



PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

EN

TECHNICAL DATA SHEET AND USER MANUAL



**PRODUCT
CODE**

**PF RVT 632
PF RVT 663**

**THERMOSTATIC HEAD
WITH REMOTE 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.

Thermostatic heads with a remote sensor (PF RVT 632 and PF RVT 663) are used for regulating and maintaining the ambient temperature in individual rooms in cases where a thermostatic head with a built-in sensor cannot operate correctly — for example, when there are obstructions that retain heat (such as shelves, covers, curtains, or furniture), when vertical installation of the thermostat is required, or when it is installed in a drafty area.

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 632, 663: from +6°C to +28°C

Maximum heat carrier temperature: 100°C

Maximum heating system pressure: 10 bar

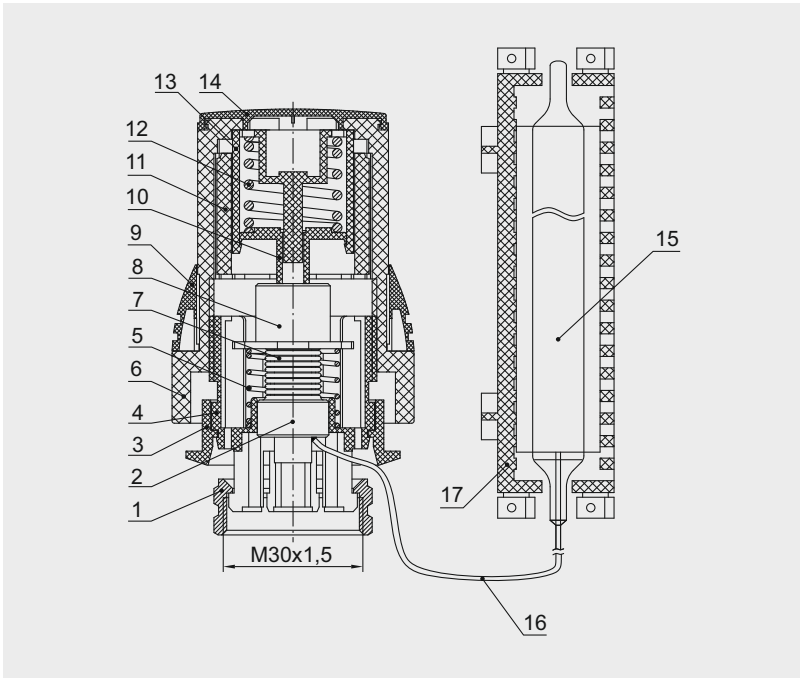
Maximum differential pressure across the valve: 1 bar

3. DESIGN

All PROFACTOR® thermostatic heads are in an accordance with DIN V 4701-10-2003. The connection thread is in an accordance with DIN ISO 261.

PROFACTOR® thermostatic heads can be installed on all PROFACTOR® thermostatic valves or on any other thermostatic valves manufactured in an 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 632:



- 1 – Union nut
- 2 – Thermostat chamber
- 3 – Limiting flange with indicator
- 4 – Cartridge
- 5 – Working spring
- 6 – Control knob
- 7 – Bellows
- 8 – Working spring stop
- 9 – Limiter
- 10 – Damper spring stop
- 11 – Sleeve
- 12 – Damper spring
- 13 – Damper chamber housing

- 14 – Cover
- 15 – Sensor (remote)
- 16 – Capillary tube
- 17 – Protective casing of the remote sensor

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 having a high thermal expansion coefficient, with the main volume of this liquid located in the sensor. The remote sensors of the PF RVT 632 and PF RVT 663 thermostatic heads are equipped with protective decorative casings.

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

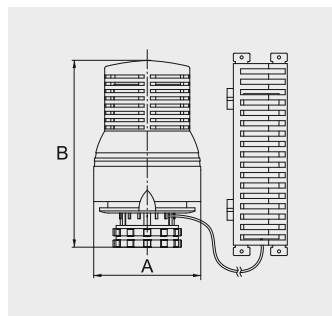
Springs (5, 12) — Structural steel 66Mn4 (DIN EN 10132-4)

Parts (10, 13) — Glass fiber reinforced nylon

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

The remote sensor is made of copper, and its surface is nickel-plated.

5. NOMENCLATURE AND DIMENSIONS



PF RVT 632

Dimensions:

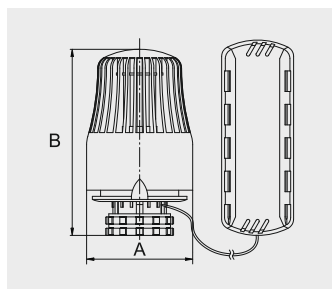
A: 52 mm

B: max. 93 mm

Sensor: remote, dimensions

in decorative casing: 101×29×25 mm

Capillary tube length: 2 m



PF RVT 663

Dimensions:

A: 51 mm

B: max. 91 mm

Sensor: remote, dimensions

in decorative casing: 96×35×29 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 air temperature. When the air temperature around the sensor increases, the liquid inside expands and acts on the bellows through the capillary tube. The pressure inside the bellows rises, causing it to expand in volume. As a result, the thermostat chamber moves downward, which in turn pushes the stem of the thermostatic valve, reducing the flow opening for the heating medium entering the radiator.

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

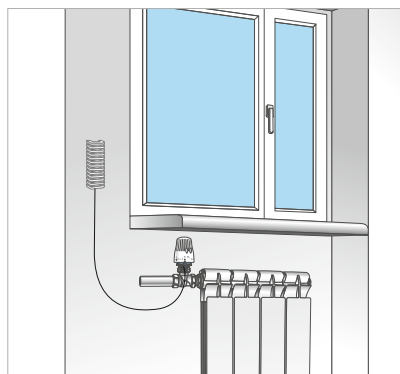
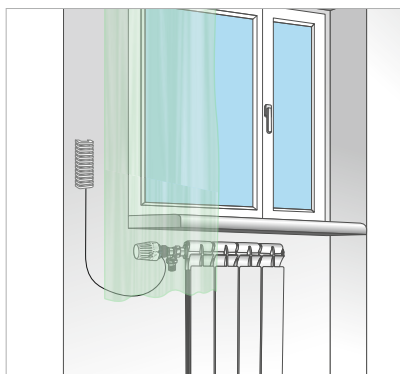
7. INSTALLATION INSTRUCTIONS

Before installing thermostatic heads onto 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 "5" position by turning the control knob counterclockwise until it stops.

Then install the thermostatic head onto the valve in such a way that the indicator on the limiting flange is easily 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 itself, 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 (up to a maximum of 2 m), leaving the remaining part coiled. When mounting the remote sensor, it must be secured to the wall.

The remote sensor should be installed on a wall free from furniture, curtains, covers, or other heat-retaining objects, or on the skirting board below the heating unit, provided there are no heating pipes in that area. It must be positioned at a sufficient distance from hot air flows. It is also recommended to protect the remote sensor from direct sunlight.



8. OPERATING AND ADJUSTMENT

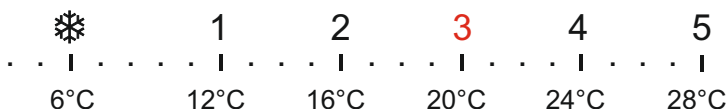
The thermostatic head must be operated without exceeding the parameters specified in section "Technical Specifications" (see p. 2). The capillary tube must be protected from bending and kinking.

The desired temperature setting is adjusted by turning the control knob (6) until the indicator on the limiting flange (3) aligns with the required 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 approximate correspondence between the scale markings and the regulated temperature. The temperature values corresponding to the scale markings are approximate, as the actual air temperature in the room or the temperature of the heating medium in the pipeline may differ from the temperature surrounding the sensor, depending on the installation conditions of the sensor.

The scales of thermostatic heads with remote sensors (PF RVT 632, PF RVT 663) are marked from 1 to 5. The "3" position on the scale of thermostatic heads with remote sensors (PF RVT 632, PF RVT 663) corresponds to a temperature of approximately 20°C. It is recommended to use the "3" setting as the standard heating mode, maintaining an indoor air temperature of around 20°C. Settings of "4" and higher should be avoided if lower settings provide a comfortable temperature, as increasing the room temperature by 1°C results in an approximate 6% increase in energy consumption.

The temperature scales, in accordance with European standards, are calibrated at $X_p=2^\circ\text{C}$. This means that the thermostatic valve will close completely when the temperature detected by the sensor exceeds the set temperature on the scale by 2°C .

Adjustment scale of thermostatic heads with remote sensor PF RVT 632, 663:



«❄» — frost protection symbol

On the PF RVT 632 thermostatic head, the limiter (9) allows you to either lock the temperature setting at a fixed value or restrict the upper or lower limit of the adjustment range.

To lock the setting:

- Lift the limiter.
- Set the desired temperature value, ensuring that the tip of the indicator is not aligned with a slot on the knob but positioned between two adjacent slots.
- Rotate the limiter (9) to align the indicator with the “→|←” symbol on the limiter.
- Press the limiter down until it stops.

To limit the upper adjustment range:

- Lift the limiter.
- Align the “→|” symbol on the limiter with the desired upper limit of the adjustment range.
- Turn the knob clockwise until it stops.
- Press the limiter down.

To limit the lower adjustment range:

- Lift the limiter.
- Rotate the limiter so that its side pin (located on the left when the union nut is facing downward) aligns with the desired lower limit of the adjustment range.
- Turn the knob counterclockwise until it stops.
- Press the limiter down.

The PF RVT 663 thermostatic head is equipped with a limiter of a different design.

Two plastic pins serve to restrict or lock the control knob relative to the limiting flange with indicator across the entire scale range.

To lock the setting:

- Remove both plastic pins.
- Set the desired temperature value, ensuring that the tip of the indicator is not aligned with a slot on the knob but positioned between two adjacent slots.
- Insert the pins into the slots on both sides of the indicator, thereby fixing it in a single position.

To limit the upper and lower adjustment range:

- Remove both plastic pins.
- Rotate the knob so that the tip of the indicator is within the desired adjustment range.
- Insert the pins into the slots opposite the markings of the selected temperature values.

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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