

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Description




DN 25

This preassembled pump group is part of the **Barberi® trolli HEATING** line.

This distribution group allows the circulation of the thermal fluid, coming from the primary circuit.

This group regulates the temperature of the thermal fluid through the work of a motorized mixing valve. The group with thermal regulation is appropriate for heating system in general with delivery temperature regulation based on room temperature or outside temperature (climate control). The group is composed of the pump, shut-off valves supply/return side, mixing valve to be motorized, supply/return side thermometer, check valve anti-recirculation, thermal insulation.



Range of products

Distribution group with mix valve KV 6	03G	XXX	XX	X
Distribution group with mix valve KV10	05G	XXX	XX	X
Reversible distribution group with mix valve kv 6	07G	XXX	XX	X
Reversible distribution group with mix valve KV 10	09G	XXX	XX	X
Upper connections G1" F		025		
Without fittings			00	
Fittings with running connection*			01	
Without pump				X
Pump Grundfos UPM3 AUTO L 25-70 180				V
▶ Pump Grundfos UPM3 AUTO 25-70 180				U
Pump Wilo Yonos Para 25-6 180				L
Pump Grundfos UPSO 25-65 180 (extra EU)				C

* see fittings
▶ on request

Features

Max. and minimum working temperature: **5 °C – 90 °C**

Max working pressure: **10 bar**

Female connections: **UNI EN 10226-1**

Male connections: **UNI ISO 228-1**

Pump: **Grundfos UPM3 AUTO L 25-70 180**

Grundfos UPM3 AUTO 25-70 180

Wilo Yonos Para 25-60 180

Grundfos UPSO 25-65 180(Extra EU)

Allowed fluids: **water, mix water and glycol(max 30%)**

Thermometers measurement range: **0-120°C**

Material

Ball and check valve

- Body: **brass UNI EN 12165 - CW617N**
- Gasket: **PTFE, EPDM, Viton**

Mixing valve to be motorized

- Body: **brass UNI EN 12165 - CW617N**
- Diverter: **brass UNI EN 12164 - CW614N**
- Gasket: **EPDM**

Pump

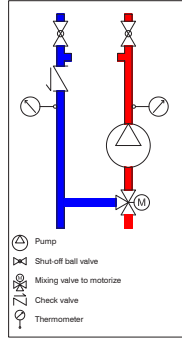
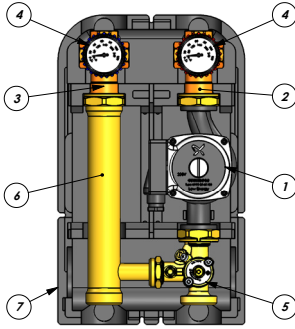
- Body: **cast iron**

Insulation shell

- Body: **EPP**
Density 60 kg/m³
Thermal conductivity 0,039W/mK(20°C)
Thermal conductivity 0,041W/mK(40°C)

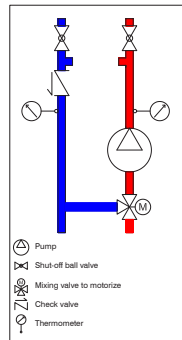
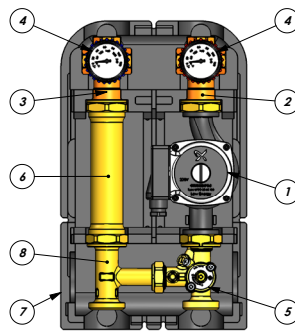
DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Components



cod. 03G.DN25 / 05G.DN25		
1	Pump	Grundfos UPM3 AUTO L, Grundfos UMP3 AUTO, Wilo yonos para, Grundfos UPSO
2	Shut-off ball valve	
3	Shut-off ball valve with check valve	
4	Thermometer	
5	Mixing valve to motorize	
6	By-pass extension	
7	Insulation shell	

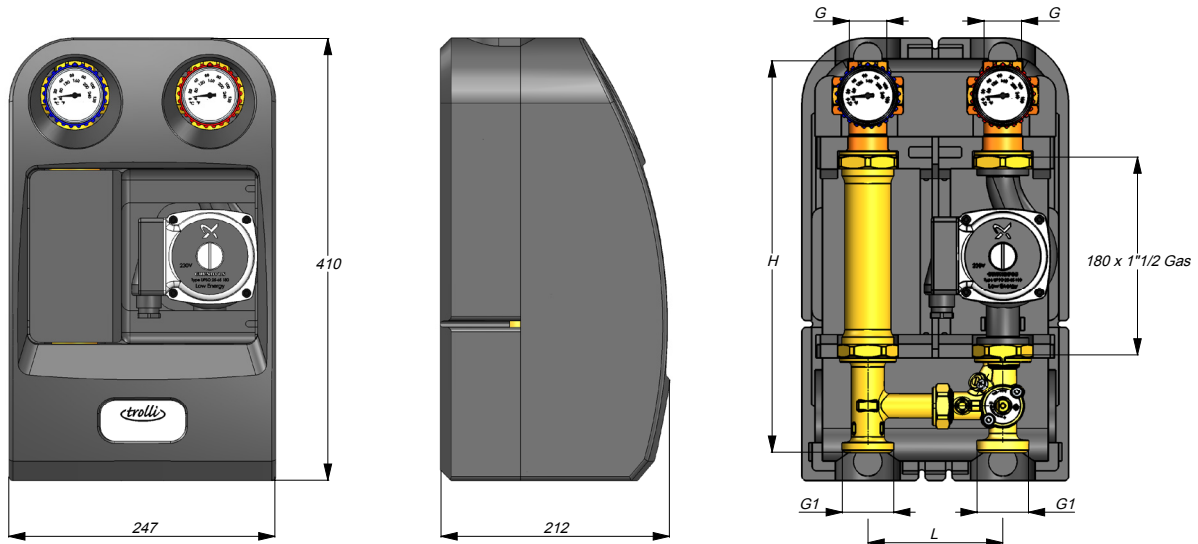
► on request



cod. 07G.DN25 / 09G.DN25		
1	Pump	Grundfos UPM3 AUTO L, Grundfos UMP3 AUTO, Wilo yonos para, Grundfos UPSO
2	Shut-off ball valve	
3	Shut-off ball valve with check valve	
4	Thermometer	
5	Mixing valve to motorize	
6	Extension	
7	Insulation shell	
8	T-joint with by-pass on return	

► on request

Dimensions



Cod.	P [bar]	G	G1	L	H	Pump	Weight		N. P/S	N. P/C	
							03G/07G	05G/09G			
03G / 07G 05G / 09G	025 00X	10	G 1" F	G 1 1/2" M	125	375	without pump	3590	3870	-	1
	025 00V	10	G 1" F	G 1 1/2" M	125	375	Grundfos UPM3 AUTO L 25-70 180	5380	4600	-	1
	► 025 00U	10	G 1" F	G 1 1/2" M	125	375	Grundfos UPM3 AUTO 25-70 180	5380	4600	-	1
	025 00L	10	G 1" F	G 1 1/2" M	125	375	Wilo Yonos Para 25-6 180	5480	5760	-	1
	025 00C	10	G 1" F	G 1 1/2" M	125	375	Grundfos UPSO 25-65 180	6100	6460	-	1

Weight (grams) - N. P/S: number of pieces in box, plastic bag - N. P/C: number of pieces in carton
► on request

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

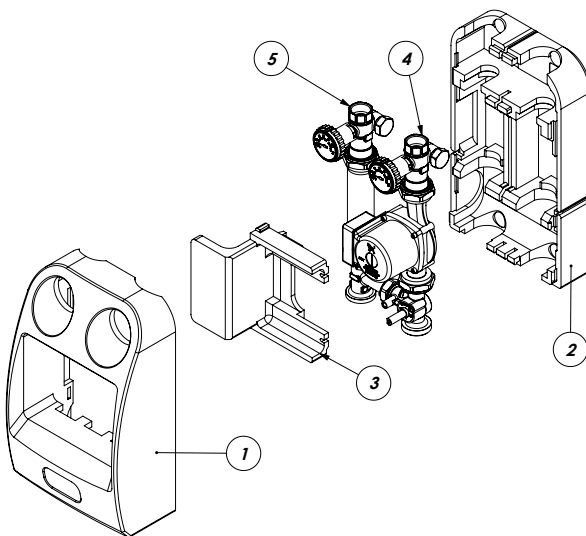
Installation

The installation of every component must be made from qualified people because this system is used to carry the fluid at temperature and pressure that can be dangerous for people and things.

Introduction

The direct distribution group consists of the parts in the picture:

- Front insulation shell (1),
- Back insulation shell (2),
- Pump protection (3),
- Delivery side (4) includes shut-off ball valve of secondary circuit, mixing valve to be motorized and thermometer
- Return side (5), includes shut-off ball valve and check valve



The front (1) and back shells (2) help the thermal insulation and save energy. The pump protection shell (3) has been introduced for maintaining the thermal insulation and avoiding overheating of electric actuator of the pump. In this way the risk of damage is reduced.

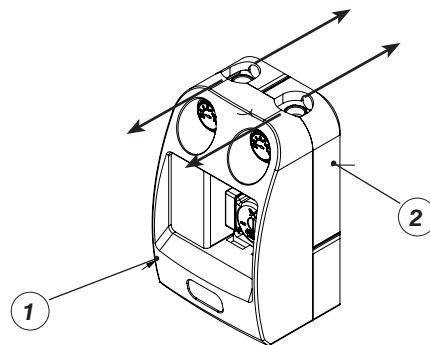
The thermometer that is integrated in the handle of ball valve helps the temperature control of both side. The check insert that is integrated in the body of shut-off valve of return side is used to prevent parasitic flows when the pump is off. The mounting options of the group are:

- Wall installation
- Collector installation

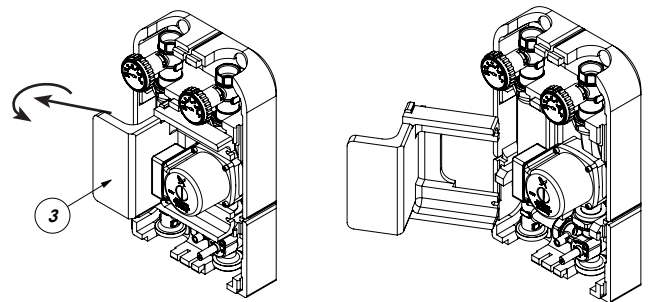
Wall installation

(only for groups supplied with steel bracket). Note: check the distance of the pipes from the wall. See point 7.

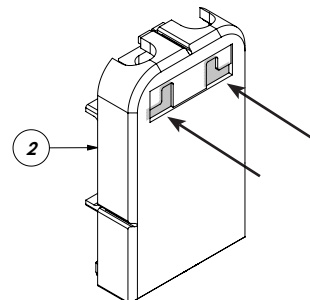
1. Remove the preassembled group from the box packing;
2. Open the shell pulling the parts (1) e (2) from the upper ends indicated;



3. Remove the pump protection (3);



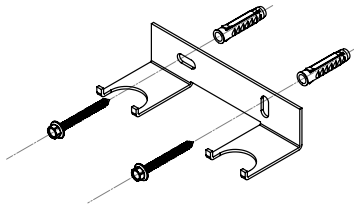
4. Remove side 4 and side 5
5. Cut the 2 boxes on the back shell (2)



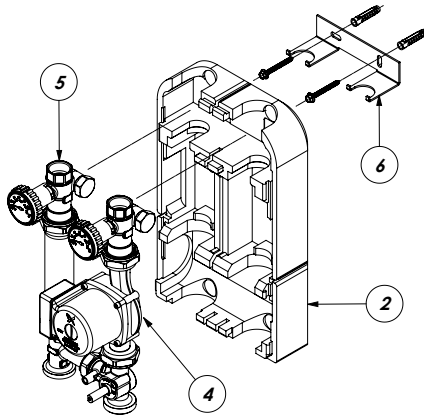
6. The bracket has to be used on a suited wall. The bracket is provided with holes and a slot to facilitate the positioning. Fasten the bracket on the wall with screws and dow-

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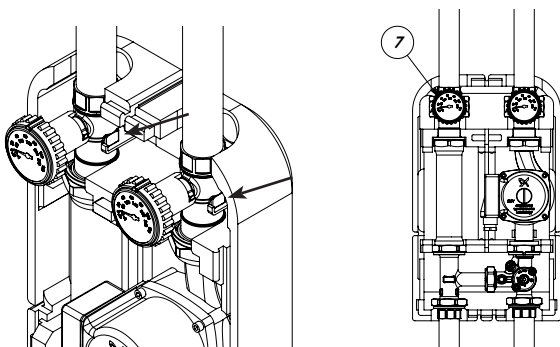
els you find in packing ;



- Insert the back shell (2) in the bracket (6). Insert the delivery (4) and return side (5) on the bracket slightly lifting the shell. In this way the distance between the centre of the pipes and wall surface is about 54 mm.

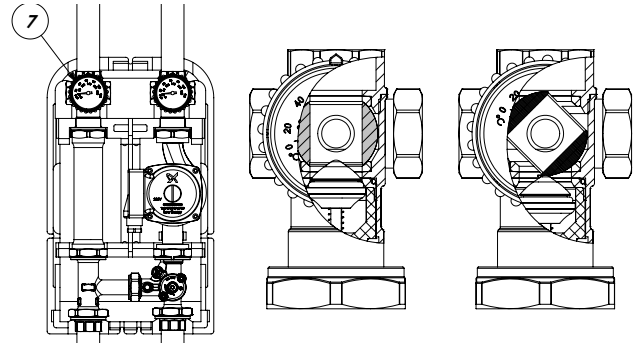


- Install the pipes of both sides of the group through the fittings supplied in the packing (for models with fittings) or through the appropriate connections (it's recommended fittings with plane gaskets). In case there is a pump installed in series to the group (e.g. pump of the boiler), it's a good practise to install a unit for hydraulic separation of the circuits to avoid malfunctioning of both pumps or boiler.

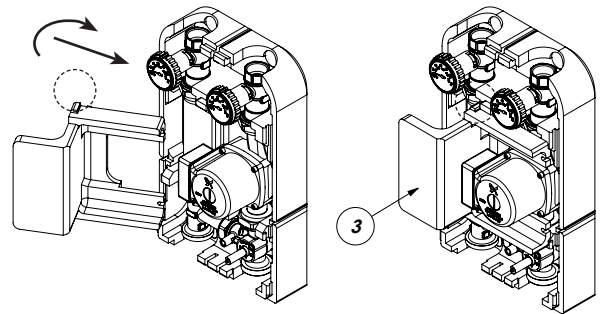


- Rotate the handle of the shut-off valve (7) of return side up to 45°. In this position the ball will press the check insert disconnecting it and allowing a better water and air flow. This air has to be eliminated during the filling phase. Fill the system and check the presence of leakage of ther-

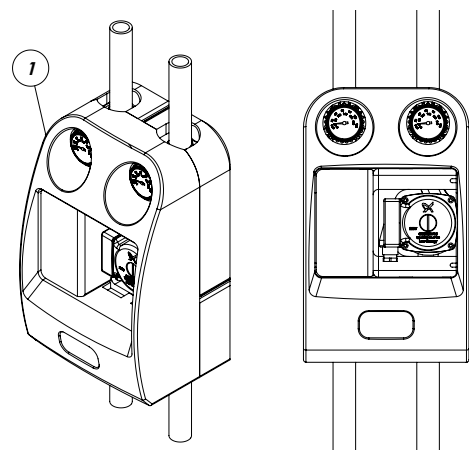
mal fluid (water or mix water and glycol).



- Open the shut-off valve in return side (7)
- Do the wiring (See the section 'Wire positioning')
- Insert the pump protection (3)



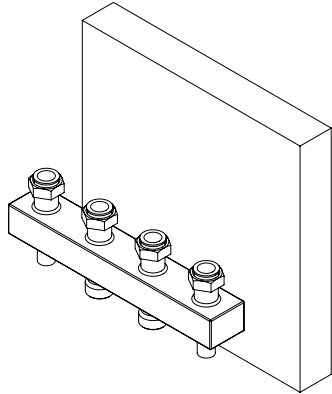
- Join the 2 parts of the shell (1)



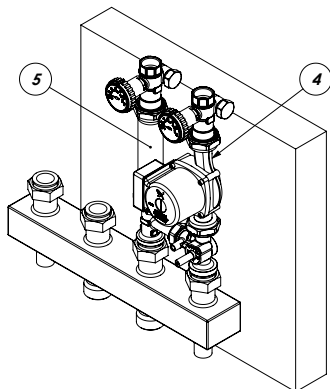
Installation on collector

The distribution group can be installed on collectors with integrated hydraulic separator, on standard collectors with not integrated hydraulic separator, on collectors connected to a storage. For an appropriate installation, the collector must have the distance of connections of at least 60 mm from the wall.

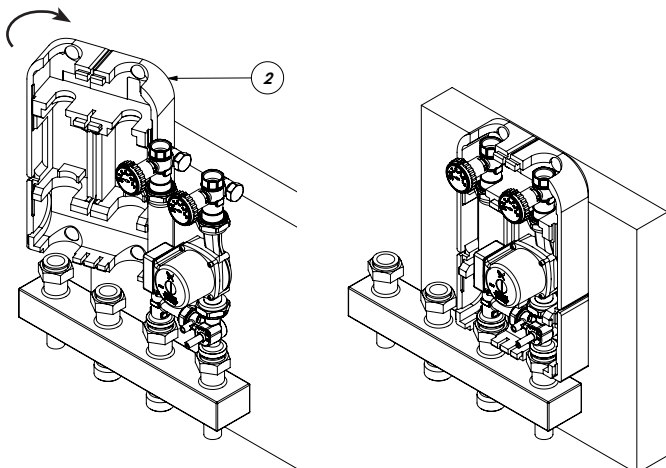
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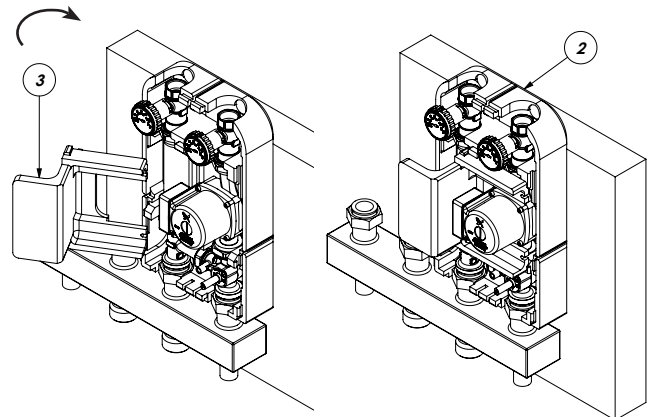
1. Follow the steps 1, 2, 3, 4, of wall installation
2. To facilitate the installation, start from the centre of the collector and go on with the outermost ; install the delivery (4) and return (5) on the distribution collector through the fittings supplied in the packing (for models with fittings) or through the appropriate ones (it's recommended fittings with plane gasket)



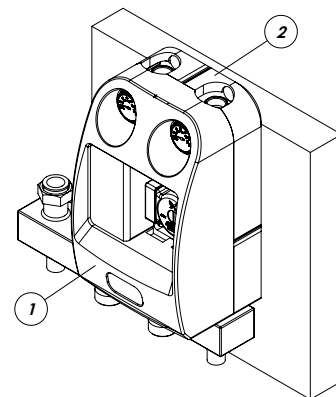
3. Put on the shell (2); (if the collector is too close to the wall, it's necessary to insert the part (2) before installing the delivery (4) and return (5))



4. Put on the shell (3) pressing the part (2) from the back side;



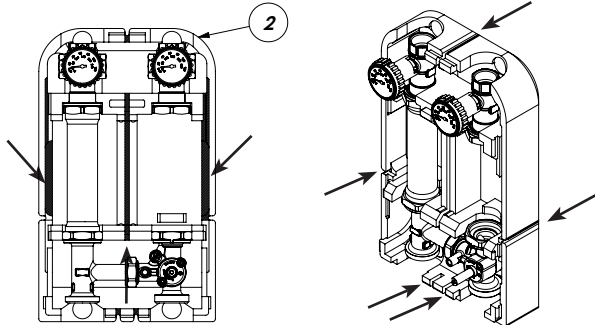
5. Proceed as in step (9) of wall installation.
6. Open the shut-off valve in return side
7. Do the wiring (see wires positioning section)
8. Join the 2 parts of the shell holding the part (2) on the back side



Wires positioning

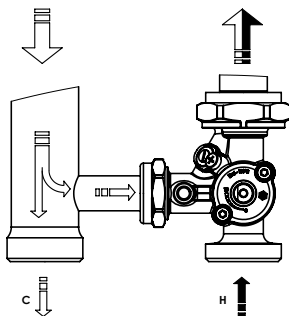
The wires must be connected by qualified people to avoid any safety risks for people and things. The shell (2) has been realized to help the wires positioning inside the shell. In fact there are guides that allow the reaching of the lateral wires of the shell (2).

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Adjustment of the mixing valve

The mixing valve allows the setting of temperature of delivery through the mixing of hot and cold thermal fluid. The regulation is obtained regulating manually the valve with the handle supplied or through the actuator (for groups supplied with actuator).

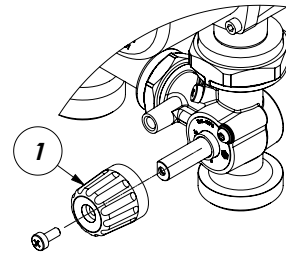


The mixing valve that is supplied inside the group has a by-pass system to be regulated. This by-pass is helpful for delivery temperature regulation when the mixing valve is motorized and controlled by a regulator. It's possible to regulate the delivery temperature when the valve has the return way totally close (highest demand from the consumer). In this way the temperature regulation from the controller, will cover a rotation of 90°, avoiding instabilities of temperature, change of rotation of the actuator and dangerous peaks of temperature (e.g. floor heating system).

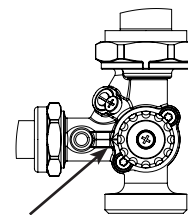
ATTENTION: in case of high difference of temperature between the boiler and the consumer it's possible not to achieve the consumer temperature, even if the by-pass is completely open. It's recommended to do the regulation in the best way possible.

In order to do a precise temperature setting, it's important to switch on the heat generator at the delivery temperature following the project specifications and to bring system to scheme. In this way the adjustment of the valve will be maintained precise.

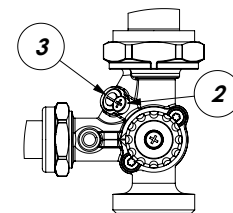
1. Assemble the handle (1) with the screw supplied with the group.



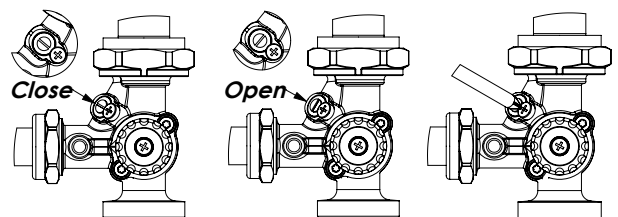
2. Rotate the handle (1) in the position indicated (arrow on nr 10). In this position there is no mix.



3. Switch on the pump
4. Loosen the screw (2) of by-pass.



5. Regulate the screw (3) of by-pass to get the right temperature. Consider that by-pass in the picture on the left is totally close, the one in the centre is totally open. Close the screw (2).

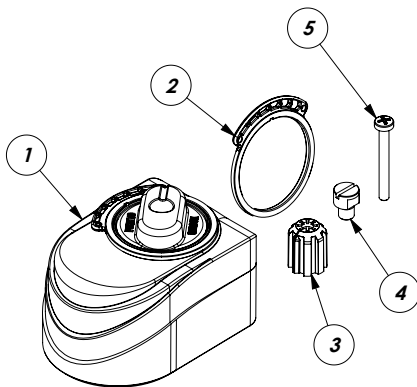


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- In case the by-pass regulation is not enough, bring the handle (1) in the position for getting the temperature of the project. In this way if the handle was tampered, the by-pass would limit the delivery temperature.
- Install the actuator (See the section Actuator Installation)

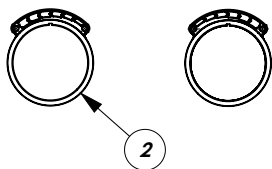
Installation of actuator

The actuator for distribution group is supplied with the components you can see in the picture.

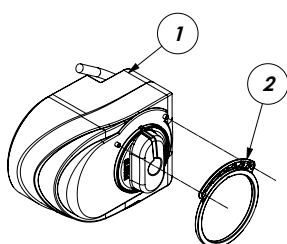


Actuator (1), Graduated ring (2), Mixing adapter (3), Actuator stop (4), clamping screw (5).
See the following steps for the installation on the mixing valve.

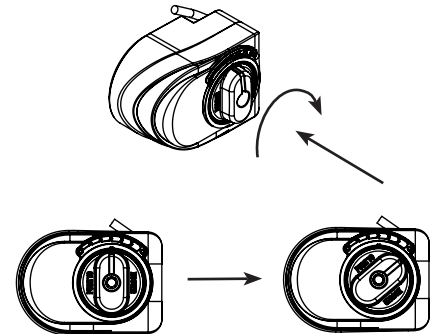
- Watch the graduated ring (2) for the percentage of hot water. Turn the ring as in the picture on the right



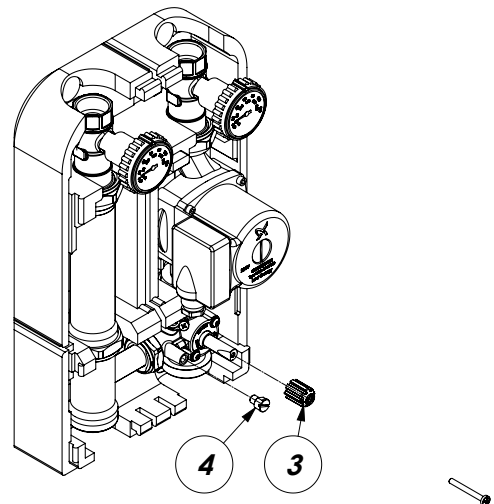
- Insert the ring (2) inside the guide of the actuator (1)



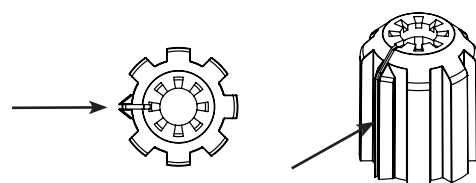
- Through a pressure and clockwise rotation, turn the handle until the end and stop it.



- Insert the adaptor (3) and screw the actuator stop (4).

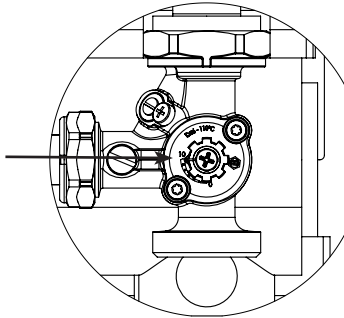


- Watch the mark on the adapter.

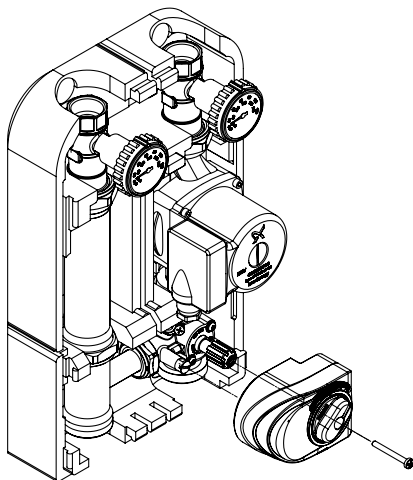


DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

6. In case the by-pass regulation is not enough, bring the handle (1) in the position for getting the temperature of the project. In this way if the handle was tampered, the by-pass would limit the delivery temperature.
8. Connect the wires of the actuator to the right regulator for climate setting based on outside temperature or for setting the delivery temperature based on room temperature.



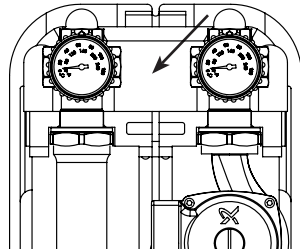
7. Install the actuator (See the section Actuator Installation). In this way the handle of the actuator is positioned for achieving the maximum flow rate on delivery and no flow rate on return.



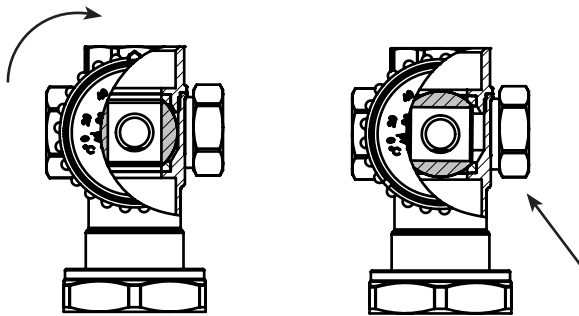
DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Installation and adjustment of differential by-pass valve (for models with differential by-pass or installation at a later time)

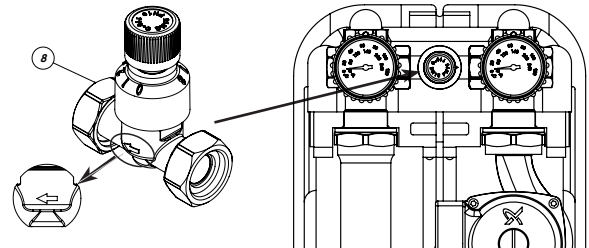
The installation of differential by-pass valve must be done as shown in the picture.



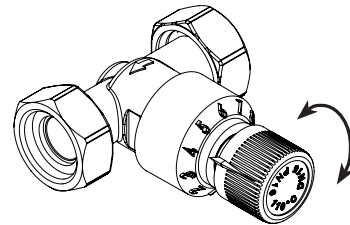
1. For the installation of differential by-pass valve (specially with filled system) you must close the 2 ball valve with thermometer as shown in the picture,



2. Disassemble the lateral cover and the plane gaskets of the ball valves. Insert the differential by-pass valve (8) (e.g. art 615, art 616) with plane gaskets supplied with the packing paying attention to the flow direction indicated by the arrow.



3. Rotate the handle of the valve on the value specified from the designer in order to achieve the right working conditions for the system.



Pump replacement

The distribution groups has been realized in order to hold different type of pumps. The models that suit the distribution group Barberi are shown in the table. The pump Grundfos UPSO is supplied by Barberi without the cable; the pumps Grundfos Alpha2 e Wilo Yonos Para are supplied with wire and connector following the dimensions of the shell of distribution group. In case of purchasing the pumps from other suppliers, pump and connector may require small adjustments on the shell, The installer can do the adjustment by himself.

Suitable pumps with distribution group

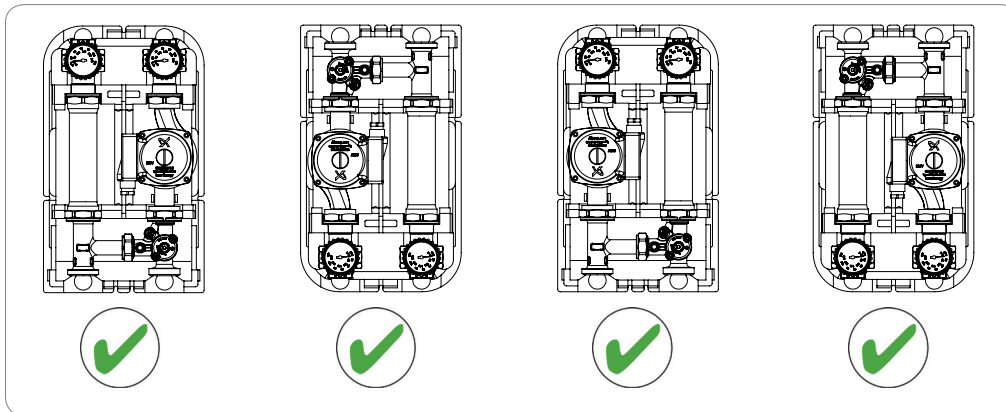
Grundfos UPSO 25-65 - 180
Grundfos UPM3 25-70 - 180
Wilo Yonos Para 25-6 - 180

*other type of pumps have singly evaluated from the company

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

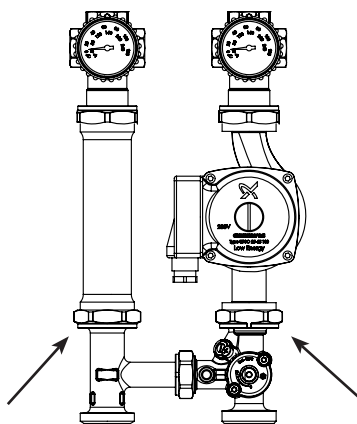
Positioning of the group

The distribution unit with mixing valve can be installed in different ways from the standard (delivery on the right and up direction). The possible layout of positioning depends on the model of the pump installed. In the table below are shown the options you have with the pumps you are using.

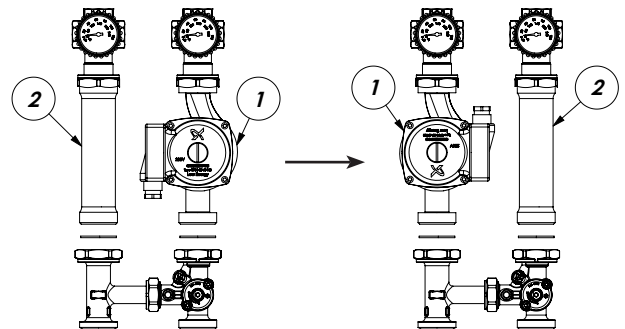


The distribution unit with mixing valve is supplied with standard layout as shown in the scheme 1-2, with pump on the right, delivery up direction or after rotation, pump on the left and lower direction. The articles 07G and 09G can be installed to get the scheme 3-4 following these steps:

1. Loosen the running fittings shown in the picture and pull the extension (2) paying attention to the plane gaskets;



2. Reverse the mounting position of the pump (1) and the extension (2)



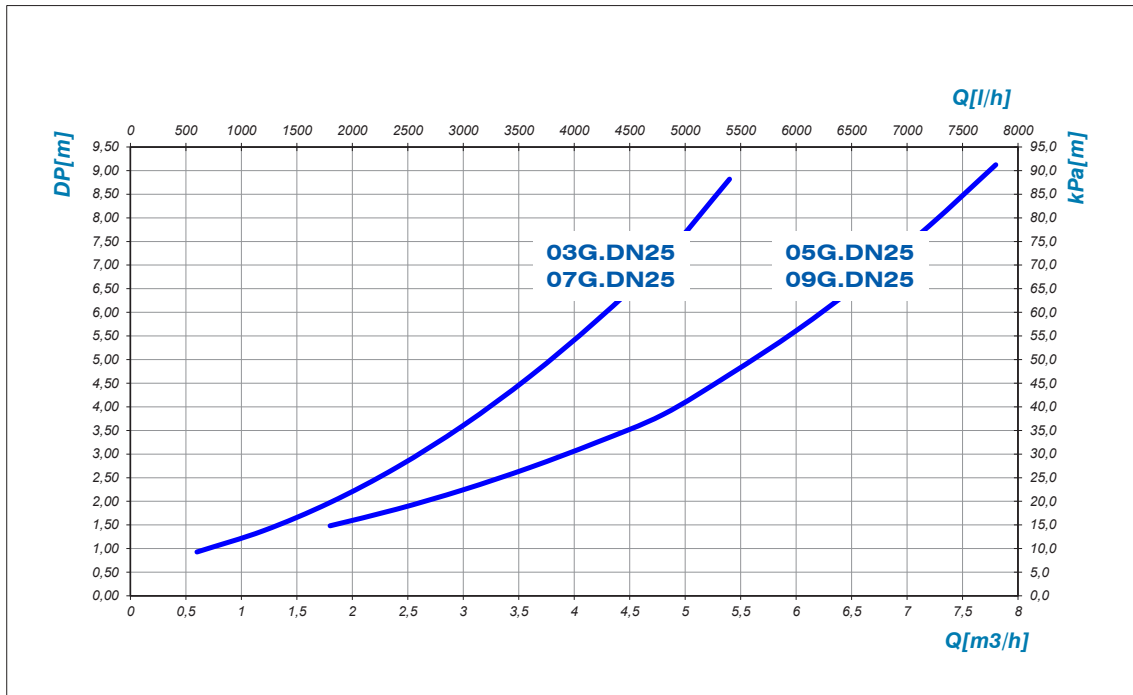
3. Insert the plane gasket and close the connections
4. Rotate the actuator of the pump if necessary (if pump allows to rotate the actuator)

Attention: keep the ball valve with red handle on the side with the pump, the one with blue handle on return side because of the presence of unidirectional check valve .

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

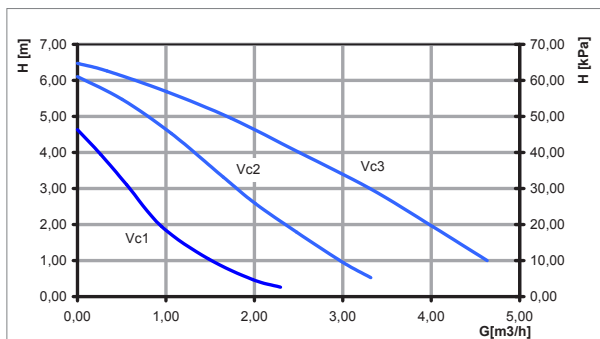
Diagram

Pressure drop of distribution group with mixing valve



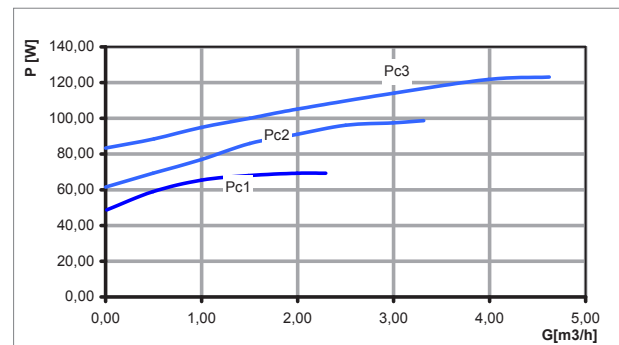
Head and power consumption of the pumps

Head of Grundfos pump UPSO 25-65/180



Vci: Constant speed

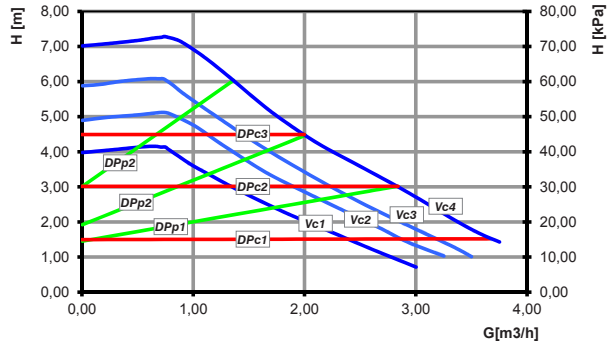
Power of Grundfos pump UPSO 25-65/180



PVci: Power consumption

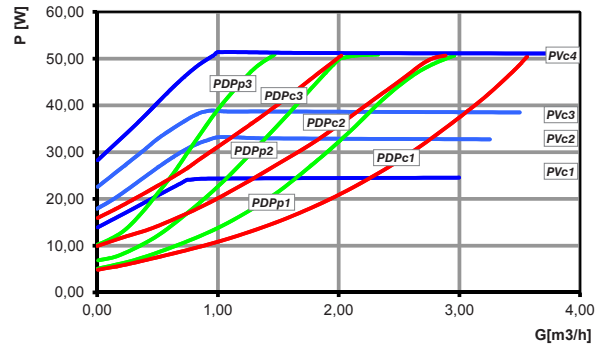
DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Head of Grundfos pump UPM3 AUTO L 25-70 180
UPM3 AUTO 25-70 180



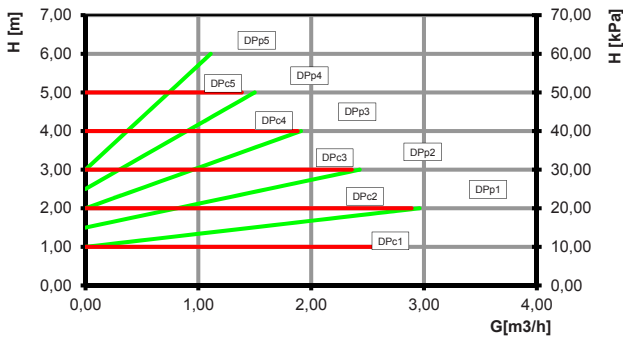
Vci: Constant speed
DPpi: Proportional pressure
DPci: Constant pressure

Power of Grundfos pump UPM3 AUTO L 25-70 180
UPM3 AUTO 25-70 180



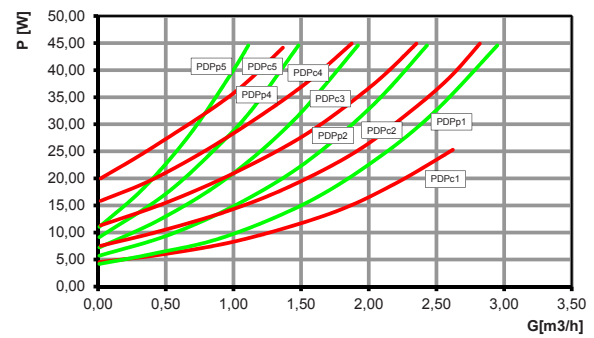
PVci: Power consumption at constant speed
PDPpi: Power consumption at proportional pressure
PDPci: Power consumption at constant pressure

Head of Wilo Yonos Para pump 25-6



DPpi: Proportional pressure
DPci: Constant pressure

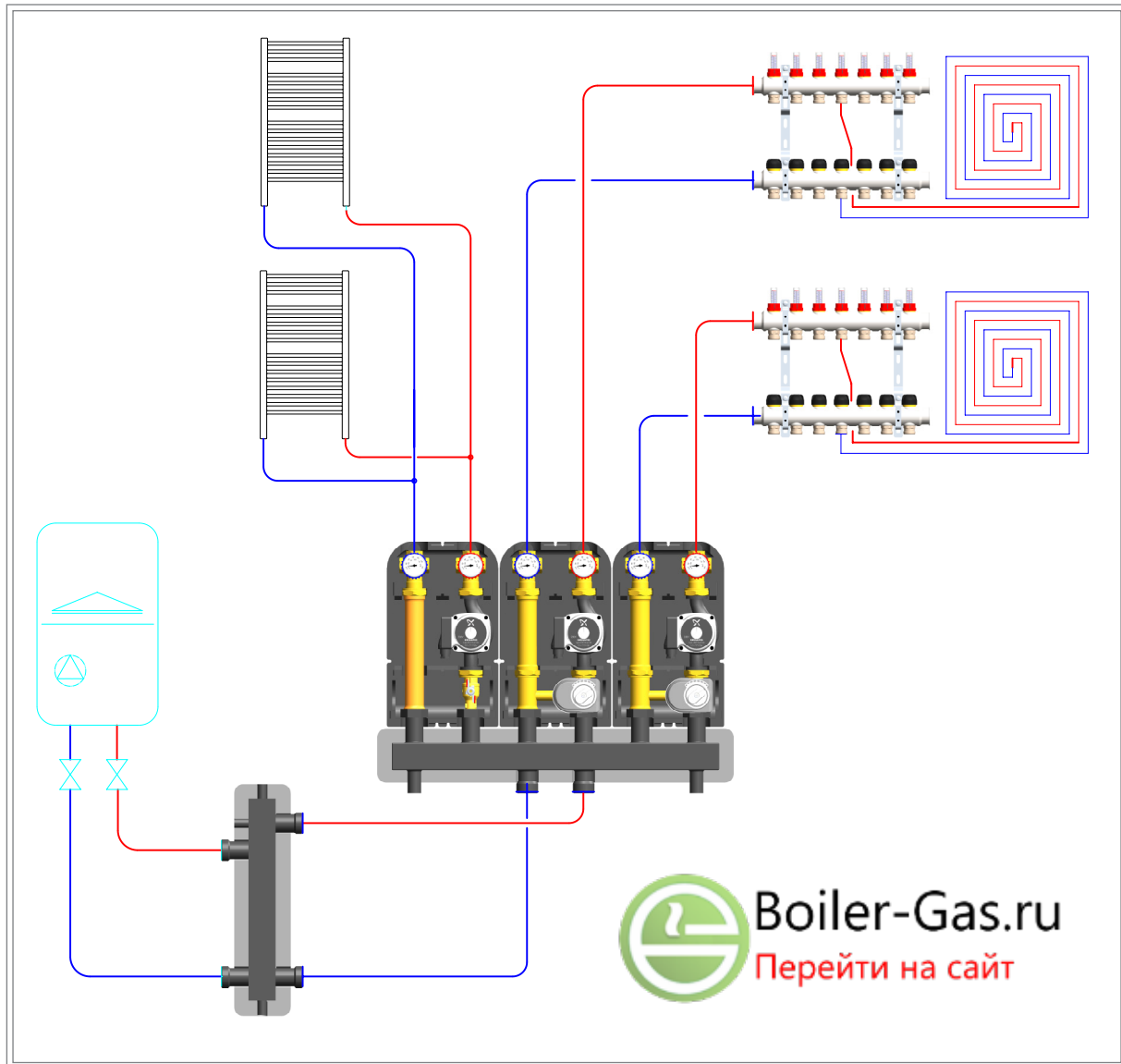
Power of Wilo Yonos Para pump 25-6



PDPpi: Power consumption at proportional pressure
PDPci: Power consumption at constant pressure

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Examples of installation



Specification

This text refers to a specific code of the product. For each version of the groups the designer must modify the specifications.

Code 03G 025 00C

The distribution unit with mixing valve to motorize with 1 1/2 G male connections with plane gaskets on primary circuit and 1" G female on the secondary circuit. Distance between connections of delivery and return: 125mm. Height of delivery and return side: 363mm. Dimensions of the group with shell: 247, 410, 212, (width, height, depth). The group is composed of : shut-off ball valves of secondary circuit in delivery and return, check valve on return side, KV6 mixing valve, delivery and return thermometer with scale 0-120°C. Fittings available for differential by-pass valve 615/616, pump with 3 constant speeds Grundfos UPS 25-65 180, power supply 230V (50Hz). Shell in EPP black colour 60 kg/m³. Maximum temperature of the thermal fluid 90°C. Maximum working pressure of thermal fluid 10bar.

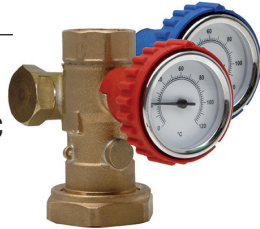
DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

Accessories

38D.DN25

Monobloc with pump connection (ball valve + thermometer + 2 side connections) - thermometer 0-120°C - DN25

Max working temperature: 95°C



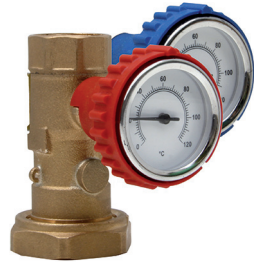
cod.	size	handle colour	P [bar]
38D 025 000	G 1"1/2 F - G 1" F	red	10
38D 025 000B •	G 1"1/2 F - G 1" F	blue	10

• on request

38D.1

Monobloc with pump connection (ball valve + thermometer) - thermometer 0-120°C - DN25

Max working temperature: 95°C



cod.	size	handle colour	P [bar]
38D 025 0001	G 1"1/2 F - G 1" F	red	10
38D 025 0001B •	G 1"1/2 F - G 1" F	blue	10

• on request

39D

Ball valve with pump connection and male connection

Max working temperature: 95°C



cod.	size	handle colour	P [bar]
39D 020 000R	G 1"1/2 F - G 1" F	red	10

44D.DN25

2 fittings with flat gasket - DN25



Max working temperature: 95°C

cod.	size	P [bar]
44D 025 000	G 1" F - G 1"1/2 F	10

37D.DN25

Monobloc with pump connection (ball valve + thermometer + 2 side connections + check valve + check valve disconnection) - thermometer 0-120°C - DN25

Max working temperature: 95°C



cod.	size	handle colour	P [bar]
37D 025 000	G 1"1/2 F - G 1" F	blue	10
37D 025 000R •	G 1"1/2 F - G 1" F	red	10

• on request

37D.1

Monobloc with pump connection (ball valve + thermometer + check valve + check valve disconnection) - thermometer 0-120°C - DN25

Max working temperature: 95°C



cod.	size	handle colour	P [bar]
37D 025 0001	G 1"1/2 F - G 1" F	blue	10
37D 025 0001R •	G 1"1/2 F - G 1" F	red	10

• on request

40D

L-extensions with flat sealing, dimension 272 mm

Max working temperature: 140°C



cod.	size	P [bar]
40D 040 000 L	G 1"1/2 - 272mm	10

42D.DN25

Bracket for wall mounting of the group, including screws and dowels



Holes diameter: 8mm
Holes distance: 90mm

cod.
42D 025 Z001

DISTRIBUTION GROUP ROTARY MIXING VALVE REGULATION

11D.120

Axial thermometer



Range: 0-120°C

cod.	size
11D 015 000120	ø51mm

615

By-pass differential valve with running nuts - range 0,2-2,5m. With flat gaskets. Connection distance 65mm



Max working temperature: **95°C**
Connection distance: **65mm**

cod.	size	P [bar]
615 015 000	G 3/4" F	10

616

By-pass differential valve with running nuts - range 2-6,5m. With flat gaskets. Connection distance 65mm



Max working temperature: **95°C**
Connection distance: **65mm**

cod.	size	P [bar]
615 015 000	G 3/4" F	10

41D

3-ways mixing valve with by-pass pump connection distribution manifold connection



Max working temperature: **90°C**

cod.	size	KV.	P [bar]
41D 040 000 C	G1"1/2M - G1"M - G1"1/2F	6	10
41D 040 000 I	G1"1/2M - G1"M - G1"1/2F	10	10

45D.DN25

Giunto a T - DN25



Max working temperature: **140°C**

cod.	size	P [bar]
45D 040 000	G1"1/2 F - G 1"1/2 M - G1" F	10

DISTRIBUTION GROUP WITH THERMOSTATIC REGULATION

27A.DN25

Grundfos Pump UPM3 AUTO L 25-70 180 with high efficiency without autoadapt (EEI < 0.23 in accordance with EuP directive). With 1 m cable

Max working temperature: **100°C**
Max head: **7m**
Connection distance: **180mm**



cod.	size	P [bar]
27A 040 070BC	G 1"1/2 M	10

26A.DN25

Grundfos Pump UPM3 AUTO 25-70 180 with high efficiency (EEI < 0.23 in accordance with EuP directive). With 1 m cable

Max working temperature: **100°C**
Max head: **7m**
Connection distance: **180mm**



cod.	size	P [bar]
26A 040 070BC	G 1"1/2 M	10

05A.DN25

Grundfos Pump UPSO 25-65 with 3 constant speed (Extra UE)

Max working temperature: **100°C**
Max head: **6.5m**
Connection distance: **180mm**



cod.	size	P [bar]
05A 040 065B	G 1"1/2 M	10

07A.DN25

Wilo Pump Yonos Para 25-6 with high efficiency (EEI < 0.23 in accordance with EuP directive). With 1 m cable

Max working temperature: **100°C**
Max head: **6m**
Connection distance: **180mm**



cod.	size	P [bar]
07A 040 060B	G 1"1/2 M	10