



PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

EN

TECHNICAL DATA SHEET AND USER MANUAL

PRODUCT CODE

PF SG 870-4
PF SG 870-6
PF SG 870-10

PF SG 871-4
PF SG 871-6
PF SG 871-10

PF SG 872-4
PF SG 872-6
PF SG 872-10

PF SG 873-4
PF SG 873-6
PF SG 873-10



THERMOMANOMETERS

1. PURPOSE AND SCOPE

PROFACTOR® thermomanometers are used to measure pressure and temperature of liquid and gaseous media that are moderately viscous and non-crystallizing, and non-aggressive to copper alloys, in water supply, heating, and cooling systems. The pressure and temperature values of the working medium must not exceed the maximum values indicated on the corresponding thermomanometer scales.

2. TECHNICAL SPECIFICATIONS

Pressure gauge scale range: 0 – 4 bar, 0 – 6 bar, 0 – 10 bar (see Table 1)

Constant pressure: 75% of the maximum scale value

Fluctuating pressure: 65% of the maximum scale value

Short-term pressure: 110% of the maximum scale value

Pressure gauge accuracy class: 2.5 according to EN 837-1

Thermometer scale range: 0°C to +120°C

Recommended measuring temperature range: +10°C to +110°C

Maximum short-term allowable temperature: +130°C

Thermometer accuracy class: 2 according to DIN EN 13190

Connection thread, G: 1/4" M

Protection class: IP31

Ambient temperature: –20°C to +60°C

3. DESIGN

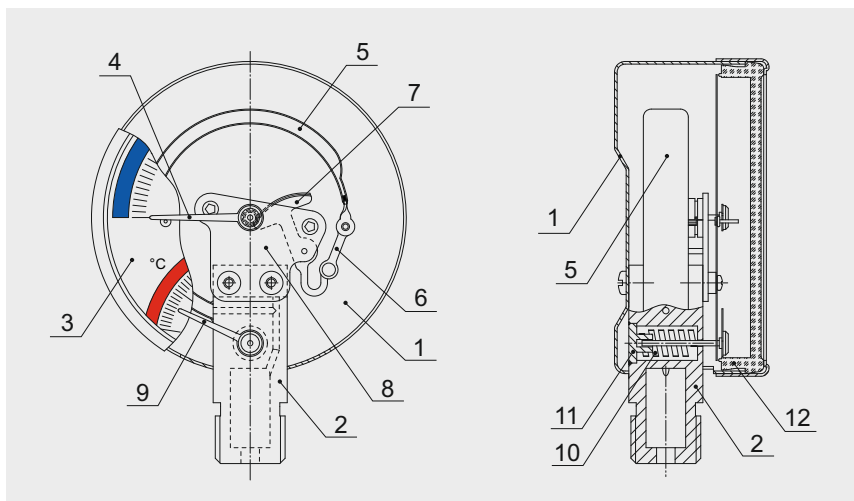
The PROFACTOR® thermomanometer combines a pressure gauge and a thermometer within a single housing.

All PROFACTOR® pressure gauges are in an accordance with DIN EN 837-1, and the PROFACTOR® bimetal thermometers are in an accordance with DIN EN 13190. The connection thread is in an accordance with ISO 228-1 and DIN 259.

The main element of the pressure gauge is the Bourdon tube (5) — a circularly bent hollow tube with an oval cross-section. The main element of the thermometer is a bimetallic spiral (10) made of two metals pressed together, each with a different coefficient of linear expansion. One end of this spiral is soldered to the thermometer pointer shaft, and the other end is attached to the cap (11).

The dial (3) of all PROFACITOR® thermomanometers features two scales: a blue scale for pressure measurement (graduated in bar) and a red scale for temperature measurement (graduated in °C). The front surfaces of the pointers (4) and (9) are black, while the front surface of the dial (3) is white.

The entire thermomanometer assembly is mounted inside the housing (1) and covered with a transparent cap (12).



- | | |
|----------------------------|-------------------------|
| 1 – Housing | 7 – Gear segment |
| 2 – Connection fitting | 8 – Support plate |
| 3 – Dial | 9 – Thermometer pointer |
| 4 – Pressure gauge pointer | 10 – Bimetallic spiral |
| 5 – Bourdon tube | 11 – Cap |
| 6 – Link | 12 – Transparent cover |

4. MATERIALS

Housing (1) — Steel, black enamel coating
 Connection fitting (2), Link (6), Gear segment (7) — Brass CW614N (DIN EN 12165)
 Dial (3), Pointers (4, 9) — Aluminum
 Bourdon tube (5) — Copper alloy
 Support plate (8), Cap (11) — Steel
 Cover (12) — Acrylic glass

5. OPERATING PRINCIPLE

The pressure of the measured medium acts on the inner side of the Bourdon tube (5), causing the oval cross-section of the tube to become more circular. As a result of this deformation, circumferential stresses arise, which cause the tube to straighten slightly. The free end of the tube rises in proportion to the applied pressure, pulling the link (6), which in turn rotates the gear segment (7). The gear segment drives the pointer shaft, causing the pressure gauge pointer (4) to rotate and indicate the system pressure.

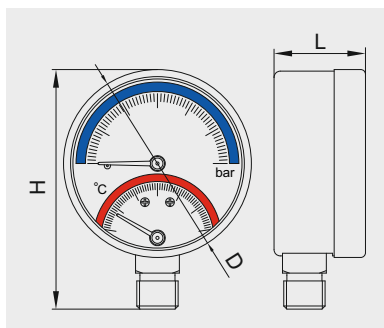
The sensitive element of the thermometer is the bimetallic spiral (10), made of two metals pressed together, each with different coefficients of linear expansion. This spiral deforms in direct proportion to temperature changes, thereby rotating the pointer shaft (9).

6. NOMENCLATURE AND DIMENSIONS

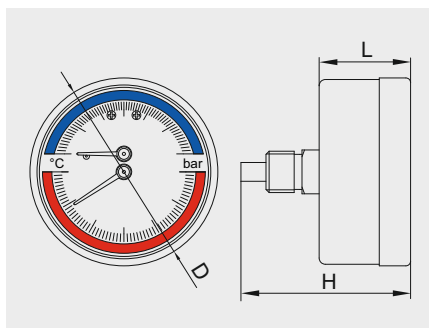
Table 1

Product Code	Connection type	Measuring range	D, mm	L, mm	H, mm	Weight, g
PF SG 870-4	radial	0 – 4 bar, 0 – 120°C	53	26	75,5	88
PF SG 870-6		0 – 6 bar, 0 – 120°C				
PF SG 870-10		0 – 10 bar, 0 – 120°C				
PF SG 871-4	axial	0 – 4 bar, 0 – 120°C		26,5	52	90
PF SG 871-6		0 – 6 bar, 0 – 120°C				
PF SG 871-10		0 – 10 bar, 0 – 120°C				
PF SG 872-4	radial	0 – 4 bar, 0 – 120°C	63	28	80,5	100
PF SG 872-6		0 – 6 bar, 0 – 120°C				
PF SG 872-10		0 – 10 bar, 0 – 120°C				
PF SG 873-4	axial	0 – 4 bar, 0 – 120°C		28,5	52,5	100
PF SG 873-6		0 – 6 bar, 0 – 120°C				
PF SG 873-10		0 – 10 bar, 0 – 120°C				

Thermomanometer with radial connection (PF SG 870, PF SG 872):



Thermomanometer with axial connection (PF SG 871, PF SG 873):



7. INSTALLATION INSTRUCTIONS

Before installing the thermomanometer, the pipeline must be cleaned of scale and rust. Heating, heat supply, internal hot and cold water systems, as well as boiler pipelines, must be flushed with water after installation until the discharged water is free of mechanical impurities.

Thermomanometers must be installed in locations protected from atmospheric precipitation. The devices should be mounted in the position in which they were calibrated. Before and during installation, the thermomanometers must be protected from shock and vibration. The instruments should be installed in easily accessible locations with good visibility of the dial. It is recommended to install a shut-off valve in front of the device.

The upper limit of the pressure gauge scale should exceed the maximum operating pressure of the equipment by 25 – 100%.

Installation is performed by screwing the thermomanometer into the mounting socket. For this purpose, use the square section on the connection fitting and a wrench SW14. Do not apply force to the instrument housing!

If the thermomanometer must operate under vibration conditions or when the measured medium temperature exceeds +80°C, it should be connected to the pipeline remotely, using impulse tubes or separating devices.

After installation, all connection points must be checked for leaks at maximum operating pressure.

8. OPERATING AND MAINTENANCE

Thermomanometers must be operated without exceeding the temperature and maximum pressure limits (upper scale limit) specified in Table 1. It is recommended to apply pressure gradually and avoid sudden pressure surges.

Installation, removal, repair, and adjustment operations must be carried out only when the system is not pressurized. Allow the equipment to cool down to ambient temperature before performing any work.

During operation, regular inspections, calibrations, and technical certifications must be carried out according to the schedule established by the organization operating the pipeline. To avoid additional heating, the measuring instruments must be protected from direct sunlight during operation.

All installation, dismantling, and repair work must be performed only by qualified personnel with appropriate training.

9. STORAGE AND TRANSPORTATION CONDITIONS

The products must be stored in the manufacturer's packaging. During storage and transportation, the instruments must be protected from excessive humidity and from ambient temperatures below -30°C . The product must be protected from impacts and drops. Any mechanical damage to the device during unpacking or installation will void the manufacturer's warranty.

10. WARRANTY OBLIGATIONS

The warranty period is 12 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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