

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 ½ NPT to 1 NPT as well as NPS ½ and 1 · Pressure rating **Class 150, 250, 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 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 by balanced 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 with actuator for set point ranges from 3 to 290 psi (0.2 to 20 bar) · Red brass (C83600) or 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, 250, or 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, 250, or 300 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 internal parts made of FKM (FPM), 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 ⅛ NPT) · Version with FFKM (FFPM) internal parts with stainless steel body · FDA-compliant materials (max. 60 °C medium

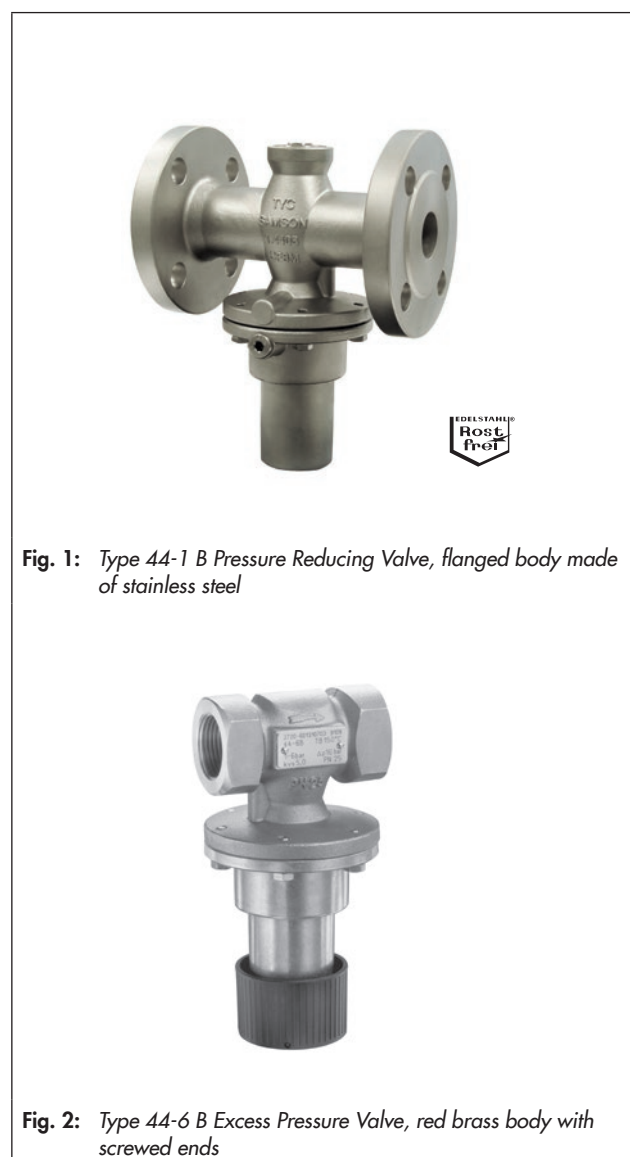


Fig. 1: Type 44-1 B Pressure Reducing Valve, flanged body made of stainless steel

Fig. 2: Type 44-6 B Excess Pressure Valve, red brass body with screwed ends

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

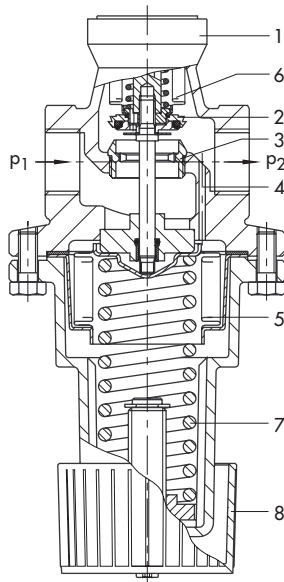
Principle of operation (see Fig. 3)

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).

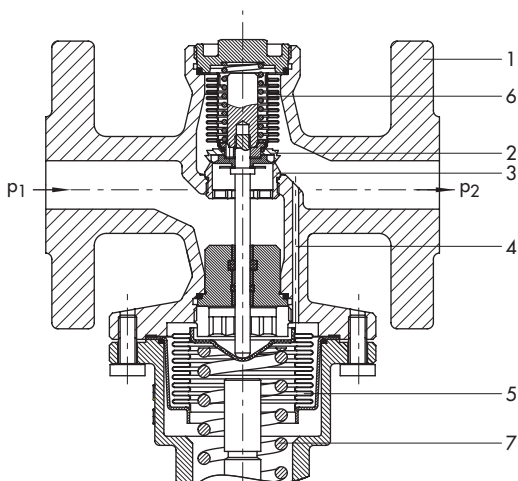
The Type 44-1 B Pressure Reducing Valve is open when relieved of pressure. The valve closes when the downstream pressure (p_2) rises above the adjusted set point.

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.

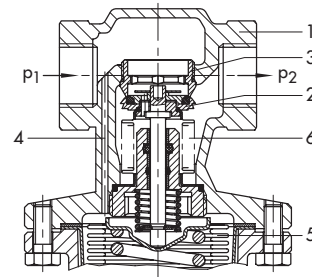
In both versions, the pressure to be kept constant is transmitted through a borehole (4) in the valve body (1) to the operating bellows (5) where it is converted into a positioning force. It moves the valve plug depending on the spring rate of the set point springs (7) and the set point adjuster (8) or set point adjusting screw (9) (only with 120 to 290 bar/8 to 20 bar set point range and for version with stainless steel body).



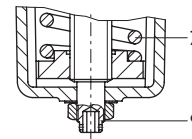
Type 44-1 B Pressure Reducing Valve
Body with screwed ends (female thread)



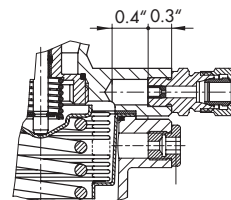
Type 44-1 B Pressure Reducing Valve
Flanged body made of spheroidal graphite iron



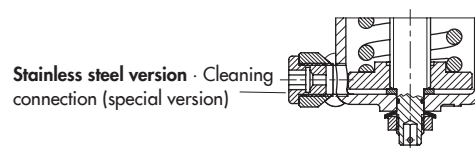
Type 44-6 B Excess Pressure Valve
Body with screwed ends (female thread)



Stainless steel version and 120 to 290 psi (8 to 20 bar) set point range · Set point adjustment at hexagonal socket head screw



Stainless steel version · Leakage
line connection



Stainless steel version · Cleaning
connection (special version)

Special versions

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

Fig. 3: Functional diagrams

Table 1: Technical data · All pressures (gauge)

Valve		Type 44-1 B Pressure Reducing Valve	Type 44-6 B Excess Pressure Valve
Pressure rating	C83600	Class 250 ²⁾	
	A351 CF8M	Class 300 (body with screwed ends) ²⁾ Class 150 (flanged body)	
Connection	A351 CF8M, C83600	½ NPT, ¾ NPT, 1 NPT female thread	
	A351 CF8M	Flanges NPS ½ and 1	
Max. permissible temperature	Liquids ¹⁾	300 °F (150 °C)	
	Air and non-flammable gases ¹⁾	175 °F (80 °C)	
	Steam ¹⁾	–	390 °F (200 °C)
	Nitrogen ¹⁾	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		 ENEC	
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. inlet pressure: 275 psi (19 bar)

Table 2: Maximum 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 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		
x _{Fz} values			0.60	0.60	0.55

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

²⁾ Only with Type 44-1 B, metal seal

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

Body		Red brass C83600 (CC499K)	Stainless steel A351 CF8M (1.4408)
Seat		1.4305	A479 316L (1.4404)
Plug	Type 44-1 B · Type 44-6 B	Brass (free of dezincification), soft seal	A479 316L (1.4404) metal or soft seal ¹⁾
	Type 44-6 B (steam regulator)	Brass (resistant to dezincification) with PTFE soft seal or metal seal ¹⁾	A479 316L (1.4404) with FKM (FPM)/PTFE soft seal or metal seal
Balancing bellows		A479 316Ti (1.4571)	A479 316Ti (1.4571)
Set point spring		1.7104 (55SiCr6)	A479 302 (1.4310)
Operating bellows		A479 316Ti (1.4571)	A479 316Ti (1.4571)
Spring housing		EN AC-44300-DF (die-cast aluminum)	A351 CF8M (1.4408)
Set point adjuster		Manual adjuster made of PTFE with 30 % glass fiber ²⁾	Hexagonal socket head screw made of stainless steel A479 316Ti (1.4571)

¹⁾ EPDM, FFKM (FFPM) or PTFE

²⁾ 120 to 290 psi (8 to 20 bar) set point range: hexagonal socket head screw made of A479 316Ti (1.4571).

Table 4: Versions and K_{VS} coefficients

Version with ...			Plug with soft seal		PTFE	Plug with metal seal
			EPDM/FKM (FPM)	Stainless steel with FFKM (FFPM)		
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 (FPM)	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 (FFPM)	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 · C83600 · A351 CF8M

Connection size	½ NPT	¾ NPT	1 NPT
Female thread	½"	¾"	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

Dimensions of the regulators with body with screwed ends

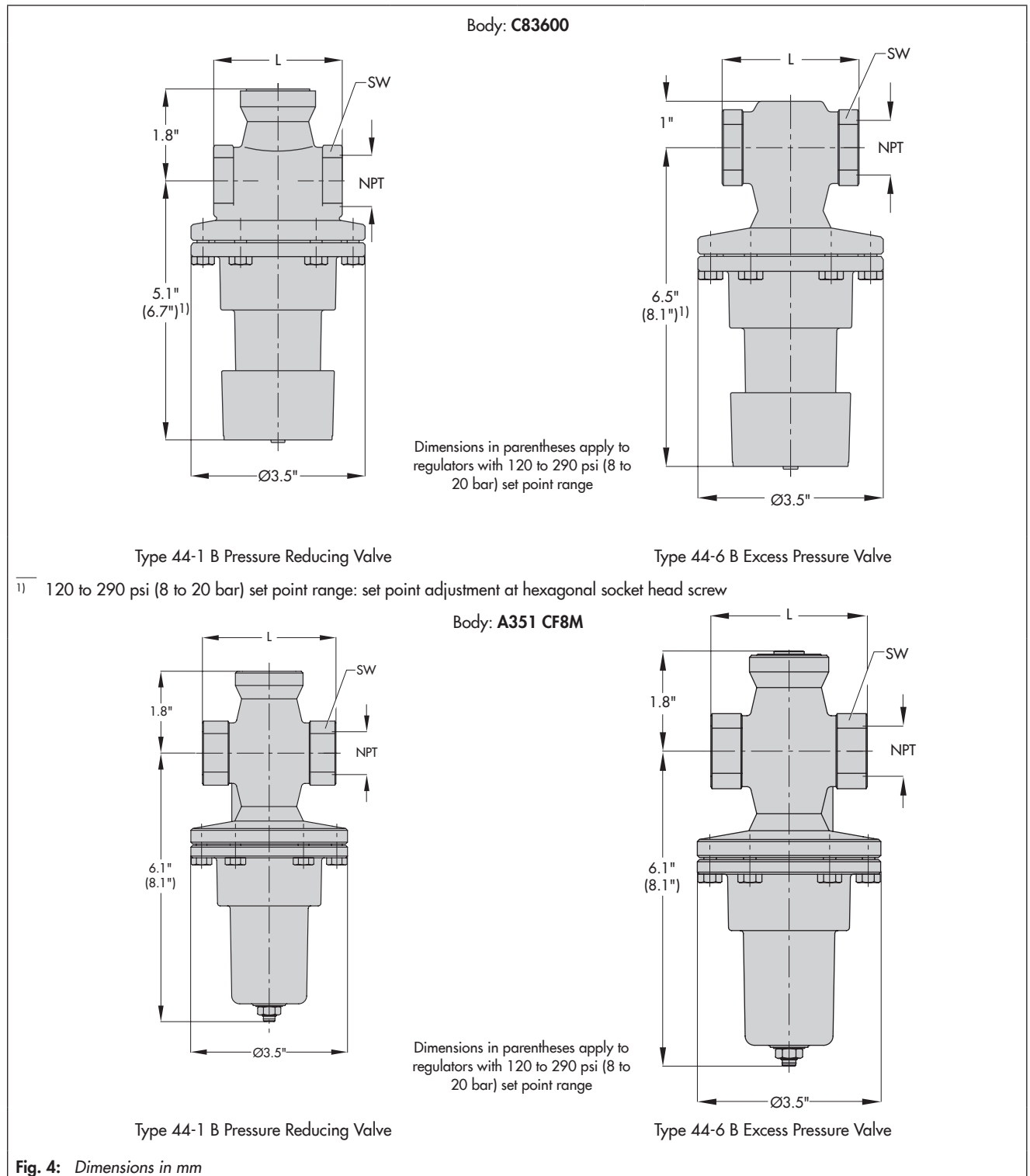
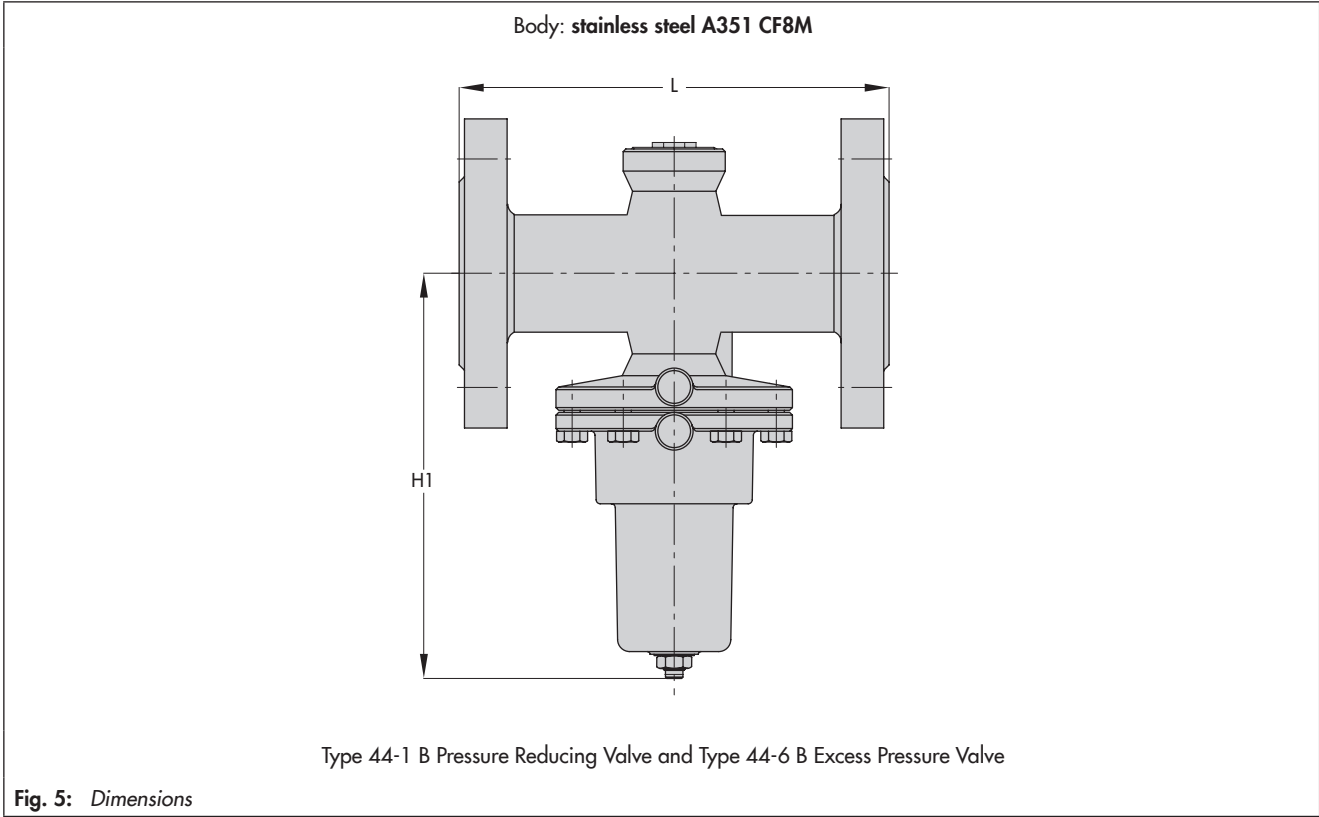


Table 7: *Dimensions and weights*

Regulators with flanged body · Stainless steel A351 CF8M

Valve 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

Dimensions of the regulators with flanged valve body



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: red brass (C83600), 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 (FPM), FFKM (FFPM), PTFE, metal seal, steam version (special version of Type 44-6 B)

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
samson@samson.de · www.samson.de

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