

Self-operated Pressure Regulators

Series 44

Excess Pressure Valve Type 44-4

Safety Excess Pressure Valve (SEV), TÜV-typetested for water



Application

Pressure regulators for set points from **2 to 11 bar** · Valves sizes **DN 15 to 50** · **PN 25** · Suitable for liquids up to **150 °C** and non-flammable gases up to **80 °C** · Safety excess pressure valve (SEV) for protecting district heating plants

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

The Type 44-4 Safety Excess Pressure Valve (SEV) controls the upstream pressure to an adjustable set point, especially in district heating plants and large heating systems. The valve opens when the upstream pressure rises and closes again when this pressure drops.

The regulators are designed as safety excess pressure valves with the fail-safe function to keep the valve open in the event of its failure. They are equipped for this purpose with a second diaphragm to open the valve in the event the operating diaphragm should rupture. A diaphragm rupture indicator indicates the state.

The regulators therefore comply with AGFW (German District Heating Association) regulations concerning components in house substations.

Special features

- Suitable for water and other liquids, provided they do not cause the materials used to corrode
- Single-seated valve with a plug balanced by a piston
- Actuator with two diaphragms
- Special version for oil
- Restricted flow cross-section with smaller Kvs coefficient (special version in DN 15)

Versions (Figs. 2 and 3)

Series 44 Pressure Regulators 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 also available with flanged valve body

Special version

- Special Kvs for DN 15
- With oil-resistant internal parts
- ANSI version available on request

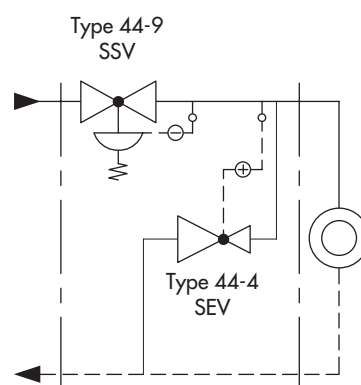


Fig. 1 · Protection of a house substation with SSV and SEV

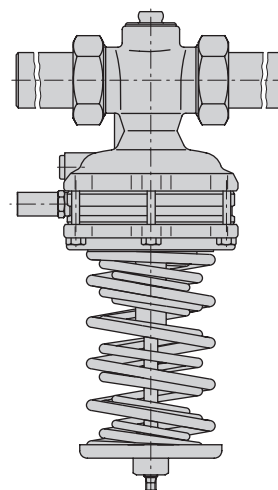


Fig. 2 · Type 44-4 Safety Excess Pressure Valve (SEV),

Principle of operation (Fig. 3)

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

The upstream pressure p_1 (excess pressure) to be controlled is transmitted over the externally routed 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 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 plug (3) balanced by a piston. As a result, the forces generated by the upstream pressure which act on the valve plug are eliminated.

In the event that the operating diaphragm (6.1) ruptures, the safety diaphragm (6.2) opens the valve.

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

Typetesting

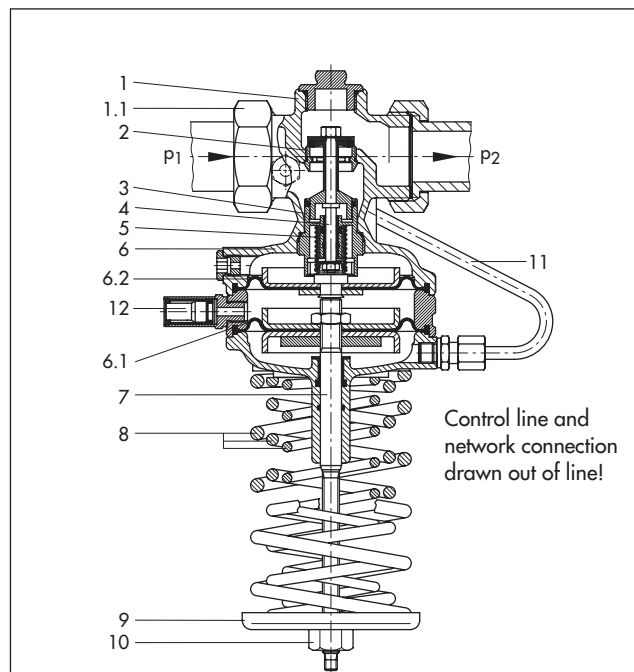
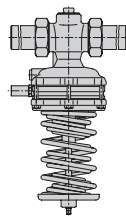
The Type 44-4 Safety Excess Pressure Valves have been typetested for water by the German Technical Inspectorate, TÜV. The test mark is available on request.

Installation

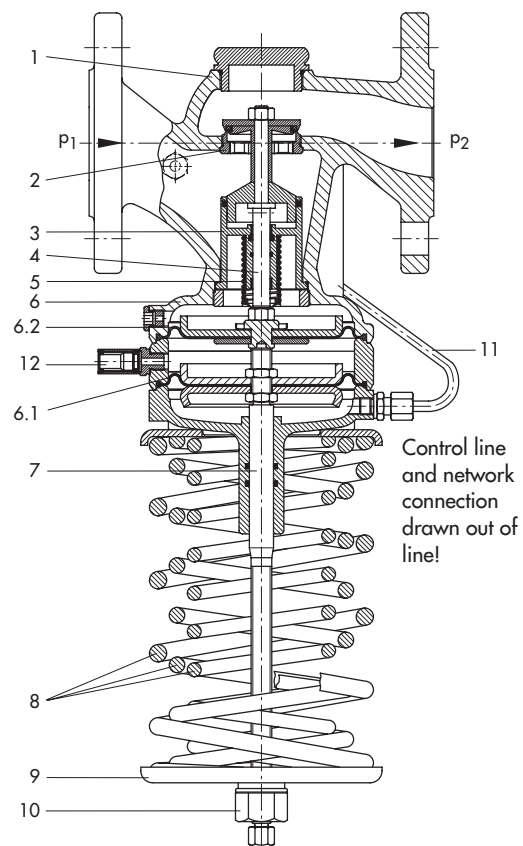
The regulators are suitable for installation in horizontal pipelines. The following installation conditions must be kept:

- The direction of flow must correspond with the arrow on the valve body.
- Do **not** install a strainer upstream of the valve.
- The valve bonnet, including the actuator, must be suspended downwards.

Further details can be found in EB 2632 EN.



Type 44-4 Safety Excess Pressure Valve (SEV),
valve body with threaded connections



Type 44-4 Safety Excess Pressure Valve (SEV),
with flanged valve body

Fig. 3 · Sectional drawings

- | | |
|--------------------------------------|--------------------------------|
| 1 Valve body | 6 Actuator |
| 1.1 Connection nut with sealing ring | 6.1 Operating diaphragm |
| 2 Seat (replaceable) | 6.2 Safety diaphragm |
| 3 Plug (balanced by a piston) | 7 Actuator stem |
| 4 Plug stem | 8 Spring assembly |
| 5 Plug spring | 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
Kvs	Standard version	4	6.3	8	12.5	16	20
	Special versions	1 · 2.5	–	–	–	–	–
	Flanged body version	–	–	–	12.5	20	25
z values		0.6		0.55		0.5	0.45
Nominal pressure		PN 25					
Max. perm. differential pressure Δp		11 bar					
Max. perm. temperature		150 °C					
Leakage rate		$\leq 0.05\%$ of Kvs					
Set point ranges ¹⁾ , continuously adjustable		2 to 4.4 bar · 2.4 to 6.5 bar · 6 to 11 bar					

¹⁾ Set point ranges, without typetesting, on request

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

Type 44-4 Pressure Regulator (SEV)	
Valve body	Red brass CC491K (Rg 5) · Spheroidal graphite iron EN-JS 1049 ¹⁾
Actuator housing/Intermediate ring	Red brass CC491K (Rg 5)
Seat	Stainless steel 1.4305
Plug	Brass 2.0402 (CuZn40Pb) and stainless steel 1.4305 with EPDM soft sealing ²⁾
Valve spring	Stainless steel 1.4310
Operating diaphragm	EPDM with fabric reinforcement ²⁾
Sealing rings	EPDM ²⁾ (ethyl propylene diene methylene rubber)

¹⁾ Additional version for DN 32, 40 and 50: Valve with flanged body made of spheroidal graphite iron

²⁾ Special version for oil (ASTM I, II, III): FPM (FKM) soft sealing

Flow rate diagram for water

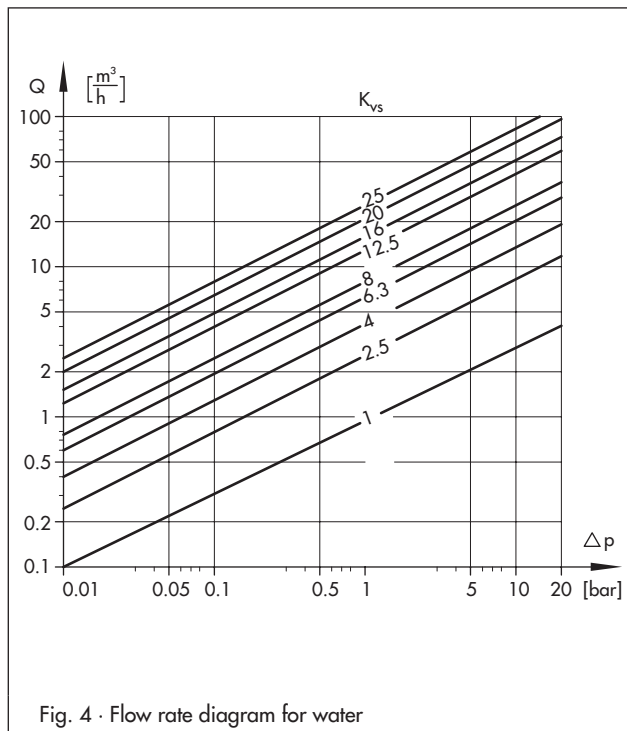


Fig. 4 · Flow rate diagram for water

Pressure-temperature diagram acc. to DIN EN 12516-1

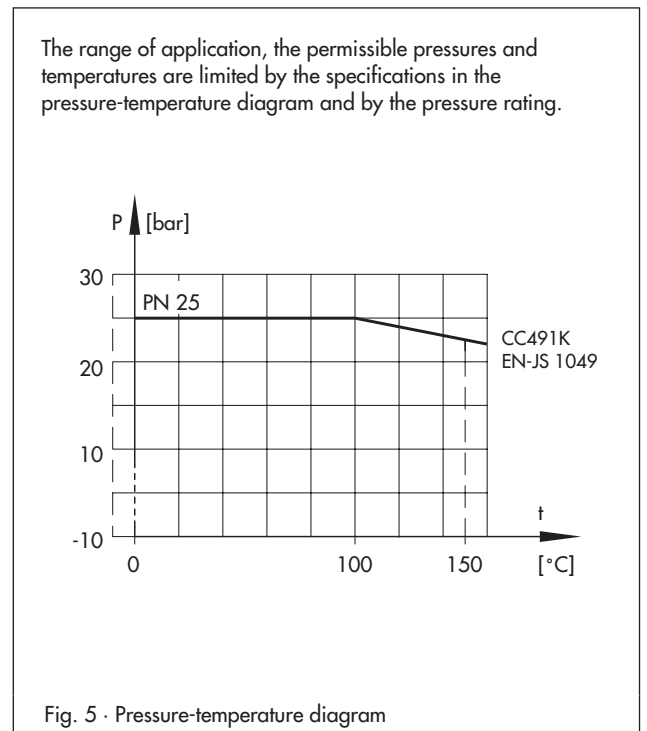
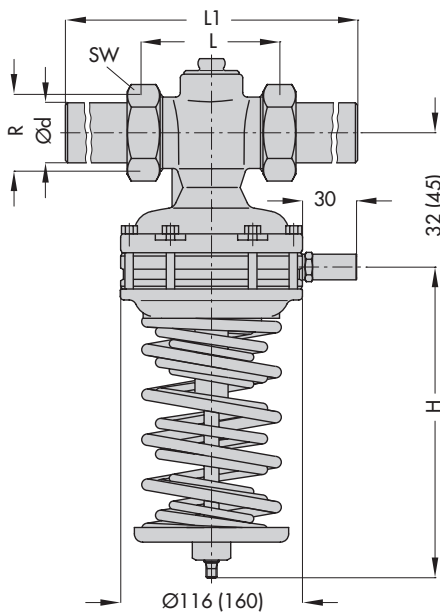
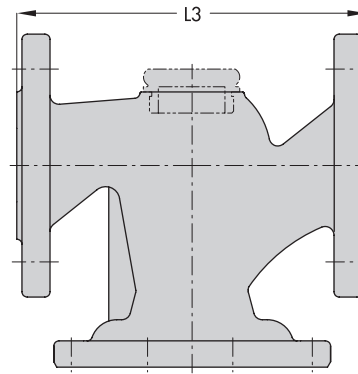


Fig. 5 · Pressure-temperature diagram

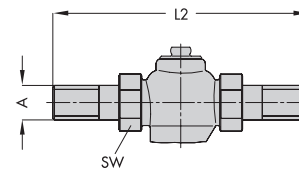
Dimensional diagrams



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



Version with flanged body
for DN 32/40/50



Version with connection nuts and threaded ends

Table 3 · Dimensions and weights · All dimensions in mm

Nominal size	DN	15	20	25	32	40	50
Pipe Ø		21.3	26.8	32.7	42	48	60
Thread connection R		G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Width across flats SW		30	36	46	59	65	82
Length L		65	70	75	100	110	130
L1 with welding ends		210	234	244	268	294	330
Height H		235 ¹⁾			393		
Weight, approx. in kg		2.0	2.1	2.2	3.5	9.0	9.5
Special versions							
With threaded ends (male thread)							
Length L2		129	144	159	180	196	228
Male thread A		G ½	G ¾	G 1	G 1¼	G 1½	G 2
Weight, approx. in kg		2.0	2.1	2.2	3.5	9.0	9.5
With screwed-on flanges ²⁾ or with flanged body (DN 32 to 50)							
Length L3		130	150	160	180	200	230
Weight, approx. in kg	with screwed-on flanges	3.5	4.1	4.7	7	13	14.5
	with flanged body	–	–	–	7	13	14.5

¹⁾ Set point range 6 to 11 bar: 273 mm

²⁾ Valves in DN 40 and DN 50 already have flanges mounted

Fig. 6 · Dimensions

Ordering text

Safety Excess Pressure Valve (SEV) **Type 44-4**

DN ... with connection nuts and welding ends/threaded
ends/flanges or

with flanged body in DN 32, 40 and 50 only,

Set point range ... bar,

Special version ...

Specifications subject to change without notice.



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