

# Safety Excess Pressure Valve (SEV) Type 36-8



*Fig. 1 · Type 36-8 Excess Pressure Valve*

## **Mounting and Operating Instructions**

**EB 2546-2 EN**

Edition April 2007

### 1 Design and principle of operation

The excess pressure valve consists of a spring-loaded globe valve with a balanced plug and an actuator with an operating diaphragm and a safety diaphragm.

The excess pressure valve is used to maintain the pressure upstream of the valve to an adjusted set point value. The valve opens when the upstream pressure rises.

The process medium flows through the valve between the seat (2) and the plug (3) in the direction indicated by the arrow. The position of the valve plug determines the flow rate. The upstream pressure  $p_1$  is transmitted via the control line (12) to the operating diaphragm (11.1) and is converted into a positioning force which is used to move the valve plug, opposing the force of the positioning springs (7). The spring force is adjustable at the set point adjuster (6).

The regulator has two diaphragms (11.1) operating independently from one another. Continued operation is possible even should one diaphragm fail. To recognize a ruptured diaphragm, a diaphragm rupture indicator or optionally a pressure switch to signalize a rupture is installed in the intermediate ring (11.3).

#### **Typetesting:**

The regulator has been typetested as a safety excess pressure valve (SEV) by the German Technical Inspectorate (TÜV) according to AGFW specifications.

The test mark is available on request.



- ▶ *The regulators must be mounted, started up and serviced by fully trained and qualified personnel only, observing the accepted industry codes and practices. Make sure employees or third persons are not exposed to any danger.*
- ▶ *All safety instructions and warnings in these instructions, particularly those concerning installation, start-up, and maintenance, must be observed.*
- ▶ *Any hazards which could be caused in the excess pressure valve by the process medium or operating pressure are to be prevented by means of appropriate measures.*
- ▶ *For appropriate operation, make sure that the regulator is only used in applications where the operating pressure and temperatures do not exceed the operating values based on the valve sizing data submitted in the order.*
- ▶ *Proper shipping and appropriate storage are assumed.*

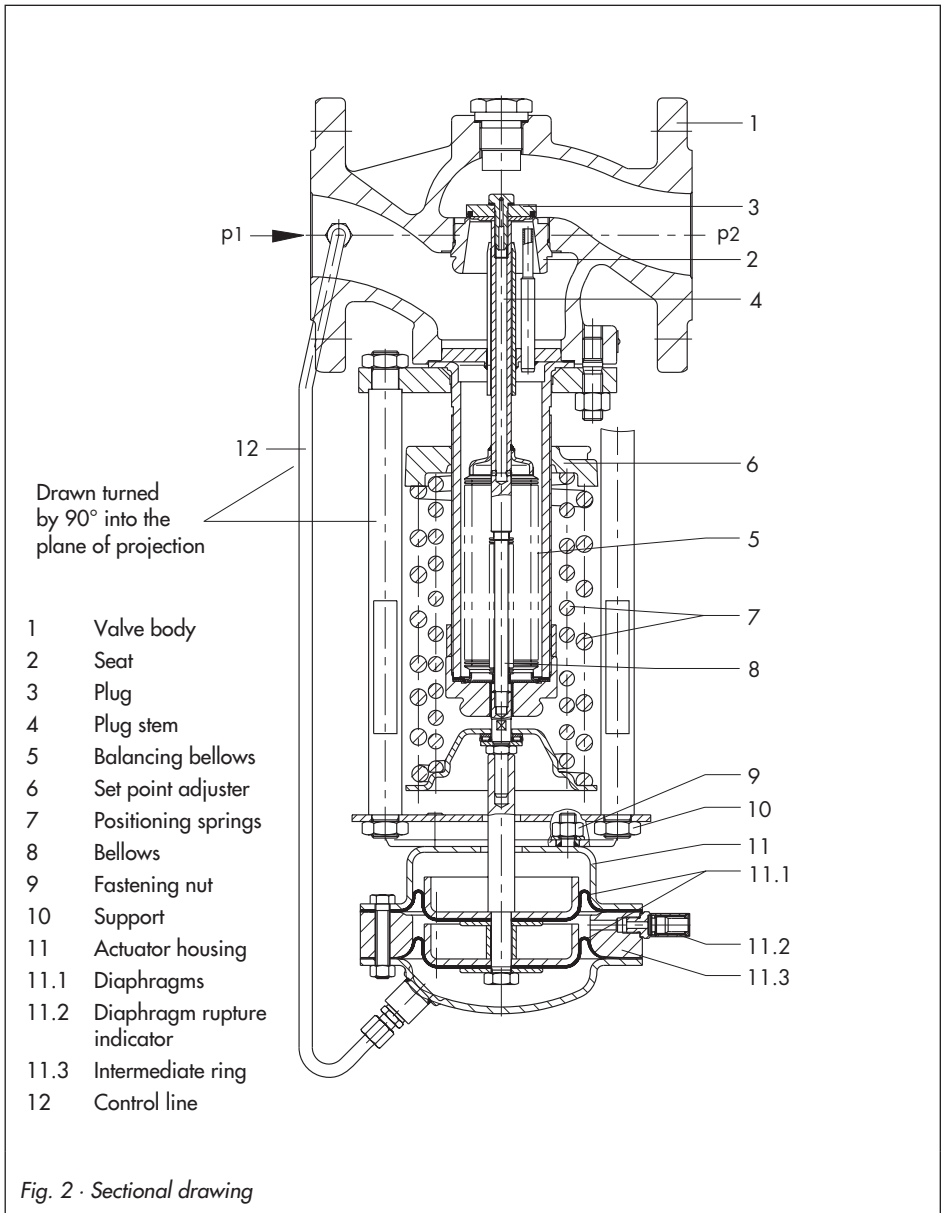


Fig. 2 · Sectional drawing

## 2 Installation

### 2.1 Position of installation

**Note!**

*Flush the pipeline thoroughly prior to installation of the regulator, ensuring that sealing particles and other impurities carried along by the process medium do not impair proper operation, especially tight shut-off.*

Install the excess pressure valve in horizontal pipelines with the actuator suspended downwards.

On installing the valve, check that the medium flows in the same direction as indicated by the arrow on the valve body.

On choosing the point of installation, it is important to make sure that the regulator can still be easily accessed after completion of the plant.

The regulator must be installed free of stress. If necessary, support the piping near the connecting flanges.

**Note!**

*Never attach supports to the valve or actuator.*

### 2.2 Shut-off valve, pressure gauge

Ideally hand-operated shut-off valves should be installed both upstream and downstream of the regulator. This allows the plant to be shut down for cleaning and maintenance routines, or when the plant is not operated for long periods of time.

To monitor the pressures in the plant, pressure gauges should be installed upstream and downstream of the regulator.

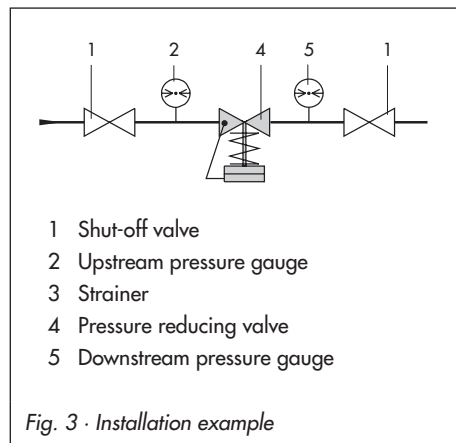


Fig. 3 · Installation example

## 3 Operation

### 3.1 Start up

Open the hand-operated shut-off valve downstream of the excess pressure valve. Then open slowly the shut-off valve upstream of the excess pressure valve.

### 3.2 Set point adjustment

The excess pressure required (upstream pressure  $p_1$ ) is set by turning the set point adjustment (6) with an open-end wrench, up to DN 50 with flats across width SW 19 and from DN 65 upwards with SW 22.

Turning it clockwise increases the upstream pressure and turning it counterclockwise reduces it.

The pressure gauge located on the upstream pressure side allows the adjusted set point to be monitored.

## 4 Troubleshooting

Should the excess pressure (pressure gauge located on the upstream pressure side) deviate significantly from the adjusted set point value, check first the control line (12) for any blockages (section 4.1).

If the diaphragms are damaged, the actuator can be disassembled and the diaphragms (11.1) can be replaced (section 4.2).

If other causes such as a damaged seat or plug are found, we recommend that you contact our customer service center or return the regulator to the manufacturer for repair.

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### **Caution!**

*If the repair is to be performed by the plant operator, it is important to take into account when assembling and disassembling the regulator that the valve springs (7) for valve nominal sizes DN 15 to 50 are preloaded by up to 70 mm.*

*To remove the springs, only use a suitable tool, for example, SAMSON disassembly tool 9129-2747.*

*Additionally it is important to make sure that no torque is transmitted to the bellows (8), otherwise the metal bellows will be irreparably damaged.*

*Remove the regulator from the pipeline before performing any repair work on it!*

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*Prior to disassembling the excess pressure valve, shut down the plant by slowly closing the shut-off valves. Relieve the corresponding part of the plant from pressure and drain it, if necessary.*

1. Unscrew the control line and clean.
2. Unscrew the nuts (9) on the support (10) and remove the actuator housing (11).
3. Disassemble the actuator housing and replace the diaphragm(s).

To reassemble the regulator, proceed in the reverse order. To start up, proceed as described in section 3.1.

### 4.1 Cleaning the control line

1. Loosen the screw joints connecting the control line to the actuator and the valve body, and remove the control line.
2. Blow through the control line to remove any blockages and clean it. Reattach it to the actuator and the valve body.

### 4.2 Replacing the diaphragms

#### **Note!**

*When the bottom diaphragm fails, the atmospheric pressure in the intermediate chamber between the diaphragms rises to the level of the upstream pressure. A red mark becomes visible in the mechanical rupture indicator.*

*For versions with an installed pressure switch, a visual or acoustic signal is triggered.*

*When the rupture indicator is activated, the bottom diaphragm must be replaced.*

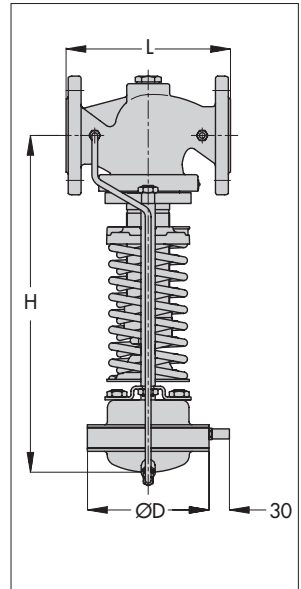
Nominal size, set point range and spare parts for actuator

Set point range bar	Nominal valve size DN						Actuator					
	DN 15...25		DN 32...50		DN 65...100		Diaphragm material					
							EPDM		FKM			
							Actuator	Diaphragm	Actuator	Diaphragm		
	Required spring(s) Order no. 0270-						Surface cm <sup>2</sup>	Order no.				
						1070-		0520-	1070-	0520-		
2 to 4.4	2166	2167	2166	2167	1410	2203		80	9500	0868	9508	0869
2.4 to 6.6	2166	2168	2166	2199	1410	1417						
6 to 11	2200	2201	2200	2201	1416	2204						

5 Dimensions and weights

Nominal size DN	15	20	25	32	40	50	65	80	100
Length L	130	150	160	180	200	230	290	310	350
Height H	415			470			600		615
Weight <sup>1)</sup> approx. kg	13	14	14.5	20	22	22.5	41.5	48.5	57.5

<sup>1)</sup> Weights for PN 16,  
+10 % for spheroidal graphite iron PN 25 and cast steel PN 40



## 6 Customer inquiries

Please submit the following details: (see also name plate)

- ▶ Type and nominal size
- ▶ Order number and model number
- ▶ Upstream and downstream pressure
- ▶ Flow rate in m<sup>3</sup>/h
- ▶ Has a strainer been installed?
- ▶ Installation drawing



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