Profactor Armaturen GmbH

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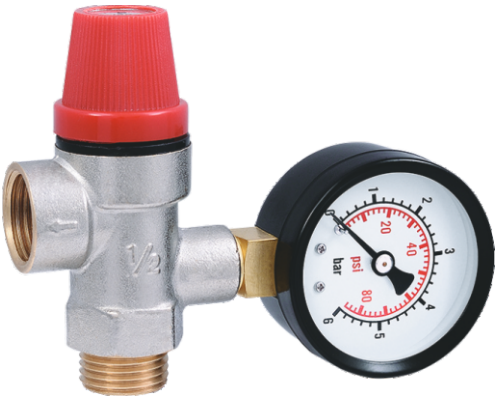
PROFACTOR®
DER DEUTSCHE QUALITÄTSSTANDARD

TECHNICAL DATA SHEET AND USER MANUAL



PRODUCT CODE

PF BS 577

SAFETY RELIEF VALVE WITH PRESSURE GAUGE

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 releases the medium into the atmosphere or into a discharge pipeline.The working medium may include water, air, ethylene glycol (up to 50%), propylene glycol, natural gas, LPG, and other liquid or gaseous substances that are neutral to the materials of the valve.

2. TECHNICAL SPECIFICATIONS

Product Code	PF BS	577		
Nominal size	DN	15		
	G	1/2"		
Set pressure	bar	2,5	3	6
Opening pressure	bar	2,8	3,3	6,6
Closing pressure	bar	2,0	2,4	4,8
Working medium temperature	°C	–20°C to +90°C		
Flow coefficient Kvs	m^3/h	0,6		
A	mm	110		
Overall height, B	mm	86,5		
Weight	g	238		
Average service life	years	15		

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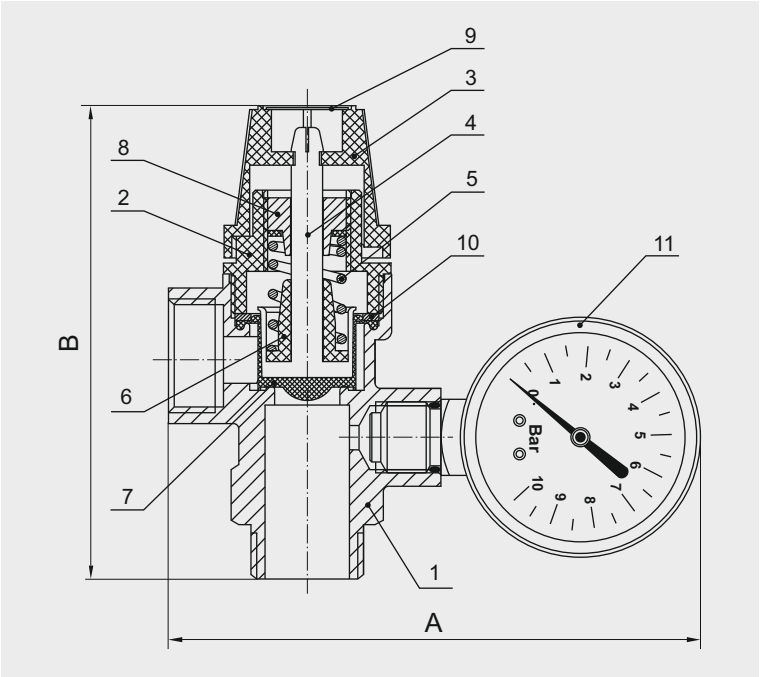
3. DESIGN



1 – Body
2 – Body cover
3 – Cap
4 – Stem
5 – Spring
6 – Spring support
7 – Diaphragm
8 – Adjusting bushing
9 – Plug
10 – Retaining ring
11 – Pressure gauge

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 the standard DIN EN 12165:2011). The body has a threaded hole with an external thread at the bottom for connecting the valve to the system, a perpendicular threaded hole with an internal thread for connecting to the discharge pipeline, and an additional threaded hole for attaching a pressure gauge (11) with an internal 1/4" thread.

All connection openings are in an accordance with ISO 228-1:2000, DIN EN 10226-2005. At the top of the valve body, there is a threaded 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 engineering thermoplastic resin (acrylonitrile butadiene styrene, 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.

The valve has a fixed factory-set pressure setting of 2.5, 3.0, or 6.0 bar. It is protected against unauthorized pressure readjustment by a press-fitted cap (3), which also allows manual valve opening. At the top of the cap is an aluminum plug (9), indicating the factory-set pressure and the direction of rotation for manual opening.

The valve assembly is protected from contact with the working medium by a diaphragm (7). When the cover is screwed in, 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 allowing the discharge of the working medium through the outlet pipeline. After the pressure decreases, the elastic force of the spring 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, requiring no additional adjustment. Before installation, the pipeline must be thoroughly cleaned of rust, dirt, scale, sand, and other foreign particles that could affect the valve's functionality.

The valve must be installed vertically, with the cap facing upward, ensuring that the direction of the working medium flow corresponds to the arrow indicated on the valve body.

The safety rerlief valve must be installed on nozzles or pipelines directly connected to the protected equipment. The inlet pipe length 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 section between the protected equipment and the safety relief valve must not exceed 3% of the valve's set pressure. No extraction of the working medium from the inlet pipeline is 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.

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

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

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

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

Threaded joints must be sealed using PTFE-tape (polytetrafluoroethylene), 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 malfunction of the valve. Finally, check the correctness of the installation.

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

If the valve has not actuated for a long period of time, contaminants may accumulate, which can cause 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 contamination 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 prohibited.

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6. WARRANTY OBLIGATIONS

The warranty period is 24 months from the date of sale to the end user. During the entire warranty period, the manufacturer guarantees the proper operation of the product and its compliance with safety requirements, provided that the user follows the rules for storage, transportation, installation, operation, and maintenance. The warranty covers all defects arising from 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 by the user;
— Evidence of unauthorized interference with the valve's design.

The product described in this technical passport is a technically complex device that must be installed by a specialist with appropriate qualifications and experience in handling 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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