or death.**

⚠ CAUTION **CAUTION indicates a potentially dangerous situation that may cause minor or slight injuries if the appropriate safety precautions are not in place.**

NOTICE **NOTICE indicates a situation that may cause material damage if the corresponding precautions are not taken.**

2.2 Important safety information

- Read this operating manual carefully before use.
- Only connect this domestic fresh water unit to a power supply which matches the supply voltage stated on the domestic fresh water unit's data plate.
- The power supply on the domestic fresh water unit must be disconnected before completing any maintenance, cleaning or repair work.
- Maintenance, cleaning and repair work may be carried out by trained specialist personnel only.
- If the domestic fresh water unit is damaged or is not functioning correctly, it must no longer be used. In this case, contact your specialist dealer immediately.
- Observe the maintenance instructions and intervals.
- Protect the domestic fresh water unit against the effects of weather.
- Never use the domestic fresh water unit outdoors.
- The domestic fresh water unit may only be used in accordance with its intended use.

2.3 Intended use

The FRIWAC Series domestic freshwater unit is intended for domestic hot water generation. It uses the instantaneous water heater principle and switches on automatically when domestic water is needed (e.g. When a tap is opened). Constant temperature at the draw-off point is ensured by the electronically controlled power settings.

The domestic fresh water unit is fully pre-assembled and is designed for wall-mounting. The domestic fresh water unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of specialist knowledge or experience.

2.4 Foreseeable misuse

The following is regarded as foreseeable misuse:

- operating the domestic fresh water unit contrary to the specifications;
- using the domestic fresh water unit for use other than its intended use;
- making modifications to the domestic fresh water unit not agreed with the manufacturer;
- using replacement or wear parts not approved by the manufacture;
- operating the domestic fresh water unit outdoors (parts and components are not UV-resistant).

2.5 Operator's responsibility

The operator must ensure that:

- the domestic fresh water unit is only used for its intended purpose;
- the domestic fresh water unit is installed, operated and maintained according to the specifications in the Installation and Operating Manual;
- the domestic fresh water unit is only operated according to local directives and occupational health and safety regulations;
- all precautions have taken to avoid hazards originating from the domestic fresh water unit;
- all precautions for first aid and fire suppression are carried out;
- only authorised and trained users have access to and operate the domestic fresh water unit;
- users have access to this Installation and Operating Manual at all times.

2.6 Users

Only qualified persons may operate the domestic fresh water unit or carry out service and maintenance work.

Operators

An operator is deemed to be qualified if they have read this operating manual and understood the potential hazards associated with improper behaviour.

Fitters/commissioners

Due to their technical training, expert knowledge and consideration of the relevant standards, provisions, regulations and laws, fitters/commissioners are able to carry out work on the domestic fresh water unit and to identify and prevent potential hazards.

3 Technical features

Hydraulic data	
Max. operating pressure	10 bar
Ambient temperature	-2 °C to +40 °C (observe pump specifications)
Operating temperature	+2 °C to +90 ° (observe pump specifications)
Temperature setting range controller	30 - 85 °C
Pre-setting controller	Tnom = 50 °C
Draw-off rate (rounded values)	FRIWAC WT26: 5 - 25 l/min; FRIWAC WT40: 5 - 35 l/min
Primary circuit medium[1)]	Water or water with glycol as per VDI (Association of German Engineers) 2035 / ÖNORM (Austrian standard) H 5195
Secondary circuit medium[1)]	Domestic water
Electrical connection	
Power supply	230 V AC, 50 Hz
Dimensions and weight	
Width x height x depth with EPP shell	450 x 355x 232 mm
Weight	FRIWAC WT26: approx. 10 kg; FRIWAC WT40: approx. 12 kg
Connections to pipe network	
	All connections 1” union nut, flat sealing
Tightening torques for screw fittings	
1"	55 Nm
Materials	
Fittings	CW617N
Pipes	Stainless steel Ø27 mm
Plate heat exchanger	Stainless steel (copper brazed)
Plastics	impact-resistant and temperature-resistant
Flat seals	AFM 34/2
O-rings	EPDM
Insulation	EPP
Wall brackets	Galvanised sheet steel
Circulation pump	
Technical information on the circulation pumps can be found in the relevant pump documentation.	
Control systems	
Technical information on the controller can be found in the relevant controller documentation.	

1) We recommend the use of a water softener for water hardnesses > 8.5° dH and water temperatures < 60 °C.
A water softener is required for water hardnesses > 14° dH and water temperatures > 60 °C.

4 Thermal output data

4.1 FRIWAC WT26 thermal output data

Draw-off rate [l/min]	Hot water temperature [°C]	Cold water temperature [°C]	Primary circuit supply [°C]	Primary circuit return [°C]
25.1	46.0	14.3	59.8	33.4
19.8	49.0	14.5	60.3	35.9
15.2	50.6	11.5	61.5	35.9
10.2	50.1	11.5	59.4	33.4
8.2	51.1	11.5	59.5	32.6
25.0	50.9	14.7	65.1	34.6
20.4	50.6	13.3	66.1	34.8
15.1	50.6	11.4	66.2	31.7
10.0	50.6	10.4	66.3	29.0
5.1	50.5	10.8	65.2	24.4
25.0	50.9	14.2	71.0	34.1
20.2	50.6	12.5	70.1	32.2
15.0	50.6	11.2	71.1	28.3
9.8	50.8	10.5	70.0	25.6
5.2	50.5	11.2	69.4	21.4
25.0	50.6	14.5	75.2	32.2
20.3	50.8	13.8	74.6	30.7
15.0	50.4	11.2	76.0	26.5
10.2	50.7	10.5	74.9	23.8
5.1	50.7	11.1	75.1	19.5
25.1	50.4	13.7	80.4	29.5
19.9	50.6	13.3	80.2	28.0
15.2	50.4	11.5	81.4	25.0
10.0	50.8	10.8	80.1	22.5
5.2	50.6	11.1	79.9	19.2

4.2 FRIWAC WT40 thermal output data

Draw-off rate [l/min]	Hot water temperature [°C]	Cold water temperature [°C]	Primary circuit supply [°C]	Primary circuit return [°C]
35.5	41.1	12.8	60.7	26.9
29.7	44.3	12.0	60.1	28.9
25.0	47.2	11.5	60.7	31.3
20.1	50.1	10.9	60.1	34.7
15.2	50.3	10.3	60.6	37.3
10.3	49.9	10.0	60.6	37.6
4.7	49.9	11.2	61.4	43.0
35.5	44.4	14.1	65.4	28.7
30.0	48.2	13.3	65.6	30.6
25.3	50.6	12.9	66.1	32.2
20.1	50.6	12.3	65.9	30.3
14.8	50.4	11.8	66.3	27.1
10.2	50.4	11.3	65.9	24.3
5.1	50.3	11.7	64.5	21.7
35.3	47.0	14.7	70.8	29.5
29.7	50.3	14.5	70.4	31.6
25.1	50.6	14.2	70.3	30.4
19.8	50.7	13.9	70.3	28.1
14.8	50.5	13.1	70.1	25.5
10.2	50.5	12.8	69.8	23.4
5.1	50.4	13.1	69.4	20.6
35.1	50.6	14.2	75.0	31.5
30.5	50.3	13.4	74.8	29.8
25.2	50.4	12.6	75.9	27.4
19.9	50.4	11.6	75.5	25.3
14.8	50.6	10.9	75.2	23.6
10.3	49.8	9.9	75.4	18.8
4.7	49.8	10.1	74.4	17.6
35.2	50.2	14.6	80.3	29.2
30.2	50.0	13.9	80.3	27.5
25.5	50.1	13.4	80.3	26.0
20.1	50.8	12.5	80.8	24.3
15.0	50.7	11.3	80.5	21.7
10.0	50.4	10.5	80.2	18.5
5.0	49.9	10.2	79.9	16.7

5 Pressure loss diagram

5.1 FRIWAC WT26 pressure loss diagram

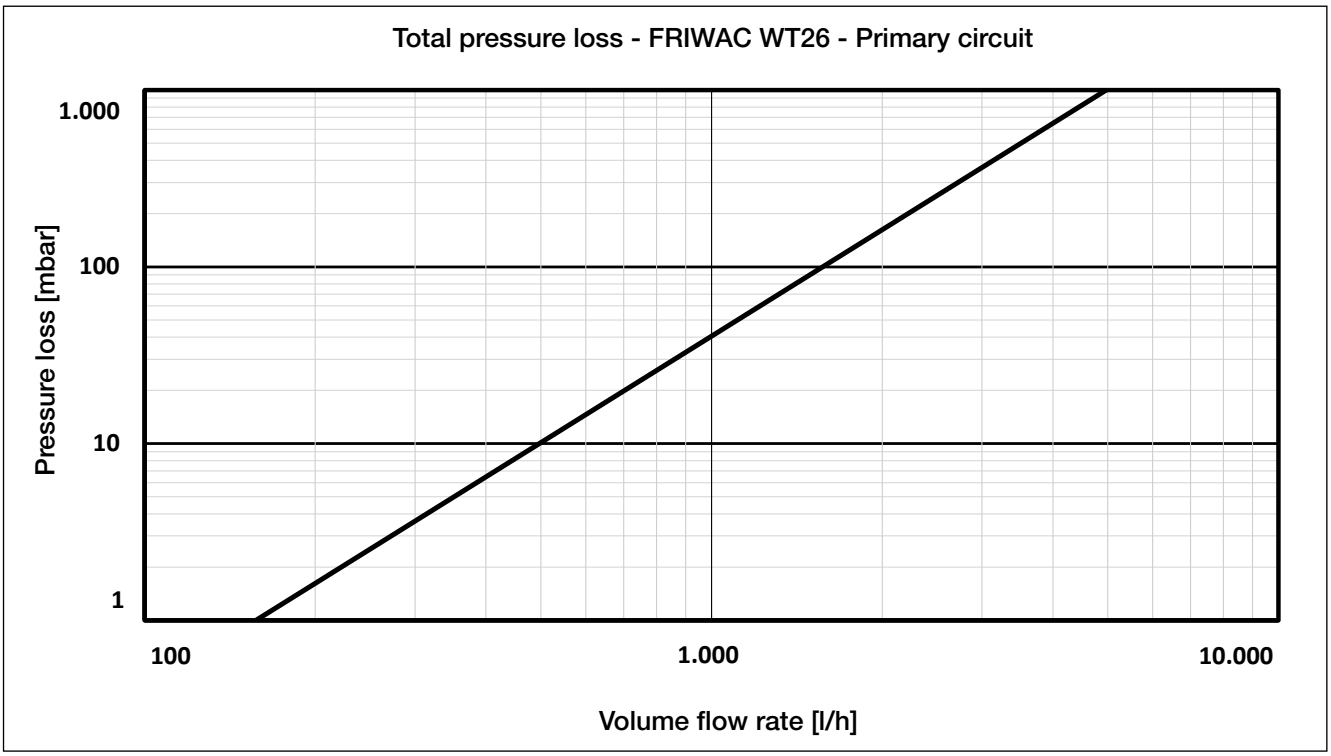

Fig. 5-1: FRIWAC WT26 primary circuit pressure loss diagram

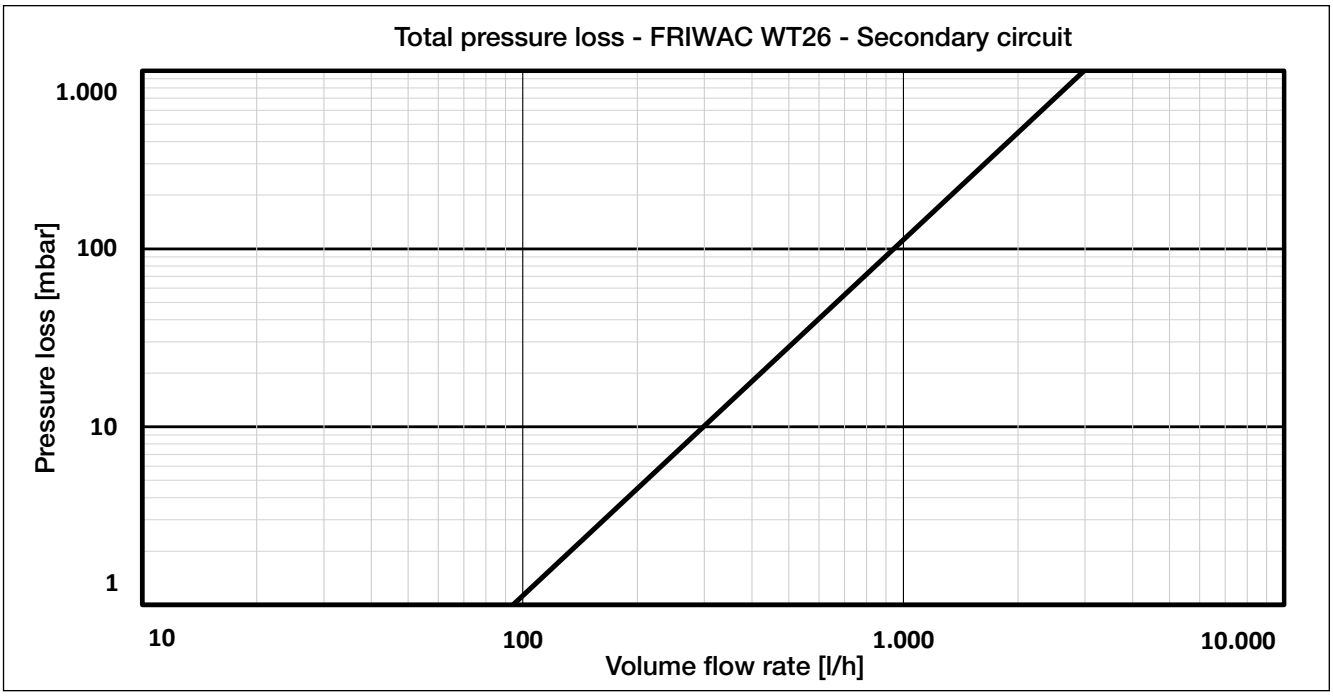

Fig. 5-1: FRIWAC WT26 secondary circuit pressure loss diagram

5.2 FRIWAC WT40 pressure loss diagram

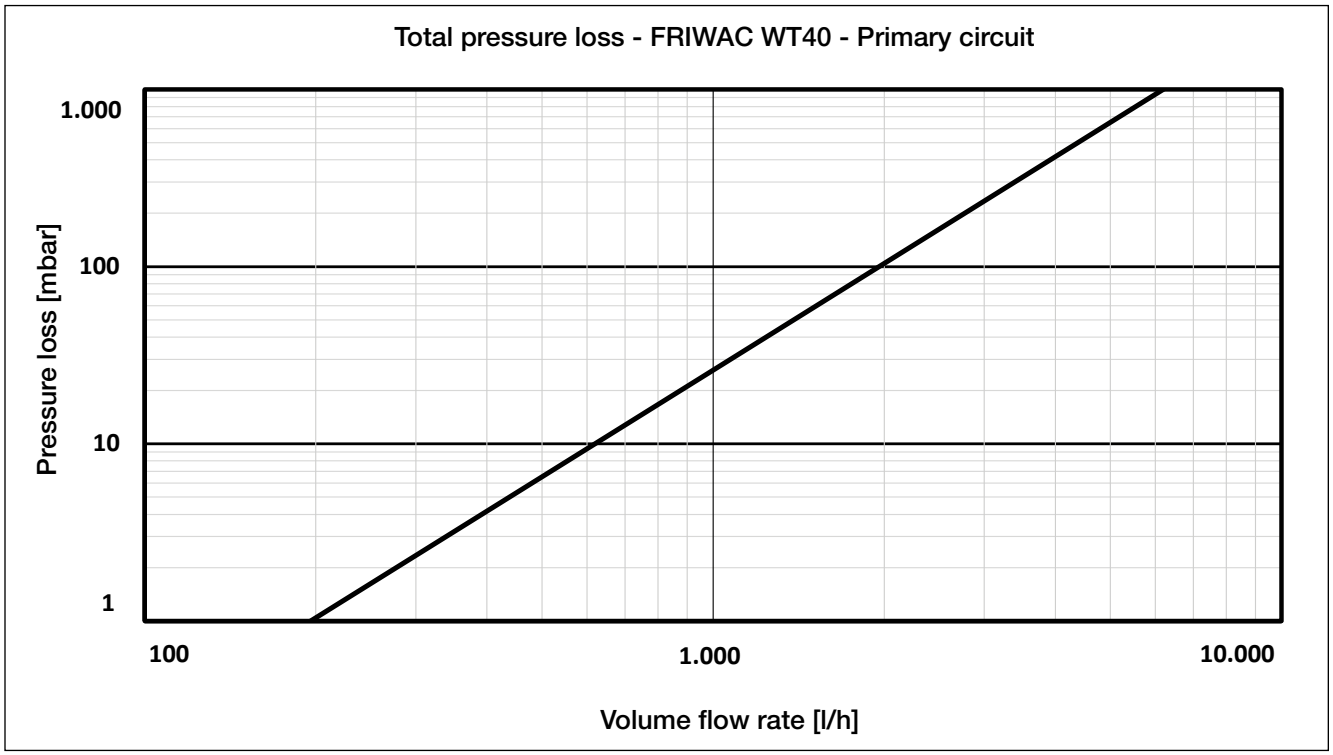

Fig. 5-3: FRIWAC WT40 primary circuit pressure loss diagram

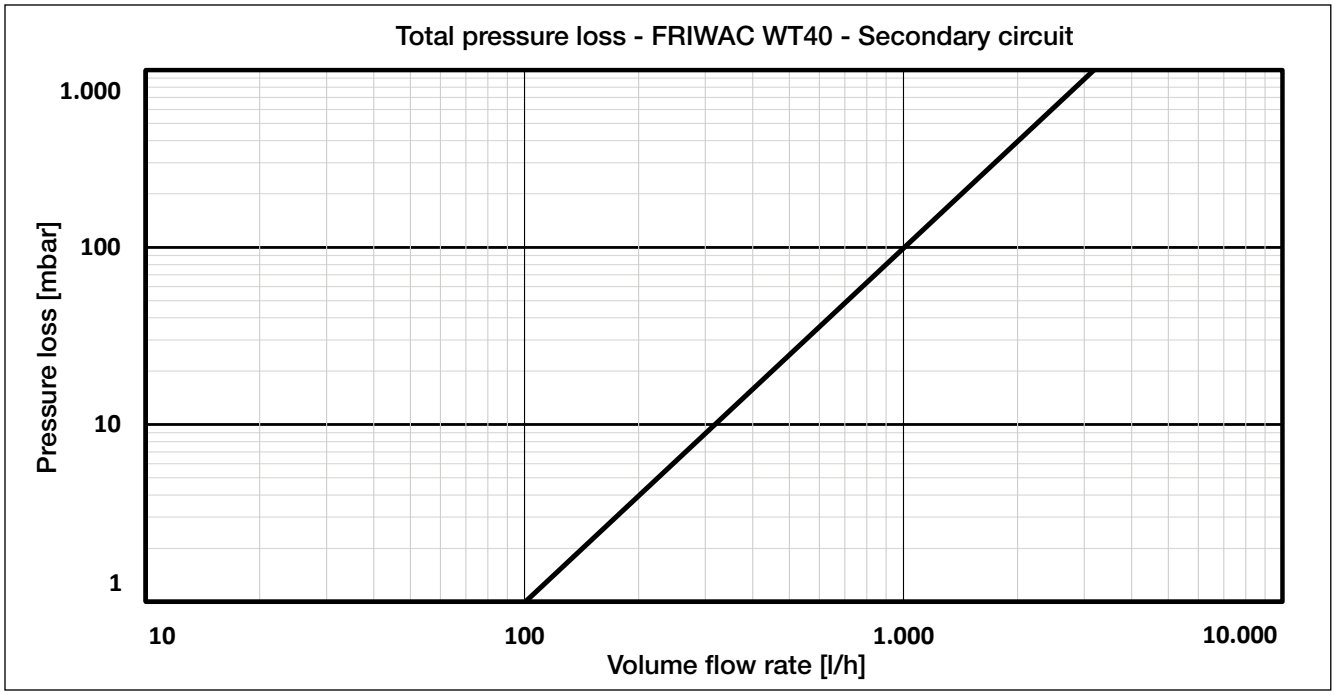

Fig. 5-4: FRIWAC WT40 secondary circuit pressure loss diagram

6 Dimensions

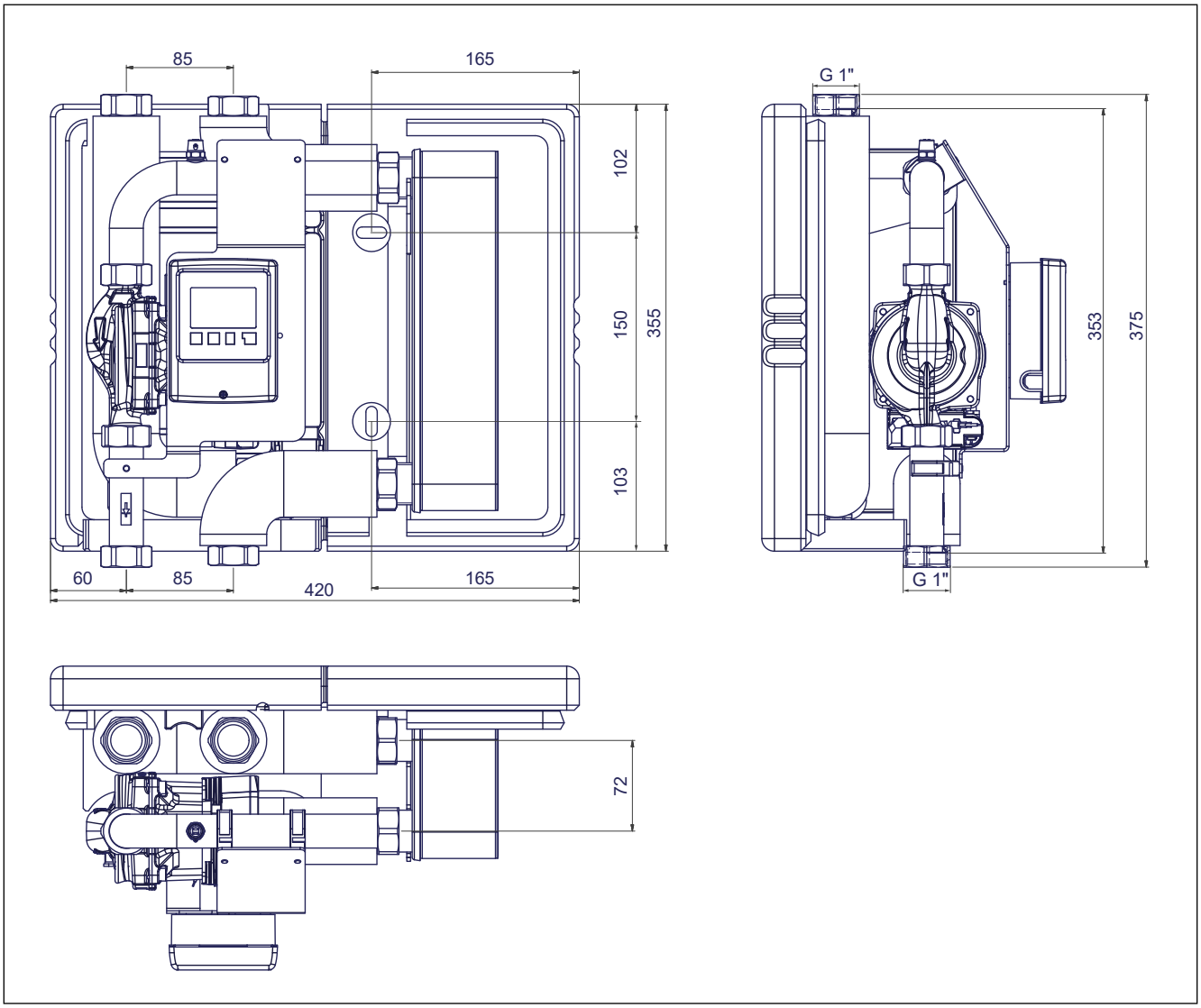

Fig. 6-1: FRIWAC domestic fresh water unit dimensions

7 Component overview

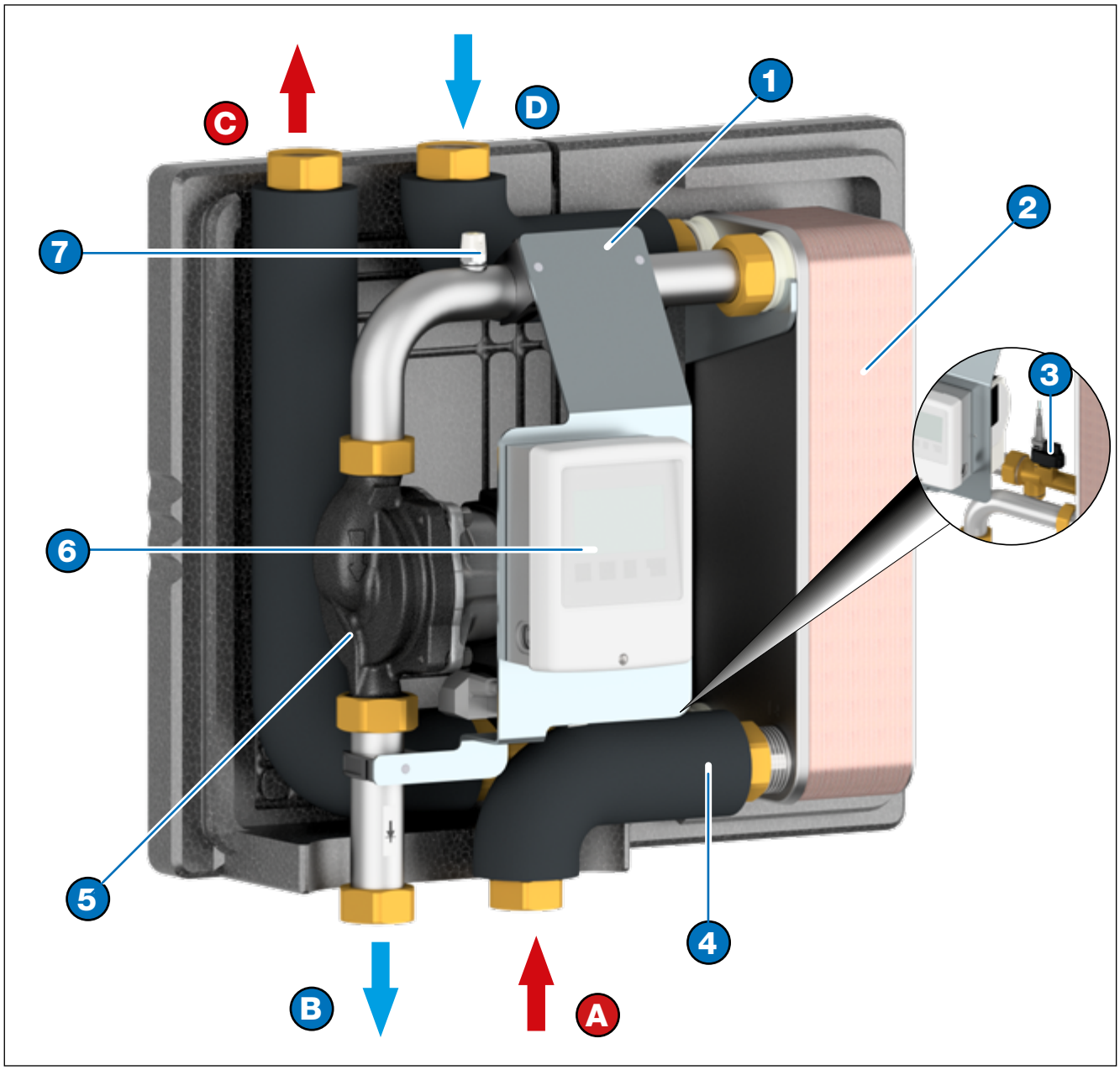

Fig. 7-1: FRIWAC domestic fresh water unit component overview

1. Controller mounting plate (foldable for pump maintenance)
2. Plate heat exchanger
3. Flow sensor with temperature sensor
4. Supply sensor, primary circuit (beneath insulation)
5. Circulation pump
6. Control systems
7. Vent valve

A. Heating supply primary circuit 1” union nut
B. Heating return primary circuit 1” union nut
C. Hot water outlet secondary circuit 1” union nut
D. Cold Hot water inlet secondary circuit 1” union nut

8 Installation and commissioning

⚠ DANGER **Electricity!**

Risk of death from electric shock!

- ➤ Work on live parts must be carried out only by trained electricians.
- ➤ Disconnect the power supply to the unit before carrying out any installation, maintenance, cleaning or repair work and secure it against reconnection.

⚠ WARNING **Hot water!**

Severe scalding possible at point of use.

- ➤ Install a thermostatic mixing valve at the point of use.

NOTICE **The domestic fresh water unit may only be installed and commissioned by specialist personnel who have been duly trained and authorised by the manufacturer.**

⚠ CAUTION **When carrying out repairs and replacing parts, the prescribed mounting positions and flow directions for the individual components to be replaced must be observed.**

⚠ CAUTION **Material damage due to water hammer.**

Water hammer may occur if the shut-off valves are opened and closed quickly.

- ➤ Always open and close the shut-off valves slowly and in a controlled way.

Requirements

- A safety valve to DIN 1988 must be installed at the cold water input. This may not have a shut-off function.
- Install a filter on the cold water input.
- When operating a circulating system, the applicable technical regulations and hygiene provisions to DVGW (Deutscher Verein des Gas- und Wasserfaches - German association for gas and water) worksheet W551 are to be observed.
- Ensure the various pump units (domestic fresh water unit / heating circuit unit) are hydraulically separated.
- We recommend flushing equipment is installed upstream and downstream of the plate heat exchanger in the primary and secondary circuits for descaling or cleaning if necessary.
- When using galvanised pipework and fittings, observe the installation sequence to avoid electrochemical corrosion.
- The fittings are preassembled at the factory; however, the tightness of the seal is to be checked before commissioning (pressure test).

NOTICE **Install the domestic fresh water unit with the controller at eye level whenever possible.**

8.1 Installation

Tightening torques for screw fittings 1" 55 Nm

⚠ CAUTION **Danger of material damage.**

The domestic fresh water unit is not protected against water splashes or drops.

- ➤ Always install the domestic fresh water unit in a dry environment.

⚠ CAUTION **Poor water quality!**

Hard water causes limescale build-up in the domestic fresh water unit and reduces the water quality.

- ➤ We recommend the use of a water softener for water hardnesses > 8.5° dH and water temperatures < 60 °C.
- ➤ A water softener is required for water hardnesses > 14° dH and water temperatures > 60 °C.

1. Remove the domestic fresh water unit front cover.

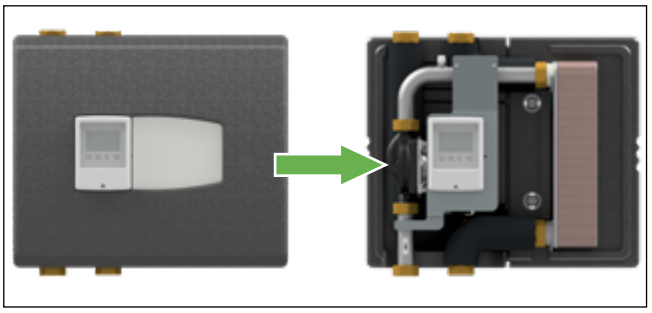

Fig. 8-1: Removing the front cover

- Observe Fig. 8-2 for steps 2 and 3.

2. Mark the drilling points for mounting the domestic fresh water unit.
3. Drill holes for the relevant size screws and wall plugs.

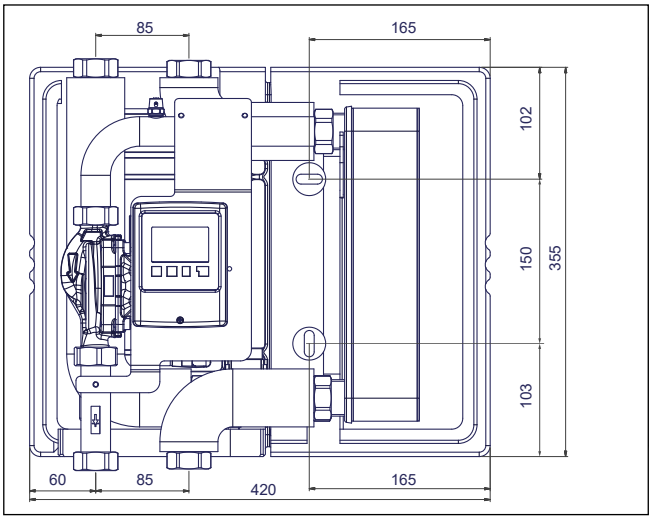

Fig. 8-2: FRIWAC installation diagram

- Observe Fig. 8-3 for steps 4 to 7.

4. Insert the wall plugs (item 1).
5. Screw the hanger bolts (3) into the wall plugs.
6. Fit the wall bracket (item 2).
7. Locate the domestic fresh water unit vertically on the wall.

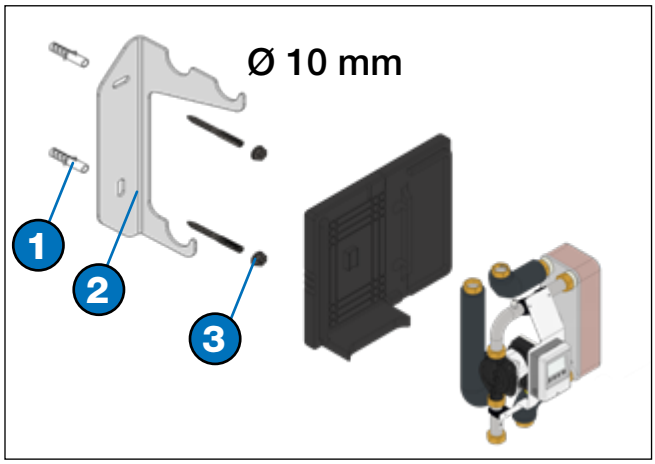

Fig. 8-3: Fitting the domestic fresh water unit to the wall

NOTICE **An appropriate safety device against overpressure on the domestic water supply side must be installed on site in accordance with the current local water quality regulations.**

➤ If shut-off valves are fitted between the domestic fresh water unit and the safety valve, these must be secured against tampering during operation by appropriate means (e.g. sealing wire or locking plate).

- Observe Fig. 8-4 for steps 8 to 10.

8. Fit suitable shut-off valves to the connections (items A, B, C and D) on the domestic fresh water unit.
9. Connect the fittings on the domestic fresh water unit to the on-site supply lines.
10. Check all screw connections are tight.

8.2 Starting the unit

Requirements

- The domestic fresh water unit is fully assembled. Observe Fig. 8-4 for the following steps.

1. Slowly open the primary circuit shut-off valves (items A and B).
2. Open the vent valve (item 2) by turning the vent key (item 1) anticlockwise and keep it open until air is no longer escaping.

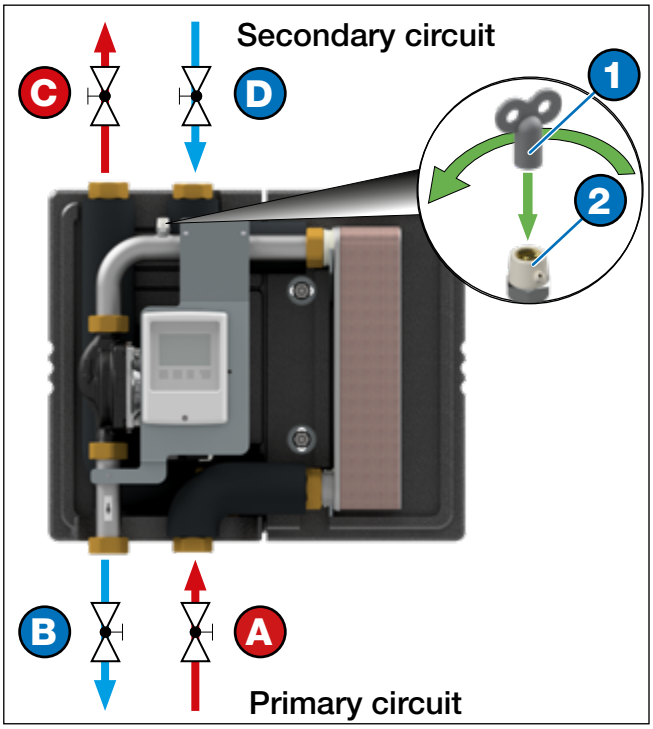

Fig. 8-4: Domestic fresh water unit connection and venting procedure

⚠ CAUTION **Damaged circulation pump due to dry running! The circulation pump is running before the domestic fresh water unit has been vented.**

➤ Only switch on the circulation pump once the domestic fresh water unit has been completely filled and vented. Audible noises which occur when the circulation pump is in operation indicate air in the system.

3. Connect the power supply to the domestic fresh water unit (see separate pump documentation).

✓ **The domestic fresh water unit automatically switches itself on when the power supply is connected.**

4. Program the controller if required (see separate instructions for the controller).
5. Switch the circulation pump on from 'Manual operation' on the controller menu and allow the water to flow for approximately 5 minutes.
6. Vent the primary circuit again.
7. Slowly open the shut-off valves (items C and D) on the secondary circuit.
8. Slowly open a point of use (e.g. a tap in the kitchen or bathroom) and allow water to run until all the pipes are full and all the air has escaped from the system.

8.3 Starting the controller

See separate controller documentation.

9 Maintenance

⚠ DANGER **Electricity!**

Risk of death from electric shock!

➤ Maintenance work on the domestic fresh water unit may only be carried out once the power supply has been disconnected.

⚠ WARNING **Hot water!**

Severe scalding possible.

➤ Do not put hands into hot water when draining the domestic fresh water unit. Allow the domestic fresh water unit to cool down before completing any maintenance, cleaning or repair work.

⚠ WARNING **Hot surfaces!**

Severe scalding possible.

➤ Do not hold pipework or components while the unit is in operation. Allow the domestic fresh water unit to cool down before completing any maintenance, cleaning or repair work. Wear heat-resistant safety gloves if it is necessary to work on hot components.

NOTICE **Maintenance of the domestic fresh water unit must be carried out only by specialist personnel who have been duly trained and authorised by the manufacturer.**

9.1 Annual maintenance schedule

1. General visual inspection

- Check the unit for leaks and retighten connections with flat seals or replace the seals.

2. Functional check

- Check the correct adjustment and operating and performance parameters.
- Check for noisy operation.
- Check with the user in the event of anomalies.

3. Ball valves

- Check for correct operation of shut-off valves and ball valves.

4. Pump

- Be aware of noise build-up in the pump.

5. Post-maintenance checks

- Check all loosened screw connections for a firm seating and retighten if necessary.
- Remove all tools, materials and other equipment used from the work area.
- Vent the system.

9.2 Replacing wear parts

Note that the domestic fresh water unit has parts which are subject to wear that naturally occurs as a result of normal use even when properly maintained and serviced.

Specifically, these are mechanical parts and parts which are in contact with hot water and steam such as hoses, seals, valves, etc.

Normal wear and tear is not a defect and is not covered under warranty or guarantee. Nevertheless, defects and malfunctions may only ever be remedied by trained specialist personnel.

Contact your specialist dealer for more information.

9.3 Decommissioning

1. Disconnect the power supply to the domestic fresh water unit and secure it against reconnection.
2. Remove the front cover of the domestic water unit (Fig. 8-1 on page 11).
3. Close all the shut-off valves Fig. 8-4 on page 12).

After a prolonged shutdown

Relieve the pressure in the domestic fresh water unit (for example, by opening the vent screws, see Fig. 8-4 on page 12).

9.4 Recommissioning

Follow the instructions in Section 8.2 on page 12 for recommissioning.

10 Disposal

⚠ WARNING **Improper disposal can lead to contamination of the environment and groundwater!**

➤ When disposing of components and operating materials, the provisions and guidelines of the country of use must be observed.

1. Make sure the current to all subassemblies and components has been disconnected.
2. Remove the domestic fresh water unit in the correct way or engage a specialist company to do this.
3. Separate the subassemblies and components into recyclable materials and operating materials.
4. Dispose of the subassemblies and components in accordance with local laws and provisions or take them to a recycling facility.

10.1 Return to manufacturer

Contact the manufacturer if you wish to return the domestic fresh water unit or component parts.

10.2 Informing authorities and the manufacturer

Inform the manufacturer when decommissioning and disposing of the domestic fresh water unit for statistical purposes.

11 Warranty

WATTS products are tested extensively. WATTS therefore guarantees only the replacement or, at the sole discretion of WATTS, the free-of-charge repair of components of the supplied products where these, in the opinion of WATTS, exhibit verifiable manufacturing faults. Warranty claims due to defects or defects of title may be asserted within one (1) year of delivery/transfer of risk. Excluded from the warranty are damages attributable to normal use of the product or wear and damages resulting from modifications or non-authorised repairs on the products, for which WATTS rejects all claims for compensation (direct or indirect). (For more detailed information, please refer to our website.) In all cases, supply is subject to the General Terms and Conditions, which can be found at www.wattswater.eu/gtc/.

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