

RECESSED REGULATING GROUP WITH THERMOSTATIC MIXING VALVE

Description



Pre-assembled pump group for fixed point regulation and circulation of mixed fluid. Allows the circulation of the thermal fluid, coming from the primary circuit, by keeping the temperature at a pre-set value (fixed point) through the help of a mixing valve with thermostatic element. It is used in heating systems in general and radiant panel systems. The particular structure allows the immediate installation of a primary manifold on the left side, for the distribution at high temperature (radiators), and a secondary manifold on the right side, for the distribution at low temperature (radiant panels or radiators), by keeping them aligned. The group is composed of a pump, thermostatic mixing valve, flow LCD thermometers, manual air vent, fittings for primary and secondary distribution manifold. The group can be reversed to place the secondary manifold on the right or the left and, as a consequence, the primary manifolds on the left or the right.

Range of products

Recessed regulating group with thermostatic mixing valve	29B	XXX	X	X	X	X
Pump threaded connections G 1 1/2		040				
Nickel plated finish			N			
Adjustment range 30–60 °C				3		
Pump Wilo Para 25-130/7-50/SC-12					P	
Pump Grundfos UPM3 AUTO 25-70 130					T	
Pump Grundfos UPSO 25-65 130 (Extra EU)					M	
Without pump					X	
Standard version with manual air vent						1

Features

Working temperature range: **5–90 °C**
 Max working pressure: **10 bar**
 Male threaded connections: **ISO 228-1**
 Connection centre distance to primary and secondary manifolds: **211 mm**
 Pump: **Wilo Para 25-130/7-50/SC-12**
Grundfos UPM3 AUTO 25-70 130
Grundfos UPSO 25-65 130 (Extra EU)
 Suitable fluids: **water, glycol solutions (max 30%)**
 Temperature adjustment range: **30–60 °C**
 Accuracy: **±2 °C**
 Factory setting: **MIN (=30 °C)**
 LCD thermometer scale: **30–60 °C**
 Connection for safety thermostat (optional): **M4**

Thermostatic mixing valve

- Body: **brass EN 12165 CW617N, nickel plated**
- Gaskets: **EPDM**
- Headwork: **brass EN 12164 CW617N**
- Spring: **stainless steel AISI 302**
- Thermostatic sensor: **wax**
- Knob: **ABS**

Pump

- Body: **cast iron**
- Electric supply: **230 V-50/60 Hz**
- Protection class:
 - Wilo Para: **IPx4D**
 - Grundfos UPM3: **IP 44**
 - Grundfos UPSO (Extra EU): **IP 44**
- Centre distance: **130 mm**
- Connections: **G 1 1/2 M (ISO 228-1)**
- Gaskets: **EPDM**

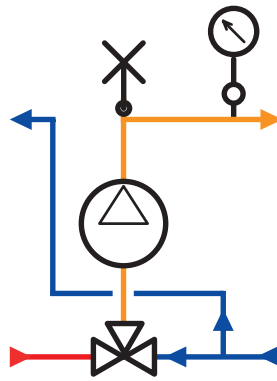
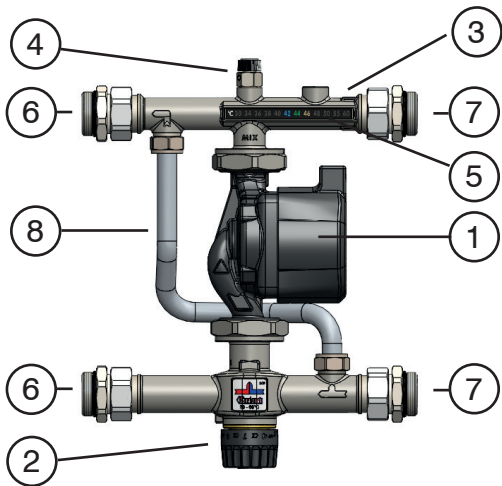
Materials





Instrument holder fitting: **brass EN 12165 CW617N, nickel plated**
 Fittings for primary and secondary manifold:

- Body: **brass EN 12164 CW617N, nickel plated**
- Gasket: **EPDM**

 Thermometers: **liquid crystals (LCD)**
 Return pipe: **stainless steel AISI 304**
 Return pipe running nuts: **brass, nickel plated**

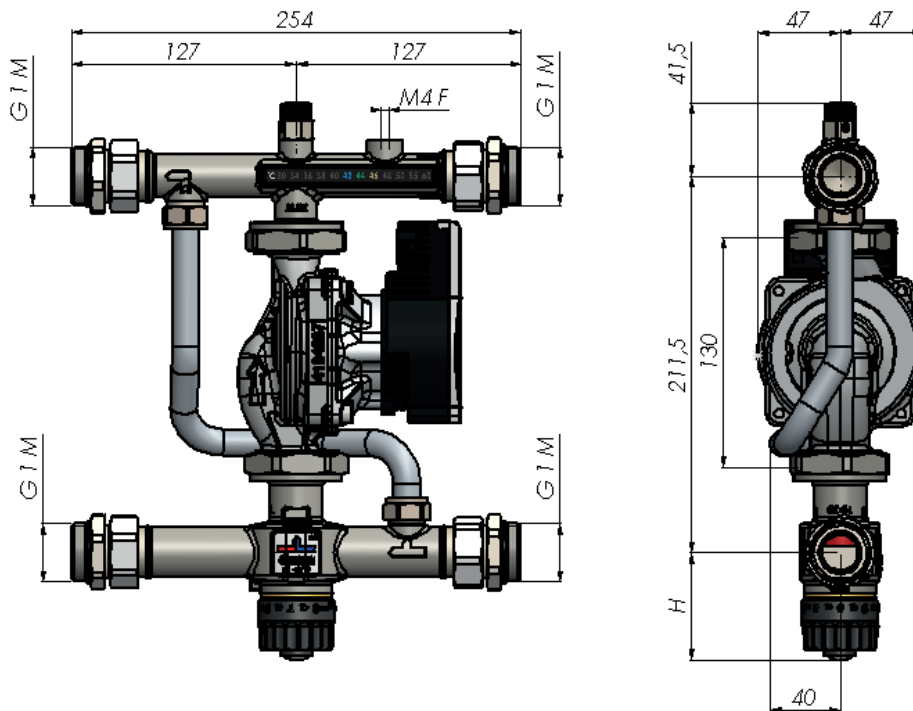
Components



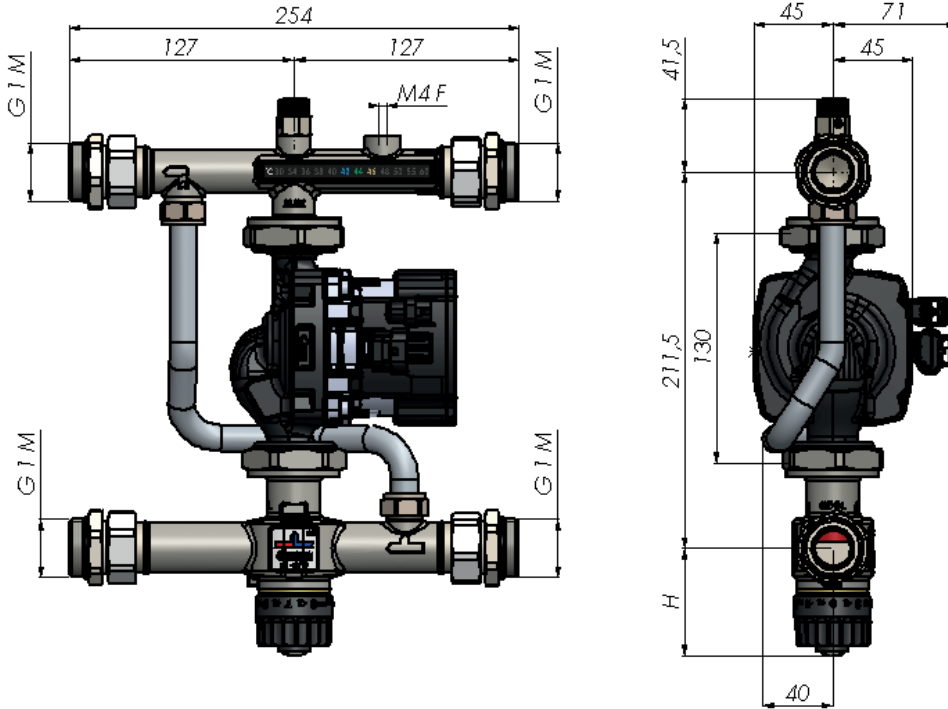
-  Pump
-  Thermostatic mixing valve
-  Manual air vent
-  LCD thermometer

29B.N		
1	Pump	Wilo Para, Grundfos UPM3 AUTO, Grundfos UPSO (Extra EU)
2	Thermostatic mixing valve	
3	Instrument holder fitting	
4	Manual air vent	
5	LCD thermometer	
6	Fittings for primary manifold	
7	Fittings for secondary manifold	
8	Return pipe	

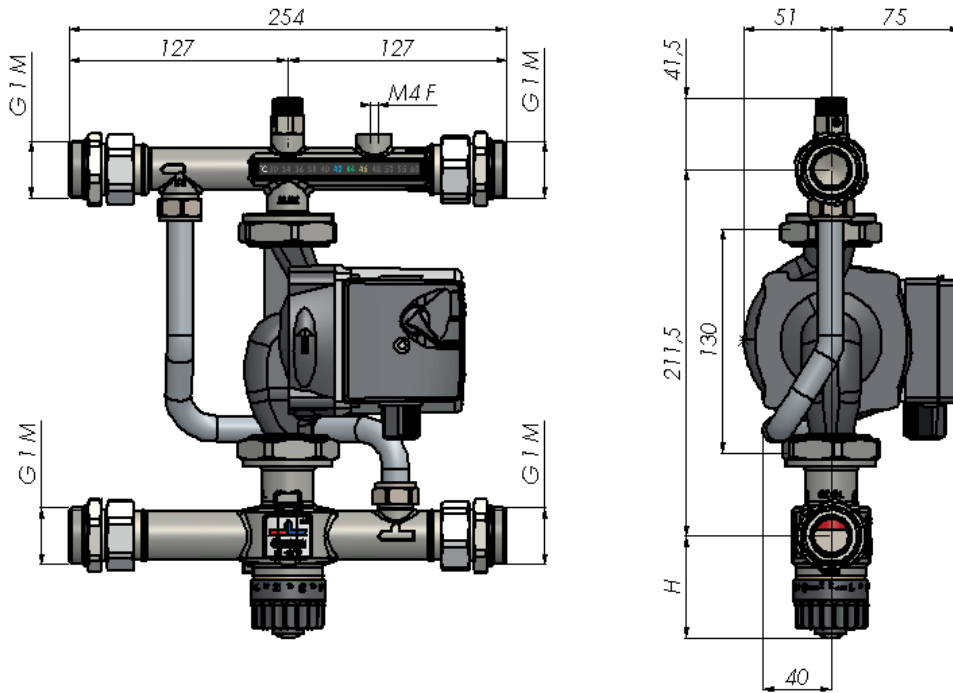
Dimensions



29B040N3P1



29B040N3T1



29B040N3M1

Code	P [bar]	Pump	H [mm]	Weight [kg]	N. P/B	N. P/C
29B040N3P1	10	Wilo Para 25-130/7-50/SC-12	59-65	3,850	-	1
29B040N3T1	10	Grundfos UPM3 AUTO 25-70 130	59-65	3,633	-	1
29B040N3M1	10	Grundfos UPSO 25-65 130 (Extra EU)	59-65	4,198	-	1
29B040N3X1	10	Without pump	59-65	1,795	-	1

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

Diagrams

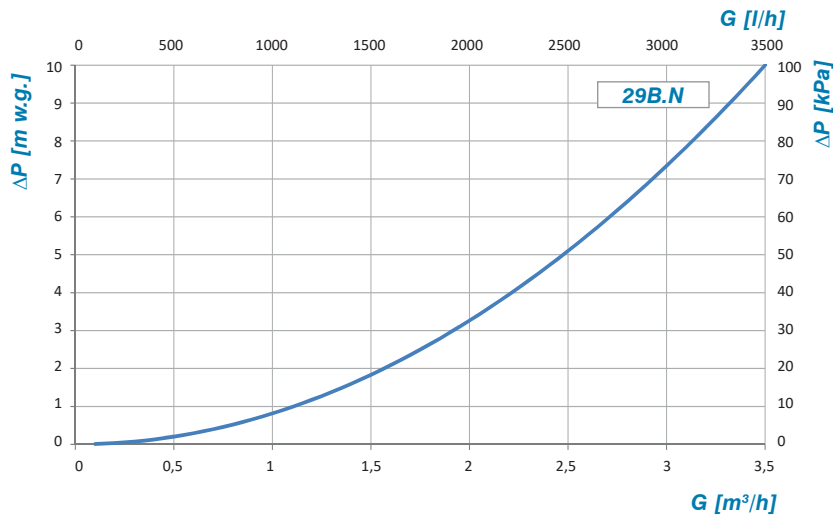
Group sizing (operation for specialized/authorized technical personnel).

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.

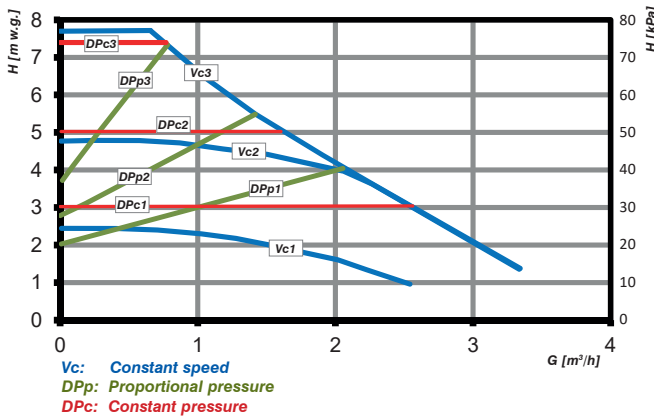
Step 3: pump validation. Calculate the difference between the available head of the pump and the head losses of the group without pump. The remaining pump head should be higher than the head losses of the rest of the system: if so, the selected pump is suitable to supply water to the rest of the system, 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 thermostatic regulating group without pump

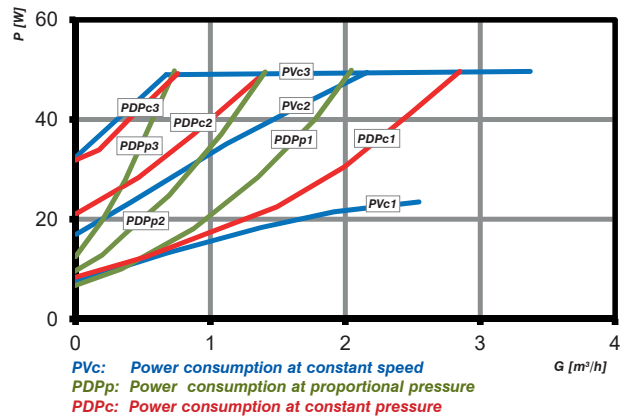


Head and power consumption of the pumps

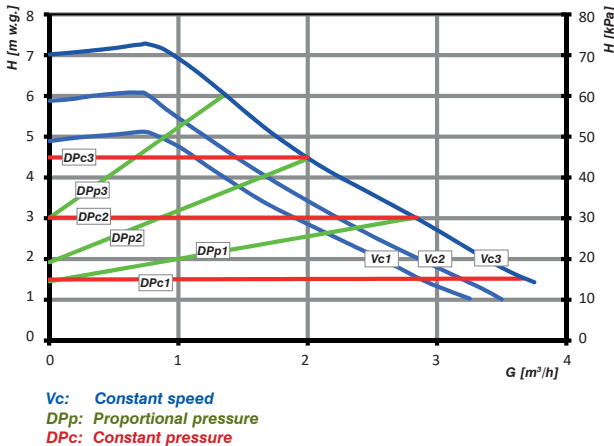
Head of pump Wilo Para 25-130/7-50/SC-12



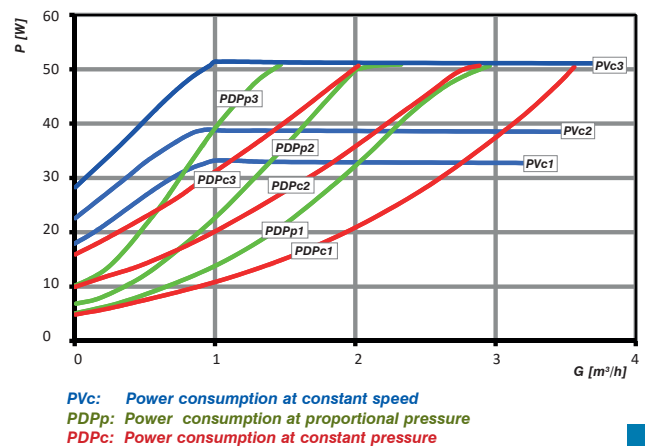
Power of pump Wilo Para 25-130/7-50/SC-12

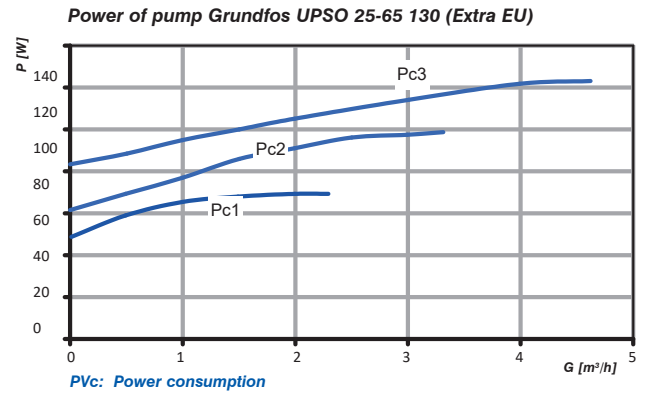
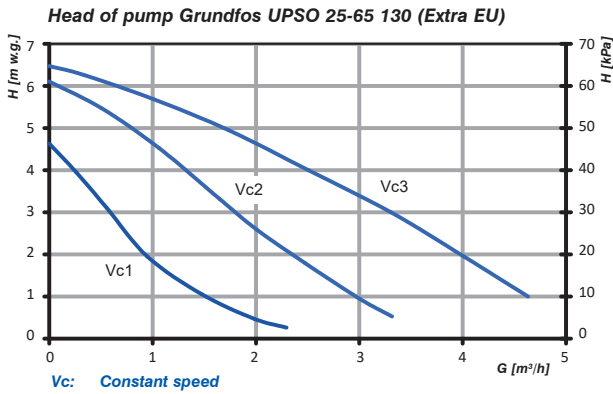


Head of pump Grundfos UPM3 AUTO 25-70 130



Power of pump Grundfos UPM3 AUTO 25-70 130

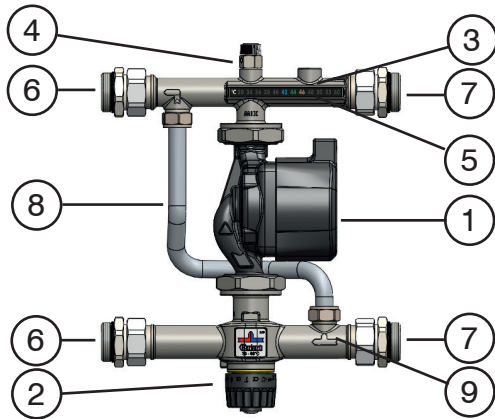




Features

The thermostatic regulating group consists of:

- Thermostatic mixing valve (2);
- Flow line including fitting for primary side manifold (6), pump (1), instrument holder fitting (3), manual air vent (4), liquid crystal thermometer (5), fitting for secondary manifold (7);
- Return line including fitting for secondary manifold (7), return pipe (8), tee built-into the valve (9), fitting for primary side manifold (6).



Advantages

Connection kit for high and low temperature. It allows the easy installation also of a primary distribution manifold for high temperature. The 211 mm centre distance both for the primary (radiators) and secondary (radiant panels) manifold makes it possible to align the manifold thus obtaining a tidy installation (fig. A).

Reversibility. The group can be immediately reversed from right to left to exchange the position of the primary with the secondary manifold (fig. B).

Flexibility of installation. The group can be installed on wall, in box or recessed (fig. C).

Monobloc structure. The thermostatic mixing valve and the instrument holder fitting, equipped with air vent and M4 threaded connection, are designed as monobloc structure. The installation is therefore immediate and points of possible leakage are reduced to a minimum.

Thermostatic regulation. The fixed point thermostatic regulation (30-60 °C) makes it possible to use the group both for radiant panel and radiator systems.

Anti-tamper device. The device, placed within the mixing valve knob, avoids undesired variations of the setting. Slightly unscrewing the knob screw, the device is deactivated to allow the valve setting. By tightening the knob screw again, the anti-tamper is restored (fig. D).

Fast fittings. The provided fittings are equipped with O-Ring and flat gasket to make the installation faster, avoiding the use of other sealing systems like hemp or teflon tapes (fig. E).

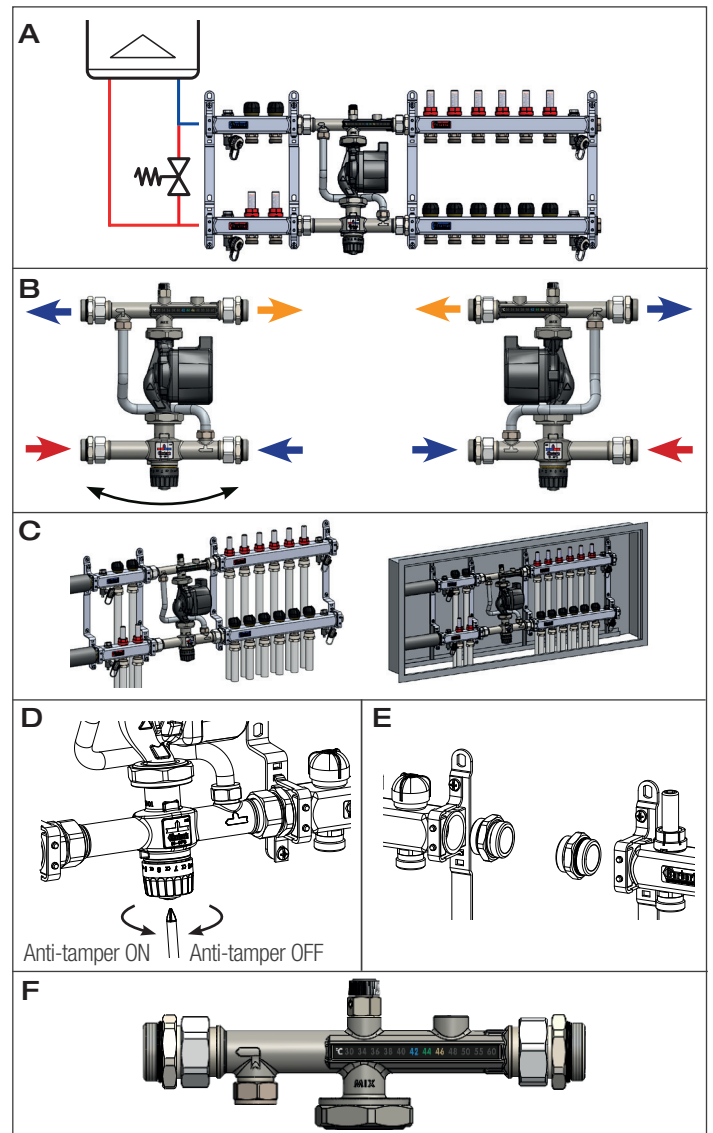
Instrument holder fitting. Equipped with manual air vent, double

LCD thermometer (on front and rear side) and connection for safety thermostat (fig. F).

Pump range: the groups are available with 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.

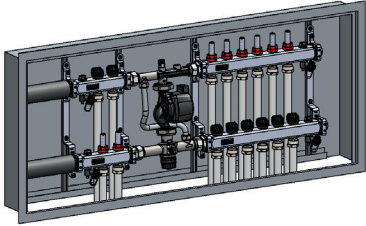
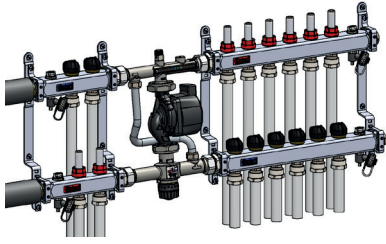
The nuts are supplied loosened to facilitate the pump rotation on the installation field. Fully screw the nuts before installing the group.



Installation

The mounting options of the group are:

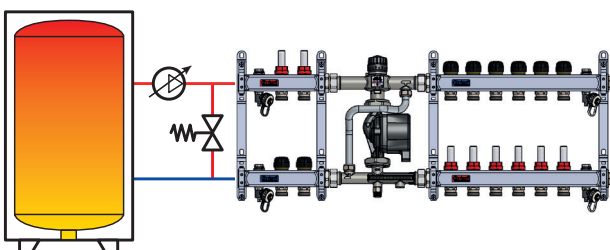
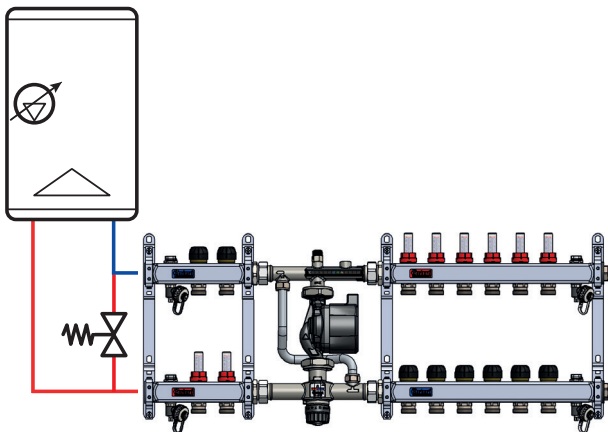
- Wall installation
- Recessed installation
- Box installation



Depending on the presence of a primary distribution manifold, these are some system recommendations.

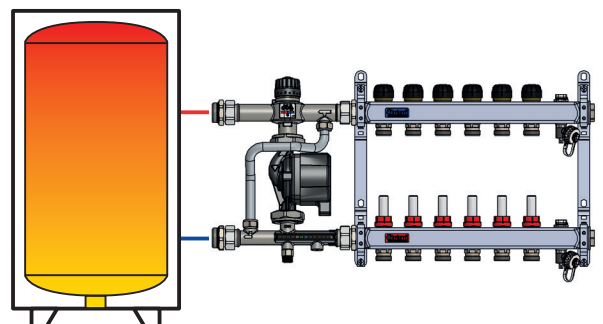
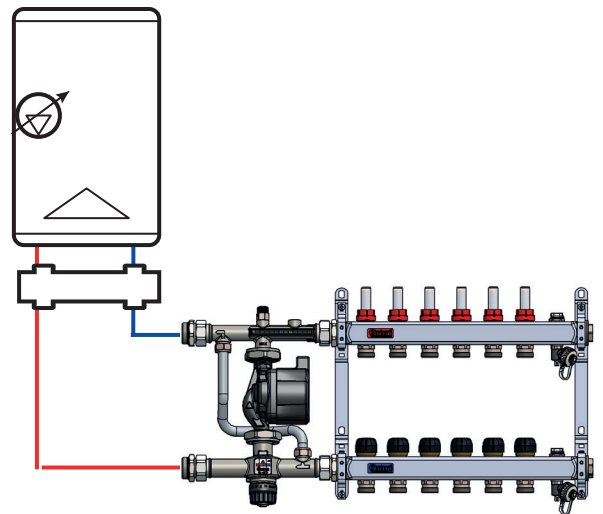
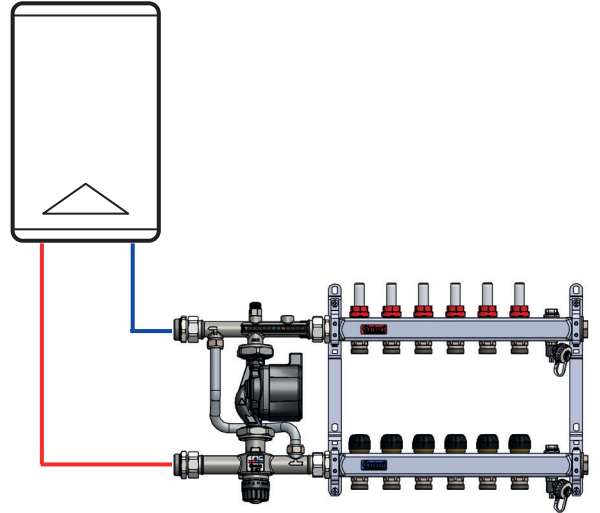
1) With primary distribution manifold

The group can be directly connected to a generator which must necessarily be equipped with a pump to supply water to the terminals connected to the primary manifold. A differential by-pass valve on the generator pump is also necessary to keep under control the head on the primary side terminals in case of modulation or closing of part of the primary outlets (for example through thermostatic or thermo-electric control heads). If the group is installed downstream of an inertial storage, a pump must be placed between the storage and the primary side manifold to supply water to the terminals connected to the primary manifold. In the same way, a differential by-pass valve on this pump should be evaluated.



2) Without primary distribution manifold

The group can be directly connected to a generator if the latter is not equipped with a pump. Instead, if the generator is equipped with a pump, a hydraulic separator should be placed between the generator and the group, in order to avoid mutual influences between the pumps. The group can be installed downstream of an inertial water storage, which performs the function of a hydraulic separator.



Group position

The group can be installed in one of the ways shown in the picture, with the pump rotation axis always horizontal.

12 o'clock position: suggested.

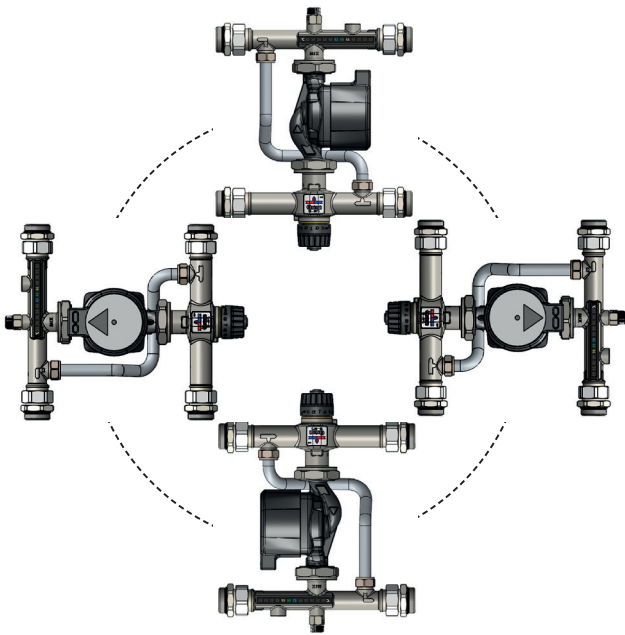
3 o'clock position: allowed only if the primary and secondary manifold (directly connected to the group) is not equipped with flow meters or it is placed in remote position (only system flow and return pipes are directly connected to the group). Rotate the pump in order to have the rotation axis in horizontal position.

6 o'clock position: allowed but the manual air vent cannot be used anymore since it is placed upside down.

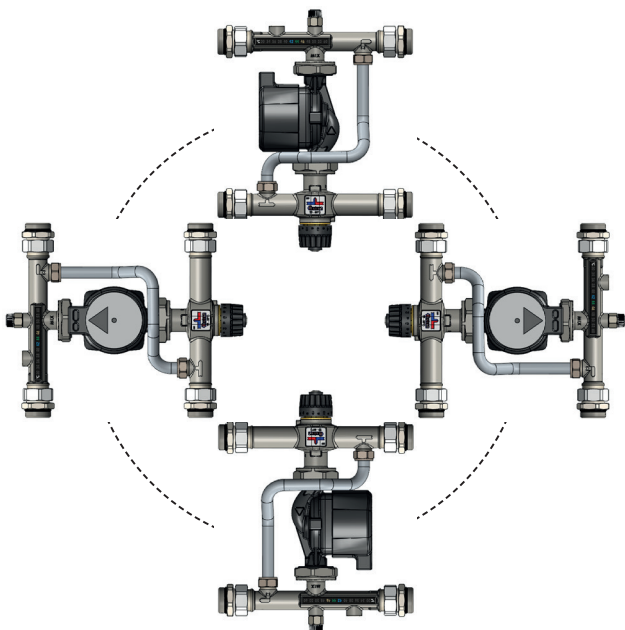
9 o'clock position: see 3 o'clock.

In any case, suitable brackets should be used to fix the group.

Group positions in factory configuration



Positions of the reversed group (RH to LH)



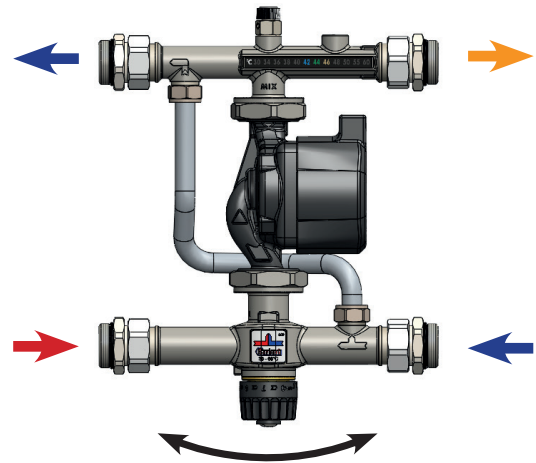
Group reversibility

The group, as shown in the picture and drawings of this data-sheet, allows to directly screw a primary distribution manifold on its left side and a secondary distribution manifold on its right side. Thanks to the presence of a LCD thermometer also on the rear part, the group can be fully and quickly overturned to screw a primary distribution manifold on its right side and a secondary distribution manifold on its left side.

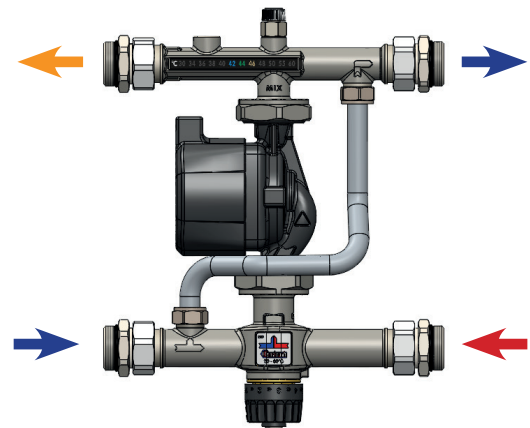
Keep the rotation axis of the pump always horizontal.

Fully screw the nuts before proceeding with the installation.

Group in factory configuration

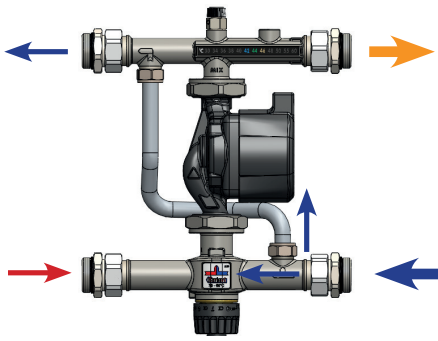


Reversed group (RH to LH)

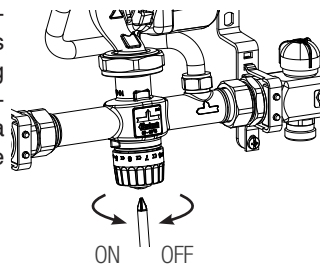


Adjustment of the thermostatic mixing valve

The thermostatic mixing valve keeps constant the temperature of the water supplied to the system. The fixed point regulation is achieved through a thermostatic sensor which moves thanks to the expansion of the wax inside of it. The sensor integrated within the valve is more precise and reliable than the thermostatic valves with external capillary.




The knob is equipped with an anti-tamper mechanism which makes the rotation difficult, thus avoiding undesired set changes. The mechanism can be released with a screwdriver, slightly loosening the locking screw.



FIRST SYSTEM START UP. The fixed point temperature value can be set with the knob before installing the group or, after the installation, exclusively with the SYSTEM COLD. To set a temperature value different from the factory one, proceed as follows:

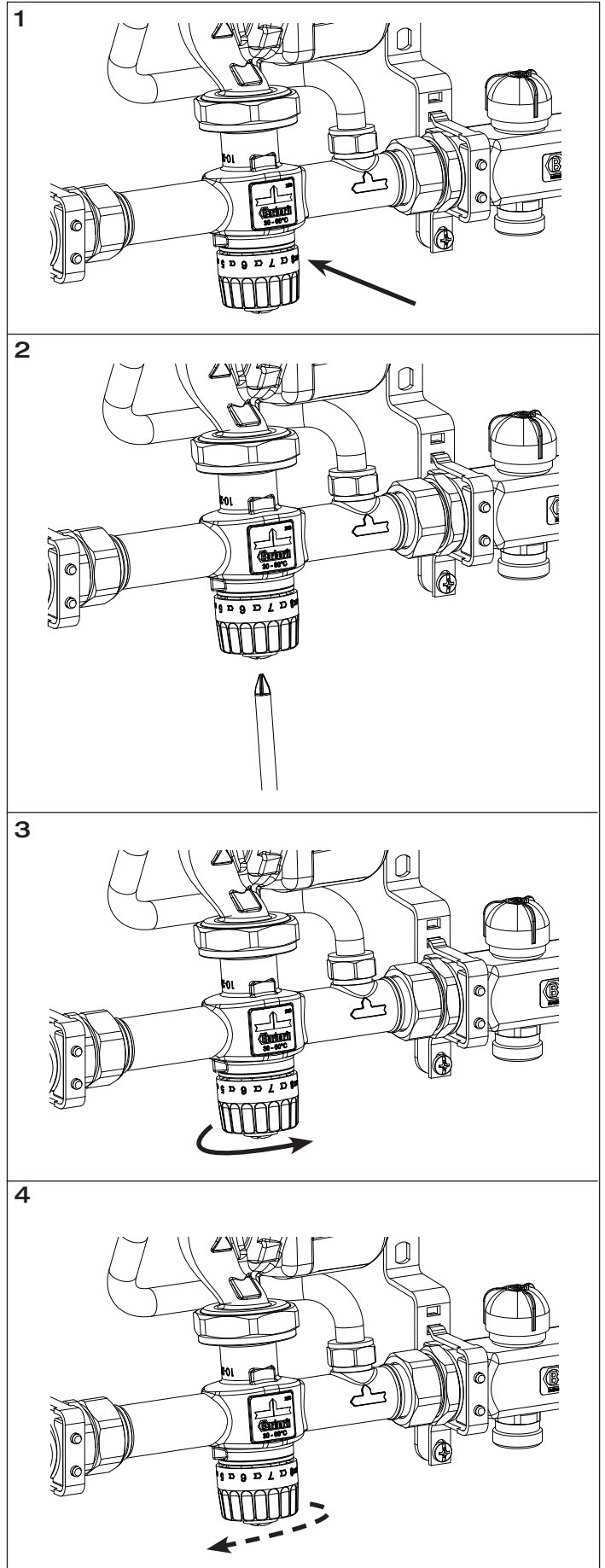
- 1) The graduated scale on the knob corresponds to the temperature values shown in the table.
- 2) With a screwdriver, slightly loosen the locking screw, holding the knob with your hand.
- 3) Set a mixed water temperature value slightly lower than the design temperature. Activate the generator and wait until it reaches its design working temperature (higher than the valve setting). Activate the group pump. Wait until the mixed water temperature gets stable. Read its value on the flow temperature gauge.
- 4) Counterclockwise rotate step by step the knob to increase the temperature. Then wait until the temperature gets stable. Read its value on the flow temperature gauge. Proceed in the same way until the design flow temperature is reached.
- 5) When the desired temperature is reached, close the locking screw, holding the knob with your hand.

30-60 °C	
	°C
Min	30
1	34
2	38
3	42
4	45
5	48
6	52
7	55
8	58
Max	60
	Min

NEXT SETTING. If later a change should be needed in the valve setting, proceed as follows.

Case 1: temperature lower than the current setting. Let the system get cold to obtain at least a return temperature lower than the new valve setting. Follow points 1, 2, 3, 4 and 5.

Case 2: temperature higher than the current setting. In this case, the setting can be carried out also with the system running as well as with the system cold. Follow points 1, 2, 4 and 5.



Accessories

99B

Safety thermostat kit for distribution and regulating recessed groups 27B.N-29B.N-30B.N. Normally closed with 55 °C setting, pre-wired box.

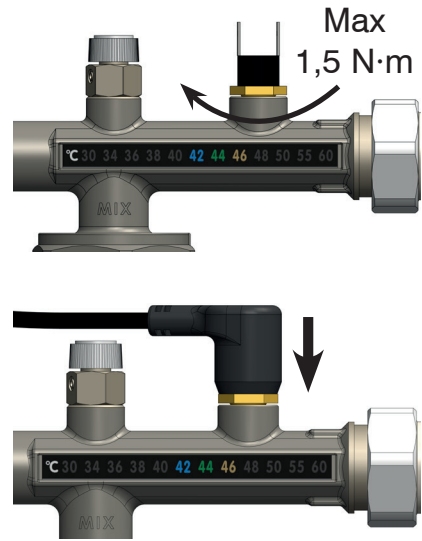


Code



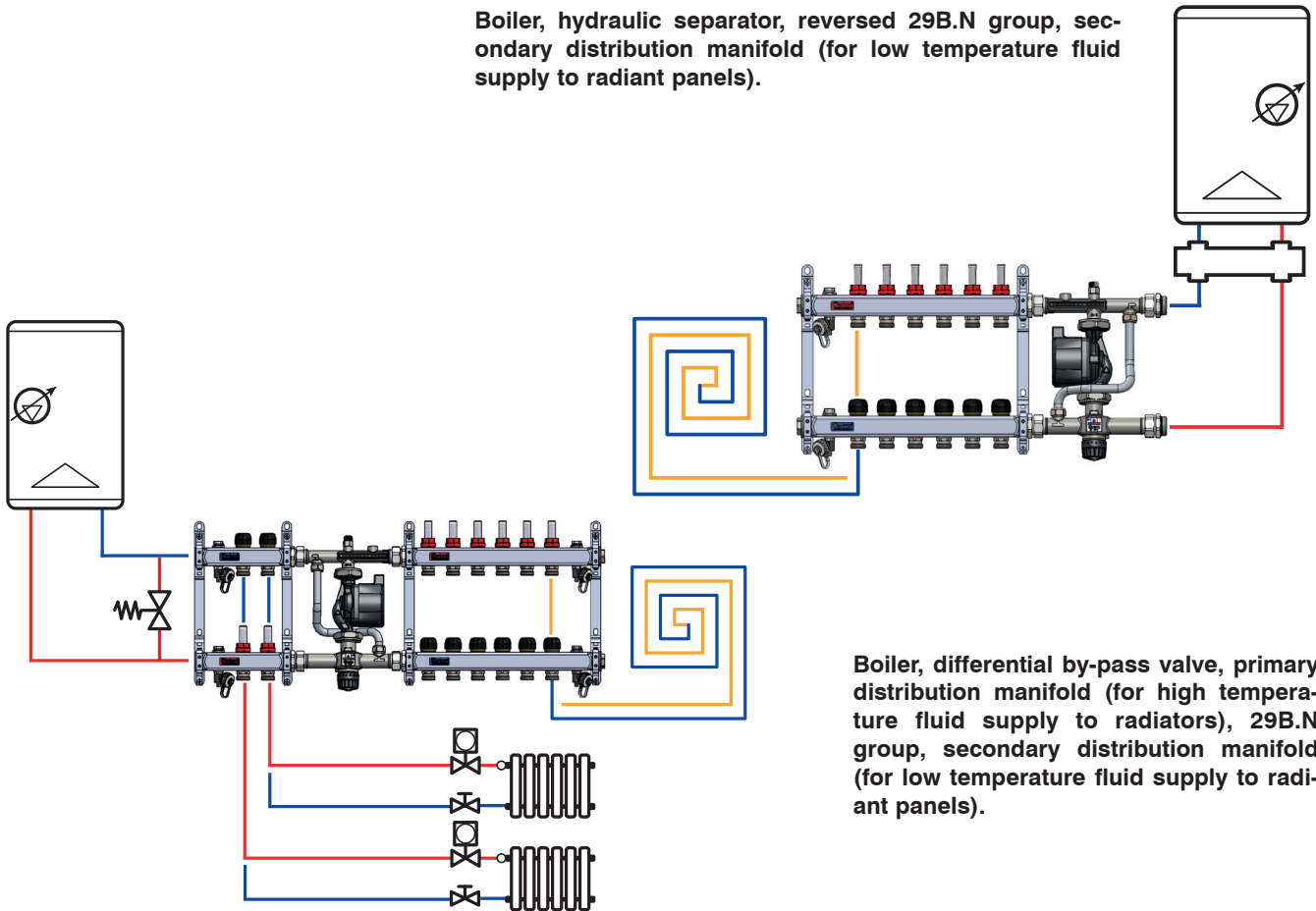
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System diagrams

Boiler, hydraulic separator, reversed 29B.N group, secondary distribution manifold (for low temperature fluid supply to radiant panels).



Boiler, differential by-pass valve, primary distribution manifold (for high temperature fluid supply to radiators), 29B.N group, secondary distribution manifold (for low temperature fluid supply to radiant panels).

Specifications

Series 29B.N

Recessed regulating group with thermostatic mixing valve. Threaded connections G 1 M. Connection centre distance to primary and secondary manifolds 211 mm. The group is composed of: brass thermostatic mixing valve with wax sensor, temperature adjustment range 30–60 °C; brass instrument holder; stainless steel return pipe; liquid cristal flow thermometers with scale 30–60 °C. High-efficiency pump Wilo Para 25-130/7-50/SC-12 (Grundfos UPM3 Auto 25-70 130, 3 constant speed Grundfos UPSO 15-65 130 (Extra EU)), supply 230 V/50-60 Hz. Working temperature range 5–90 °C; maximum working pressure 10 bar.

