

## T 2630 EN

### Type 44-9 Safety Shut-off Valve (SSV) with Pressure Reducing Valve

#### Series 44 Self-operated Pressure Regulators



#### Application

Pressure regulators for set points from **1 to 10.5 bar** · Valves in **DN 15 to 50 · PN 25** · Suitable for liquids up to **150 °C**, air and nitrogen up to **80 °C** · Safety shut-off valve (SSV) with pressure reducing valve for protecting district heating plants

The valve **closes** when the **downstream** pressure rises.

The Type 44-9 Safety Shut-off Valve (SSV) with pressure reducing valve controls the pressure downstream of the valve, especially in district heating plants and large heating systems. It blocks the heat flow when a set point is reached. The valve closes when the downstream pressure rises and opens again when this pressure drops.

In the event of a ruptured operating diaphragm in the actuator, the valve closes at a downstream 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.

#### 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 requirements of FW 504 published by AGFW (German District Heating Association).

**Versions** (see Fig. 2 and Fig. 3)

**Type 44-9 Safety Shut-off Valve (SSV)** with two operating diaphragms · Set point ranges from 1 to 10.5 bar · 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 · In the event of a ruptured operating diaphragm in the actuator, the valve opens ·

**Typetested according to AGFW document FW 504**

#### Special version

- Restricted flow cross-section with lower  $K_{VS}$  coefficient for DN 15, 20 and 25.
- With internal parts made of FKM, e.g. for use with mineral oils

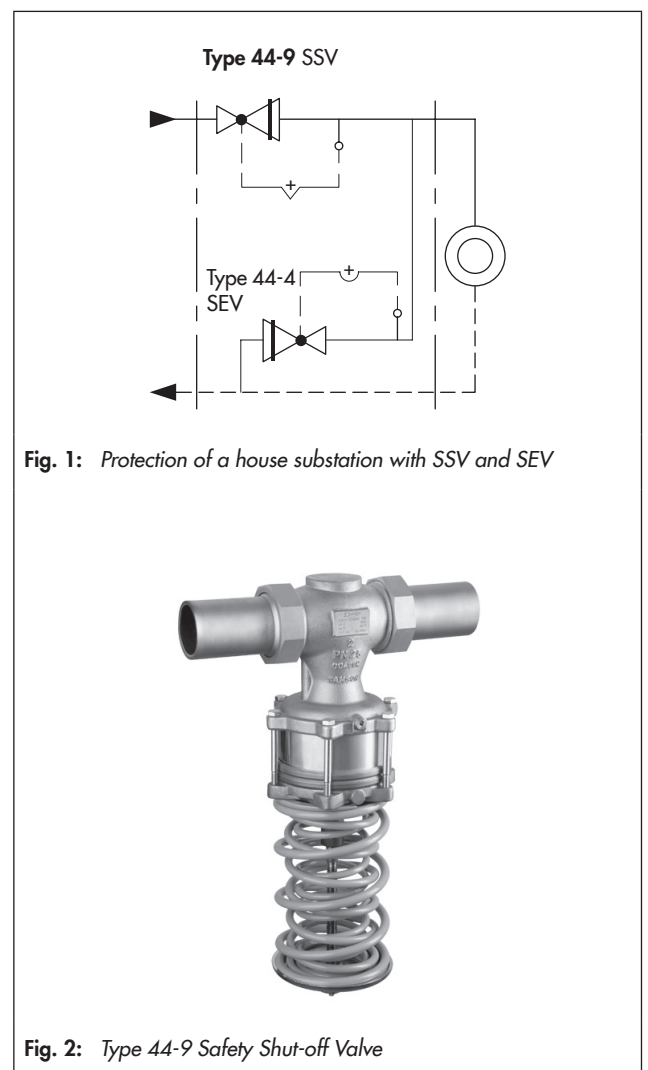


Fig. 1: Protection of a house substation with SSV and SEV

Fig. 2: Type 44-9 Safety Shut-off Valve

## 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 downstream pressure  $p_2$  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 is used to move the valve plug according to the force of the spring assembly (8). The spring force can be adjusted at the set point adjuster (10).

The valve closes when the downstream pressure rises and opens 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 downstream pressure rises above 0.5 bar, the backup diaphragm (6.2) closes the plug and shuts off the flow.

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

## Type test

The Type 44-9 Safety Shut-off Valves (SSV) with pressure reducing valve for  $K_{VS}$  1.0 and higher have been typetested for water by the German technical surveillance association 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
- Install a strainer (e.g. SAMSON Type 2 NI) upstream of the valve.
- The actuator must be suspended downwards.



Further details can be found in ► EB 2623-1.

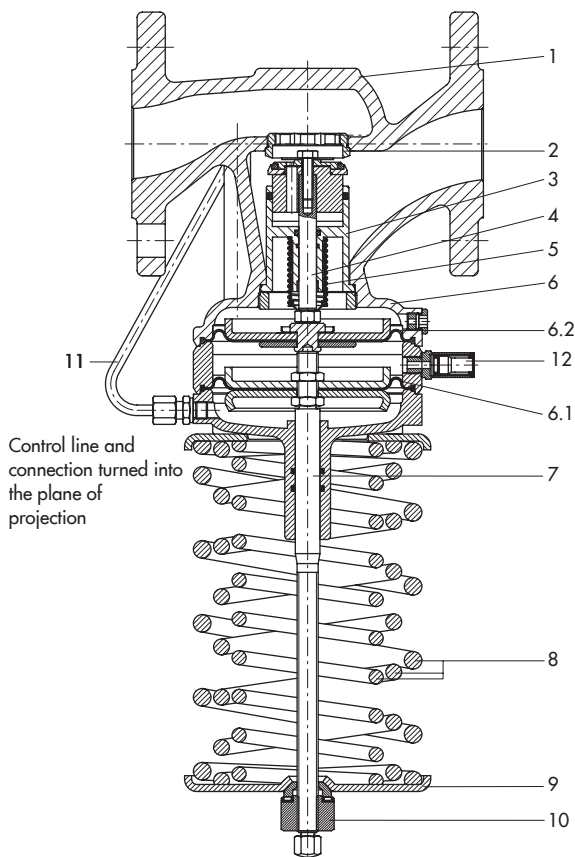
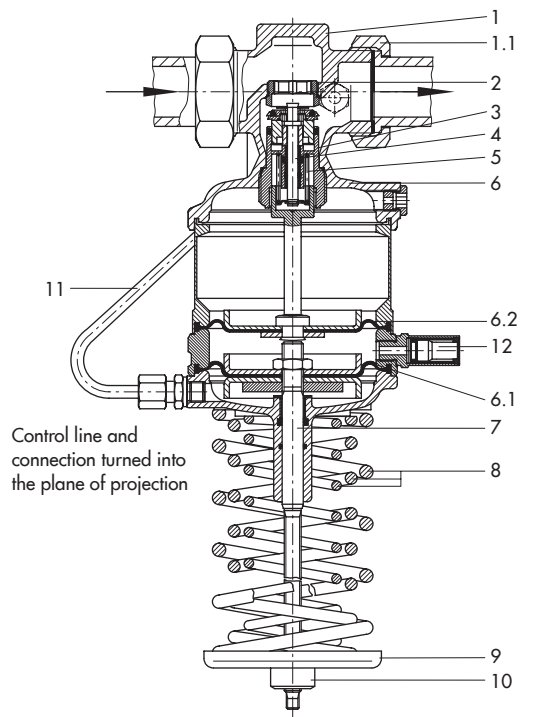
## Ordering text

### Type 44-9 Safety Shut-off Valve (SSV) with Pressure Reducing Valve

DN ... with welding ends, threaded ends or flanges or with flanged body

Set point range ... bar

Special version ...



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

Fig. 3: Functional diagram · Body with flanges

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

Nominal size	DN	15	20	25	32	40	50
$K_{VS}$ coefficient	Standard version	2.5	6.3	8.0	12.5	16.0	20.0
	Special version	1.0 · 4.0			–	–	–
	Flanged body	–	–	–	12.5	20.0	25.0
$x_{FZ}$ value		0.6		0.55		0.5	0.45
Pressure rating		PN 25					
Max. perm. differential pressure $\Delta p$		20 bar			12 bar		
Max. permissible temperature		150 °C · 80 °C <sup>1)</sup>					
Leakage class according to IEC 60534-4		$\leq 0.05\%$ of $K_{VS}$ coefficient					
Set point ranges <sup>2)</sup> , continuously adjustable		2 to 4.2 bar · 2.4 to 6.3 bar · 6 to 10.5 bar					
Max. permissible pressure at diaphragm actuator		1 bar above the closing point adjusted at the valve <sup>3)</sup>					
Conformity		CE · EAC					

1) With air and nitrogen

2) Special set point ranges, without type test, on request

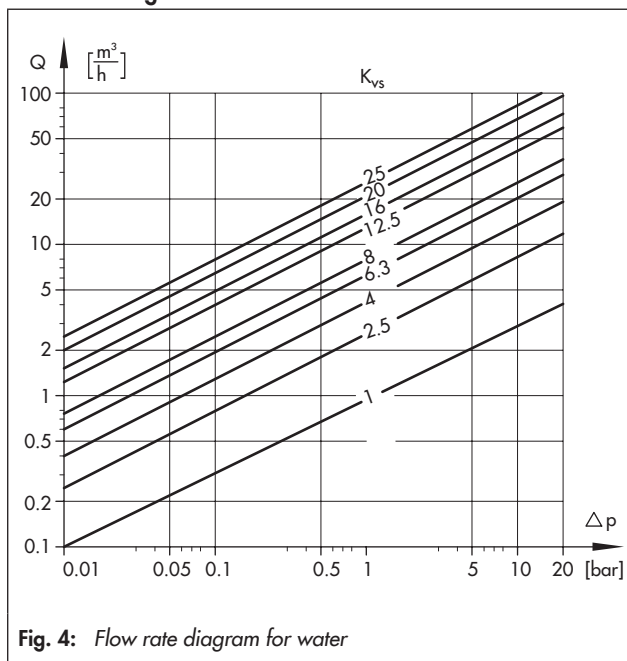
3) To be protected by a downstream (safety) excess pressure valve

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

Type 44-9 Pressure Regulator (SSV)	
Valve body	Red brass CC499K · Spheroidal graphite iron EN-GJS-400-18-LT <sup>1)</sup>
Actuator housing/intermediate ring	Red brass CC499K
Seat	Stainless steel 1.4305
Plug	Brass CW602N and stainless steel 1.4305 with EPDM soft seal <sup>2)</sup>
Valve spring	Stainless steel 1.4310
Operating diaphragm	EPDM with fabric reinforcement <sup>2)</sup>
Seals	EPDM <sup>2)</sup>

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: FKM

**Flow rate diagram for water****Fig. 4:** Flow rate diagram for water

## Dimensional drawings

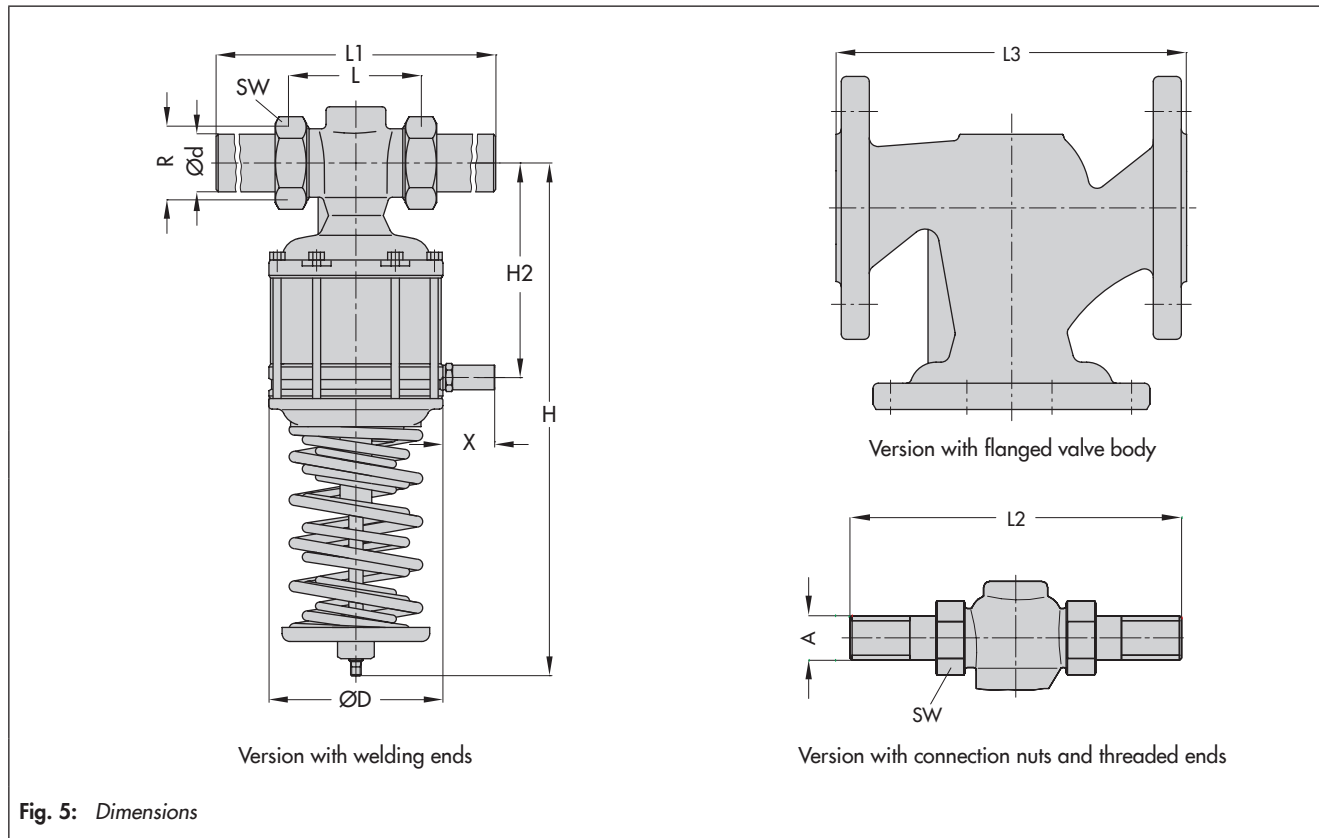


Fig. 5: Dimensions

Table 3: Dimensions in mm and weights

Nominal size	DN	15	20	25	32	40	50
Pipe Ød		21.3	26.8	33.7	42.0	48.0	60.0
Connection R		G ¾	G 1	G 1¼	G 1¾	G 2	G 2½
Width across flats (A/F)		30	37	46	60	65	82
Length L		65	70	75	100	110	130
L1 with welding ends		210	234	244	268	294	330
Dimension H		176 · 195 <sup>1)</sup>			284		
Height H2		74 · 123 <sup>3)</sup>			146	174	
ØD		116				160	
X		30					
Weight, approx. kg		4.1	4.2	4.5	6.1	12.8	14.3
<b>Special versions</b>							
<b>With threaded ends (male thread)</b>							
Length 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		4.1	4.2	4.5	6.1	12.8	14.3
<b>With screwed-on flanges<sup>2)</sup> or with flanged body (DN 32 to 50)</b>							
Length L3		130	150	160	180	200	230
Weight, approx. kg		With screw-on flanges		With flanged body			
		5.4	5.8	6.6	9.1	16.2	18.6
		-	-	-	9.5	17.8	19.1

<sup>1)</sup> Set point range 6 to 10.5 bar

<sup>2)</sup> Flanges are already mounted on valves in DN 40 and 50