



**PROFACTOR®**  
DER DEUTSCHE QUALITÄTSSTANDARD

EN

## TECHNICAL DATA SHEET AND USER MANUAL



**BRASS  
MANIFOLD GROUP**

### PRODUCT CODE

PF MB 800.2 –  
PF MB 800.12

PF MB 801.2 –  
PF MB 801.12

PF MB 802.2 –  
PF MB 802.12

PF MB 803.2 –  
PF MB 803.12

PF MB 804.2 –  
PF MB 804.12

PF MB 805.2 –  
PF MB 805.12

## 1. PURPOSE AND SCOPE

Brass manifold groups are used in water supply systems, radiator or underfloor heating systems for the distribution and regulation of the working medium within the system.

Each pipe of the water supply system, water heating system, or underfloor heating system is connected to the manifold, allowing individual adjustment and control of the heat carrier flow in each circulation loop.

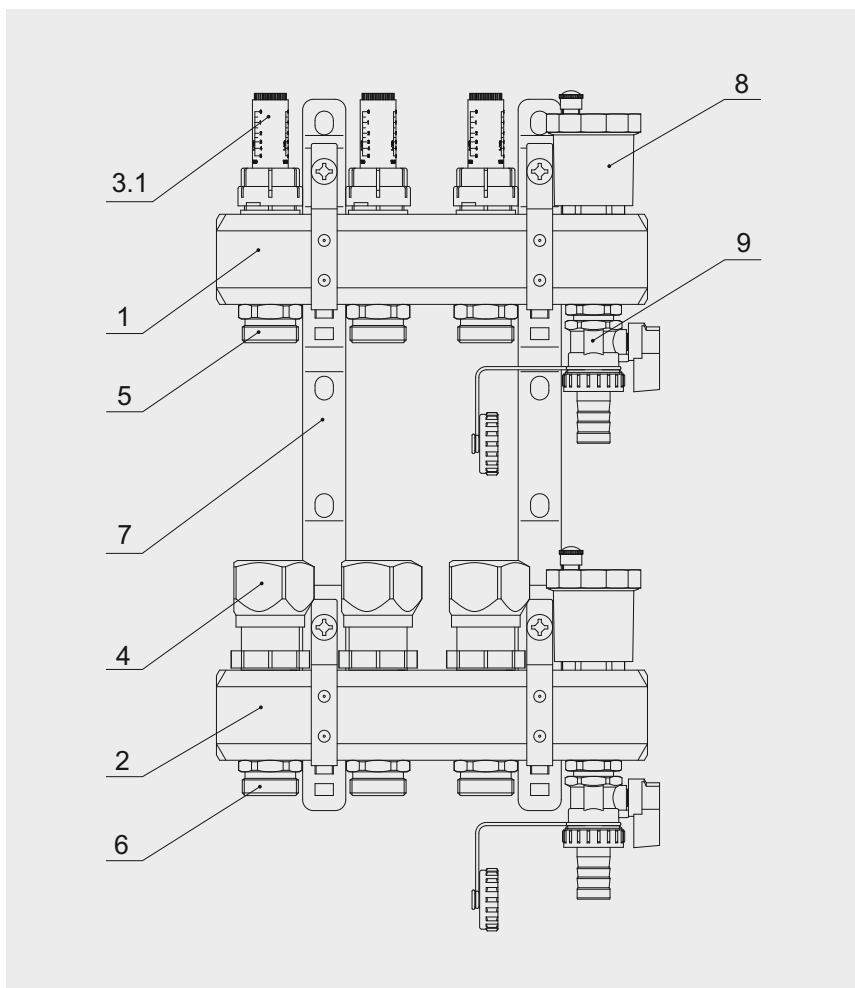
The manifold group can be used in pipelines transporting liquid media that are non-aggressive to the product materials (water, ethylene glycol-based antifreeze). The maximum ethylene glycol content in the antifreeze is 30%. Antifreeze should be used if the system characteristics involve a heat carrier temperature below 0°C.

## 2. TECHNICAL SPECIFICATIONS

| Product Code                                               | PF MB | 800.2–800.12<br>802.2–802.12 | 801.2–801.12<br>803.2–803.12 | 804.2–<br>804.12 | 805.2–<br>805.12 |
|------------------------------------------------------------|-------|------------------------------|------------------------------|------------------|------------------|
| Nominal size                                               | DN    | 25                           | 32                           | 25               | 32               |
|                                                            | G     | 1"                           | 1¼"                          | 1"               | 1¼"              |
| Maximum working pressure                                   | bar   | 10                           |                              |                  |                  |
| Maximum pressure drop                                      | bar   | 0,6                          |                              |                  |                  |
| Maximum allowable pressure on the supply manifold branches | m³/h  | 0,9                          | 2,1                          | 1,6              | 2,8              |
| Maximum allowable pressure on the return manifold branches | m³/h  | 1,6                          | 2,8                          |                  |                  |
| Minimum operating fluid temperature                        | °C    | – 20°                        |                              |                  |                  |
| Maximum operating fluid temperature                        | °C    | 80°                          |                              |                  | 110°             |
| Maximum ambient temperature                                | °C    | 60°                          |                              |                  |                  |

### 3. DESIGN

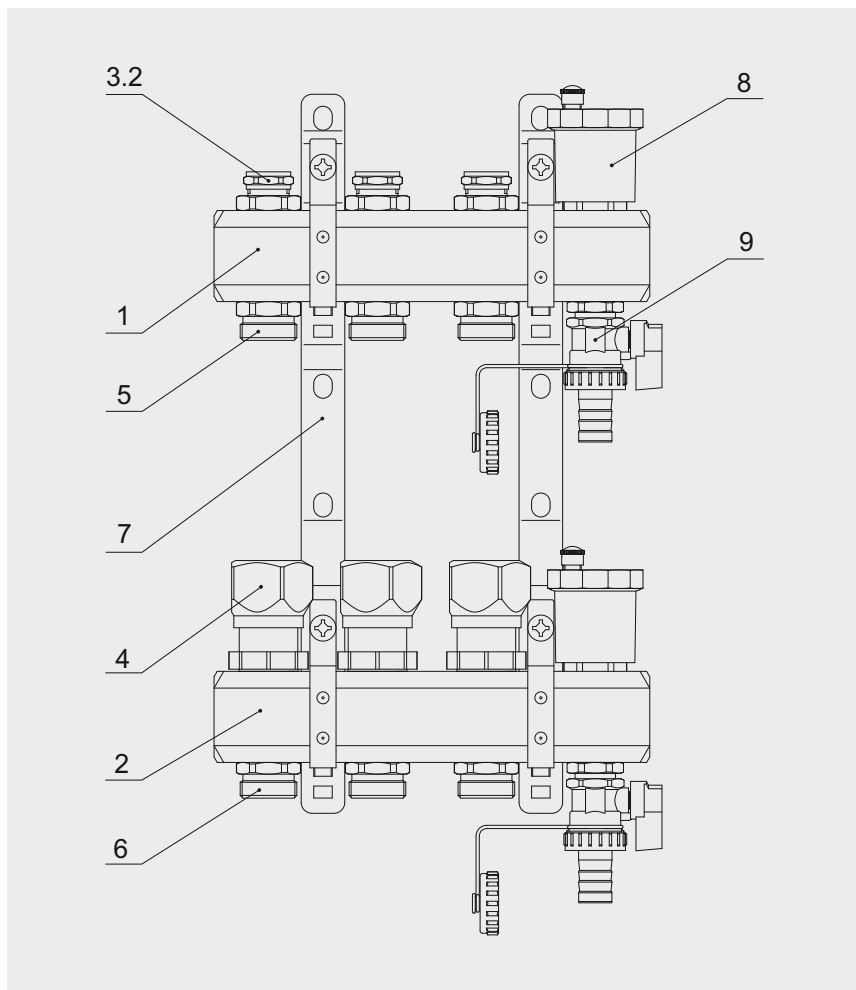
Manifold group: PF MB 802.2 – PF MB 802.12, PF MB 803.2 – PF MB 803.12



- 1 – Supply manifold
- 2 – Return manifold
- 3.1 – Balancing valve with flow meter
- 4 – Shut-off valve
- 5 – Transition nipple for the supply comb

- 6 – Transition nipple for the return comb
- 7 – Bracket
- 8 – Automatic air vent valve
- 9 – Ball drain valve

Manifold group: PF MB 804.2 – PF MB 804.12, PF MB 805.2 – PF MB 805.12



- |                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| 1 – Supply manifold                       | 6 – Transition nipple for the return comb |
| 2 – Return manifold                       | 7 – Bracket                               |
| 3.2 – Manual balancing valve              | 8 – Automatic air vent valve              |
| 4 – Shut-off valve                        | 9 – Ball drain valve                      |
| 5 – Transition nipple for the supply comb |                                           |

The brass manifold group consists of a supply (1) and return (2) manifold (combs) mounted on sound-insulating brackets (7) according to DIN 4109-1989. The brackets are made of galvanized structural steel S235JR (DIN EN 10025-2005).

The supply manifold of models PF MB 800., PF MB 801., PF MB 802., and PF MB 803. is equipped with manual balancing valves with flow meters (3.1) on one side and transition nipples (5) on the other side. The supply manifold of models PF MB 804.\* and PF MB 805.\* has manual adjustment valves (3.2). The supply comb allows the disconnection of each individual circulation loop of the system.

The return manifold is equipped with shut-off valves (4) for smooth flow control and transition nipples (6). The shut-off valves can be automated using an electric thermal actuator (connection thread M30×1.5).

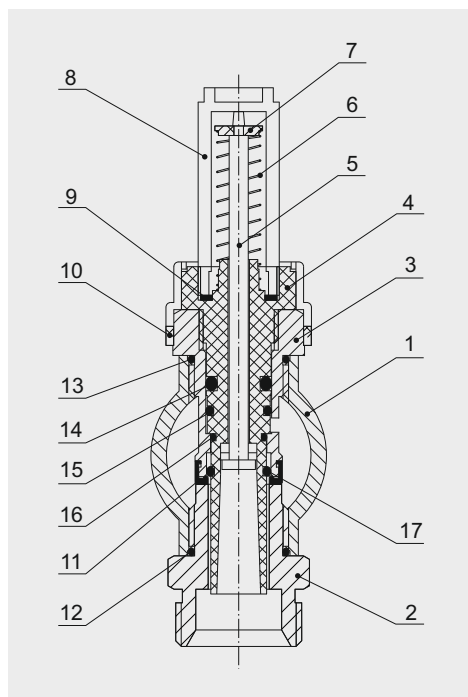
Each comb has an internal cylindrical thread of 1" or 1 ¼" for connection to the pipeline and from 2 to 12 side outlets with balancing or shut-off valves. All pipe cylindrical threads are in accordance with DIN 259 (ISO 228-1).

Connection of the circulation loops is carried out to the transition nipples using 3/4" "Eurocone" fittings. The distance between the centers of the outlets is 50 mm.

Brass manifold groups of models PF MB 802., PF MB 803., PF MB 804., and PF MB 805. are additionally equipped with two automatic air vent valves (8) and two ball drain valves (9), one on the supply and one on the return manifold.

All connections between the elements of the manifold group are made using EPDM sealing rings and sealed with adhesive. This eliminates the need for additional sealing and gasket materials.

### 3.1. DESIGN OF THE CONTROL VALVE WITH FLOW METER



- 1 – Manifold
- 2 – Adapter nipple
- 3 – Flow meter socket
- 4 – Flow meter body
- 5 – Flow meter stem
- 6 – Spring
- 7 – Flow indicator
- 8 – Cap
- 9 – Flow meter gasket
- 10 – Protective sleeve
- 11 – Valve seal
- 12 – Nipple O-ring
- 13 – Socket O-ring
- 14, 15, 16, 17 – Flow meter O-rings

#### Materials:

Parts 1, 2, 3 — Brass CW617N (DIN EN 12165-2011), nickel-plated surfaces

Parts 4, 7, 10 — ABS plastic

Stem 5 — Polypropylene (PP)

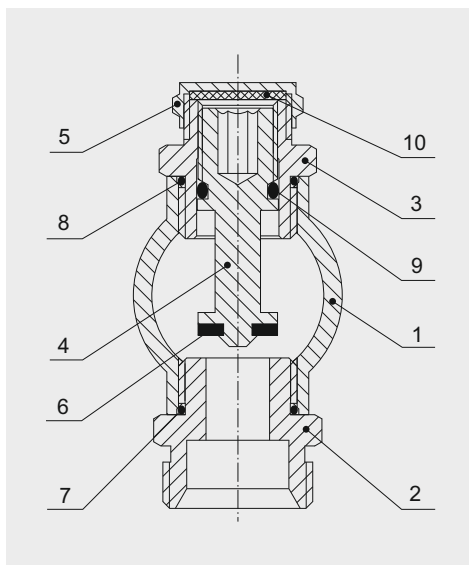
Spring 6 — Stainless steel AISI 304 (DIN EN 10088-2005)

Cap 8 — Polycarbonate (PC)

Sealing components 9, 11, 12, 13, 14, 15, 16, 17 — EPDM

**WARNING:** The flow meter body cannot be unscrewed from the socket without damaging the O-ring (17)!

### 3.2. DESIGN OF THE MANUAL ADJUSTMENT VALVE WITHOUT FLOW METER



- 1 – Manifold
- 2 – Adapter nipple
- 3 – Body
- 4 – Stem
- 5 – Protective cap
- 6 – Valve seal
- 7 – Nipple O-ring
- 8 – Body O-ring
- 9 – Stem O-ring
- 10 – Cap gasket

#### Materials:

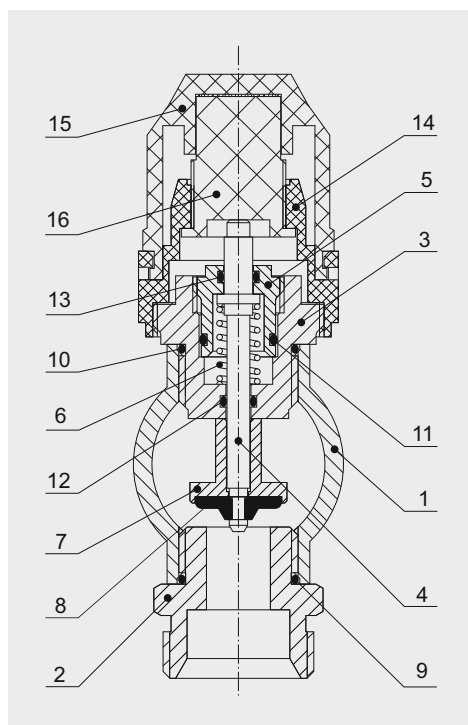
Parts 1, 2, 3, 5 — Brass CW617N (DIN EN 12165-2011), nickel-plated surfaces

Stem 4 — Brass CW617N (DIN EN 12165-2011)

Sealing components 6, 7, 8, 9 — EPDM

Cap gasket 10 — Fiber grade 3110 (DIN 7737)

### 3.3. DESIGN OF THE SHUT-OFF VALVE



- 1 – Manifold
- 2 – Adapter nipple
- 3 – Body
- 4 – Stem
- 5 – Bushing
- 6 – Spring
- 7 – Spool (valve plug)
- 8 – Valve seal
- 9 – Nipple O-ring
- 10 – Body O-ring
- 11 – Bushing O-ring
- 12, 13 – Stem O-rings
- 14 – Handle base
- 15 – Handle
- 16 – Operating component

#### Materials:

Parts 1, 2 — Brass CW617N (DIN EN 12165-2011), nickel-plated surfaces

Parts 3, 5, 7 — Brass CW617N (DIN EN 12165-2011)

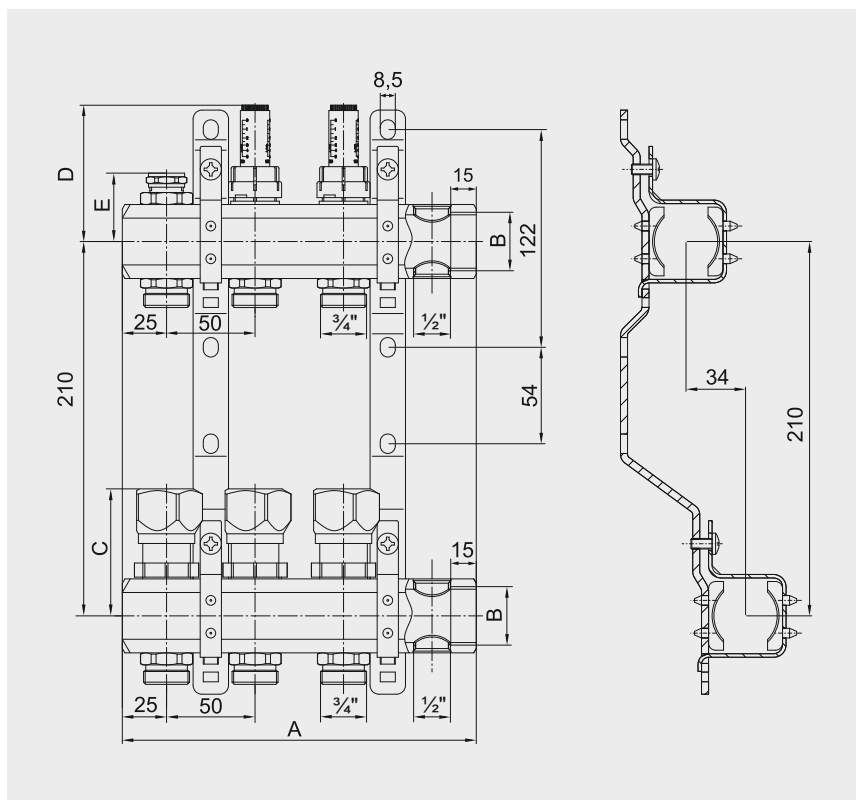
Stem 4 and spring 6 — Stainless steel AISI 304 (DIN EN 10088-2005)

Sealing components 8, 9, 10, 11, 12, 13 — EPDM

Parts 14, 15, 16 — ABS plastic



## 4. DIMENSIONS



Dimensions common to all manifold groups are shown in the drawing. Dimensions designated as variables are given in the tables below.

| Product code | PF MB | 800.2 – 800.12<br>802.2 – 802.12 | 801.2 – 801.12<br>803.2 – 803.12 | 804.2 – 804.12 | 805.2 – 805.12 |
|--------------|-------|----------------------------------|----------------------------------|----------------|----------------|
| B            | size  | 1"                               | 1¼"                              | 1"             | 1¼"            |
| C            | mm    | 68                               | 73                               | 68             | 73             |
| D            | mm    | 77                               | 82                               | —              | —              |
| E            | mm    | —                                | —                                | 37,5           | 42,5           |

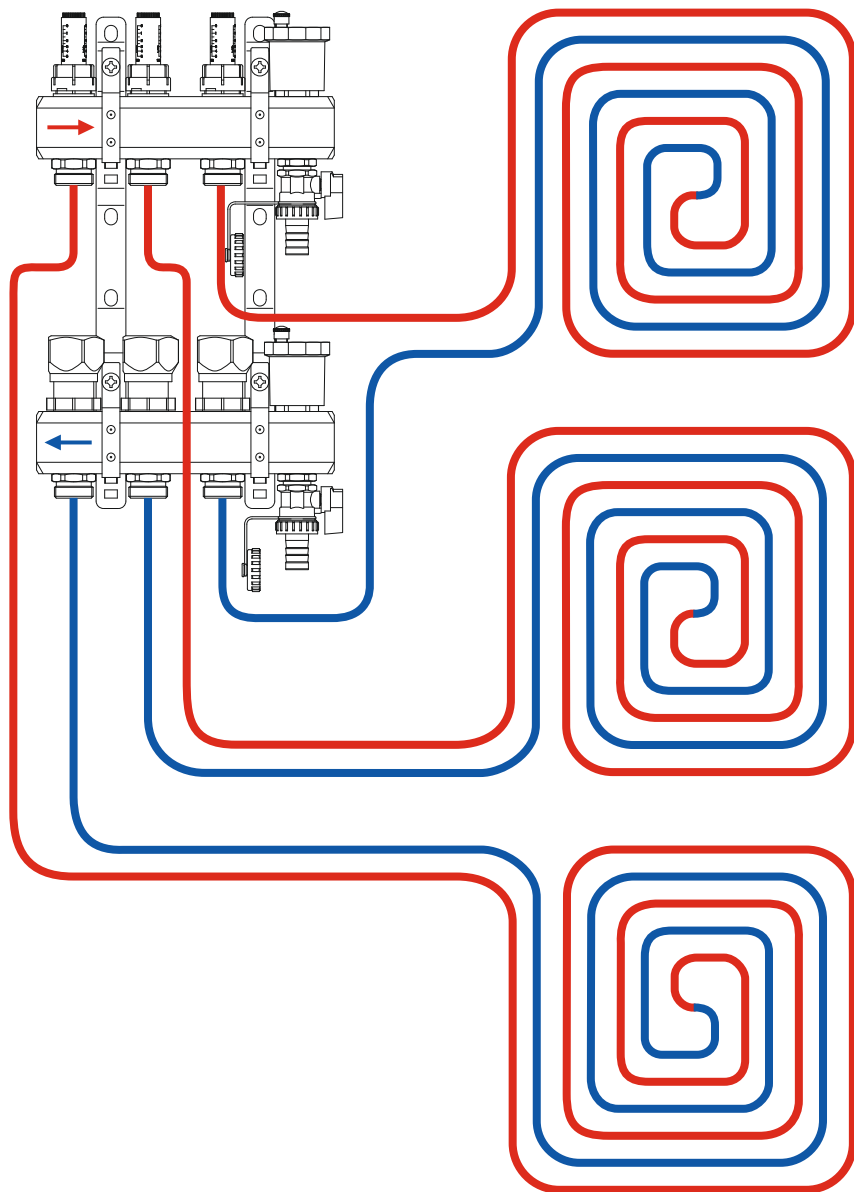
| Product code | A, mm | Weight, g | Product code | A, mm | Weight, g | Product code | A, mm | Weight, g |
|--------------|-------|-----------|--------------|-------|-----------|--------------|-------|-----------|
| PF MB 800.2  | 100   | 1510      | PF MB 802.2  | 150   | 2580      | PF MB 804.2  | 150   | 2600      |
| PF MB 800.3  | 150   | 2310      | PF MB 802.3  | 200   | 3160      | PF MB 804.3  | 200   | 3150      |
| PF MB 800.4  | 200   | 3000      | PF MB 802.4  | 250   | 3710      | PF MB 804.4  | 250   | 3750      |
| PF MB 800.5  | 250   | 3500      | PF MB 802.5  | 300   | 4320      | PF MB 804.5  | 300   | 4330      |
| PF MB 800.6  | 300   | 4080      | PF MB 802.6  | 350   | 4870      | PF MB 804.6  | 350   | 4900      |
| PF MB 800.7  | 350   | 4650      | PF MB 802.7  | 400   | 5480      | PF MB 804.7  | 400   | 5460      |
| PF MB 800.8  | 400   | 5240      | PF MB 802.8  | 450   | 6140      | PF MB 804.8  | 450   | 6030      |
| PF MB 800.9  | 450   | 6030      | PF MB 802.9  | 500   | 6700      | PF MB 804.9  | 500   | 6750      |
| PF MB 800.10 | 500   | 6430      | PF MB 802.10 | 550   | 7290      | PF MB 804.10 | 550   | 7250      |
| PF MB 800.11 | 550   | 7350      | PF MB 802.11 | 600   | 7920      | PF MB 804.11 | 600   | 8000      |
| PF MB 800.12 | 600   | 7640      | PF MB 802.12 | 650   | 8510      | PF MB 804.12 | 650   | 8640      |
| PF MB 801.2  | 100   | 2010      | PF MB 803.2  | 150   | 2980      | PF MB 805.2  | 150   | 2970      |
| PF MB 801.3  | 150   | 2630      | PF MB 803.3  | 200   | 3610      | PF MB 805.3  | 200   | 3590      |
| PF MB 801.4  | 200   | 3380      | PF MB 803.4  | 250   | 4350      | PF MB 805.4  | 250   | 4320      |
| PF MB 801.5  | 250   | 4100      | PF MB 803.5  | 300   | 5080      | PF MB 805.5  | 300   | 5040      |
| PF MB 801.6  | 300   | 4580      | PF MB 803.6  | 350   | 5560      | PF MB 805.6  | 350   | 5520      |
| PF MB 801.7  | 350   | 5550      | PF MB 803.7  | 400   | 6520      | PF MB 805.7  | 400   | 6480      |
| PF MB 801.8  | 400   | 6330      | PF MB 803.8  | 450   | 7310      | PF MB 805.8  | 450   | 7250      |
| PF MB 801.9  | 450   | 6990      | PF MB 803.9  | 500   | 7960      | PF MB 805.9  | 500   | 7910      |
| PF MB 801.10 | 500   | 7510      | PF MB 803.10 | 550   | 8490      | PF MB 805.10 | 550   | 8430      |
| PF MB 801.11 | 550   | 8150      | PF MB 803.11 | 600   | 9130      | PF MB 805.11 | 600   | 9050      |
| PF MB 801.12 | 600   | 8850      | PF MB 803.12 | 650   | 9830      | PF MB 805.12 | 650   | 9750      |

## 5. OPERATING PRINCIPLE

The pipeline of each circulation circuit in the system is connected to a separate pair of outlets of the supply and return manifolds. This allows for the regulation of the heat carrier flow rate and, consequently, the thermal output of each circuit individually. The working fluid enters the supply manifold and is distributed among the circuits through the control valves. Further adjustment of the heat carrier flow through specific circulation circuits is carried out using the shut-off valves of the return manifold. For automatic regulation, an electro-thermal actuator must be installed on the shut-off valve. The actuator closes the corresponding outlet in response to a signal from the room thermostat.

Connection diagram of the manifold group:

Underfloor heating pipe layout — "Spiral"

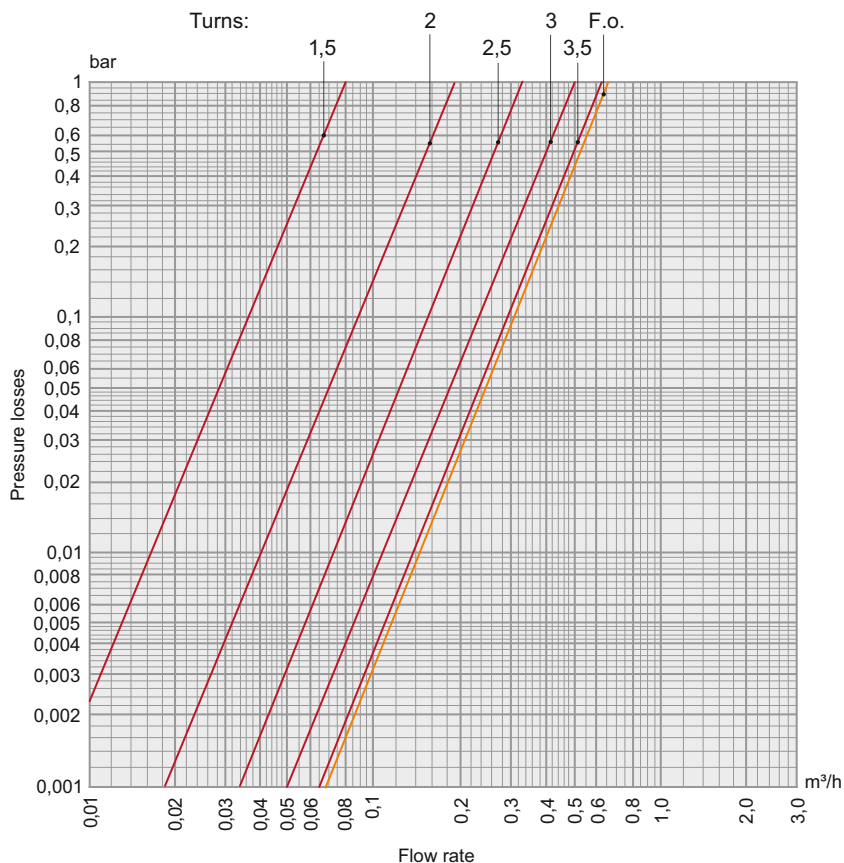


## 6. HYDRAULIC CHARACTERISTICS

Flow capacity of the control valve with flow meter:

| Number of turns of the flow meter adjustment ring | 1,5  | 2    | 2,5  | 3    | 3,5  | Fully open |
|---------------------------------------------------|------|------|------|------|------|------------|
| Kv, m³/h                                          | 0,08 | 0,19 | 0,34 | 0,50 | 0,63 | 0,65       |

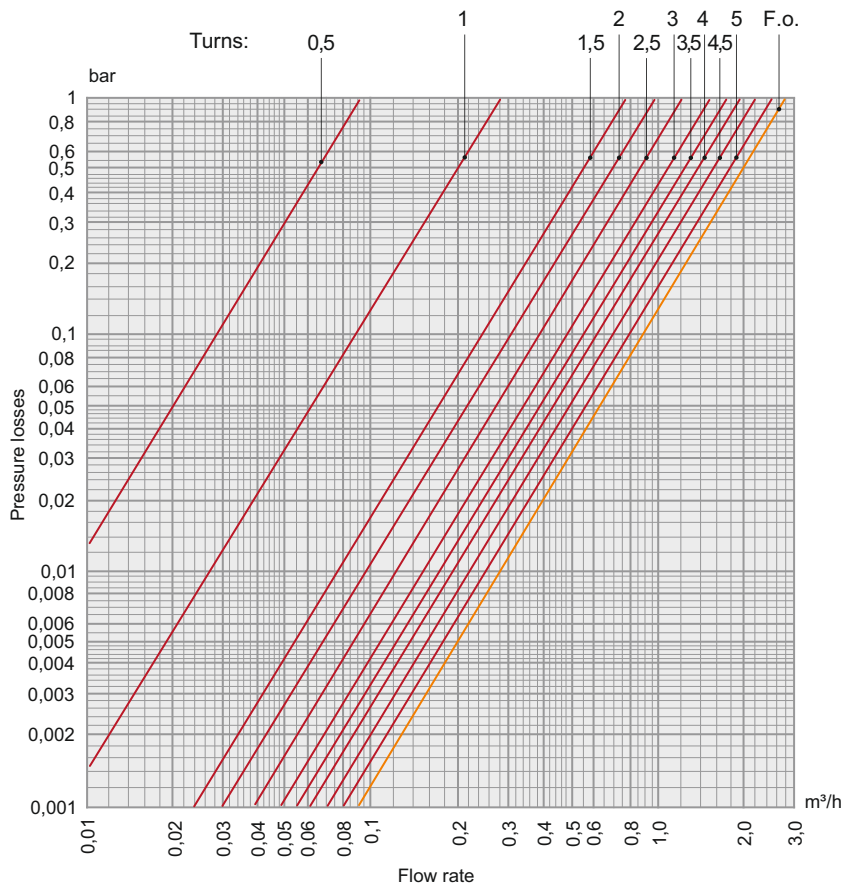
Pressure loss chart for the control valve with flow meter:



Flow capacity of the control valve without flow meter:

| Number of turns | 0,5  | 1    | 1,5  | 2    | 2,5  | 3    | 3,5  | 4    | 4,5  | 5    | Fully open |
|-----------------|------|------|------|------|------|------|------|------|------|------|------------|
| Kv, m³/h        | 0,09 | 0,28 | 0,74 | 0,95 | 1,19 | 1,44 | 1,67 | 1,89 | 2,20 | 2,52 | 2,70       |

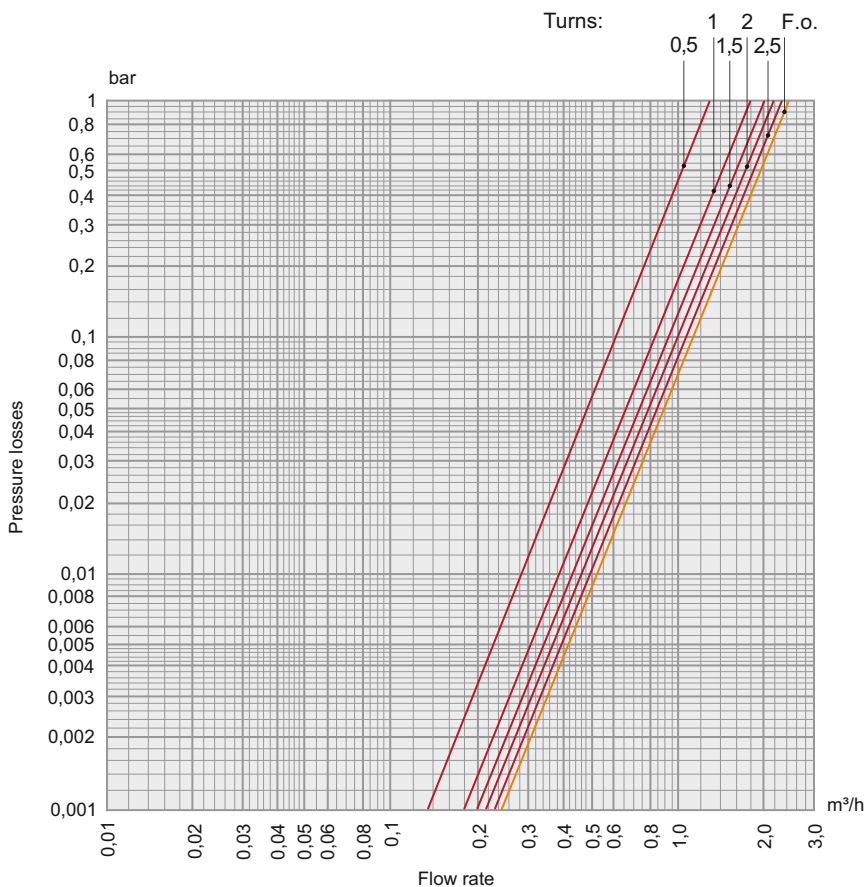
Pressure loss chart for the control valve without flow meter:



Flow capacity of the shut-off valve:

| Number of handle turns | 0,5  | 1    | 1,5  | 2    | 2,5  | Fully open |
|------------------------|------|------|------|------|------|------------|
| Kv, m³/h               | 1,27 | 1,79 | 2,05 | 2,21 | 2,35 | 2,40       |

Pressure loss chart for the shut-off valve:



## 7. INSTALLATION INSTRUCTIONS

Before installing the manifold group, the pipeline must be cleaned of scale and rust. Heating, heat supply, domestic cold and hot water systems, and boiler pipelines must be flushed with water after installation until the water runs clear without any suspended particles.

The manifold block must be installed horizontally and connected to the pipeline using cylindrical pipe threads. Manifolds with control valves must be connected to the supply pipeline, and manifolds with shut-off valves — to the return pipeline.

Using brackets, the manifold group is mounted in a manifold cabinet or directly on the wall. It is essential to ensure that the air vent is positioned strictly vertically at the highest point of the system. The dimensions of the manifold cabinet vary depending on the number of manifold outlets.

The manifold group must not be subjected to any loads from the pipeline (bending, compression, tension, torsion, misalignment, vibration, or uneven tightening). If necessary, supports or compensators must be provided to reduce the load on the assembly from the pipeline. The misalignment of connected pipelines must not exceed 3 mm per 1 m of length, plus 1 mm for each additional meter.

It is recommended to install manual shut-off ball valves at the inlet of the supply manifold and the outlet of the return manifold.

The manifold group must be securely fixed to the pipeline, and leakage of the working fluid through threaded joints is not permitted. Threaded connections should be sealed using PTFE-tape (polytetrafluoroethylene sealing material), polyamide thread with silicone, or flax. Care must be taken to ensure that excess sealing material does not enter the valve seat, as this may cause the valve to lose its tightness.

Check the correctness of the installation. When filling the system, air vent valves must be closed. After installation, a pressure test for system tightness must be carried out. This test ensures system integrity and prevents leaks or related damage. It is not allowed to perform hydraulic tests with air vent valves installed or with the shut-off valves before them in the open position.

When using the manifold group in systems that transport media with a high content of mechanical impurities, a mechanical filter should be installed before the manifold block.

To activate the air vent valve, slightly unscrew (without removing) the protective cap located on the top cover. Before putting the manifold group into operation, the compression nuts of the connectors should be tightened.

## 8. ADJUSTMENT, OPERATION AND MAINTENANCE INSTRUCTIONS

The brass manifold group must be operated without exceeding the pressure and temperature values specified in the technical characteristics table.

Before operation, each individual system circuit must be balanced. To do this, the required flow rate of the working fluid should be set on the control valve of the supply manifold:

A) Models PF MB 800.\*, PF MB 801.\*, PF MB 802.\*, and PF MB 803.\*, equipped with manual control valves with flow meters. The manifold group is supplied to the user with the control valves closed. First, the valve must be fully opened. To do this, remove the protective sleeve and rotate the flow meter by the adjustment nut on the body counterclockwise until it stops.

**WARNING:** Do not use wrenches to turn the flow meter, as excessive force can unscrew the flow meter and damage the O-ring (17). In this case, the valve will lose its tightness!

Flow adjustment through the valve should be performed manually. As the working fluid passes through, the flow indicator will begin to drop. The transparent flow meter cap allows visual observation of the flow rate of the working fluid through the valve. To set the required flow rate for each circuit, reduce the flow by turning the flow meter adjustment nut clockwise until the desired value is reached. After adjustment, snap the protective sleeve back onto the adjustment nut of the body.

The flow meter cap should be periodically rinsed or cleaned from accumulated dirt to ensure easy reading of flow values. To do this, close the fluid supply through the valve and unscrew the cap, rinse it with clean water, then reinstall it. Afterward, re-adjust the working fluid flow rate for the respective circuit.

B) Models PF MB 804.\* and PF MB 805.\*, equipped with manual adjustment valves. The manifold group is supplied to the customer with the adjustment valves open. First, the valve must be completely closed. To do this, unscrew the protective cap, then use a hex key to turn the stem clockwise until it stops.



Next, adjust the required flow rate of the working fluid. To do this, use the same hex key to turn the stem counterclockwise the required number of turns for the given circulation circuit (according to the flow and pressure loss chart). Then screw the protective cap back in place.

Further regulation of each individual circuit to maintain local temperature is performed using the shut-off valves of the return manifold. The direction of rotation is indicated on top of the handle. The “+” direction (counterclockwise) opens the valve, while the “–” direction (clockwise) closes it.

Installation, removal, and any repair or adjustment operations must be carried out only when the system is depressurized. Allow the equipment to cool down to ambient temperature before servicing.

## 9. WARRANTY OBLIGATIONS

The warranty period is 24 months from the date of sale to the end consumer. Throughout the entire warranty period, the manufacturer guarantees the proper functioning of the product and its compliance with safety requirements, provided that the consumer follows the rules for storage, transportation, installation, operation, and maintenance of the product. The warranty covers all defects arising through the manufacturer's fault.

The warranty does not cover defects resulting from:

- Violation of storage, transportation, installation, operation, or maintenance conditions;
- Exposure to substances aggressive to the materials of the product;
- Signs of mechanical damage;
- Damage caused by fire, natural disasters, or other force majeure circumstances;
- Damage caused by improper actions of the user;
- Evidence of unauthorized interference with the product design.

The product described in this technical manual is a technically complex device that must be installed by a qualified specialist with appropriate experience working with this type of equipment.

Installation and commissioning must be carried out by an authorized and certified company.

Profactor Armaturen GmbH reserves the right to make changes to the product design that do not affect its technical characteristics or functional features.



# INTERNATIONAL WARRANTY CARD

NAME OF THE PRODUCT

PRODUCT CODE, SIZE

QUANTITY

SELLER NAME AND ADDRESS

DATE OF PURCHASE

SELLER STAMP

SELLER SIGNATURE

For the warranty term refer to the Warranty obligation clause in the technical manual

FOLD LINE

FOLD LINE

In case of any claims to the product quality the following documents should be submitted:

1. Application with customer and product details:

- Name of the customer, actual address and phone number
- Article of the product
- Reason for the claim and photo
- Plumbing system where installed (name, address, phone number)

2. Invoice copy and receipt

3. Warranty card

RETURN/EXCHANGE COMMENTS

DATE

SIGNATURE



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