

# Pressure Control Valves

## Pressure Reducing Valves DM 505

Valve for Small Flow Rates

### Technical Data

Connection DN	15 - 25
Connection G	1/2
Nominal Pressure PN	250
Inlet Pressure	up to 250 bar
Outlet Pressure	0.005 - 20 bar
K <sub>vs</sub> -Value	0.2 - 0.90 m <sup>3</sup> /h
Temperature	130 °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 505 pressure reducing valve is a diaphragm-controlled spring-loaded proportional control valve for small volumes. This pressure reducer is manufactured from deep-drawn stainless steel featuring excellent corrosion resistance. The tubular inlet spigot of the valve body accommodates the seat aperture. The soft-sealing valve cone is guided in the seat assembly and connected with the control diaphragm by means of a stirrup which surrounds the seat assembly.

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.

Changing the control pressure setting does not affect the height of the valve (non rising adjusting screw).

Outlet pressures ≤ 1.1 bar DM 505 requires a sense line (to be installed on-site).

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.

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<sub>vs</sub> 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 (for DM 505 with outlet pressures ≤ 1,1 bar)

### Options

- » pressure gauge connection
- » pneumatic actuation
- » 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<sub>vs</sub>-Values [m<sup>3</sup>/h]

for all body sizes, please select	0.2	0.5	0.9
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### Setting Ranges [bar]

0.005-0.025	0.02-0.12	0.1-0.5	0.2-1.1	0.8-2.5	1-5	4-12	10-20
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### Permissible Reduction Ratio (max. p<sub>1</sub>/p<sub>2</sub>)

setting range bar	K <sub>vs</sub> -value		
	0.2	0.5	0.9
0.005 - 0.12	1485	1000	750
0.1 - 0.5	405	280	210
0.2 - 1.1	185	125	100
0.8 - 2.5	105	70	50
1 - 20	39	27	20

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### Materials

Temperature	130 °C
Body	CrNiMo-steel
Spring Cap	CrNiMo-steel
Internals	CrNiMo-steel
Adjusting Screw	CrNiMo-steel
Spring	CrNi-steel
Valve Seal	FPM optional EPDM or PTFE
Diaphragm	FPM or EPDM
Protection Foil	PTFE (Option)

### Dimensions [mm]

setting ranges bar	size	G 1/2	flanges acc. to DIN EN 1092-1		
			DN 15	DN 20	DN 25
0,005 - 0,025 0,02 - 0,12	A/A <sub>1</sub>	100	130	150	160
	B	39	39	39	39
	C	257	257	257	257
	D	360	360	360	360
0,1 - 0,5	A/A <sub>1</sub>	100	130	150	160
	B	39	39	39	39
	C	257	257	257	257
	D	264	264	264	264
0,2 - 1,1	A/A <sub>1</sub>	100	130	150	160
	B	39	39	39	39
	C	257	257	257	257
	D	200	200	200	200
0,8 - 2,5	A/A <sub>1</sub>	100	180	180	180
	B	39	39	39	39
	C	196	196	196	196
	D	138	138	138	138
1 - 5 4 - 12 10 - 20	A/A <sub>1</sub>	100	130	150	160
	B	39	39	39	39
	C	190	190	190	190
	D	114	114	114	114

### Weights [kg]

setting ranges bar	G 1/2	flanges acc. to DIN EN 1092-1		
		DN 15	DN 20	DN 25
0.005 - 0.025 0.02 - 0.12	6	7.5	7.5	8
0.1 - 0.5	5.5	7	7	7.5
0.2 - 1.1	4.5	6	6	6.5
0.8 - 2.5	2	3.5	3.5	4
1 - 20	1.5	3	3	3.5

### Customs Tariff Number

84811019

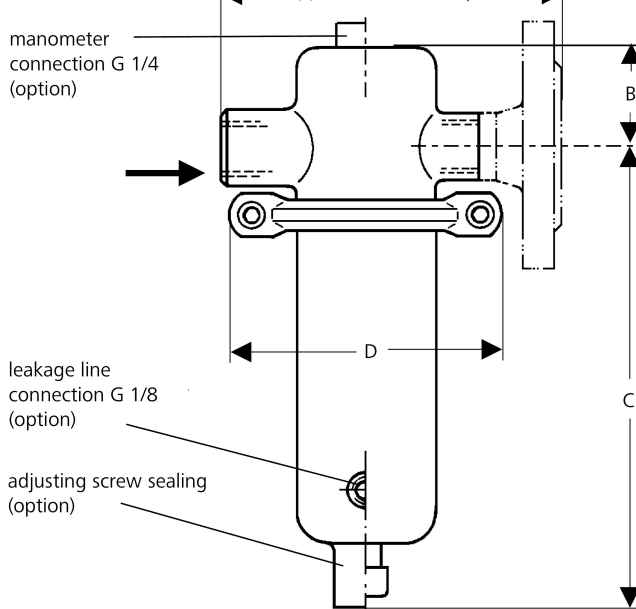
Special designs on request.

The pressure has always been indicated as overpressure.

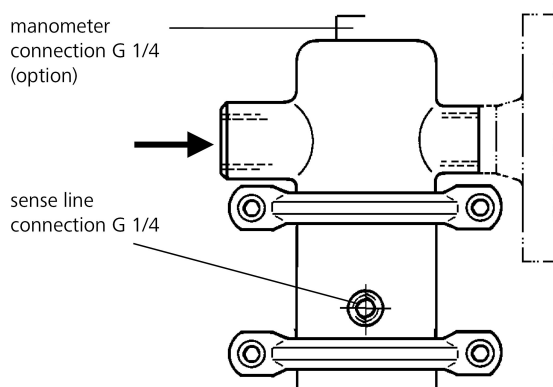
Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing

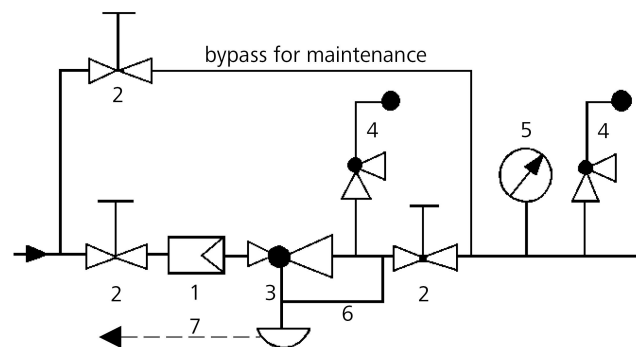
#### DM 505



#### DM 505Z (dimensions see DM 505)



### Recommended Installation



- 1 Strainer
  - 2 Shut-off Valves
  - 3 Pressure Reducer
  - 4 Safety Valves
  - 5 Pressure Gauge
  - 6 Sense Line G 1/4 (DM 505Z)
  - 7 Leakage Line G 1/8 (option)
- sense line connection 10 - 20 x DN behind the valve  
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