

Pressure Control Valves

Pressure Reducing Valves DM 3, 4

Weight Loaded Pressure Reducing Valve



Technical Data

Connection DN	50 - 400
Nominal Pressure PN	16 - 40
Inlet Pressure	up to 40 bar
Outlet Pressure	0.5 - 10 bar
K _{vs} -Value	32 - 1200 m ³ /h
Temperature	280 °C
Medium	liquids, gases and steam

Description

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

The DM 3 and DM 4 pressure reducers are medium-controlled weighted-lever valves for medium to large volumes. These valves require no auxiliary energy. Thanks to their integral control characteristics they are very accurate. The time reponse is set by means of an oil-filled damper.

DM 3 is a single seat, DM 4 a twin seat valve; both are piston-controlled. The valves can be supplied with soft or hard seals.

When the pipeline is depressurised the valve cone is kept in open position by the weighted lever. As the outlet pressure rises a control piston is pressurised via a pilot line, lifting the lever and moving the valve cone towards the „closed“ position. During normal operation the opening force of the weight and the closing force of the piston balance each other and the pressure reducer operates continually. The outlet pressure is kept constant irrespective of inlet pressure and flow volume. The control pressure is set by changing the weight on the lever.

The maximum outlet pressure must not exceed 1.5 times the set pressure, unless specified otherwise.

In the case of toxic or hazardous media a leakage line must be installed to the control unit capable of draining leaking medium safely and without pressure if the control element should become defective.

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 II – V:

Leakage class II (metal sealing double seat cone) = 0.5% K_{vs} value

Leakage class III (metal sealing cone) = 0.1 % K_{vs} value

Leakage class IV (PTFE seal cone) = 0.01 % K_{vs} value

Leakage class V (soft seal cone) = $1.8 \times 10^{-5} \times \Delta p \times D^*$ [l/h]

*D=seat diameter

The valves requires a sense line (to be installed on-site).

Options

- » Various seal materials suitable for your medium
- » Special versions on request

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



K _{vs} -Values [m ³ /h]					
type	nominal diameter DN				
	50	65	80	100	125
3 (E)	32	50	75	100	140
4 (E)	40	65	100	150	180

Suffix E = enlarged outlet

K _{vs} -Values [m ³ /h]						
type	nominal diameter DN					
	150	200	250	300	350	400
3 (E)	200	300	450	550	650	800
4 (E)	250	400	550	700	750	1200

Suffix E = enlarged outlet

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Materials

Temperature	80 °C	
Nominal Pressure	PN 16	PN 40
Operating Pressure	max. 16 bar	max. 40 bar
Body	spheroidal cast iron or cast steel	cast steel
Tubular Section	steel welded	
Internals	chromium steel / CrNiMo-steel	
Valve Seal	NBR / FKM / EPDM / PTFE chromium steel / CrNiMo-steel	
O-Ring	NBR / FKM / EPDM / PTFE	

Materials

Temperature	280 °C	
Nominal Pressure	PN 16	PN 40
Operating Pressure	max. 13 bar	max. 28 bar
Body	cast steel	
Tubular Section	steel welded	
Internals	chromium steel / CrNiMo-steel	
Valve Seal	chromium steel / CrNiMo-steel	
O-Ring	FXM / FFKM	

Dimensions [mm]

Size	nominal diameter DN					
	50	65	80	100	125	150
A*	580	630	670	750	850	980
B	120	200	200	200	260	260
C**	650	850	850	850	900	900
D**	750	1150	1150	1150	1500	1500

Dimensions [mm]

size	nominal diameter DN				
	200	250	300	350	400
A*	1200	1430	1650	1800	2100
B	260	350	350	350	420
C**	900	1100	1100	1100	1100
D**	1500	2000	2000	2000	2000

Dimensions [mm] (enlarged outlet)

size	nominal diameter DN			
	50/100	65/125	80/150	100/200
A*	650	770	850	1000
B	120	180	180	230
C**	650	850	850	950
D**	750	1150	1150	1300

Dimensions [mm] (enlarged outlet)

size	nominal diameter DN		
	125/250	150/300	200/400
A*	1200	1500	1650
B	230	260	280
C**	950	1130	1200
D**	1300	1700	1800

* Overall length tolerances in acc. with DIN EN 558

** Dimensions C and D are reference dimensions. The weighted lever (dim. D) may project beyond the valve outlet flange.

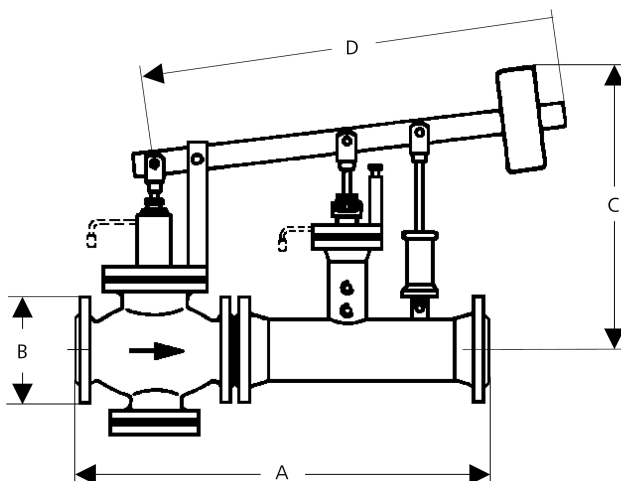
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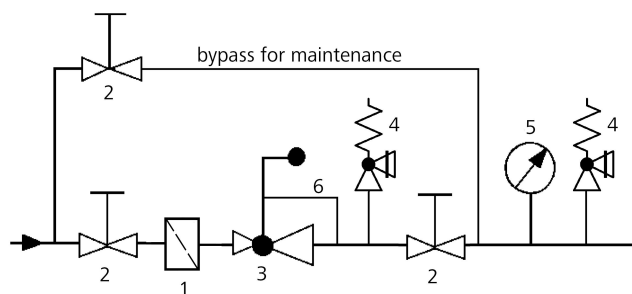
Special designs on request.

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 Shut-off Valves
- 3 Pressure 'Reducer*
- 4 Safety Valves*
- 5 Pressure Gauge
- 6 Sense Line G 1/2

Sense line connection 10 - 20 x DN behind the valve.

*Use MANKENBERG-Products