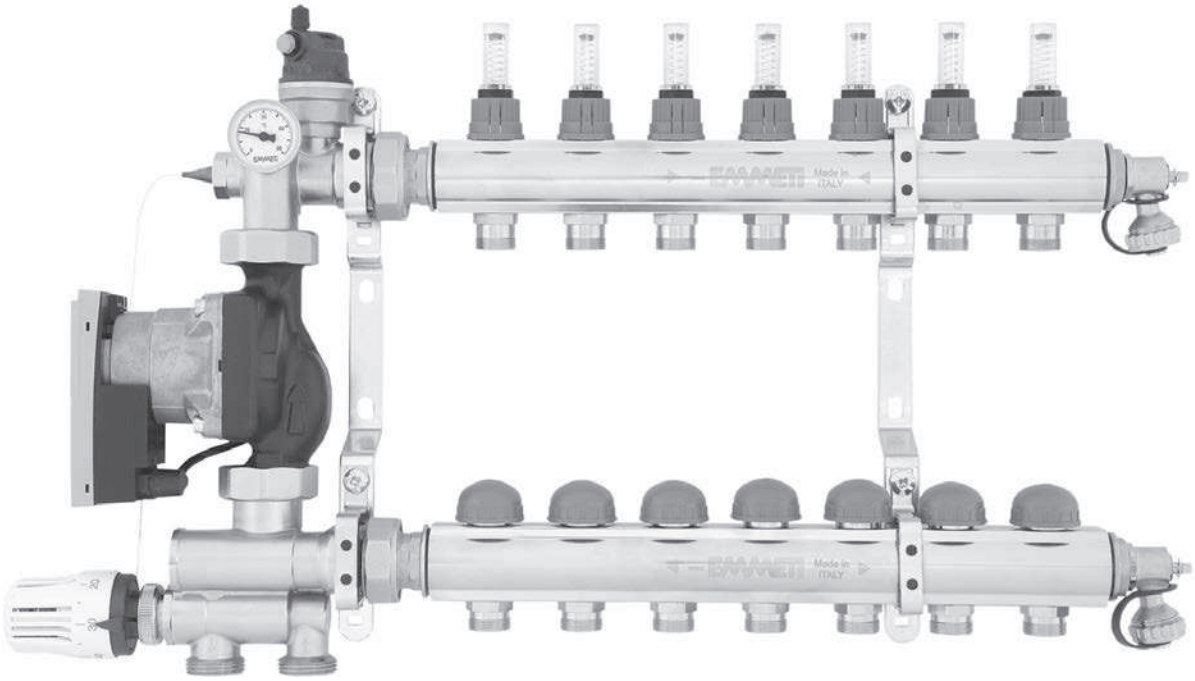
TM3 Mixing Unit



GB INSTALLATION AND USE MANUAL

ES MANUAL DE INSTALACION Y USO

FR MANUEL D'INSTALLATION ET D'UTILISATION

RU РУКОВОДСТВО ПО УСТАНОВКЕ ПО ЭКСПЛУАТАЦИИ

EMMETI

GB

page 3

Thank you for your choice of a TM3 Mixing Unit system.
Carefully read this manual which contains the specifications and all useful information for correct operation of the TM3 Mixing Unit system.
Further improvements on product, may introduce, without prior notice, changes of contents herein.

Warning!
Keep these manuals in a dry place avoiding in this way to spoil them.

FR

page 29

Nous vous remercions de la confiance que vous nous avez accordée en acquérant le système TM3 Mixing Unit.
Nous vous invitons à lire attentivement ce manuel dans lequel figurent toutes les caractéristiques techniques et toutes les informations nécessaires pour le bon fonctionnement du système TM3 Mixing Unit.
Les données contenues dans le manuel peuvent faire l'objet de modifications jugées nécessaires en vue de l'amélioration du produit.

Attention !
Veiller à conserver les manuels à l'abri de l'humidité pour prévenir leur détérioration et de telle sorte qu'ils puissent être consultés à tout moment.

ES

página 16

Le agradecemos la confianza que nos ha otorgado al comprar el sistema TM3 Mixing Unit.
Le invitamos a leer atentamente este manual donde le explicamos las características técnicas y toda la información necesaria para obtener un funcionamiento correcto del sistema TM3 Mixing Unit.
El continuo desarrollo para el mejoramiento del producto, puede comportar, sin necesidad de preaviso, modificaciones o cambios a en lo descrito.

Atención!
Aconsejamos conservar los manuales en lugar seguro, para posibles consultas futuras.

RU

страница 42

Благодарим Вас за оказанное нам доверие при покупке системы TM3 Mixing Unit.
Внимательно ознакомьтесь с данным руководством, в котором приведены технические характеристики и полезная информация для обеспечения правильного функционирования системы TM3 Mixing Unit.
Данные могут подвергаться изменениям, признанным необходимыми в целях улучшения продукции.

Внимание!
Хранить руководство для справок в сухом месте для предотвращения его порчи.

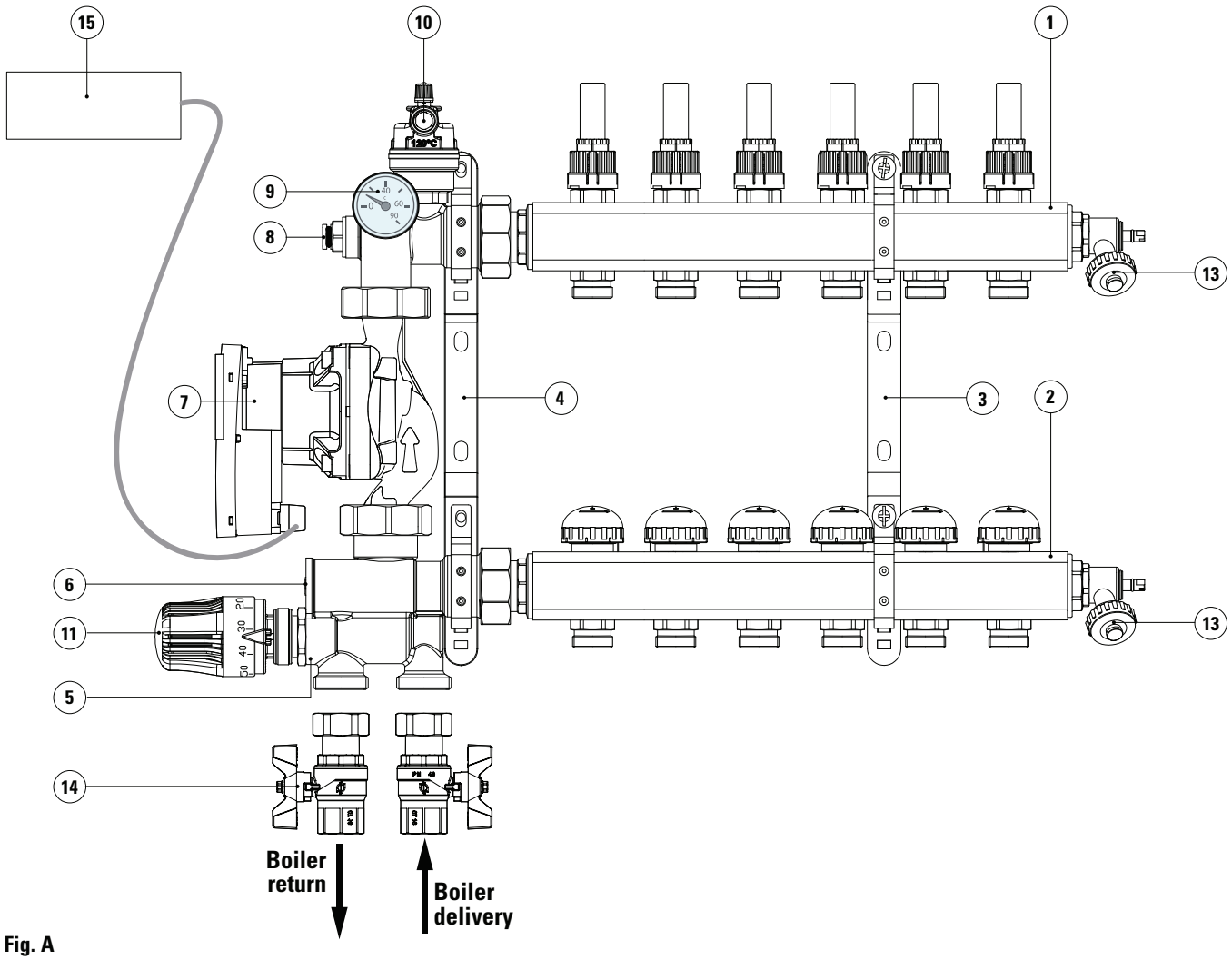


Fig. A

1.1 Construction

① No. 1 delivery bar for floor-mounted system with lockshields or flow-rate meter (where applicable);

② No. 1 return bar for floor-mounted systems designed to be fitted with electrothermal heads (where applicable);

③ No. 1 collector fixing bracket (where applicable);

④ No. 1 mixing unit fixing bracket;

⑤ 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 (where applicable) or an electric servomotor (not supplied);

⑥ No. 1 calibration valve and bypass (fixed point thermostatic regulation) - no. 1 housing for return probe (climate adjustment);

⑦ No. 1 cabled Wilo Yonos PARA RS 25/6 electronic circulator with three-pole cable L=1000 mm (where applicable);

⑧ No. 1 housing for delivery temperature probe;

⑨ No. 1 control thermometer from 0 to 80°C;

⑩ No. 1 ½" automatic air relief valve;

⑪ No. 1 thermostatic head with immersion probe from 20 to 65°C (fixed-point adjust.)

⑫ No. 1 check valve (not shown in the figure)

⑬ No. 2 inlet/outlet valve and safety plug (where applicable);

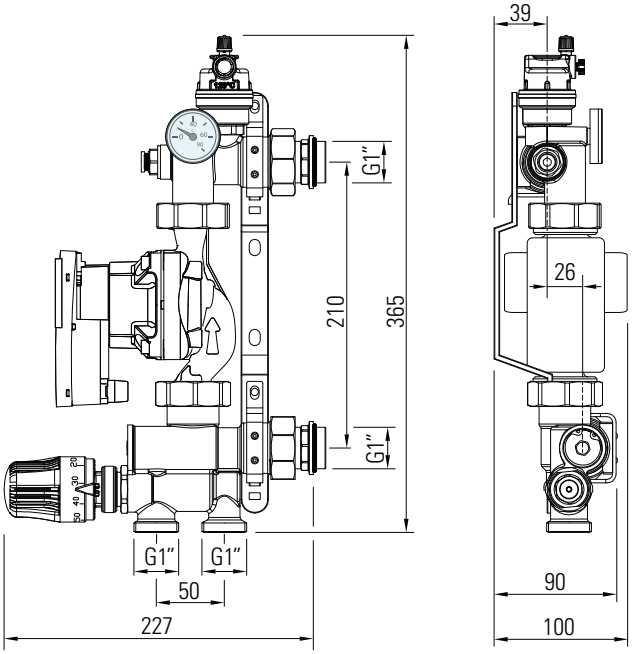
⑭ No. 1 ball valve kit (not supplied);

⑮ No. 1 box with safety thermostat for low-temperature circulator cabling (optional) or no.1 6T standard control unit for electrothermal heads (optional)

1.2 Technical data

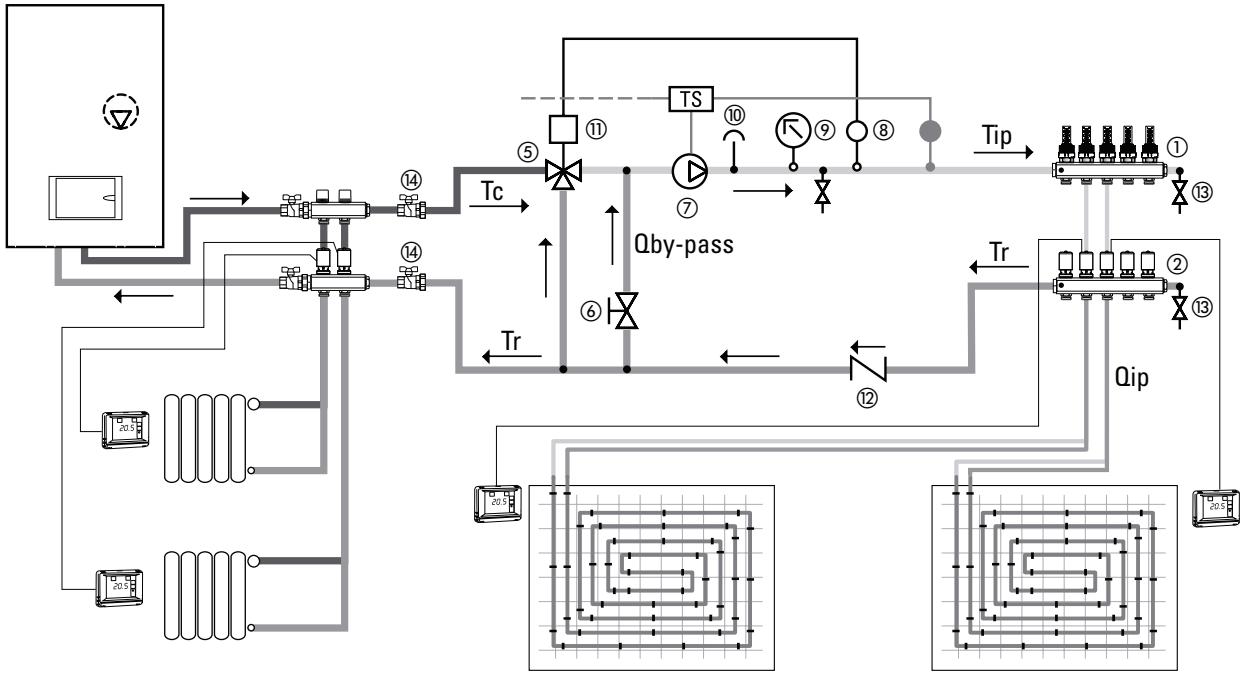
Primary circuit maximum temperature :	90 °C
Maximum pressure:	10 bar
Primary circuit max ΔP:	1 bar
Secondary control range: (thermostatic regulation)	20÷65 °C
Heating capacity that can be exchanged (ΔT 7°C, ΔP available 0.25 bar)	
Thermostatic regulation:	10 kW by-pass pos. 0
Thermostatic regulation:	12.5 kW by-pass pos. 5
Climatic regulation:	11.5 kW
Mixing valve pressure drops (thermostatic regulation)	Kv 3
Pressure drops with open bypass valve (thermostatic regulation)	Kvmax 4.8
Mixing valve pressure drops (climatic regulation)	Kv 4
Thermometer scale:	0÷80 °C
Mixing unit head threads:	1" male
Topway collectors head threads (where applicable):	1" F
Topway collectors end threads:	24x19 - takeoffs 50 mm
Circulator connections: pipe union	1"1/2 - takeoffs 130 mm

1.3 Dimensional data

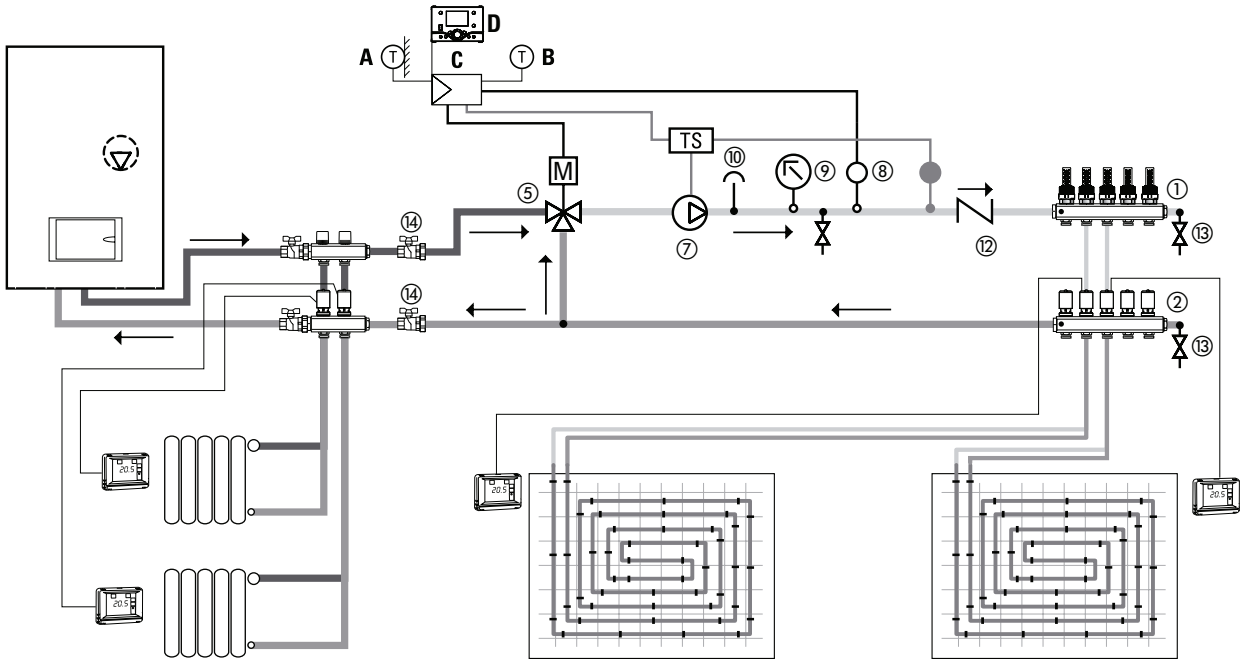


Wilo Yonos Para RS 25/6 circulator
Connections - takeoffs G1"1/2 - 130 mm
Rotation speed: 800-4250 rpm.
Fluids that can be used
Cooling and heating water.
Water and glycol: max 1:1
Maximum head: 6.2 m
Maximum flow rate: 3.3 m^3/h
Max water temperature: 95 °C (with an ambient temperature of 57 °C)
Max water temperature: 90°C (with an ambient temperature of 59 °C)
Max water temperature: 70 °C (with an ambient temperature of 70 °C)
Electrical connection 1~230 V, 50/60 Hz
Protection class IPX 4D, insulation class F
Nominal motor power: 37 W
Energy consumption from 1~230 V: 3-45 W
Current consumption at 1~230V: 0.03 -0.44 A
Energy rating: A

1.4 Hydraulic diagram of thermostatic regulation units and electronic circulator



1.5 Hydraulic diagram of climatic regulation units and electronic circulator



A = External probe B = Ambient probe remote control C = Climate regulator D = Control unit

2. Installation and testing

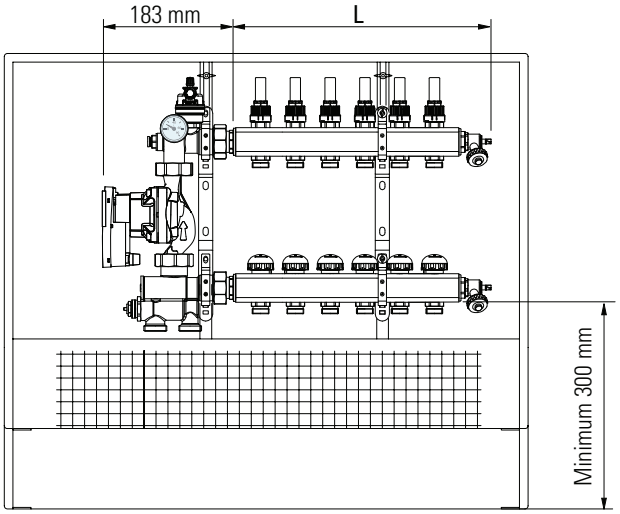
2.1 Installing the units in a casing

The TM3 mixing unit can be installed directly on the wall by securing its bracket with suitable plugs and screws (depending on the kind of wall). These need to be inserted into the designated holes or in a Metalbox casing for 120 mm partitions.

To choose the right Metalbox, check the overall dimensions of the mixing unit with the collectors.

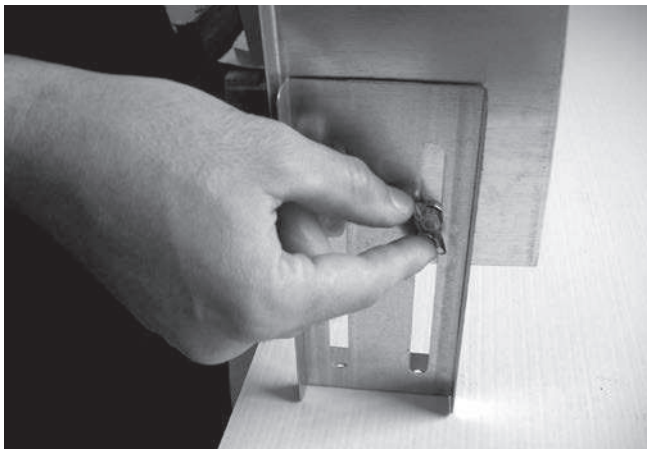
No. of ways	2	3	4	5	6	7	8	9	10	11	12
L mm	160	210	260	310	360	410	460	510	560	610	660

In both cases, place the unit at least 300 mm from the floor slab to be able to easily bend the pipes correctly.



– Secure the hydraulic unit inside the box.

– Adjust the casing's feet with the 2 locking screws, so that there is at least 30 cm between the lower collectors and the floor slab.



– Secure the casing to the wall with cement after applying the mortar-covering cardboard surface.
– Connect the delivery and return pipes (columns), bearing in mind that along with the collectors in the casing, there will also be valves with a red and blue throttle handle (not supplied).
– Connect the delivery and return pipes associated with the circuits of the floor-mounted system.

2.2 Installation of the thermostatic head with 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 envisioned in the project for the floor-mounted system.
Then insert the probe in the well (ref. ⑧ Fig. A).

2.3 Installation of the servomotor and supply temperature probe (not supplied) for the climate adjustment

To mount the servomotor, screw it onto the mixing valve after disconnecting the power cable.
To make it easier to mount, use a 3mm hex key to turn the indicator on the servomotor's head from 0 to 1.
Re-connect the power cable when you have completed the step.
To install the delivery temperature probe to the floor-mounted system, insert the probe in the probe-holder well (ref. ⑧ Fig. A).

2.4 Installation of the electric box with safety thermostat or 6T standard control unit

The power supply of a circulator of a low-temperature circuit/system must always be controlled by a safety thermostat to provide protection from delivery temperature values above 45/50°C.

On the TM3 mixing unit install the electric box with the safety thermostat for the circulator's cabling or the 6T standard control unit for electrothermal heads. Fix them onto the wall with plugs and screws using the designated pre-drilled profile located at the back of both of them (Fig. B).

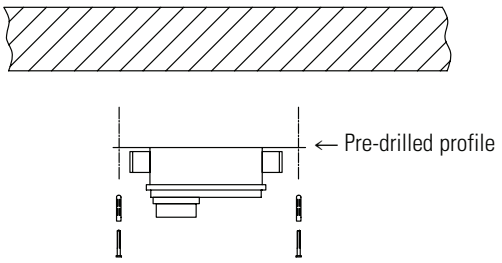
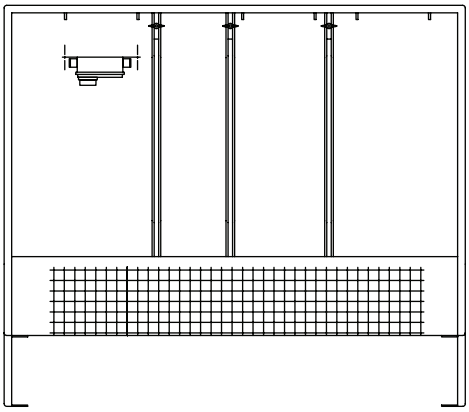


Fig. B

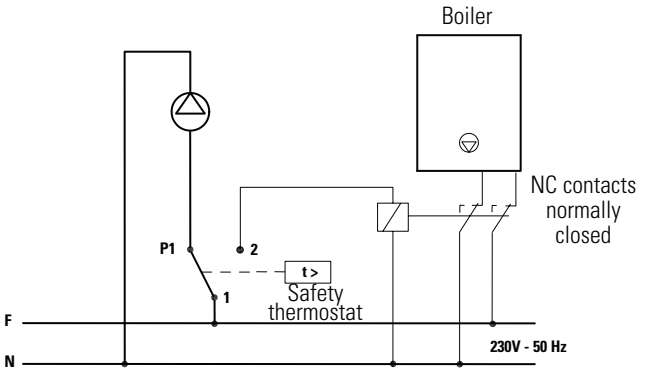
If you are installing the TM3 mixing unit in a Metalbox casing, mount the electric box or the 6T standard control unit inside
the box by fixing the pre-drilled profile onto the pre-drilled holes inside the Metalbox on the upper left-hand side (use M6 threaded inserts on which you can apply the screws supplied on another system).



Perform the electrical cabling of the electric box or the 6T standard control unit with the circulator by using a 3x1.5mm2 three-pole cable. Follow the installation wiring diagrams supplied together with the items and in accordance with IEC standards.

For cement screeds, set the safety thermostat to 45/50°C. If you are using other kinds of screeds, refer to the maximum values declared by the manufacturer, in any case below 55°C (UNI 1264-4).

Tripped boiler safety thermostat
To prevent high temperature water from entering the circuits of the floor-mounted system even in the event the thermostatic head or servo-motor breaks, you can deactivate the boiler enabling system through the safety thermostat.
To do so, modify the electrical connection diagram as shown in the figure below.



2.5 Testing and filling

- Carry out the inspection test on the unit, close the valves and the lockshields on the distribution collectors.
- After inspecting the unit, reduce the pressure inside the collectors by using the inlet and outlet valves
- Now fill each circuit individually by opening the valve and lockshield of the individual way until all the air comes out.
- To fill them up correctly, connect the water supply to the valve in the delivery collector at the top and a rubber pipe to let out the air in the return collector. Inside the mixing unit there is a check valve that prevents backflow circulation inside the unit, thereby making it easier to expel the air inside the circuits (fig. C and D).

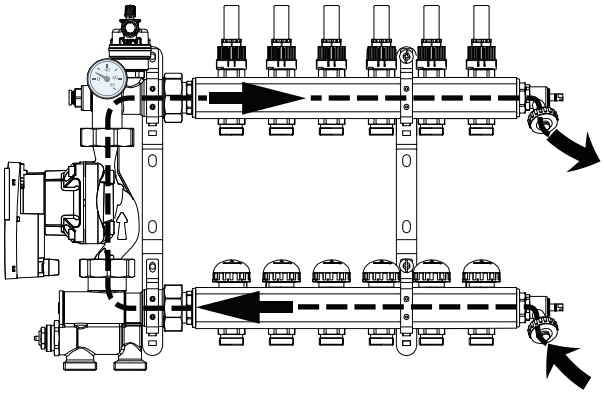


Fig. C

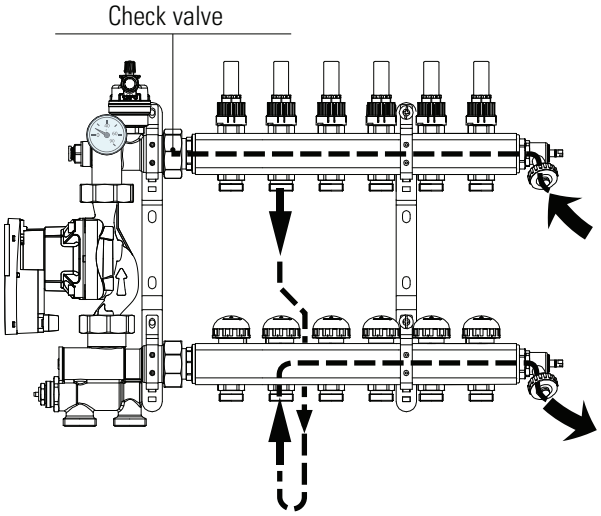


Fig. D

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

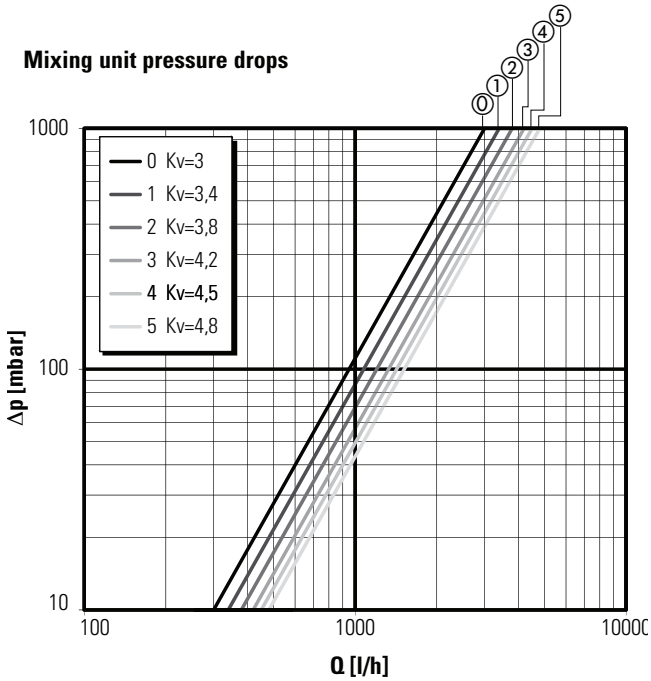
Tr = floor-mounted system return temperature = Tip −ΔTip = 40 – 5 = 35°C

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

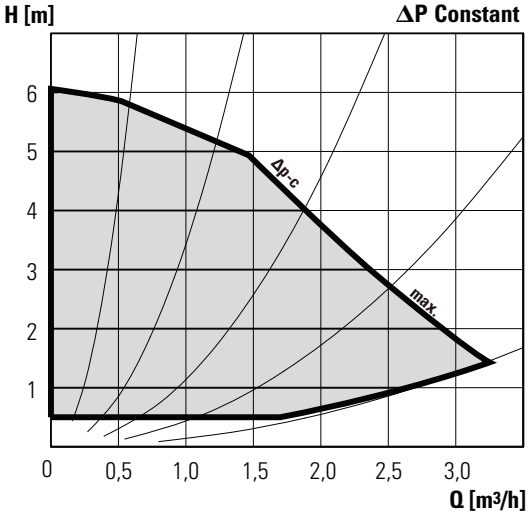
ΔP valv = control valve pressure drop

From the diagram underneath the 1032 l/h flow rate, there are 6 different curves that correspond to the various bypass adjustments (ref. ⑥ 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 delivery temperature cogging due to the opening-closure of the various areas the heating system is divided into.

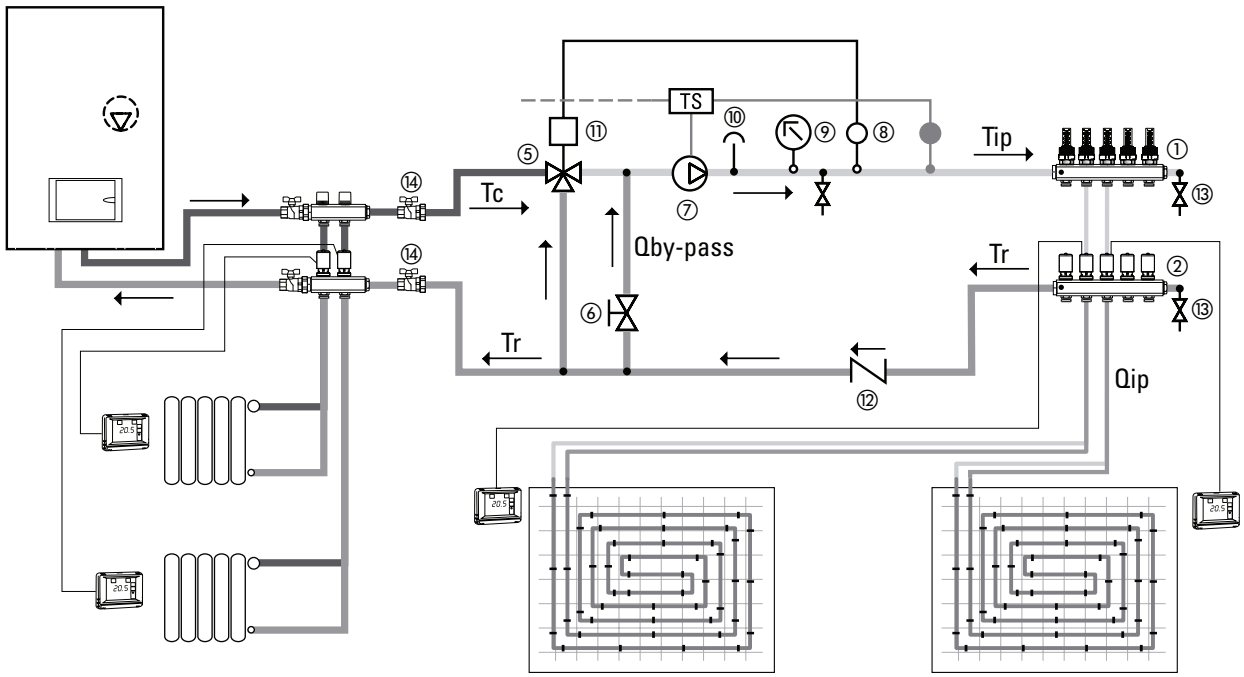
Mixing unit pressure drops



Yonos Para Circulator Diagram



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 Wilo Yonos PARA circulator in order to sure 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 m CA).



Here below are some tables that report the data for systems selected based on the requested heating capacity.
Therefore, first use the table or formulas to carry out the setting and then use the thermometers to make sure the project temperatures of the fluid are actually reached.
To increase the ΔT of the floor circuits, just reduce the bypass flow rate.

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

Capacity (W)	Circulator setting	Bypass setting
18000	maximum	5
17000	maximum	3 - 4
16000	maximum	2
15000	maximum	1
14000	maximum	0
13000	average	5
12000	average	4
11000	average	2 - 3
10000	average	1

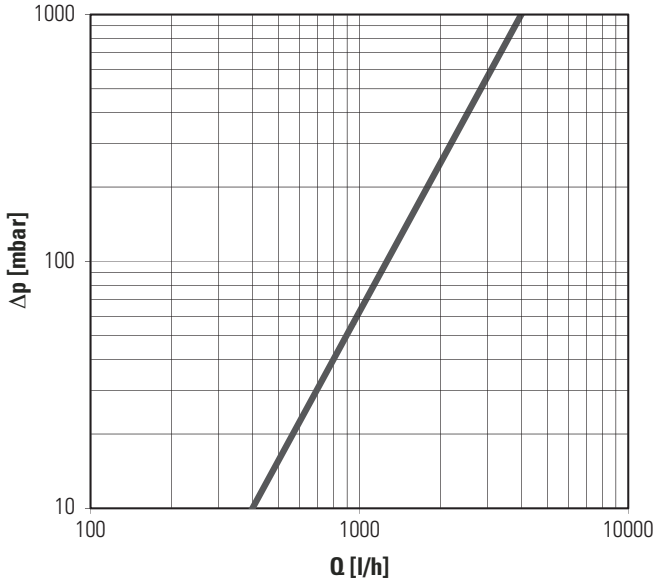
ΔTip = 5 °C T Boiler = 70 °C Tip = 45 °C ΔPip = 0,25 bar

Capacity (W)	Circulator setting	Bypass setting
9000	maximum	5
8000	maximum	2 - 3
7000	maximum	0
6000	average	5
5000	average	2 - 3
4000	average	0

3.1.2 Climatic regulation dimensioning example

By using the same project data of the previous example:
A flow rate of 1032 l/h corresponds to a pressure drop of 60 mbar (0.06 bar), see diagram below
Assuming the same **ΔP pav** = 0.25 bar the capacity of the Wilo Yonos PARA circulator must be set in order to ensure a flow rate of 1032 l/h (1.03 m^3/h) and a head H = ΔP valv + ΔPpav = 0,06 + 0,25 = 0,31 bar (≅ 3,1 m CA).

Electronic com. mixing valve pressure drops



3.2 Adjusting the project temperature

3.2.1 Thermostatic regulation with thermostatic head

The delivery water temperature of the floor-mounted system is set on the thermostatic head (ref. no. ⑪ Fig. A), which can be set to from 20 to 65°C and kept steady thanks to the action of the valve itself.
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 50°C and keep this temperature for at least 4 days.

Proceed as follows to set the project temperature:
1. Turn the knob of the thermostatic head, thereby setting the value of the delivery temperature.
2. Wait for the system to be fully activated and make sure the delivery temperature and the temperature drop between the delivery and return line of the floor-mounted system are in line with those reported in the project.
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 fluid coming from the boiler.

Activation - Troubleshooting

– The circuits of the floor-mounted system 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

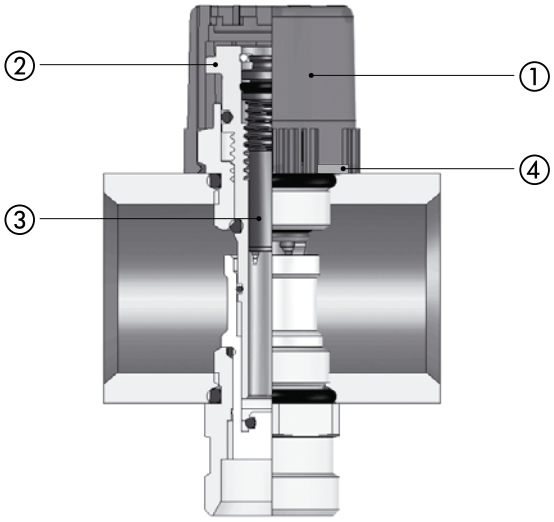
3.2.2 Climatic regulation with servomotor

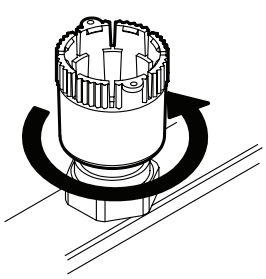
The system's supply water temperature is controlled by the climatic regulation unit in relation to the set operating parameters (ambient temperature, heating periods, climate curve slope, etc.) and the detected ambient, supply and outdoor temperature values.
The delivery temperature is detected by the control unit via the probe (ref. ⑧ Fig. A).
The return temperature can be detected with a second probe, for which there is already a housing (ref. ⑥ fig A).
The mixing valve is adjusted by the servomotor.
The probe and the servomotor must be cabled to the control unit by following the wiring diagram and the directions contained in the manuals that come with the kit.
TM3 units can be fitted with 2 different kinds of servomotors:
– 3-point servomotor (in combination with the heating-only RCFH climate regulator or the PCO regulator for heating and cooling).
– 0-10 VDC servomotor (only in combination with the PCO climate regulator for heating and cooling).

The circulator's speed must be adjusted in relation to the required flow rate.

3.3 Balancing the circuits

3.3.1 Adjusting the lockshields (where applicable)





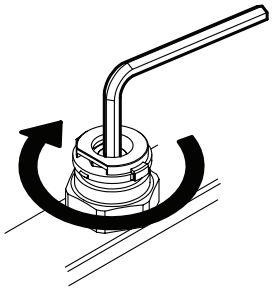
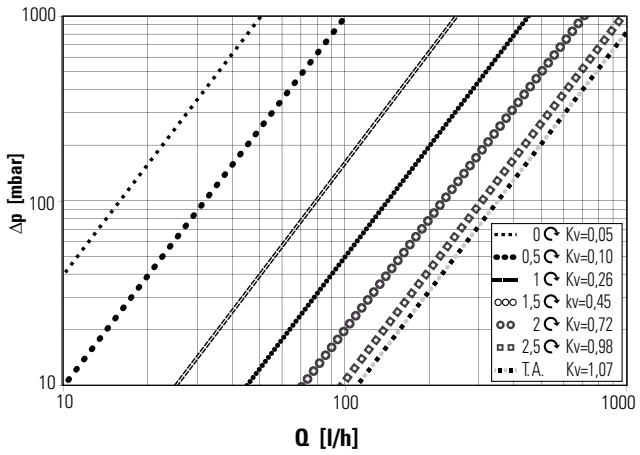


Fig. E **Fig. F**

Proceed as follows to adjust them:
– Remove cap ①.
– Turn the cap upside down and, with its cavity manually turn (Fig. E) the lockshield ② until it is fully open, 4 turns max.
– Use a CH 4 hex spanner to tighten regulator ③ (Fig. F).

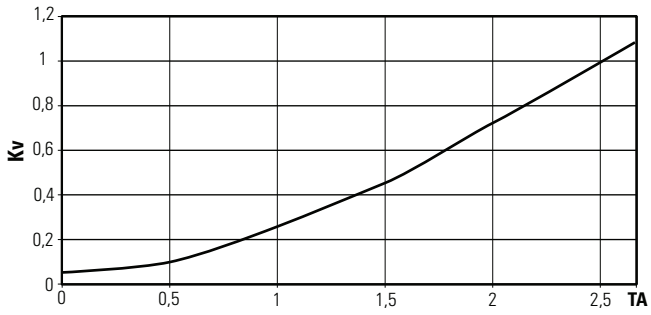
The lockshield is now ready to be set up:
– Loosen regulator ③ by the desired number of turns.
– Insert the cap again.
The cap can also be lead sealed in position using the holes in the flaps ④ to secure it directly to the manifold, thereby preventing any tampering.

Pressure drops
(Valve* + Lockshield)



= No. of turns to open the flow-rate meter.
Δp = supply + return
TA: Fully open.
* Valve fully open

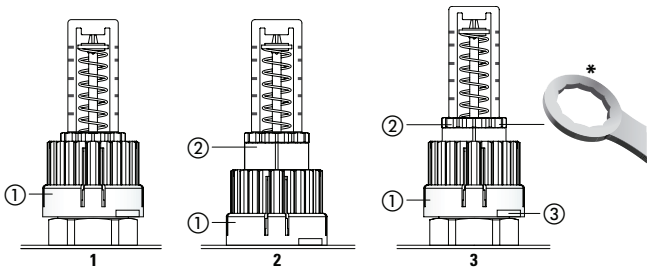
Kv values at different openings
(Valve* + Lockshield)



TA: Fully open.
The above values are obtained with water at 15°C

* Valve fully open

3.3.2 Lockshield adjustment with built-in flow-rate meter (if there is one)



Measurement range: 0-4 l/min
Maximum operating pressure: 6 bar
Max. operating temperature: 90°C
Kv = 0.15 (1 l/min) - 0.55 (4 l/min)
Kv max (out of measurement range) = 0.9
Accuracy: ±10% **fs**
fs = End of scale

The adjustment is carried out as follows:

1. Manually turn ring nut ①, anticlockwise until the lockshield is fully open (max 4 turns).
2. Lower ring nut ① and calibrate using regulator ② until you reach the correct flow rate (indicated directly on the meter).
3. Lift ring nut ① until you hear it clicks, which means it has been positioned correctly.

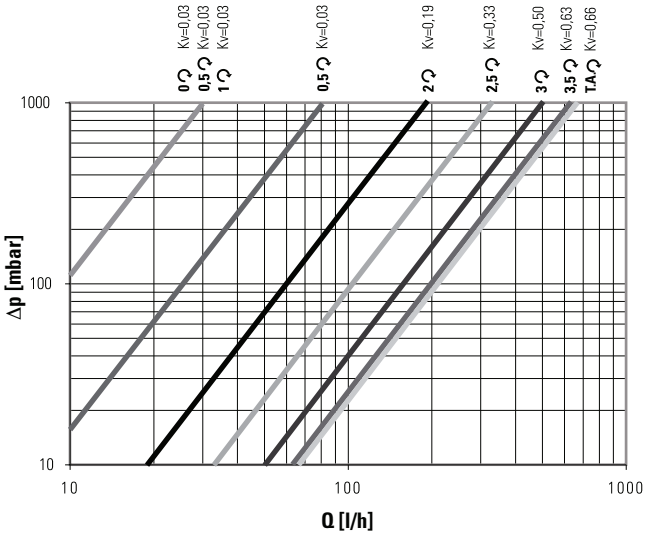
PLEASE NOTE: All the steps above must be carried out manually.
It is also possible to lead seal the collar in the reached position, using the holes in flaps ③ to fasten it:

– directly to the manifold, thus preventing any tampering
– to the meter, leaving the possibility to shut-off the way without modifying the set maximum opening calibration.

Cleaning of the glass

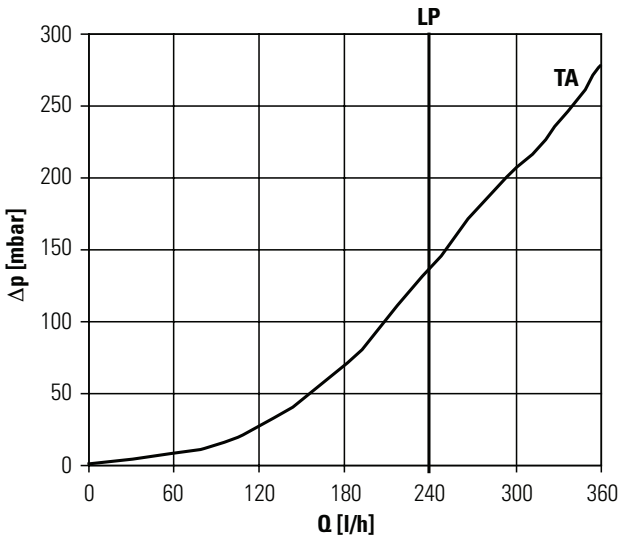
– Turn ring nut ① clockwise until the lockshield is completely closed
– Remove the glass slide by unscrewing it from regulator ② with the CH17 box spanner(*).
– Clean the glass slide and screw it back onto regulator ②.
– Turn ring nut ① anticlockwise until the lockshield is fully open (max 4 turns).

Graph with flow-rate meter pressure drops (0÷4 l/min)



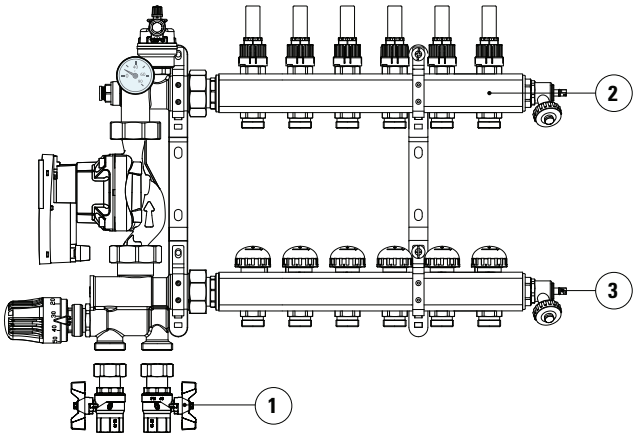
↻ = No. of turns to open the flow-rate meter

Graph with pressure drops (0÷4 l/min) of the flow-rate meter in the fully open position



TA Regulator fully open
LP Meter limit

4.1 Replacing the circulator



Proceed as follows to replace the circulator:

1. close the ① upstream and downstream on/off valves (if any) of the mixing unit - if there are any distribution collectors, close all the lock-shields (or flow-rate meters) ② of the delivery collector;
2. empty the return collector via the relief valve ③ - In the case of the unit with the thermostatic regulation, the water cannot be removed from the circulator due to the presence of the check valve in the lower section of the unit, while in the climatic regulation unit the check valve is instead on the delivery line and the water comes out via the return collector;
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;
9. power on the equipment again and open the ball valves and lock-shields/meters of the distribution collectors if installed.

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 well;
– unscrew the thermostatic head and replace it;
– insert the probe in the well.

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 envisioned in the project for the floor-mounted system.

4.3 Replacing the servomotor (models with climatic regulation)

Proceed as follows to replace the servomotor:

– plug out the power cable from the servomotor;
– unscrew the M30x1.5 fixing ring nut of the mixing vale and replace the servomotor;
– plug the power cable back in.

To make it easier to mount, use a 3mm hex key to turn the indicator on the servomotor's head from 0 to 1.

5.1 Commissioning

⚠	**Burn hazard!** The circulator can become very hot, depending on the operating temperature of the circulating fluid; this results in burn hazards upon contact with the circulator.

Filling and bleeding the system.
Fill and bleed the system completely. The rotor compartment is usually already emptied automatically after it has been operating for a short amount of time. However, if it is necessary to ventilate the rotor compartment directly, it is possible to start the ventilation procedure.
Select the ventilation symbol by turning the red selector on the symbol indicated here below.

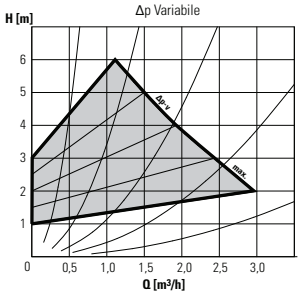
The ventilation process lasts for 10 minutes and can generate noise. During this period of time the circulator operates alternatively between the minimum and maximum speed. At the end of the process, set the selected mode by turning the selector.

The value of the differential pressure generated by the circulator increases, in the field indicating the allowed flow rate, from 50% to 100% in relation to the value set with the red selector.

Setting the control mode.
Select the symbol of the control mode by turning the red selector.

	**VARIABLE DIFFERENTIAL PRESSURE "Δp-v"** (default setting).

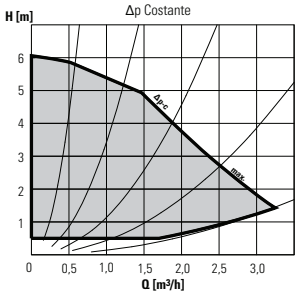
This mode is particularly suitable for heating systems with radiators, as it reduces the noise due to the flow of water on the thermostatic valves.

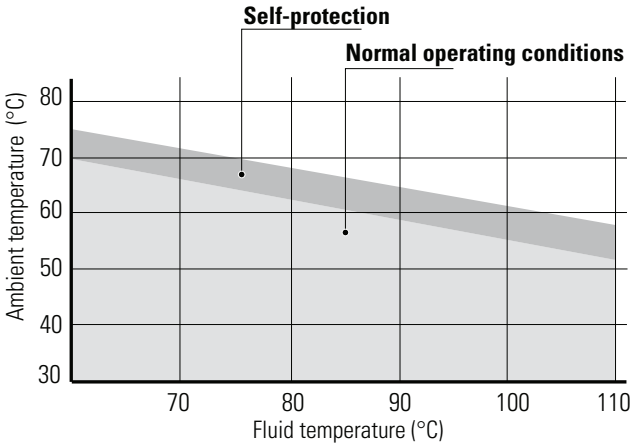


	**CONSTANT PRESSURE DIFFERENCE "Δp-c"**

The differential pressure generated by the circulator is maintained constant (at the value set with the red selector) within the allowed flow rate range, up to the maximum flow rate.

This is the recommended option for floor heating systems or old heating systems with large pipes.





Example: when the temperature of the fluid reaches 90°C and the ambient temperature reaches 59°C, the prevalence can be reduced by 0.5 m in relation to the system's pressure drops.

5.2 Troubleshooting

Failure	Cause	Solution
The circulator does not work when it is powered on	Faulty fuse	Check the fuses
	The circulator is not receiving power from the mains	Clear the power interruption
The circulator is noisy	Cavitation due to insufficient incoming pressure	Increase the incoming pressure within the allowed range
		Check the head setting (if necessary set a lower head)
The building does not warm up	Heating capacity from the radiant panels is too low	Increase the head value by using the red selector
		Set the control mode Δp-c

The circulator covered in this instruction manual complies with the following directives and standards:
– Electromagnetic Compatibility Directive 2004/108/EC;
- Low Voltage Directive 2006/95/EC;
– ErP directive 2009/125/EC
– Applied harmonised standards, namely: EN 60335-2-51, EN 61000-3-2, EN 61000-3-3, EN 55014-1&2.

5.3 Declaration of conformity of the circulator

The conformity certificate is on the last page of this manual.

6. DECLARATION OF CONFORMITY OF THE CIRCULATOR
DECLARACIÓN DE CONFORMIDAD DE LA BOMBA CIRCULADORA
DÉCLARATION DE CONFORMITÉ DU CIRCULATEUR
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ ЦИРКУЛЯЦИОННОГО НАСОСА

WILO INTEC

EC DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE CE
EG KONFORMITÄTSERKLÄRUNG

The supplier:
Le Fabricant :
Der Hersteller:

WILO INTEC
50 Avenue Eugène CASELLA
18700 AUBIGNY SUR NERE
FRANCE

certifies that the following pumps,
déclare que le type de circulateurs désigné ci-dessous,
erklärt, dass der unten genannte Pumpen Typ,

Circulating pump for Heating installations
Yonos PARA */6-* M ; Yonos PARA */7-* M

E.g. : **YONOS PARA** RS15/**6**-PWM1 **M** or **YONOS PARA** RS15/**6**-RKA **M**

based on VDE certificate Nb. 40034309, valid until: 2017-01-31,

are meeting the requirements of the European legislation concerning:
sont conformes aux dispositions des directives :
mit folgenden Richtlinien übereinstimmen:

☑ **~ "Low Voltage" modified (European law Nr 2006/95/EC)**
~ "Basse Tension"modifiée (Directives 2006/95/CE)
~ geänderte "Niederspannung" (Richtlinie 2006/95/EG)

☑ **~ "Electromagnetic Compatibility" modified (European law Nr 2004/108/EC)**
~ "Compatibilité Electromagnétique" modifiée (Directives 2004/108/CE)
~ geänderte "elektromagnetische Verträglichkeit" (Richtlinie 2004/108/EG)

and the national legislations referring to them.
et aux législations nationales les transposant.
und mit entsprechenden nationalen Gesetzgebung.

They are also meeting the following European Standards:
Elles sont également conformes aux dispositions des normes européennes harmonisées suivantes :
Des weiteren entsprechen sie die folgenden harmonisierten europäischen Normen:

NF EN 60.335.1&2.51

If the above mentioned series are technically modified without our approval, this declaration shall no longer be applicable.
Si les séries mentionnées ci-dessus sont techniquement modifiées sans notre approbation, cette déclaration ne sera plus applicable.
Bei einer mit uns abgestimmten technischen Änderung der oben genannten Bauarten, Verliest diese Erklärung ihre Gültigkeit.

M.PERROT
Quality Manager

Aubigny-sur-Nère, the 11th of May 2012

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

¡Respeta el ambiente!
Para un correcto desecho de los materiales, deben ser separados según la normativa vigente.

Respectez l'environnement!
Pour procéder correctement à leur élimination, les matériaux doivent être triés et remis à un centre de collecte dans le respect des normes en vigueur.

Берегите окружающую среду!
Для соответствующей утилизации различные материалы должны разделяться и сдаваться в соответствии с действующим нормативом.

Rev. 0 - 08.2013 - Ufficio Pubblicità & Immagine/Emmeti Spa - BT
9005649000001

EMMETI Spa
Via B. Osoppo, 166 - 33074 Fontanafredda frazione Vigonovo (PN) Italy
Tel. 0434-567911 - Fax 0434-567901
Internet: http://www.emmeti.com - E-mail: info@emmeti.com