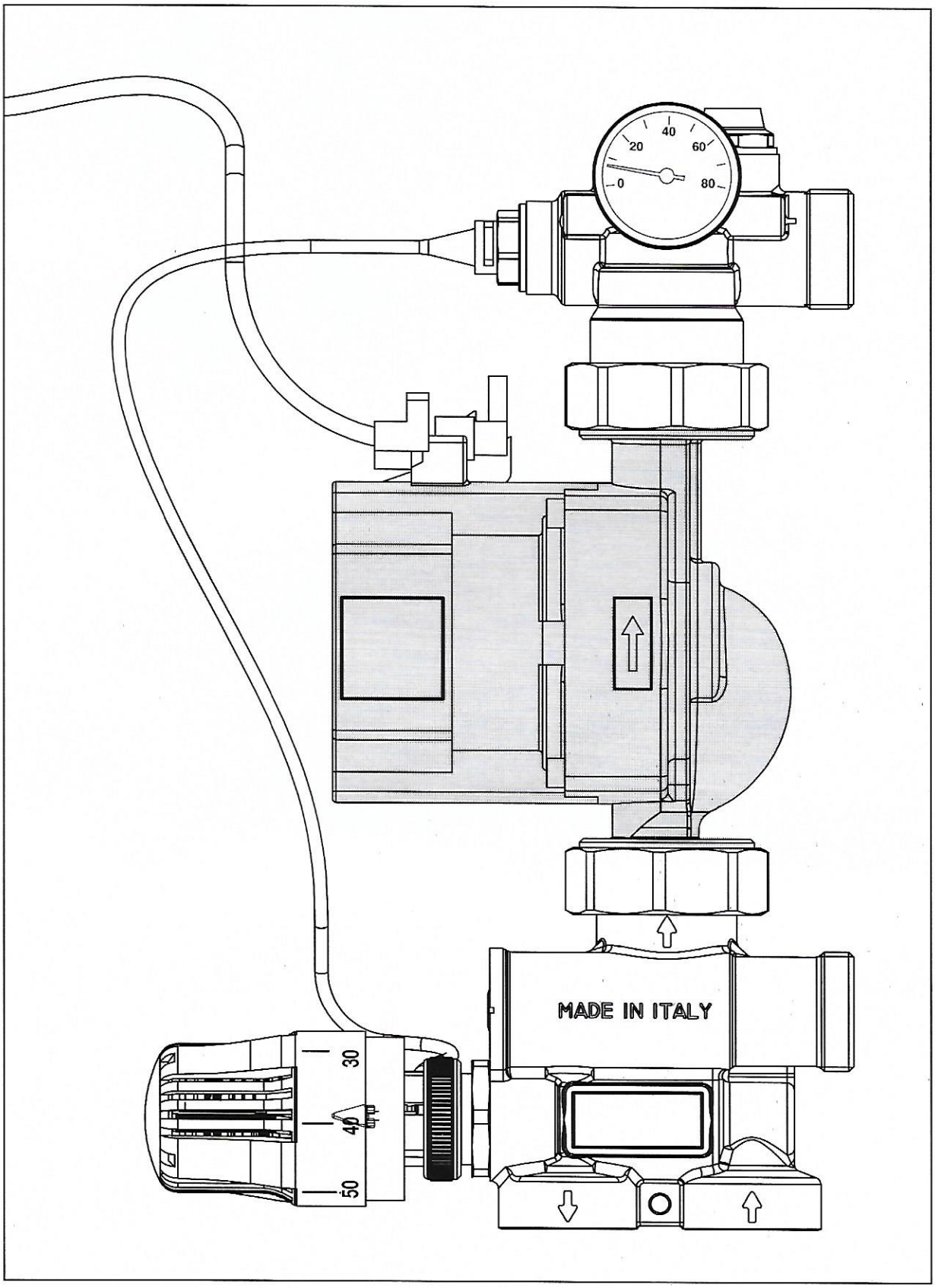


GB INSTALLATION AND USER MANUAL

GB

Thank you for purchasing this product. Carefully read this manual which contains the specifications and all the information useful for the correct use. The information contained in this publication may be subject to change at any time and without any prior notice for technical and/or commercial reasons as they arise; therefore, we cannot be held responsible for any errors or omissions contained herein.

Warning! Please keep this manual in a dry safe place.

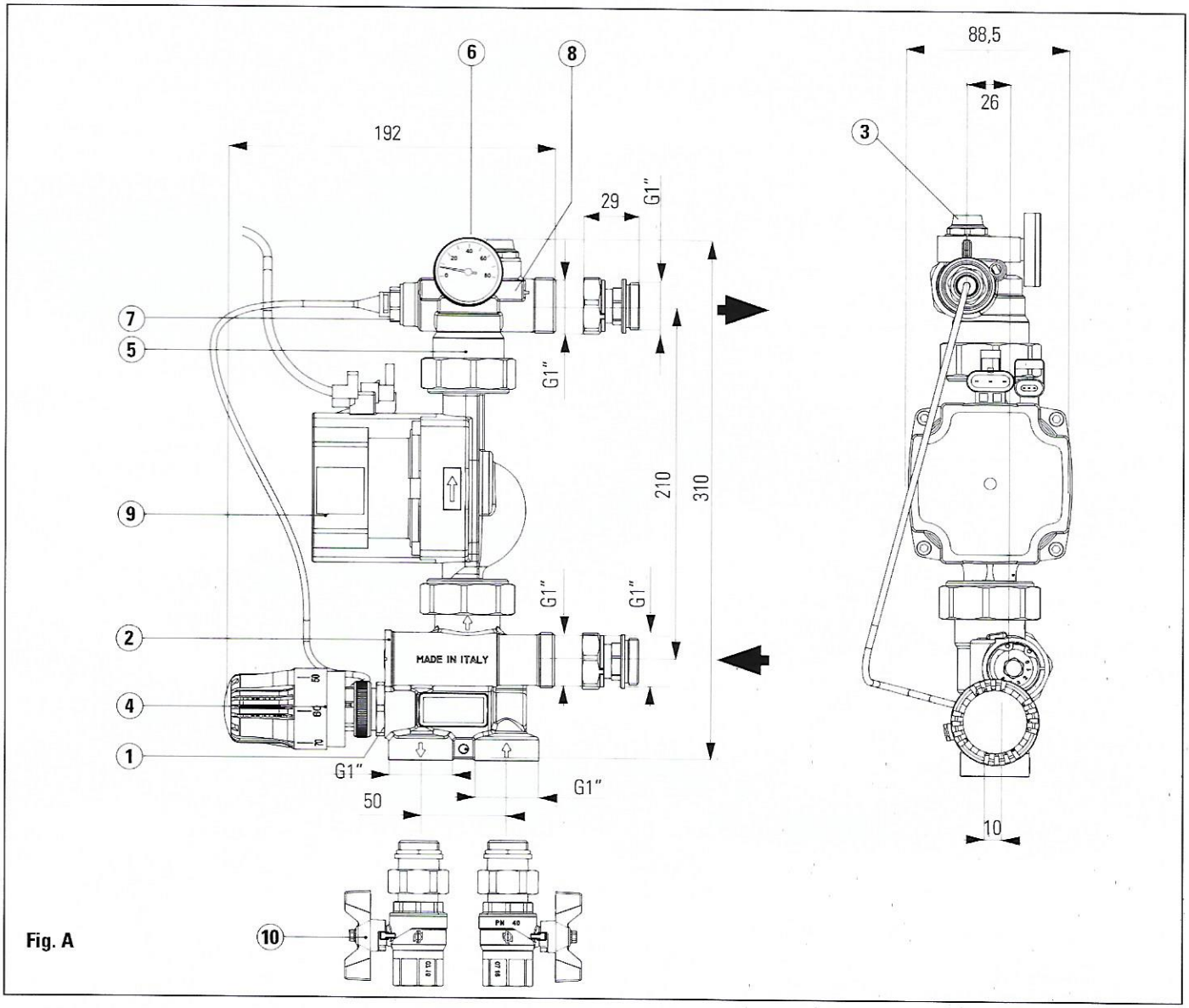


Fig. A

1.1 - Construction

① No. 1 mixing valve with M30x1.5 thread designed for the installation of a thermostatic head with an immersion probe from 20 to 65°C or an electric servomotor (not supplied);

② Nr. 1 calibration valve and by-pass;

③ Nr. 1 ½" manual air vent valve;

④ Nr. 1 thermostatic head with immersion probe setting from 20 to 65 °C limited to 50 °C;

⑤ Nr. 1 non-return valve;

⑥ Nr. 1 thermometer 0 - 80 °C scale;

⑦ Nr. 1 housing for flow temperature probe;

⑧ Nr. 1 housing for safety thermostat probe;

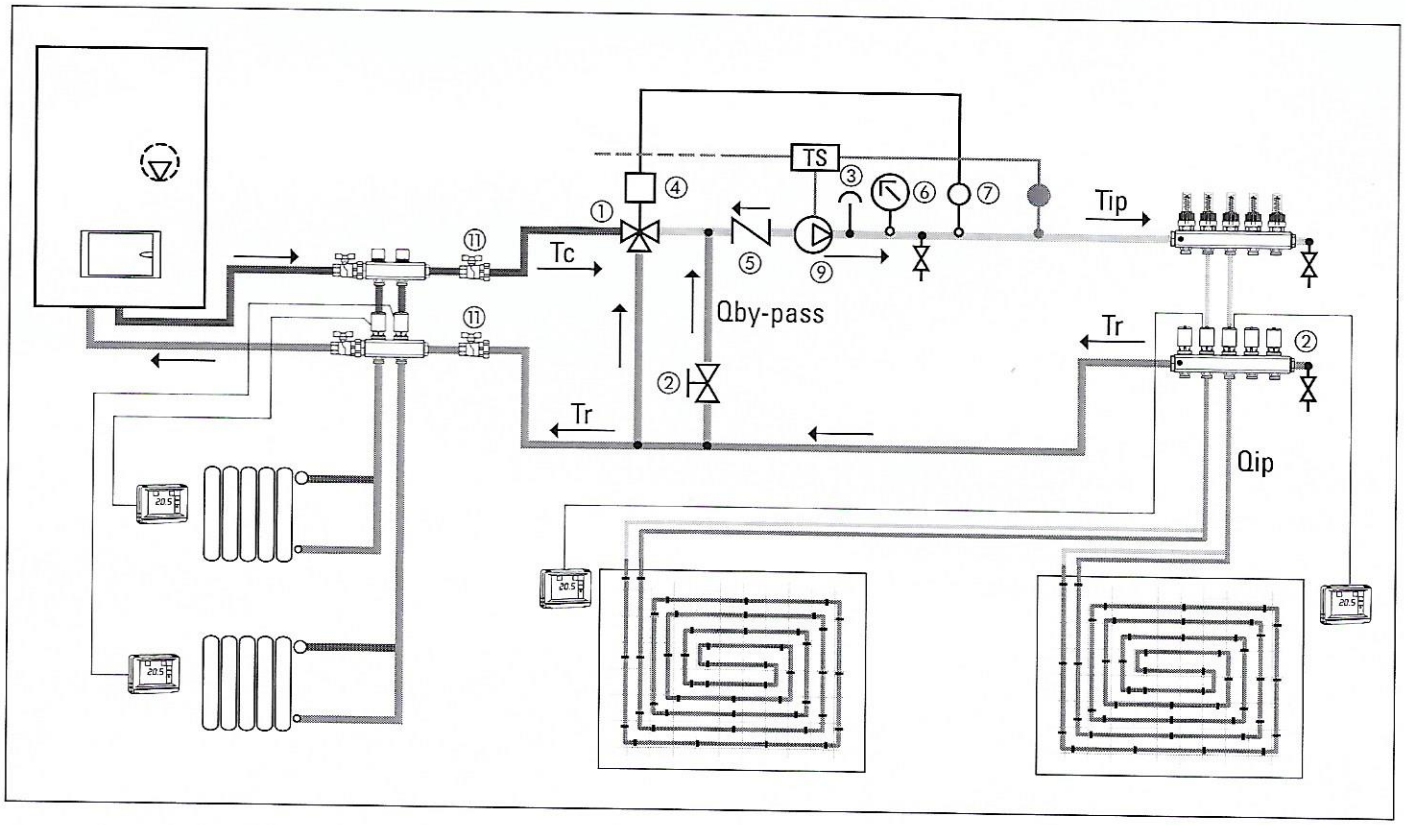
⑨ Nr. 1 electronic circulator GRUNDFOS UPM3 Auto L with three -pole cable L 1000 mm;

⑩ Nr. 1 ball valve set (not supplied);

1.2 Technical data

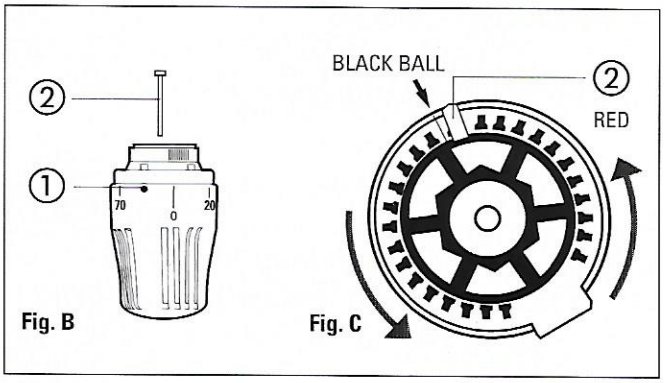
Primary circuit maximum temperature :	90 °C
Maximum pressure:	10 bar
Primary circuit max ΔP:	1 bar
Secondary control range: (thermostatic regulation)	20÷65 °C
Heating capacity that can be exchanged (ΔT 7°C, ΔP available 0.25 bar)	
Thermostatic regulation	10 kW by-pass pos. 0
Thermostatic regulation	12.5 kW by-pass pos. 5
Mixing valve pressure drops	Kv 3
Pressure drops with open bypass valve	Kvmax 4.8
Thermometer scale:	0÷80 °C
Mixing unit inlet threads:	G 1" F
Connections Thread:	G 1" M
Circulator connections: pipe union	1"1/2 - takeoffs 130 mm

1.3 Hydraulic diagram of thermostatic regulation units and electronic circulator



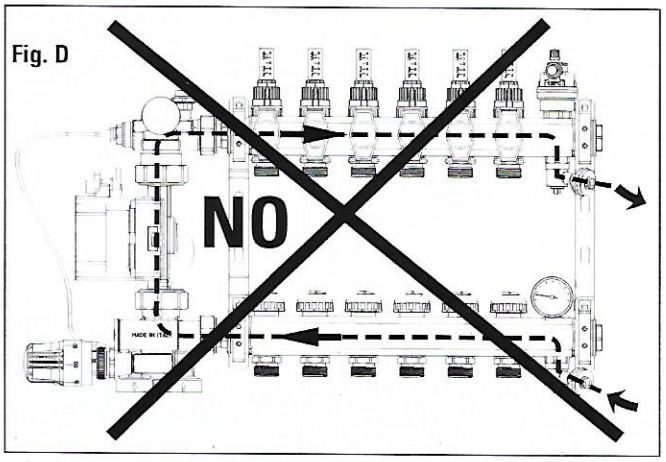
2.1 Installing the unit

The mixing unit can be installed directly on the wall connected to distribution manifold or fixed by means of suitable plugs and screws (depending on the kind of wall) to be applied in correspondence of the holes to be drilled on bodies constituting the unit.
The unit can also be installed in a metal cabinet if it is connected to the distribution manifolds, in this case provide a minimum depth of 120 mm.



2.2 Installation of thermostatic head with immersion probe for fixed regulation immersion probe for thermostatic regulation

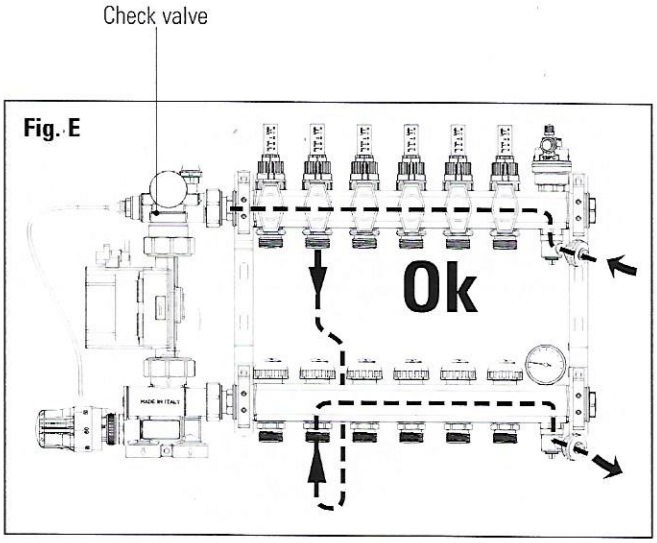
To make it easier to assemble, set the maximum value on the thermostatic head. Bear in mind you need to set it back to the temperature required in the project for the floor-mounted system.
Then insert the probe in the pocket (ref. ⑦ Fig. A).



2.3 Limitation of the maximum temperature

1. Remove the red pin (rif. ② fig. B).
2. Set the desired maximum temperature.
3. Locate the black dot printed (rif. ① fig. B) between the temperatures 70 and 20 ° C.
4. Insert the pin (rif. ② fig. C) in the first slot which precedes the black dot.

After successful operation, the knob can not be positioned on higher temperatures than set.



2.4 Testing and filling

- Carry out the hydraulic test on the unit, close the valves and the lockshields on the distribution manifold.
- At the end of the test, reduce the pressure inside manifolds using the drain valves.
- Now fill each circuit individually by opening the valve and lockshield of the single way until all the air comes out.
- Correctly fill: connect the water supply to the drain valve on the flow manifold on the top and a tube to the drain valve in the return collector. Inside the mixing unit there is a check valve which prevents backflow circulation inside the unit, thereby making it easier to expel the air inside the circuits (fig. D and E).

3.1 Dimensional example

3.1.1 Thermostatic regulation

Project data:

P = capacity to provide to the floor-mounted system = 6000W

Tip = delivery temperature of the floor system = 40°C

Tc = temperature of the water coming from the boiler = 70°C

ΔTip = project temperature drop of the floor-mounted system = 5°C

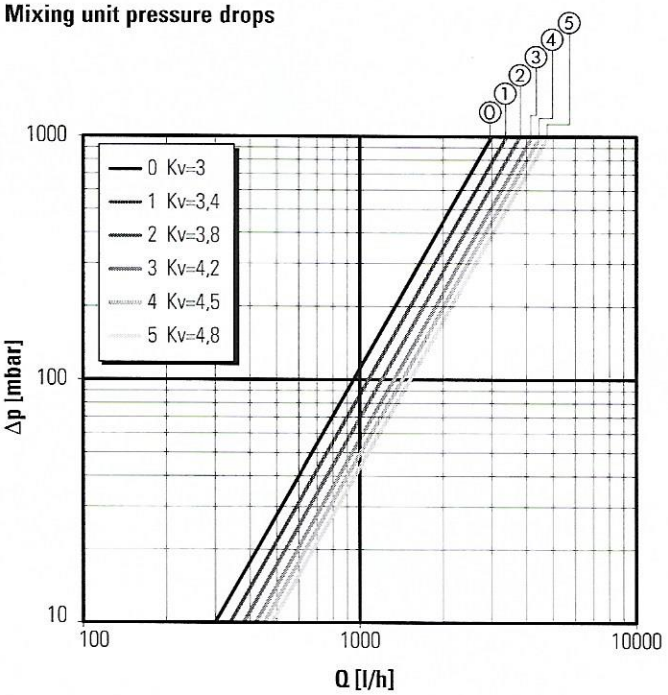
Tr = floor-mounted system return temperature = Tip –ΔTip = 40 – 5 = 35°C

Qip = floor-mounted system flow-rate = (P[W] x 0,86) / (ΔTip) = (6000 x 0,86) / 5 = 1032 l/h

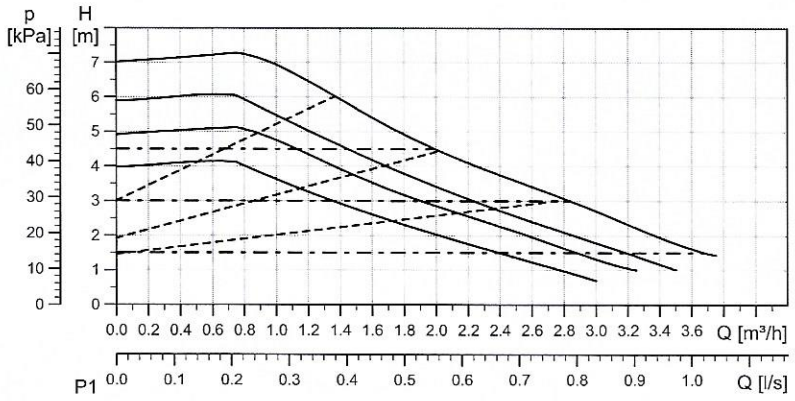
ΔP valv = control valve pressure drop

From the diagram underneath the 1032 l/h flow rate, there are 6 different curves that correspond to the various bypass adjustments (ref. ② fig. A): the less the bypass opens, the shorter the response time of the mixing valve to the temperature variations and the requested delivery temperature is reached in a shorter amount of time. Conversely, the opening of the bypass reduces the drops by increasing the system's flow-rate and simultaneously reducing the flow temperature oscillations due to the opening-closure of the various areas the heating system is divided into.

Mixing unit pressure drops



UPM3 AUTO L 25-70



Perfomance	
Line Type	Description
————	Constant Curve
- - - - - - - - - -	Proport. Pressure
— - — - — - —	Constant Pressure

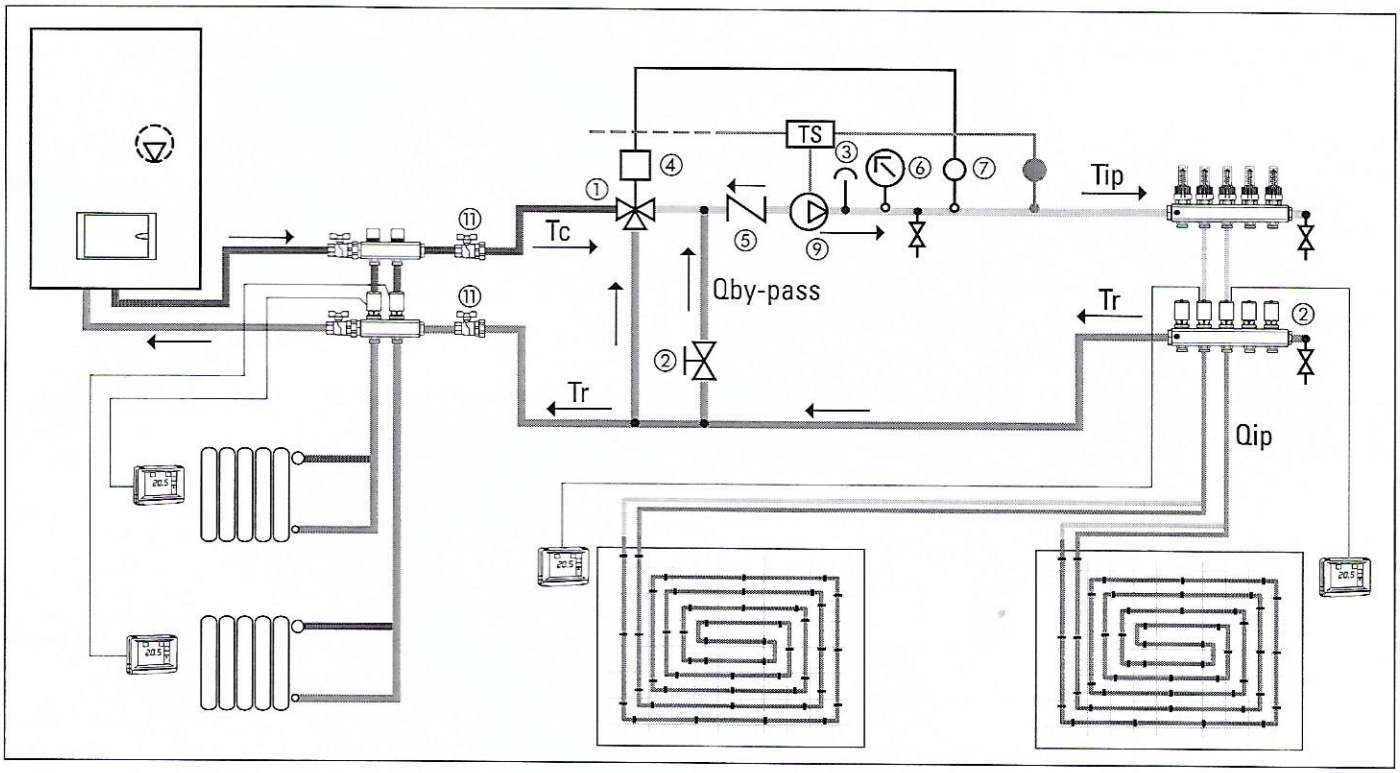
High efficiency

Setting	Max. head $_{nom}$
Curve 1	4 m
Curve 2	5 m
Curve 3	6 m
Curve 4	7 m

Setting	Max. $P_{1\ nom}$
Curve 1	25 W
Curve 2	33 W
Curve 3	39 W
Curve 4	52 W

EEI ≤ 0.20 Part 3
$P_{L,avg}$ ≤ 25 W

By setting the bypass to 1, a 1032 l/h flow rate corresponds to a 90 mbar pressure drop (0.09 bar).
Assuming that **ΔP pav** = floor-mounted system pressure drop = 0.25 bar, set the capacity of the GRUNDFOS circulator in order to ensure a flow rate of 1032 l/h (1.03 m^3/h) and a head H = ΔP valv + ΔPpav = 0.09 + 0.25 = 0.34 bar (≅ 3,4 MWC)



Use the table below to select the correct setting to achieve the mean water temperature desired.
To increase the ΔT of the floor circuits, just reduce the bypass flow rate.

GRUNDFOS UPM3 AUTO L 25-70

ΔTip = 10 °C T Boiler = 70 °C Tip = 45 °C ΔPip = 0,25 bar

Capacity (W)	Circulator setting	Bypass setting
18000	curve 4	1-7
17000	curve 4	0-1
16000	curve 3	2-3
15000	curve 3	1
14000	curve 2	1-2
13000	curve 2	0
12000	curve 1	1
11000	curve 1	0
10000	average	1

ΔTip = 5 °C T Boiler = 70 °C Tip = 45 °C ΔPip = 0,25 bar

10000	curve 4	2-3
9000	curve 4	0-1
8000	curve 3	1-2
7000	curve 2	1-2
6000	curve 2	0
5000	curve 1	0
4000	curve 1	0

3.2 Adjusting the project temperature

3.2.1 Thermostatic regulation with thermostatic head

The water temperature of the floor-mounted system is set on the thermostatic head (ref. no. ④ Fig. A), which can be set to from 20 to 65°C.
The head's thermostatic element is connected to the immersion probe through a capillary.

Warning
The floor-mounted system can be heated up only after the screed's curing (at least 28 days for cement screeds).
Before laying the flooring, you need to start the system by setting the water temperature to 25°C for 3 days.
Then, increase it by 5°C every 3 days, until you reach the desired temperature and keep this temperature for at least 4 days.

Proceed as follows to set the required temperature:
1. Turn the knob of the thermostatic head, setting the correct temperature.
2. Wait for the system to be fully activated and make sure the flow temperature and the temperature drop between the flow and return of the manifold are correct.
3. If necessary, proceed as follows to adjust the calibration bypass:

– Excessively high temperature drop.
Insufficient flow rate, gradually open the calibration by-pass valve until you reach the project's temperature drop.
– Delivery temperature below the set value.
Gradually close the calibration bypass valve in order to create a differential pressure to inject the hot water coming from the boiler.

Activation - Troubleshooting

– The circuits of the underfloor heating must be open.
– Any electrothermal heads must be set to the open position.
– Any overpressure valves must be calibrated in related to the features of the circulator

4. REPLACING THE COMPONENTS

4.1 Replacing the circulator

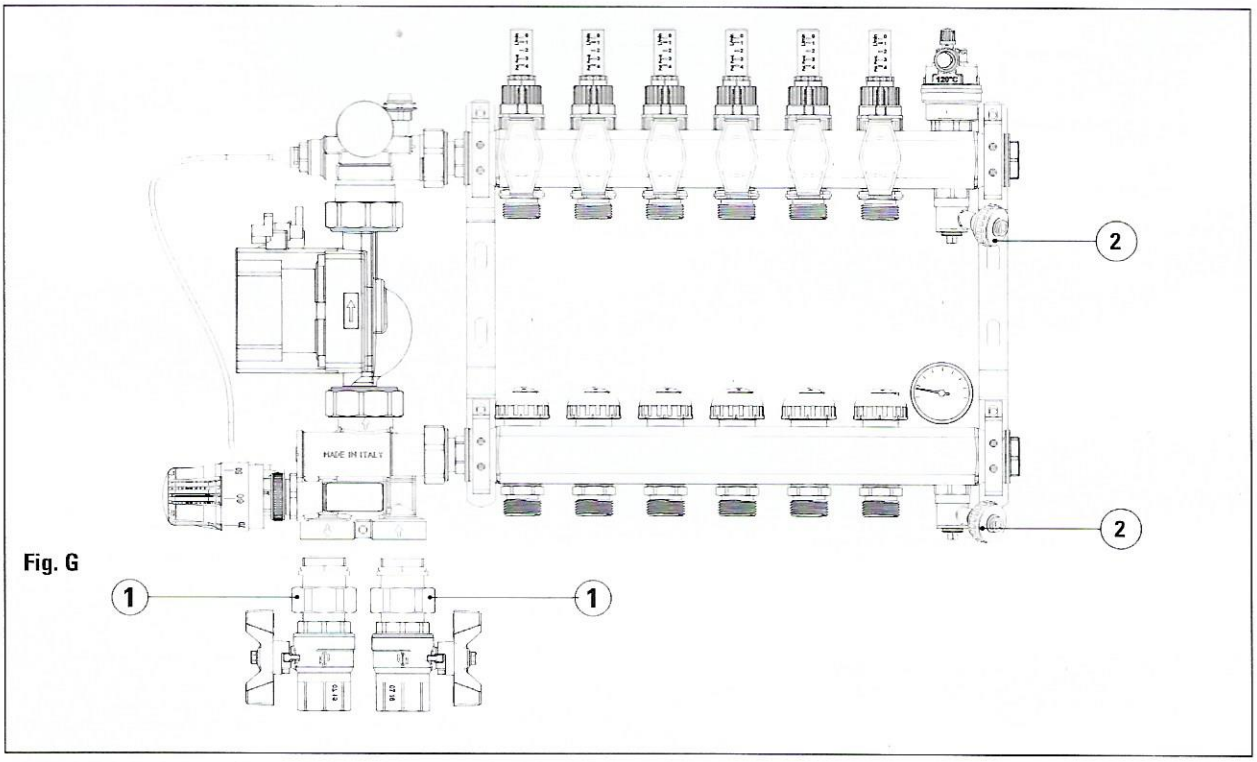


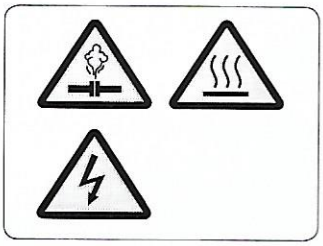
Fig. G

Proceed as follows to replace the circulator:
1. close the (ref. ① fig. G) upstream and downstream ball valves (if any) of the mixing unit;
2. Empty the return manifold via the drain valve (rif. ② fig. G);
3. power off the equipment;
4. loosen the pipe joints;
5. disconnect the power cable;
6. take out the circulator and replace it with the new one;
7. re-connect the circulator's power cable by following the directions reported on the leaflet enclosed with the circulator itself;
8. tighten the pipe joints;

Note If you are replacing the circulator, it is best to only replace the motor unit plus the impeller and leave the hydraulic body in place.

4.2 Replacing the thermostatic head

Proceed as follows to replace the thermostatic head:
– take out the probe from the pocket;
– unscrew the thermostatic head and replace it;
– insert the probe in the pocket.
To make it easier to assemble, set the maximum value on the thermostatic head. Bear in mind you need to set it back to the temperature specified in



Min./Max.
0°C / +95 °C

IP44

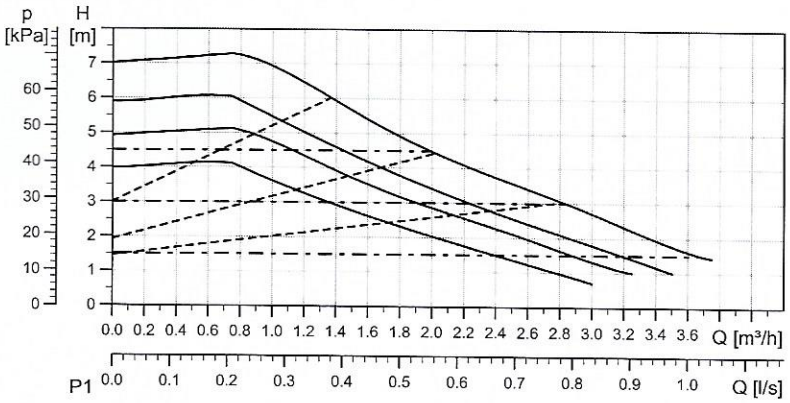
Max. 1.0 MPa
(10 bar)

Min./Max.
0 °C / +70 °C

Max. 95% RH

Note:
The complete manual is available on the manufacturer's website www.grundfos.it

UPM3 AUTO L 25-70



High efficiency

Setting	Max. head $_{nom}$
Curve 1	4 m
Curve 2	5 m
Curve 3	6 m
Curve 4	7 m

Setting	Max. $P_{1\ nom}$
Curve 1	25 W
Curve 2	33 W
Curve 3	39 W
Curve 4	52 W

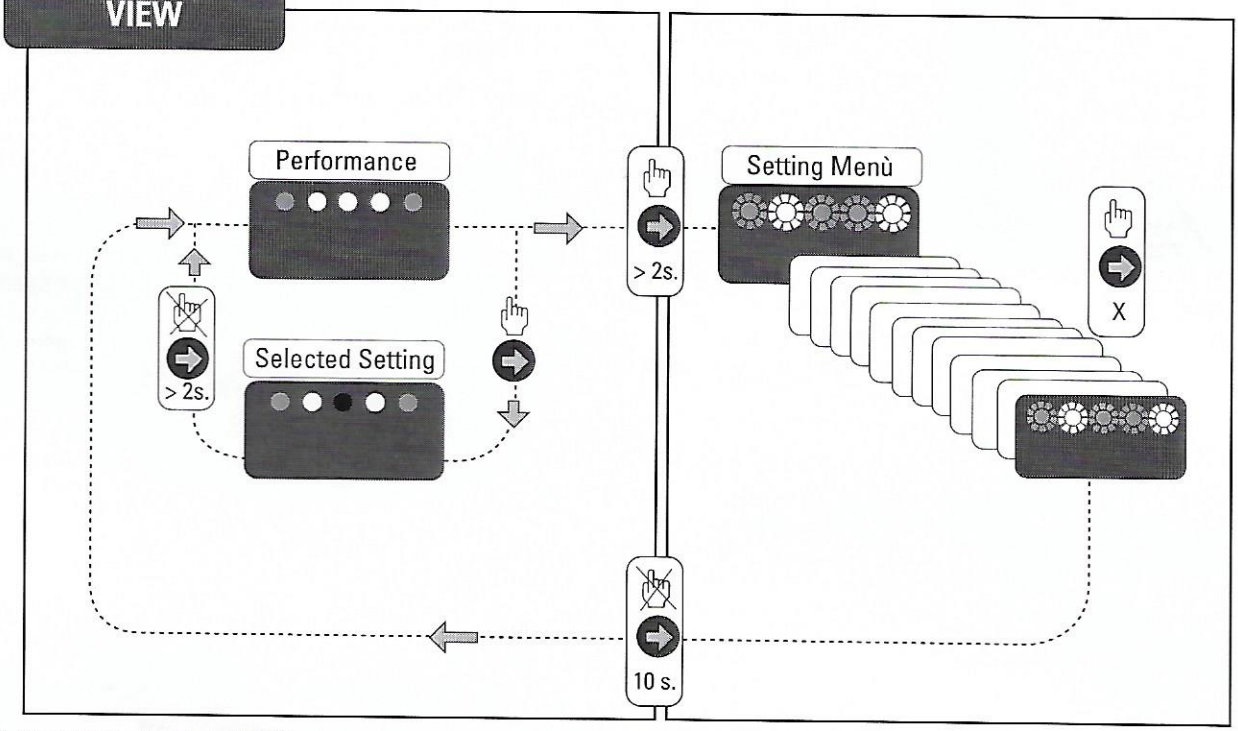
EEI ≤ 0.20 Part 3
$P_{L,avg}$ ≤ 25 W

Perfomance	
Line Type	Description
———	Constant Curve
- - - - - - - - - -	Proport. Pressure
— - — - — - —	Constant Pressure

Electrical data 1 x 230 V, 50 Hz		
Speed	P_1 [W]	$I_{1/1}$ [A]
Min.	4	0,06
Max	33	0,36

Setting				
PWM A	PWM C	PP	CP	CC
-	-	3	3	4

VIEW



Performance View

OPERATION STATUS

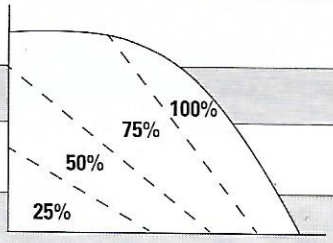
STANDBY*
*ONLY PWM CONTROLLED

0% ≤ P1 ≤ 25%

25% ≤ P1 ≤ 50%

50% ≤ P1 ≤ 75%

75% ≤ P1 ≤ 100%



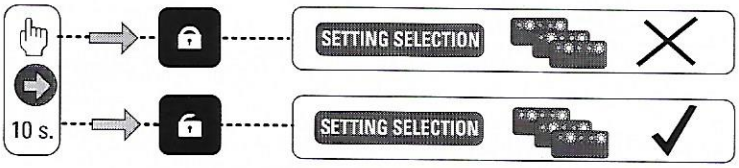
ALLARM STATUS

Blocked

Supply voltage low

Electrical error

KEY LOCK



SELECTION

CONTROL MODE	MODE	UPM3 xx-50	UPM3 xx-70
Proportional Pressure		1	1
Proportional Pressure		2	2
PRESET Proportional Pressure		3	3

CONTROL MODE	MODE	UPM3 xx-50	UPM3 xx-70
Constant Pressure		1	1
Constant Pressure		2	2
Constant Pressure		3	3

CONTROL MODE	MODE	UPM3 xx-50	UPM3 xx-70
Constant Curve		1	1
Constant Curve		2	2
Constant Curve		3	3
Constant Curve		MAX	MAX

Respect the environment!

For a correct disposal, the different materials must be divided and collected according to the regulations in force.

Rev. A - 06.2017 - AM