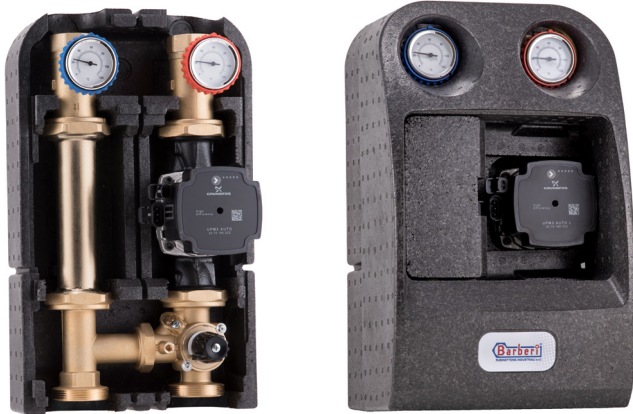


MOTORIZABLE REGULATING GROUP DN 32

Description



Preassembled pump group for regulation and circulation of fluid at variable temperature. Allows the circulation of the thermal fluid, coming from the primary circuit, by adjusting its temperature by means of a motorized mixing valve. It is used in general heating and radiant panel systems with flow temperature regulation based on room and outside temperature (also called outside or weather or climate compensated control). The group is composed of a pump, flow/return shut-off valves, motorizable mixing valve, flow/return temperature gauges, anti-thermosiphon check valve, thermal insulation. In this group the differential by-pass valve can be installed only externally. The group is reversible (the flow line can be exchanged with the return line).

Range of products

BAFA
LIST

Regulating group with motorizable mixing valve	XXX	XXX	XX	X
Group without by-pass connections, reversible, G 2 M-G 1 1/4 F connections, Kv of mixing valve 18	07G	032		
Without accessories			00	
With fittings 44D.DN32 (G 1 1/4 F-G 2 RN)			01	
Without pump				X
Pump Grundfos UPM3 AUTO 32-70 180				Y
Pump Grundfos UPML AUTO 32-105 180				F
Pump Grundfos UPSO 32-65 180 (Extra EU)				T

Features

Working temperature range: **5–90 °C**
 Max working pressure: **10 bar**
 Connections: **female EN 10226-1/male ISO 228-1**
 Connection centre distance: **125 mm**
 Pump: **Grundfos UPM3 AUTO 32-70 180**
 Grundfos UPML AUTO 32-105 180
 Grundfos UPSO 32-65 180 (Extra EU)
 Suitable fluids: **water, glycol solutions (max 30%)**
 Temperature gauge scale: **0–120 °C**

Materials

Ball valves

- Body: **brass EN12165 CW617N**
- Gaskets: **PTFE, EPDM, Viton**

Motorizable mixing valve

- Body: **brass EN 12165 CW617N**
- Obturator: **brass EN 12164 CW614N**
- Gaskets: **EPDM**

Extension: **galvanized steel**

T-joint: **brass EN12165 CW617N**

Check valve insert

- Body and obturator: **POM**
- Gasket: **NBR**

Pump

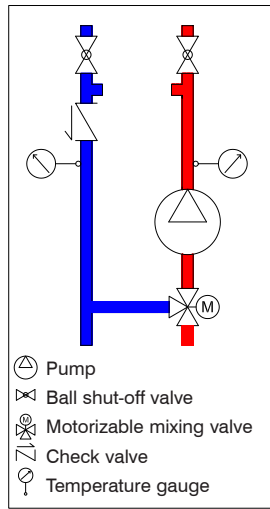
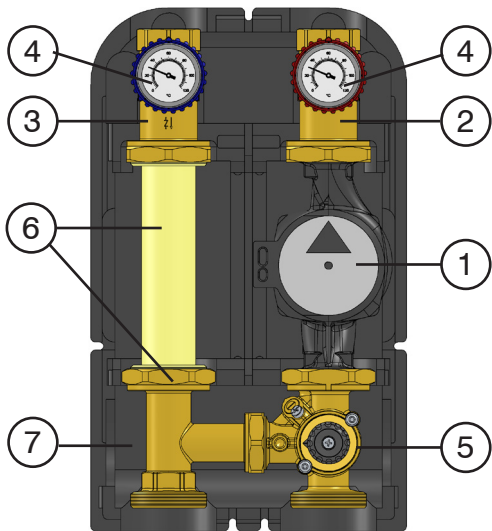
- Body: **cast iron**
- Electric supply: **230 V-50/60 Hz**
- Protection class:
 - Grundfos UPM3: **IP 44**
 - Grundfos UPML: **IPX2D**
 - Grundfos UPSO (Extra EU): **IP 44**

- Centre distance: **180 mm**
- Connections: **G 2 M (ISO 228-1)**

Insulation shell

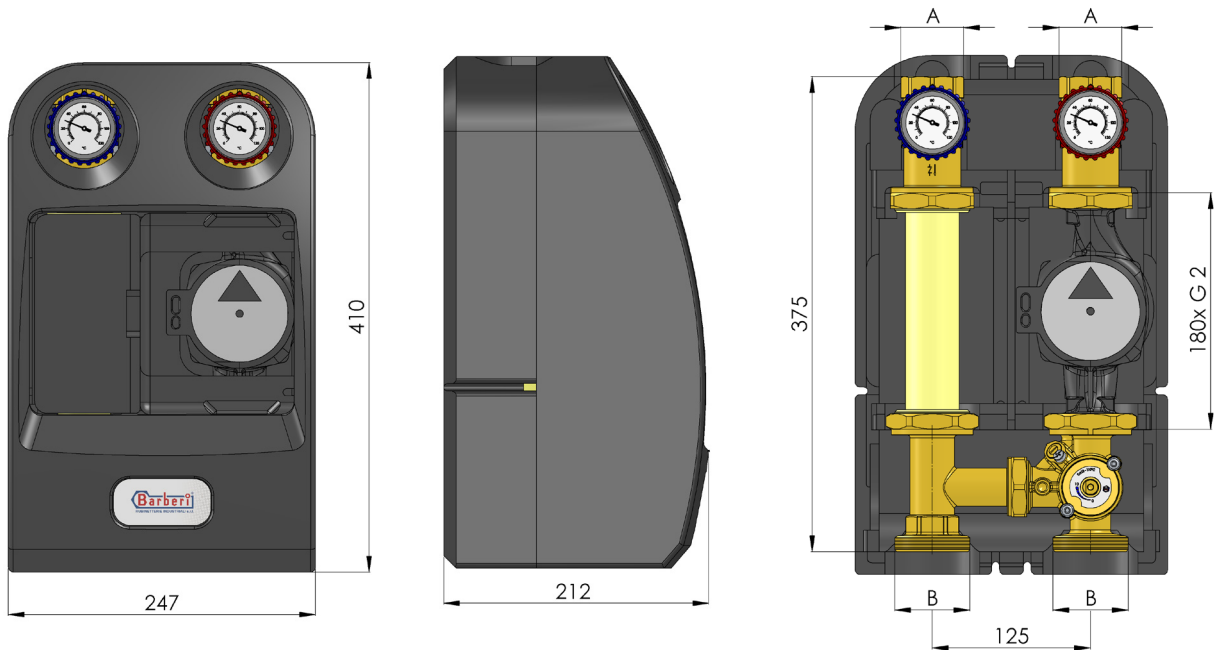
- Body: **EPP**
- Density: **60 kg/m³**
- Working temperature range: **-5–120 °C**
- Thermal conductivity: **0,04 W/(m·K)**

Components



07G.DN32		
1	Pump	Grundfos UPM3 AUTO, Grundfos UPML AUTO, Grundfos UPSO (Extra EU)
2	Ball shut-off valve	
3	Ball shut-off valve with check valve	
4	Temperature gauge	
5	Motorizable mixing valve	
6	Extension and T-joint	
7	Insulation	

Dimensions



Code	Kv of mixing valve	P [bar]	A	B	Pump	Weight [kg]	N. P/B	N. P/C
07G 032 00X	18	10	G 1 1/4 F	G 2 M	Without pump	4,56	-	1
07G 032 00Y	18	10	G 1 1/4 F	G 2 M	Grundfos UPM3 AUTO 32-70 180	6,56	-	1
07G 032 00F	18	10	G 1 1/4 F	G 2 M	Grundfos UPML AUTO 32-105 180	7,46	-	1
07G 032 00T	18	10	G 1 1/4 F	G 2 M	Grundfos UPSO 32-65 180 (Extra EU)	7,26	-	1

N. P/B: number of pieces in box - N. P/C: number of pieces in carton
Other pump types should be evaluated

Diagrams

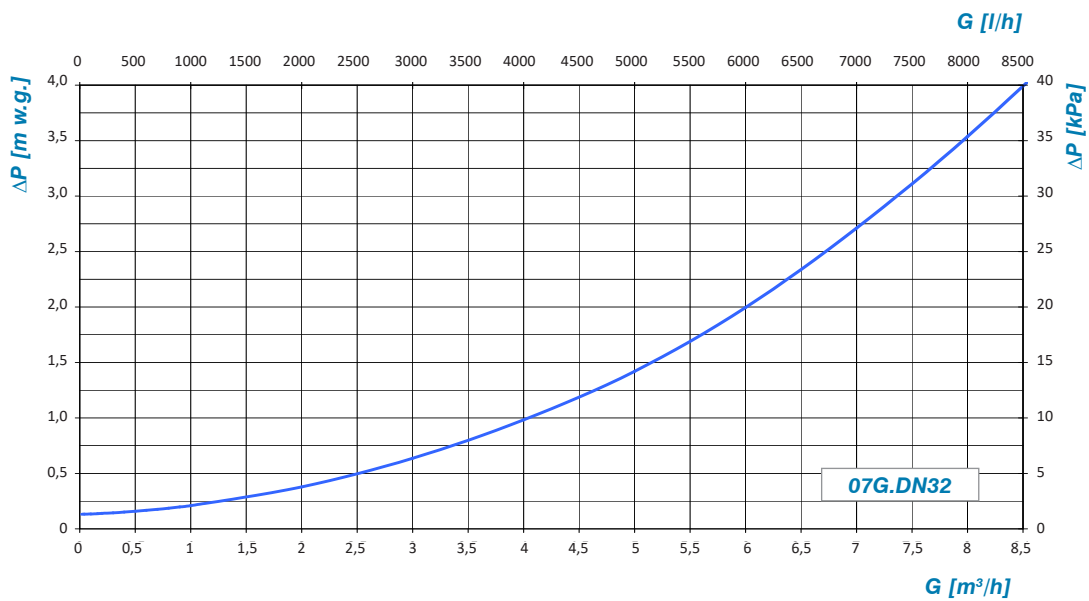
Group sizing (operation for specialized/authorized technical personnel).

Step 1: head losses of the group without pump. Enter on the x-axis of the first diagram with the design flow rate value. Cross the curve of the group and read the corresponding head losses of the group (without pump) on the y-axis.

Step 2: available head of the pump. With the same design flow rate value, enter on the x-axis of the selected pump diagram ("Head of pump"). Cross the curve of the selected working mode (Constant speed, Proportional pressure, Constant pressure) and read the corresponding available head of the pump on the y-axis.

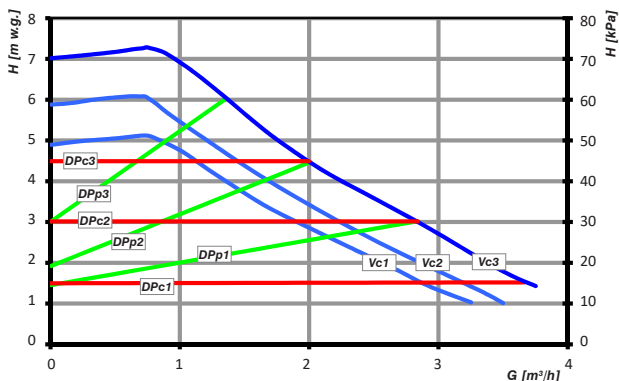
Step 3: pump validation. Calculate the difference between the available head of the pump and the head losses of the group without pump. The remaining pump head should be higher than the head losses of the rest of the system: if so, the selected pump is suitable to supply water to the rest of the system, otherwise a different pump working mode or pump size or different group size or a system resizing could be necessary.

Hydraulic characteristics: head losses of the motorizable regulating group without pump



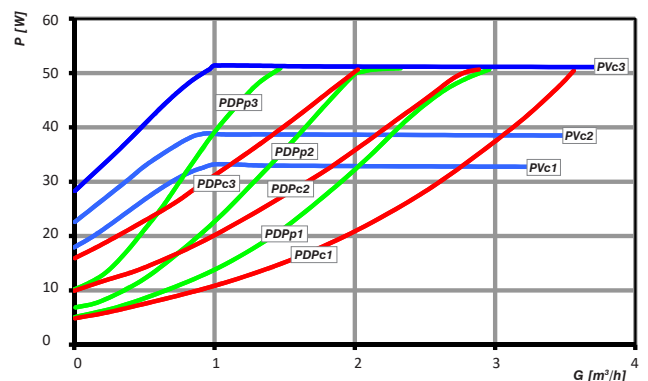
Head and power consumption of the pumps

Head of pump Grundfos UPM3 AUTO 32-70 180



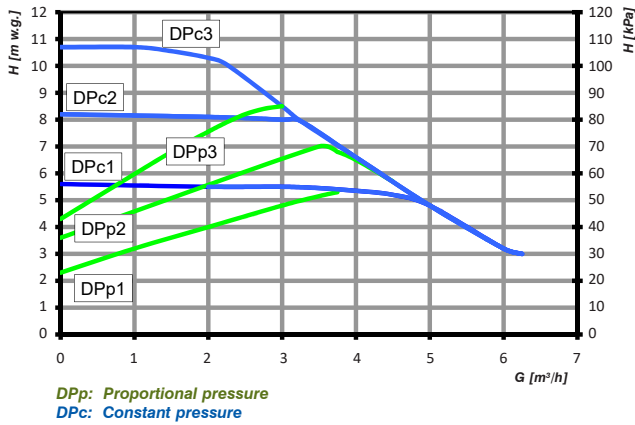
Vc: Constant speed
 DPP: Proportional pressure
 DPc: Constant pressure

Power of pump Grundfos UPM3 AUTO 32-70 180

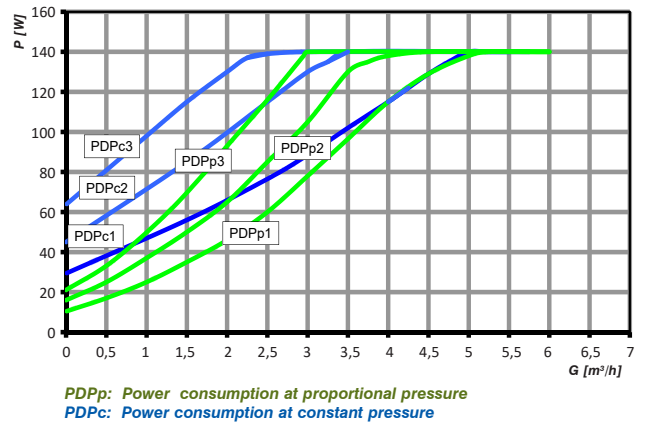


PVc: Power consumption at constant speed
 PDPp: Power consumption at proportional pressure
 PDPc: Power consumption at constant pressure

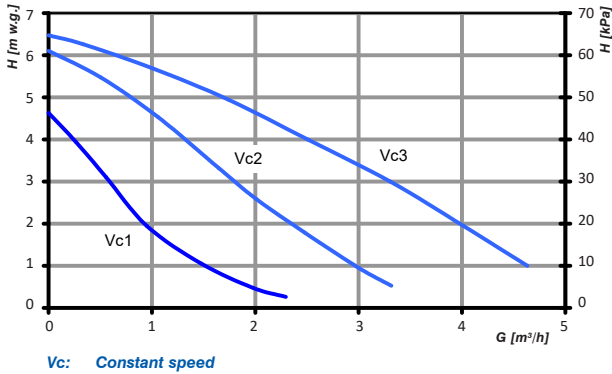
Head of pump Grundfos UPML AUTO 32-105 180



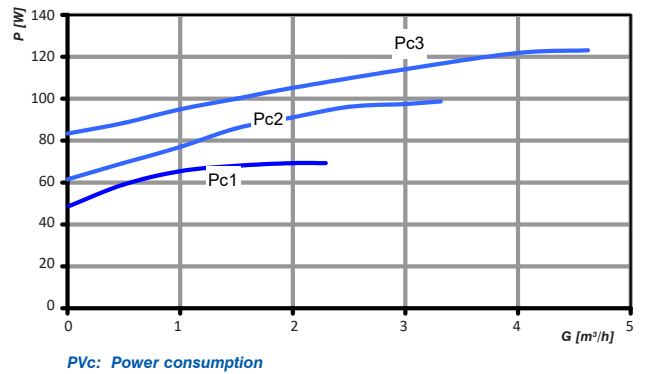
Power of pump Grundfos UPML AUTO 32-105 180



Head of pump Grundfos UPSO 32-65 180 (Extra EU)



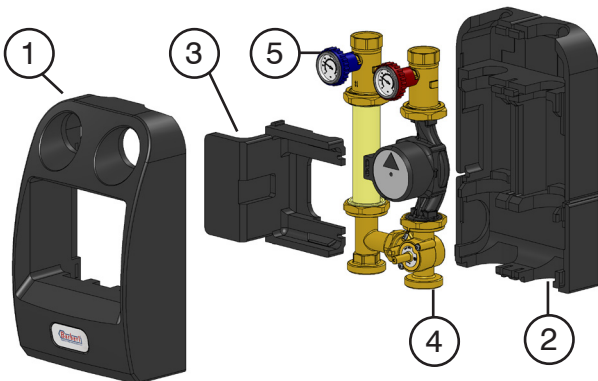
Power of pump Grundfos UPSO 32-65 180 (Extra EU)



Features

The motorizable regulating group consists of:

- Front insulation shell (1),
- Rear insulation shell (2),
- Central front insulation shell (3),
- Flow line (4) including motorizable mixing valve, shut-off valve, temperature gauge and pump,
- Return line (5) including ball shut-off valve, check valve and temperature gauge.



Advantages

Energy saving: the front (1) and rear shells (2) help the thermal insulation of the group and allow energy saving.

Frontal devices: all devices, such as the pump menu, temperature gauges, shut-off valves and, in mixed groups, the thermostatic valve and actuator, are frontal. This allows fast regulation and functional check, in particular for the installation of several groups very close to one another.

Versatility of the wall mounting bracket: the universal bracket 42D.DN32 (accessory) makes it possible to install the group with flow upward, downward or with the group laying on a side. Pay however the maximum attention to correctly fix the group to the wall when installed laying on a side.

Transformability: in case of need, the groups are easily transformable from one version to another (eg. from direct distribution group to motorized/motorizable regulating group and vice versa) as they share the vast majority of components.

Identical actuators for all DN: the motorized groups DN 20 can be combined with the same actuators of the DN 25 and DN 32 ranges, allowing a reduction of the models to be purchased and consequently of the warehouse.

Pump range: the groups are available with three different pump models. For the use of other models and/or manufacturers, it is advisable to contact Barberi for verification.

Flat gaskets: the various components of the groups are connected to each other by means of flat seal fittings. This makes the installation faster by avoiding the use of hemp or other sealants.

Cable glands: the insulation of the groups is equipped with cable glands pointing upward and downward to allow the cables to be laid safely and tidy.

Accessibility and maneuverability of the nuts: by lifting the rear insulation, still applied to the group, it's possible to create the space necessary to maneuver all the nuts, with a suitable hexagonal key, without having to remove it. This is an advantage especially in the wall installation where the insulation is laying against the wall or when pipes pass behind the insulation.

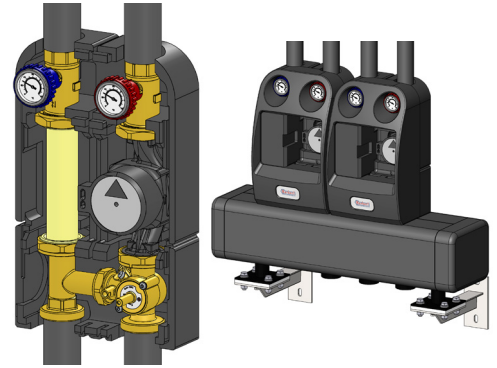
The nuts are supplied loosened to facilitate the group reversion on the installation field. Fully screw the nuts before installing the group.

Installation

The mounting options of the group are:

- Wall installation
- Manifold installation

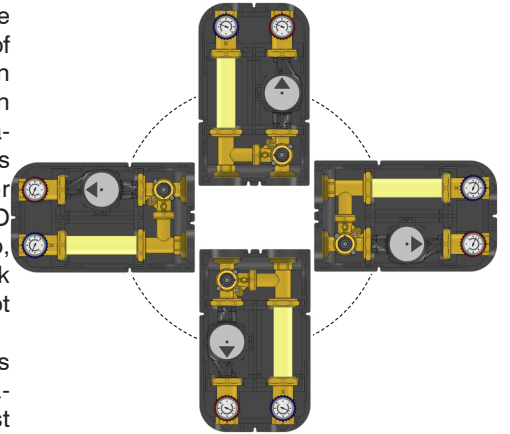
The group can be installed on standard manifolds with independent hydraulic separator, on manifolds connected to a storage.



Group position

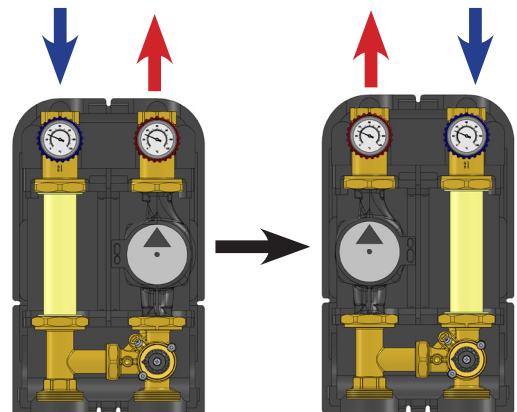
The group can be installed in one of the ways shown in the picture, with the pump rotation axis always horizontal. For the UPML AUTO 32-105 180 pump, 3 and 9 o'clock positions are not allowed because:

- 1) the two holes for condensation drain must point upward and downward
- 2) to solve this problem, it is not allowed anyway to rotate the pump by 90° because the electronic part of the pump would interfere with the pipes, due to its dimensions.



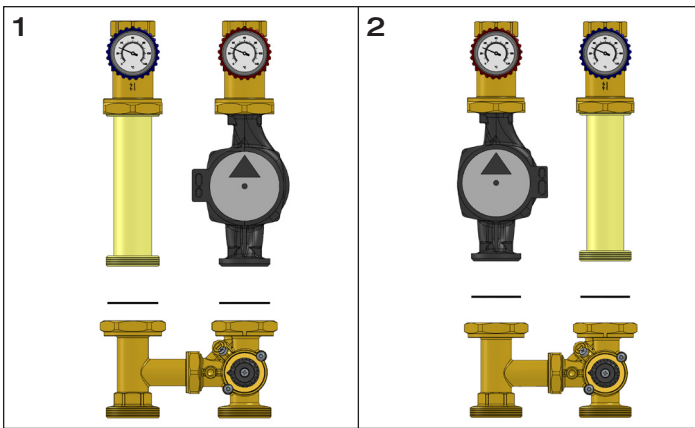
Group reversibility

The group is factory set with pump on the RH side and flow upwards (or, by rotating it, pump on the LH side and flow downwards).



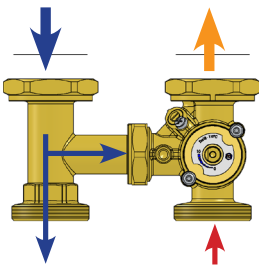
The reversibility is allowed on the installation field by the following procedure:

- 1) Fully unscrew the extension from the T-joint and the pump from the mixing valve.
 - 2) Exchange the group "pump + red knob monobloc" with the group "extension + blue knob monobloc".
 - 3) Leave the mixing valve and the T-joint in the factory position: in this new configuration, the mixing valve will work as diverting valve.
 - 4) Move the controller probe on the new flow line, downstream of the pump.
 - 5) Connect all the components again and fully screw the nuts.
- Warning: due to the presence of a check valve, keep the ball shut-off valve with red knob on the pump line and the blue knob on the return. For some pump models, it is necessary to rotate the electronic part to place it within the insulation.



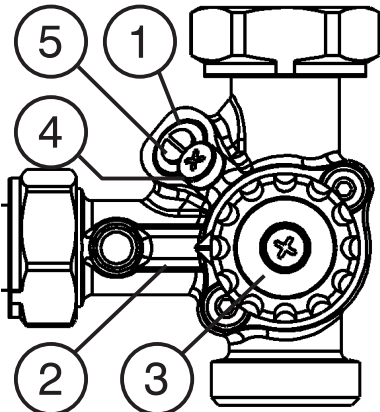
Adjustment of motorizable mixing valve

The motorizable mixing valve adjusts the flow temperature by mixing the hot fluid, coming from the generator, and the system cold return fluid.



The mixed water temperature on the system flow (design value) can be obtained by combining the valve with an actuator, managed by a controller.

The mixing valve is equipped with a built-in adjustable by-pass (1), connecting the system return port with the mixed water port. The by-pass use allows to make the adjustment more stable, especially when the inlet water temperature from the generator is much higher than the mixed one (for example: biomass generator at the inlet, radiant panel supply at the outlet). Through the by-pass, part of the system return water is always sent to the mixed water outlet, to oblige the controller to increase the valve hot port opening. In this way, work is avoided in the vicinity of the complete closing of the hot port and the actuator huntings are limited. In case of slight difference between the inlet hot temperature from the boiler and the mixed water temperature, the setting can be



carried out through the by-pass only, with the system return port of the valve fully closed.

In general, to set the valve proceed as follows.

- 1) Install the knob (3) with the screw provided in the package. Put the knob (3) arrow in position 10, condition of null mixing (return port closed, hot water inlet port open). Activate the generator and wait until it reaches its design working temperature (higher than the mixed water temperature on the system flow). Activate the pump group.

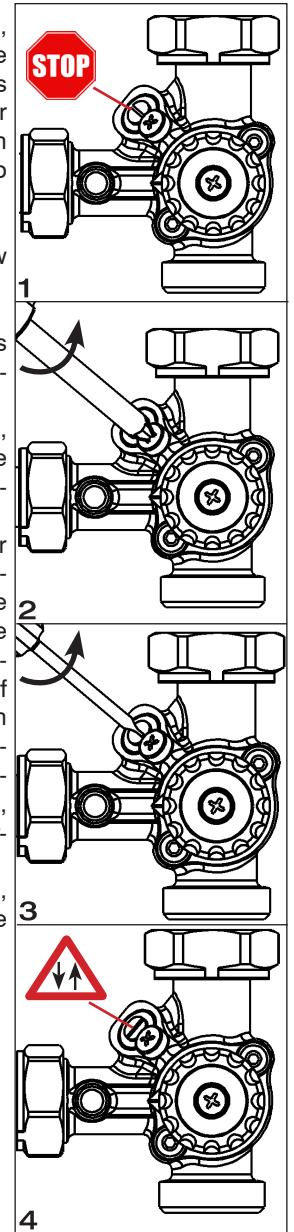
- 2) Loosen the by-pass locking screw (4).

- 3) Open and modulate the by-pass adjustment screw (5). Check the following cases.

Case 1: in low temperature systems, the design mixed water temperature can be obtained with this by-pass setting.

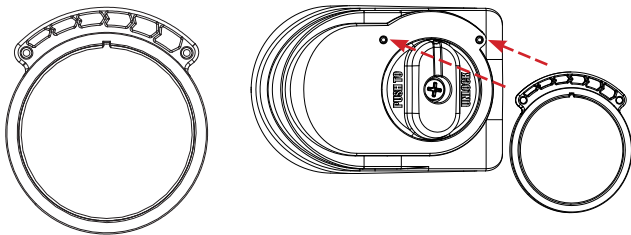
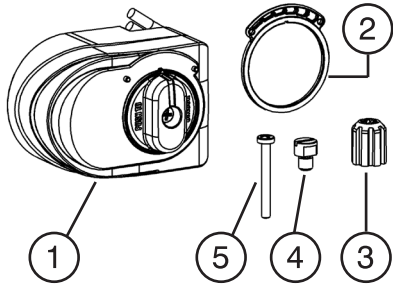
Case 2: if the design mixed water temperature cannot be obtained, neither with the fully open by-pass, the adjustment is later optimized by the actuator and controller, which properly open the system return port of the valve. In this case, the fully open by-pass works as flow temperature limiter, because it makes the water temperature decrease of some degrees, especially in case of generator over-temperature.

Fully tighten the locking screw (4), close the insulation and install the actuator.



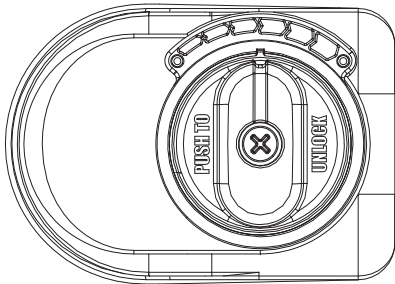
Installation of the actuator

Barberi® groups can be actuated with 3 point actuators (M03.3), fixed point actuators (P27T2) or proportional actuators (M04). To install the actuator, follow its instructions supplied in the package. To install Barberi® actuator M03 series follow these steps. The 3 point M030101DAB actuator is supplied with the components in picture: actuator (1), reference ring (2), mixing valve adaptor (3), anti-rotation pin (4), locking screw (5). For the installation on the mixing valve proceed as follows.

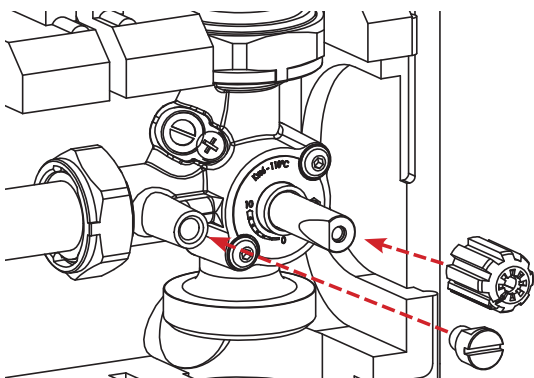


1) Orient the reference ring (2) as in the left picture (arrow dimensions increasing clockwise). Insert the oriented ring (2) into the actuator guides (1).

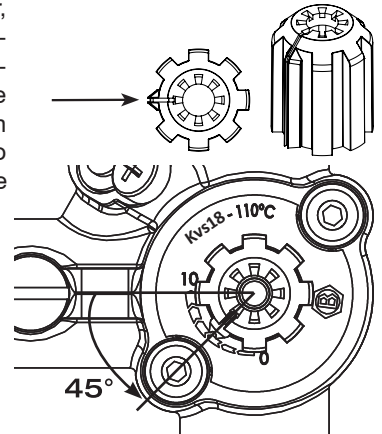
2) Verify that the indicator on the actuator knob is at half way run (factory setting), aligned with the notch on the reference ring (2). If necessary, restore this configuration by pressing and rotating the actuator knob and then release it.



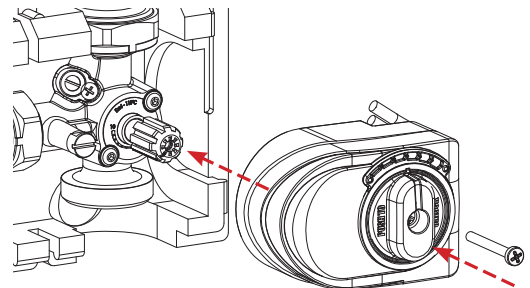
3) Insert the adaptor (3) on the valve stem and screw the anti-rotation pin (4).



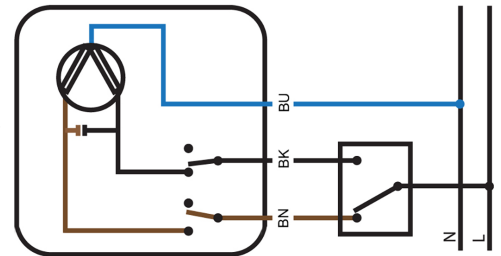
4) Rotate the valve obturator, acting on the adaptor, positioning the mark on the adaptor (3) at 45° between the hot inlet port and the system return port (corresponding to half way of the mixing valve run).



5) Apply the actuator (1) as in the picture and screw it with the locking screw (5). This configuration corresponds to a 50% mixing mode (hot and cold port half way open).



Connect the actuator to a 3 point weather compensated controller, or other device able to manage such actuator, to regulate the flow temperature depending on the outside and room temperatures. Follow the actuator wiring diagram shown here.



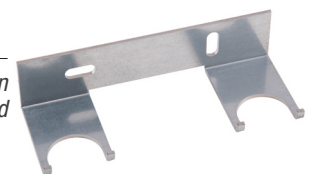
This procedure is valid also for the group reversed on the installation field.

Accessories

42D.DN32

Bracket for wall mounting of the distribution and regulating groups, with screws and anchors

Hole centre distance: 90 mm
Hole diameter: 8 mm



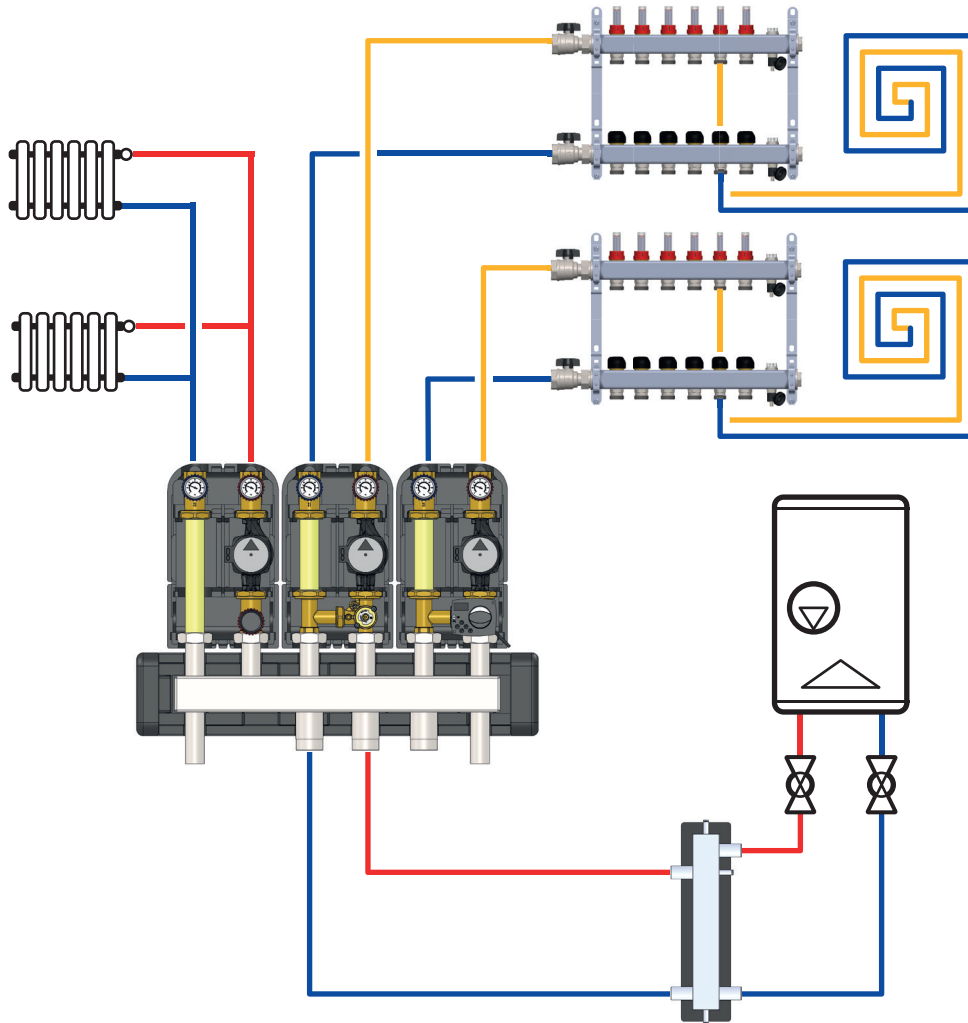
Code

42D 032 Z00 I



1 25

System diagrams



Specifications

Series 07G.DN32

Regulating group with motorizable mixing valve. G 2 M connections with flat gaskets to the primary circuit and G 1 1/4 F connections to the secondary circuit. Centre distance between flow and return connections 125 mm. Height of flow and return lines 375 mm. Dimensions of the group with shell 247x410x212 mm (Width x Height x Depth). The group is composed of: motorizable mixing valve in brass; ball shut-off valves in brass on the flow and return of the secondary circuit; POM check valve on the return line; flow and return temperature gauges with 0–120 °C scale. High-efficiency pump Grundfos UPM3 AUTO L 32-70 180 (Grundfos UPML AUTO 32-105 180 and 3 constant speed pump Grundfos UPSO 32-65 180 (Extra EU)), electric supply 230 V (50 Hz). Insulation shell in EPP. Working temperature range 5–90 °C. Maximum working pressure 10 bar. Reversible group. Without connections for optional differential by-pass valve. Kv of the mixing valve 18.