

Self-operated Regulators Series 45



Differential Pressure Regulator Type 45-6 ¹⁾ · With opening actuator

For installation in short-circuit or bypass lines

Application

Differential pressure regulators for large pipeline networks and industrial plants · Differential pressure set points from **0.1 to 4 bar** · Valves sizes **DN 15 to DN 50** · Nominal pressure **PN 25** · Suitable for liquids up to **150 °C** and gases up to **80 °C**

The valve **opens** when the differential pressure rises.

The regulators consist of a globe valve and an actuator. They control the differential pressure to the set point adjusted at the actuator.

Special features

- Low-maintenance proportional regulators requiring no auxiliary energy
- Suitable for water and other non-flammable liquids and gases, provided they do not cause the materials used to corrode
- Special version for oil
- Single-seated valve with a balanced valve plug
- Regulator ready to use; control lines do not need to be routed on installation
- Exchangeable operating diaphragm
- Low overall height achieved by using a compact spring assembly

Versions

Differential pressure regulators for installation in short-circuit pipes or bypass lines (see typical applications).

Valves in nominal sizes DN 15 to DN 50 · End connections with welding ends (special version with threaded ends or screwed-on flanges for DN 15 to 25) · Nominal sizes DN 32, 40 and 50 also with flanged valve bodies made of spheroidal graphite iron

With an opening actuator and adjustable set point · Attached control line for the high pressure and a connection for the low pressure through a hole in the valve body · Balanced plug · Set point range 0.1 to 1 bar/DN 15 to 32 with scaled manual adjuster

Special versions

- ANSI version
- With oil-resistant internal parts
- Special K_{vs} for DN 15

¹⁾ Manufactured from July 2005 onwards

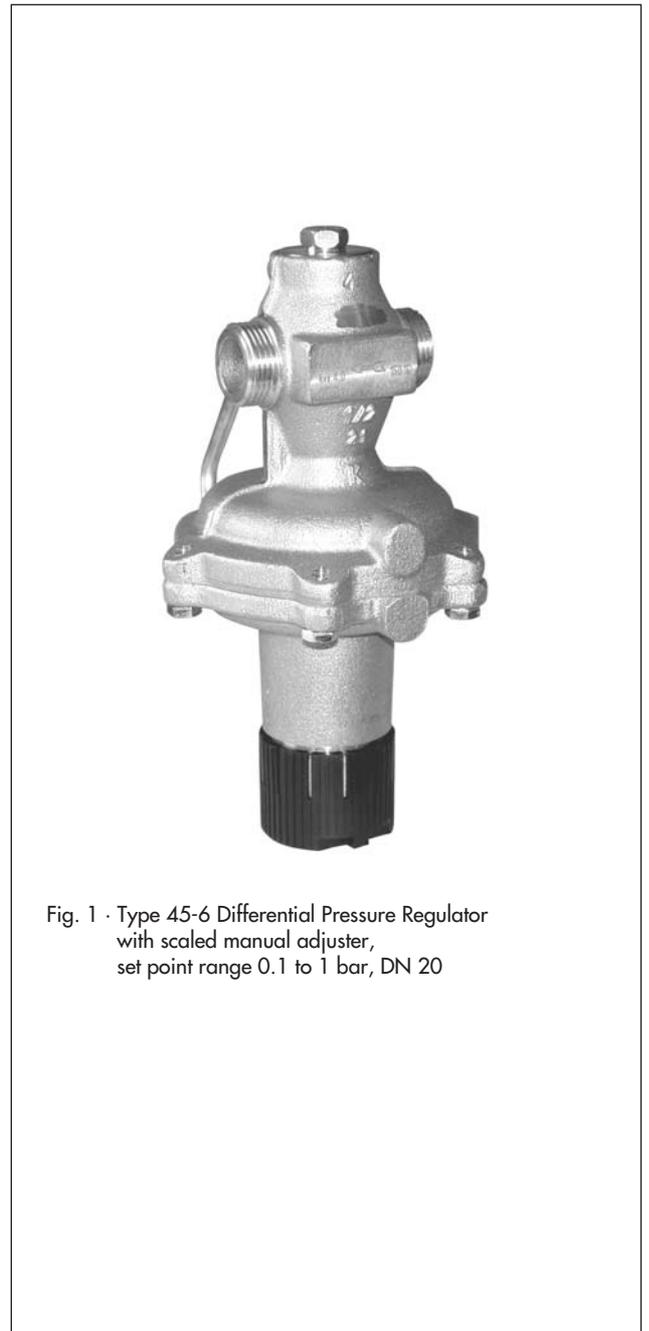


Fig. 1 · Type 45-6 Differential Pressure Regulator with scaled manual adjuster, set point range 0.1 to 1 bar, DN 20

Principle of operation (see Fig. 3)

The medium flows through the valve (1) in the direction indicated by the arrow. The position of the valve plug (3) determines the differential pressure Δp over the area between seat (2) and plug.

The differential pressure to be controlled is transmitted to the operating diaphragm (6.1) where it is converted into a positioning force. To achieve this, the downstream pressure (low pressure) is transmitted to the top diaphragm chamber (low pressure side) in the actuator (6) through the hole (11.1) in the valve body. The upstream pressure (high pressure) is transmitted over the attached control line (11) and acts on the high pressure side of the operating diaphragm (6.1).

The resulting positioning force is used to adjust the position of the valve plug, depending on the spring rate of the set point spring (8) and the set point adjusted at the set point adjustment (10).

The valve plug is pressure-balanced. As a result, forces generated by the differential pressure acting on the plug are eliminated.

Installation

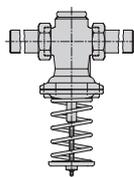
The regulator is suitable for installation in horizontal pipes as well as vertical pipes.

Regulators in sizes DN 32 and larger may only be installed in horizontal pipes with the actuator pointing downwards.

The following points must be observed:

- The medium must flow through the valve in the direction indicated by the arrow on the valve body.
- Install a strainer (e.g. SAMSON Type 1 NI) upstream of the valve, if possible.

Further details can be found in EN 3226 EN.



Typical applications

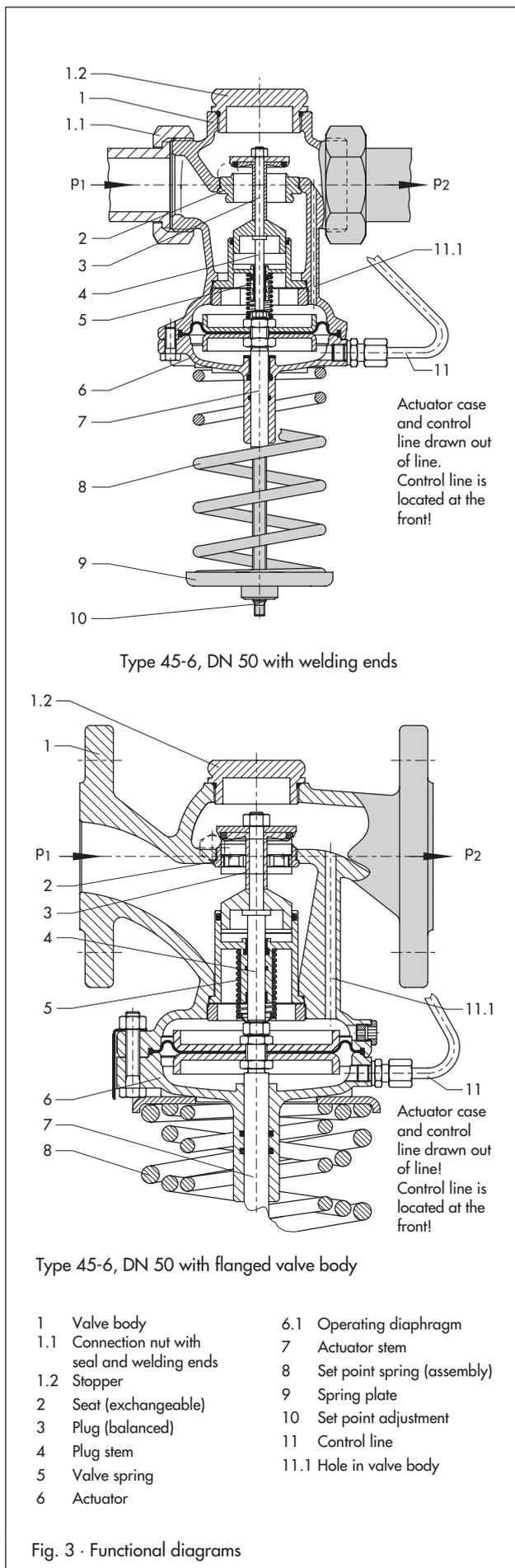
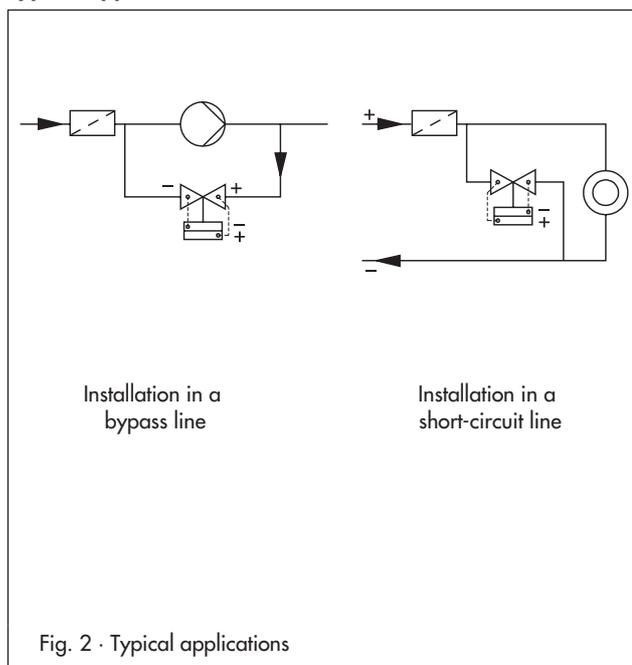


Table 1 · Technical data

Nominal size	DN	15	20	25	32 ¹⁾	40 ¹⁾	50 ¹⁾
K _{Vs}		4	6.3	8	12.5	16	20
	Special versions	1 · 2.5	-				
Flanged valve body		-			12.5	20	25
	Standard	0.6		0.55	0.55		0.45
z value	Flanged	-			0.45		0.4
		25					
Nominal pressure	PN	25					
Max. perm. differential pressure Δp at valve		20 bar				16 bar	
Max. perm. temperature		Liquids: 130 °C · Non-flammable gases: 80 °C					
Differential pressure set point ranges							
Continuously adjustable		0.1 to 1 bar ²⁾				0.2 to 1 bar	
		0.5 to 2 bar · 1 to 4 bar					

¹⁾ Additional version: Valve with flanged body made of spheroidal graphite iron (EN-JS 1049)

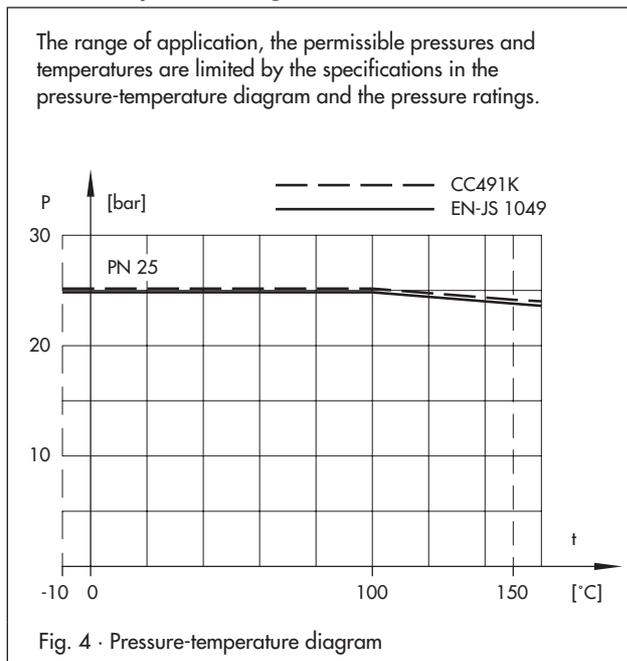
²⁾ Version with scaled manual adjuster

Table 2 · Materials · Material numbers acc. to DIN EN

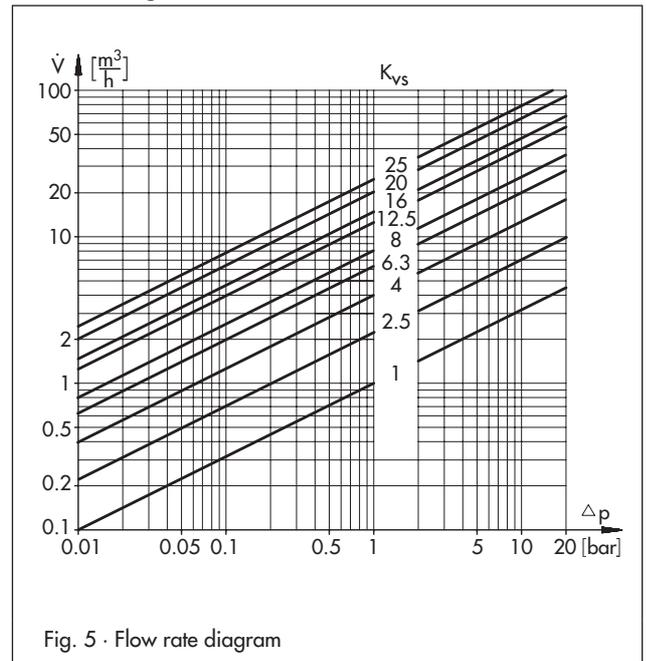
Body	Red brass CC491K (G-CuSn5ZnPb, Rg 5) · Spheroidal graphite iron EN-JS 1049	
Seat	Stainless steel 1.4305	
Plug	PN 25	Brass, free of dezincification, with EPDM soft sealing ¹⁾
	PN 16	Brass, free of dezincification, with EPDM soft sealing ¹⁾
Valve springs	Stainless steel 1.4310	
Operating diaphragm	EPDM with fabric reinforcement ¹⁾	
Seals	EPDM ¹⁾	

¹⁾ Special version for oils (ASTM I, II, III): FPM (FKM)

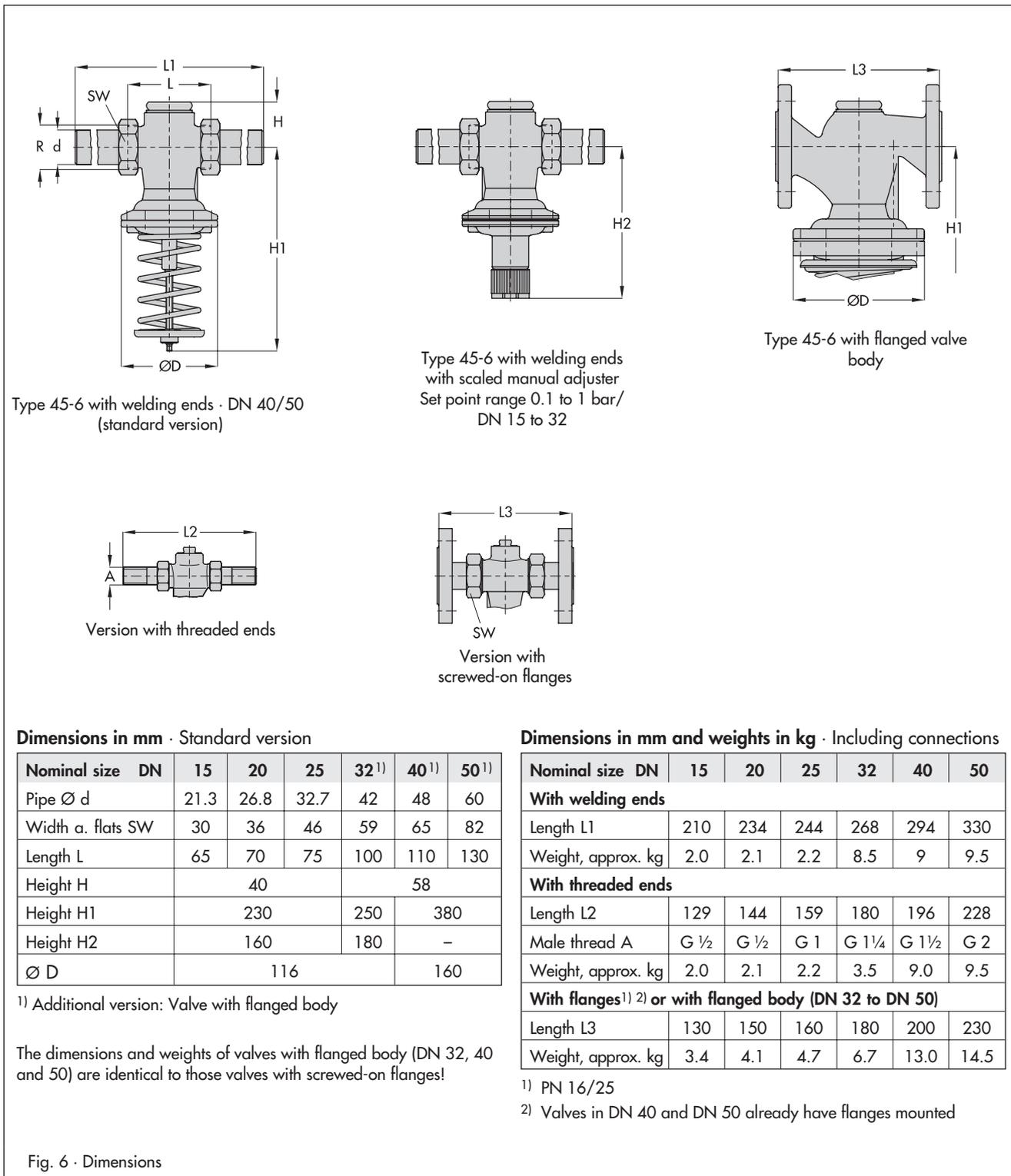
Pressure-temperature diagram – acc. to DIN EN 12516-1 –



Flow rate diagram for water



Dimensions



Ordering text

Differential Pressure Regulator Type 45-6

DN ..., PN ...

K_{VS} ..., perm. temperature ... °C

With welding ends/threaded ends/flanges/
flanged body in DN 32, 40 and 50

Set point range ... bar

On option, special version

Specifications subject to change without notice.

