

Series 44 Self-operated Pressure Regulators



Type 44-1 B Pressure Reducing Valve Type 44-6 B Excess Pressure Valve

ANSI version

Application

Set points from **3 to 290 psi** (0.2 to 20 bar) with valves $\frac{1}{2}$ NPT to 1 NPT as well as NPS $\frac{1}{2}$ and 1 · Pressure rating **Class 150/300** · Suitable for steam and nitrogen up to **390 °F** (200 °C), liquids and air up to **300 °F** (150 °C) and other gases up to **175 °F** (80 °C)

Type 44-1 B Pressure Reducing Valve

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

Type 44-6 B Excess Pressure Valve

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



The regulators consist of a valve and an integrated actuator with an operating bellows and a set point adjuster.

Special features

- Low-maintenance proportional regulators requiring no auxiliary energy
- Wide set point range and convenient set point adjustment
- Spring-loaded, single-seated valve without pressure balancing or plug balanced by a bellows
- Stainless steel operating bellows as operating element
- Compact design with particularly low overall height
- Any mounting position possible
- Valve body made of red brass, spheroidal graphite iron or stainless steel
- Meets TA Luft requirements concerning fugitive emissions based on VDI 2440

Versions

- Pressure regulators for set point ranges from 3 to 290 psi (0.2 to 20 bar)
- Body made of stainless steel (A351 CF8M) with screwed ends ($\frac{1}{2}$ NPT, $\frac{3}{4}$ NPT and 1 NPT female thread)
- Flanged valve body made of stainless steel (A351 CF8M) · NPS $\frac{1}{2}$ and 1

Type 44-1 B Pressure Reducing Valve (Fig. 1)

- Regulator with valve Class 150/300 for liquids and air up to 300 °F (150 °C), nitrogen up to 390 °F (200 °C) and other gases up to 175 °F (80 °C)

Type 44-6 B Excess Pressure Valve (Fig. 2)

- Regulator with valve Class 150/300 for liquids and air up to 300 °F (150 °C), nitrogen and steam up to 390 °F (200 °C) and other gases up to 175 °F (80 °C)

Special versions

With internal parts made of FKM, e.g. for use of mineral oils PTFE-free version · Version for flammable gases on request Regulator prepared for pressure gauge or external control line connection (connecting thread $\frac{1}{8}$ NPT) · Version with FFKM internal parts · FDA-compliant materials (max. 140 °F/60 °C

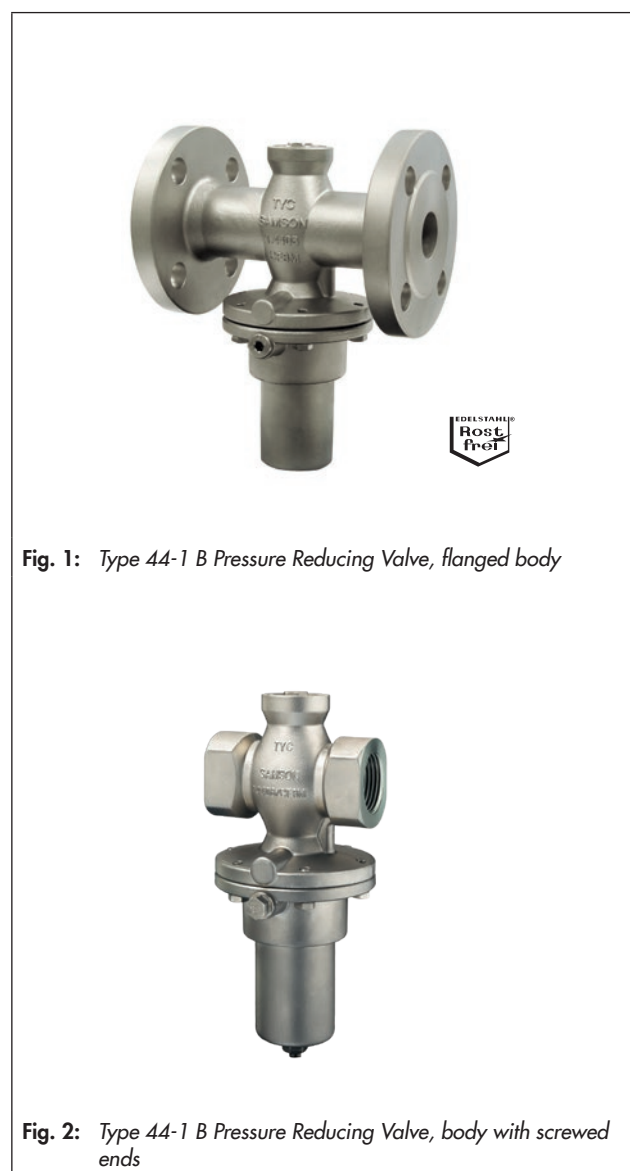


Fig. 1: Type 44-1 B Pressure Reducing Valve, flanged body

Fig. 2: Type 44-1 B Pressure Reducing Valve, body with screwed ends

medium temperature) · Version with electric set point adjustment for set points up to 150 psi (10 bar) · Version with pneumatic set point adjuster · Version functioning as differential pressure regulators · Type 44-6 B for steam

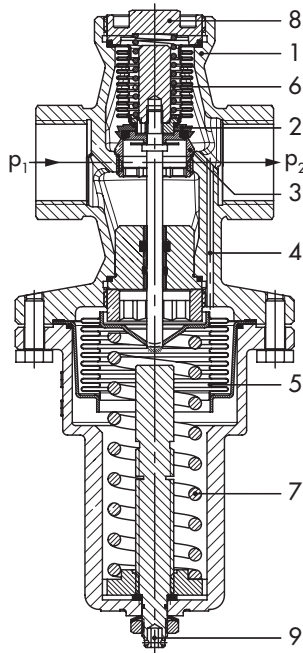
Principle of operation (see Fig. 3)

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

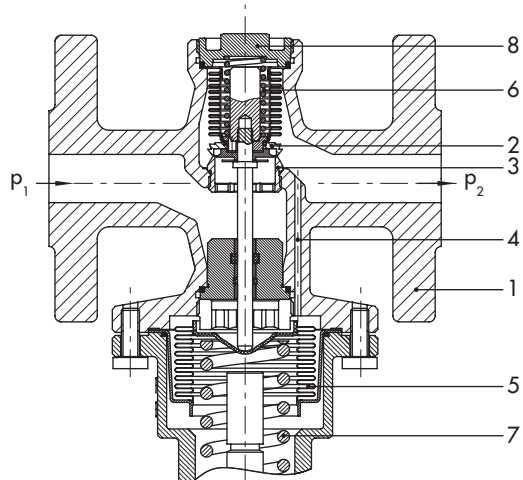
The Type 44-1 B Pressure Reducing Valve is open when relieved of pressure. The valve closes when the downstream pressure (p_2) rises above the adjusted set point.

The Type 44-6 B Excess Pressure Valve is closed when it is relieved of pressure. The valve opens when the upstream pressure rises above the adjusted set point.

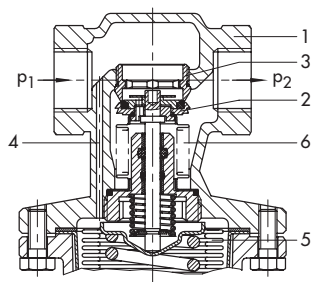
In both versions, the pressure to be kept constant is transmitted through a borehole (4) in the valve body (1) to the operating bellows (5) where it is converted into a positioning force. It moves the valve plug depending on the spring rate of the set point springs (7) and the setting of the set point screw (9).



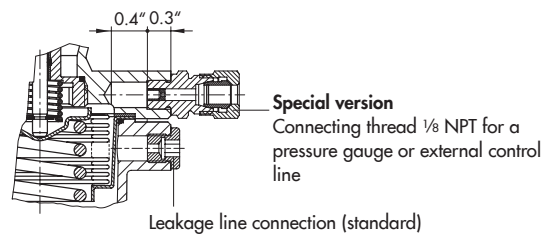
Type 44-1 B Pressure Reducing Valve · Body with screwed ends (female thread)



Type 44-1 B Pressure Reducing Valve · Flanged body



Type 44-6 B Excess Pressure Valve · Body with screwed ends (female thread)



- | | | | |
|---|-------------------------------|---|-------------------|
| 1 | Valve body | 5 | Operating bellows |
| 2 | Plug | 6 | Balancing bellows |
| 3 | Seat | 7 | Set point spring |
| 4 | Borehole for control pressure | 8 | Stopper |
| | | 9 | Set point screw |

Fig. 3: Functional diagram

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

Valve		Type 44-1 B Pressure Reducing Valve	Type 44-6 B Excess Pressure Valve
Pressure rating	A351 CF8M	Class 300 (body with screwed ends) ²⁾ Class 150 (flanged body)	
Connection	A351 CF8M	½ NPT, ¾ NPT, 1 NPT female thread	
	A351 CF8M	Flanges NPS ½ and 1	
Max. permissible temperature ¹⁾	Air, liquids	300 °F (150 °C)	
	Non-flammable gases	175 °F (80 °C)	
	Steam	–	390 °F (200 °C)
	Nitrogen	390 °F (200 °C)	
Max. perm. differential pressure Δp	230 psi (16 bar)		
Leakage class according to IEC 60534-4	≤ 0.05 % of K_{VS} coefficient		
Compliance	CE · EAC		
Set point range (continuously adjustable)	3 to 30 psi · 15 to 60 psi · 30 to 90 psi · 60 to 150 psi · 120 to 290 psi		
	0.2 to 2 bar · 1 to 4 bar · 2 to 6 bar · 4 to 10 bar · 8 to 20 bar		
Max. permissible ambient temperature	140 °F (60 °C)		

¹⁾ The maximum permissible temperature is limited to 140 °F (60 °C) with FDA compliance.

²⁾ Max. input pressure 275 psi (19 bar)

Table 2: Max. permissible pressure at actuator**Body with screwed ends and flanged body**

Connection			½ NPT NPS ½	¾ NPT –	1 NPT NPS 1
C_V and K_{VS} coefficients	Standard version	C_V	4	5	6
		K_{VS}	3.2	4	5
	Special version, unbalanced	C_V	0.3 · 0.5 ¹⁾ · 1.2 · 3		
		K_{VS}	0.25 · 0.4 ¹⁾ · 1.0 · 2.5		
x_{Fz} values			0.60	0.60	0.55

¹⁾ Only with Type 44-1 B, metal seal

Table 3: Materials · Material numbers according to ASTM and DIN EN

Body	Stainless steel A351 CF8M (1.4408)
Seat	A479 316L (1.4404)
Plug	Type 44-1 B · Type 44-6 B
	Type 44-6 B (steam regulator)
Balancing bellows	A479 316L (1.4404) metal or soft seal ¹⁾
Set point spring	A479 316L (1.4404) with FKM/PTFE soft seal or metal seal
Operating bellows	A479 316Ti (1.4571)
Set point spring	A479 302 (1.4310)
Spring housing	A479 316Ti (1.4571)
Set point screw	A351 CF8M (1.4408)
Set point screw	Hexagonal socket head screw made of stainless steel A479 316Ti (1.4571)

¹⁾ EPDM, FKM, FFKM or PTFE

Table 4: Versions and K_{VS} coefficients

Version with ...			Plug with soft seal			Plug with metal seal
			EPDM/FKM	Stainless steel with FFKM	PTFE	
C_V/K_{VS} coefficients	Type 44-1 B	C_V	0.3 · 1.2 · 3 · 4 · 4.8 · 6	1.2 · 4 · 5 · 6	–	0.3 · 0.5 · 1.2
		K_{VS}	0.25 · 1 · 2.5 · 3.2 · 4 · 5	1 · 3.2 · 4 · 5	–	0.25 · 0.4 · 1
	Type 44-6 B	C_V	1.2 · 3 · 3.8 · 4.8 · 6	1.2 · 3.8 · 4.8 · 6	3.8 · 4.8 · 6	0.5 · 1.2
		K_{VS}	1 · 2.5 · 3.2 · 4 · 5	1 · 3.2 · 4 · 5	3.2 · 4 · 5	0.4 · 1

Table 5: Seal materials and max. medium temperatures

Plug seal	Medium · max. temperature ²⁾
EPDM	Water · Up to 300 °F (150 °C) Oil-free air · Up to 175 °F (80 °C) Nitrogen · Up to 175 °F (80 °C)
FKM	Mineral oil · Up to 300 °F (150 °C) Air · Up to 300 °F (150 °C) Nitrogen · Up to 390 °F (200 °C)
PTFE ¹⁾	Steam · Up to 390 °F (200 °C)
FFKM	Liquids · Up to 300 °F (150 °C) Gases · Up to 175 °F (80 °C)

¹⁾ Only for Type 44-6 B

²⁾ Limited to 60 °C with FDA compliance

Installation

The following applies:

- The direction of flow must match the direction indicated by the arrow on the body
- Any mounting position possible

Further details can be found in ► EB 2626-1 and ► EB 2626-2.

Table 6: Dimensions and weights

Regulators with body with screwed ends or flanged body · Stainless steel A351 CF8M

Connection size	ANSI	½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1	
	DIN	G ½	G ¾	G 1	DN 15	DN 25	
Female thread	in	½	¾	1	–	–	
	G	½	¾	1	–	–	
Length L	in	2.6	3.0	3.5	7.2	–	
	mm	65	75	90	184	–	
Width across flats SW	in	1.3	1.3	1.8	–	–	
	mm	34	34	46	–	–	
Height H1	in	6.1 (8.1) ¹⁾				–	–
	mm	155 (205) ¹⁾				–	–
Height H2	in	1.8				–	–
	mm	46				–	–
D	in	3.5				–	–
	mm	89				–	–
Weight, approx.	lb	2.2	2.4	3.3	5.7	9.3	
	kg	1.0	1.1	1.5	2.6	4.2	

¹⁾ Dimensions in parentheses apply to regulators with 120 to 290 psi (8 to 20 bar) set point range

Dimensions of the regulators

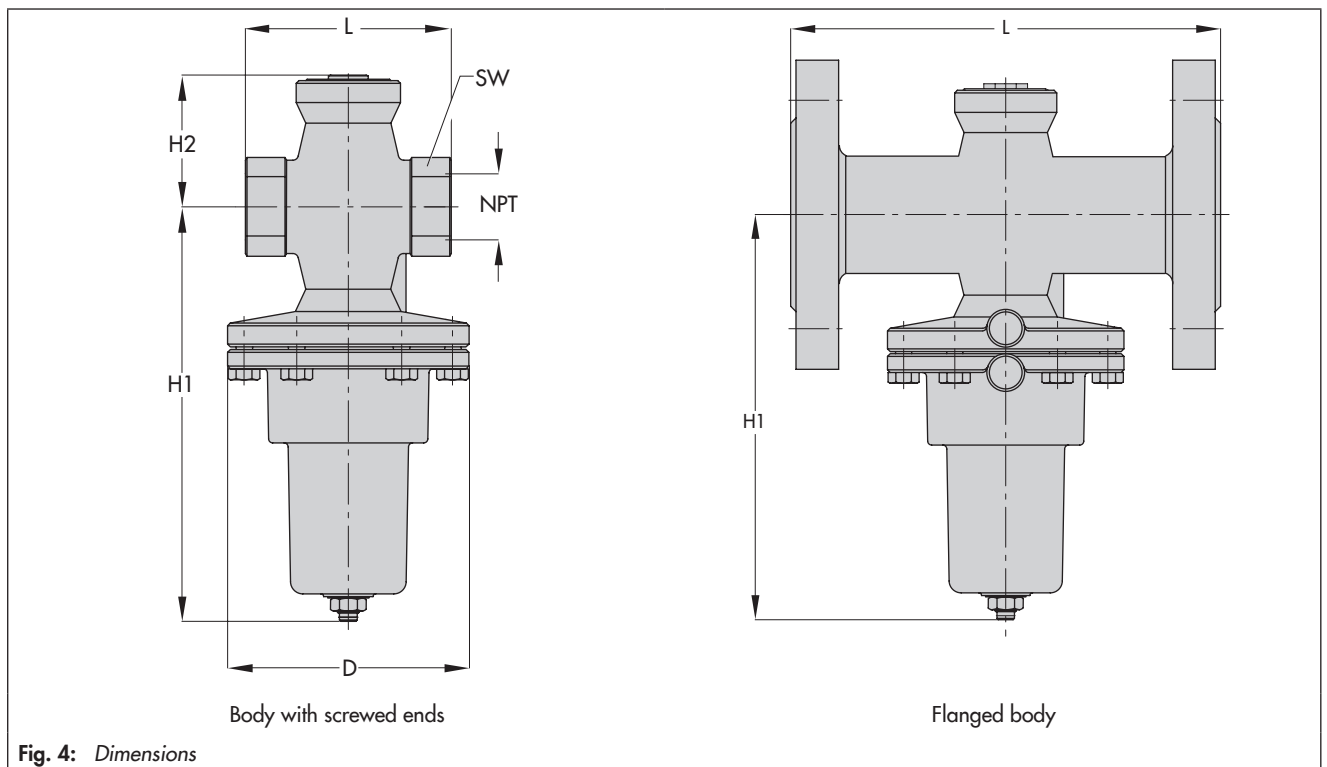


Fig. 4: Dimensions

Ordering text

Type 44-1 B Pressure Reducing Valve for liquids and gases

or

Type 44-6 B Excess Pressure Valve for liquids, gases and steam

Body material: stainless steel (A351 CF8M)

Version with screwed ends ... NPT female thread or flanged valve body NPS ...

Set point range ... psi (bar), C_v (K_{vS}) coefficient ...

Plug seal: EPDM, FKM, FFKM, PTFE, metal seal, steam version (special version of Type 44-6 B)

Optionally, special version

Specifications subject to change without notice



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