

# Pressure Control Valves

## Pressure Reducing Valves DM 502

Standard Valve



### Technical Data

Connection G	1/2 - 2
Nominal Pressure PN	100
Inlet Pressure	up to 100 bar
Outlet Pressure	0.02 - 16 bar
K <sub>vs</sub> -Value	0.6 - 4.2 m <sup>3</sup> /h
Temperature	130 °C
Medium	liquids and gases

### 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 502 pressure reducing valve is a diaphragm-controlled spring-loaded proportional control valve specially designed for CO<sub>2</sub>. 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.

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

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.

A sense line is required for outlet pressures ≤ 1.1 bar (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.

### Standard

- » Body and spring cap made of stainless steel
- » Non rising adjusting screw
- » Quick-release body clamp ring
- » Sense line connection (only for outlet pressures ≤ 1,1 bar)

### Options

- » Pressure gauge connection
- » Electropneumatic actuation
- » Drain hole provided at bottom of spring cover for draining condensate
- » 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 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]

nominal diameter G	1/2	3/4	1	1 1/4	1 1/2	2
m <sup>3</sup> /h	0.6	0.9	1.5	2.8	3.6	4.2

### Setting Ranges [bar]

0.02-0.1 2	0.1-0.5	0.3-1.1	0.8 - 2.5	2 - 5	4 - 8	6 - 12	10 - 16
---------------	---------	---------	-----------	-------	-------	--------	---------

### Permissible Reduction Ratio (max. p<sub>1</sub>/p<sub>2</sub>)

nom. diameter G	1/2	3/4	1	1 1/4	1 1/2	2
setting range 0.02 - 0.12 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	810	750	530	280	230	185
setting range 0.1 - 0.5 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	220	200	140	75	60	50
setting range 0.3 - 1.1 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	100	90	65	35	25	20
setting range 0.8 - 2.5 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	55	50	35	20	15	10
setting range 2 - 5, 4 - 8 and 6 - 12 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	25	25	15	10	8	6
setting range 10 - 16 bar						
ratio p <sub>1</sub> /p <sub>2</sub>	20	15	13	7	5	4

# Pressure Control Valves

## Pressure Reducing Valves DM 502

Standard Valve



### Materials

Temperature	80 °C	130 °C
Body, Spring Cap	CrNiMo-steel	CrNiMo-steel
Internals	brass, Cr-steel	brass, Cr-steel
Spring	CrNi-steel	CrNi-steel
Valve Seal	EU	FKM optional EPDM or PTFE
Diaphragm	CR	FKM optional EPDM
Protection Foil for Diaphragm	PTFE (option)	PTFE (option)

### Dimensions [mm]

setting range bar	size	nominal diameter G					
		1/2	3/4	1	1 1/4	1 1/2	2
all ranges	A*	85	95	105	120	130	150
	B	37	48	45	43	50	56
0.02 - 0.12	C	260	265	270	270	270	285
	D	360	360	360	360	360	360
0.1 - 0.5	C	260	265	270	270	270	285
	D	264	264	264	264	264	264
0.3 - 1.1	C	260	265	270	270	270	285
	D	200	200	200	200	200	200
0.8 - 16	C	195	200	200	205	205	220
	D	138	138	138	138	138	138

\* Overall length tolerances in acc. with DIN EN 558

### Weights [kg]

setting range bar	nominal diameter G					
	1/2	3/4	1	1 1/4	1 1/2	2
0.02 - 0.12	10	12	12	13	13.5	14
0.1 - 0.5	5.5	7	7	8	8.5	9
0.3 - 1.1	4.5	6	6	7	7.5	8
0.8 - 16	1.5	2	2	2.5	3	3.5

### Customs Tariff Number

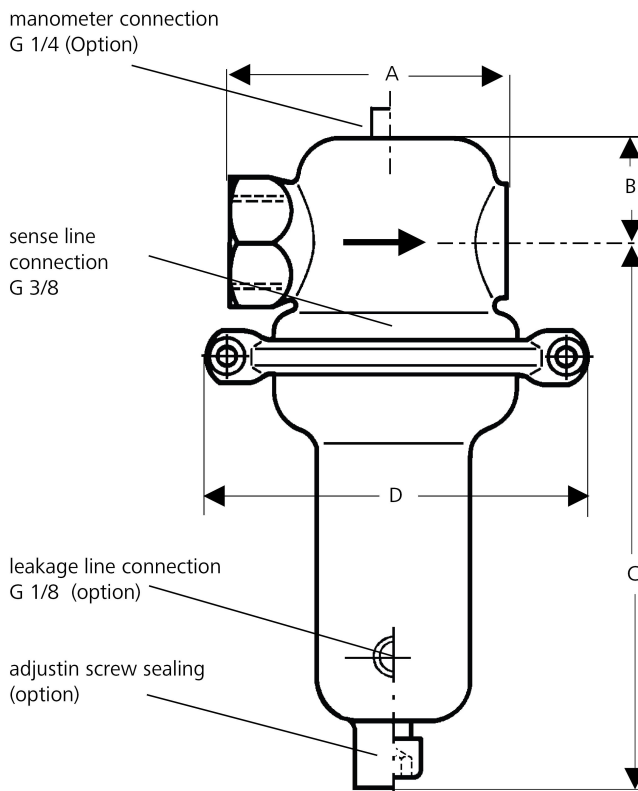
84811019

Special designs on request.

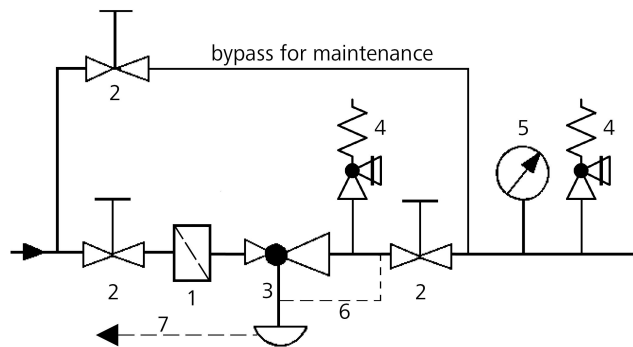
The pressure has always been indicated as overpressure.

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

### Dimensional Drawing



### Recommended Installation



- 1 Strainer\*
- 2 Shut-off Valves
- 3 Pressure Reducer\*
- 4 Safety Valves\*
- 5 Pressure Gauge
- 6 Sense Line G 3/8  
(only outlet pressures ≤ 1,1 bar)
- 7 Leakage Line G 1/8 (option)

Sense line connection 10 - 20 x DN behind the valve

\*Use MANKENBERG-Products