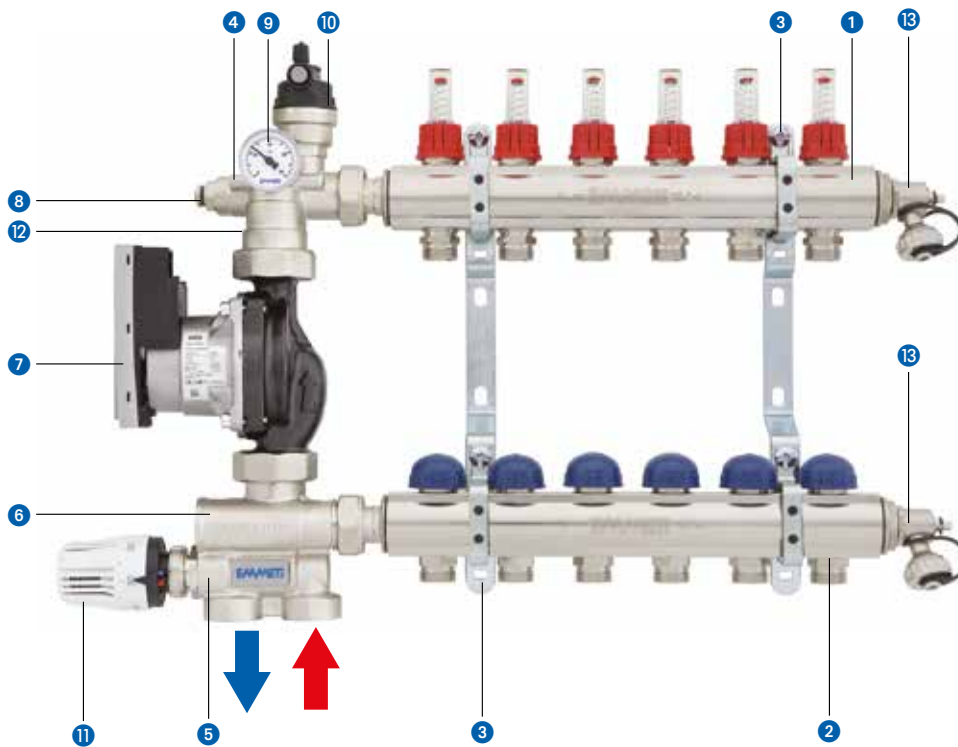


TM3-R



Construction

- ① Nr. 1 flow bar for floor heating system with flow meter;
- ② Nr. 1 return bar for floor heating system set up to take thermoelectric heads (where required);
- ③ Nr. 2 brackets for fixing manifolds;
- ④ Housing for thermostat safety probe;
- ⑤ Nr. 1 mixing valve thread M30x1,5 set up to thermoelectric head with immersion probe from 20 to 65 °C (where required) electric servomotor (not supplied);
- ⑥ Nr. 1 adjusting valve and by-pass (fixed-point adjustment) - nr. 1 housing for return probe (climatic regulation);
- ⑦ Nr. 1 Wilo Yonos PARA RS 25/6 circulator pump with cable (tripolar cable L = 1000 mm)
- ⑧ Nr. 1 housing for temperature flow probe;
- ⑨ Nr. 1 control thermometer from 0 to 80 °C;
- ⑩ Nr. 1 automatic bleed valve 1/2"
- ⑪ Nr. 1 thermostatic head with immersion probe from 20 to 65 °C (fixed-point adjustment)
- ⑫ Nr. 1 check valve (not shown in the figure)
- ⑬ Nr. 2 fill and discharge adjustable bibcocks with safety plug

Operation

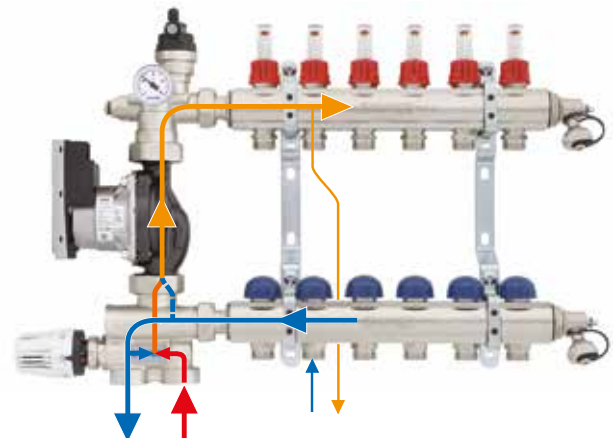
The mixing system with fixed-point regulation (via thermostatic head) reacts to any variation in the flow and heat emission and keeps the temperature of the fluid of the underfloor heating system constant.

Operation in mixing with use of the adjustable by-pass

Using the mixing system, the temperature of the supply water of the underfloor heating system (low temperature mixed water) is regulated at a fixed point, by means of the application on the mixing valve of a thermostatic head with a remote temperature sensor.

The temperature sensor with capillary tubing ⑧ inserted in the valve box detects the temperature of the fluid downstream of the circulator, keeping it at the value set on the knob of the head (from 20 to 65 °C).

By acting on the calibration and by-pass valve ⑥, it is possible to adjust the by-pass flow of the underfloor heating system, thus ensuring that the ΔT of the original design is reached.



Use

The TM3-R mixing units can operate with zero head, connected to an open manifold (hydraulic separator) or to a storage tank (puffer).

The electronic circulator Wilo Yonos Para RS 25/6 keeps the differential pressure at the ends of the circuits of the underfloor heating system constant, with respect to the variation of the load required (opening/closing of one or more circuits).

Warning

In accordance with UNI EN 1264-4, there must be a safety device (thermostat) that blocks the supply of the low temperature zone over certain limits.

This function is integrated in the accessories of the Electrical box with safety thermostat and 6T base unit.

Technical specifications

Operating conditions and performance data

Max temperature on primary circuit: 90 °C

Maximum operating pressure: 6 bar

Δp max on primary circuit: 1 bar

Temperature interval on secondary circuit: 20÷65 °C

Thermal power exchangeable with $\Delta T=7$ °C and $\Delta p=0.25$ bar on the secondary circuit:

- 10 kW with by-pass in position 0 (by-pass completely closed)
- 12.5 kW with by-pass in position 5 (by-pass completely open)

Mixing kit materials

Brass UNI EN 12168 CW614N

Brass UNI EN 12165 CW617N

O-ring seals EPDM 70 Sh

Materials of manifolds

Manifolds obtained from drawn bar in brass UNI EN 12168 CW617

Manifold seals in EPDM 70 Sh

Manifolds

Size: 1"

End thread: G 1" Female

Derivations: 24x19 Male, distance 50 mm

Regulation unit

Connections to primary: G 1" Female, flat seal, distance 50 mm

Connections to secondary: G 1" Male, O-Ring seal, distance 210 mm

Electronic circulator Wilo Yonos Para RS 25/6

Connections: G 1 1/2 male, distance 130 mm

Variable speed of rotation: 800÷4250 rpm

Usable fluids:

- heating and cooling water
- water and glycol, max 1:1

Maximum head: 6.2 m

Maximum capacity: 3.3 m³/h

Maximum water temperature:

- 95 °C (with ambient temperature 57 °C)
- 90 °C (with ambient temperature 59 °C)
- 70 °C (with ambient temperature 70 °C)

Power supply: 230 Vac, 50/60 Hz

Protection class: IPX 4D

Insulation class: F

Rated power of motor: 37 W

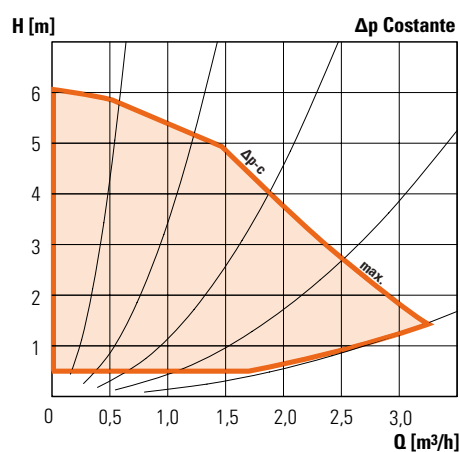
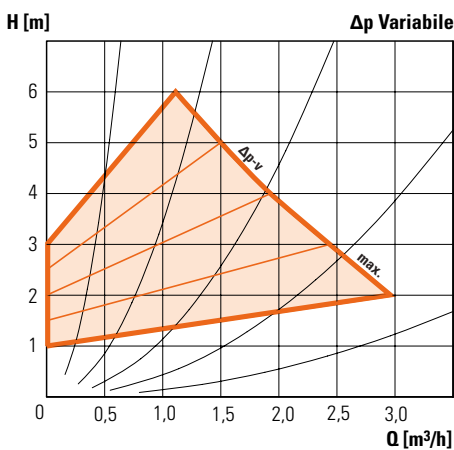
Absorbed power: 3÷45 W

Absorbed current: 0.03÷0.44 A

Conformity:

- Directive ErP
- EN 61800-3
- EN 61600-6-3/EN 61600-6-4
- EN 61600-6-2/EN 61600-6-1

Diagram of hydraulic performance of Wilo Yonos Para RS 25/6 circulator



The Range

Pre-assembled low temperature regulation and distribution unit (from 2 to 12 ways), with manifolds equipped with flow meters (4 l/min), complete with a thermostatic head with immersion probe.

TM3-R thermostatic with manifolds with flow meters (4 l/min), low temperature



TM3-R thermostatic with manifolds with flow meters (4 l/min), low temperature without circulator pump



TM3-R thermostatic without circulator pump



TM-R3 thermostatic with Wilo Yonos Para RS 25/6 electronic circulator pump



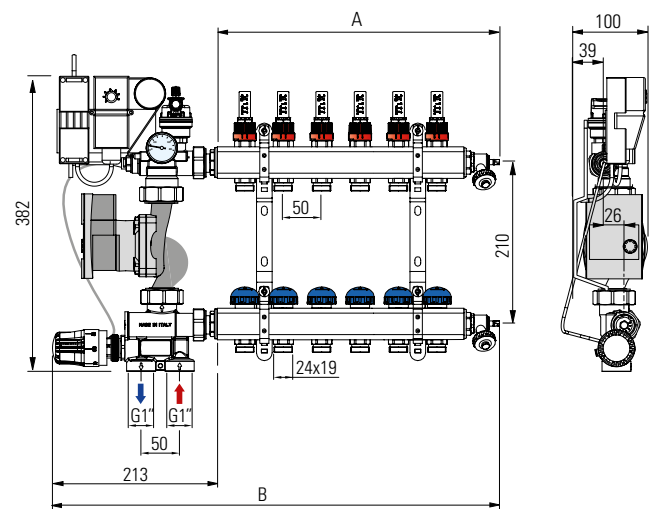
TM3-R electronic with Wilo Yonos Para RS 25/6 electronic circulator pump and safety thermostat kit



Pre-assembled distribution manifolds takeoffs 24x19 with lockshields with flow meters

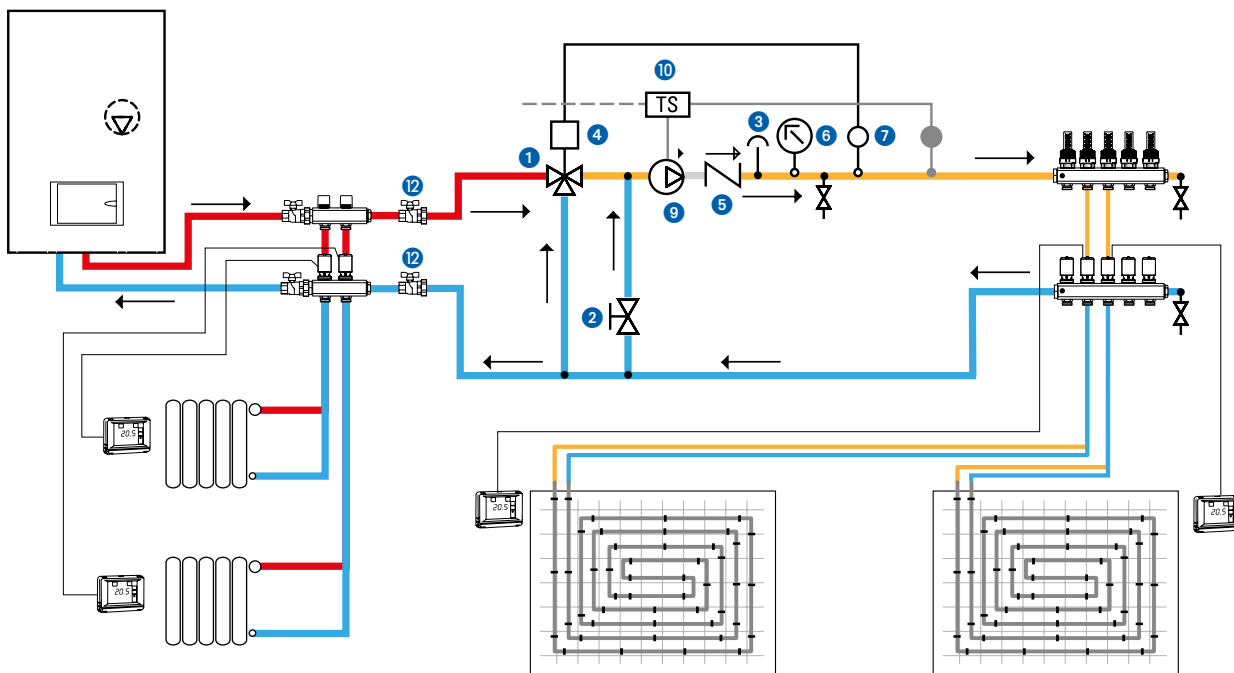


Dimensions



Nr. ways	2	3	4	5	6	7	8	9	10	11	12
A [mm]	160	210	260	310	360	410	460	510	560	610	660
B [mm]	373	423	473	523	573	623	673	723	773	823	873

Hydraulic diagram



Description of components: see introduction photos

Accessories

Electrical box with safety thermostat



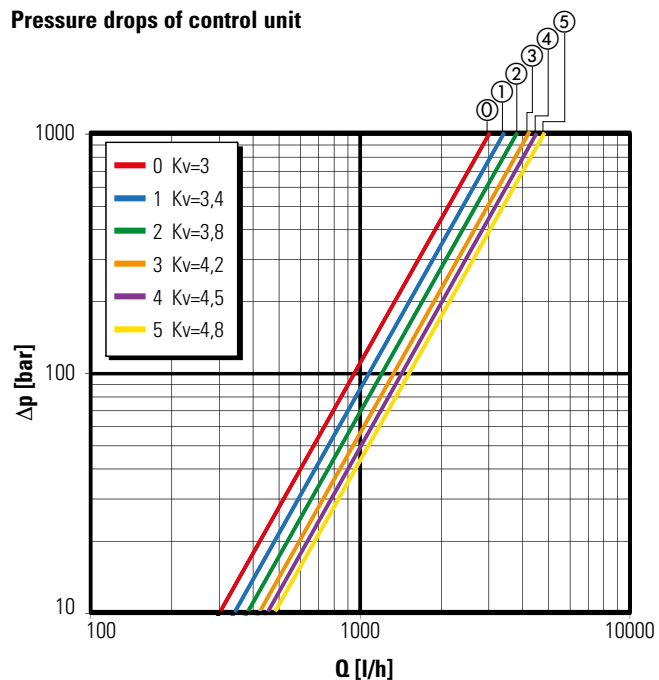
Base unit 6T



Electrothermic head



Pressure drops of control unit



Insulating shells for TM3-R



Safety thermostat kit for mixing units



Progress straight ball valves kit female-revolving nut with butterfly handle



①...⑤ Position adjusting valve and by-pass
Performance detected at -2K

Examples of dimensioning

Fixed point control

Design information:

P = power to be supplied to the underfloor system = 6000W

Tip = Flow temperature of the underfloor system = 40 °C

Tc = temperature of water from boiler = 70 °C

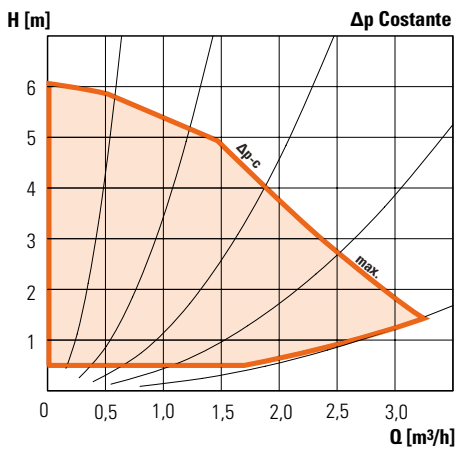
ΔT_{ip} = temperature difference of original design of underfloor system = 5 °C

Tr = return temperature of underfloor heating system = $T_{ip} - \Delta T_{ip} = 40 - 5 = 35$ °C

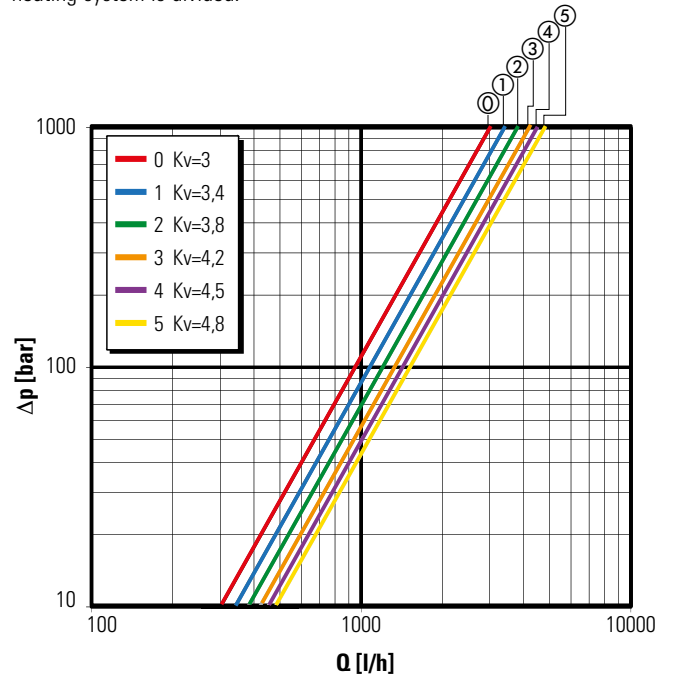
Qip = flow of underfloor heating system = $(P[W] \times 0.86) / (\Delta T_{ip}) = (6000 \times 0.86) / 5 = 1032$ ℓ/h

Δp_{valv} = pressure drop of regulation valve

Circulator Wilo Yonos Para RS 25/6 diagram



In the diagram below, a flow rate of 1032 ℓ/h corresponds to 6 different curves corresponding to the different settings of the by-pass (ref. 6 introduction photo): the lower the opening of the by-pass the lower the reaction times of the mixing valves with respect to the temperature variations and the faster the required Flow temperature is reached; on the other hand, the opening of the by-pass reduces the drops increasing the flow of the system and reducing, at the same time, the oscillations of the Flow temperature due to the opening-closing of the various zones in which the heating system is divided.



①...⑤ Position adjusting valve and by-pass
Performance detected at -2K

By setting the by-pass to position 1, a flow rate of 1032 ℓ/h corresponds to a pressure drop $\Delta p_{valv} = 90$ mbar (0.09 bar).

Assumed that Δp_{pav} = pressure drop of underfloor heating system = 0.25 bar adjust the power of the Wilo Yonos PARA circulator so as to ensure a flow rate of 1032 ℓ/h (1.03 m³/h) and a head $H = \Delta p_{valv} + \Delta p_{pav} = 0.09 + 0.25 = 0.34$ bar (≈ 3.4 m CA).

