



Installation and Operation Instructions

Domestic Hot Water Module:

FriwaMega – DN 32

Controller FC3.10



Item no. 9964075x-mub-en - Version V01 - Issued 2020/10

Translation of the original instructions

We reserve the right to make technical changes without notice!

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PAW GmbH & Co.KG

Böcklerstraße 11

31789 Hameln - Germany

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Carefully read these instructions before installation and commissioning. Save these instructions in the vicinity of the installation for future reference.

1 General Information

1.1 Scope of these instructions

These instructions describe the installation, commissioning, functioning and the operation of the domestic hot water module FriwaMega. The chapters called [specialist] are intended for specialists only.

For other components of the system, such as tanks, controllers and pumps, please observe the instructions of the corresponding manufacturer.

Item	Item number	Controller FC3.10	Pump, primary	Circulation	Heat exchanger
FriwaMega	6407510		Grundfos UPMXL GEO 25-125	Optional circulation set: 6404134GH7: Grundfos UPM2 15-75 CIL2	Copper solder, 2 x 60 plates
	6407530			6404135GH10: Grundfos UPML 25-105 N	coated, 2 x 60 plates
FriwaMega with circulation	6407515		Grundfos UPMXL GEO 25-125	Grundfos UPML 25-105 N	Copper solder, 2 x 60 plates
	6407516			Grundfos UPM2 15-75 CIL2	
	6407535			Grundfos UPML 25-105 N	coated, 2 x 60 plates
	6407536			Grundfos UPM2 15-75 CIL2	

1.2 About this product

The domestic hot water module is a premounted group of fittings checked for tightness and used to transfer the heat between the buffer tank and the domestic hot water circuit. It contains a preset controller and important fittings for the operation of the system:

- Ball valves in the primary circuit
- Piston valves in the secondary circuit
- Pressure relief valve in the secondary circuit
- Premounted controller
- Temperature sensor at the cold water inlet
- Temperature sensor in the heating circuit flow line
- Temperature sensor at the domestic hot water outlet
- Flow rate sensor at the domestic hot water outlet
- Fill and drain valve to drain the heat exchangers in the primary and secondary circuit
- Vent valve, primary and secondary, to vent the heat exchangers

1.3 Designated use

The domestic hot water module must only be mounted in heating installations between the buffer tank and the domestic hot water circuit. Due to its design, the station must be mounted and operated in a vertical position! The technical limit values specified in these instructions must be observed.

Only use PAW accessories with the domestic hot water module.

Improper usage excludes any liability claims.

The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.

2 Safety instructions

The installation and commissioning as well as the connection of electrical components require technical knowledge commensurate with a recognised vocational qualification as a fitter for plumbing, heating and air conditioning technology, or a profession requiring a comparable level of knowledge [specialist]. The following must be observed during installation and commissioning:

- relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

	 WARNING
	Danger of scalding due to hot water! Undesirable circulation of water in the primary circuit can cause the exit of water of up to 90 °C at the withdrawal point. ➤ External pumps must not be installed between the domestic hot water module and the buffer tank. ➤ The domestic hot water module must not be connected to a distribution manifold of a heating circuit.

	 CAUTION
	Risk of burns! The valves, fittings and the pump may heat up to more than 95 °C during operation. ➤ The insulating shell must remain closed during operation.

ATTENTION

Material damage due to mineral oils!

Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost. We do not assume liability nor provide warranty for damage to property resulting from sealants damaged in this way.

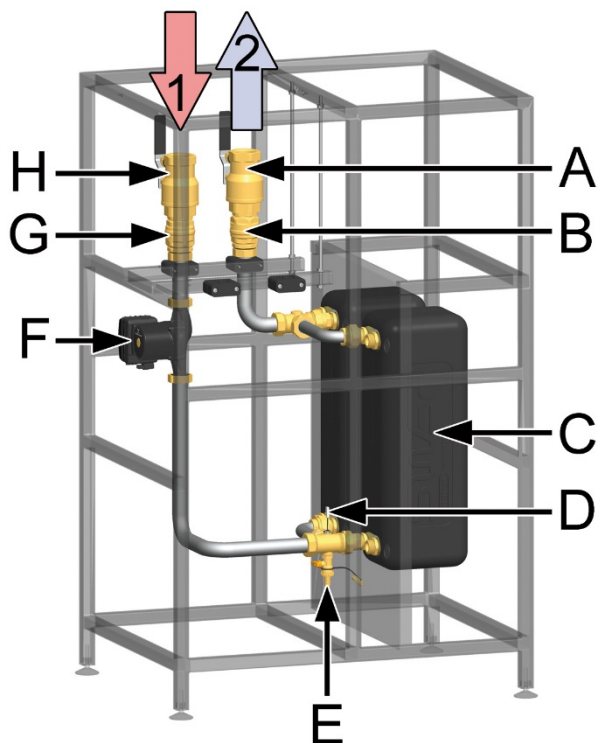
- It is imperative to prevent the EPDM sealing elements from making contact with substances containing mineral oils.
- Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

ATTENTION

Malfunction!

- The domestic hot water module must be integrated in the potential equalisation of the electric installation. This can be guaranteed by establishing a potential equalisation connection to the main potential connection according to regulations or by the connected pipe system.

3 Product description

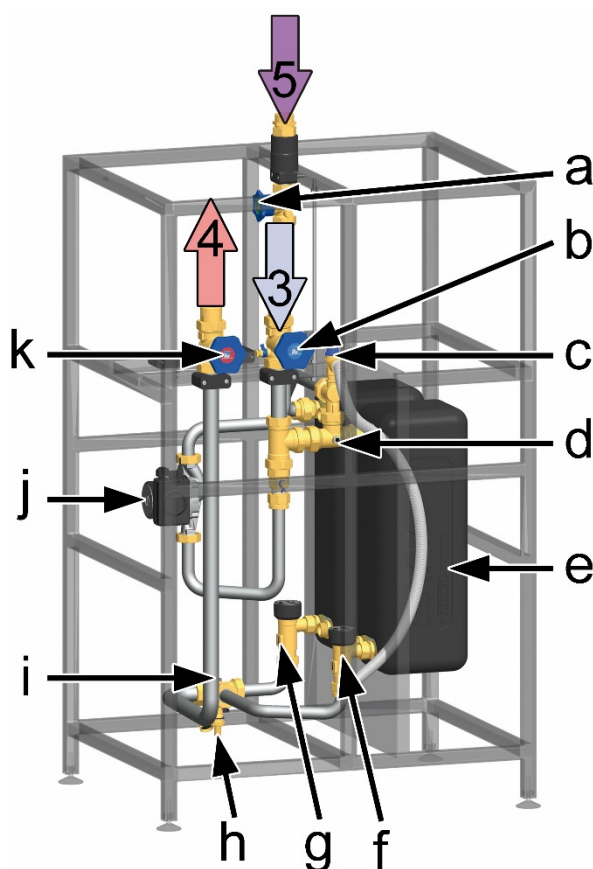


Connections primary circuit

- 1 Flow from the buffer tank (hot)
- 2 Return to the buffer tank (cold)

Equipment primary circuit

- A Return ball valve
- B Check valve
- C Heat exchanger
- D Temperature sensor Pt1000
- E Fill and drain valve
- F Primary pump
- G Check valve
- H Flow ball valve



Connections secondary circuit

- 3 Cold water inlet
- 4 Hot water outlet
- 5 Hot water circulation

Equipment secondary circuit

- a Piston valve hot water circulation
 - b Piston valve cold water inlet
 - c Pressure relief valve 10 bars, suitable for domestic hot water
- Only for the protection of the station.
Does not replace the pressure relief valve that has to be mounted on site!**
- d Temperature sensor Pt1000
 - e Heat exchanger
 - f + g FlowSonic 1-130 l/min
 - h Fill and drain valve
 - i Temperature sensor Pt1000
 - j Circulation pump
 - k Piston valve hot water outlet

4 Dimensioning and planning

The FriwaMega is a domestic hot water module operating on the principle of a flow-type water heater.

The FriwaMega will only work flawlessly if the installation meets certain requirements. Please take some time to plan the assembly.

	 WARNING
	Danger of scalding due to hot water! Undesirable circulation of water in the primary circuit can cause the exit of water of up to 90 °C at the withdrawal point. ➤ External pumps must not be installed between the domestic hot water module and the buffer tank. ➤ The domestic hot water module must not be connected to a distribution manifold of a heating circuit.

Mounting example



FriwaMega with optional circulation set (additionally required, item no. 6404134GH7 or 6404135GH10)

4.1 Dimensioning of the tank

The following table helps you to calculate the approximately required volume of the buffer tank.

Temperature in the buffer tank	Domestic hot water temperature set at the controller	Required tank volume per litre of hot water
50 °C	45 °C	1.2 litres
60 °C	45 °C	0.8 litre
	50 °C	1.0 litre
	55 °C	1.3 litres
70 °C	45 °C	0.6 litre
	50 °C	0.8 litre
	55 °C	0.9 litre
80 °C	45 °C	0.5 litre
	50 °C	0.6 litre
	55 °C	0.7 litre

Calculation example for the dimensioning of the buffer tank:

Temperature of the buffer tank: 60 °C

Required withdrawal flow rate at the tap: 20 l/min

Domestic hot water temperature set at the controller: 45 °C

How large must the tank be to allow for a continuous withdrawal during 20 minutes without post-heating?

$$20 \text{ l/min} \times 20 \text{ min} = 400 \text{ l}$$

$$400 \text{ l} \times 0.8 = 320 \text{ l}$$

The heated part of the buffer tank must have a volume of 320 litres.

4.2 Water quality requirements

The domestic hot water modules constructively decrease the precipitation of chalk in the heat exchanger.

For installations with an elevated total hardness of the potable water and/or high temperatures, a water treatment is recommended.

The choice of the heat exchanger depends on the requirements of the installation location. Depending on the chemical composition of the water at the installation site, the adequacy of the plate heat exchanger has to be checked.

Please observe the following table:

Influence of the water quality on the corrosion resistance for domestic hot water applications

Water content	Concentration (mg/l or ppm)	Time limits	Heat exchanger with copper solder	Coated heat exchanger
Alkalinity (HCO_3^-)	< 70	within of 24 hours	0	+
	70-300		+	+
	> 300		0/+	+
Sulphate (SO_4^{2-})	< 70	no limit	+	+
	70-300		0/-	+
	> 300		-	+
$\text{HCO}_3^- / \text{SO}_4^{2-}$	> 1.0	no limit	+	+
	< 1.0		0/-	+
Electrical conductivity	< 10 $\mu\text{S/cm}$	no limit	0	+
	10-500 $\mu\text{S/cm}$		+	+
	> 500 $\mu\text{S/cm}$		0	+
pH value	< 6.0	within of 24 hours	0	+
	6.0-7.5		0	+
	7.5-9.0		+	+
	9.0-10		0	0
	> 10.0		0	-

Ammonium (NH_4^+)	< 2	within of 24 hours	+	+
	2-20		0	+
	> 20		-	-
Chloride (Cl^-)	< 100	no limit	+	+
	100-200		+	+
	200-300		+	+
	> 300		0/+	0
Free chlorine (Cl_2)	< 1	within of 5 hours	+	+
	1-5		0	0
	> 5		0/-	0
Hydrogen sulphide (H_2S)	< 0.05	no limit	+	+
	> 0.05		0/-	0
Free (aggressive) carbon dioxide (CO_2)	< 5	no limit	+	+
	5-20		0	+
	> 20		-	+
Total hardness (°dH)	4.0-8.5	no limit	+	+
Nitrate (NO_3^-)	< 100	no limit	+	+
	> 100		0	+
Iron (Fe)	< 0.2	no limit	+	+
	> 0.2		0	+
Aluminium (Al)	< 0.2	no limit	+	+
	> 0.2		0	+
Manganese (Mn)	< 0.1	no limit	+	+
	> 0.1		0	+

+ Good durability under normal conditions

0 Corrosion may occur, especially if further factors are evaluated with 0

- Use is not recommended

5 Circulation mode

The domestic hot water module is optionally equipped with a circulation pump.

The FriwaMega without circulation can be subsequently equipped with a circulation set (item no. 6404134GH7 or 6404135GH10) for an internal retrofitting.

For the operation of the circulation pump, three possible operation modes are stored in the controller (see controller instructions, chapter *Circulation*).

- **Pulse-controlled operation** (depending on the demand / requirements):

The short actuation of a hot water tap (tap pulse: ~2 sec.) starts the circulation pump.

The circulation pump will then run for several minutes (adjustable).

- **Time-dependent operation:**

The operation of the circulation pump can be set on a week clock within a freely selectable period of time. In this operation mode, the circulation is activated at the beginning of the period of time chosen. The circulation will stop after the end of the chosen period of time.

- **Temperature-dependent operation:**

In this operation mode, the circulation is only activated if the adjustable minimum temperature at the circulation temperature sensor is not reached during the chosen period of operation. The circulation stops after the required temperature has been reached or after the end of the chosen period of time.

The operating modes can be combined with each other as wished, f. ex. the time- and the temperature-dependent operating modes. The circulation is only activated if the temperature at the circulation temperature sensor falls below the required value and if the time window is active.

Outside the time slot, the circulation pump can be activated by a tap pulse if the pulse-controlled operation mode is additionally activated.

ATTENTION

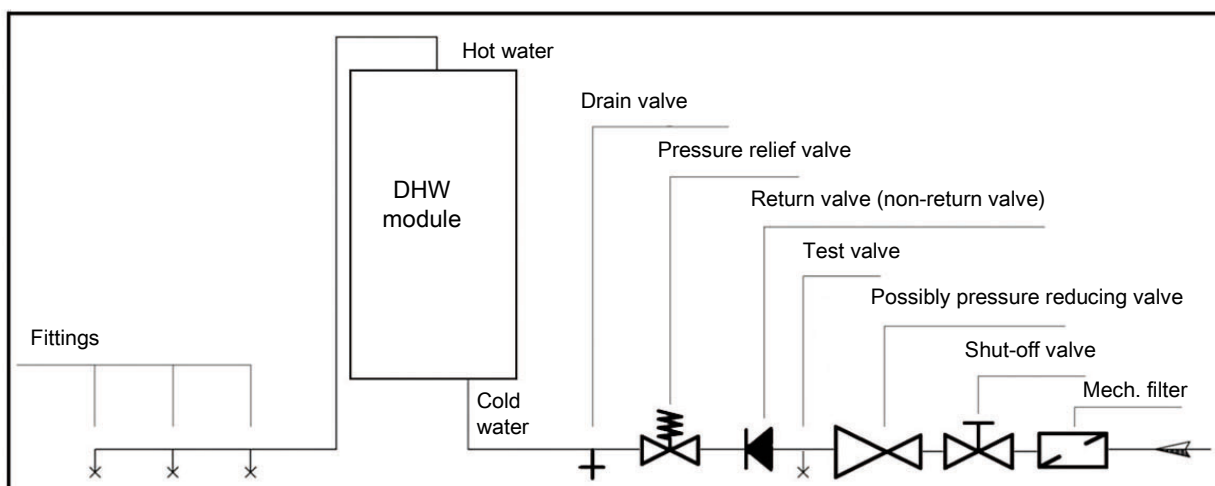
Damage to property!

When the domestic hot water module is delivered, the circulation is not activated (see controller instructions, chapter *Circulation*). Once the circulation line mounted, it is mandatory to select and preset the operation mode. The revolution speed of the circulation pump must be defined by the PWM signal (factory setting: 100 %). If during the commissioning the type of station *FriwaMega with circulation* is selected, the circulation is already set.

6 Mounting and installation [specialist]

The domestic hot water module FriwaMega must only be connected with the storage tank by separate connections for flow and return. External pumps must not be installed between the domestic hot water module and the buffer tank. The circulation of water causes considerable temperature fluctuations.

The domestic hot water connection must be carried out in accordance with the relevant norms (for example DIN 1988)!



ATTENTION

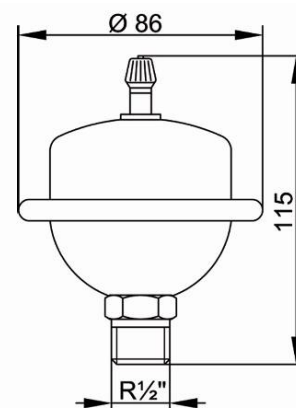
Damage to property!

The pressure relief valve integrated in the station does not replace the safety groups of the potable water connection as per DIN 1988. The pressure relief valve only protects the module from overpressures in case of servicing.

ATTENTION

Damage to property!

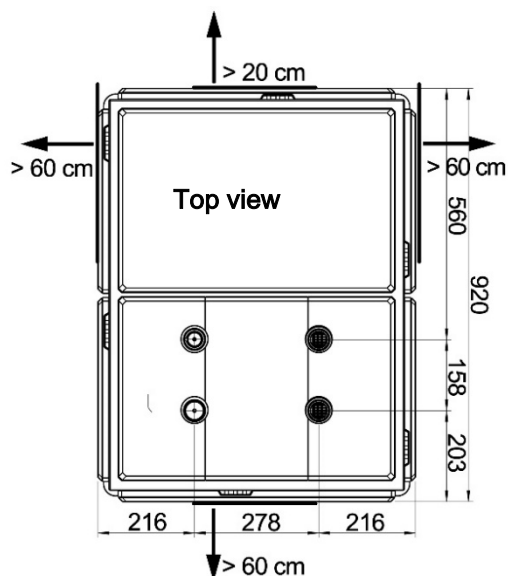
If there are water supplies that may cause pressure surges (for example flush valves, washing machines or dishwashers) connected to the same mains as the domestic hot water module, we recommend the installation of water hammer arresters close to the place where these pressure surges may be caused.



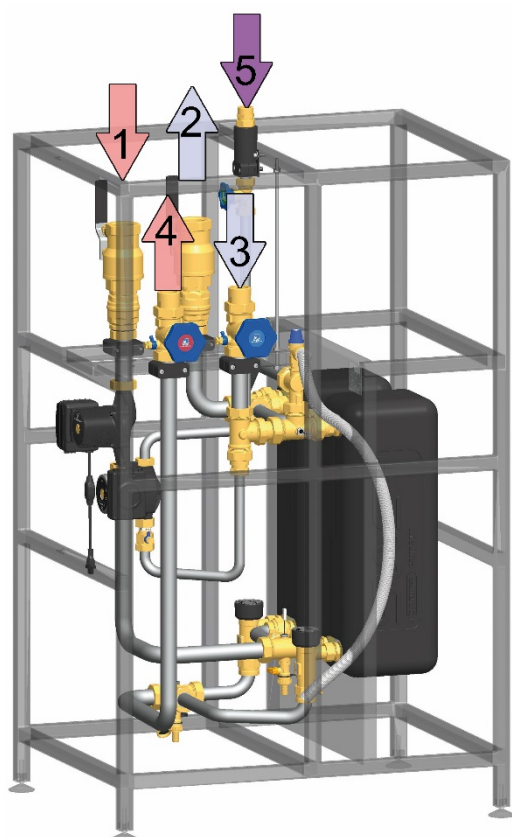
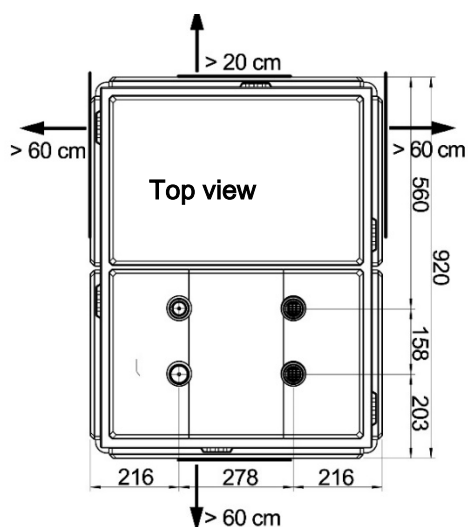
Water hammer arresters

	 WARNING
	Risk to life and limb due to electric shock! ➤ Prior to commencing electrical work on the controller, pull the mains plug! ➤ Only after completing all installation work, plug the mains plug of the controller into a socket. This avoids an unintentional start of the motors.

ATTENTION
Damage to property! The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation.



1. Determine the mounting location of the domestic hot water module near the buffer tank. In long pipes, the transmission performance may be reduced due to higher pressure losses in the primary circuit.
2. Remove the packaging of the station.
3. Remove the station from the pallet and position it at the location of installation.
4. Mount the enclosed stand feet to compensate the unevenness of the floor.
5. The station can be mounted in a corner. If you want to remove the insulation, a free space of about 20 cm must be left to the wall (see figure).
6. For the operation of the hydraulics and a subsequent servicing, you have to leave a space of at least 60 cm to the front (controller) and to one side (see figure).



7. Connect the domestic hot water module to the installation by using the piping according to the adjacent illustration. When the station is delivered, the ball valves and piston valves are closed, in order to protect the station against dirt.

The domestic hot water side is additionally closed with caps in order to avoid impurities.

Before connecting the pipes, make sure that the connections are free from dirt.

1 Primary side: Flow from the buffer tank (hot)

Connection: 1½" internal thread, flat sealing

Piping:

at least DN 40, 42 x 1.5 mm,

maximum length 4 m

Make sure to vent the Friwa at the highest point!

2 Primary side: Return to the buffer tank (cold)

Connection: 1½" internal thread, flat sealing

Piping:

at least DN 40, 42 x 1.5 mm,

maximum length 4 m

Make sure to vent the Friwa at the highest point!

3 Secondary side: Cold water inlet

Connection: 1¾" external thread, flat sealing

4 Secondary side: Hot water outlet

Connection: 1¾" external thread, flat sealing

5 Secondary side:

Hot water circulation, return

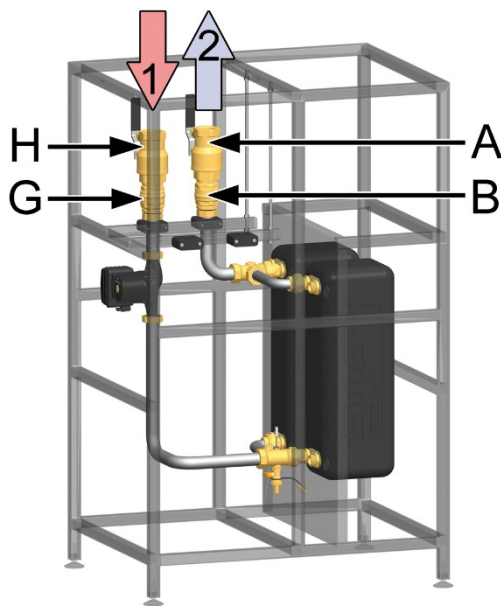
Connection: 1¾" external thread, flat sealing

7 Commissioning [specialist]

NOTICE

Slowly open the valves in the pipes and in the module in order to prevent pressure surges.

Function check valve

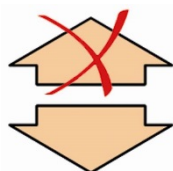
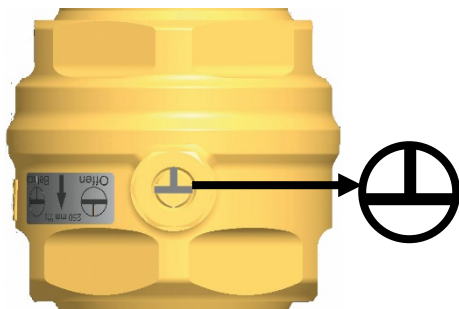


The ball valves (A) and (H) in the primary circuit are equipped with check valves (B) and (G), in order to avoid unwanted gravity circulation.

To vent and flush the installation, the check valves must be open. Turn the opening mechanism of the check valves into position **180°**. The check valve is not operating.

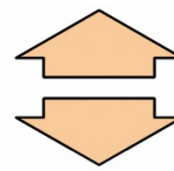
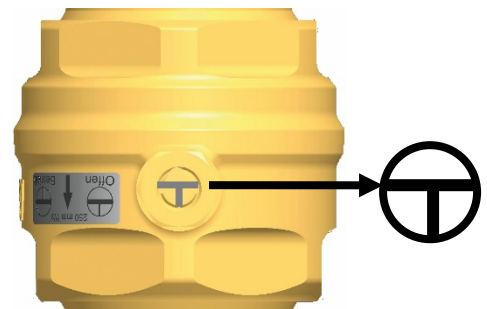
For the operation of the installation, all (ball) valves must be **completely** open and the check valves must be closed again (position **0°**).

Check valve (Normal flow direction in the figure: downwards)



Position 0° („Operation“)

Check valve is operating,
flow only in direction of flow.



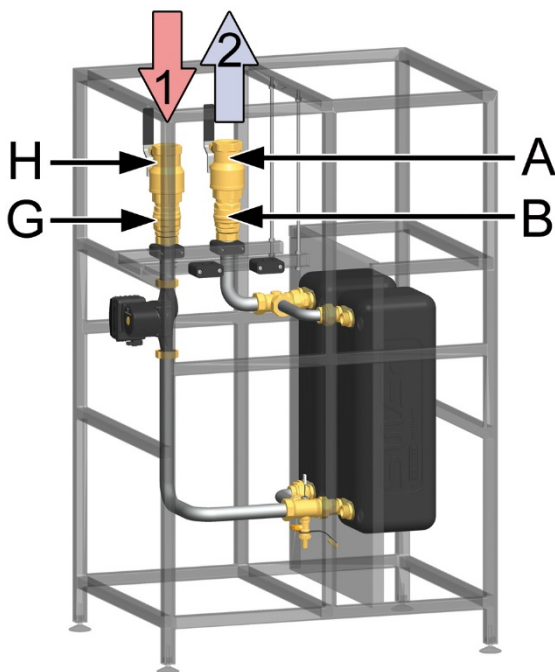
Position 180° („Open“)

Check valve is not operating,
flow in both directions.

7.1 Filling the primary circuit

	 WARNING Danger of scalding due to hot water! The system is under pressure. By opening the pressure relief valve, hot water with a temperature of up to 90 °C may exit and cause personal injury. ➤ Open the pressure relief valve slowly and with sufficient distance.
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If the storage tank is (partly) filled



Primary circuit

1. Slowly open the ball valves (A) and (H).
2. Open the check valves (B) and (G) at the opening mechanism (180°, see page 18).
3. Fill the storage tank using the fill valves available on site until an operating pressure of about 1.5 bars* is reached.
Use heating water compliant with the standards VDI 2035 / ÖNorm H5195-1.
4. Vent the pipe system at the designated points on site.
5. Check the operating pressure of the storage tank after the venting and increase the pressure if necessary.
6. Put the check valves (B) and (G) into operating position (0°, see page 18).

* 1.5 bars in the primary circuit = recommended minimum value

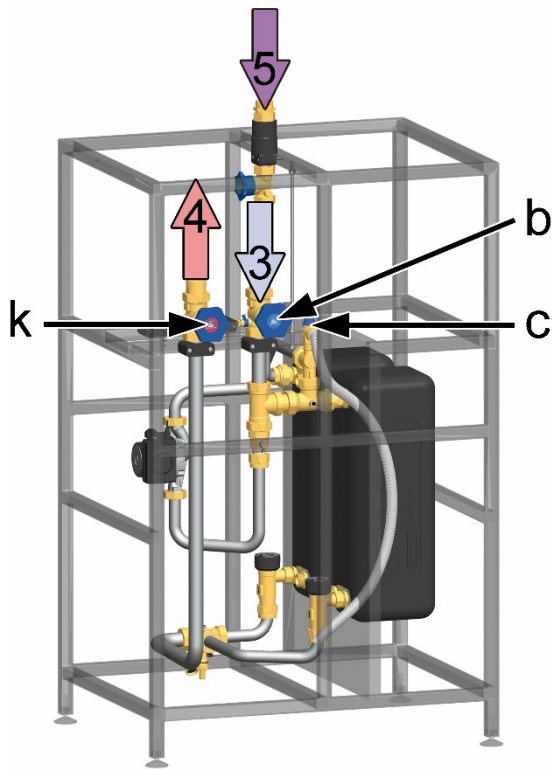
The pressure also depends on the individual system pressures and on the components of the heating installation!

7.2 Commissioning of the controller

	 WARNING Risk to life and limb due to electric shock! ➤ Check whether the sensors and pumps have been connected to the controller and the controller housing is closed. ➤ Only under these circumstances, the mains plug of the controller can be plugged into a socket.
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1. Make sure that the integration of the domestic hot water module in the potential equalisation of the installation is correct.
2. Connect the domestic hot water module to the mains (230 V, 50 Hz).
3. Carry out the commissioning of the controller (see controller instructions, chapter **Commissioning**). After that, start the pump in the manual mode (PWM signal = 100 %, see controller instructions chapter **Automatic/manual mode**).
4. Let the pump run for several minutes to deaerate the domestic hot water module.
5. If the air noises have stopped, switch the primary pump off. For this purpose, go back to **Automatic/manual mode** and set the pump to **Automatic**.

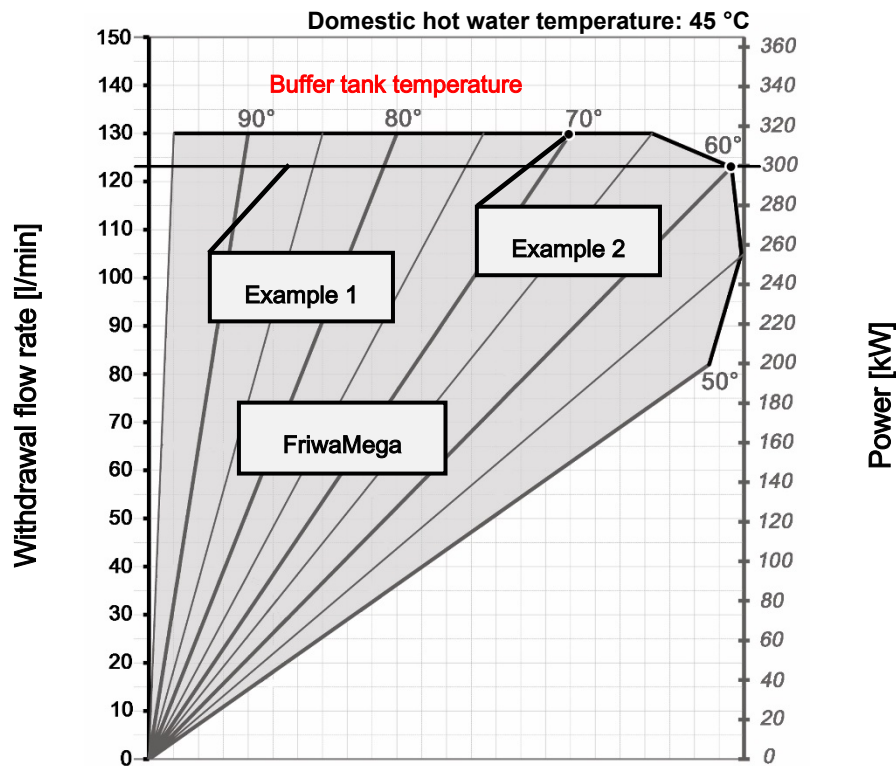


Secondary circuit

6. Slowly open the piston valves (b) and (k) on the secondary side.
7. Open at least one withdrawal point for domestic hot water (for example a tap) with a flow rate of at least 10 l/min and let the water run for about 2 minutes to vent the secondary circuit.
Close all withdrawal points of the secondary circuit afterwards.
8. Actuate the pressure relief valve (c) to vent the heat exchanger.
9. Check the module for tightness and make sure that the electronic components stay dry.
10. Set the desired domestic hot water temperature at the controller (see chapter *Nominal temperature*).
11. The domestic hot water module is now ready for operation.

7.3 Maximum withdrawal flow rate

The following diagram illustrates the maximum withdrawal flow rate depending on the tank temperature with a preset hot water temperature of 45 °C at the tap. The integrated control prevents the temperature from falling, as long as the maximum flow rate is not exceeded and as long as the water in the buffer tank maintains a sufficient temperature.



Boundary conditions: Cold water temperature: 10 °C

Maximum pressure loss at the domestic hot water side of the DHW module: 1000 mbars

The following examples illustrate the correlation between the domestic hot water temperature, the withdrawal flow rate and the temperature of the buffer tank and show their impact on the heat transfer capacity of the DHW module.

Example 1

Domestic hot water temperature at the withdrawal point: 45 °C

Temperature in the buffer tank: 60 °C

→ FriwaMega: Maximum withdrawal flow rate: 123 l/min, transfer capacity: 300 kW

Example 2

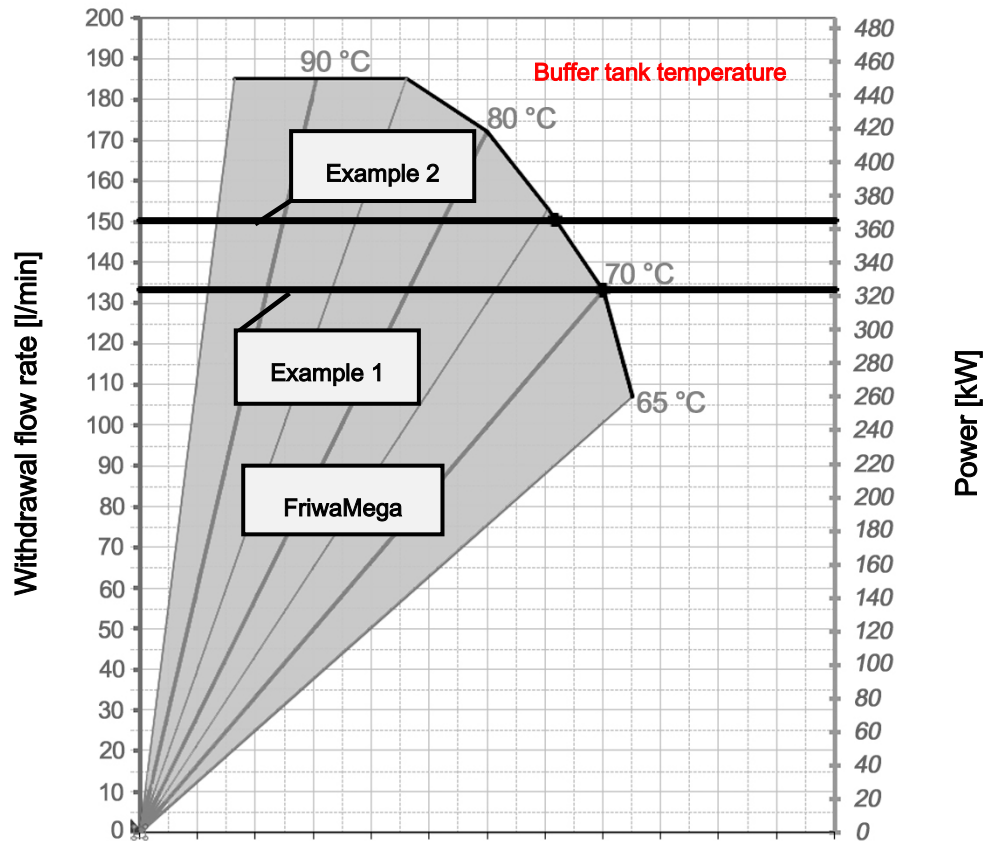
Domestic hot water temperature at the withdrawal point: 45 °C

Maximum withdrawal flow rate: 130 l/min

→ FriwaMega: Temperature in the buffer tank: ~70 °C, transfer capacity: 316 kW

The following diagram illustrates the maximum withdrawal flow rate at a domestic hot water temperature of 45 °C at the tap, after the addition of cold water of 10 °C.

The domestic hot water temperature set at the controller is of 60 °C.



Domestic hot water temperature: 45 °C, after heating to 60 °C and addition of cold water (10 °C)

Boundary conditions: Cold water temperature: 10 °C

Example 1

Domestic hot water temperature at the controller: 60 °C

Temperature in the buffer tank: 70 °C

→ FriwaMega: Maximum withdrawal flow rate: 133 l/min, transfer capacity: 324 kW

Example 2

Domestic hot water temperature at the controller: 60 °C

Maximum withdrawal flow rate: 150 l/min

→ FriwaMega: Temperature in the buffer tank: ~75 °C, transfer capacity: ~365 kW

7.4 Adjustment of the temperature

Set the desired (maximum) domestic hot water temperature at the controller under **Nominal temperature** (see controller instructions, chapter **Domestic hot water**).

	 WARNING Danger of scalding due to hot water! The maximum domestic hot water temperature must not exceed 60 °C in order to avoid scalding at the tap.
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Primary side

The required temperature on the primary side in the buffer tank depends on the desired domestic hot water temperature and on the required tap quantity. The temperature in the buffer tank must be at least 5 K above the desired domestic hot water temperature.

Secondary side

The possible withdrawal flow rate [l/min] at the tap depends on the domestic hot water temperature set at the controller and on the temperature available in the storage tank.

The maximum domestic hot water flow rate through the module FriwaMega is of 130 l/min.

The following table illustrates the correlation between the storage tank temperature and the maximum withdrawal flow rate at a water temperature of 45 °C at the tap (f. ex. single lever tap). If the domestic hot water temperature set at the controller is above 45 °C, the withdrawal flow rate consists of a mixture of hot and cold water.

The indicated heat transfer capacity is necessary to heat up the water quantity of the withdrawal flow rate [l/min] from 10 °C to 45 °C.

Temperature in the buffer tank	Domestic hot water temperature set at the controller	Maximum flow rate from the DHW module with the set domestic hot water temperature	Maximum withdrawal flow rate at the tap for a domestic hot water temperature of 45 °C	Transfer capacity of the DHW module
		FriwaMega	FriwaMega	FriwaMega
50 °C	45 °C	82 l/min	-	199 kW
60 °C	45 °C	123 l/min	-	300 kW
	50 °C	100 l/min	114 l/min	278 kW
	55 °C	77 l/min	98 l/min	240 kW
70 °C	45 °C	130 l/min*	-	316 kW
	50 °C	130 l/min*	148 l/min	361 kW
	55 °C	112 l/min	143 l/min	358 kW
	60 °C	94 l/min	133 l/min	324 kW
80 °C	45 °C	130 l/min*	-	316 kW
	50 °C	130 l/min*	148 l/min	361 kW
	55 °C	130 l/min*	166 l/min	406 kW
	60 °C	121 l/min	172 l/min	419 kW

at a cold water temperature of 10 °C, reheating not considered

*Maximum flow rate: 130 l/min, with a pressure drop of the FriwaMega of 1000 mbars (for hydraulic reasons, higher values are only partly possible, measuring limit of both flow rate sensors together is ~260 l/min)

8 Maintenance [specialist]

In order to guarantee an optimal control, no hydraulic pressure losses should occur on the primary side (f. ex. due to the installation of a mud strainer, strainer, mixing valve or a flow rate sensor).

NOTICE

Hygiene recommendation

At temperatures below 60 °C, legionella bacteria can occur. After a longer downtime such as holidays, it is recommended to thoroughly flush all pipes for some minutes.

Optical control

It is recommended to visually check the domestic hot water module every two months to ensure its proper operation. If you notice any problems on the system, consult a specialist.

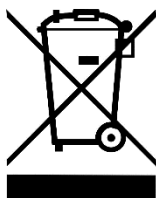
Cleaning the station

Clean the station with a damp cloth without any detergent.

9 Disposal

NOTICE

Electrical and electronic devices must not be disposed of in the household waste.



For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area. The addresses can be obtained from your city or communal administration. If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.

Batteries and rechargeable batteries must be removed prior to the disposal of the product. Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.

Please observe the disposal symbols on the components.

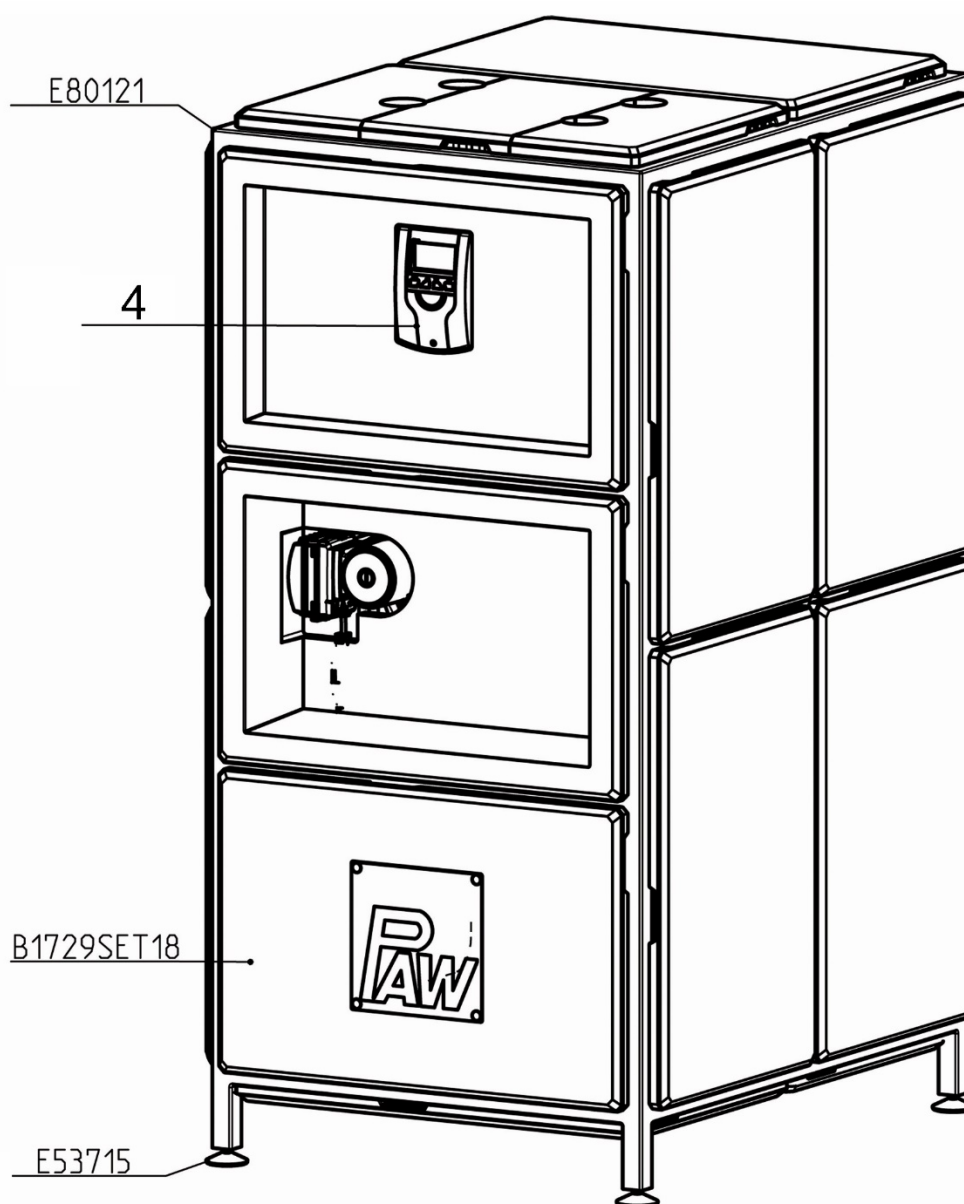
10 Spare parts [specialist]

NOTICE

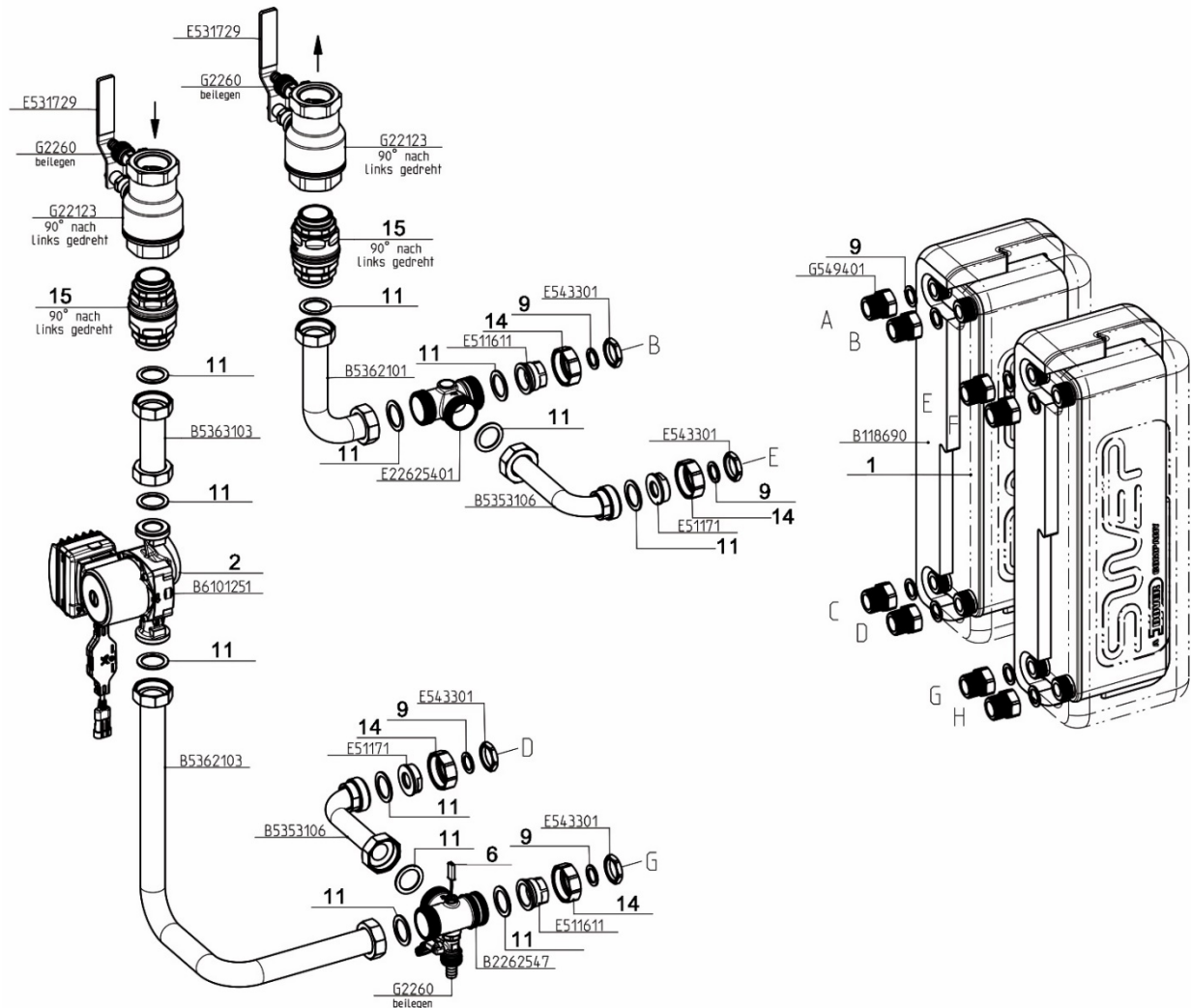
Complaints and requests/orders of spare parts will only be processed with information on the serial number!

The serial number is placed in the upper right corner of the support sheet of the station.

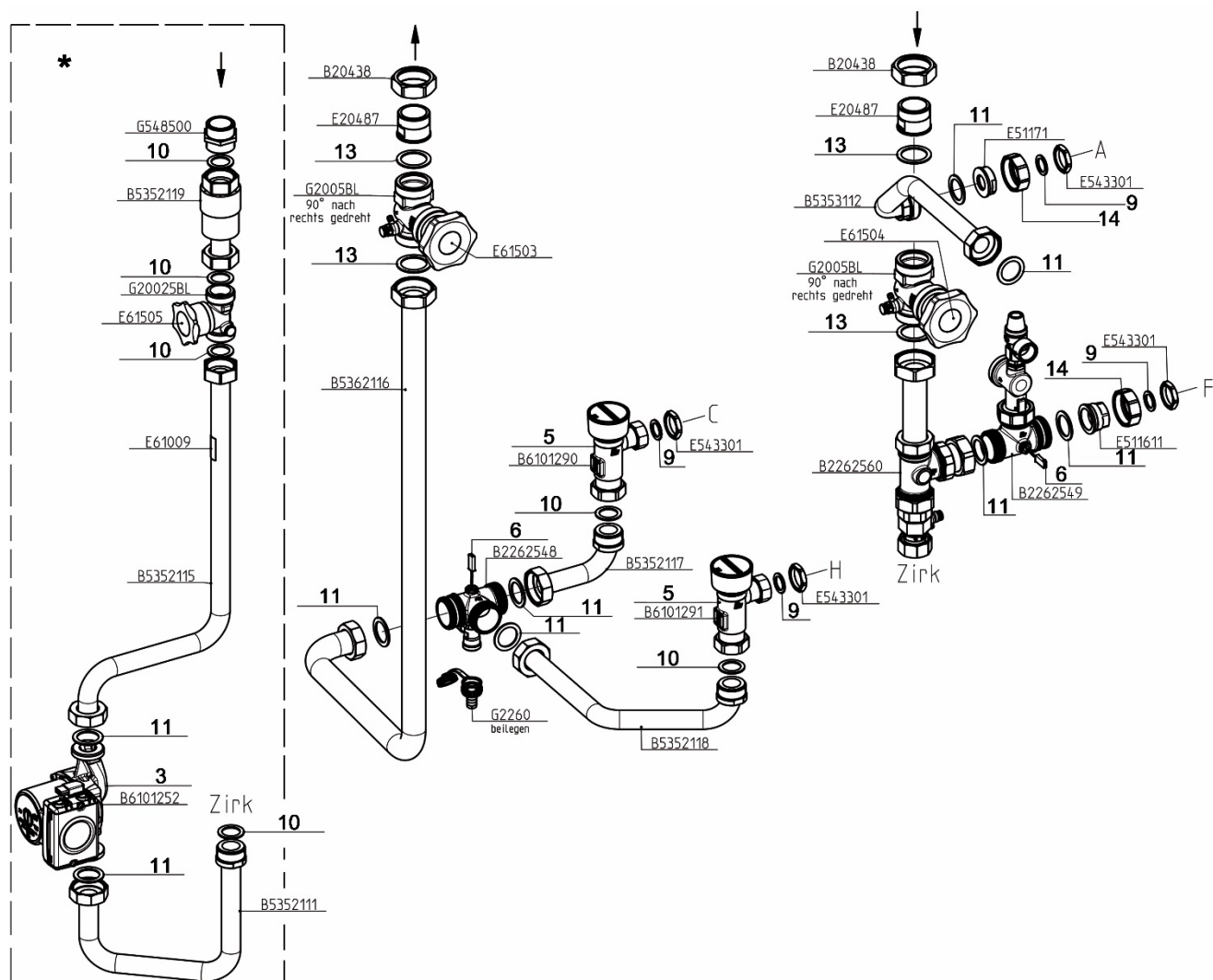
10.1 Control and insulation



10.2 Hydraulics primary circuit



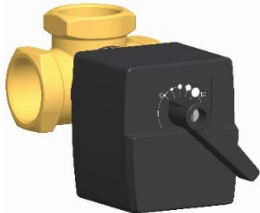
10.4 Hydraulics secondary circuit FriwaMega without / with* circulation



Position	Spare part	Item no.
1	Heat exchanger, copper solder, with seals, for station 6407510, 6407515 and 6407516	N00280
	Heat exchanger, coated, with seals, for station 6407510, 6407515, 6407516, 6407530, 6407535 and 6407536	N00281
2	Primary pump Grundfos UPM XL 25-125, 1½" ext. thread, 180 mm, with seals	N00367
3	Circulation pump Grundfos UPML 25-105 N, 1½" ext. thread; with seals, for station 6407515, 6407535	N00357
	Circulation pump Grundfos UPM2 15-75 CIL2, with seals, for station 6407515, 6407516, 6407535, 6407536	N00275
4	Controller FC3.10 with wiring harness (1x Molex) for station 6407510, 6407530	N00184
	Controller FC3.10 with wiring harness (2x Molex) for station 6407515, 6407516, 6407535, 6407536	N00185
5	FlowSonic DN 25, 1" union nut x 1¼" union nut, incl. Pt1000, with seals and sensor cable	N00277
6	Temperature sensor Pt1000-B, with connection cable	N00005
7	Pressure relief valve ½" x ¾", MSV 10 bars	N00008
8	Non-return valve DN 20 for circulation line for station 6407516 and 6407536	N00283
	Non-return valve DN 25 for circulation line for station 6407515 and 6407535	N00167

9	Seal 30.0 x 21.0 x 2.0, ½", for thread connection 1", AFM 34, 10 pieces	N00024
10	Seal 38.0 x 27.0 x 2.0, ¾", for thread connection 1¼", AFM 34, 10 pieces	N00174
11	Seal 44.0 x 32.0 x 2.0, 1", for thread connection 1½", AFM 34, 10 pieces	N00036
12	Seal 30.0 x 21.0 x 2.0, ½", for thread connection 1", EPDM / AKJ 9000, 10 pieces	N00129
13	Seal 50.0 x 38.0 x 2.0, 1½", for thread connection 1¾", AFM 34, 10 pieces	N00187
14	Union nut G 1½", octagonal	N00269
15	Check valve DN 40, 2x 1½" ext. thread, O-Ring, 450 mm wc	N00368

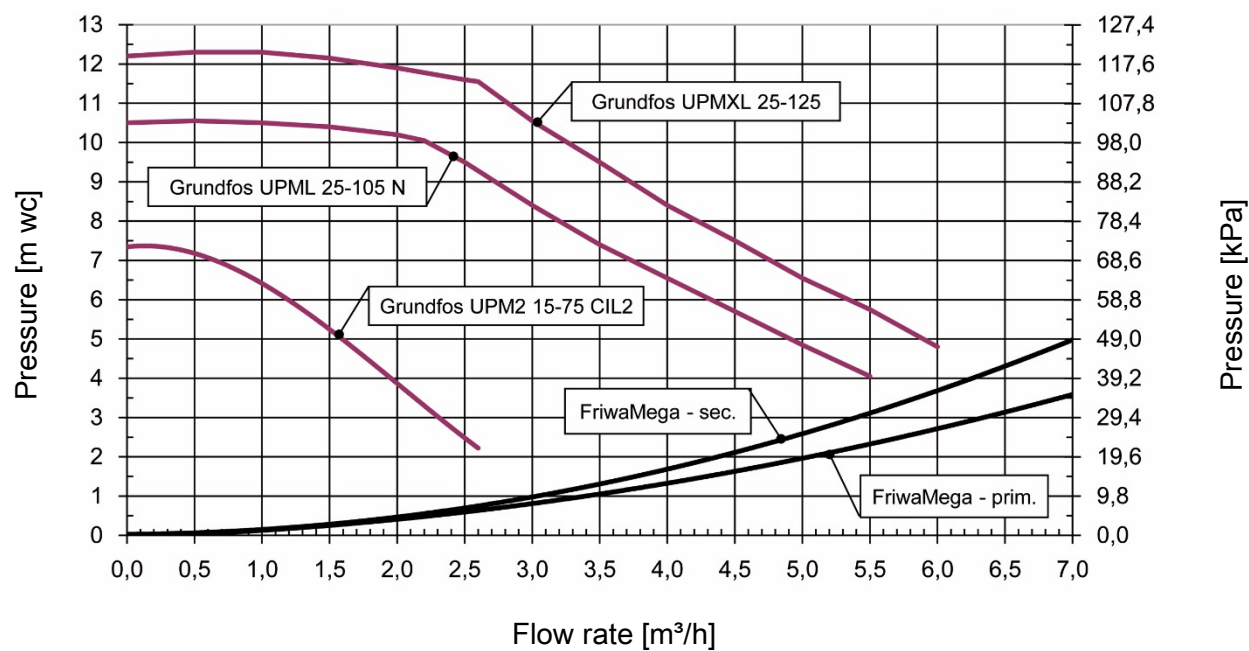
10.6 Optional equipment

Illustration	Scope of delivery	Item no.
	Circulation set for internal retrofitting FriwaMega High-efficiency pump Grundfos UPM2 15-75 CIL2, with piston valve and non-return valve	6404134GH7
	Circulation set for internal retrofitting FriwaMega High-efficiency pump Grundfos UPML GEO 25-105 N, with piston valve and non-return valve	6404135GH10
	Return distribution set DN 40 for FriwaMega 3-way valve with actuator K _{VS} value: 25	6404242
	Withdrawal valve flame-resistant, 1/4" ext. thread, self-sealing, 5 mm square-head wrench Note: One withdrawal valve is required for each piston valve.	640422

11 Technical data

Dimensions	FriwaMega
Height (with insulation)	1402 mm + adjustment of the stand feet approx. 15 mm
Height (with circulation set)	1500 mm + adjustment of the stand feet approx. 15 mm
Width (with insulation)	710 mm
Depth (with insulation)	920 mm
Centre distance primary circuit	158 mm
Centre distance secondary circuit	158 mm
Pipe connections	
Primary circuit (storage tank circuit)	1½" internal thread
Secondary circuit (DHW circuit)	1¾" external thread, flat sealing
Operating data	
Max. admissible pressure	primary: 3 bars, secondary: 10 bars
Operating temperature	2 – 95 °C
Equipment	
Check valve	primary: 2 x 450 mm wc, can be opened
Primary pump	High-efficiency pump with PWM control, 3-180 W
Secondary pump	(optional)
6407515 / 6407535	High-efficiency pump with PWM control, 6-140 W
6407516 / 6407536	High-efficiency pump with PWM control, 4-70 W
Heat exchanger	2 x 60 plates
Flow rate sensor	secondary: 2 x FlowSonic, measuring range: 1-130 l/min
Temperature sensor	3 x Pt1000, rapid
Materials	
Valves and fittings	Brass
Seals: o-rings	EPDM
Flat sealings	EPDM / AFM34
Plate heat exchanger	Stainless steel / Solder: copper
Insulation	EPP
Check valve	Brass

11.1 Pressure drop characteristic curve



12 Commissioning report

Installation operator

Location of installation

Serial numbers:

FriwaMega

Flow rate sensor

Controller

Software version

Pipes primary

∅ = mm l = m

Pipes secondary

∅ = mm l = m

Other additionally installed components

☐ Circulation set ☐ Return distribution set

☐ Others: _____

Have both circuits been flushed and vented correctly?

(no air noises in the pump)

☐ Vented

Are all shut-off valves open in the cold water line?

☐ Open

Is there a pressure of at least 1.5 bars on the primary side?

☐ Checked

Is there a pressure of at least 2.5 bars on the secondary side?

☐ Checked

Is there an error message on the display?

☐ No message

Installation company

Date, signature

PAW GmbH & Co.KG
Böcklerstraße 11
31789 Hameln - Germany

www.paw.eu
Phone: +49 5151 9856 - 0
Fax: +49 5151 9856 98