

# Pressure Control Valves

## Pressure Reducing Valves DM 618

Standard Cast Valve for Liquids and Gases



### Technical Data

|                        |                             |
|------------------------|-----------------------------|
| Connection DN          | 15 - 100                    |
| Nominal Pressure PN    | 16 - 40                     |
| Inlet Pressure         | up to 40 bar                |
| Outlet Pressure        | 0.3 - 10 bar                |
| K <sub>vs</sub> -Value | 3.6 - 100 m <sup>3</sup> /h |
| Temperature            | 130 °C                      |
| Medium                 | liquids, 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 pressure reducing valve DM 618 is a diaphragm-operated, spring-loaded and balanced proportional valve for high flow rates. The valve body is made of cast steel. Diaphragm housing, spring cap and internal parts are made of stainless steel 316L. The valve cone is fitted with a soft seal.

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.

### Standard

- » Body made of GS-C 25 1.0619 (A216-WCB)\*
- » Diaphragm housing, spring cap and internal parts made of stainless steel 1.4404 (316L)
- » Leakage line connection and sealed adjusting screw
- » Balanced cone for controlling the outlet pressure independently from the initial pressure
- » Sense line connection
- » EPDM elastomeres

### Options

- » Body made of stainless steel 1.4408 (CF8M)
- » FKM elastomeres
- » PTFE protection foil for diaphragm

Operating instructions, know how and safety instructions must be observed. 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]

| DN            | 15  | 20  | 25  | 32 | 40 | 50 | 65 | 80 | 100 |
|---------------|-----|-----|-----|----|----|----|----|----|-----|
| min.          | 0.8 | 0.8 | 0.8 | 1  | 1  | 1  | 1  | 1  | 1   |
| 0.3 - 1.1 bar | 3.6 | 6   | 6   | 16 | 27 | 35 | 45 | 50 | 55  |
| 0.8 - 10 bar  | 4.5 | 8   | 8   | 16 | 27 | 35 | 80 | 90 | 100 |

### Setting Ranges [ bar], Nominal Pressure PN

| bar | 0.3 - 1.1 | 0.8 - 2.5 | 2 - 5 | 4.5 - 10 |
|-----|-----------|-----------|-------|----------|
| PN  | 40/2.5    | 40/6      | 40/10 | 40/16    |

### max. Operating Pressures PS with Operating Temperature TS

| TS | -10 °C | 130 °C |
|----|--------|--------|
| PS | 40 bar | 38 bar |

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

| setting range<br>bar | nominal diameter |            |             |
|----------------------|------------------|------------|-------------|
|                      | DN 15 - 25       | DN 32 - 50 | DN 65 - 100 |
| 4.5 - 10             | 10 : 1           | 8 : 1      | 5 : 1       |
| 2 - 5                | 20 : 1           | 15 : 1     | 8 : 1       |
| 0.8 - 2.5            | 30 : 1           | 20 : 1     | 12 : 1      |
| 0.3 - 1.1            | 15 : 1           | 11 : 1     | 6 : 1       |

e.g.: set pressure 0.8 bar = max. inlet pressure 24 bar (30 x 0.8)

Attention: The max. allowable operating pressure must be observed!

# Pressure Control Valves

## Pressure Reducing Valves DM 618

Standard Cast Valve for Liquids and Gases



### Materials

|                   |   |
|-------------------|---|
| Body              | GS-C 25 1.0619 (A216-WCB)*                      |
| Diaphragm Housing | stainless steel 1.4404 (316L)                   |
| Spring Cap        | stainless steel 1.4404 (316L)                   |
| Internal Parts    | stainless steel 1.4404 / 1.4462 (316L / Duplex) |
| Valve Seal        | EPDM**  |
| Diaphragm         | EPDM**  |
| O-ring            | EPDM**  |

\* body optionally made of stainless steel 1.4408 (CF8M)

\*\* elastomeres optionally made of FKM, NBR, PTFE or other materials

### Dimensions [mm]

| size | nominal diameter DN |       |       |       |       |       |       |       |       |  |
|------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|      | 15                  | 20    | 25    | 32    | 40    | 50    | 65    | 80    | 100   |  |
| A*   | 130                 | 150   | 160   | 180   | 200   | 230   | 290   | 310   | 350   |  |
| B    | 60                  | 60    | 60    | 75    | 75    | 75    | 112   | 112   | 112   |  |
| C    | 278                 | 278   | 278   | 438   | 438   | 438   | 508   | 508   | 508   |  |
| D    | G 1/8               | G 1/8 | G 1/8 | G 1/4 | G 1/4 | G 1/4 | G 1/4 | G 1/4 | G 1/4 |  |
| øE   | 115                 | 115   | 115   | 208   | 208   | 208   | 220   | 220   | 220   |  |

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

### Weights [kg]

| nominal diameter DN |    |    |    |    |    |    |    |     |  |  |
|---------------------|----|----|----|----|----|----|----|-----|--|--|
| 15                  | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |  |  |
| 9                   | 10 | 11 | 31 | 33 | 35 | 64 | 66 | 73  |  |  |

### Customs Tariff Number

84811019

### Please specify on order:

- » nominal diameter
- » K<sub>vs</sub> value
- » body material
- » nominal pressure
- » pressure range
- » elastomeres

example: DM 618, DN 50, PN 40, K<sub>vs</sub> 40 m<sup>3</sup>/h, 2 - 5 bar, GS-C25, EPDM

### Typical Applications

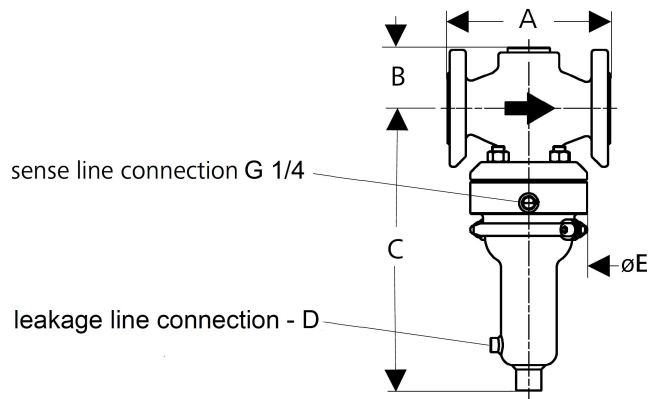
- » Conventional fuel supply and residues disposal (e.g. KKS Code: EKG, ENX)
- » Water supply and disposal – distribution system (e.g. KKS Code: GHC, GQA)
- » Drying of solid matter (e.g. KKS Code: HTN)
- » Conventional heat generation (e.g. KKS Code: HTQ)
- » Steam, water, gas cycle condensate system (e.g. KKS Code: LCA, LCW)
- » Water treatment and distribution (e.g. KKS Code: PCB)
- » Cooling water systems (e.g. KKS Code: PCC)
- » Generation of working air (e.g. KKS Code: SCA)

Special designs on request.

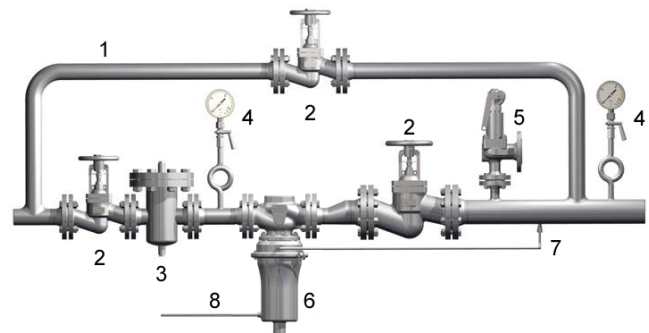
The pressure has always been indicated as overpressure.

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

### Dimensional Drawing



### Recommended Installation



- 1 Bypass for Maintenance
- 2 Shut-off Valves
- 3 Strainer\*
- 4 Pressure Gauge
- 5 Safety Valves\*
- 6 Pressure Reducer\*
- 7 Sense Line
- 8 Leakage Line

\*Sense line connection 10 - 20 x DN behind the valve  
Use MANKENBERG-Products

Installation in a horizontal line without strain with the spring cap pointing vertically downwards in such a way that the arrow on the body points in the direction of flow. For gases, the installation can take place with the spring cap pointing either downwards or upwards. For use with liquids the valve must be installed with the spring cap pointing downwards.

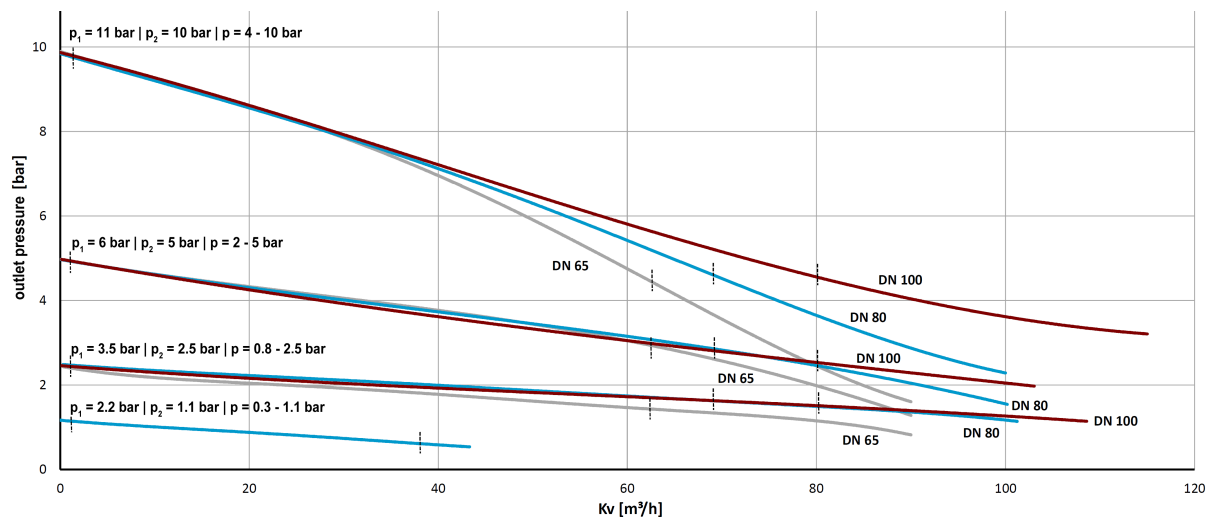
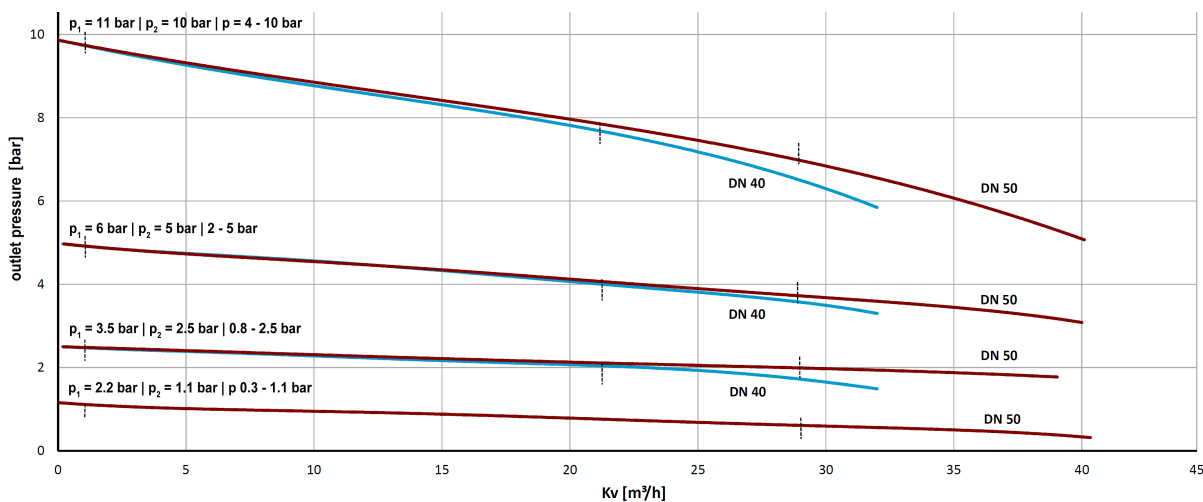
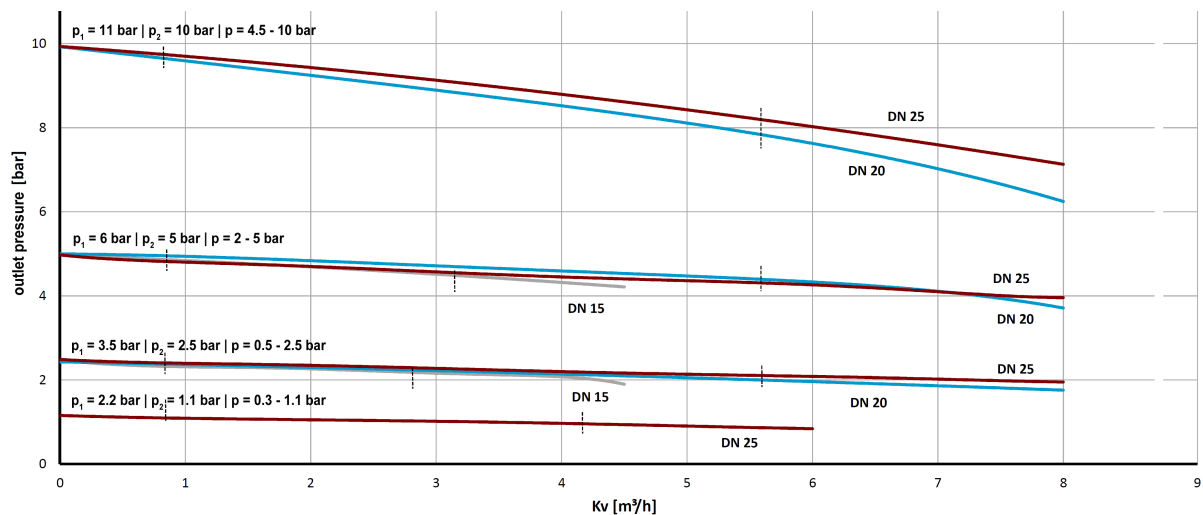
# Pressure Control Valves

## Pressure Reducing Valves DM 618

Standard Cast Valve for Liquids and Gases



### Flow Charts



$p$  = pressure range     $p_1$  = inlet pressure     $p_2$  = adjusted outlet pressure     $\vdots$  = recommended working range

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.