

# Pressure control valves

## Pressure reducing valves DM 652 ATEX

Universal valve for potentially explosive atmospheres



### Technical Data

Connection DN	15 - 50
Connection G	1/2 - 2
Nominal pressure PN	40
Inlet pressure	up to 40 bar
Outlet pressure	0.1 - 12 bar
$K_{vs}$ value	5 - 22 m <sup>3</sup> /h
Temperature	-10 °C up to 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 pressure reducing valve DM 652 ATEX is a diaphragm-controlled, spring-loaded and balanced proportional control valve for the use in potentially explosive atmospheres. The valve is made of deep-drawn stainless steel with excellent corrosion resistance. The valve cone is soft-sealed.

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.

### Standard

- » All stainless steel construction
- » Non rising adjusting screw
- » Quick-release body clamp ring
- » Sense line connection
- » Diaphragm protected by PTFE foil
- » Balanced cone for controlling the outlet pressure independently from the initial pressure

### Special features of the ATEX version

- » Conformity to ATEX Directive 2014/34 / EU and DIN EN ISO 80079-36
- » Leakage line connection, adjusting screw seal and lock
- » Potential equalization among the valve components
- » Grounding device at the valve body
- » Protected body connections
- » Electrically conductive components

### Options

- » Various diaphragm and seal materials suitable for your medium
- » Special connections: Aseptic, ANSI or JIS flanges, NPT, welding spigots; other connections on request

Operating instructions, supplementary operating instructions, know-how and safety instructions must be strictly observed. All the pressure has been specified as overpressure. Technical data subject to change.



### ATEX Marking

Ex II 2G Ex h IIB 85°C...190°C Gb X

### $K_{vs}$ -values [m<sup>3</sup>/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 <sup>3</sup> /h	5	7	8	22	22	22

### Setting Ranges [bar], Nominal Pressure

0.1-0.5	0.3-1.1	0.8-2.5
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. $p_1/p_2$ )

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

# Pressure control valves

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Materials		
Design	130 °C (190 °C)	Option
Body	1.4404 / 316L	
Diaphragm Housing	1.4404 / 316L	
Seat	1.4408 / 316L	
Cone Plate	1.4404 / 316L	
Valve Seal	FEPM	EPDM, EFKM, PTFE
Diaphragm	EPDM	FKM, PTFE-protection foil
O-Rings	EPDM	FKM
Medium Wetted Internal Parts	1.4404 - 1.4462 / 316L - Duplex	
Spring	1.4310 / 301	
Spring Cap	1.4404 - 1.4571 / 316L - 316Ti	
Screws, Nuts	A4-70, A4	

Mankenberg is free to upgrade materials without further notice. Special designs may differ in material choice.

### Dimensions [mm]

setting 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 <sub>1</sub> *	130	150	160	180	200	230
0.1 - 0.5	B	76	76	76	80	80	80
	C	300	300	300	300	300	300
0.3 - 1.1	D	264	264	264	264	264	264
	C	300	300	300	300	300	300
0.8 - 2.5	D	200	200	200	200	200	200
	C	235	235	235	235	235	235
2 - 5	D	138	138	138	138	138	138
	C	235	235	235	235	235	235
4 - 8	D	138	138	138	138	138	138
	C	235	235	235	235	235	235
6 - 12	D	138	138	138	138	138	138
	C	235	235	235	235	235	235

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

### Weights Sleeve Connection [kg]

setting range bar	nominal diameter G					
	1/2	3/4	1	1 1/4	1 1/2	2
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 Flange Connection [kg]

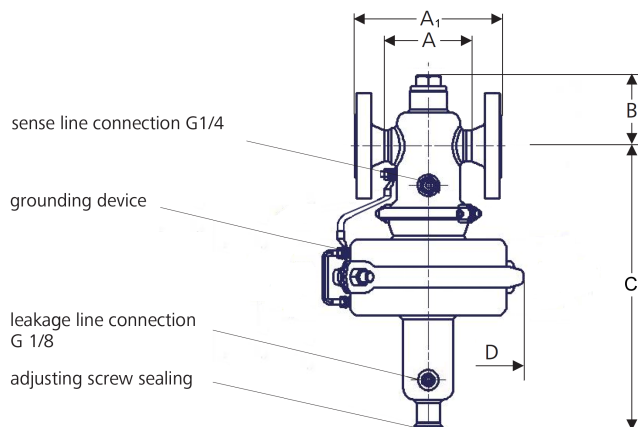
setting range bar	nominal diameter DN					
	15	20	25	32	40	50
0.1 - 0.5	8.9	8.9	8.9	12	12	12
0.3 - 1.1	7.9	7.9	7.9	11	11	11
0.8 - 12	4.9	4.9	4.9	8	8	8

### Customs Tariff Number

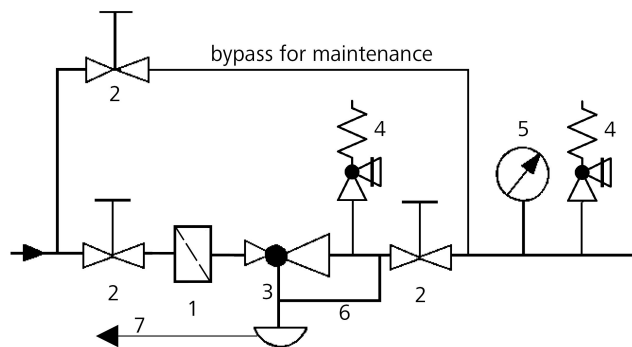
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### Dimensional Drawing



### 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