



PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

EN

TECHNICAL DATA SHEET AND USER MANUAL



**PRODUCT
CODE**

PF RVT 631
PF RVT 661
PF RVT 662

**THERMOSTATIC HEAD
WITH IMMERSION SENSOR**

1. PURPOSE AND SCOPE

Thermostatic heads are continuous proportional-type direct-acting temperature controllers. They are designed for the automatic regulation of the heat carrier flow through a heating device and for maintaining a constant ambient temperature in an individual room as set by the user.

Thermostatic heads are mounted on a corresponding thermostatic valve and do not require any external power source.

PROFACTOR® thermostatic heads with immersion sensors are designed to regulate and maintain the temperature of the heat carrier in a heating system. The PF RVT 631 and PF RVT 661 models are most commonly used in underfloor heating systems, where they control the temperature of the supply line heat carrier in the underfloor heating circuit. The PF RVT 662 thermostatic head is designed to maintain a high return temperature of the heat carrier, for example, when using solid-fuel boilers.

2. TECHNICAL SPECIFICATIONS

Connection thread: M30×1.5

Permissible ambient temperature: 0°C to +60°C

Permissible relative air humidity: 30% – 85%

Temperature setting range:

PF RVT 631, 661: +20°C to +60°C

PF RVT 662: +30°C to +70°C

Maximum heat carrier temperature: 100°C

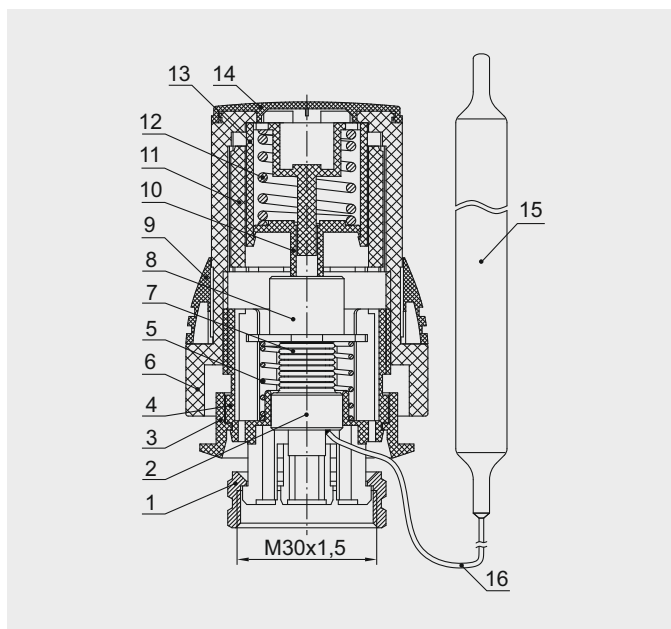
Maximum heating system pressure: 10 bar

Maximum differential pressure across the valve: 1 bar

3. DESIGN

All PROFACTOR® thermostatic heads are in accordance with DIN V 4701-10-2003. The connection thread is in accordance with DIN ISO 261. PROFACTOR® thermostatic heads can be installed on all PROFACTOR® thermostatic valves or on any other thermostatic valves manufactured in accordance with DIN EN 215-2007, featuring a metric connection thread M30×1.5 for the thermostatic head.

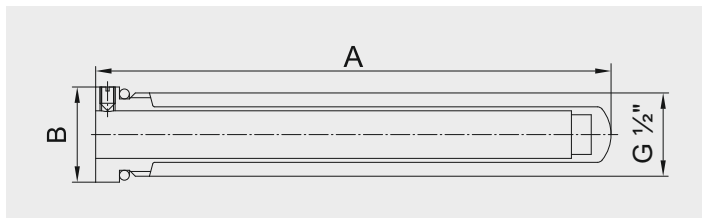
The design of the thermostatic head is illustrated using the example of the PF RVT 631 model:



- | | |
|------------------------------------|-----------------------------|
| 1 – Union nut | 9 – Limiter |
| 2 – Thermostat chamber | 10 – Damper spring stop |
| 3 – Limiting flange with indicator | 11 – Sleeve |
| 4 – Cartridge | 12 – Damper spring |
| 5 – Working spring | 13 – Damper chamber housing |
| 6 – Control knob | 14 – Cover |
| 7 – Bellows | 15 – Immersion sensor |
| 8 – Working spring stop | 16 – Capillary tube |

The thermostatic element of the head is the thermostat chamber (2) with a bellows (7). The thermostat chamber is connected to the temperature sensor (15) via a capillary tube (16). The thermostat chamber, bellows, capillary tube, and sensor are filled with a liquid with a high thermal expansion coefficient, with the main volume of this liquid contained in the sensor.

Sleeve for installation of the immersion sensor PF MB 850:



Dimensions:

A: 130 mm

B: 24 mm

Maximum sensor size: length 130 mm, Ø11 mm

Also suitable for shorter sensors.

4. MATERIALS

Union nut (1) — Brass CW614N (DIN EN 12165), with nickel-plated surfaces

Parts (2, 7, 8) — Brass CW614N (DIN EN 12165)

Parts (3, 4, 6, 9, 11, 14, 17) — ABS plastic

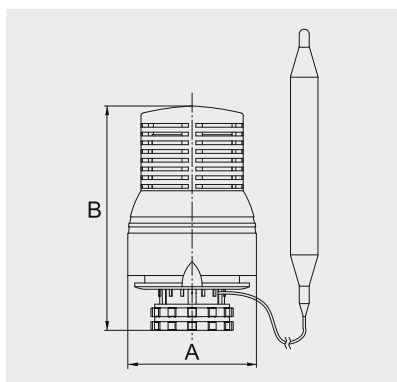
Springs (5, 12) — Structural steel 66Mn4 (DIN EN 10132-4)

Parts (10, 13) — Glass fiber reinforced nylon

Capillary tube (16) — Corrosion-resistant stainless steel 1.4571 (DIN EN 10088)

The immersion and remote sensors are made of copper; the surface of the remote sensor is nickel-plated.

5. NOMENCLATURE AND DIMENSIONS



PF RVT 631

Dimensions:

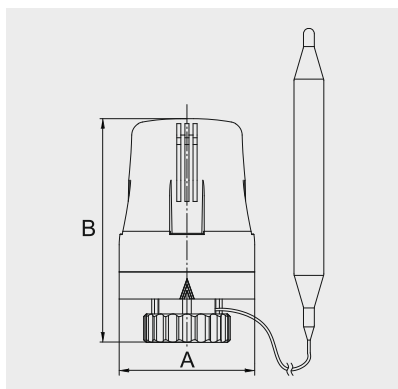
A: 52 mm

B: max. 93 mm

Sensor: immersion type,

length 130 mm, Ø11 mm

Capillary tube length: 2 m

**PF RVT 661**

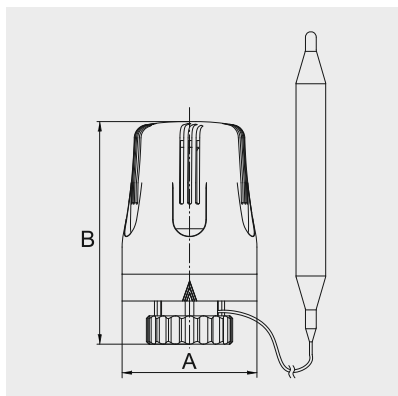
Dimensions:

A: 51 mm

B: 87.5 mm

Sensor: immersion type,
length 110 mm, Ø11 mm

Capillary tube length: 2 m

**PF RVT 662**

Dimensions:

A: 51 mm

B: 84 mm

Sensor: immersion type,
length 110 mm, Ø11 mm

Capillary tube length: 2 m

6. PRINCIPLE OF OPERATION

The main component of the thermostatic element is the bellows, which provides proportional temperature control. The temperature sensor detects changes in the surrounding medium. When the temperature around the sensor rises, the liquid inside expands and acts on the bellows through the capillary tube. As the pressure in the bellows increases, it expands in volume, pushing the thermostat chamber downward, which in turn presses the stem of the thermostatic valve, thereby reducing the opening for the heat carrier flow into the heating device.

The control knob (6) allows for preset adjustment of the desired temperature.

7. INSTALLATION INSTRUCTIONS

Before installing the thermostatic heads on the valves, the heating system can be manually adjusted using the protective plastic caps supplied with the thermostatic valves. Before installation, remove the protective cap from the valve, and on the thermostatic head set the maximum temperature value (position "5") by turning the control knob counterclockwise until it stops.

Then install the thermostatic head on the valve so that the indicator on the limiting flange is clearly visible. While holding the head in this position, tighten the union nut (1) firmly using a wrench with rubber jaws, applying a torque of approximately 20 Nm.

After installing the thermostatic head, proceed to install the temperature sensor. The thermostatic head is supplied with the capillary tube fully coiled; it must be protected from bending or kinking. During installation, extend only the required length of the capillary tube (maximum 2 m) and leave the remaining part coiled.

For installation of the immersion sensor into the heating system pipe, it is recommended to use the special sleeve PF MB 850 with an external cylindrical thread 1/2" and a sealing ring to ensure tightness of the connection. If the pipe has a thread incompatible with the sleeve thread, the connection should be made using an adapter coupling or bushing. After screwing the sleeve into the pipe, insert the immersion sensor into it and secure it using the micrometric screw located on the hexagonal flange of the sleeve.

8. OPERATING AND ADJUSTMENT

The thermostatic head must be operated without exceeding the parameters specified in the section "Technical Specifications" (see p. 2). The capillary tube must be protected from bending and kinking.

The desired temperature setting is adjusted by turning the control knob (6) until the indicator on the limiting flange (3) aligns with the desired value on the knob scale. When turning the knob counterclockwise, the temperature increases; when turning it clockwise, the temperature decreases. The scale on the knob indicates the correlation between the markings and the regulated temperature. The temperature values corresponding to the scale markings are approximate, as the actual temperature of the air in the room or the heat carrier in the pipeline may differ from the temperature surrounding the sensor, depending on the installation conditions of the sensor.

9. 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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