



Stainless steel manifold for HVAC systems with dynamic flow balancing and independent setting for each individual circuit, consisting of:

- delivery manifold with flow meters with fluid shut-off function;
- return manifold with dynamic flow balancing valves and manual handwheel (M30 x 1,5 mm connection), prearranged for thermo-electric command via actuators that can be installed after fitting the relative ring nut (to be ordered separately);
- drain valves and manual air vent valves, pressure gauge;
- metal brackets;
- key for presetting.

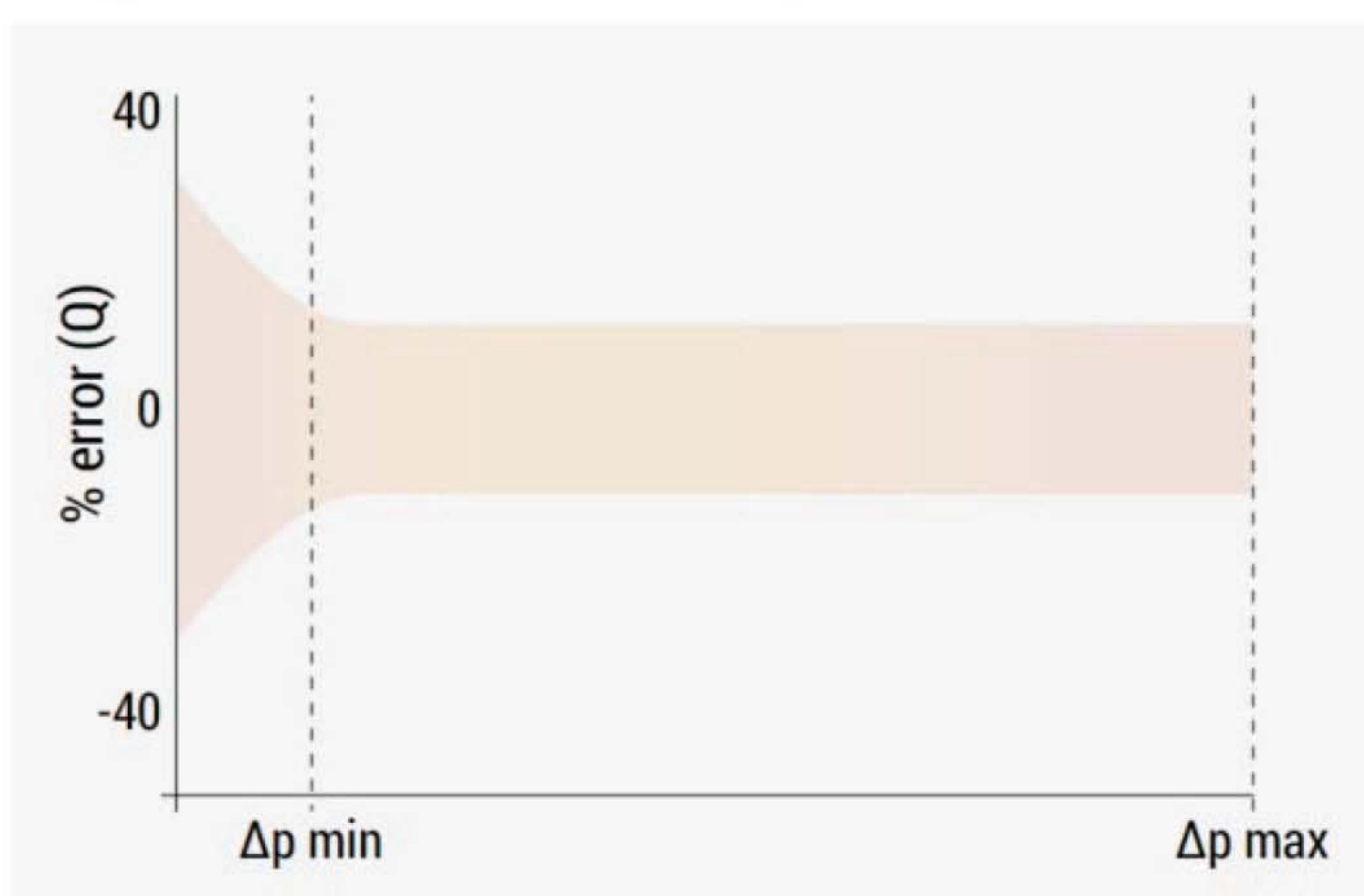
## Version performances

- Fluids: water, glycol solutions (max. 30 %)
- Center distance between the outlets: 50 mm
- Temperature range: 5 ÷ 70 °C
- Max. working pressure: 6 bar (10 bar for system testing)
- Max. differential pressure with thermo-electric actuators installed: 1,5 bar
- Flow rate setting range for each individual circuit: 10 ÷ 250 l/h
- Working differential pressure range: 30/40 ÷ 150 kPa
- Flow meters: 0 ÷ 5 l/min

## Materials

- Delivery and return manifolds: 304 stainless steel
- drain valves: Ni-plated brass
- Gaskets: EPDM
- Manifold brackets: Ni/Chrome-plated steel
- Manual handwheel: plastic material
- Bonnet with dynamic balancing on return manifold:
  - command stem: stainless steel
  - bonnet body: UNI EN 12164 CW617N brass
  - sleeve and indicator ring: plastic material
  - O-Ring and stopper: EPDM

## Adjustment accuracy



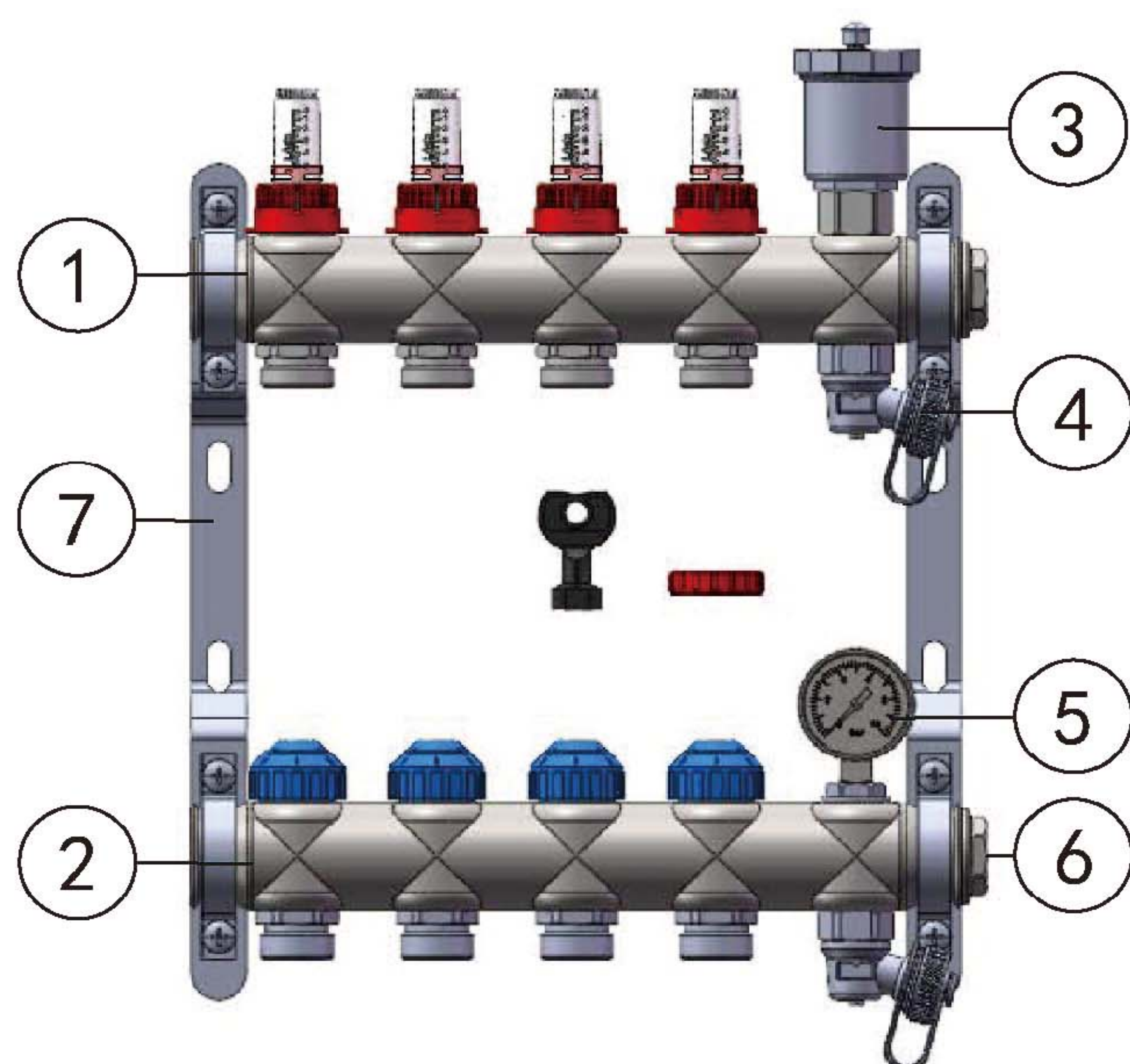


## WARNINGS

- manifolds are suitable for use in closed circuit systems and with non-aggressive fluids.
- Mineral oils or mineral oil based lubricants in the heat transfer fluid may cause swelling and damage to EPDM gaskets.
- In case of using nitrite-free, ethylene glycol-based antifreeze and anti-corrosion products, observe the instructions in the documentation provided by the manufacturer and, in particular, the instructions concerning concentration and the use of specific additives.
- In case of high levels of sludge and other contaminants in the system water, it is recommended flushing the system using a chemical cleaning product before installing the manifolds.

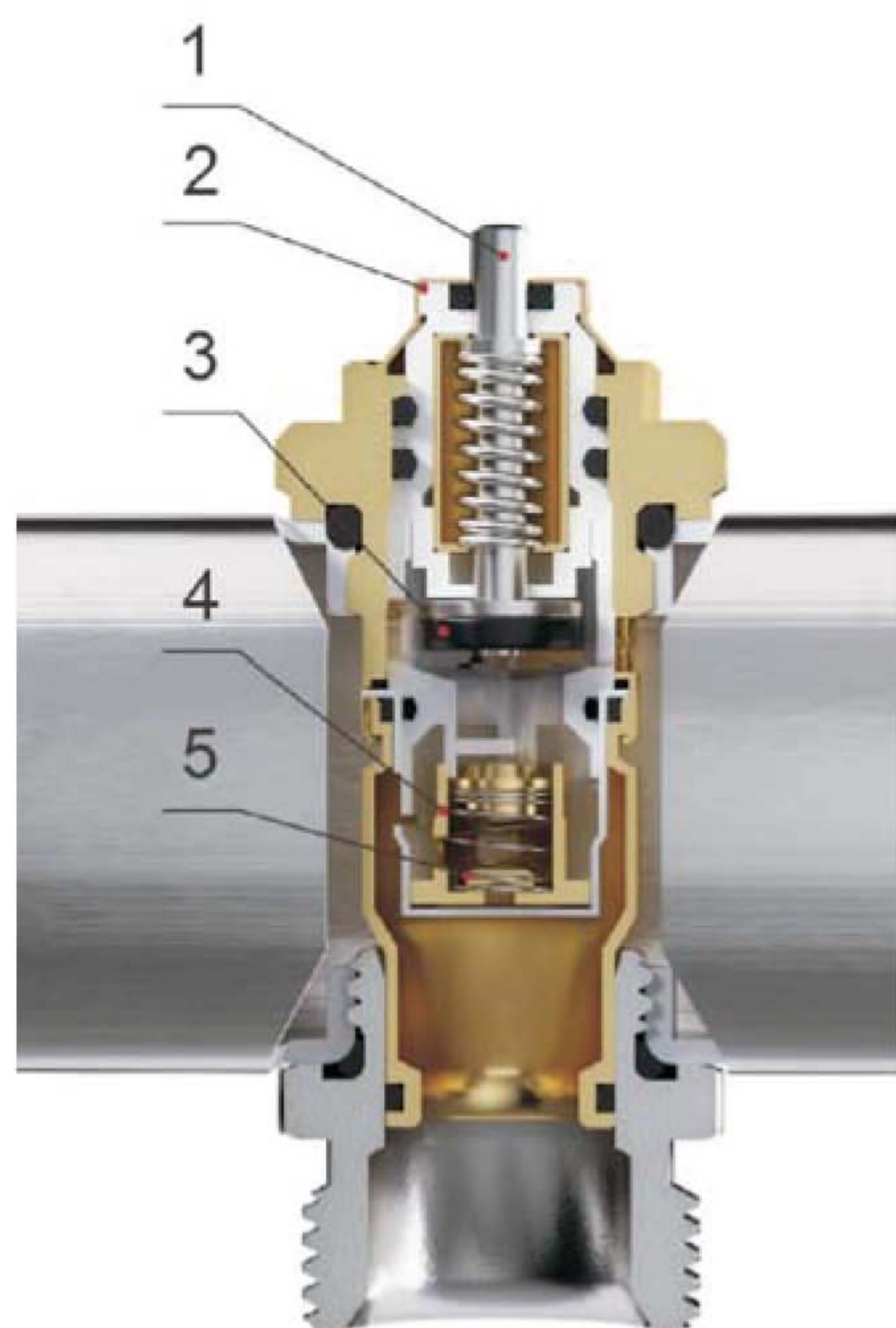
## Components

Pre-assembled manifold



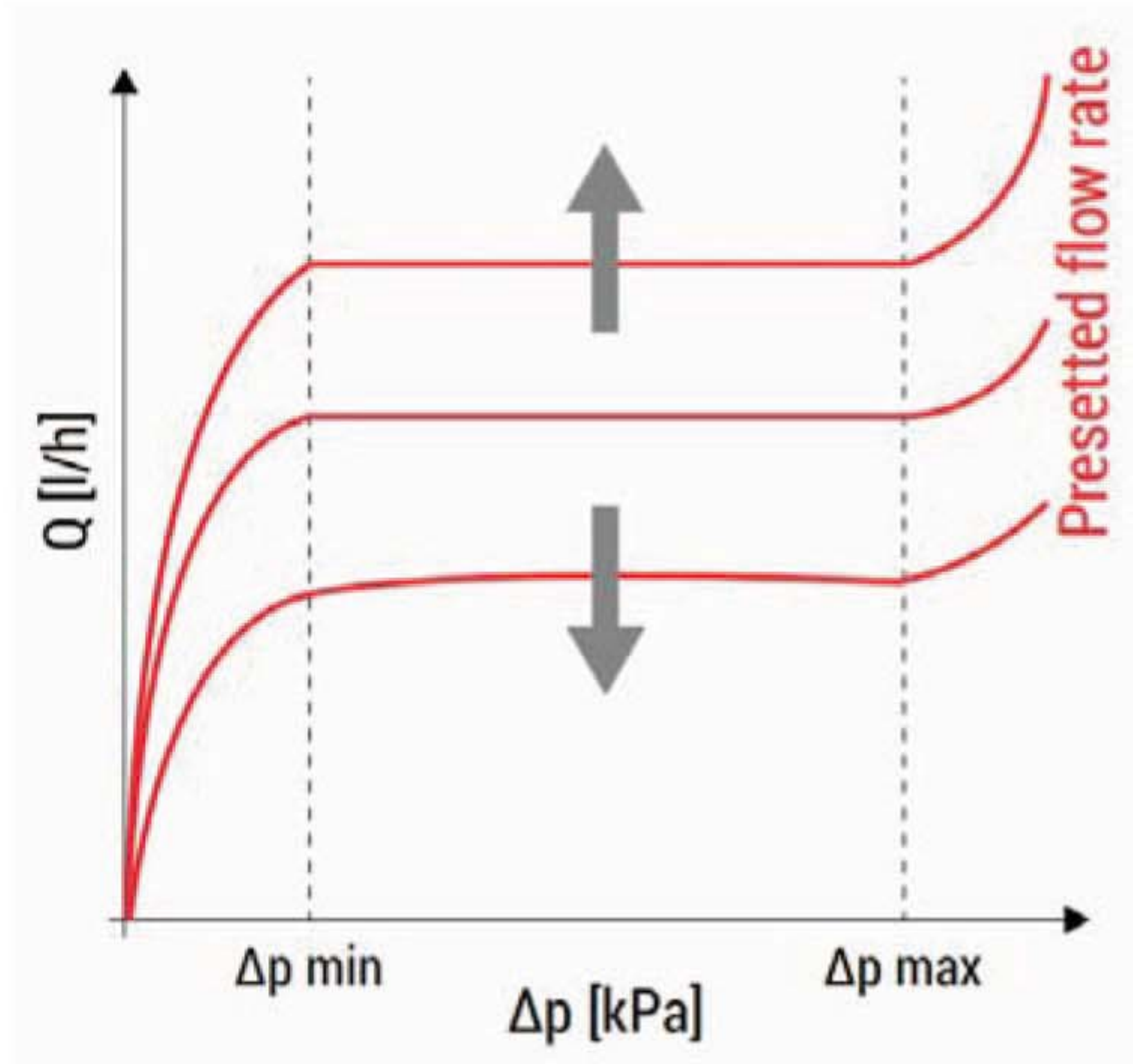
- 1 Delivery manifold with outlets equipped with flow meters
- 2 Return manifold with outlets with dynamic flow balancing valves
- 3 Auto air vent valve
- 4 Drain valve
- 5 Pressure gauge;
- 6 Plug
- 7 Metal brackets

Bonnet with dynamic flow balancing



- 1 Command stem
- 2 Indicator ring
- 3 Stopper
- 4 Regulator sleeves
- 5 spring with controlled deformation





## Operation

The manifold controls the flow rate in each individual circuit of the system, within a minimum and maximum value of differential pressure, independently of the operating conditions of the other circuits.

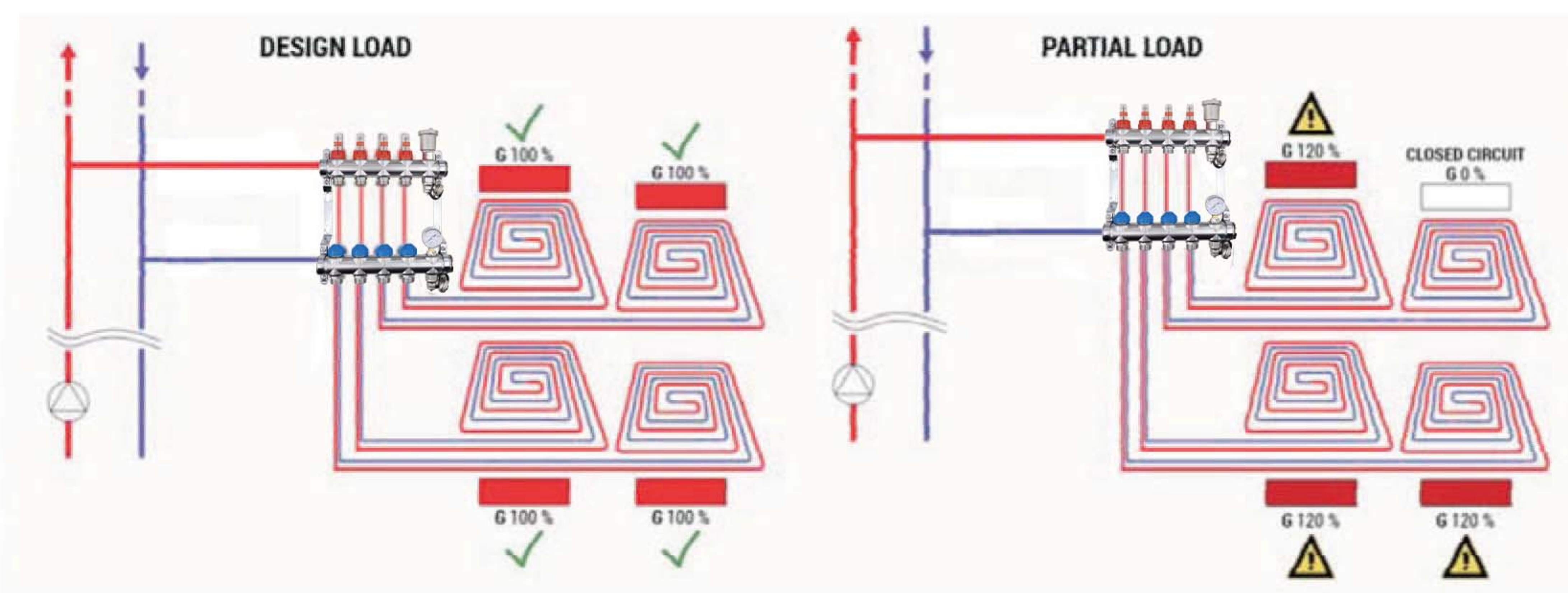
The manifold may be used in combination with the thermo-electric actuators to perform different functions:

- flow rate regulator: when the pressure changes, due to the opening or closing of some other circuits, the spring of the bonnet cartridge deforms to alter the cross section of the fluid passage through the regulator sleeves keep the flow rate at the preset value, even with high differential pressures: up to 150 kPa for the Flow version.

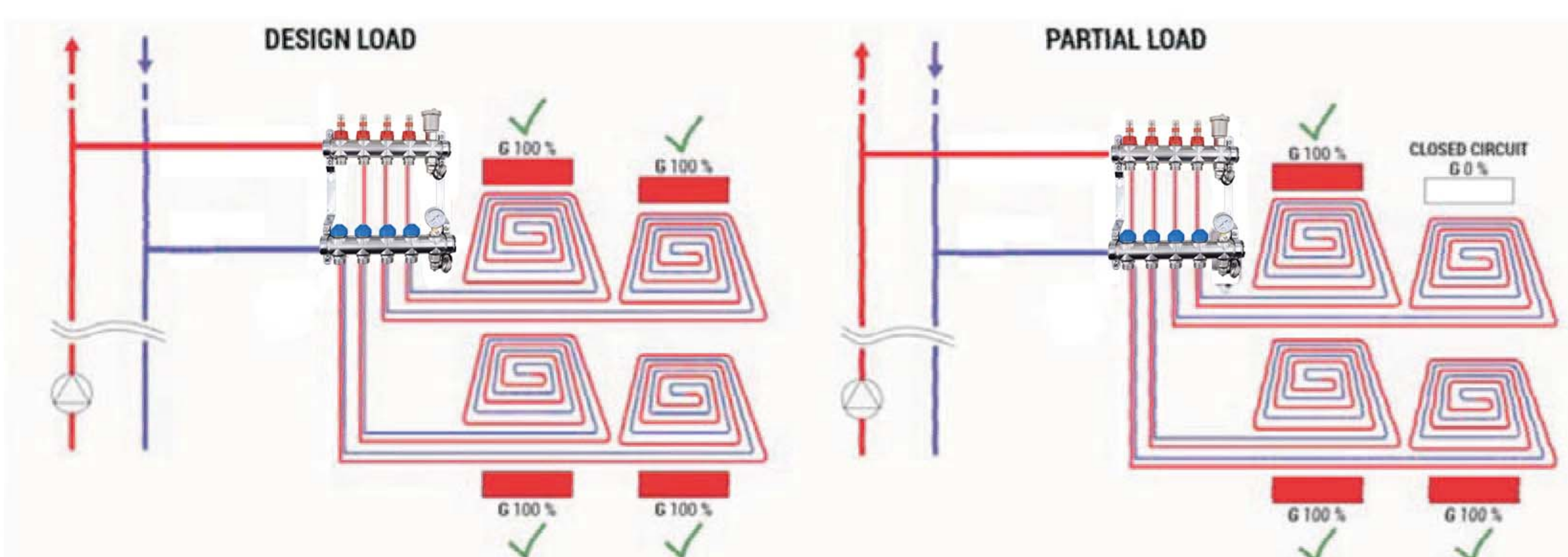
- presetting flow rate: the maximum design flow rate for each individual circuit may be set and maintained accurately at all times;
- optimising room temperature: the manifold may be used in combination with thermo-electric actuators and thermostats to allow more effective and efficient temperature control in multiple interior rooms.

Manifolds with dynamic flow balancing are used primarily in radiant systems. As can be seen in the example installation diagrams shown below, a system using manifolds with dynamic flow balancing is capable to maintain the flow rates always balanced in all the circuits of the system.

### Radiant system with manifolds, **without** dynamic flow balancing



### Radiant system with manifolds, **with** dynamic flow balancing



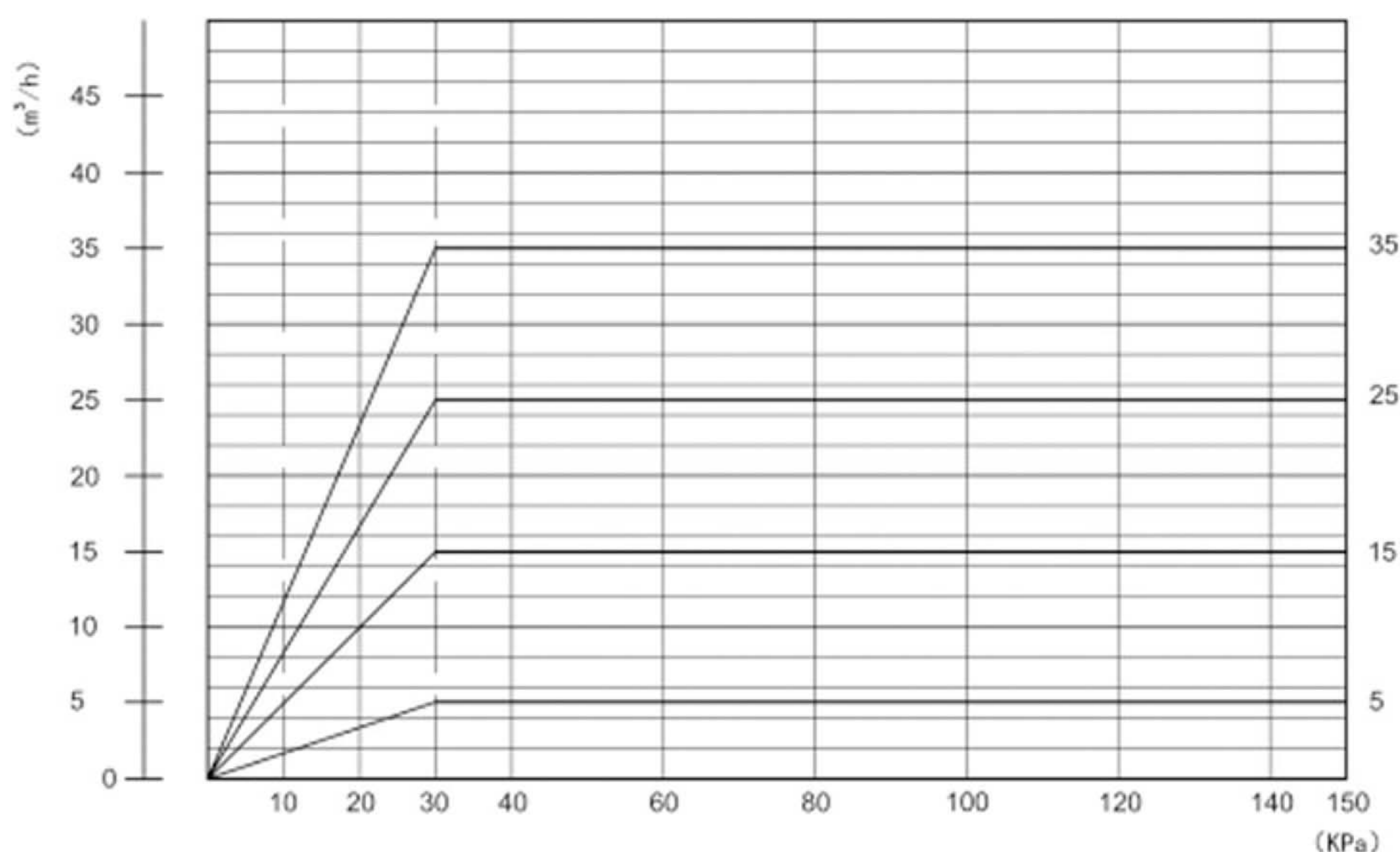


## Return manifold: presetting flow rate

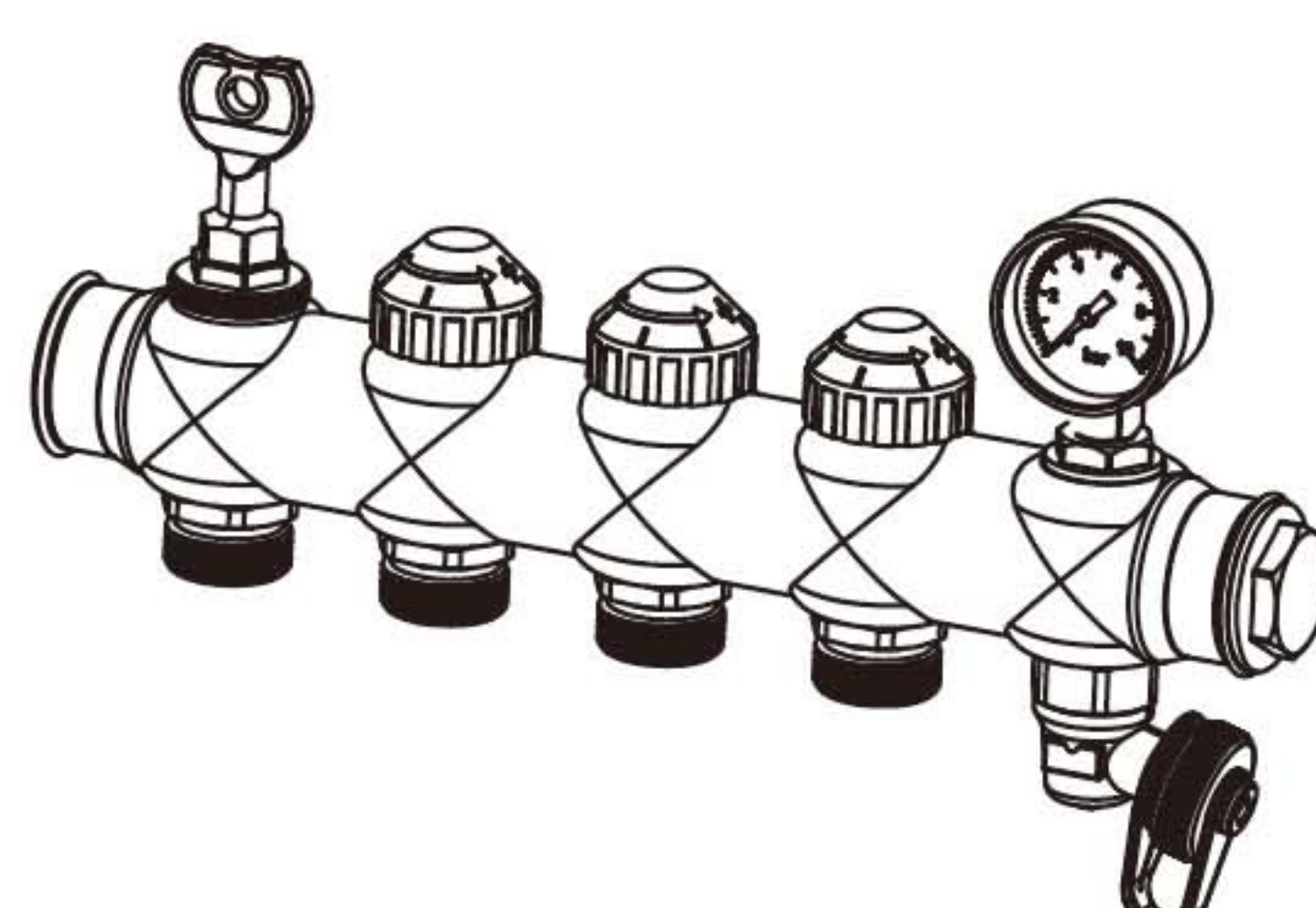
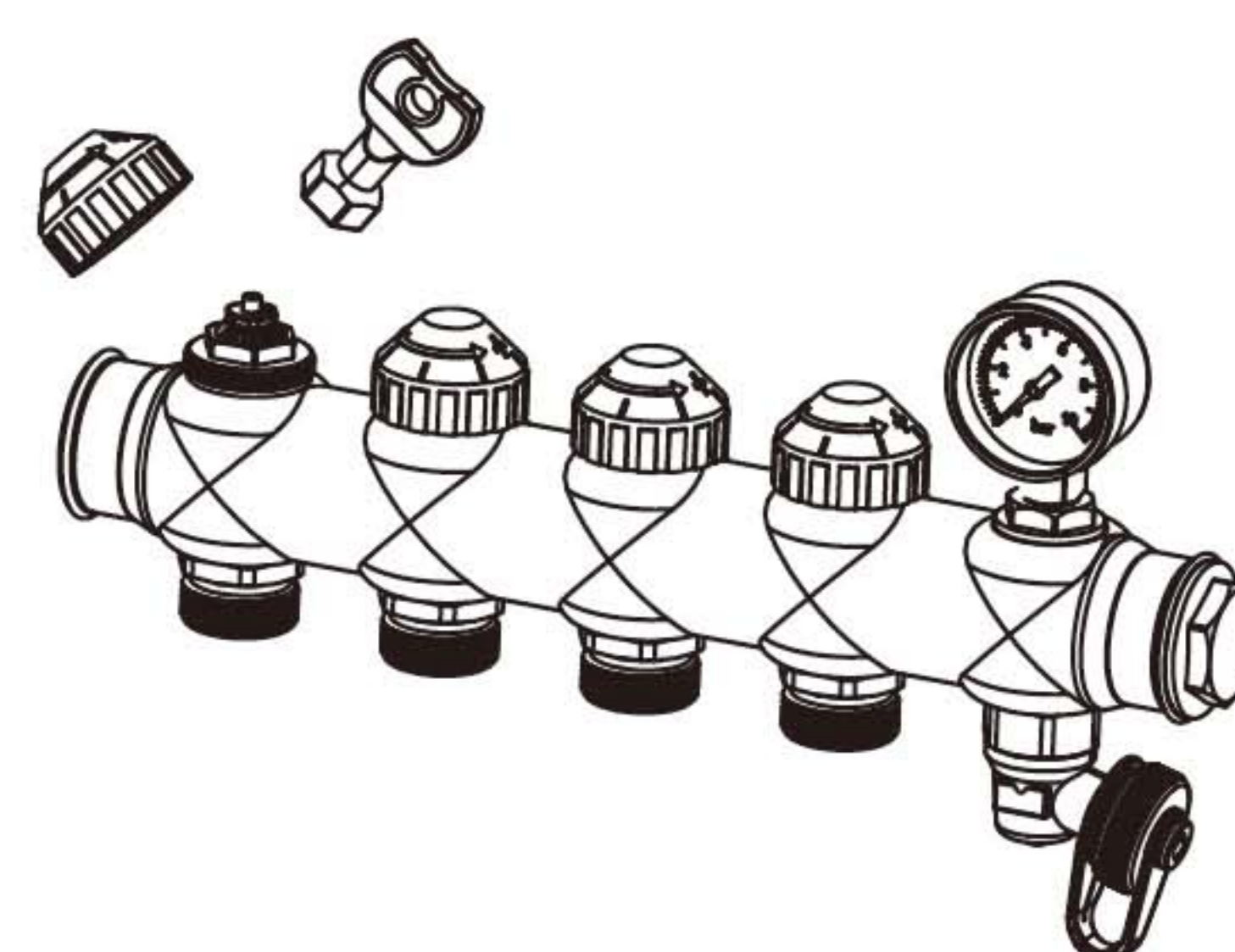
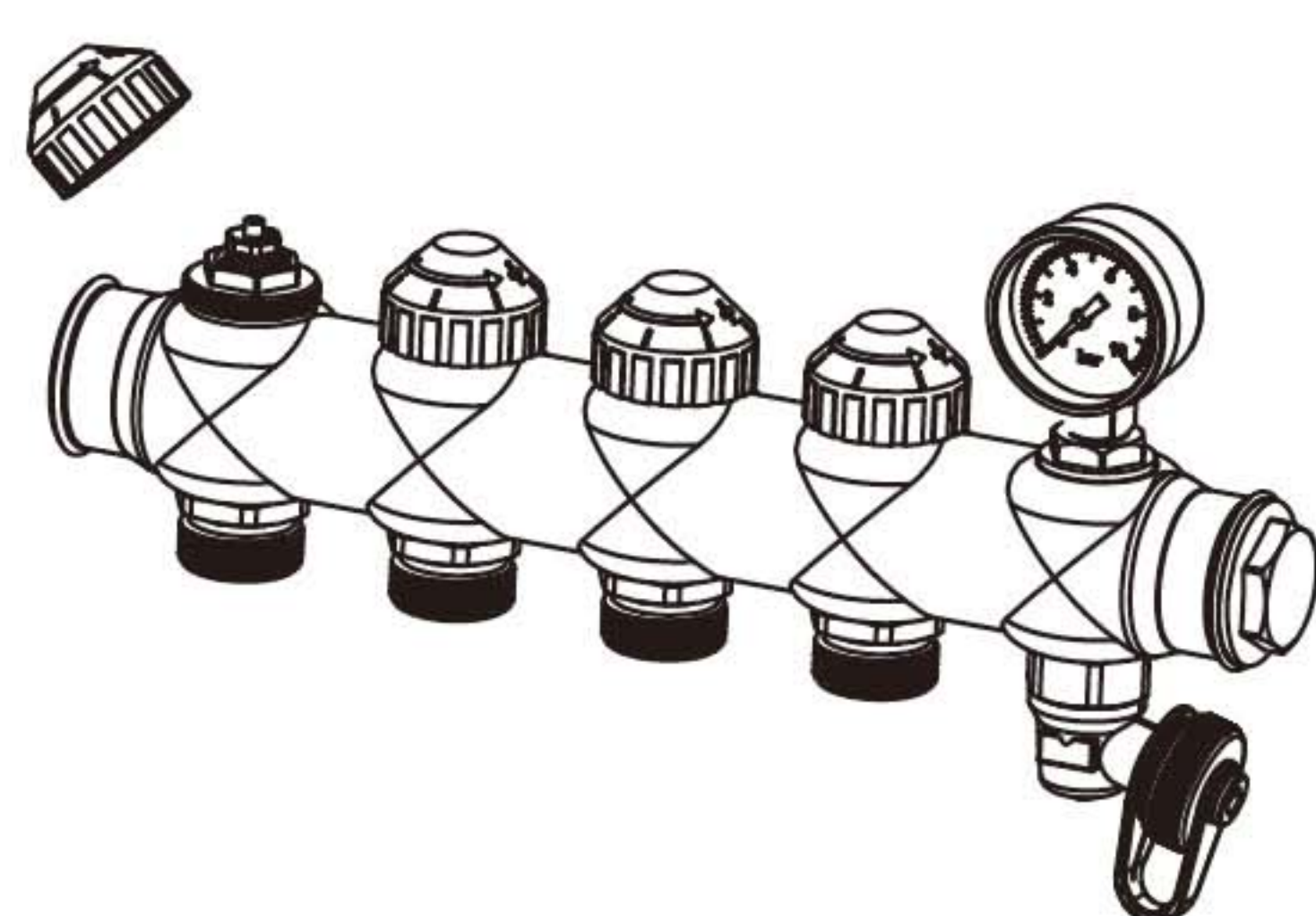
The flow rates of the individual circuits connected to the return outlets may be preset with the regulation key (included in package) within a setting range from 0 to 40, indicated on the cartridge of the bonnet.

To preset the flow rates of the individual circuits:

- 1) identify the cartridge position corresponding to the desired flow rate using the flow rate presetting diagrams or tables;
- 2) remove the manual hand wheel from the bonnet and fit the regulation key onto the cartridge;
- 3) turn the regulation key till the mark is aligned to the required position;
- 4) remove the regulation key and refit the manual hand wheel or the thermo-electric actuator.



Setting position	5	15	25	35
Flow rate[l/h]	50	150	250	350
$\Delta p$ min[kpa]	30	30	30	30
$\Delta p$ max[kpa]	150			





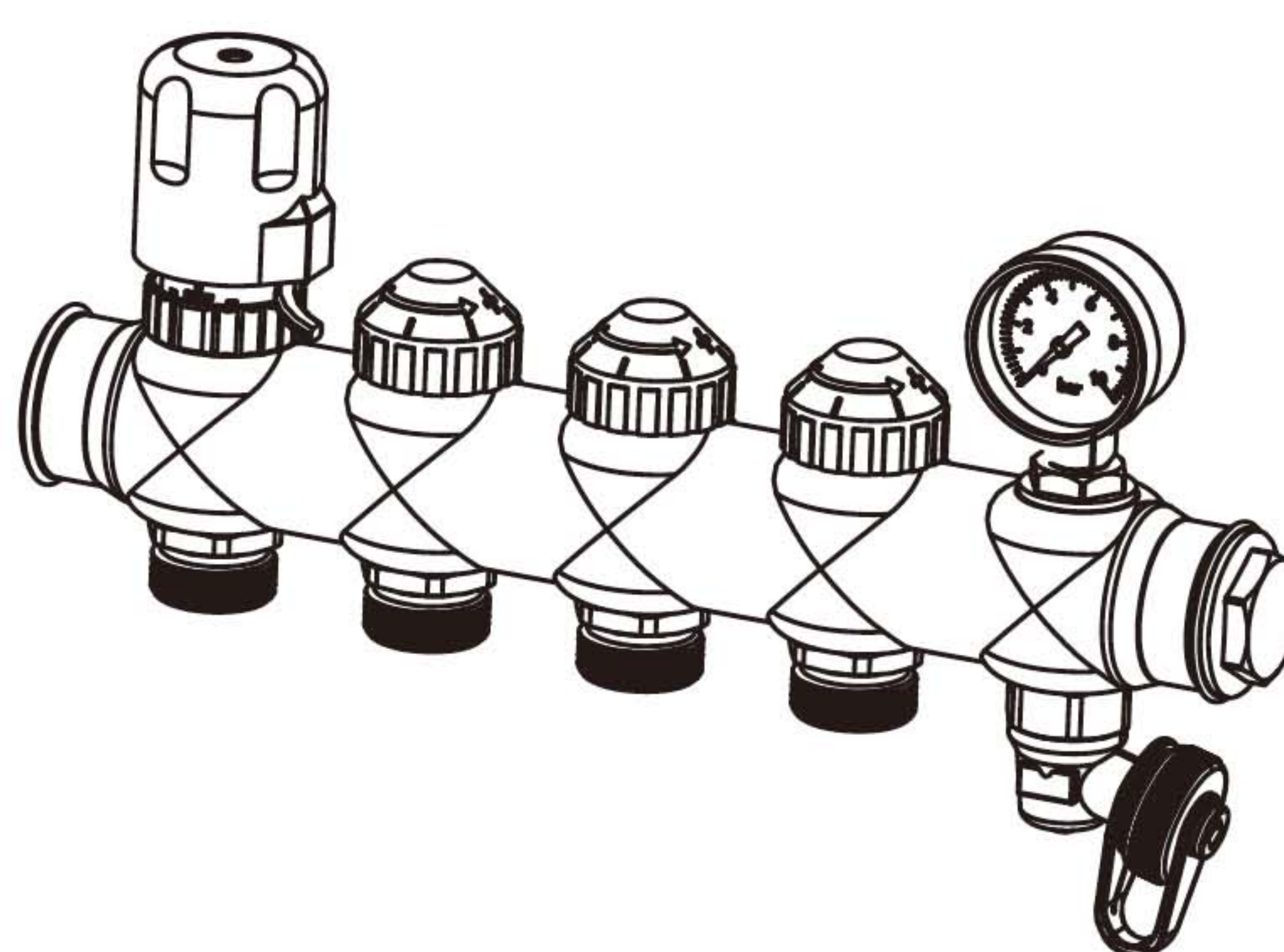
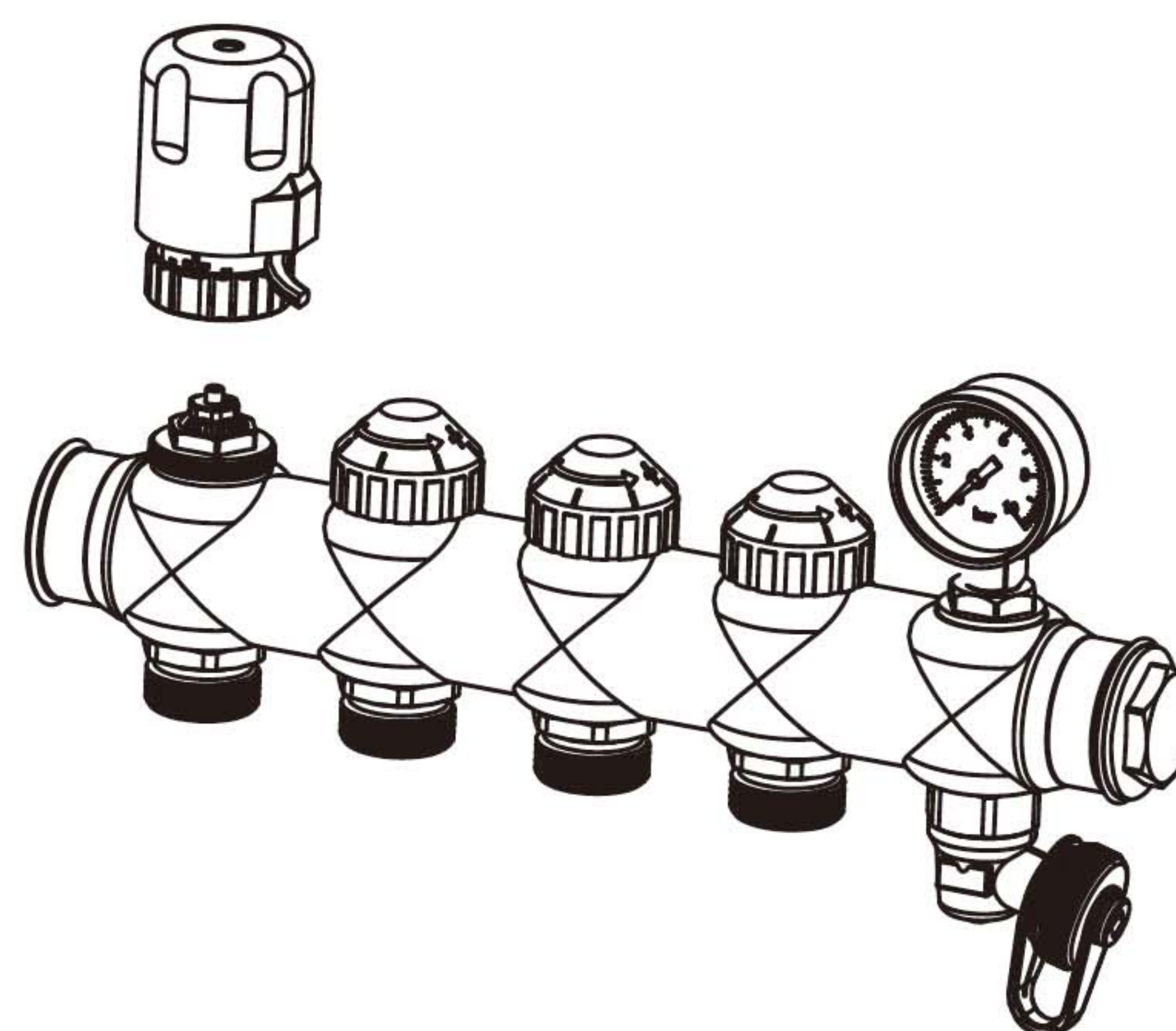
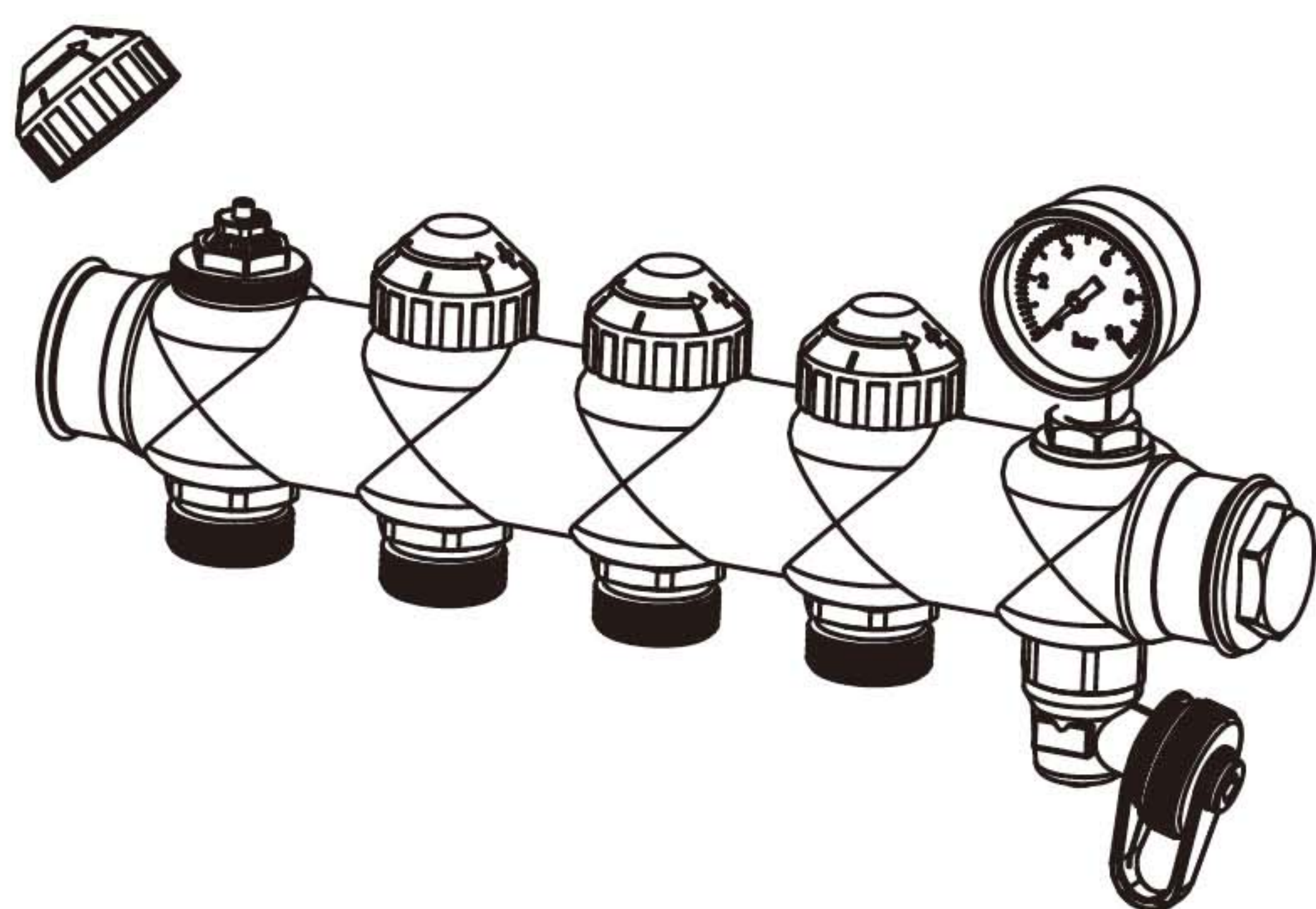
## Return manifold: installing thermo-electric actuators

Using normally closed thermo-electric actuators installed on the return manifold outlets, in combination with room thermostats, allows the room temperature to be maintained at the value set on the thermostats.

The thermo-electric actuators must only be installed after presetting the flow rate on the dynamic balancing bonnet.

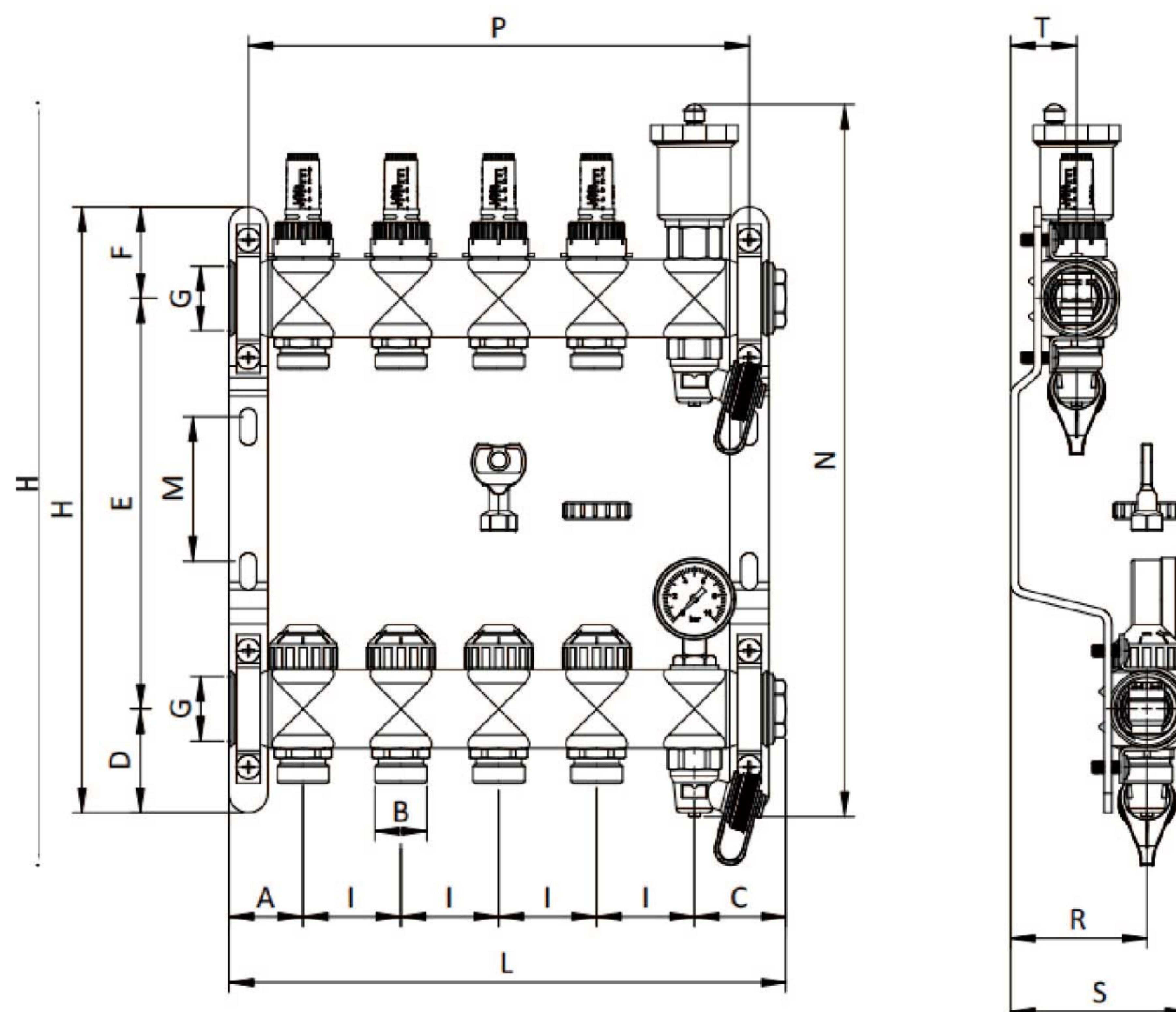
To install the thermo-electric actuators proceed as follows:

- 1) remove the manual handwheel;
- 2) assemble the thermo-electric actuator on the bonnet, pressing just enough to lock them together;





## Dimensions



NO. OUTLETS	A (mm)	B(mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	L (mm)	M (mm)	N (mm)	P (mm)	R (mm)	S (mm)	T (mm)
2	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	185.0	74.0	365.0	156.0	70.0	92.0	34.0
3	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	235.0	74.0	365.0	206.0	70.0	92.0	34.0
4	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	285.0	74.0	365.0	256.0	70.0	92.0	34.0
5	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	335.0	74.0	365.0	306.0	70.0	92.0	34.0
6	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	385.0	74.0	365.0	356.0	70.0	92.0	34.0
7	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	435.0	74.0	365.0	406.0	70.0	92.0	34.0
8	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	485.0	74.0	365.0	456.0	70.0	92.0	34.0
9	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	535.0	74.0	365.0	506.0	70.0	92.0	34.0
10	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	585.0	74.0	365.0	556.0	70.0	92.0	34.0
11	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	635.0	74.0	365.0	606.0	70.0	92.0	34.0
12	38.0	G3/4"	47.0	53.0	210.0	47.0	G1"	310.0	50.0	685.0	74.0	365.0	656.0	70.0	92.0	34.0

## Product specifications

Pre-assembled manifold with dynamic flow balancing. Connections: G 1" F x 3/4" M. Consisting of: stainless steel delivery manifold with flow meters with scale 0÷5 l/min and fluid shut-off function; stainless steel return manifold with dynamic flow balancing valve and manual handwheel. Pressure gauge and drain valve. EPDM gaskets. Galvanised steel brackets for manifolds.

Fluids: water, glycol solutions (max. 30%). Center distance between outlets: 50 mm. Temperature range: 5÷70 °C. Max. working pressure: 6 bar (10 bar for system testing). Max. differential pressure with thermo-electric actuators installed: 1,5 bar. Flow rate setting range for each individual circuit: 0÷400 l/h. Working differential pressure range: 30/40÷150 kPa.