

Self-operated Pressure Regulators Series 44



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 in ½ NPT to 1 NPT or NPS ½ and NPS 1 · Pressure rating **Class 150, 250 and 300** · Suitable for air up to **300 °F** (150 °C), nitrogen up to **390 °F** (200 °C), other gases up to **175 °F** (80 °C) and liquids up to **300 °F** (150 °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 actuator with an operating bellows and a set point adjustment.

Special features

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

Versions

Pressure regulators with actuators for set point ranges from 3 to 290 psi (0.2 to 20 bar) · Valve bodies with screwed ends in red brass (C83600) or stainless steel (A351 CF8M) with ½ NPT, ¾ NPT or 1 NPT female thread · Versions with flanged body in stainless steel (A351 CF8M) with NPS ½ and NPS 1

Type 44-1 B Pressure Reducing Valve (Fig. 1) · Valves in Class 150, 250 and 300 · Suitable 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) · Valves in Class 150, 250 and 300 · Suitable for liquids and air up to 300 °F (150 °C), gases up to 175 °F (80 °C) and steam up to 390 °F (200 °C)

Special versions

With oil-resistant internal parts · Version free of PTFE · Version for flammable gases · Regulator prepared for connection of a pressure gauge or external control line (⅛ NPT thread) · Stainless steel body available with FFKM internal parts · Version made of FDA-compliant materials · With electric set point adjustment for set points up to 150 psi · With pneumatic set point adjuster · Version functioning as differential pressure regulator · Version for steam (Type 44-6 B)

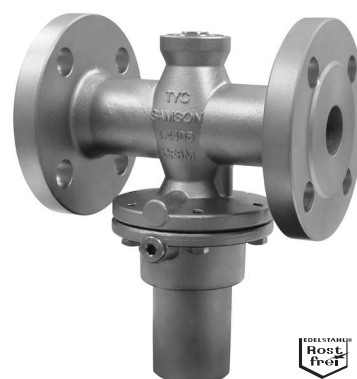


Fig. 1 · Type 44-1 B Pressure Reducing Valve, version with stainless steel flanged body



Fig. 2 · Type 44-6 B Excess Pressure Valve, body made of red brass (version with screwed ends)

Principle of operation

The medium flows through the valve in the direction indicated by the arrow. The position of the valve plug determines the flow rate across the cross-sectional area between the plug (2) and the 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 set point adjusted.

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

In both versions, the pressure to be maintained is transmitted through a hole (4) in the valve body (1) onto the operating bellows (5) where it is converted into a positioning force. This force is used to adjust the valve plug as a function of the spring rate of the set point spring(s) (7) and the set point adjustment (8) or the set point adjusting screw (9) for regulators in the set point range 120 to 290 psi (8 to 20 bar) or in versions with a stainless steel valve body.

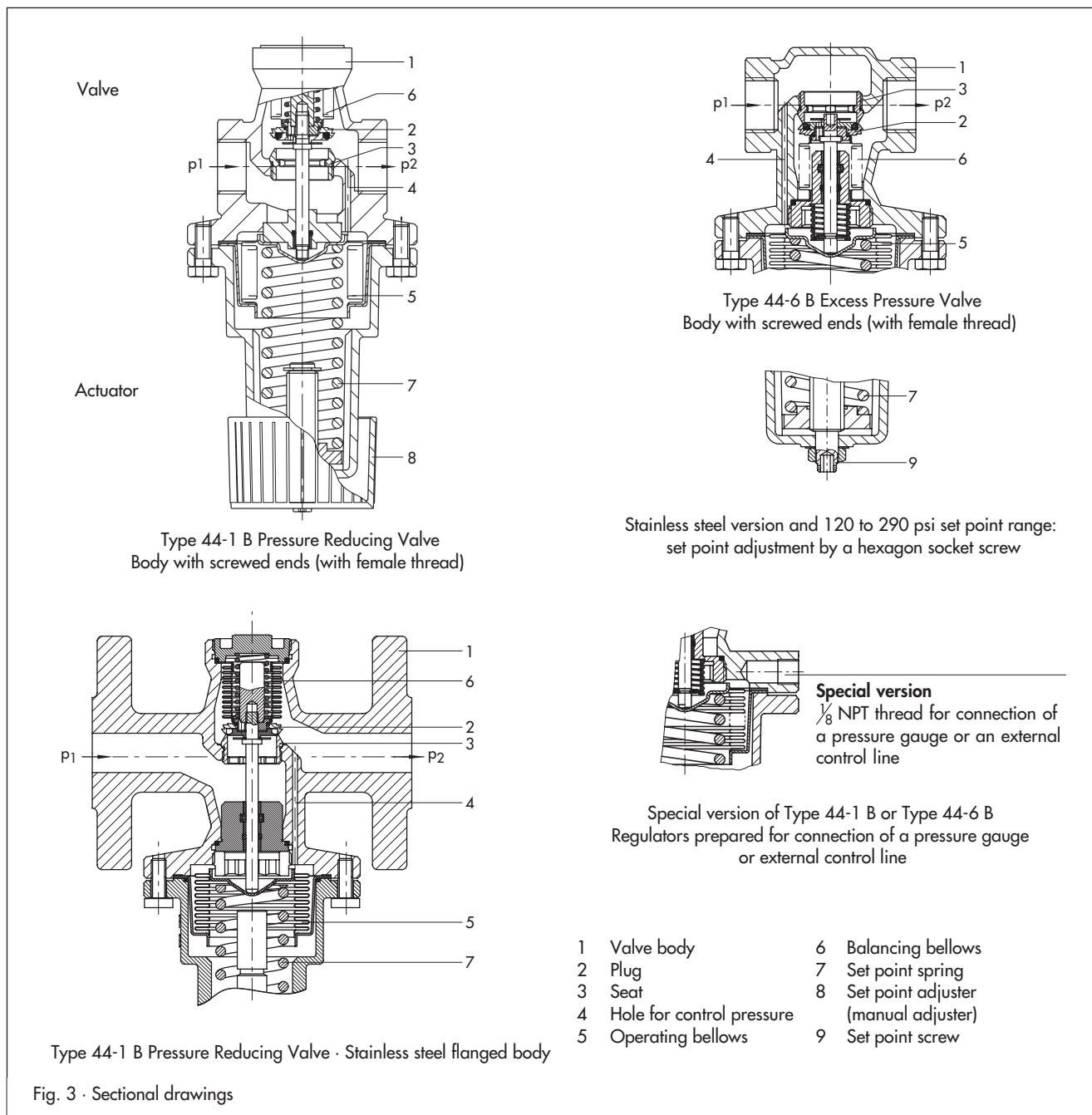


Table 1 · Technical data · All pressures stated as gauge pressures

Regulator		Type 44-1 B Pressure Reducing Valve	Type 44-6 B Excess Pressure Valve
Body with end connections	A351 CF8M/C83600	Female thread ½ NPT, ¾ NPT and 1 NPT	
	A351 CF8M	Flanged body NPS ½ and NPS 1	
Pressure rating	C83600	Class 250	
	A351 CF8M	Class 300 (body with screwed ends)/Class 150 (flanged body)	
Max. permissible temperature	Liquids	300 °F · 150 °C	
	Non-flammable gases and air	175 °F · 80 °C	
	Steam	–	390 °F · 200 °C
	Nitrogen	390 °F · 200 °C	
Max. perm. differential pressure Δp		230 psi · 16 bar	
Set point ranges, 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	
Leakage rate according to IEC 60534-4		≤ 0.05 % of C_v (K_{vs})	
Max. perm. ambient temperature		140 °F · 60 °C	

Table 2 · C_v and K_{vs} coefficients and z values

Connection			½ NPT · NPS ½	¾ NPT	1 NPT · NPS 1
C_v and K_{vs} coefficients	Standard version	C_v	4 ¹⁾	5 ¹⁾	6 ¹⁾
		K_{vs}	3.2 ¹⁾	4 ¹⁾	5 ¹⁾
	Special version (unbalanced)	C_v	0.3 ²⁾ · 0.5 · 1.2 ¹⁾ · 3		
		K_{vs}	0.25 ²⁾ · 0.4 · 1 ¹⁾ · 2.5		
z values			0.60	0.60	0.55

¹⁾ Special version available for regulators with stainless steel bodies and FFKM soft seal

²⁾ Only with Type 44-1 B with metal-seated plug

Table 3 · Materials · Material numbers acc. to ASTM and DIN EN

Type 44-1 B · 44-6 B Regulators		Red brass	Stainless steel
Body		C83600 (red brass CC491K)	A351 CF8M (1.4408)
Seat		Stainless steel 1.4305	A479 316L (1.4404)
Plug	Type 44-1 B/44-6 B	Brass, free of dezincification, with soft seal	A479 316L (1.4404), with metal or soft seal ¹⁾
	Type 44-6 B (steam)	Brass, free of dezincification, with PTFE soft seal or metal seal	A479 316L (1.4404), with FKM/PTFE soft seal or metal seal
Balancing bellows		Stainless steel A479 316Ti (1.4571)	A479 316Ti (1.4471)
Set point spring		1.7104 (55SiCr6)	A479 302 (1.4310)
Operating bellows		Stainless steel A479 316Ti (1.4571)	A479 316Ti (1.4471)
Spring housing		EN AC-44300-DF (die-cast aluminum)	A351 CF8M (1.4408)
Set point adjustment		Manual adjuster made of PETP with 30 % glass fiber ²⁾	Hexagon socket screw made of stainless steel A479 316Ti (1.4571)

¹⁾ EPDM, FFKM or PTFE

²⁾ Version with 120 to 290 psi (8 to 20 bar) set point range: Hexagon socket screw made of A479 316Ti (1.4571)

Table 4 · Configured versions and C_V (K_{VS}) coefficients

Plug version with	Soft-seated plug				
	EPDM/FKM	Stainless steel with FFKM	PTFE	Metal-seated plug	
C_V (K_{VS}) coefficients	Type 44-1 B	C_V	1.2 · 4 · 5 · 6	–	0.3 · 0.5 · 1.2 · 9.6
		K_{VS}	1 · 3.2 · 4 · 5	–	0.25 · 0.4 · 1 · 8
	Type 44-6 B	C_V	1.2 · 3.8 · 4.8 · 6	3.8 · 4.8 · 6	0.5 · 1.2
		K_{VS}	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
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	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 with Type 44-1 B

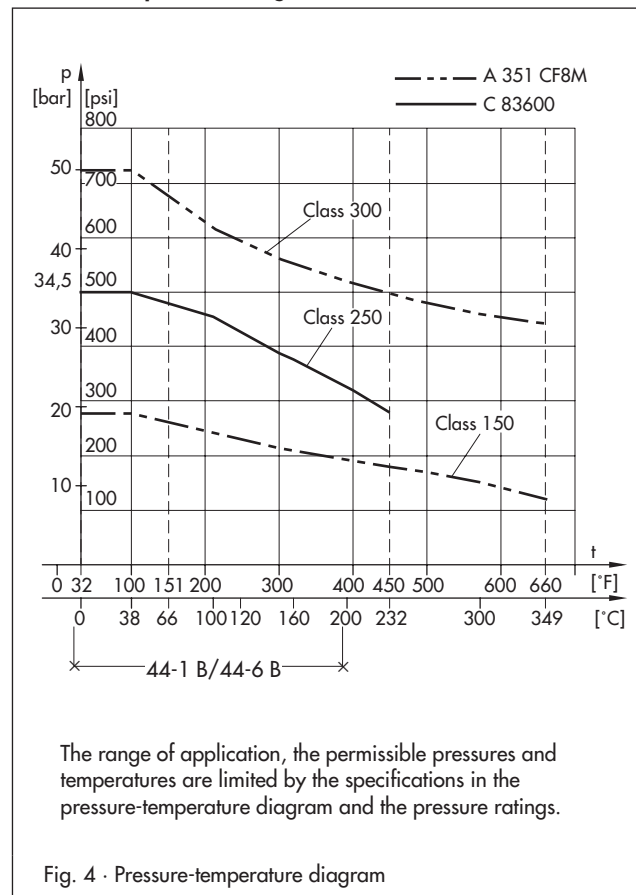
Installation

The following applies to all versions:

- The medium must flow through the valve in the direction indicated by the arrow on the body
- The regulators can be installed in any desired mounting position.

Refer to EB 2626-1 EN and EB 2626-2 EN for more details.

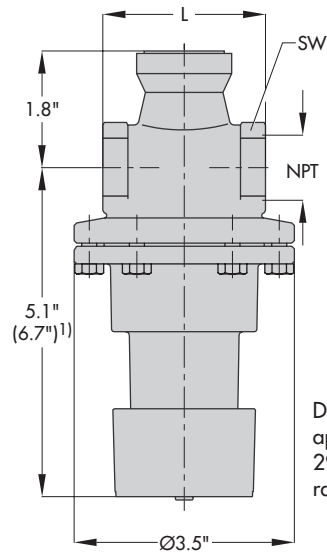
Pressure-temperature diagram (acc. to ASME)



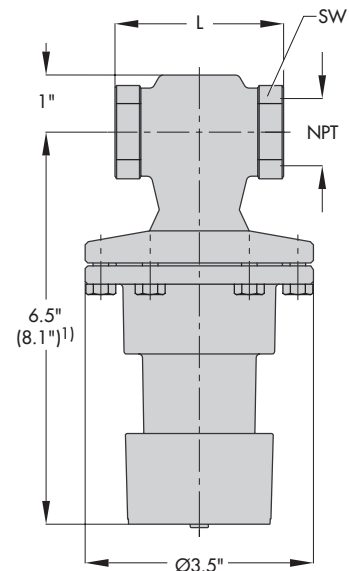
Dimensional drawings

Valves with screwed ends

Body material: Red brass C83600



Type 44-1 B

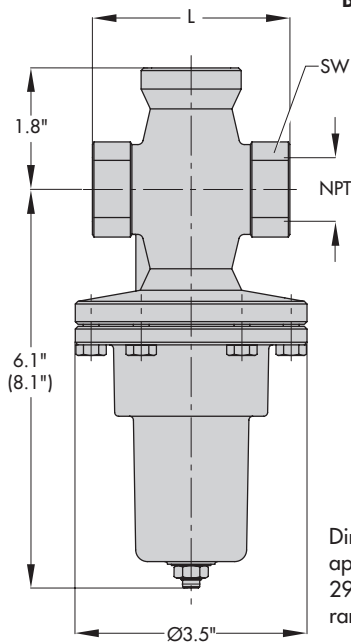


Type 44-6 B

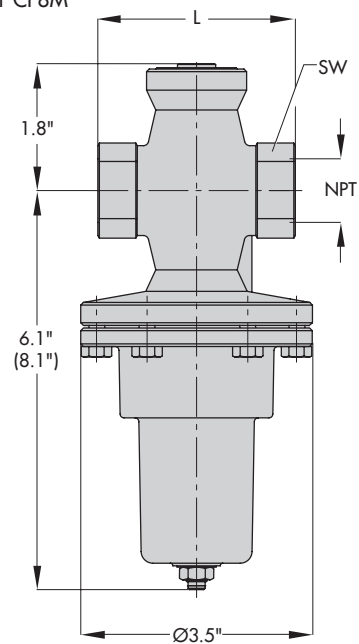
Dimensions in parentheses in () apply to regulators with 120 to 290 psi (8 to 20 bar) set point range

¹⁾ Set point adjustment using hexagon socket screw (see stainless steel version)

Body material: Stainless steel A351 CF8M



Type 44-1 B



Type 44-6 B

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

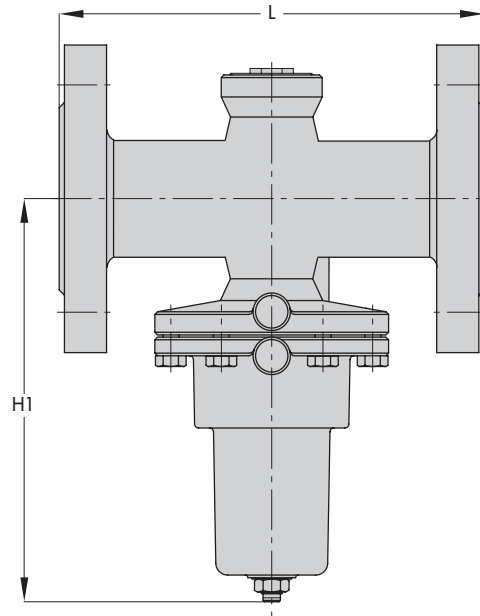
Dimensions and weights · Regulator with screwed ends · C83600 · A351 CF8M

Connection	1/2 NPT	3/4 NPT	1 NPT
Female thread	1/2"	3/4"	1"
Length L	2.6"	3"	3.5"
	65 mm	75 mm	90 mm
Width across flats SW	1.3"	1.3"	1.8"
	34 mm	34 mm	46 mm
Weight, approx.	2.2 lb	2.4 lb	3.3 lb
	1.0 kg	1.1 kg	1.5 kg

Fig. 5 · Dimensions (bodies with screwed ends)

Flanged body version

Body material: Stainless steel A351 CF8M



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

Dimensions and weights · Regulator with flanged body · Stainless steel A351 CF8M

Nominal size	NPS ½	NPS 1
Length L	7.2"	
	184 mm	
Height H1	6.1"	
	155 mm	
Weight, approx.	5.7 lb	9.3 lb
	2.6 kg	4.2 kg

Fig. 6 · Dimensions (flanged bodies)

Ordering text

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

or

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

Body material: red brass (C83600) or stainless steel (A351 CF8M)

Version with screwed ends ... NPT or flanged body NPS ...

Set point range ... psi (bar)

C_V (K_{VS}) coefficient ...

Plug sealing: EPDM, FKM, FFKM, PTFE, metal seal

Version for steam (Type 44-6 B, special version)

Optionally, special version

Specifications subject to change without notice.



SAMSON AG · MESS- UND REGELTECHNIK
Weismüllerstraße 3 · 60314 Frankfurt am Main · Germany
Phone: +49 69 4009-0 · Fax: +49 69 4009-1507
Internet: <http://www.samson.de>

T 2627 EN

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