Type 44-4 Excess Pressure Valve

Safety excess pressure valve (SEV) · Typetested for water by TÜV

Application

Pressure regulator for set points from **2** to **11 bar** · Valves in **DN 15** to **50** · **PN 25** · Suitable for liquids, air, and nitrogen up to **150 °C** Safety excess pressure valve (SEV) for protecting district heating plants

The valve **opens** when the **upstream** pressure rises.

Typetested by TÜV CE

The Type 44-4 Safety Excess Pressure Valve controls the variable pressure upstream of the valve to an adjustable set point, especially in district heating plants and large heating systems. It releases the heat flow when a set point is reached: the valve opens when the upstream pressure rises and closes again when this pressure drops.

In the event of a ruptured operating diaphragm in the actuator, the valve opens (fail-open) at an upstream pressure above 0.5 bar. An indicator at the actuator shows that the actuator is damaged.

As a result, the regulators comply with AGFW (German District Heating Association) requirements for district heating plants in accordance with DIN 4747-1.

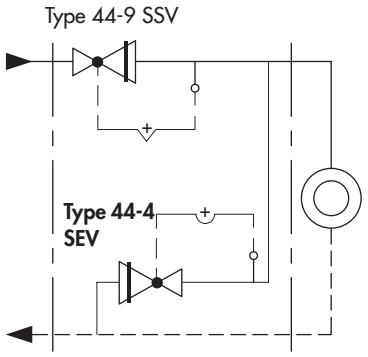


Fig. 1: *Protection of a house substation with SSV and SEV*

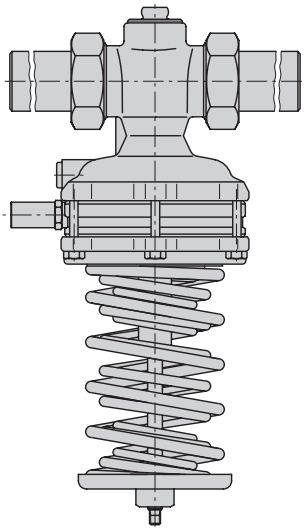


Fig. 2: *Type 44-4 Safety Excess Pressure Valve (SEV)*

Special features

- Suitable for water and other liquids, provided these do not cause the materials used to corrode.
- Single-seated valve with balanced plug
- The regulators comply with AGFW (German District Heating Association) requirements for district heating plants in accordance with DIN 4747-1.

Versions (see Fig. 2 and Fig. 3)

Series 44 Pressure Regulators with actuators for set point ranges from 2 to 11 bar · Valves in nominal sizes DN 15 to 50 · With welding ends (special version with threaded ends or flanges) · DN 32, 40, and 50 versions also available with flanged valve body

Special version

– Restricted flow cross-section with K_{VS} 1 and K_{VS} 2.5 for DN 15

– With internal parts made of FPM (FKM), e.g. for use with mineral oils.

– ANSI version on request

Principle of operation

The medium flows through the valve (1) as indicated by the arrow. The position of the plug determines the flow rate across the area released between plug (3) and seat (2).

The upstream pressure p_1 to be controlled is transmitted over the external control line (11) to the operating diaphragm (6.1) where it is converted into a positioning force. This force moves the valve plug depending on the force of the spring assembly (8) which can be adjusted at the set point adjuster (10).

The valve opens when the upstream pressure rises and closes again when this pressure drops.

The valve has a balanced plug (3). As a result, the forces generated by the upstream pressure which act on the valve plug are eliminated.

After the operating diaphragm (6.1) ruptures and the upstream pressure rises above 0.5 bar, the backup diaphragm (6.2) opens the plug and releases the flow.

To recognize a ruptured diaphragm, a diaphragm rupture indicator (12) is installed in the intermediate ring.

Type test

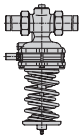
The Type 44-4 Safety Excess Pressure Valve has been typetested for water by the German Technical Inspectorate (TÜV). The test mark is available on request.

Installation

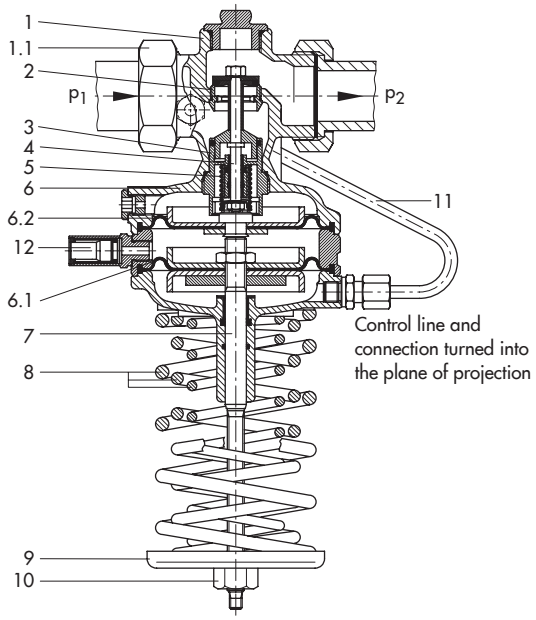
Install the regulator in horizontal pipelines.

The following points must be observed:

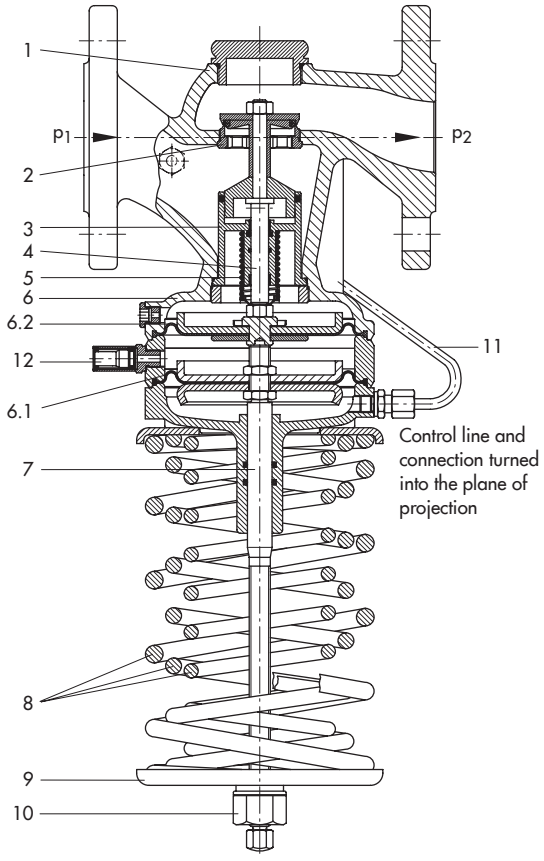
- The direction of flow must match the direction indicated by the arrow on the body
- Do **not** install a strainer upstream of the valve.
- The actuator must be suspended downwards.



Further details can be found in ▶ EB 2632.



Type 44-4 SEV, version with welding ends



Type 44-4 SEV, version with flanged valve body

Fig. 3: *Functional diagrams*

1 Valve body
1.1 Connection nut with seal
2 Seat (exchangeable)
3 Plug (piston plug), balanced
4 Plug stem
5 Plug spring
6 Actuator
6.1 Operating diaphragm
6.2 Backup diaphragm
7 Actuator stem
8 Spring assembly
9 Spring plate
10 Set point adjuster
11 Control line
12 Diaphragm rupture indicator

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

Nominal size	**DN**	**15**	**20**	**25**	**32**	**40**	**50**
K_{VS} coefficient	Standard version	4	6.3	8	12.5	16	20
	Special version	1 · 2.5	–	–	–	–	–
	Flanged body	–	–	–	12.5	20	25
x_{FZ} value		0.6		0.55		0.5	0.45
Nominal pressure		PN 25					
Max. perm. differential pressure Δp		11 bar					
Max. permissible temperature		150 °C [1]					
Leakage class according to IEC 60534-4		≤ 0.05 % of K_{VS} coefficient					
Set point ranges [2], continuously adjustable		2 to 4.4 bar · 2.4 to 6.6 bar · 6 to 11 bar					
Compliance		CE · EAC					

1) Only the version for mineral oils can be used when air or nitrogen are used.
2) Special set point ranges, without type test, on request.

Table 2: *Materials · Material numbers according to DIN EN*

Type 44-4 Excess Pressure Valve (SEV)	
Valve body	Red brass CC499K · Spheroidal graphite iron EN-JS1049 [1]
Actuator housing/intermediate ring	Red brass CC499K
Seat	Stainless steel 1.4305
Plug	Brass 2.0402 and stainless steel 1.4305 with EPDM soft seal [2]
Valve spring	Stainless steel 1.4310
Operating diaphragm	EPDM with fabric reinforcement [2]
Seals	EPDM [2]

1) Additional version for DN 32, 40, and 50: valve with flanged body made of spheroidal graphite iron
2) Special version, e.g. for mineral oils: FPM (FKM)

Flow rate diagram for water

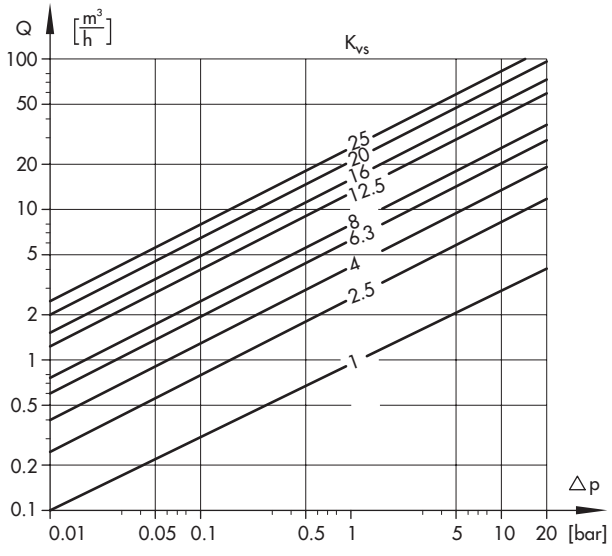
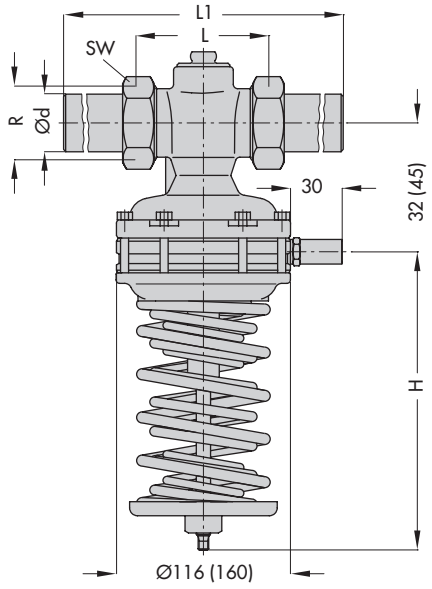
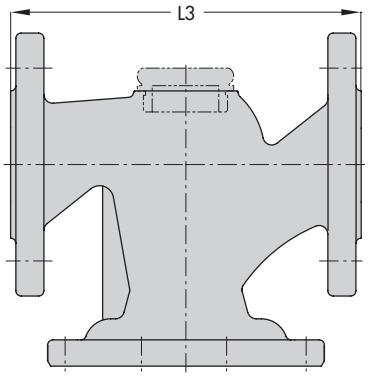


Fig. 4: *Flow rate diagram for water*

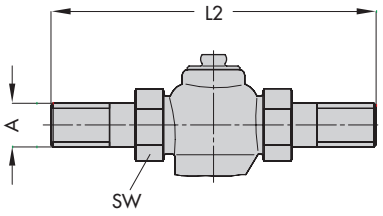
Dimensional drawings



Version with connection nuts and welding ends, specifications in parentheses () apply to DN 40 and 50



Version with flanged valve body



Version with connection nuts and threaded ends

Fig. 5: *Dimensions*

Table 3: *Dimensions in mm and weights*

Valve size **DN**	**15**	**20**	**25**	**32**	**40**	**50**
Pipe Ød	21.3	26.9	33.7	42.4	48.3	60.3
Connection R	G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Width across flats SW	30	36	46	59	65	82
L	65	70	75	100	110	130
L1 with welding ends	210	234	244	268	294	330
H		235 [1]			393	
Weight, approx. kg	2.0	2.1	2.2	8.5	9.0	9.5
Special versions						
With **threaded ends (male thread)**						
L2	129	144	159	192	206	228
Male thread A	G ½	G ¾	G 1	G 1¼	G 1½	G 2
Weight, approx. kg	2.0	2.1	2.2	8.5	9.0	9.5
With **screwed-on flanges** [2] or with **flanged body** (DN 32 to 50)						
L3	130	150	160	180	200	230
Weight, approx. kg — With screwed-on flanges	3.5	4.1	4.7	7	13	14.5
Weight, approx. kg — With flanged body	–	–	–	7	13	14.5

[1] Set point range 6 to 11 bar: 273 mm
[2] Flanges are already mounted on valves in DN 40 and 50

Ordering text

Type 44-4 Safety Excess Pressure Valve (SEV)

DN … with welding ends, threaded ends or flanges or with flanged body (DN 32, 40, and 50 only)

Set point range … bar

Special version ...

Specifications subject to change without notice

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