

Series 44 Self-operated Pressure Regulators



Type 44-1 B · Pressure Reducing Valve

Type 44-6 B · Excess Pressure 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 air up to **150 °C**, nitrogen up to **200 °C**, other gases up to **80 °C** and liquids up to **150 °C**

Type 44-1 B Pressure Reducing Valve:

The valve closes when the downstream pressure increases.

Type 44-6 B Excess Pressure Valve:

The valve opens when the upstream pressure increases.

The regulators consist 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
- 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 actuators for set point ranges from 0.2 to 20 bar · Valve bodies with screwed ends in red brass or stainless steel with **G ½, G ¾** or **G 1** female thread · Versions with flanged body in DN 15 and DN 25 made of stainless steel · Versions with flanged body in DN 15, 25, 40 and 50 made of spheroidal graphite iron

Type 44-1 B Pressure Reducing Valve (Figs. 1, 3) · Regulator with valve in PN 25 for liquids up to 150 °C, air up to 150 °C, nitrogen up to 200 °C and other gases up to 80 °C

Type 44-6 B Excess Pressure Valve (Fig. 2) · Regulator with valve in PN 25 for liquids up to 150 °C, air up to 150 °C, nitrogen up to 200 °C, other gases up to 80 °C and steam up to 200 °C

Special versions

Internal parts made of FPM (FKM), e.g. for use with mineral oils
Spheroidal graphite iron body with wetted parts made of non-ferrous metal · Version free of PTFE · Version for flammable gases available on request · Regulator prepared for connection of a pressure gauge or external control line (**G ⅛** thread)
Stainless steel body available with FFKM (FFPM) internal parts
Version made of FDA-compliant materials · With electric set point adjustment (up to **G 1** or **DN 25**) for set points up to 10 bar · With pneumatic set point adjuster (up to **G 1** or **DN 25**)
Version functioning as differential pressure regulator (up to **G 1** or **DN 25**) · Type 44-6 B suitable for steam



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



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



Fig. 3 · Type 44-1 B Pressure Reducing Valve, flanged body made of spheroidal graphite

Principle of operation

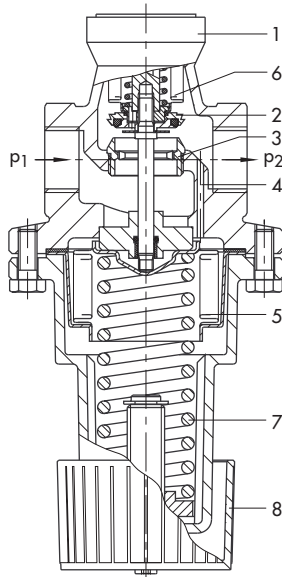
The medium flows through the valve in the direction indicated by the arrow on the body. The position of the valve plug determines the flow rate across the area released between the valve plug (2) and seat (3).

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

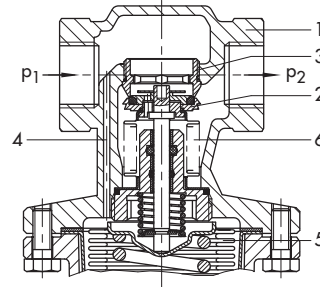
The Type 44-6 B Excess Pressure Valve is closed when relieved of pressure. The valve opens when the upstream pressure (p_1) exceeds the adjusted set point.

In both versions, 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 on the set point adjuster (8) or set point screw (9).

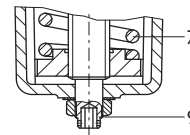
This applies to a set point range from 8 to 20 bar as well as to the versions with bodies made of stainless steel and spheroidal graphite iron (DN 40 and 50).



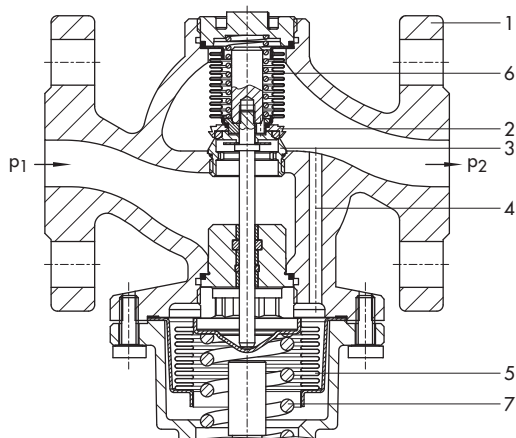
Type 44-1 B Pressure Reducing Valve · Body with screwed ends



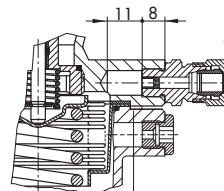
Type 44-6 B Excess Pressure Valve · Body with screwed ends



Body made of stainless steel/spheroidal graphite iron (DN 40 and 50 only) and set point range 8 to 20 bar
Set point adjustment using hexagon socket screw



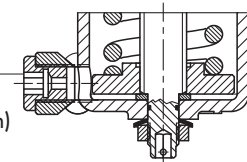
Type 44-1 B Pressure Reducing Valve
Flanged body (spheroidal graphite iron)



Special version
G $\frac{1}{8}$ male thread for connection of a pressure gauge or an external control line
Dimensions in mm

Stainless steel version
Leakage line connection

Stainless steel version
Rinsing connection (special version)



Special version for stainless steel body · Rinsing connection

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

Fig. 4 · Functional diagrams

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

| Regulator | | Pressure Reducing Valve 44-1 B | Excess Pressure Valve 44-6 B |
|---|--------------------------------|--|---------------------------------|
| Type | | | |
| Connection | Stainless steel/red brass 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 | Liquids | 150 °C | |
| | Non-flammable gases, air | 80 °C | |
| | Steam | – | 200 °C |
| | Nitrogen | 200 °C | |
| Max. permissible differential pressure Δp | G ½ to G 1 · DN 15 and 25 | 16 bar | |
| | DN 40 and 50 | 8 bar | |
| 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 ¹⁾ | |
| Leakage rate acc. to IEC 60534-4 | | ≤ 0.05 % of K_{VS} coefficient | |
| Max. permissible ambient temperature | | 60 °C | |

¹⁾ Set point range **not** for DN 40 and 50

Table 2 · K_{VS} coefficients and x_{FZ} values

Body with screwed ends

| Connection | | G ½ | G ¾ | G 1 |
|----------------|---|--|-----------------|-----------------|
| K_{VS} | Standard version | 3.2 ¹⁾ | 4 ¹⁾ | 5 ¹⁾ |
| | Special version (without pressure balancing) | 0.25 ²⁾ · 0.4 · 1 ¹⁾ · 2.5 | | |
| x_{FZ} value | | 0.60 | | 0.55 |

Flanged body

| Nominal size | | DN 15 | DN 25 | DN 40 | DN 50 |
|----------------|---|--|-----------------|-----------------|-------|
| K_{VS} | Standard version | 3.2 ¹⁾ | 5 ¹⁾ | 16 | 20 |
| | Special version (without pressure balancing) | 0.25 ²⁾ · 0.4 · 1 ¹⁾ · 2.5 | | 8 ²⁾ | |
| x_{FZ} value | | 0.60 | 0.55 | 0.4 | |

¹⁾ Regulators with stainless steel bodies and FFKM (FFPM) soft seal also available as special version

²⁾ Only with Type 44-1 B with metal seal

Table 3 · Materials

| Body | Red brass CC491K/CC499K | Spheroidal graphite iron EN-JS1049 | Stainless steel 1.4408 |
|--------------------|--|---------------------------------------|---|
| Seat | Stainless steel 1.4305 | | 1.4404 |
| Plug | Type 44-1 B · Type 44-6 B Brass resistant to dezincification with soft seal ¹⁾ | | 1.4404 with metal or soft seal ²⁾ |
| | Type 44-6 B (steam) Brass resistant to dezincification with PTFE soft seal or metal seal ¹⁾ | | 1.4404 with FKM/PTFE soft seal or metal seal |
| Balancing bellows | 1.4571 | | 1.4571 |
| Plug spring | 1.4310 | | 1.4310 |
| Set point spring | 1.7104 (55SiCr6) | | 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 ³⁾ | | Hexagon socket screw made of 1.4571 |

¹⁾ Regulators with spheroidal graphite iron bodies and internal parts made of non-ferrous metal: plug of 1.4404 with metal or soft seal

²⁾ EPDM, FFKM (FFPM) or PTFE

³⁾ 8 to 20 bar set point range: hexagon socket screw made of 1.4571

Table 4 · Versions and K_{VS} coefficients

| Version with | Plug · Soft-seated | | | |
|-----------------------------------|------------------------------|----------------------------------|-------------|---------------------|
| | EPDM/FPM (FKM) | Stainless steel with FFKM (FFPM) | PTFE | Plug · Metal-seated |
| K_{VS} coefficients Type 44-1 B | 0.25 · 1 · 2.5 · 3.2 · 4 · 5 | 1 · 3.2 · 4 · 5 | – | 0.25 · 0.4 · 1 |
| Type 44-6 B | 1 · 2.5 · 3.2 · 4 · 5 | 1 · 3.2 · 4 · 5 | 3.2 · 4 · 5 | 0.4 · 1 |

Table 5 · Sealing materials and max. medium temperatures

| Plug sealing | Medium · max. temperature |
|--------------------|--|
| EPDM | Water · Up to 150 °C Oil-free air · Up to 80 °C Nitrogen · Up to 80 °C |
| FPM (FKM) | Mineral oil · Up to 150 °C Air · Up to 150 °C Nitrogen · Up to 200 °C |
| PTFE ¹⁾ | Steam · Up to 200 °C |
| FFKM (FFPM) | Liquids · Up to 150 °C Gases · Up to 80 °C |

¹⁾ Only with Type 44-1 B

Installation

The following applies:

- The direction of flow must match the arrow on the valve body.
- The regulators can be installed in any desired mounting position.

For details refer to EB 2626-1 EN and EB 2626-2 EN.

Flow rate diagram for water

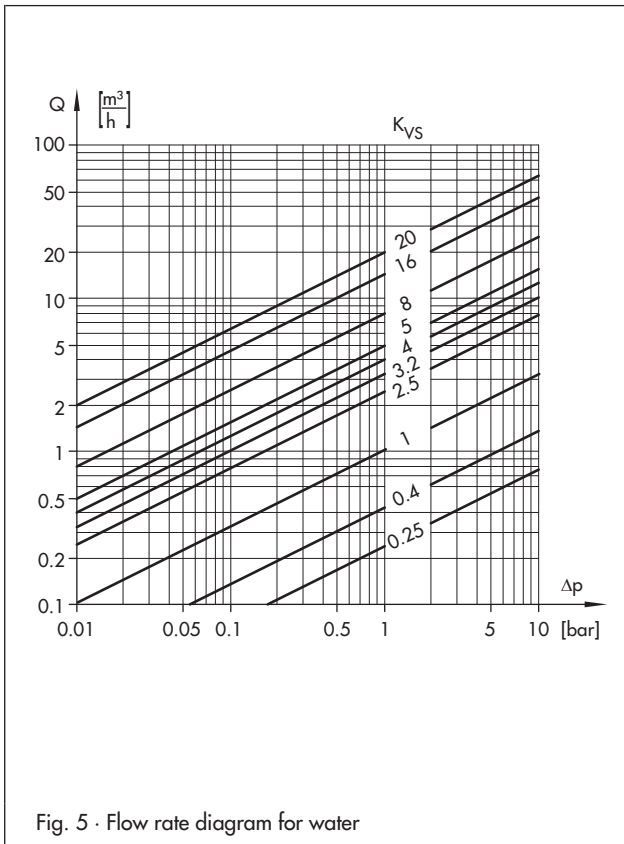


Fig. 5 · Flow rate diagram for water

Table 6 · Dimensions and weights
Regulator with screwed ends · Red brass or stainless steel 1.4408

| Connection | G 1/2 | G 3/4 | G 1 |
|-----------------------|---------------------------|--------|--------|
| Female thread G | 1/2" | 3/4" | 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 |

Dimensions of regulator with screwed ends in mm

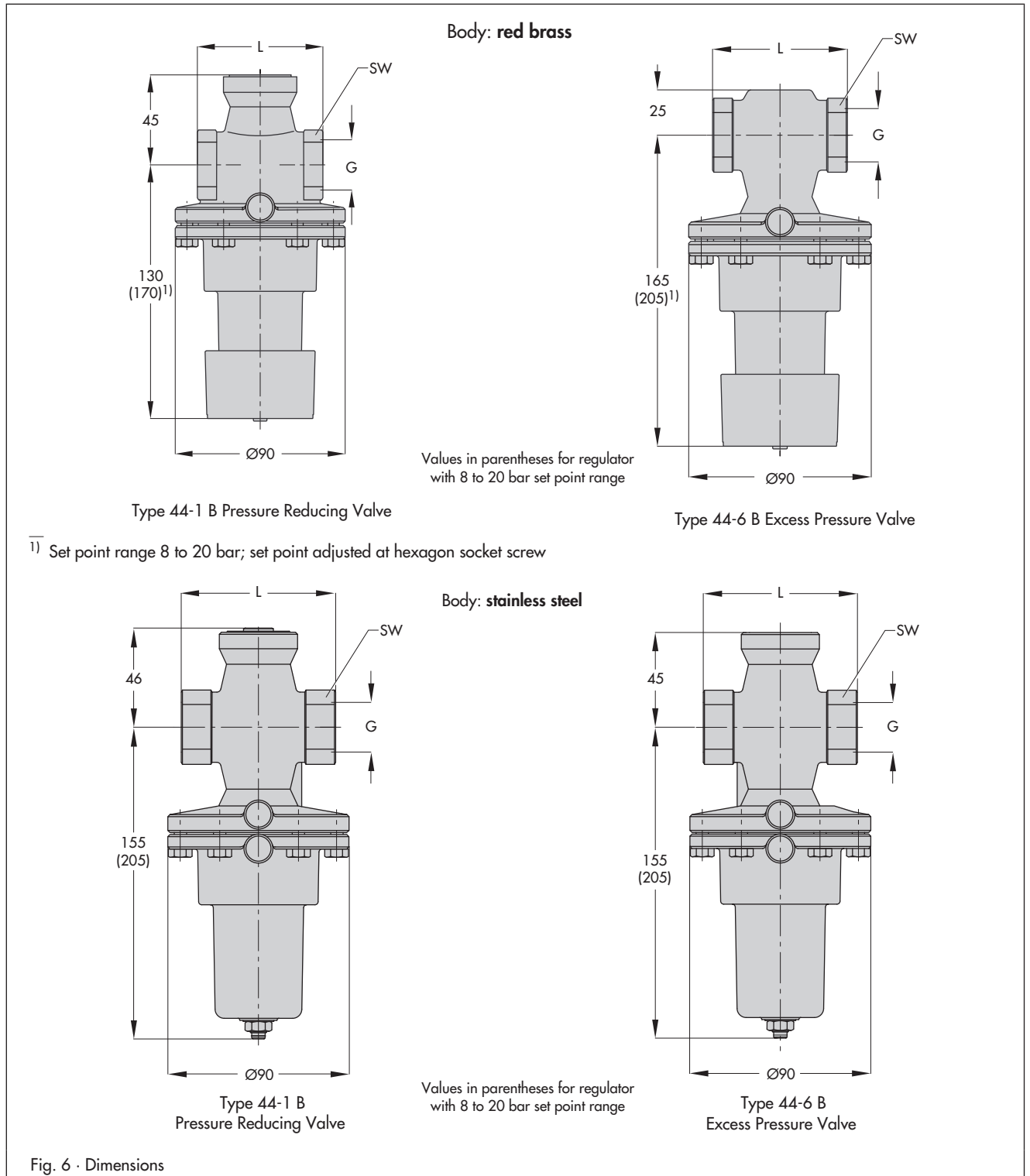
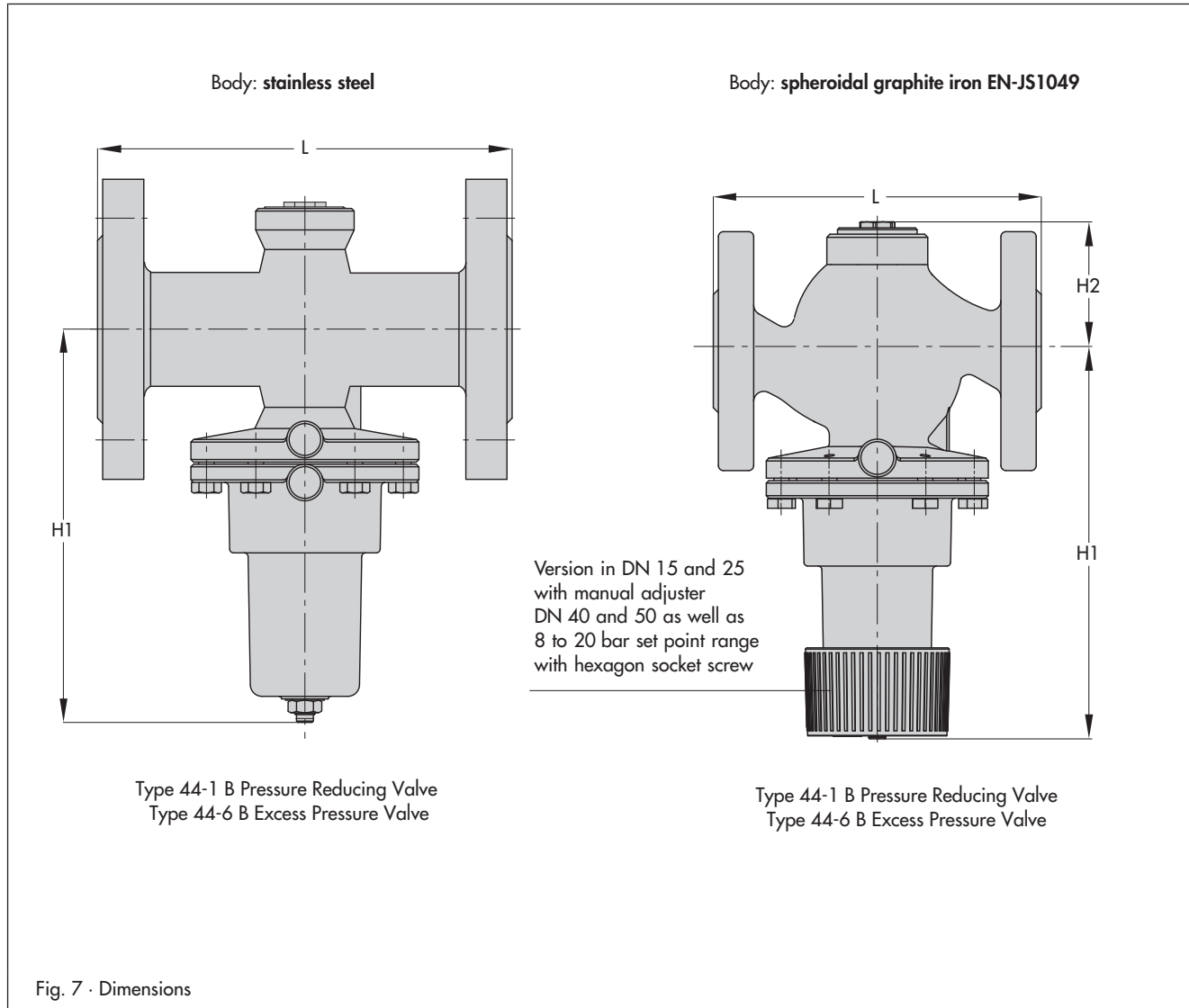


Table 7 · Dimensions and weights
Regulator with flanged body · Spheroidal graphite iron EN-JS1049 · Stainless steel 1.4408

| 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



Ordering text

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

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

Plug sealing: EPDM, FKM (FPM), FFKM (FFPM), PTFE, metal seal

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

Optionally, special version

Specifications subject to change without notice



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2013-10