

# Self-operated Pressure Regulators

## Series 44



### Type 44-0 B · Type 44-1 B · Pressure Reducing Valve

### Type 44-6 B · Excess Pressure Valve

#### Application

Set points from **0.2 bar** to **20 bar** with valves **G ½** to **G 1**, **DN 15** to **DN 25** · Nominal pressure **PN 25** · Suitable for gases up to **80 °C**, liquids up to **150 °C** and steam up to **200 °C**

#### Type 44-0 B, 44-1 B Pressure Reducing Valves:

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 a positioning bellows and a set point adjustment.

#### Special features

- Low-maintenance P-regulators requiring no auxiliary energy
- Wide set point range which is easy to adjust
- Spring-loaded, single-seated valve with pressure balancing by a metal bellows
- Stainless steel positioning bellows acting as an operating element
- Compact design with especially low overall height
- Arbitrary mounting position (Types 44-1 B, 44-6 B)
- Valve body in red brass or stainless steel

#### Versions

Pressure regulators with actuators for set point ranges up to 1, 4, 6 or 10 bar and valves with G ½, G ¾ or G 1 female thread · Valve body made of red brass or stainless steel · Version with flanged valve body in DN 15 and DN 25 made of stainless steel

**Type 44-1 B Pressure Reducing Valve** (Fig. 3) · Regulator with valve PN 25 · Suitable for liquids up to 150 °C and gases up to 80 °C · Pressure-balanced

**Type 44-0 B Pressure Reducing Valve** (Fig. 1) · Regulator with valve · PN 25 · Suitable for steam up to 200 °C · Pressure-balanced

**Type 44-6 B Excess Pressure Valve** (Fig. 2) · Regulator with valve PN 25 · Suitable for liquids up to 150 °C, gases up to 80 °C and steam up to 200 °C · Pressure-balanced<sup>1)</sup>

#### Special versions

- Special Kvs coefficient with G ½
- With oil-resistant internal parts for Type 44-1 B/44-6 B
- Version free of PTFE
- Version suitable for high-purity gas/water/steam
- Version for flammable gases available on request
- Type 44-1 B/44-6 B: Regulators prepared for the connection (G ½) of a pressure gauge or external control line

<sup>1)</sup> Not pressure-balanced in set point range 0.2 to 2 bar



Fig. 1 · Type 44-0 B Pressure Reducing Valve

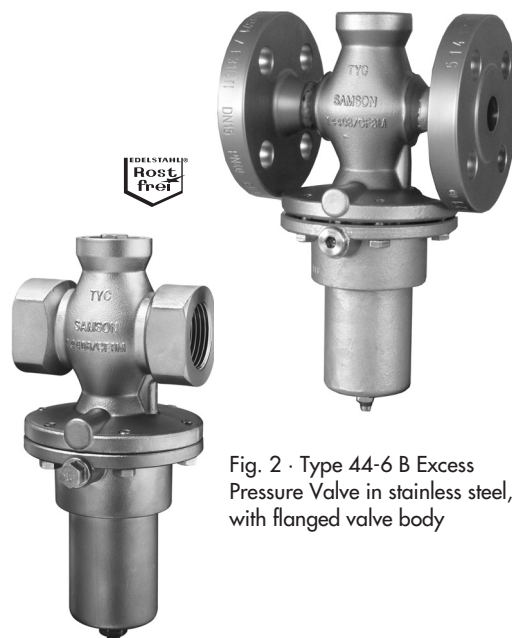


Fig. 2 · Type 44-6 B Excess Pressure Valve in stainless steel, with flanged valve body

Fig. 3 · Type 44-1 B Pressure Reducing Valve in stainless steel

## 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 across the cross-sectional area between the plug (2) and the seat (3).

The **Type 44-0 B** and **Type 44-1 B Pressure Reducing Valves** are 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 positioning 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 positioning spring(s) (7) and the set point adjuster (8) or the set point adjusting screw (9) in stainless steel regulators.

The **Type 44-0 B**, **Type 44-1 B** and **44-6 B** <sup>1)</sup> Regulators are pressure-balanced by a balancing bellows (6).

## Installation

Applies to **all types of regulators**:

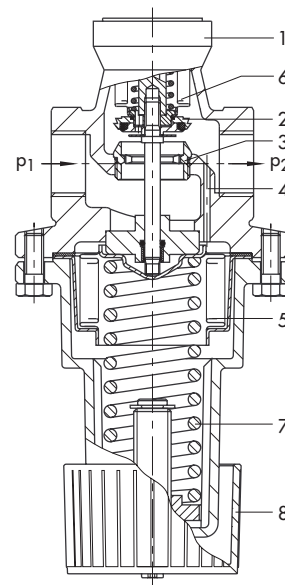
- The direction of flow must correspond to the arrow on the body

### Type 44-1 B, Type 44-6 B

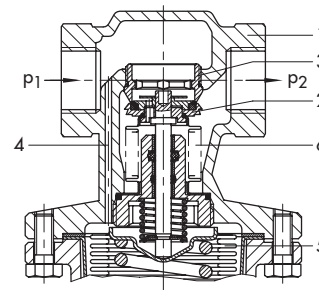
- The regulators can be installed in any desired mounting position

### Type 44-0 B

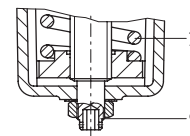
- The regulator must be installed in a horizontal pipe with the set point adjuster facing downwards



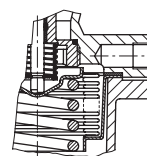
Type 44-0 B and Type 44-1 B Pressure Reducing Valve



Type 44-6 B Excess Pressure Valve



Stainless steel version and set point range between 8 and 20 bar  
Set point adjustment by a hexagon socket screw (SW 4)



### Special version

Connecting thread G  $\frac{1}{8}$  to connect a pressure gauge or external control line

Special version of Type 44-1 B or 44-6 B · Regulators prepared for the connection of a pressure gauge or external control line

Fig. 4 · Principle of operation

1	Valve body	6	Balancing bellows
2	Plug	7	Positioning spring
3	Seat	8	Set point adjuster
4	Bore for control pressure	9	Set point adjusting screw
5	Positioning bellows		

<sup>1)</sup> Type 44-6 B: Set point range 0.2 to 2 bar without pressure balancing

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

Regulator	Type	Pressure Reducing Valve		Excess Pressure Valve
		44-0 B	44-1 B	44-6 B
Connection		G 1/2, G 3/4, G 1 female thread · Flanged connection <sup>1)</sup>		
Nominal pressure		PN 25		
Max. perm. temperature	Liquids	–	150 °C	150 °C
	Non-flammable gases	80 °C	80 °C	80 °C
	Steam	200 °C	–	200 °C
Max. perm. differential pressure $\Delta p$		16 bar		+ 2)
Set point ranges, continuously adjustable		0.2 to 2 bar · 1 to 4 bar · 2 to 6 bar · 4 to 10 bar · 8 to 20 bar		
Leakage rate		$\leq 0.05$ % of $K_{VS}$		
Max. perm. ambient temperature		60 °C		

<sup>1)</sup> Only for stainless steel body in DN 15 and DN 25

<sup>2)</sup> The maximum permissible differential pressure is consistent with the max. set point; max. perm. differential pressure of 16 bar except for 8 to 20 bar set point range

**Table 2 ·  $K_{VS}$  coefficients and z values**

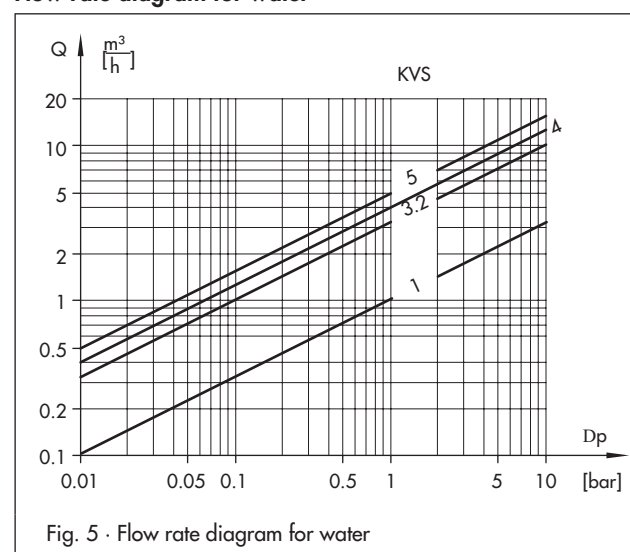
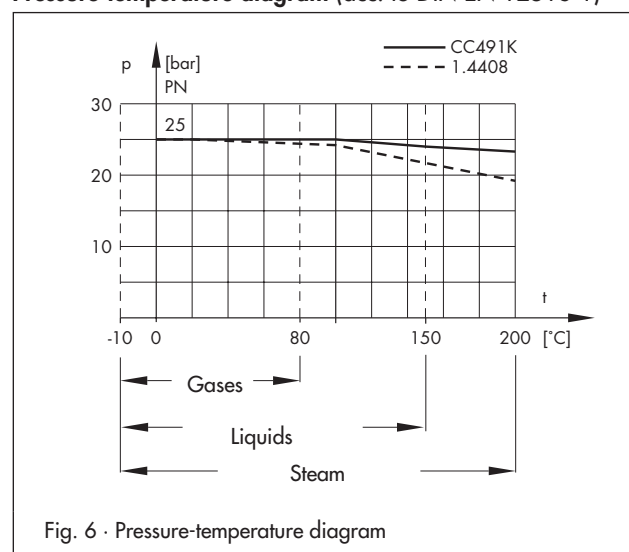
Type 44-0 B · Type 44-1 B · Type 44-6 B				
Thread size		G ½	G ¾	G 1
K <sub>VS</sub> coefficients	Type 44-1 B · Type 44-6 B	1.0 · 3.2	1.0 · 4.0	1.0 · 5.0
	Type 44-0 B <sup>1)</sup>	1.0 · 3.2	1.0 · 4.0	1.0 · 5.0
z values		0.60	0.60	0.55

<sup>1)</sup> Special  $K_{VS}$  coefficients:  $K_{VS}$  1.6, 2.0, 2.5

**Table 3 · Materials**

Type 44-0 B · Type 44-1 B Type 44-6 B	Red brass	Stainless steel
Body	Red brass CC491K (Rg 5)	1.4408
Seat	Stainless steel 1.4305	1.4404
Plug	Type 44-1 B · Type 44-6 B Brass, free of dezincification, w. EPDM soft sealing	1.4404
	Type 44-0 B Brass, free of dezincification, w. PTFE soft sealing	1.4404
Plug stem sealing	EPDM, FPM or NBR	
Balancing bellows	Stainless steel 1.4571	1.4571
Positioning spring	Stainless steel 1.4310	1.4310
Positioning bellows	Stainless steel 1.4571	1.4404
Bonnet	GD-ALSi12	1.4408
Set point adjustment	PETP with 30 % glass fiber <sup>1)</sup>	Stainless steel (hexagon socket screw SW 4)

<sup>1)</sup> Version with 8 to 20 bar set point range: Hexagon socket screw made of 1.4571

**Flow rate diagram for water****Pressure-temperature diagram (acc. to DIN EN 12516-1)**

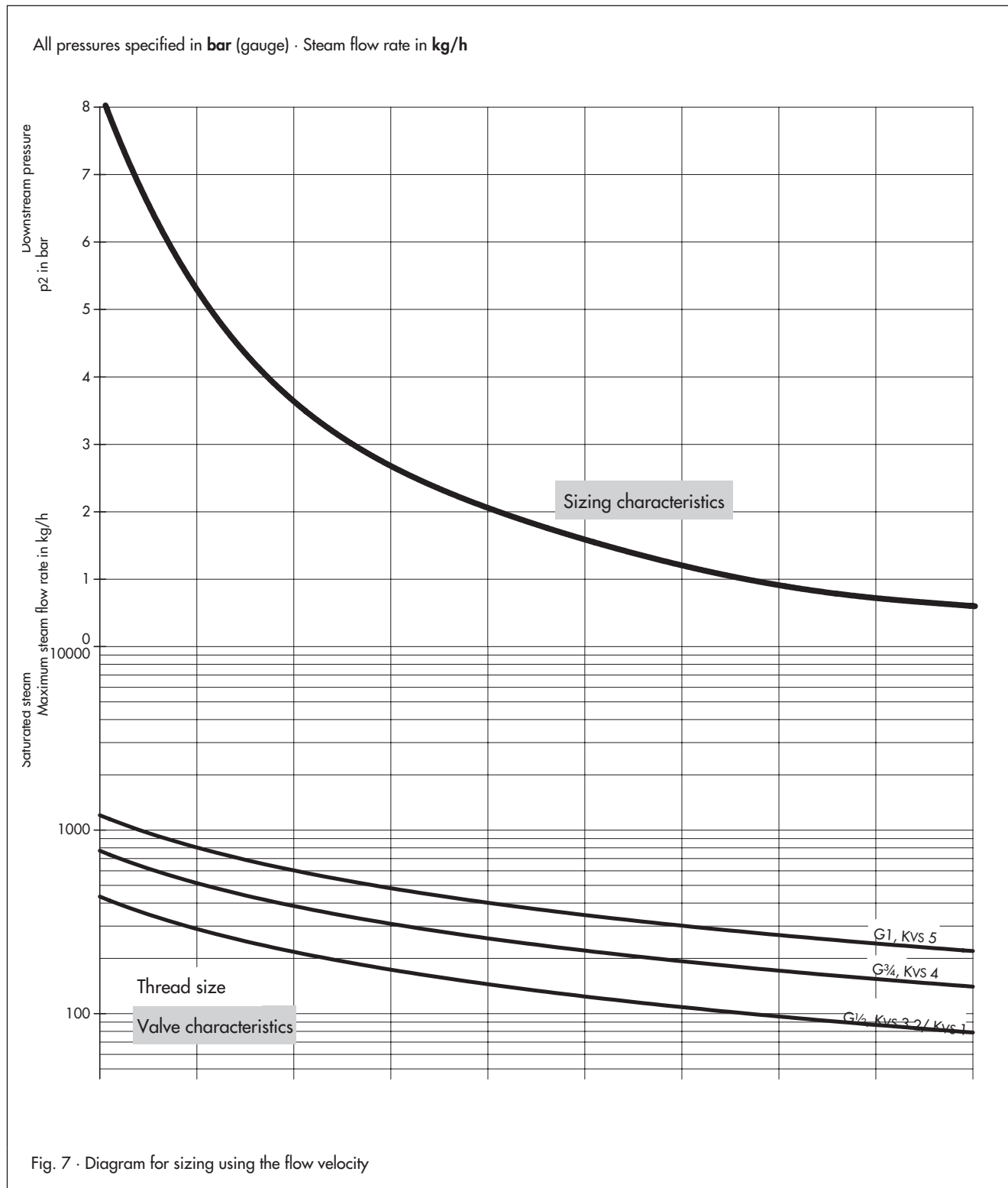
### Sizing Type 44-0 B Pressure Reducing Valve for steam

To size Type 44-0 B 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** using the valve characteristic in the graph.

To find the right valve, the diagrams for flow velocity (Fig. 7) and valve load (Fig. 8) have to be used.

The largest of the values found is then to be used to find the thread size of the valve for **Type 44-0 B**.



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

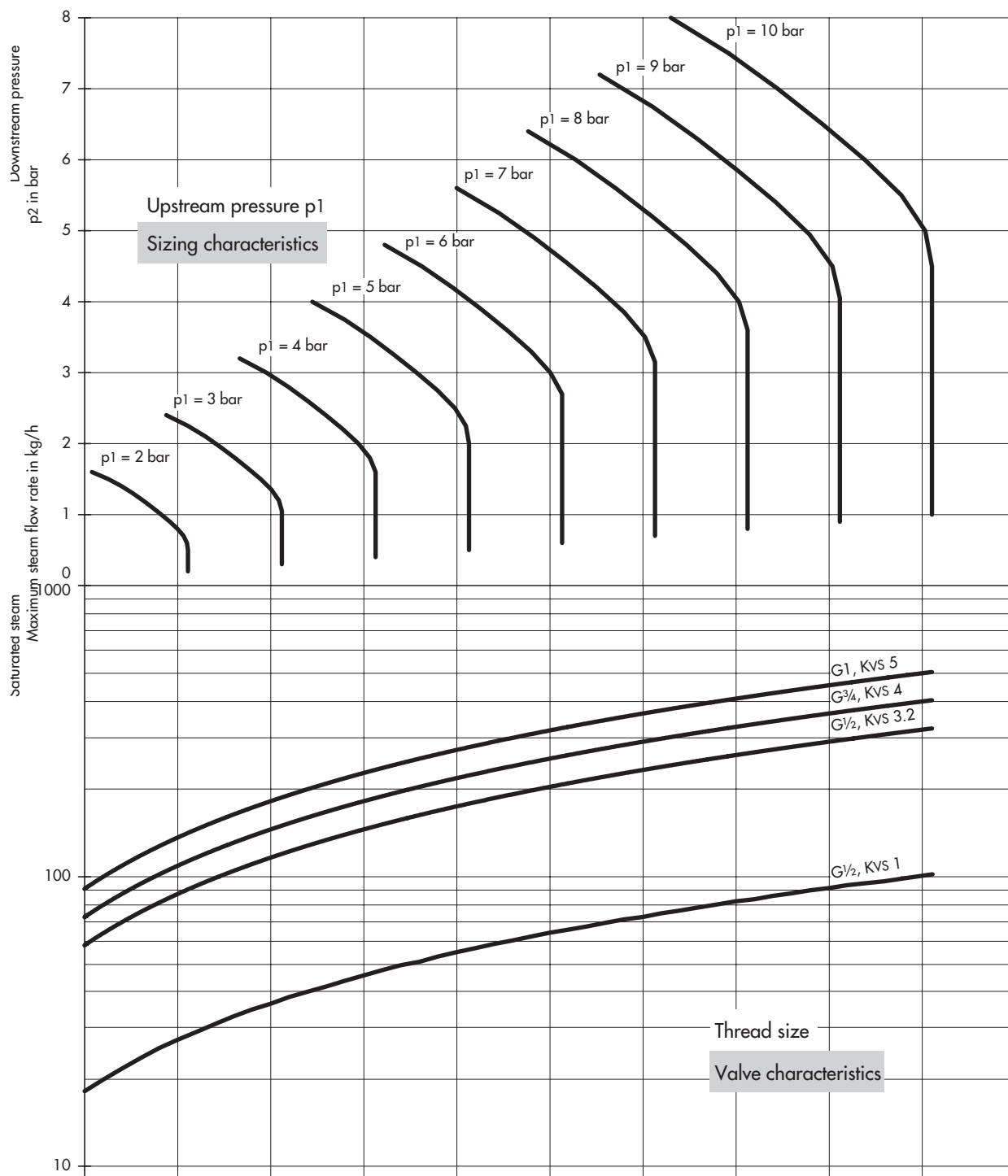


Fig. 8 · Diagram for sizing using the valve load

**Table 4** · Valve bodies with screwed ends · Dimensions in mm and weights

Type 44-0 B · Type 44-1 B · Type 44-6 B			
Thread size	G ½	G ¾	G 1
Female thread G	½	¾	1
Length L	65	75	90
Width across flats SW	34	34	46
Weight, approx. in kg	1.0	1.1	1.5

Dimensions of valve bodies with screwed ends in mm

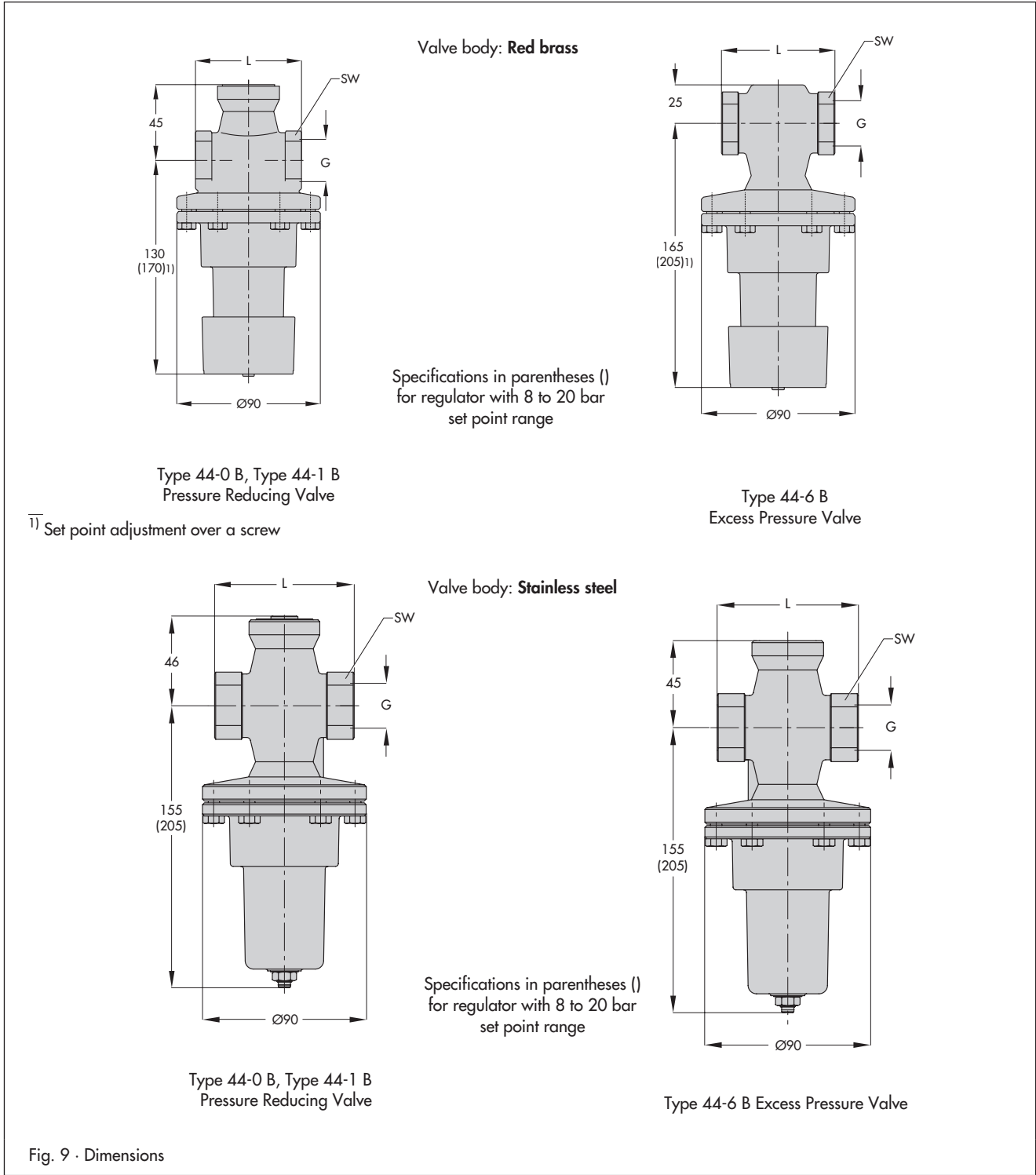
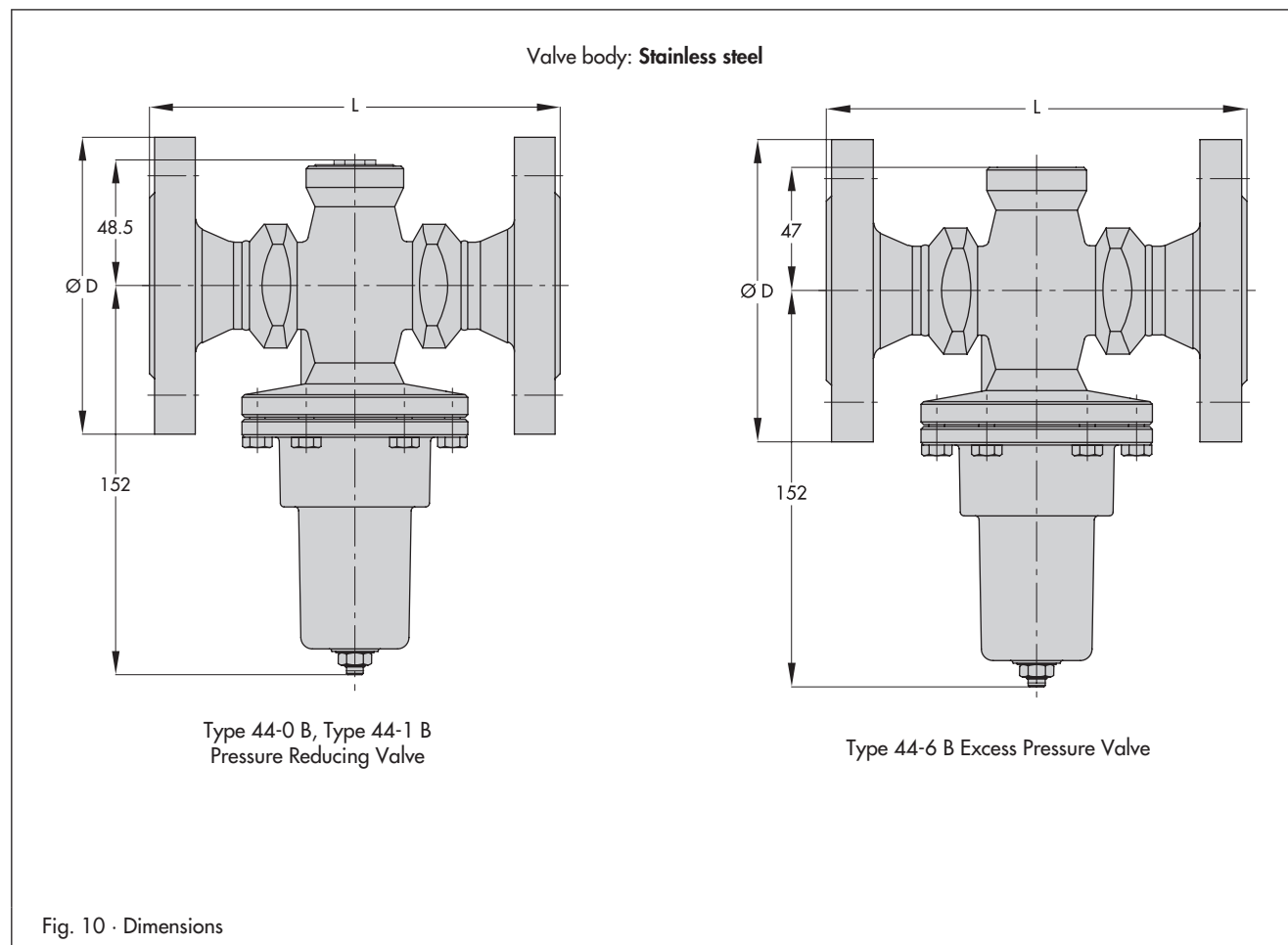


Fig. 9 · Dimensions

**Table 5** · Flanged valve bodies · Dimensions in mm and weights

Type 44-0 B · Type 44-1 B · Type 44-6 B		
Nominal size	DN 15	DN 25
Length L	130	160
Flange Ø D	95	115
Weight, approx. in kg	2.6	4.2

**Dimensions of regulators with flanged valve bodies in mm**



**Ordering text**

Pressure Reducing Valve **Type 44-0 B** for steam or  
 Pressure Reducing Valve **Type 44-1 B** for liquids and gases  
 Excess Pressure Valve **Type 44-6 B** for liquids, gases and steam  
 Body material: Red brass/stainless steel  
 with body with screwed ends G ... or flanged valve body DN ...  
 Set point range ...bar, Kvs coefficient ...  
 Optionally, special version