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CSE2 MIX F G75 1F

Installation and Operation Manual
CSE2 MIX F G75 1F PUMP STATION

EN

CSE2 MIX F G75 1F

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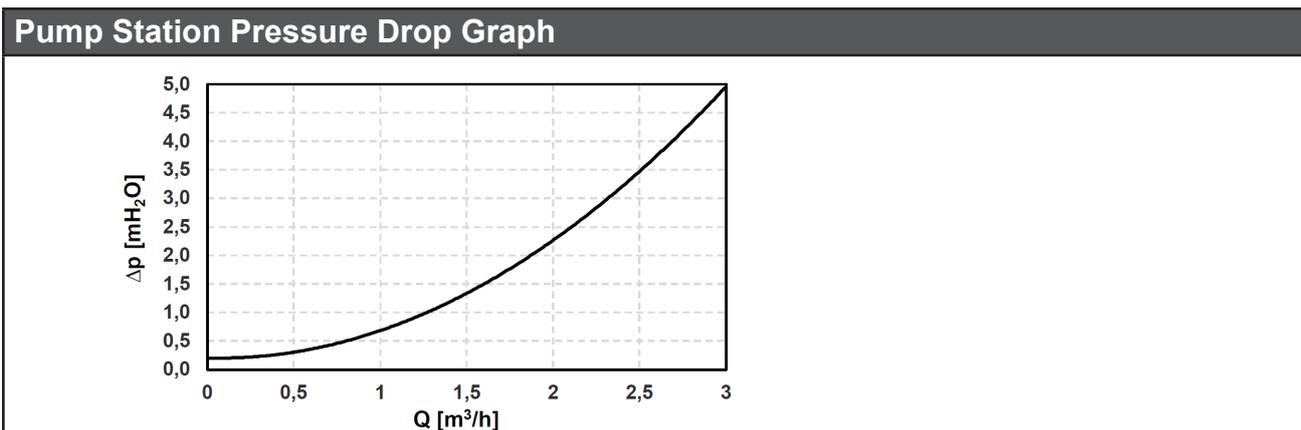
1. INTRODUCTION

CSE2 MIX F G75 1F twin-line pump station is designed for mixed heating circuits. It provides flow through the heating system, mixes to the outlet temperature using a motorized mixing valve (controlled by an external controller). 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 for multiple heating circuits.

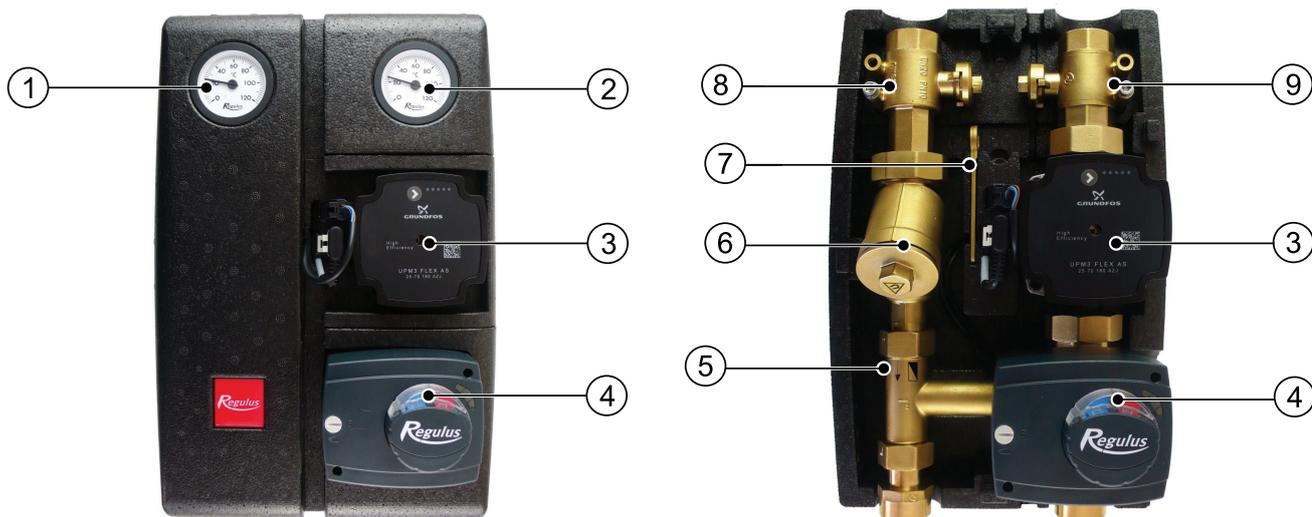
2. PUMP STATION DESCRIPTION AND DATA

Main Features	
Description	The pump station consists of: <ul style="list-style-type: none"> • Grundfos UPM3 FLEX AS 25-75 130 pump • 2 ball valves w. sensor sheath • check valveu • manifold connecting fittings • filter with strainer&magnet • LK 840 actuated 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	17484

Data for CSE2 MIX F G75 1F Pump Station	
Fluid working temperature	5 - 95 °C
Max. working pressure	10 bar
Min. working pressure	0.5 bar
Ambient temperature	0 - 40 °C
Max. relative humidity	80%, non condensing
Pump power supply	1 ~ 230 V, 50 - 60 Hz
Pump station max. power input	60 W
Valve K_v_s	6.3 m ³ /h
Max. pressure difference	5 m H ₂ O (at mixing valve inlets)
Leak rate	< 1% Kvs at 5 m H ₂ O pressure difference (at mixing valve inlets)
Mixing valve power supply	230 V, 50 Hz; from external controller w. 3-point control
Shift time	120 s
Insulation material	EPP RG 60 g/l
Overall dimensions	360 x 181 x 245 mm
Total weight	6.7 kg



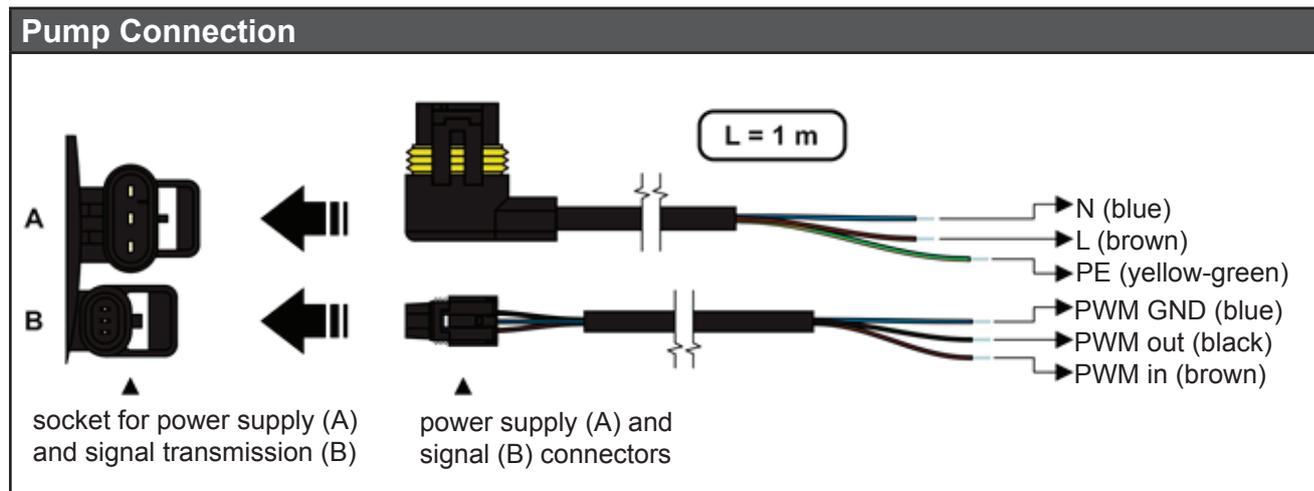
3. PUMP STATION COMPONENTS



- 1 – Thermometer at the heating circuit outlet
- 2 – Thermometer at the heating circuit inlet
- 3 – Grundfos UPM3 FLEX AS 25-75 130 circulation pump
- 4 – 3-point control AVC actuator with LK 840 mixing valve
- 5 – Check valve
- 6 – Dirt filter with magnet
- 7 – Lever for ball valves
- 8 – Ball valve w. sheath for temperature sensor (heating circuit outlet)
- 9 – Ball valve w. sheath for temperature sensor (heating circuit inlet)

3.1. UPM3 FLEX AS 25-75 130 PUMP

UPM3 FLEX AS 25-75 130 pump is a wet running circulator. Its speed can be controlled either by selecting a pump performance curve or by a PWM signal.



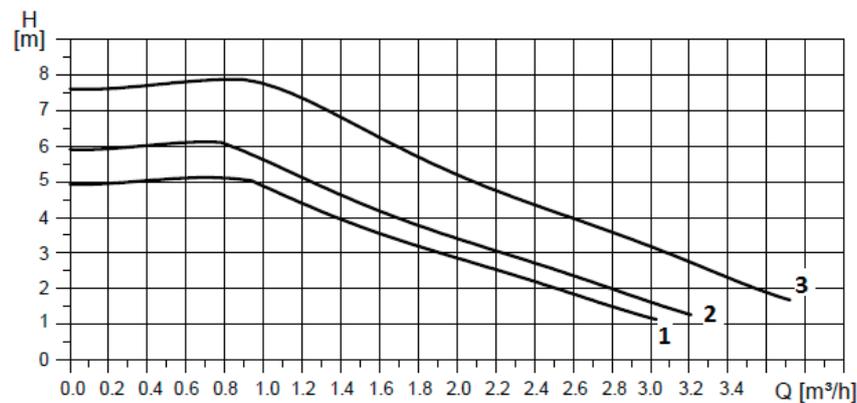
Pump control

The circulation pump can be controlled by an external PWM signal (profile for use in heating systems) or without a PWM signal by selecting a pump performance curve.

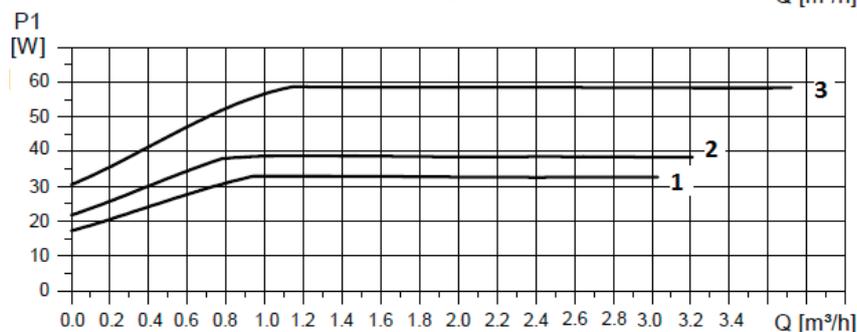
A maximum curve of a pump working range can be defined:

- with PWM signal the pump speed changes with the signal value up to the maximum of the selected curve
- without PWM signal the pump runs at the max. speed according to the selected curve

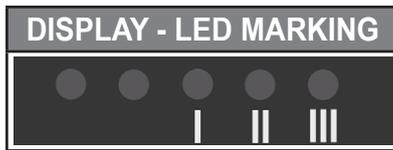
Performance Curves



Curve	Max. H (upper graph)	Max. P ₁ (upper graph)
1	5 m	33 W
2	6 m	39 W
3	7.5 m	60 W



Performance Display



The LED marking is further omitted for better clarity.

DISPLAY	PERFORMANCE CURVE	STATUS	Max. H (upper graph)
	1	LOW PERFORMANCE	5 m
	2	MEDIUM PERFORMANCE	6 m
	3	HIGH PERFORMANCE	7.5 m

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

GREEN LED FLASHING FREQUENCY	PWM SIGNAL RECEPTION
1 flash per second	NO
12 flashes per second	YES

When switched on, the pump runs at factory settings or the last setting. The display shows the current pump performance.

Setting selection for UPM3

To select your desired setting, press the button repeatedly until you find the setting you need, see the pic above. If you pass the desired setting, you have to go one more round until it appears again.



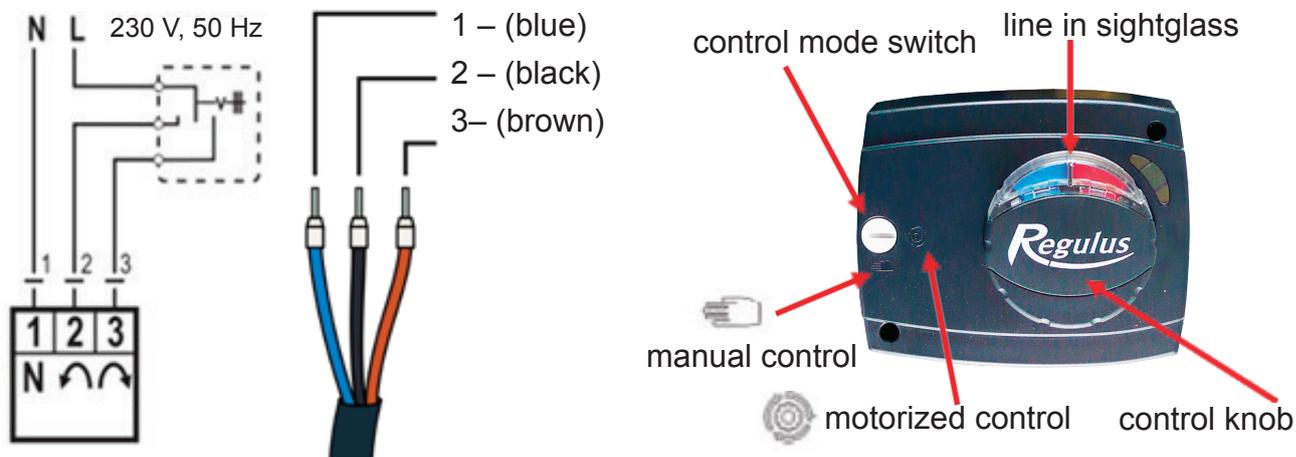
ERROR DISPLAY

DISPLAY	ERROR
	Seized pump
	Too low power supply voltage
	Electric fault

3.2. MIXING VALVE WITH ACTUATOR

LK 840 mixing valve is controlled by an AVC actuator with three-point control. The current position of the valve member can be read from the sight glass on the actuator housing. The control mode switch is used to set automatic or manual control. If manual control is set, the actuator is controlled by turning the control knob.

ACTUATOR ELECTRICAL WIRING



The actuator is factory-set and ready for operation. If it needs to be removed or replaced, follow the instructions in the appendix.

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 on the return line of the pump station is designed to collect solid particles from the working fluid. It consists of a brass housing, a removable metal strainer collecting coarse impurities and a brass cap with magnet that collects magnetic impurities.

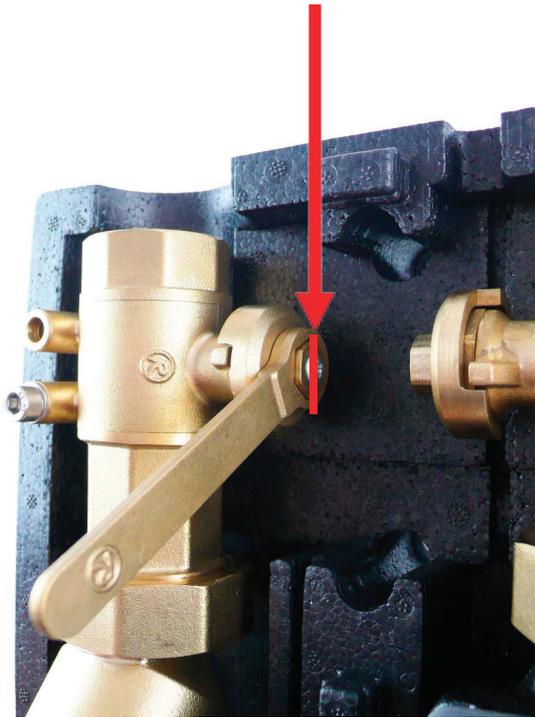
The filter should be checked regularly and cleaned if necessary. The filter shall be cleaned with the circulation pump switched off and the section where the filter is installed shut off. In the section upstream of the filter, shutting off is done by a ball valve, in the section downstream of the filter the piping 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.

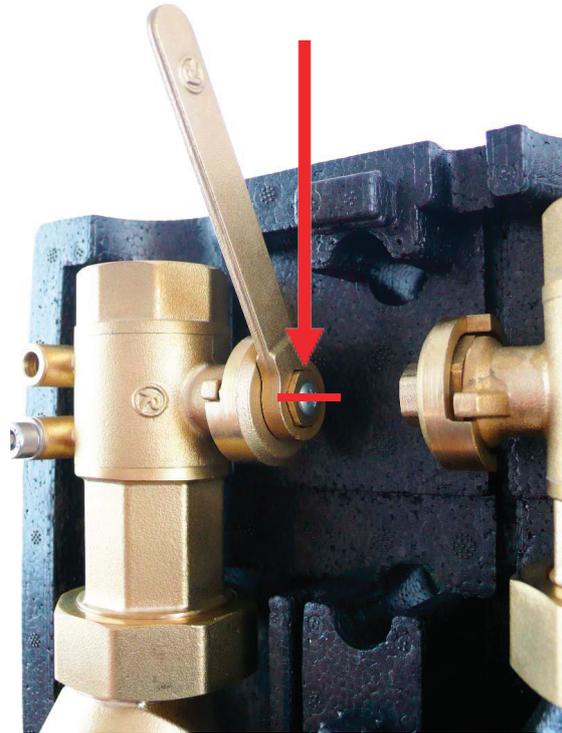
The ball valves are controlled by a lever that is not present on the valve during operation. The valve is closed by turning the lever clockwise by 90°. The open / closed position on the ball valve is indicated by a groove on the control wheel. The groove is perpendicular to the direction of flow when the ball valve is closed. The ball valve opens by turning the lever anti-clockwise by 90°, the groove is then in the flow direction. Before closing / opening the ball valve, the top section of the insulation shall be removed first. As a result, unintentional closure of the system by an unauthorized person is not possible.

OPEN



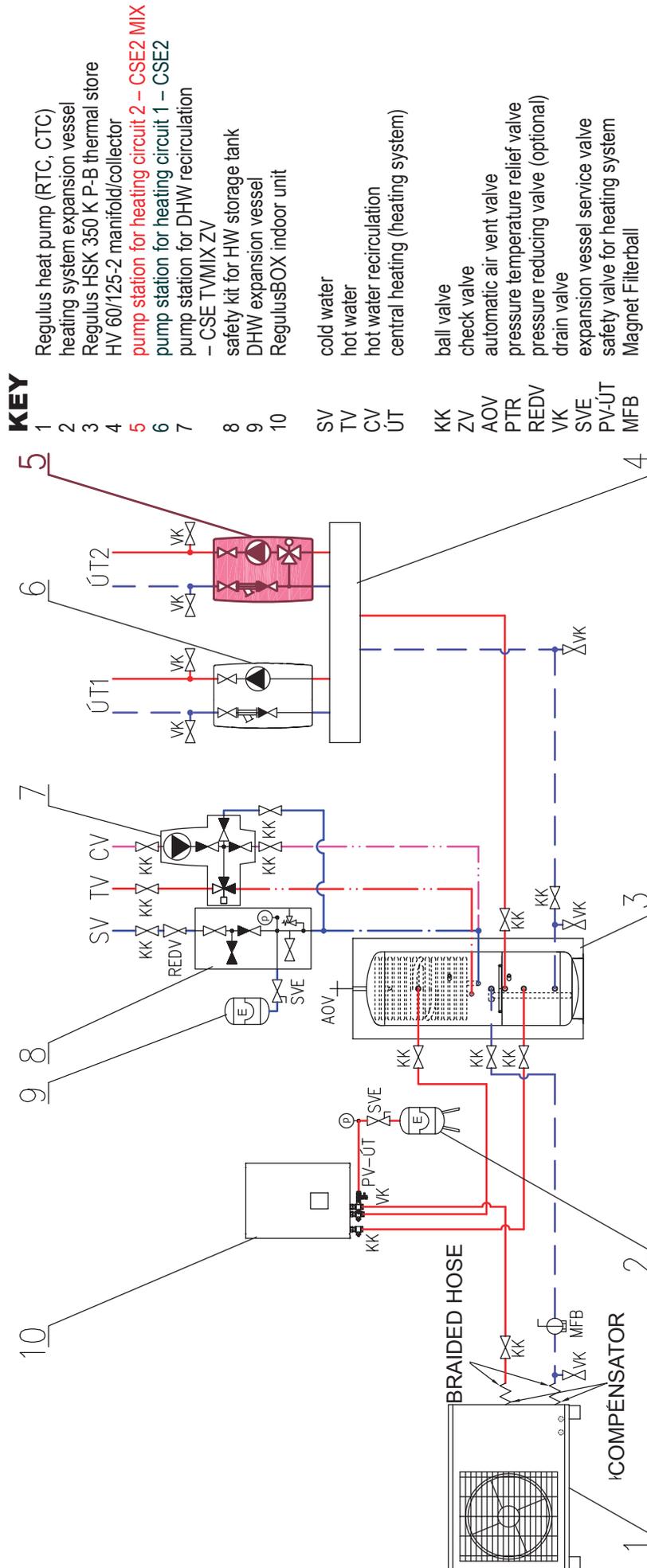
groove in the flow direction

CLOSED



groove perpendicular to the flow direction

4. EXAMPLES OF PUMP STATION CONNECTION

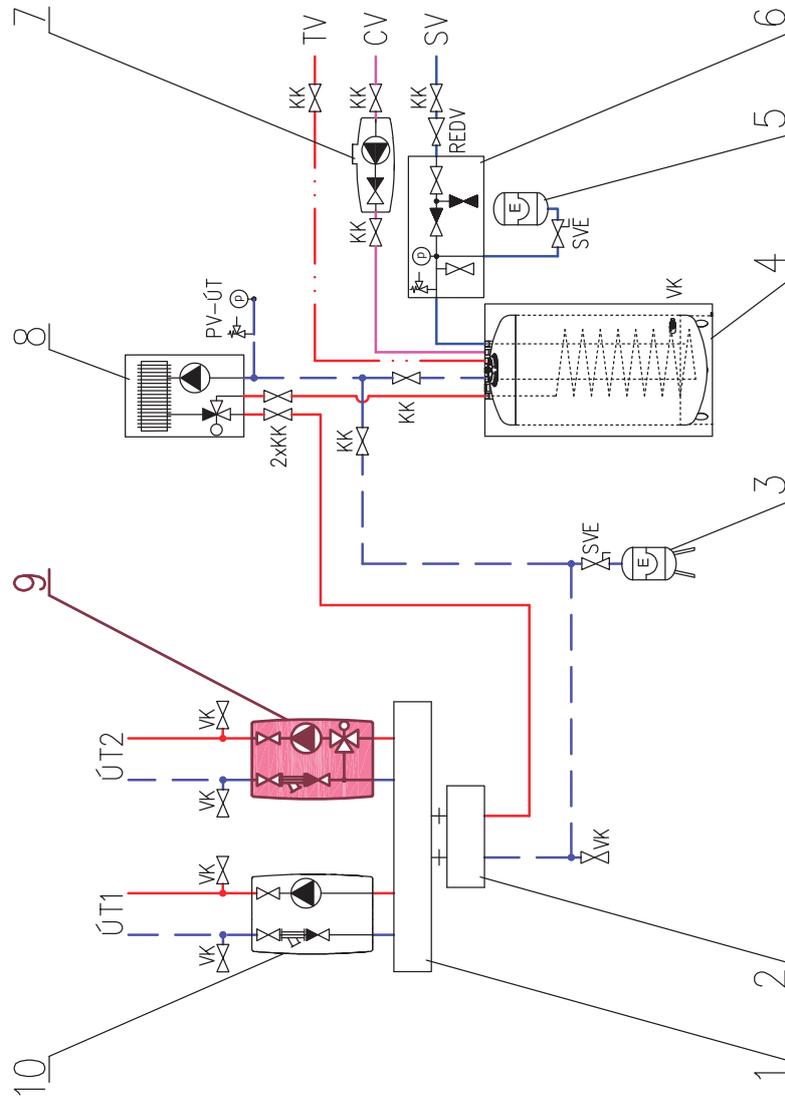


KEY

- 1 Regulus heat pump (RTC, CTC)
- 2 heating system expansion vessel
- 3 Regulus HSK 350 K P-B thermal store
- 4 HV 60/125-2 manifold/collector
- 5 pump station for heating circuit 2 – CSE2 MIX
- 6 pump station for heating circuit 1 – CSE2
- 7 pump station for DHW recirculation – CSE TVMIX ZV
- 8 safety kit for HW storage tank
- 9 DHW expansion vessel
- 10 RegulusBOX indoor unit
- 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

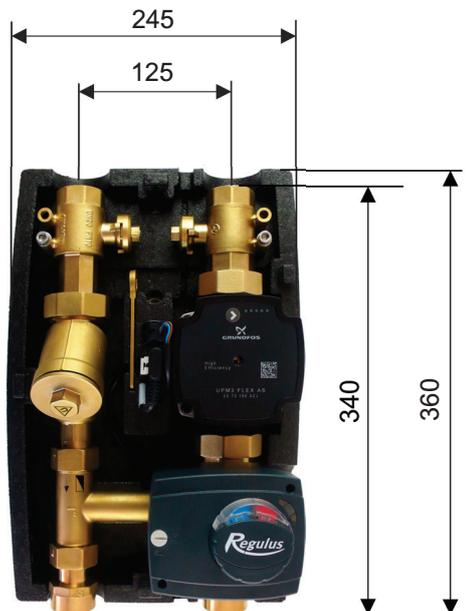
KEY

- | | |
|----|--|
| 1 | HV 60/125-2 manifold/collector |
| 2 | hydraulic pressure balancer |
| 3 | heating system expansion vessel |
| 4 | hot water 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 circuit 2 – CSE2 MIX |
| 10 | pump station for heating circuit 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 below.



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 |



Permitted and prohibited positions of the pump station

Permitted positions



Conditionally permissible positions

(may be used when a filter is replaced by the filter replacement section, code 19017)



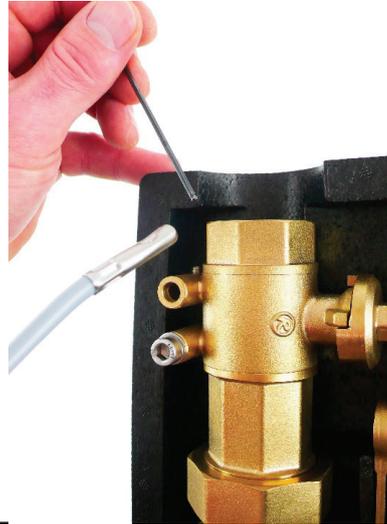
Prohibited positions



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.

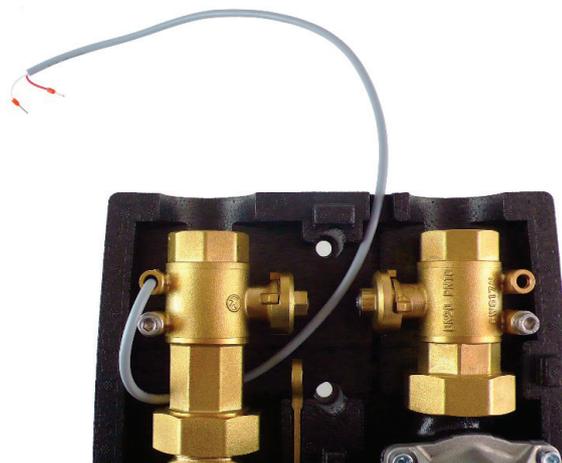
1.
Temperature sensor placement



2.
Securing the temperature sensor with the screw

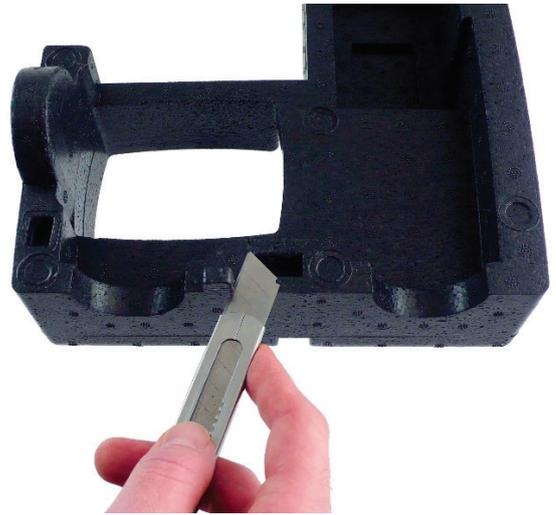


3.
Running the sensor cable through the recess in the insulation



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 unions above and under the filter.



Remove the filter and mount the filter replacement section (code 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 the connecting fittings.



Install the union 15695 in their place, then attach the ball valve w. drain valve (17415) to the union.

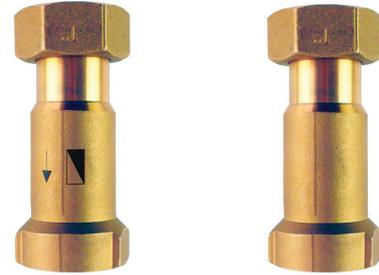


C – Union, 1" Fu/M, extended, with check valve, incl. gasket
(for return line of CSE2 pump stations)

Code 18653

and **Union, 1" Fu/M, extended, incl. gasket**
(for flow line of CSE2 pump stations)

Code 18797



Remove both the connecting fittings.



Install the extended union with check valve (18653) to the return line.



Install the extended union (18797) to the flow line.



**D – Union to connect CSE2 to 5/4” manifold - 1“x5/4“ Fu/F
Code 17920**



Remove both the connecting fittings.

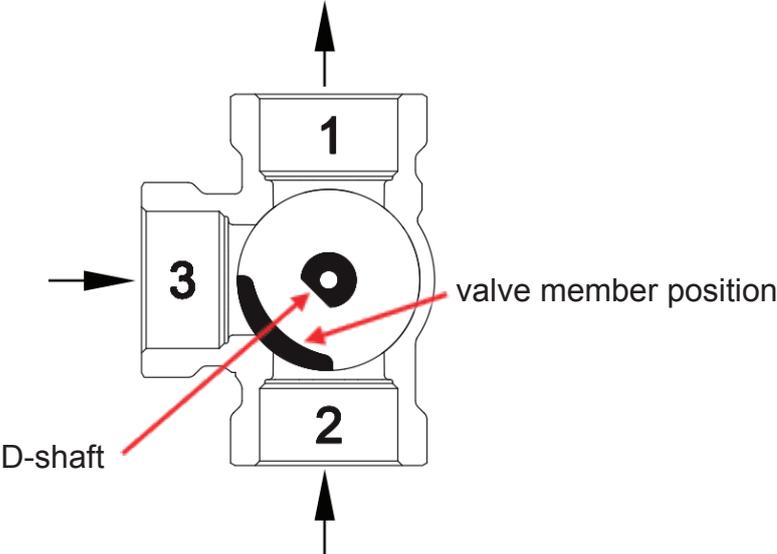
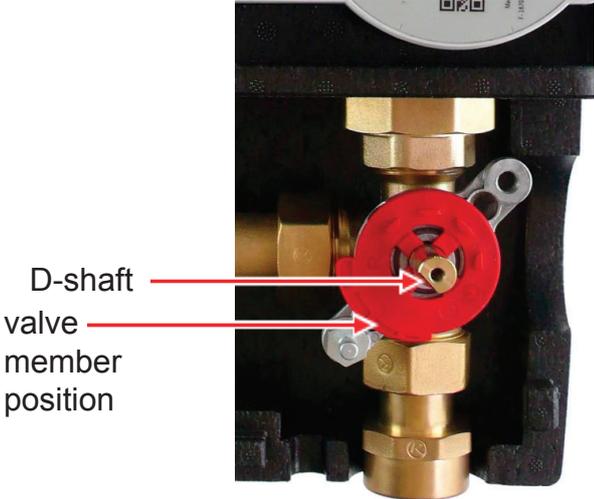
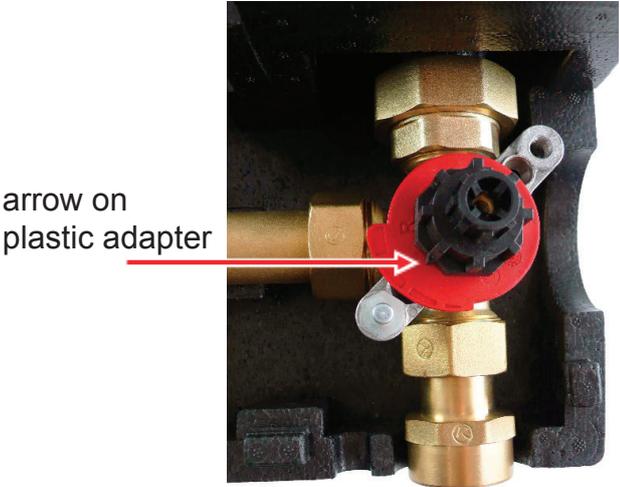


Replace them with the union 17920 intended for connection to a manifold.

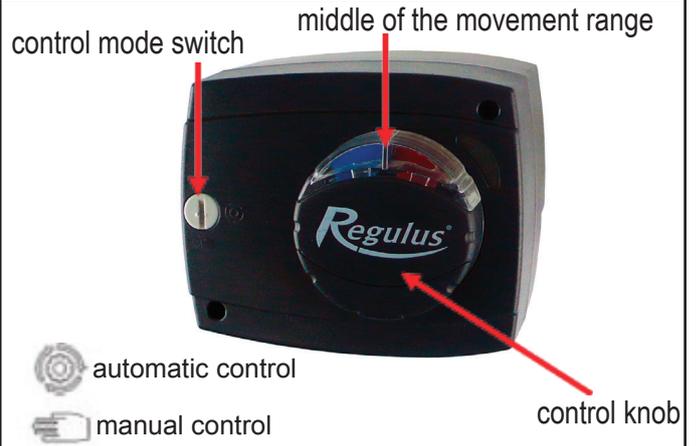


APPENDIX – AVC ACTUATOR ADJUSTMENT

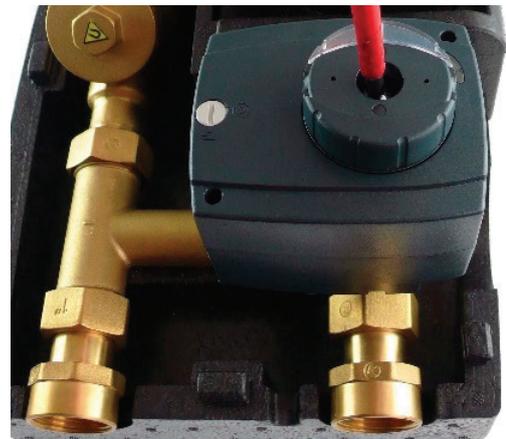
- The actuator is set and ready for operation from the production
- The instructions apply only if the actuator had to be removed e.g. to be replaced

	
<p>1. When fitting the actuator, turn the D-shaft in such a manner that the valve member is between inlets 2 and 3.</p>	
<p>2. Fit the plastic adapter on the shaft. The flat edge of the shaft and the arrow on the plastic adapter are located on the same side as the valve member.</p>	

3.
Prior to fitting the actuator on the plastic adapter, switch it to manual control, set the control knob exactly to the middle of its movement range.



4.
Fit the actuator onto the plastic adapter. Check its turning: the control knob shall be able to turn freely both to left and right by 45° (when turned to the right by 45° the path 3 is closed, and when turned to the left by 45° the path 2 is closed). Having performed the check, tighten the fastening screw and switch back to automatic control.



5.
The actuator shall be installed in the same manner as in the figure.



