DATA SHEET

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

CE

Application

Set points from **3 to 290 psi/0.2 to 20 bar** with valves ½ **NPT to 1 NPT** as well as **NPS ½ 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

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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 ½ NPT, ¾ NPT and 1 NPT (female thread) · Flanged body made of stainless steel (A351 CF8M) in NPS ½ 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

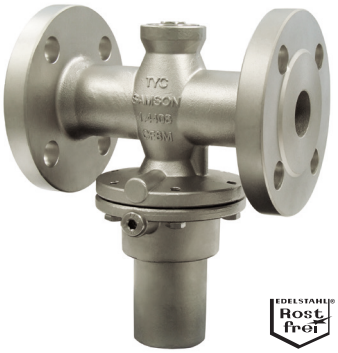

Fig. 1: *Type 44-1 B Pressure Reducing Valve, flanged body*

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

SAMSON AKTIENGESELLSCHAFT · Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507 · samson@samsongroup.com · www.samsongroup.com

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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 ⅛ NPT)
- With FFKM internal parts (on request)
- FDA version [1)]
- 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

[1)] This version is not suitable for direct contact with products manufactured in the food and pharmaceutical industries. It can only be used close to the product.

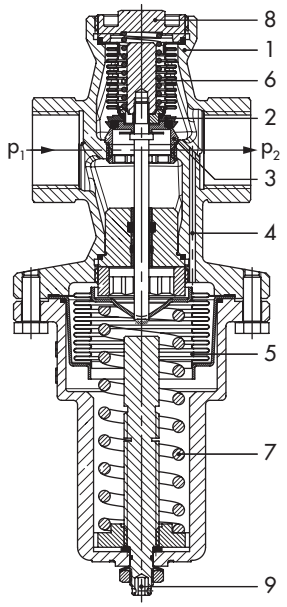
Principle of operation (see Fig. 3)

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).

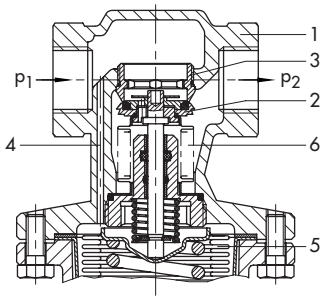
The Type 44-1 B Pressure Reducing Valve is open when relieved of pressure. The valve closes when the downstream pressure (p_2) rises above the adjusted set point.

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.

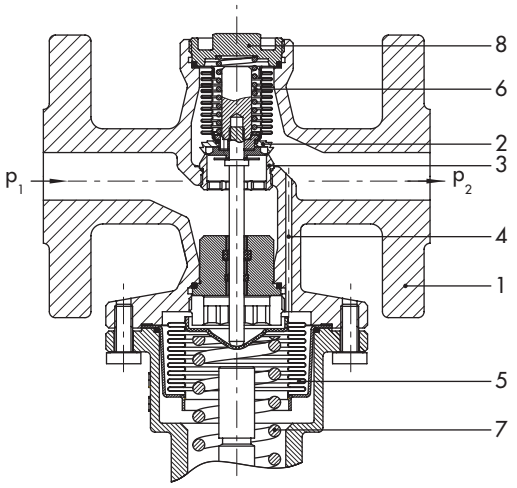
In both versions, the pressure to be kept constant is transmitted through a borehole (4) in the valve body (1) to the operating bellows (5) where it is converted into a positioning force. It moves the valve plug depending on the spring rate of the set point springs (7) and the setting of the set point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



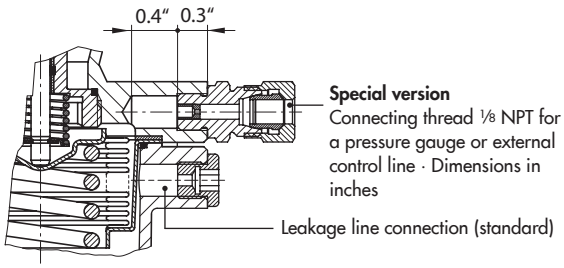
Type 44-1 B Pressure Reducing Valve · Body with screwed ends (female thread)



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



Type 44-1 B Pressure Reducing Valve · Flanged body



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		150 psi [3]/10 bar [3] · 230 psi/16 bar	230 psi/16 bar
Leakage class according to IEC 60534-4		≤0.05 % of K_{VS} coefficient	
Conformity		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) FDA version: Max. permissible temperature 140 °F/60 °C
2) Max. input pressure 275 psi/19 bar
3) With C_V 1.2 and 3.0/K_{VS} 1.0 and 2.5

Table 2: *K_{VS} coefficients and x_{FZ} values*

Type 44-1 B Pressure Reducing Valve			Thread size · Screwed ends			Nominal size (flange)	
			½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1
K_{VS} 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 [1] [3] · 3.0 [3]				
		K_{VS}	0.25 [3] · 1.0 [1] [3] · 2.5 [3]				
Type 44-6 B Excess Pressure Valve			**Thread size · Screwed ends**			**Nominal size (flange)**	
			½ NPT	**¾ NPT**	**1 NPT**	**NPS ½**	**NPS 1**
K_{VS} 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	0.5 [2] · 1.2 [1] [3] · 3.0 [3]				
		K_{VS}	0.4 [2] · 1.0 [1] [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 seal. Seal material: EPDM or FKM. Additionally Type 44-6 B: PTFE gasket material

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	A479 316L/1.4404 metal or soft seal [1]
	Type 44-6 B (steam regulator)	A479 316L/1.4404 with EPDM/FKM/PTFE soft seal or metal seal
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} coefficients	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	1.2 · 3.8 · 4.8 · 6.0	0.5
		K_{VS}	1.0 · 2.5 · 3.2 · 4.0 · 5.0	1.0 · 3.2 · 4.0 · 5.0	1.0 · 3.2 · 4.0 · 5.0	0.4

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) Type 44-6 B only
2) FDA version: Max. permissible temperature 140 °F/60 °C
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

Pressure reducing valve
For gases and liquids **(Type 44-1 B)** or

Excess pressure valve
For gases, liquids and steam **(Type 44-6 B)**

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

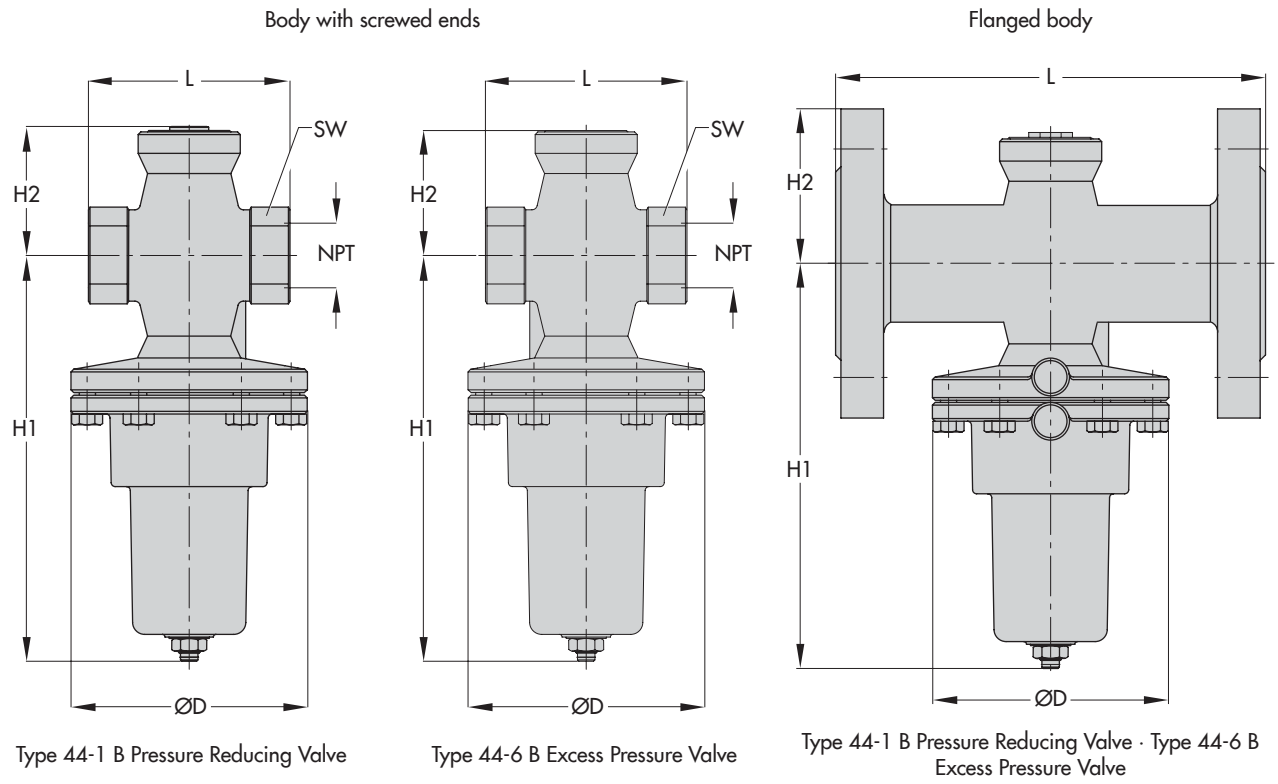


Fig. 4: *Dimensions in mm*

Table 6: *Dimensions and weights*

Version with ...		Thread size · Screwed ends			Nominal size (flange)	
		½ NPT	¾ NPT	1 NPT	NPS ½	NPS 1
NPT female thread		½″	¾″	1″	–	
Length L	in	2.6	3.0	3.5	7.2	
	mm	65	75	90	184	
Width across flats (A/F)	in	1.3		1.8	–	
	mm	34		46		
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