Self-operated Pressure Regulators

Proportional Safety Valve
Type 2302

Application

Valve used to maintain the water pressure in heating installations, especially when connected to a district heating system · **Set points** from **3.5 bar** to **11 bar** · Nominal inlet size **DN 20** and nominal outlet size **DN 25** · Nominal pressure **PN 16** · Suitable for temperatures up to 150 °C

The valve opens when the upstream pressure rises above the response pressure

TÜV-typetested

The direct-acting, spring-loaded safety valve contains a metal bellows and is characterized by its proportional opening and closing behavior. It has therefore been defined as a Safety Valve in accordance with DIN EN 764 and *AD Merkblatt A2*.

Special features

- High responsiveness and low closing pressure achieved by an operating element with a large effective area
- Operating element (metal bellows) made of stainless steel
- Internal set point springs that do not come into contact with the process medium

Versions

Type 2302 Proportional Safety Valve (Fig. 1) · Nominal pressure PN 16 · Inlet port with welding end in DN 20 (special threaded end or flange) · Outlet port with female thread G 1 and male thread G 1¼, optionally fitted with welding end, threaded end, soldered end or flange in DN 25 or G 1 · Set point ranges: 3.5 bar to 5.5 bar, 5 bar to 7.5 bar or 6 bar to 11 bar.

Special version: lead-sealed set point adjustment

Principle of operation (Fig. 2)

The process medium flows through the valve in the direction indicated by the arrow. The pressure of the process medium is applied to the effective area of the metal bellows (3). The force resulting from the liquid pressure p multiplied by the bellows area A is balanced by the closing force of the springs (4), determining the regulating pressure. This pressure can be adjusted by altering the spring compression by means of the set point adjustment (5).

If the liquid pressure exceeds the adjusted pressure, the valve opens until the adjusted pressure is reached again and the seat and plug tightly close.

The valve is relieved of pressure by turning the nut (6) against the set point adjustment (5), causing the pipe to vent.

Fig. 1 · Type 2302 Proportional Safety Valve

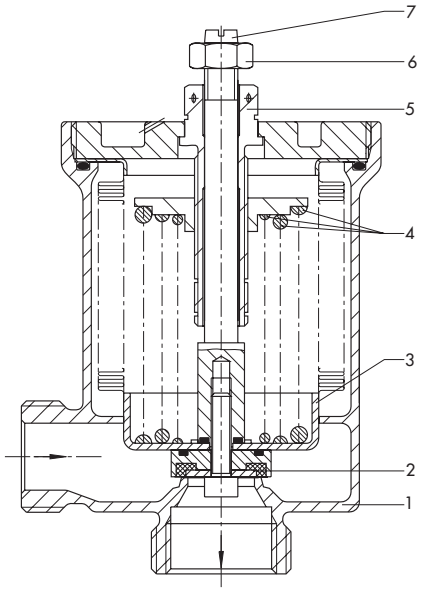


Fig. 2 · Functional diagram

Table 1 · Technical data · All pressures in bar (gauge)

Nominal size	Inlet	DN 20
	Outlet	DN 25 or G 1 female thread G 1¼ male thread
Nominal pressure		PN 16
Max. permissible temperature		150 °C
Set point range		3.5 to 5.5; 5 to 7.5 or 6 to 11 bar
Response pressure		± 0.1 bar of the adjusted pressure
Closing pressure		Approx. 0.1 bar below the adjusted pressure

Table 2 · Materials · Material number acc. to DIN EN

Body and seat	CC491K (Rg 5)
Plug	1.4101
Plug sealing	EPDM soft sealing
Metal bellows	Stainless steel 1.4571

Table 3 · Discharging capacity (water in kg/h)

Response pressure p	Closing pressure diffference S	Opening pressure pc	Discharge mass flow Q in kg/h at		
			20 °C	120 °C	140 °C
4 bar	0.1 bar	+10 %: 4.4 bar	6,000	7,000	9,000
		+20 %: 4.8 bar	12,000	13,000	10,000
		+30 %: 5.2 bar	15,000	13,750	11,000

Typetesting

The safety valve has been typetested by the German Technical Inspectorate (TÜV) in accordance with the VdTÜV Specification Sheet "Safety Valve 100".
Type markings available on request.

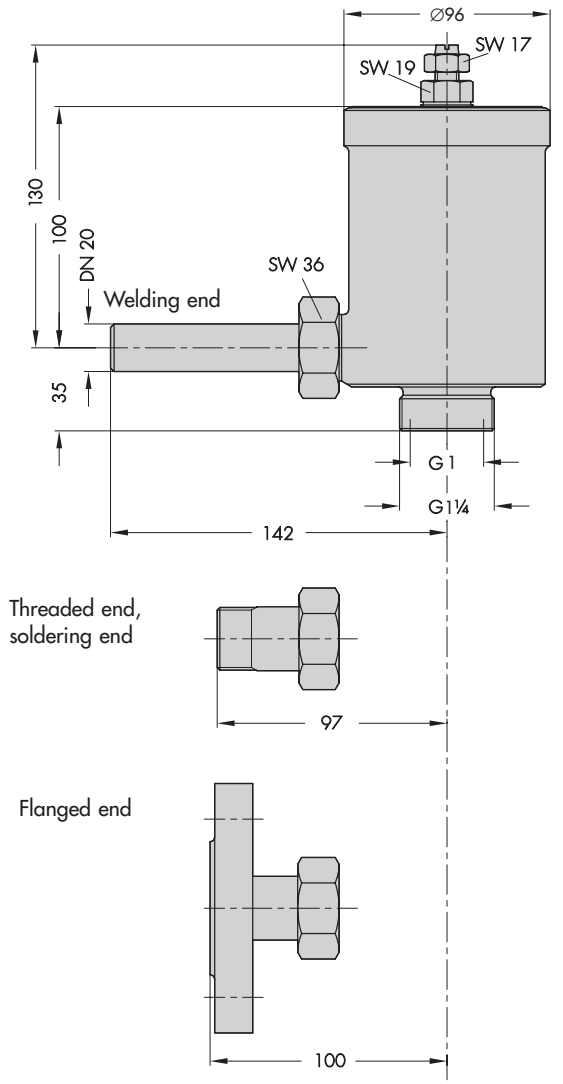
Ordering text

Proportional Safety Valve Type 2302
Inlet port: Welding end
Outlet port: Welding end, threaded end, soldered end/ flange
Set point range ... bar
Optionally adjusted/lead-sealed to ... bar
Optional special version

Installation

- The safety valve must be located in the flow pipe of the heating or district heating system (pressure tap downstream of the pressure regulator)
- Direction of flow as indicated by the arrow on the valve body
- Allow free discharge
- Ensure sufficient space for venting (by manually opening the valve).

Dimensions in mm and weights



Weight: 2.5 kg

Fig. 3 · Dimensions

Specifications subject to change without notice.

SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt am Main · Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
Internet: http://www.samson.de