Profactor Armaturen GmbH

EN

PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

TECHNICAL DATA SHEET AND USER MANUAL

PRODUCT CODE

PF BS 575
PF BS 576.15
PF BS 576.20

SAFETY RELIEF VALVE

1. PURPOSE AND SCOPE

The safety relief valve is designed to limit the pressure of the working medium supplied to it and thereby protect systems from exceeding the maximum permissible operating pressure in steam or hot water systems, vessels, pipelines, and hydraulic installations.

When the system pressure rises above the set value, the valve partially discharges the medium into the atmosphere or into a discharge pipeline. The working medium may be water, air, ethylene glycol (up to 50%), propylene glycol, natural gas, LPG, and other liquid or gaseous substances that are neutral with respect to the materials of the valve.

2. TECHNICAL SPECIFICATIONS

Product code	PF BS	575				576.15			576.20		
Nominal size	DN	15							20		
	G	1/2"							3/4"		
Set pressure	bar	1,5	2,5	3,0	6,0	2,5	3,0	6,0	2,5	3,0	6,0
Opening pressure	bar	1,8	2,8	3,3	6,6	2,8	3,3	6,6	2,8	3,3	6,6
Closing pressure	bar	1,0	2,0	2,4	4,8	2,0	2,4	4,8	2,0	2,4	4,8
Working medium temperature	°C	–20°C to +90°C									
Flow coefficient Kvs	m³/h	0,6								0,7	
A	m	25,5							29		
Overall height, B	mm	74				65			73		
Weight	g	129				120			139		
Average service life	years	15									

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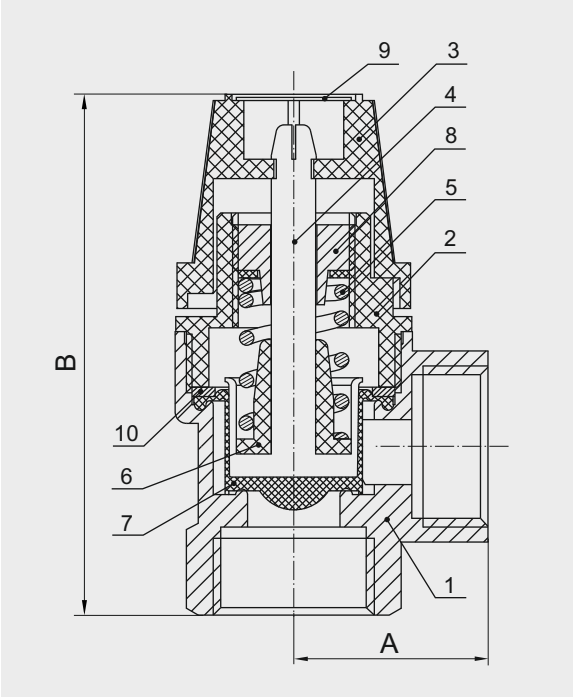
3. DESIGN



1 – Body

2 – Body cover

3 – Cap

4 – Stem

5 – Spring

6 – Spring support

7 – Diaphragm

8 – Adjusting bushing

9 – Plug

10 – Retaining ring

The valve is in an accordance with the requirements of EN 12828:2013, DIN 4753-1:2011.

The body (1) of the safety relief valve is made of brass grade CW617N (according to European standard DIN EN 12165:2011).

The body has a threaded hole at the bottom for connection to the system — the PF BS 575 valve model has external threading, while PF BS 576.15 and PF BS 576.20 valves have internal threading. Perpendicular to this, there is an opening with internal thread for connection to the discharge pipeline.

Both connection openings are in an accordance with ISO 228-1:2000, DIN EN 10226:2005).

At the top of the body, there is a hole for the cover with a metric thread is in an accordance with ISO 261:1998.

The body cover (2), stem (4), spring support (6), and rotating cap (3) are made of impact-resistant plastic (ABS). The spring (5) is made of stainless steel grade AISI 304 according to DIN EN 10088:2005. The body cover protects the spring from external influences. The spring provides the set pressure and is centered by an adjusting bushing (8) made of brass CW614N.

All valve models have a fixed factory-set pressure setting of 1.5, 2.5, 3.0, or 6.0 bar. The valve is protected from pressure readjustment by a press-fitted cap (3), which also allows manual valve opening.

The cap has an aluminum plug (9) on top, indicating the factory-set pressure and the direction of rotation for manual valve opening. The internal components of the valve are protected from contact with the working medium by a diaphragm (7). When the cover is screwed on, it presses against the retaining ring (10), which secures the diaphragm. The retaining ring is made of fiber grade 3110 (DIN 7737), and the diaphragm is made of synthetic elastomer (ethylene-propylene rubber, EPDM).

4. PRINCIPLE OF OPERATION

When the pressure in the system exceeds the permissible value, the force of the working medium becomes greater than the elastic force of the spring. As a result, the spring compresses, opening the valve and releasing the working medium through the discharge pipeline. After the pressure decreases, the spring's elastic force pushes the stem and diaphragm back into the seat, closing it.

5. INSTALLATION INSTRUCTIONS

The valve is supplied to the customer fully assembled and ready for operation; no additional adjustment is required. Before installing the valve, the pipeline must be cleaned of rust, dirt, scale, sand, and other foreign particles that could affect the valve's performance.

The valve must be installed in a vertical position with the cap facing upward, ensuring that the direction of the working medium flow corresponds to the arrow marked on the valve body.

The safety relief valve must be installed on nozzles or pipelines directly connected to the protected equipment. The length of the inlet pipe must not exceed 1 meter, and bends on this section are not permitted. The nominal diameter of the pipe must correspond to the nominal diameter of the valve inlet.

The pressure loss in the pipeline section between the protected equipment and the safety relief valve must not exceed 3% of the valve's set pressure. Tapping of the working medium from the inlet pipeline is not allowed. There must be no shut-off valves, filters, or other devices between the valve and the protected equipment that would reduce the cross-sectional area of the pipeline.

The installation of shut-off valves on the discharge pipeline is also prohibited. The discharge line must not create back pressure behind the valve. The diameter of the discharge pipe must be at least equal to the diameter of the valve outlet.

The discharge pipe must have a constant slope, no more than two bends, and its length must not exceed two meters. If a discharge pipe longer than 2 meters is required, its diameter must be one size larger.

Note: More than three bends or a length exceeding 4 meters are not permitted. The outlet of the discharge pipe must be positioned so that the discharged medium does not endanger personnel. If the discharge pipe is fitted with a bell-shaped outlet, its size and flow capacity must be at least twice that of the valve inlet.

No mechanical load on the rotating cap is permitted! The valve must be securely fastened to the pipeline, and leakage of the working fluid through the threaded connection is not allowed.

Threaded connections must be sealed using PTFE-tape (fluoroplastic 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 malfunction. After installation, verify correct assembly and sealing.

6. OPERATING AND MAINTENANCE

The safety relief valve must be operated without exceeding the temperature limits specified in the Technical Specifications table.

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

Regular functional testing of the safety relief valve must be carried out at least once every six months. During inspection, check the overall condition, tightness of fastenings, and the integrity of seals and gaskets.

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If the valve has not actuated for an extended period, contaminants may accumulate, causing leakage. To prevent this, the valve should be periodically flushed by turning the rotating cap until a click is heard, in the direction indicated by the arrow on the plug.

Most valve leakages are caused by foreign particles between the valve seat and diaphragm and can be eliminated by flushing. Flushing also prevents the valve from sticking. Disassembly of the valve by the user is strictly prohibited.

7. WARRANTY OBLIGATIONS

The warranty period is 24 months from the date of sale to the end user. Throughout the warranty period, the manufacturer guarantees the proper operation of the product and its compliance with safety requirements, provided the user follows the specified rules for storage, transportation, installation, operation, and maintenance.
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 valve materials;
— Mechanical damage;
— Damage caused by fire, natural disasters, or other force majeure circumstances;
— Damage caused by improper handling or misuse by the user;
— Evidence of unauthorized interference with the valve design.

The product described in this technical passport is a technically complex device that must be installed by a specialist possessing the appropriate qualifications and experience in working with such equipment.

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

Profactor Armaturen GmbH reserves the right to make design modifications that do not affect the technical specifications or functional characteristics of the device.

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 detailes:
- 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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