Series 44 Self-operated Pressure Regulators

Type 44-0 B · Steam Pressure Reducing Valve

Application

Set points from **0.2** to **20 bar** with valves in sizes **G ½, G ¾** and **G 1** as well as **DN 15, 25, 40** and **50** · Nominal pressure **PN 25** · Suitable for steam up to **200 °C**

Type 44-0 B Steam Pressure Reducing Valve

The valve closes when the downstream pressure increases.

The regulator consists of a valve and an actuator with an operating bellows and a set point adjuster.

Special features

- Low-maintenance P-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 as operating element
- Compact design with particularly low overall height
- Valve body made of red brass, spheroidal graphite iron or stainless steel

Versions

Pressure regulators with actuators for set point ranges from 0.2 to 20 bar · Valve bodies with screwed ends or flanged body

Type 44-0 B Steam Pressure Reducing Valve (Fig. 1) · Regulator with valve in PN 25 for steam up to 200 °C · Body made of red brass or stainless steel with G ½, G ¾ and G 1 female thread · Flanged body made of stainless steel DN 15 and 25 · Flanged body made of spheroidal graphite iron DN 15, 25, 40 and 50

Special versions

Type 44-0 B

– Prepared for connection of a pressure gauge or external control line (G ⅛ thread)
– With electric set point adjustment for up to G 1 or DN 25 for set points up to 10 bar
– With pneumatic set point adjuster

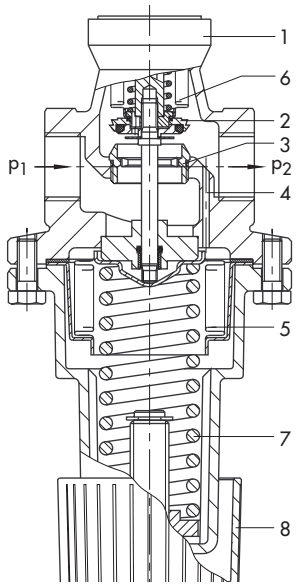
Fig. 1 · Type 44-0 B Pressure Reducing Valve, body made of red brass (version with screwed ends)

Principle of operation (Fig. 2)

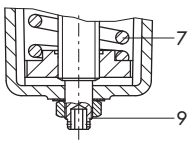
The medium flows through the valve in the direction indicated by the arrow on the body. The position of the valve plug determines the flow rate across the area released between the valve plug (2) and seat (3).

The Type 44-0 B Steam Pressure Reducing Valve is open when relieved of pressure. The valve closes when the downstream pressure (p_2) exceeds the adjusted set point.

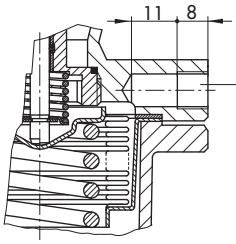
The pressure to be maintained at a constant value is transmitted through a hole (4) in the valve body (1) to the operating bellows (5) where it is converted into a positioning force. This force is used to move the valve plug depending on the spring constant of the set point spring(s) (7) and the value adjusted at the set point adjuster (8) or set point screw (9). The set point screw applies to a set point range from 8 to 20 bar as well as to versions with bodies made of stainless steel and spheroidal graphite iron (DN 40 and 50).



Type 44-0 B Pressure Reducing Valve · Body with screwed ends

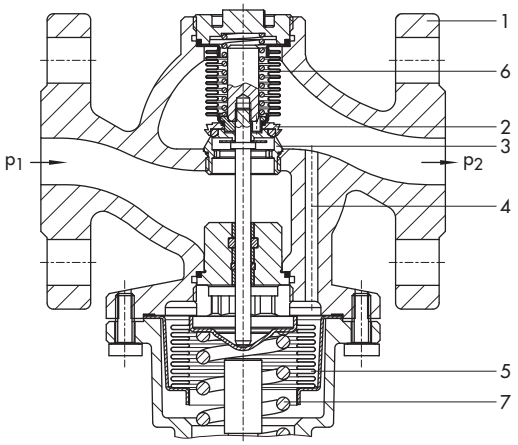


Version of stainless steel or spheroidal graphite iron
(DN 40 and 50 only) and 8 to 20 bar set point range
Set point adjusted at a hexagon socket screw



Special version
G ⅛ male thread for connection of a pressure gauge or an external control line

Special version · Regulators prepared for connection of a pressure gauge or external control line
Dimensions in mm



Type 44-0 B Pressure Reducing Valve
Flanged body (spheroidal graphite iron)

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

Fig. 2 · Functional diagrams

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

Type 44-0 B Steam Pressure Reducing Valve		
Type of end connections	Red brass/stainless steel body	G ½, G ¾, G 1 female thread
	Stainless steel body	Flanged body DN 15 and 25
	Spheroidal graphite iron body	Flanged body DN 15, 25, 40 and 50
Nominal pressure		PN 25
Max. permissible temperature		200 °C
Max. permissible differential pressure Δp		16 bar [1]
Set point range, continuously adjustable		0.2 to 2 bar · 1 to 4 bar · 2 to 6 bar · 4 to 10 bar · 8 to 20 bar [2]
Leakage rate acc. to IEC 60534-4		≤ 0.05 % of K_{VS} coefficient
Max. permissible ambient temperature		60 °C

[1] DN 40 and 50: 8 bar

[2] Set point range not for DN 40 or 50

Table 2 · K_{VS} coefficients

Body with screwed ends

Connection		**G ½**	**G ¾**	**G 1**
K_{VS} coefficients	Standard version	1.6 [1] · 3.2	2 [1] · 4	2.5 [1] · 5
	Special version (without pressure balancing)	0.25 [2] · 0.4 [2] · 1 [2]		

Flanged body

Nominal size		**DN 15**	**DN 25**	**DN 40**	**DN 50**
K_{VS} coefficients	Standard version	1.6 [1] · 3.2	2.5 [1] · 5	16	20
	Special version (without pressure balancing)	0.25 [2] · 0.4 [2] · 1 [2]		8 [2]	

[1] Without pressure balancing

[2] Metal-seated plug

Table 3 · Materials

Body	**Red brass CC491K/CC499K**	**Spheroidal graphite iron EN-JS1049**	**Stainless steel 1.4408**
Seat	1.4305		1.4404
Plug	Brass resistant to dezincification with PTFE soft seal		1.4404 with PTFE soft sealing
	1.4404 with metal seal		
Balancing bellows	1.4571		1.4571
Set point spring	1.7104 (55SiCr6)		1.4310
Plug spring	1.4310		1.4310
Operating bellows	1.4571		1.4571
Spring housing	EN AC-44300-DF (die-cast aluminum)		1.4408
Set point adjuster	Manual adjuster made of PETP with 30 % glass fiber [1]		Hexagon socket screw made of 1.4571

[1] 8 to 20 bar set point range: hexagon socket screw made of 1.4571

Flow rate diagram for water

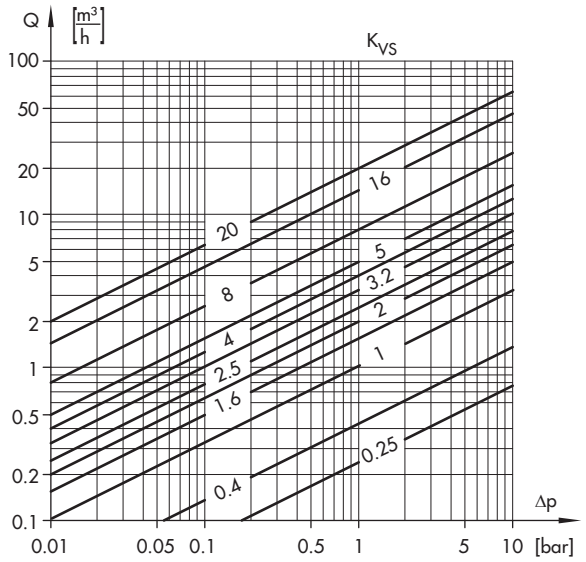


Fig. 3 · Flow rate diagram for water

Installation

The following applies:

- The direction of flow must match the arrow on the valve body.
- Install the regulator in horizontal pipelines with the actuator housing suspended downwards (set point adjuster pointing down).

For details refer to EB 2626-1 EN.

Sizing the Type 44-0 B Steam Pressure Reducing Valve

To size the Type 44-0 B Steam Pressure Reducing Valve, the steam charts (sizing characteristics with valve characteristics) for saturated steam are provided.

This chart together with the additional specifications on the upstream pressure p_1, downstream pressure p_2 and the required steam flow rate can be used to find the right valve for the **Type 44-0 B** Regulator using the valve characteristics in the graph.

To find the right valve, observe the diagrams on flow velocity (Fig. 4) and valve load (Fig. 5).

Select the largest of the determined values as the thread size for the **Type 44-0 B** Regulator.

All pressures stated in **bar** (gauge) · Steam flow rate in **kg/h**

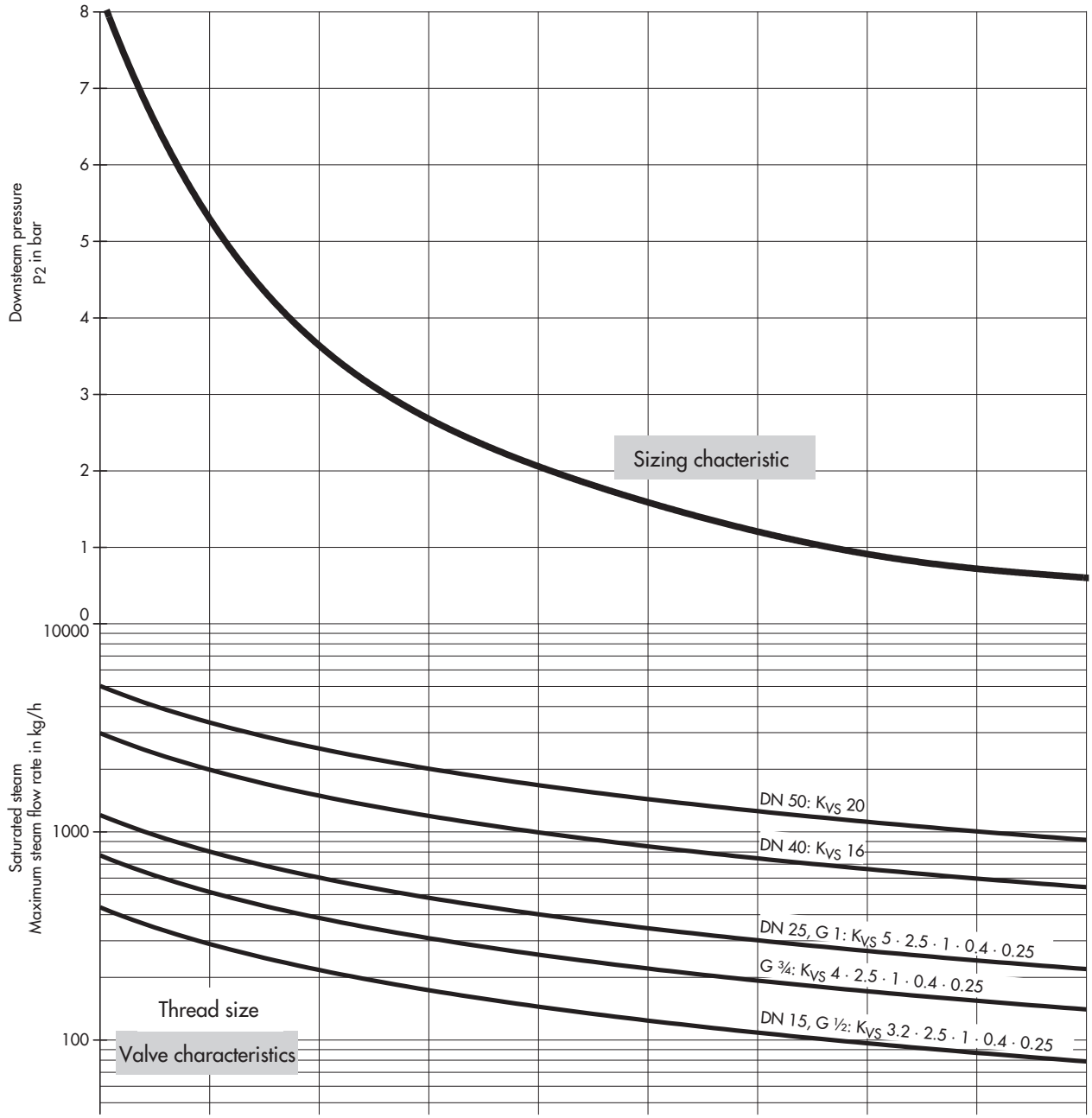


Fig. 4 · Diagram for sizing based on flow velocity

All pressures stated in **bar** (gauge) · Steam flow rate in **kg/h**

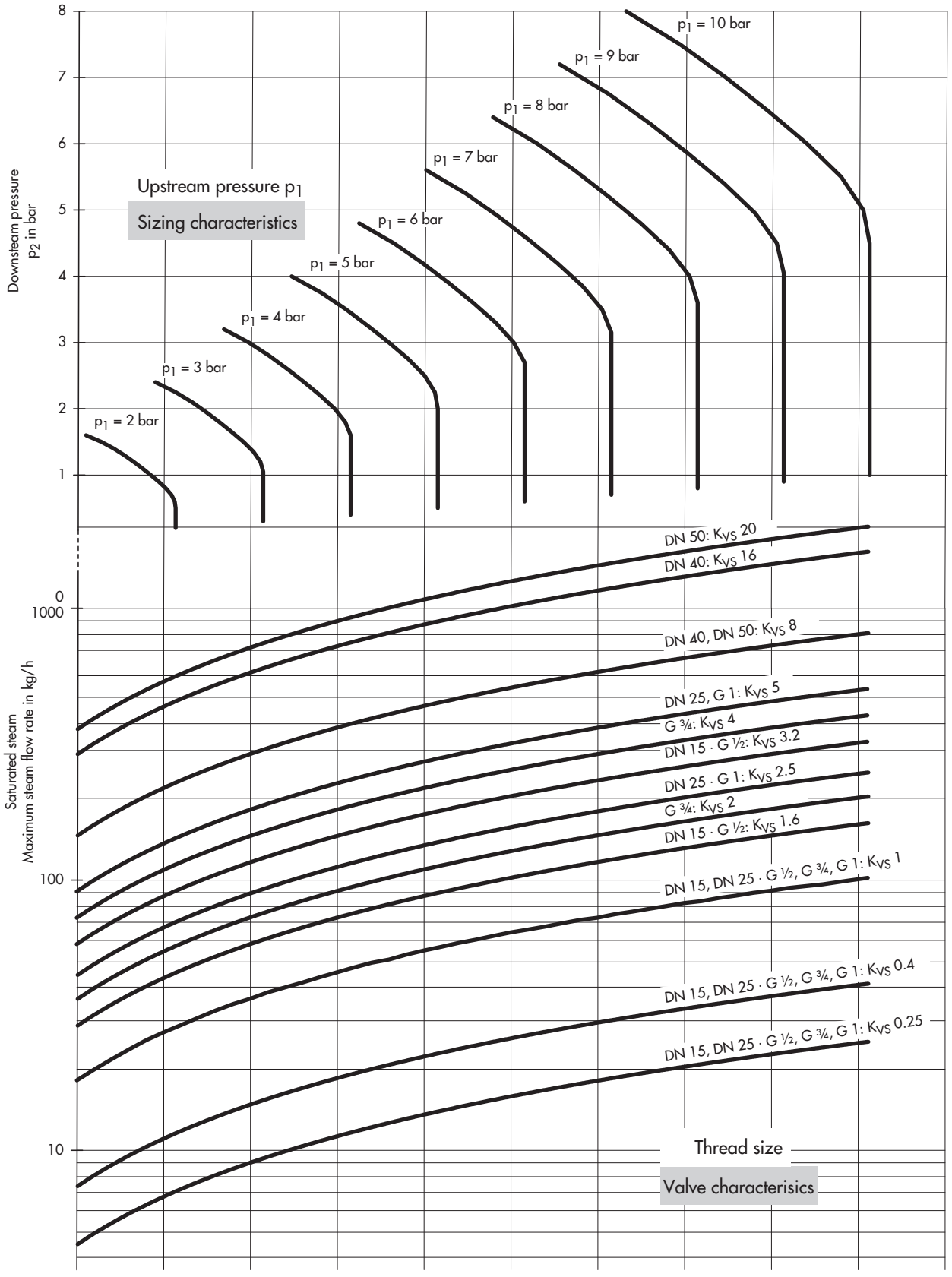


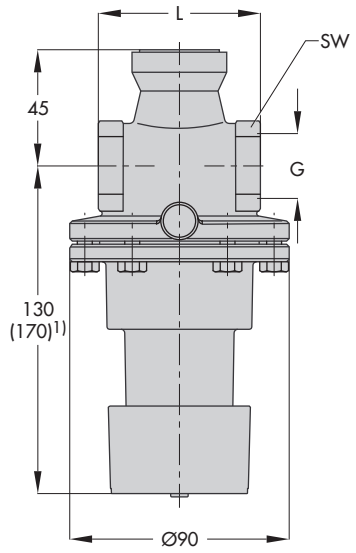
Fig. 5 · Diagram for sizing based on valve load

Table 4 · Dimensions and weights
Regulator with screwed ends · Red brass or stainless steel 1.4408

Connection	G ½	G ¾	G 1
Female thread G	½″	¾″	1″
Length L	65 mm	75 mm	90 mm
Width across flats SW	34 mm	34 mm	46 mm
Approx. weight Red brass/stainless steel	1.0 kg	1.1 kg	1.5 kg

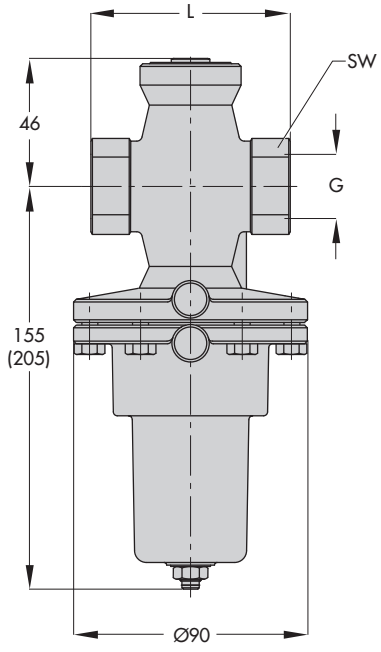
Dimensions of regulator with screwed ends in mm

Body: **red brass**



1) Set point range 8 to 20 bar; set point adjusted at hexagon socket screw

Body: **stainless steel**



Values in parentheses for regulator with 8 to 20 bar set point range

Fig. 6 · Dimensions

Table 5 · Dimensions and weights
Regulator with flanged body · Spheroidal graphite iron EN-JS1049 · Stainless steel 1.4408

Nominal size	DN 15	DN 25	DN 40	DN 50
Length L	130 mm	160 mm	200 mm	230 mm
Height H1	155 mm	155 mm	245 mm	245 mm
Height H2	–	–	95 mm	95 mm
Approx. weight	2.6 kg	4.2 kg	7 kg	8 kg

Dimensions of regulator with flanged body in mm

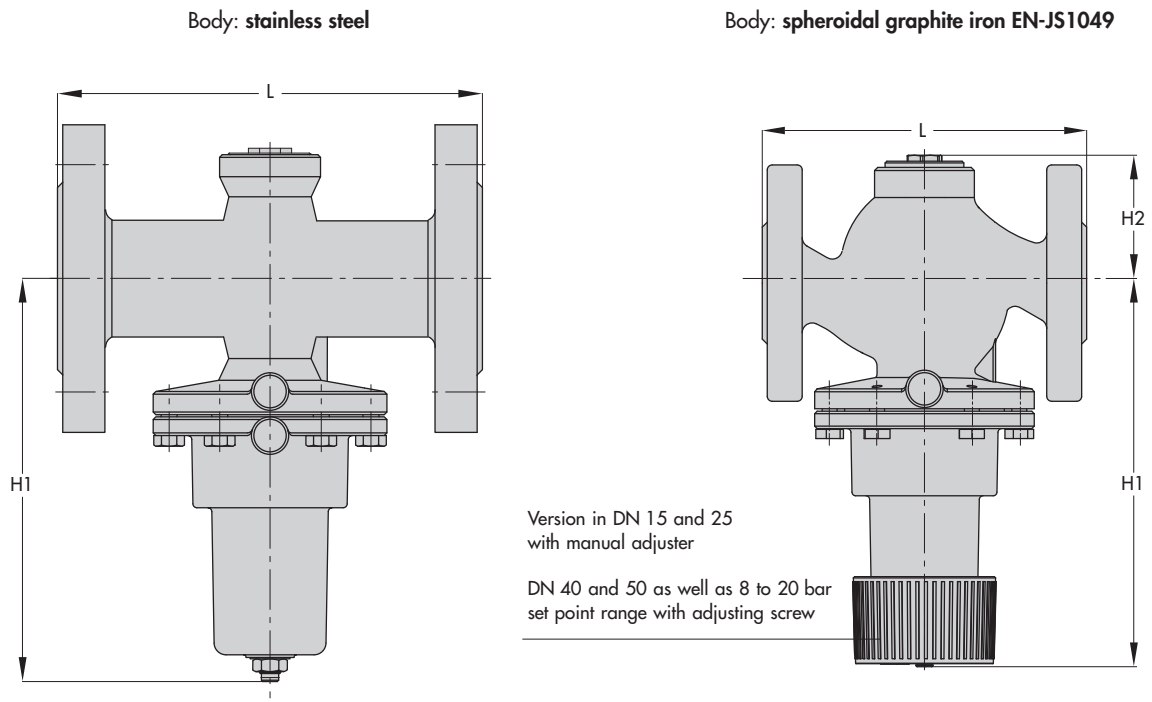


Fig. 7 · Dimensions

Ordering text

Type 44-0 B Steam Pressure Reducing Valve
Body material: red brass, stainless steel or spheroidal graphite iron
Version with screwed ends G … or flanged body DN …
Set point range … bar, K_{VS} coefficient ...
Optionally, special version

Specifications subject to change without notice

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