

T 2627 EN

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

Series 44 Self-operated Pressure Regulators · 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 and 300** · Suitable for nitrogen and steam up to **390 °F/200 °C**, liquids and air up to **300 °F/150 °C**, 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 fugitive emissions requirements based on VDI 2440

Versions

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

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

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

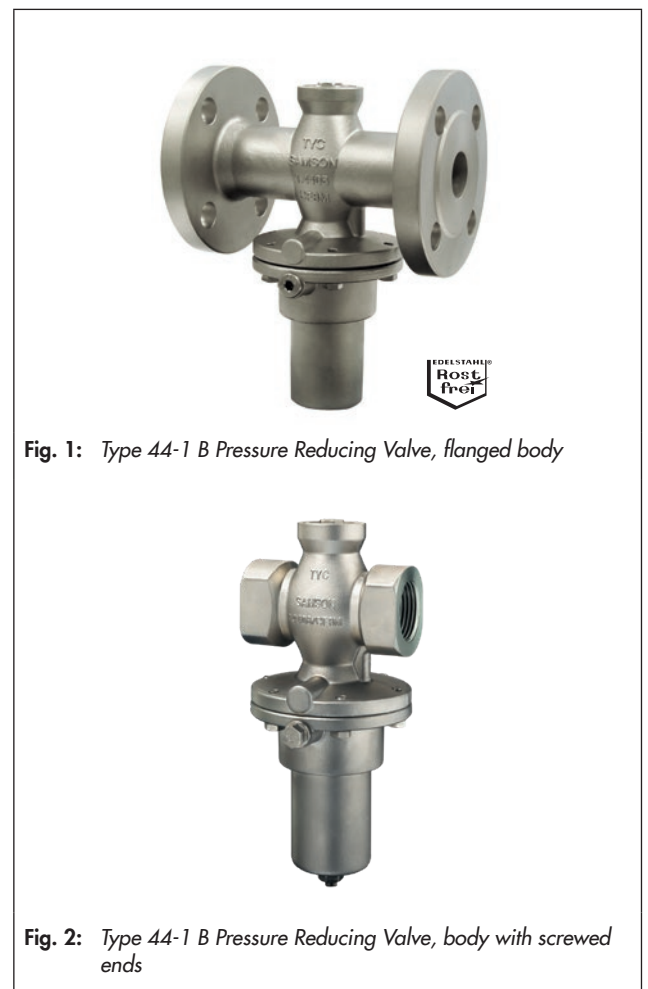


Fig. 1: Type 44-1 B Pressure Reducing Valve, flanged body

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

Special versions

- With internal parts made of FKM, e.g. for use with mineral oils
- Version free of PTFE
- Version for flammable gases on request
- Regulator prepared for pressure gauge or external control line connection (connecting thread 1/8 NPT)
- With FFKM internal parts (on request)
- Materials complying with FDA regulations (max. 140 °F/60 °C 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 regulator
- 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 adjusting screw (9).

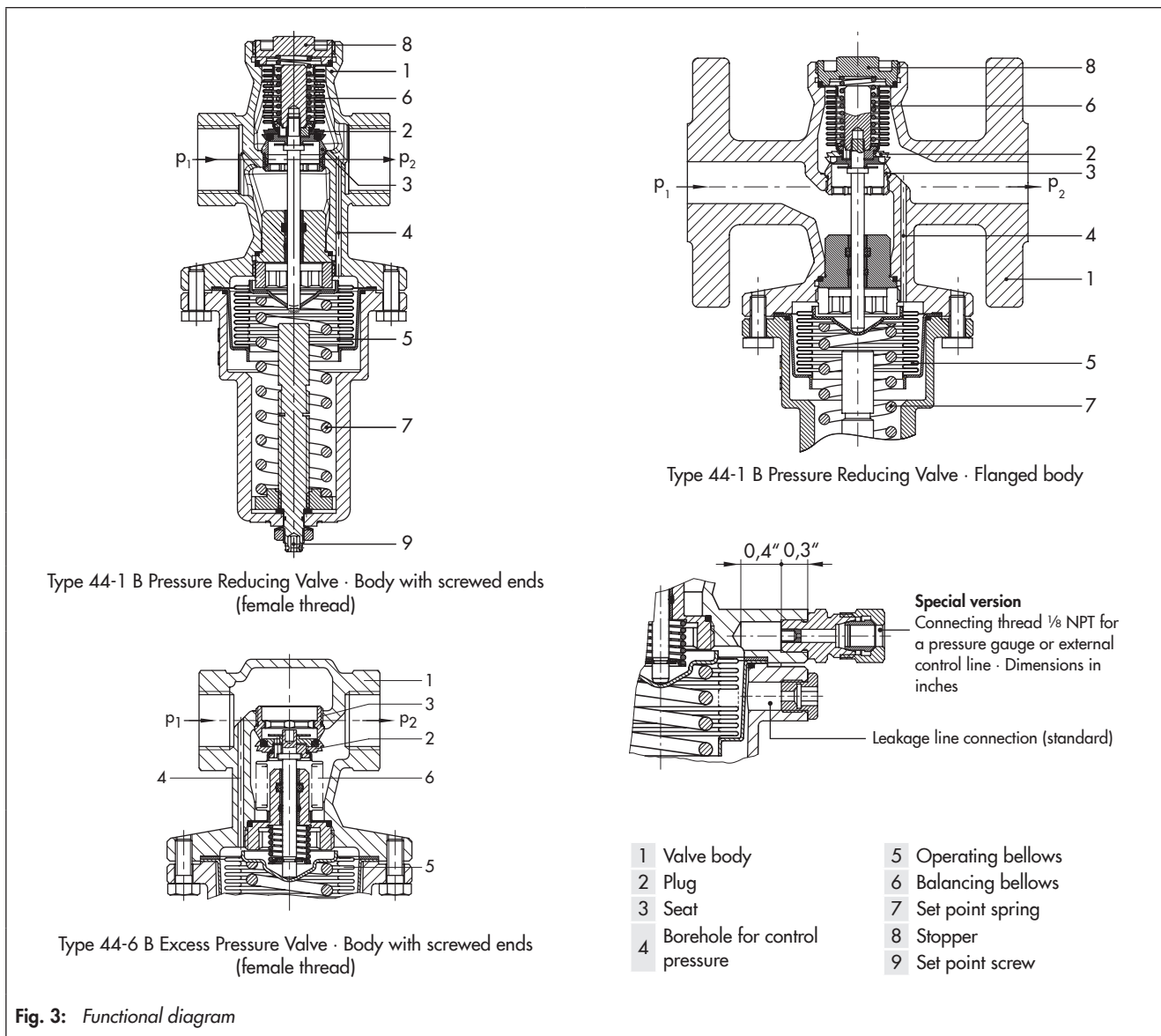



Fig. 3: Functional diagram

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	150 psi/10 bar ³⁾ · 230 psi/16 bar		230 psi/16 bar
Leakage class according to IEC 60534-4	≤ 0.05 % of K_{VS} coefficient		
Compliance			
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

³⁾ With K_{VS} 0.5, 1.2 and 3.0/ C_V 0.4, 1.0 and 2.5

Table 2: Flow coefficients and x_{FZ} values

Type 44-1 B Pressure Reducing Valve			Thread size · Screwed ends			Valve size · Flanges	
			½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1
Flow coefficients	Standard version	C_V	4.0 ^{1) 3)}	5.0 ^{1) 3)}	6.0 ^{1) 3)}	4.0 ^{1) 3)}	6.0 ^{1) 3)}
		K_{VS}	3.2 ^{1) 3)}	4.0 ^{1) 3)}	5.0 ^{1) 3)}	3.2 ^{1) 3)}	5.0 ^{1) 3)}
	Special version, unbalanced	C_V	0.3 ³⁾ · 1.2 ³⁾ · 3.0 ³⁾				
		K_{VS}	0.25 ³⁾ · 1.0 ³⁾ · 2.5 ³⁾				
Type 44-6 B Excess Pressure Valve			Thread size · Screwed ends			Valve size · Flanges	
			½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1
Flow coefficients	Standard version	C_V	4.0 ^{1) 3)}	5.0 ^{1) 3)}	6.0 ^{1) 3)}	4.0 ^{1) 3)}	6.0 ^{1) 3)}
		K_{VS}	3.2 ^{1) 3)}	4.0 ^{1) 3)}	5.0 ^{1) 3)}	3.2 ^{1) 3)}	5.0 ^{1) 3)}
	Special version, unbalanced	C_V	0.3 ^{2) 3)} · 0.5 ²⁾ · 1.2 ^{2) 3)} · 3.0 ³⁾				
		K_{VS}	0.1 ²⁾ · 0.4 ²⁾ · 1.0 ^{2) 3)} · 2.5 ³⁾				
x_{FZ} values · Type 44-1 B · Type 44-6 B			0.60		0.55	0.60	0.55

¹⁾ Also available as special version for regulators with stainless steel body and FFKM soft seal.

²⁾ Metal seal

³⁾ Soft EPDM or FKM seal (also PTFE for Type 44-6 B)

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 316Ti/1.4571
Set point spring	A479 302/1.4310
Operating bellows	A479 316Ti/1.4571
Spring housing	A351 CF8M/1.4408
Spring housing screws	A4-70
Set point screw	Hexagonal socket head screw made of stainless steel A479 316Ti/1.4571

¹⁾ EPDM, FKM, PTFE or FFKM (on request)

Table 4: Versions and K_{VS} coefficients

Version with ...		Plug with soft seal			Plug with metal seal	
		EPDM/FKM	Stainless steel with FFKM ¹⁾	PTFE		
C_V/K_{VS}	Type 44-1 B	C_V	0.3 · 1.2 · 3.0 · 4.0 · 4.8 · 6.0	1.2 · 4.0 · 5.0 · 6.0	–	–
		K_{VS}	0.25 · 1.0 · 2.5 · 3.2 · 4.0 · 5.0	1.0 · 3.2 · 4.0 · 5.0	–	–
	Type 44-6 B	C_V	1.2 · 3.0 · 3.8 · 4.8 · 6.0	1.2 · 3.8 · 4.8 · 6.0	3.8 · 4.8 · 6.0	0.5 · 1.2
		K_{VS}	1.0 · 2.5 · 3.2 · 4.0 · 5.0	1.0 · 3.2 · 4.0 · 5.0	3.2 · 4.0 · 5.0	0.4 · 1.0

¹⁾ On request

Table 5: Seal materials and max. medium temperatures

Plug seal	Process 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 ³⁾	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

³⁾ On request

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.

Ordering text

Type 44-1 B Pressure Reducing Valve

For gases and liquids

Type 44-6 B Excess Pressure Valve

For gases, liquids and steam

Body material: red brass, stainless steel or spheroidal graphite iron

Version with screwed ends G ... or flanged valve body DN ...

Set point range ... bar, K_{VS} coefficient ...

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

Special version

Dimensions of the regulators

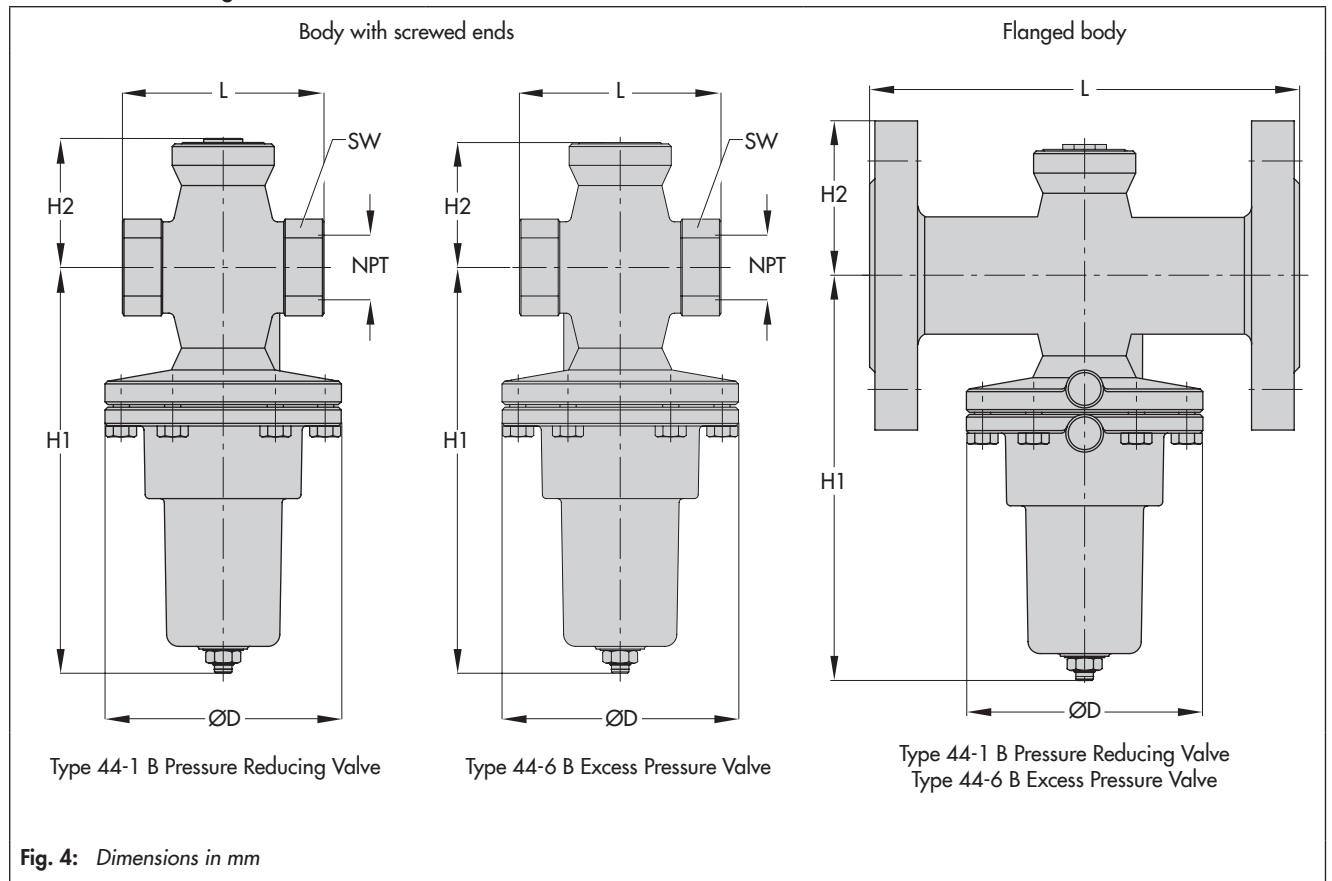


Fig. 4: Dimensions in mm

Table 6: Dimensions and weights

Version with ...	Thread size · Screwed ends			Valve size · Flanges		
	½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1	
NPT female thread	½"	¾"	1"	-		
Length L	in	2.6	3.0	7.2		
	mm	65	75	184		
Width across flats SW	in	1.3		-		
	mm	34				
Height H1	in	6.1 · 8.1 ¹⁾			6.1 · 8.1 ¹⁾	
	mm	155 · 205 ¹⁾			155 · 205 ¹⁾	
Height H2	in	1.8			1.8	
	mm	46			46	
ØD	in	3.5			3.5	
	mm	89			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 apply to regulators with 120 to 290 psi/8 to 20 bar set point range

