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CSE2 MIX-BP F G60 1F

Installation and Operation Manual

CSE2 MIX-BP F G60 1F PUMP STATION

EN

CSE2 MIX-BP F G60 1F

Contents

1. INTRODUCTION

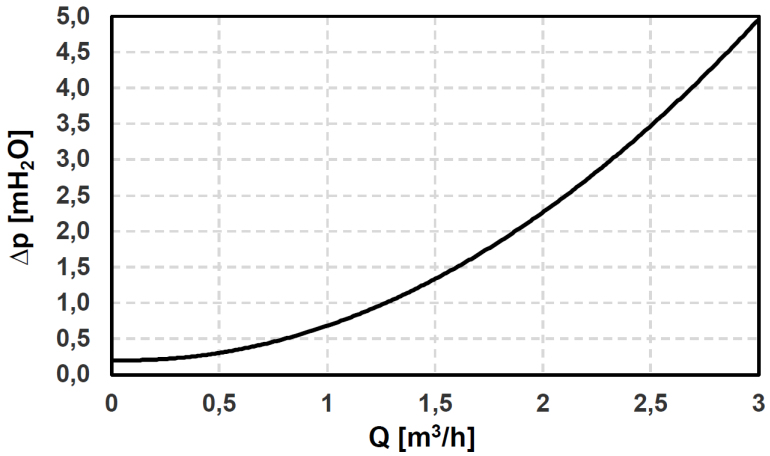
CSE2 MIX-BP F W6 1F twin-line pump station is designed for mixed heating circuits. It provides flow through the heating system, mixes to the outlet temperature. Since the mixing valve is not fitted with an actuator, any actuator may be used that will meet the needs of the particular system and control. The pump station includes a filter with magnet, so it is also suitable for older steel pipe systems.
It can be easily mounted on a wall or on a manifold.

2. PUMP STATION DESCRIPTION AND DATA

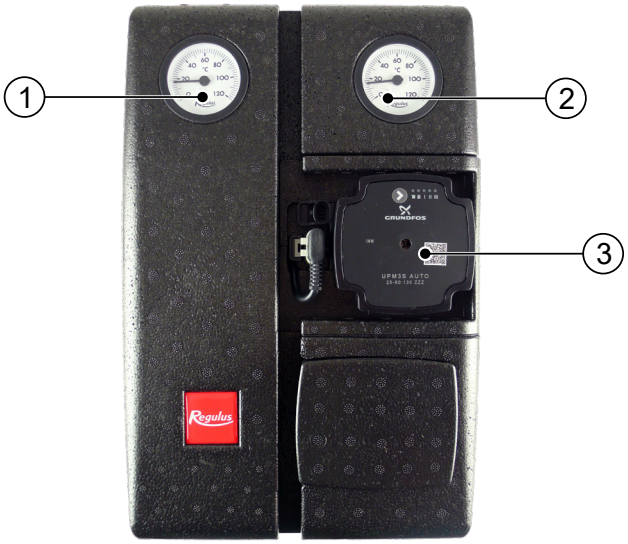
Main Features	
Description	**The twin-line pump station consists of:** ● Wilo Para 25/6 SC pump ● 2 ball valves w. sensor sheath ● check valve ● filter with strainer&magnet ● LK 840 mixing valve ● thermometers, insulation
Working fluid	water, antifreeze heat-transfer fluid for heating systems
Installation	vertically on a wall or manifold (125 mm pitch)
Connections	4 x G 1“ F
Code	**19111**

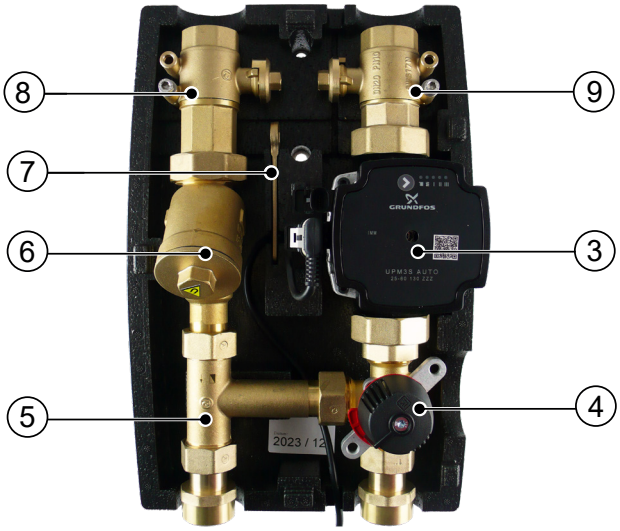
Data for CSE2 MIX-BP F G60 1F Pump Station	
Fluid working temperature	5 - 95 °C
Max. working pressure	10 bar
Min. working pressure	0.5 bar
Ambient temperature	5 - 40 °C
Max. relative humidity	80%, non condensing
Pump power supply	1 ~ 230 V, 50 - 60 Hz
Pump station max. power input	39 W
Mixing valve Kvs	6.3 m^3/h
Max. pressure difference	5 m H_2O (at mixing valve inlets)
Leak rate	< 1% Kvs at 5 m H_2O pressure difference (at mixing valve inlets)
Insulation material	EPP RG 60 g/l
Overall dimensions	360 x 142 x 245 mm
Total weight	6.3 kg

Pump station pressure drop graph



3. PUMP STATION COMPONENTS



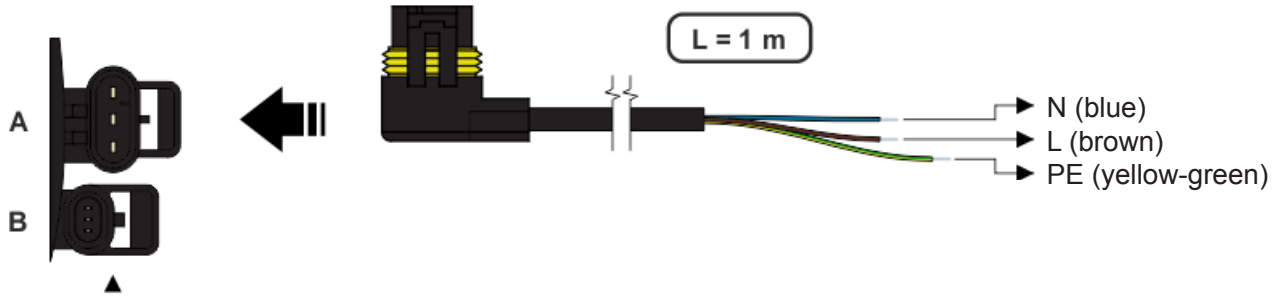


1 – Thermometer of return water from heating circuit
2 – Thermometer of flow to heating circuit
3 – Grundfos UPM3 AUTO 25-60 circulation pump
4 – Mixing valve, no actuator
5 – T-piece with check valve
6 – Dirt filter with magnet
7 – Lever for ball valves
8 – Ball valve w. sheath for temperature sensor (at return piping from heating circuit)
9 – Ball valve w. sheath for temperature sensor (at flow piping to heating circuit)

3.1. GRUNDFOS UPM3 AUTO 25-60 130 MM PUMP

Wet-running circulation pump with G 6/4“ M connections.

Pump Connection



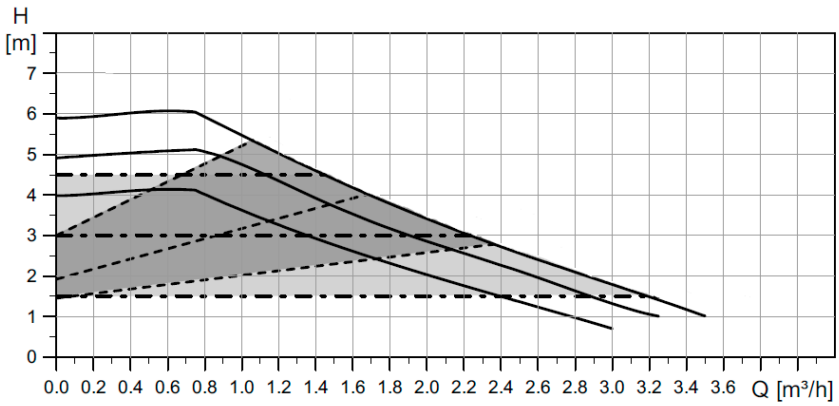
socket for power supply (A) and signal transmission (B) - not used in this pump

power supply connector (A)

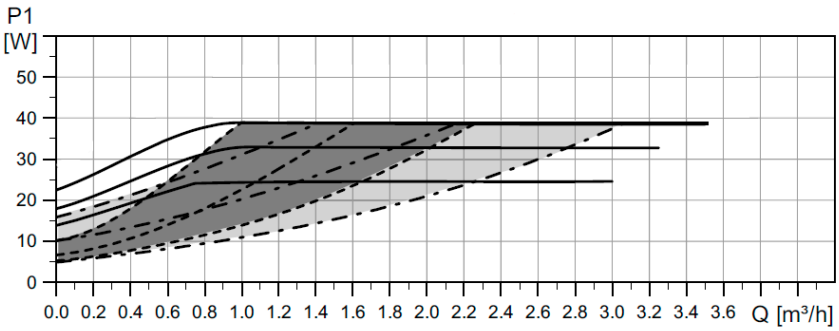
Pump Control

The circulation pump be controlled by selecting a suitable profile and a pump performance curve.

Pump Performance Curves



Line type	Profile
———	Constant speed
- - - - - -	Proportional pressure
— · — · —	Constant pressure



Description of Pump Frofiles

a) Proportional pressure

- This mode is suitable for use in heating systems with radiators to reduce noise caused by liquid flow through thermostatic valves.
- Head (pressure) is reduced with sinking flow rate (growing system pressure drop).
- Pump operating point: moves up or down on the selected proportional pressure curve depending on the current system pressure drop.

PROFILE		DESCRIPTION	
Proportional pressure	I	The lowest curve of proportional pressure	
	II	The middle curve of proportional pressure	
	III	The highest curve of proportional pressure	
	$AUTO_{ADAPT}$	Automatically controls performance in the range from the highest to the lowest proportional pressure curve	

b) Constant pressure

- This mode is suitable for use with underfloor heating or larger pipe sizes. It is also suitable for all applications without variable characteristic (e.g. pumps for hot water storage tanks or for a circuit with a heat exchanger).
- Head (pressure) is kept constant in the whole flow rate range (does not change with the system pressure drop).
- Pump operating point: moves on the selected constant pressure curve depending on the current system pressure drop.

PROFILE		DESCRIPTION	
Constant pressure	I	The lowest curve of constant pressure	
	II	The middle curve of constant pressure	
	III	The highest curve of constant pressure	
	$AUTO_{ADAPT}$	Automatically controls performance in the range from the highest to the lowest constant pressure curve	

c) Constant speed

- This mode is suitable for utilising the maximum pump output or for use in systems with constant resistance that require constant pumping capacity.
- Head (pressure) is growing with sinking flow rate (growing system pressure drop).
- Pump operating point: moves on the selected constant pressure curve depending on the current system pressure drop.

PROFILE		Max. H (upper graph)	Max. P_1 (lower graph)	
Constant speed	I	4 m	25 W	
	II	5 m	33 W	
	III	6 m	39 W	

Settings Display

	DISPLAY	CONTROL MODE	
	GREEN LED FLASHING	INTERNAL	
1		Proportional pressure $AUTO_{ADAPT}$	
2		Constant pressure $AUTO_{ADAPT}$	
3		Proportional pressure	I
4			II
5			III
6		Constant pressure	I
7			II
8			III
9		Constant speed	I
10			II
11			III

WARNING: LEDs may be turned by 90° or 180°, or mirrored, depending on the specific pump type.

During operation the selected profile is indicated by green LEDs and the output stage by yellow LEDs.

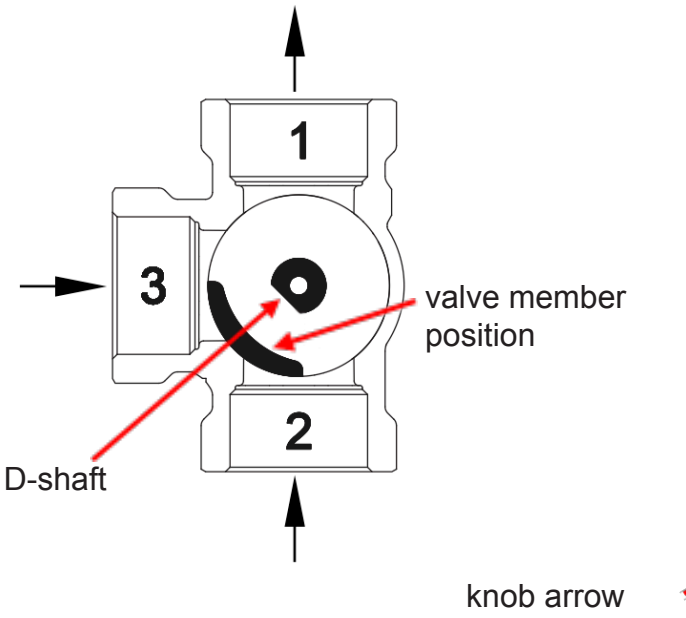
Setting selection

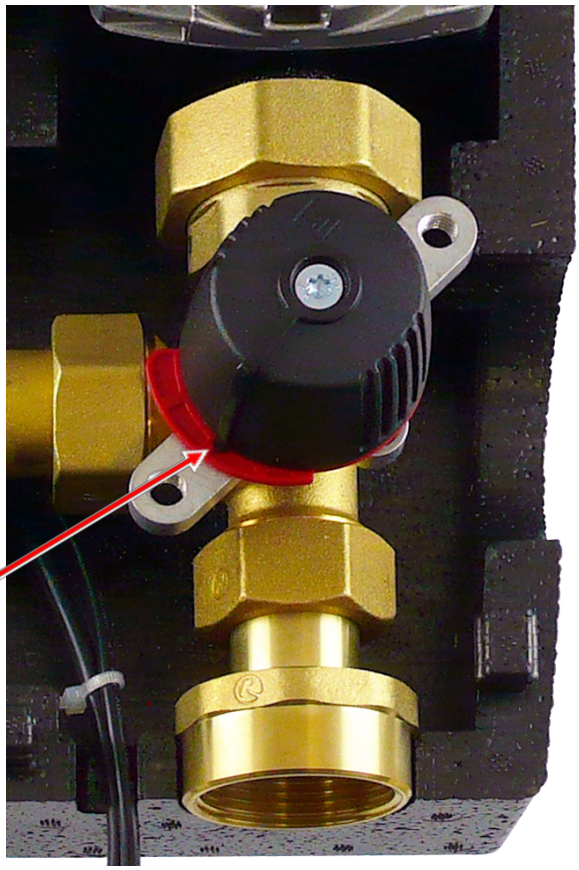
Pump profiles can be switched using the ointegrated button. Profile switching follows in a loop in the order shown in the table.

Error display

DISPLAY	CONTROL MODE
	Seized pump
	Too low power supply voltage
	Electric fault

3.2. MIXING VALVE





The knob arrow points always to the middle of the valve member. In this direction, the valve is closed.

3.3. CHECK VALVE

The check valve downstream of the filter prevents natural circulation in the heating circuit.

3.4. FILTER WITH MAGNET

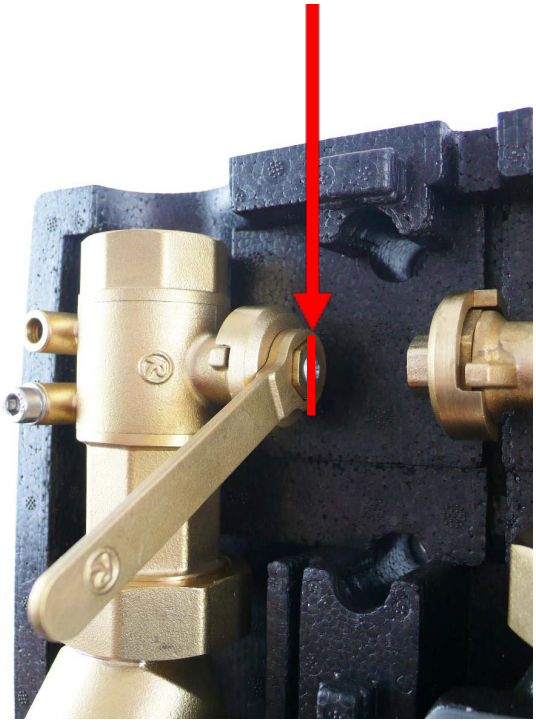
The filter located in the return line of the pump station is designed to collect particles from heating water. It consists of a brass housing, removable stainless-steel strainer collecting coarse dirt, and a brass lid with a magnet that attracts magnetic particles.
The filter should be checked regularly and cleaned if necessary. Switch off the circulation pump, close the ball valve upstream of the filter. The water inlet downstream of of the filter is shut off by a check valve. The filter cap needs to be unscrewed, the metal strainer removed and rinsed thoroughly from any dirt. Dirt trapped on the magnet must be wiped off and then reassembled by inserting the strainer, screwing in and tightening the cap.

3.5. BALL VALVES

Ball valves are intended to isolate the pump station from the heating circuit. Then it is not necessary to drain the heating circuit for servicing (incl. cleaning the filter). In order to have a more solid hydraulic section of the pump station, they are fixed to the rear mounting plate.

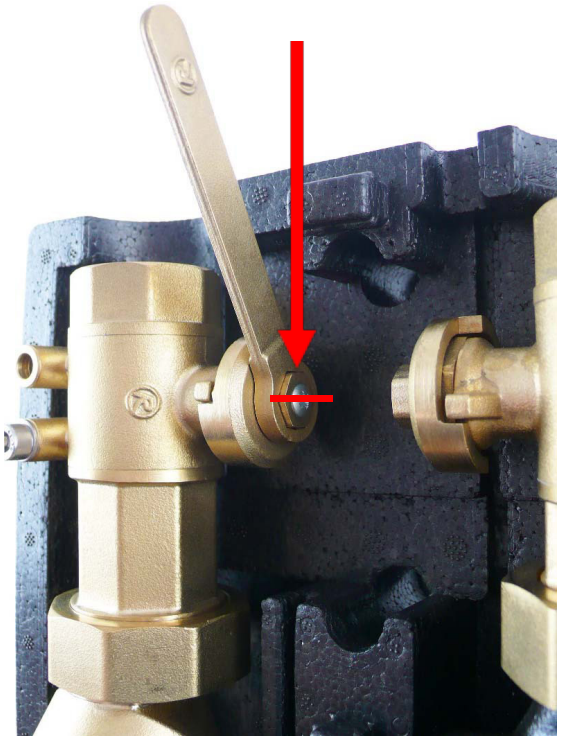
The ball valves are controlled by a lever that is placed inside the insulation. The valve is closed / opened by turning the lever by 90°. The open / closed position on the ball valve is indicated by a groove on the valve‘s control hexagon. For access to the ball valve, the top section of the insulation shall be removed. As a result, unintentional closure of the system by an unauthorized person is not possible.

OPEN



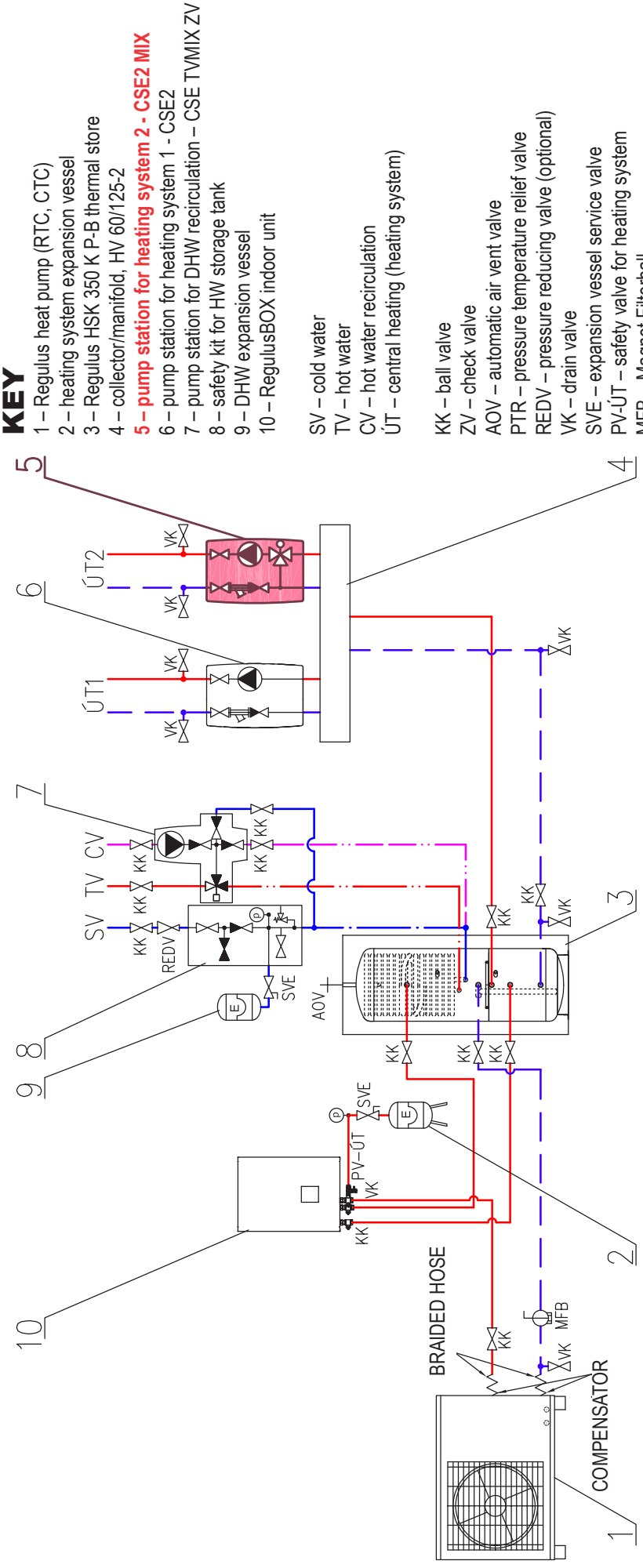
groove in the flow direction

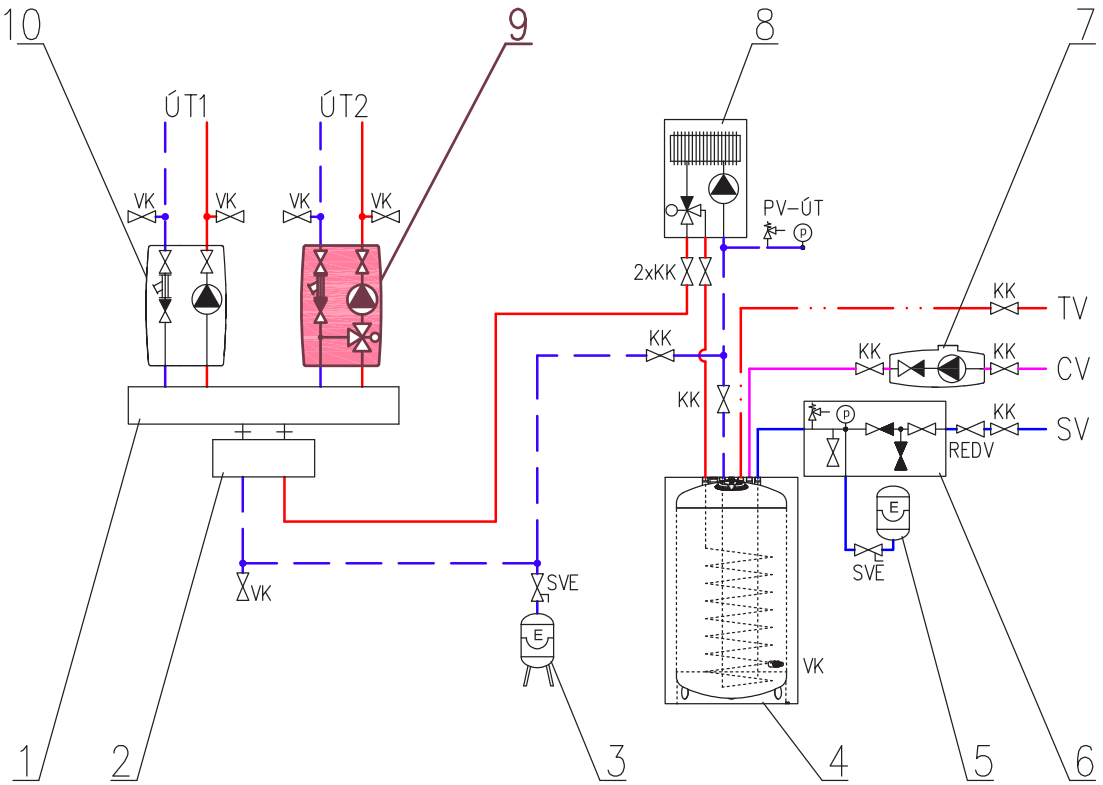
CLOSED



groove perpendicular to the flow direction

4. PUMP STATION CONNECTION EXAMPLES





KEY

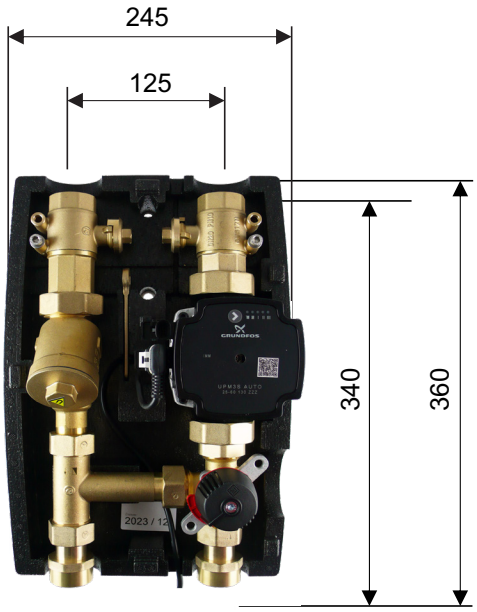
1 – manifold/collector HV 60/125-2
2 – hydraulic pressure balancer
3 – heating system expansion vessel
4 – HW storage tank (e.g. NBC 170 HP)
5 – DHW expansion vessel
6 – safety kit for HW storage tank
7 – pump station for DHW recirculation – CSE TV ZV
8 – boiler (natural gas, electric...)
9 – pump station for heating system 2 - CSE2 MIX
10 – pump station for heating system 1 - CSE2

SV – cold water
TV – hot water
CV – hot water recirculation
ÚT – central heating (heating system)

KK – ball valve
ZV – check valve
AOV – automatic air vent valve
PTR – pressure temperature relief valve
REDV – pressure reducing valve (optional)
VK – drain valve
SVE – expansion vessel service valve
PV-ÚT – safety valve for heating system
MFB – Magnet Filterball

5. PUMP STATION INSTALLATION

The pump station is designed to be mounted on a wall or a manifold with 125 mm connection pitch. In the rear section of the insulation there are two mounting holes for fixing the metal plate to the wall. Mounting holes pitch is 80 mm.



Installation dimensions are shown in the figure.

The package includes a mounting kit that is used to fix the pump station to the intended place. The mounting kit includes:

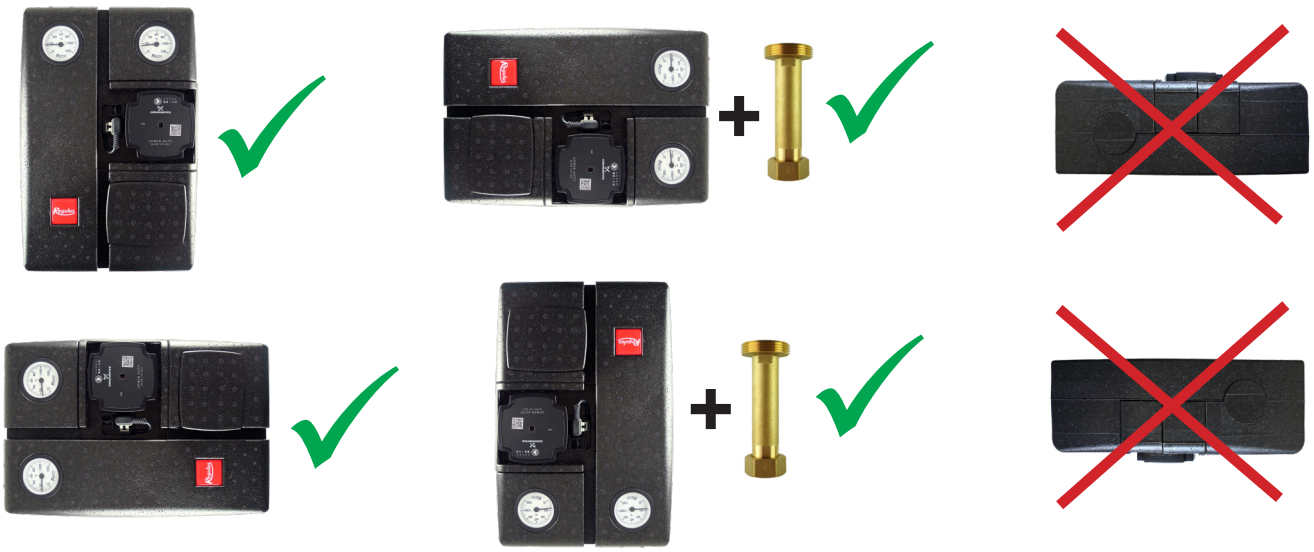
Screw 5x50, round head	2 pcs
6.4 stainless steel washer, DIN 9021/A2	2 pcs
Wall plug 8mm TX	2 pcs

Pump station permitted and prohibited positions

Permitted positions

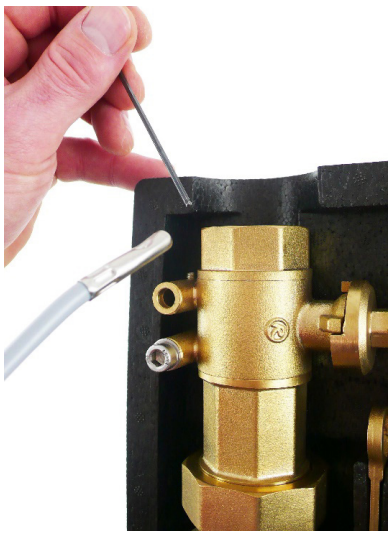
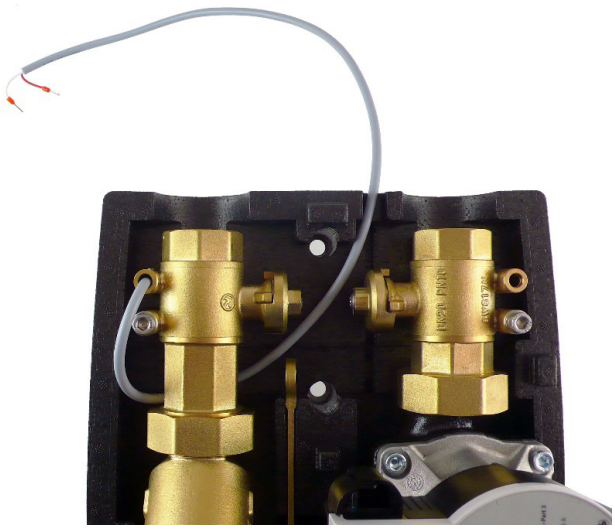
Conditionally permitted positions
(may be used if the filter is replaced by a filter replacement section, code 19017)

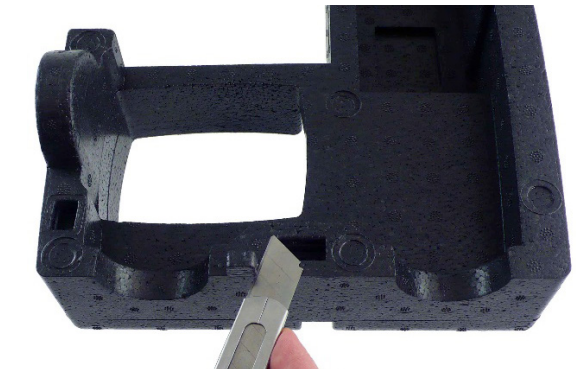
Prohibited positions



6. TEMPERATURE SENSOR INSTALLATION

The ball valve housings are equipped with a sheath for the temperature sensor, where the sensor can be inserted and secured by a fixing screw against being pulled out. In the top and bottom section of the insulation there are passages to run the cables through, then it is necessary to cut the appropriate part of the passage lock from the front part of the insulation with a knife, so that the exiting cables are firmly wrapped around by the lock.

1. Temperature sensor placement	
2. Securing the temperature sensor with the screw	
3. Running the sensor cable through the recess in the insulation	

4. Trimming the cable passage lock	
5. Installed sensors	

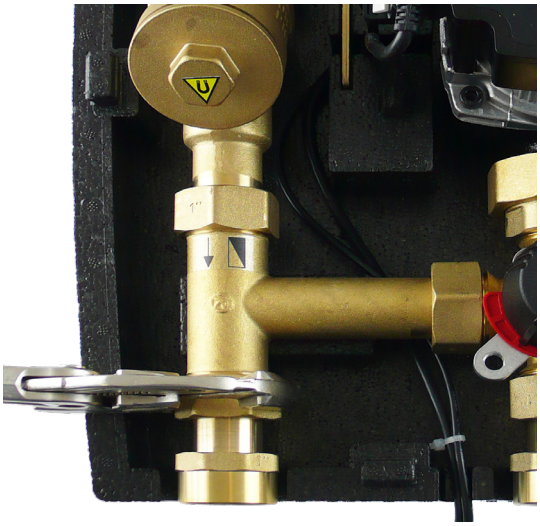
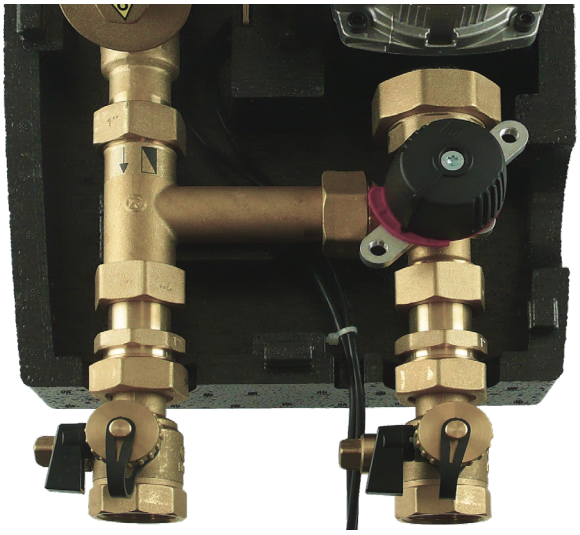
7. OPTIONAL ACCESSORIES

The following optional accessories are available for the pump station:

A – Filter replacement section for CSE2
Code 19017

Loosen the union nut above and below the filter.	Remove the filter and install the replacement piece 19017 in its place.
	

B – Ball valve w. drain valve, 1“ Fu/F
Code 17415
and union 1“ Fu/M, incl. gasket
Code 15695

Remove both connecting fittings. 	Install the unions 15695 in their place and the ball valve with drain valve 17415 onto each of them. 

C – Union, 1“ Fu/F, extended, with check valve incl. gaskets
(for return piping of CSE2 pump station)
Code 18653
and **union, 1“ Fu/F, extended incl. gaskets**
(for flow piping of CSE2 pump station)
Code 18797

Remove both connecting fittings. 	Install the extended union w. check valve, code 18653, to the return pipe. 
Install the extended union w. check valve, code 18797, to the flow pipe. 	

D – Union for connecting CSE2 to 5/4“ manifold - 1“x5/4“ Fu/F
Code 17920

Remove both connecting fittings. 	Install the union for connection to a manifold, code17920, instead of the original fittings. 

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