

Pressure Control Valves

Pressure Reducing Valves DM 652

Universal Valve



Technical Data

Connection DN	15 - 50
Connection G	1/2 - 2
Nominal Pressure PN	16 - 40
Inlet Pressure	up to 40 bar
Outlet Pressure	0.02 - 12 bar
K _{vs} -Value	5 - 22 m ³ /h
Temperature	190 °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 652 pressure reducing valve is a diaphragm-controlled spring-loaded and balanced proportional control valve for universal application. This pressure reducer is manufactured from deep-drawn stainless steel featuring excellent corrosion resistance. The valve cone is fitted with a soft seal.

The spring module comprising spring cap, spring, adjusting screw, diaphragm and internal components, is connected to the valve body only by means of a clamp ring and two bolts. Changing the diaphragm or the complete spring assembly for a different control pressure range is extremely simple and does not call for special tools. The same applies to servicing and maintenance.

The outlet pressure to be controlled is balanced across the control unit by the force of the valve spring (set pressure). As the outlet pressure rises above the pressure set using the adjusting screw, the valve cone moves towards the seat and the volume of medium is reduced. As the outlet pressure drops, the valve control orifice increases; when the pipeline is depressurised, the valve is open. Rotating the adjusting screw clockwise increases the outlet pressure.

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

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 optional IV:

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

Standard

- » all stainless steel construction
- » non rising adjusting screw
- » quick-release body clamp ring
- » sense line connection
- » diaphragm protected by PTFE foil (only for pressure ranges 0.8 - 12 bar)
- » balanced cone for controlling the outlet pressure independently from the initial pressure

Options

- » pressure gauge connection
- » pneumatic actuation
- » internal sense line
- » clean gas version with special connections
- » water-cooled thermal protection for steam up to 220 °C
- » for toxic or hazardous media: sealed spring cap complete with leakage line connection (incl. sealed adjusting screw). Must be installed with a leakage line capable of draining leaking medium safely and without pressure
- » various diaphragm and seal materials suitable for your medium
- » special connections: Aseptic, ANSI or JIS flanges, NPT, welding spigots; other connections on request
- » 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 [m³/h]

nominal diameter	G	1/2	3/4	1	1 1/4	1 1/2	2
DN	15	20	25	32	40	50	
K _{vs} -value	m ³ /h	5	7	8	22	22	22

Setting Ranges [bar], Nominal Pressure

0.02-0.12	0.1-0.5	0.3-1.1	0.8-2.5
PN 16-40/1	PN 16-40/1	PN 16-40/2.5	PN 16-40/6

Setting Ranges [bar], Nominal Pressure

2 - 5	4 - 8	6 - 12
PN 16-40/10	PN 16-40/16	PN 16-40/16

Permissible Reduction Ratio (max. p₁/p₂)

setting ranges bar	nominal diameter	
	G 1/2 - 1	G 1 1/4 - 2
	DN 15 - 25	DN 32 - 50
0.02 - 0.12	80	50
0.1 - 0.5	40	25
0.3 - 1.1	30	18
0.8 - 12	20	12

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Materials

Temperature	130 °C	for steam 190 °C
Body, Spring Cap, Internals, Screws	CrNiMo-steel	CrNiMo-steel
Spring	CrNi-steel	CrNi-steel
Valve Seal	FEPM optional EPDM or FPM	FEPM optional PTFE
Diaphragm	EPDM optional FPM	EPDM
Protection Foil	PTFE setting range 0,8 - 12 bar with FEPM-Weichdichtung: standard other ranges and soft seals: option	

Dimensions [mm]

pressure range bar	size	nominal diameter					
		G 1/2	G 3/4	G 1	G 1 1/4	G 1 1/2	G 2
		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
all ranges	A	85	91	85	130	145	185
	A ₁	130	150	160	180	200	230
	B	76	76	76	80	80	80
0.02 - 0.12	C	300	300	300	300	300	300
	D	360	360	360	360	360	360
0.1 - 0.5	C	300	300	300	300	300	300
	D	264	264	264	264	264	264
0.3 - 1.1	C	300	300	300	300	300	300
	D	200	200	200	200	200	200
0.8 - 2.5	C	235	235	235	235	235	235
	D	138	138	138	138	138	138
2 - 5	C	235	235	235	235	235	235
	D	138	138	138	138	138	138
4 - 8	C	235	235	235	235	235	235
	D	138	138	138	138	138	138
6 - 12	C	235	235	235	235	235	235
	D	138	138	138	138	138	138

Weights [kg]

setting ranges bar	nominal diameter G					
	1/2	3/4	1	1 1/4	1 1/2	2
0.02 - 0.12	13.5	13.5	13.5	14.4	14.4	14.4
0.1 - 0.5	7.1	7.1	7.1	8	8	8
0.3 - 1.1	6.1	6.1	6.1	7	7	7
0.8 - 12	3.1	3.1	3.1	4	4	4

Weights [kg]

setting ranges bar	nominal diameter DN					
	15	20	25	32	40	50
0.02 - 0.12	15.3	15.3	15.3	18.4	18.4	18.4
0.1 - 0.5	8.9	8.9	8.9	12	12	12
0.3 - 1.1	7.9	7.9	7.9	11	11	11
0.8 - 12	4.9	4.9	4.9	8	8	8

Customs Tariff Number

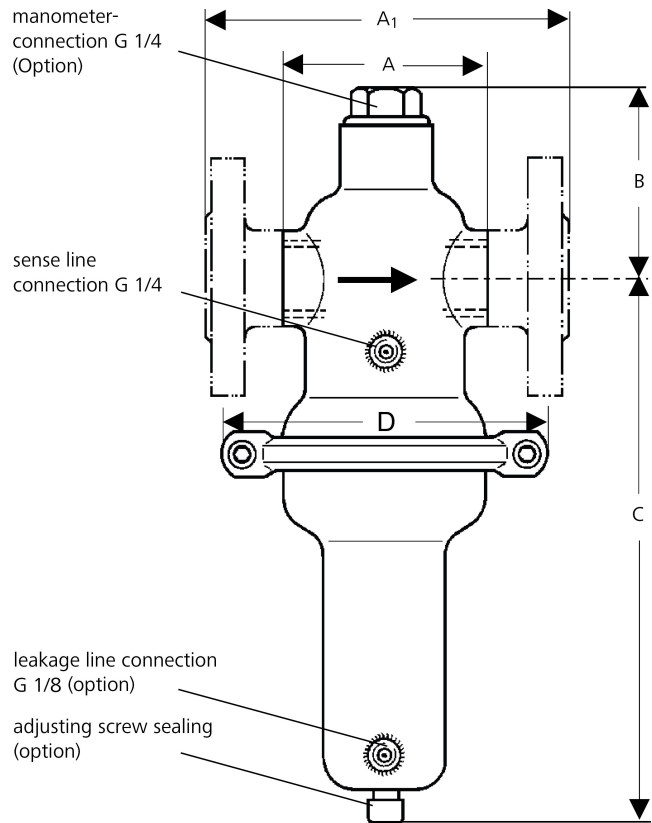
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Special designs on request.

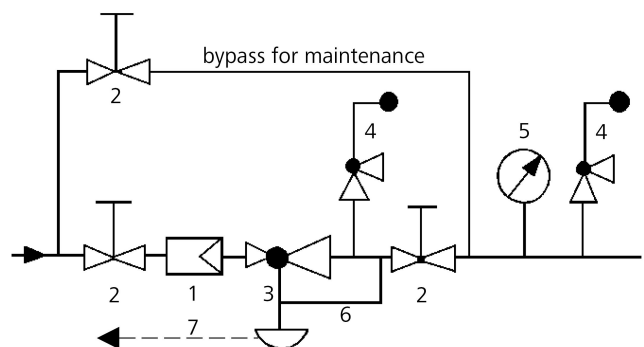
The pressure has always been indicated as overpressure.

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 1/4
- 7 Leakage Line G 1/8 (option)

sense line connection 10 - 20 x DN behind the valve
use MANKENBERG-Products