

# 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

Medium-controlled 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 bonnet, 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 increasing adjusting screw).

For outlet pressures ≤ 1.1 bar DM 505 requires a pilot line (to be installed on-site).

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with the VDI/VDE guideline 2174 a leakage rate of 0.05 percent of the constant volume flow is permitted for the valve in closed position.

### Standard

- » all stainless steel construction
- » non increasing adjusting screw
- » quick-release body clamp ring
- » pilot line connection (for DM 505 with outlet pressures ≤ 1,1 bar)

### Options

- » pressure gauge connection
- » for toxic or hazardous media: sealed bonnet 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 DIN flanges, 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 |

| Setting Ranges [bar] DM 505 |           |         |         |         |     |      |       |
|-----------------------------|-----------|---------|---------|---------|-----|------|-------|
| 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 |

| 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  |

# Pressure Control Valves

## Pressure Reducing Valves DM 505

Valve for Small Flow Rates



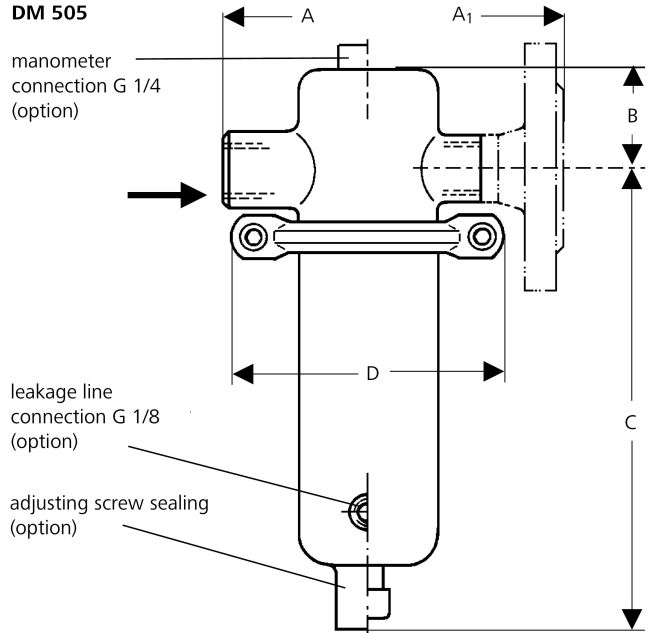
| Materials       |                           |
|-----------------|---------------------------|
| Temperature     | 130 °C                    |
| Body            | CrNiMo-steel              |
| Bonnet          | CrNiMo-steel              |
| Internals       | CrNiMo-steel              |
| Set Screw       | 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<br>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<br>4 - 12<br>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   |

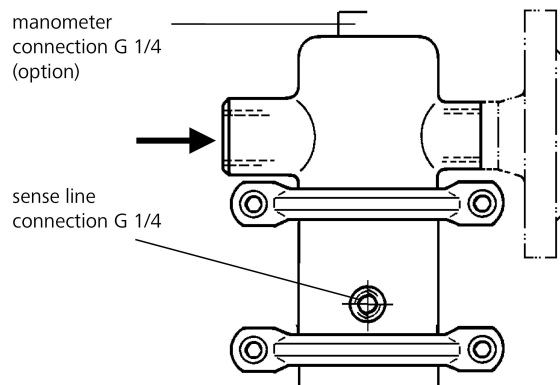
| Weights [kg]                  |       |                          |       |       |
|-------------------------------|-------|--------------------------|-------|-------|
| setting ranges bar            | G 1/2 | flanges acc. to DIN 2635 |       |       |
|                               |       | DN 15                    | DN 20 | DN 25 |
| 0.005 - 0.025<br>0.002 - 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   |

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.

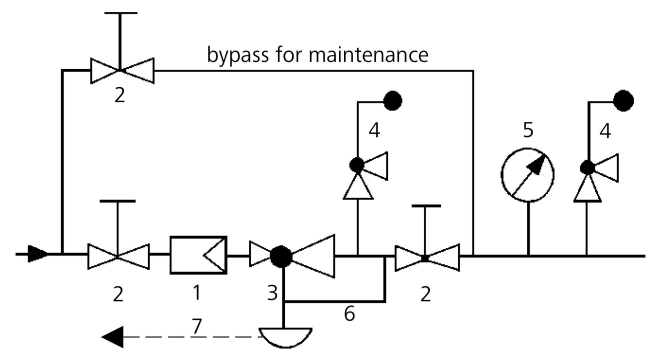
### Dimensional Drawing



### DM 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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