

# Pressure Control Valves

## Back Pressure Regulators VSM (UV 4.4)

Epoxy-coated Cast Valve for medium Flow Rates

### Technical Data

Connection DN	50 - 150
Nominal Pressure PN	10, 16, 25, 40
Inlet Pressure	1.5 - 6 bar, 5 - 12 bar
K <sub>vs</sub> -Value	20 - 190 m³/h
Temperature	70 °C
Medium	water

### Description

Self-acting back pressure regulators are simple control valves offering accurate control while being easy to install and maintain. They control the pressure upstream of the valve without requiring pneumatic or electrical control elements.

The VSM (UV 4.4) backpressure regulator is a piston-controlled, spring-loaded proportional regulator with relief for large throughputs. The valve housing is made of spheroidal graphite iron with a continuous epoxy coating while the valve cone is soft-sealed.

The inlet pressure to be controlled is balanced across the valve seat by the force of the valve spring (set pressure). If the inlet pressure rises above the set pressure, the valve opens. With decreasing inlet pressure the valve control orifice reduces, when the pipeline is depressurised, the valve is closed. Rotating the adjusting screw clockwise increases the inlet pressure.

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with DIN EN 60534-4 and/or ANSI FCI 70-2 they may feature a leakage rate in closed position in compliance with the leakage classes V.

### Standard

- » Designed acc. to EN-1074/4
- » Flanges as per EN 1092/2
- » Pressure stage PN 16
- » Body made of spheroidal cast iron GJS 450-10 with epoxy coating in blue RAL 5005, thickness min. 250 µm
- » Internal parts made of stainless steel 1.4301
- » Closed spring cap
- » Internal control bore
- » Coating as per DVGW W270 and KTW recommendation of the German Ministry for Health
- » Pressure gauge pre-installed

### Options

- » Internal parts made of 1.4404
- » Elastomers made of EPDM or Viton
- » Pressure stages PN 25 and PN 40
- » Special designs on request:
  - Nickel-plated version for air and liquids up to 100°C, elastomers made of Viton
  - Flanges drilled in acc. with ANSI

Operating instructions, know how and safety instructions must be observed. The pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



### K<sub>vs</sub>-Values [m³/h]

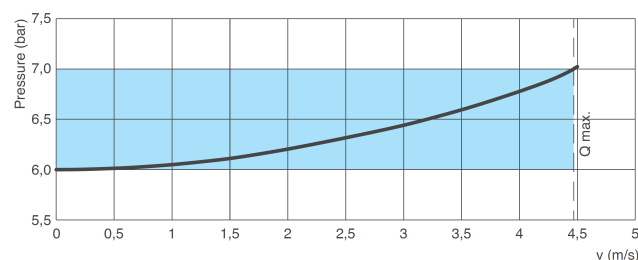
nominal diameter DN

50	65	80	100	125	150
20	50	80	120	165	190

### Setting Ranges [bar], Nominal Pressure PN

bar	1.5 - 6	5 - 12
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### Upstream Pressure Buildup



The plot is showing the increase in the upstream pressure that occurs through the valve, when the flow increases. Ensure that the operating conditions fall on the area depicted in blue for the recommended fluid flow velocity through the valve.

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Materials	
Body	spheroidal cast iron GJS 450-10 epoxy coated*
Spring Cap	spheroidal cast iron GJS 450-10 epoxy coated*
Spring	stainless steel 55SiCr6
Internals	stainless steel 1.4301
Valve Seal	NBR optional EPDM or Viton
O-ring (balance)	NBR optional EPDM or Viton

\* in accordance with KTW-recommendation and DVGW W270, thickness min. 250 µm

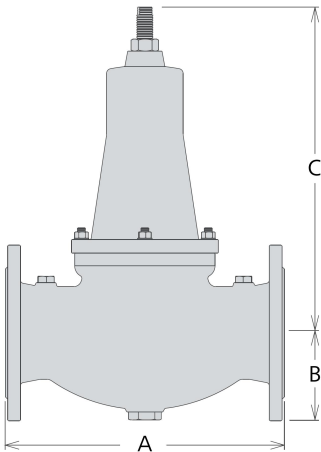
Dimensions [mm]						
size	nominal diameter DN					
	50	65	80	100	125	150
A	230	290	310	350	400	450
B	83	93	100	117	135	150
C	280	320	350	420	590	690

Weights [kg]						
nominal diameter DN						
50	65	80	100	125	150	
12	19	24	34	56	74	

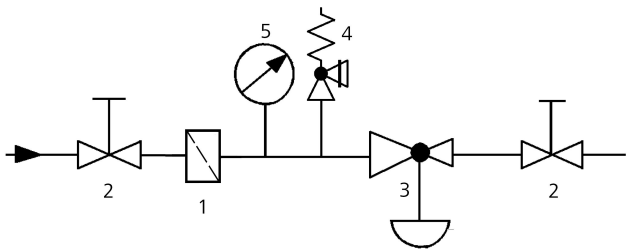
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Special designs on request.  
 The pressure has always been indicated as overpressure.  
 Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing



### Recommended Installation



- 1 Strainer\*  
2 Shutoff valves  
3 Backpressure Regulator\*  
\*Use MANKENBERG-Products
- 4 Safety Valve\*  
5 Pressure Gauge