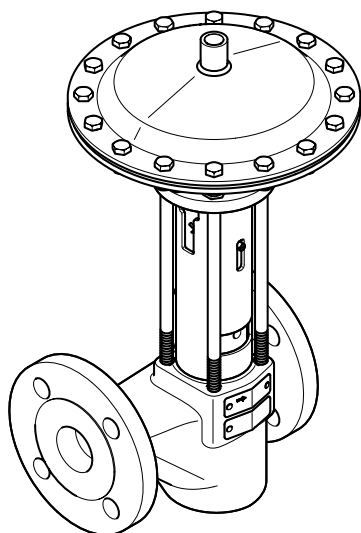


PA 46, PA 47, PA 48



MPA 46, MPA 47, MPA 48

Rapid-Action Intermittent Blowdown Valve

PA 46, PN 40 / CLASS 150 / 300, DN 20-50

PA 47, PN 63 / CLASS 600, DN 25, 40, 50

PA 48, PN 100 / CLASS 600, DN 25, 40, 50

MPA 46, PN 40 / CLASS 150 / 300, DN 20-50

MPA 47, PN 63 / CLASS 600, DN 25, 40, 50

MPA 48, PN 100 / CLASS 600, DN 25, 40, 50

Description

The following rapid-action intermittent blowdown valves are installed in pipes to discharge boiler blowdown water:

- Rapid-action intermittent blowdown valve PA 46, PA 47 or PA 48 (manually operated)
- Rapid-action intermittent blowdown valve MPA 46, MPA 47 or MPA 48 (automatically operated)

The equipment is designed for discharging boiler blowdown water with non-metallic solids from steam boilers.

The equipment may only be used within the admissible pressure and temperature limits, with due consideration of chemical and corrosive influences.

Function

When the intermittent blowdown valve opens, the large cross-sectional area of the orifice creates a suction effect, giving a short-term high water flow which will discharge the precipitated sludge and sediments.

Type PA valves are intended for manual operation. For the blowdown process, the valve is opened fully by hand with the lever for around two to three seconds. The spring-loaded valve cone is forced out of the valve seat. As a result, accumulated sludge and sediments rush out of the open valve. When the manual lever is slowly released the spring forces the valve cone back into the valve seat and the valve is closed rapidly.

Type MPA valves are equipped with a diaphragm actuator for automatic operation. Compressed air or pressurised water is used as the control fluid. The diaphragm actuator opens the intermittent blowdown valve to perform a brief blowdown.

The following control units can initiate the opening of the valve:

- the TA program controller, see data sheet,
- the continuous blowdown controller LRR 1-40, LRR 1-52, LRR 1-53, LRR 1-60, see data sheet, or
- the SPECTORcontrol with CAN bus.

Optional extras

- Assembly kit 335130 for retrofitting the actuator of an existing MPA 26 or MPA 27 in a PA 46 or PA 47 to upgrade them to an MPA 46 or MPA 47 (guide bushing with washer and spacer disc)
- Diaphragm actuator 337866 for PA 4x (diaphragm actuator, spacer disc)
- TA program controller for MPA 4x
- Retrofit kit 337980 containing proximity switch for MPA 4x (one limit switch)
- Retrofit kit 337946 containing proximity switch for MPA 4x (two limit switches)
- Emergency lever 337867 for MPA 46/47 and 338073 for MPA 48

End connections

PA 46, MPA 46

- Flange PN 40, B1 (EN 1092-1)
- Flange CLASS 150, RF (ASME B 16.5)
- Flange CLASS 150, RFS (ASME B 16.5)
- Flange CLASS 300, RF (ASME B 16.5)
- Flange CLASS 300, RFS (ASME B 16.5)
- Socket-weld end DIN EN 12760 / ASME B 16.11 CLASS 3000
- Butt-weld end via transition pieces EN 12627, welded joint geometry ISO 9692-1 code no. 1.3 (30° chamfer)
- Butt-weld end via transition pieces Sched 40 (ASME B 16.25, ASME B 36.10)

PA 47, MPA 47

- Flange PN 63, B2 (EN 1092-1)
- Flange CLASS 600 RF (ASME B16.5)
- Flange CLASS 600 RFS (ASME B16.5)
- Socket-weld end DIN EN 12760 / ASME B 16.11 CLASS 3000
- Butt-weld end via transition pieces EN 12627 welded joint geometry ISO 9692-1 code no. 1.3 (30° chamfer)
- Butt-weld end via transition pieces Sched 80 xs (ASME B 16.25, ASME B 36.10)

PA 48, MPA 48

- Flange PN 100, B2 (EN 1092-1)
- Flange CLASS 600 RF (ASME B16.5)
- Flange CLASS 600 RFS (ASME B16.5)
- Socket-weld end DIN EN 12760 / ASME B 16.11 CLASS 3000
- Butt-weld end via transition pieces EN 12627 welded joint geometry ISO 9692-1 code no. 1.3 (30° chamfer)
- Butt-weld end via transition pieces Sched 80 xs (ASME B 16.25, ASME B 36.10)

Materials

Component	PA 46, PA 47, PA 48, MPA 46, MPA 47, MPA 48	
	DIN/EN	ASTM/ASME
Body ¹⁾	1.0460	SA 105
Union nut ¹⁾	1.0460	SA 105
Sealing plug ¹⁾	1.7225	SA 193 B7
Gasket PA 46, PA 47, MPA 46, MPA 47	1.4301	
Gasket PA 48, MPA 48	2.4068	
Seat (hardened)	1.4034	
Cone (hardened)	1.4122	
Disc springs	1.8159	
Compression spring	1.1200	
Diaphragm actuator (MPA only)	Galvanised steel (1.0334)	
Packing	PTFE yarn	PTFE yarn
Control diaphragm (MPA only)	EPDM	EPDM

¹⁾ Pressure-bearing components

Pressure and temperature ratings of PA 46 and MPA 46

End connection	Flange PN 40, EN butt-weld ends			
Pressure ¹⁾ p [bar]	40.0	37.1	33.3	27.6
Temperature ¹⁾ T [°C]	20.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to EN 1092-1

Operating data: Maximum pressure 31 [bar] at boiling temperature 237.5 [°C]

End connection	Flange CLASS 150			
Pressure ¹⁾ p [bar]	19.6	17.7	13.8	10.2
Temperature ¹⁾ T [°C]	38.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to ASME B16.34

End connection	Flange CLASS 300, ASME socket-weld ends and butt-weld ends			
Pressure ¹⁾ p [bar]	51.1	46.6	43.8	39.8
Temperature ¹⁾ T [°C]	38.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to ASME B16.34

Operating data: Maximum pressure 41.5 [bar] at boiling temperature 254 [°C]

Pressure and temperature ratings of PA 47 and MPA 47

End connection	Flange PN 63 and EN butt-weld ends			
Pressure ¹⁾ p [bar]	63.0	58.5	52.5	43.5
Temperature ¹⁾ T [°C]	20.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to EN 1092-1

Operating data: Maximum pressure 46.7 [bar] at boiling temperature 261 [°C]

End connection	Flange CLASS 600, ASME socket-weld ends and butt-weld ends			
Pressure ¹⁾ p [bar]	102.1	93.2	87.6	79.6
Temperature ¹⁾ T [°C]	38.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to ASME B16.34

Operating data: Maximum pressure 55 [bar] at boiling temperature 271 [°C]

Pressure and temperature ratings of PA 48 and MPA 48

End connection	Flange PN 100 and EN butt-weld ends			
Pressure ¹⁾ p [bar]	100.0	97.3	83.3	69.0
Temperature ¹⁾ T [°C]	-10.0 / 20.0	100.0	200.0	300.0

¹⁾ Ratings for strength of body/cover to EN 1092-1

Operating data: Maximum pressure 70.0 [bar] at boiling temperature 287 [°C]

End connection	Flange CLASS 600 and ASME butt-weld ends			
Pressure ¹⁾ p [bar]	102.1	93.2	87.6	79.6
Temperature ¹⁾ T [°C]	-29.0/20.0	100.0	200.0	300.0

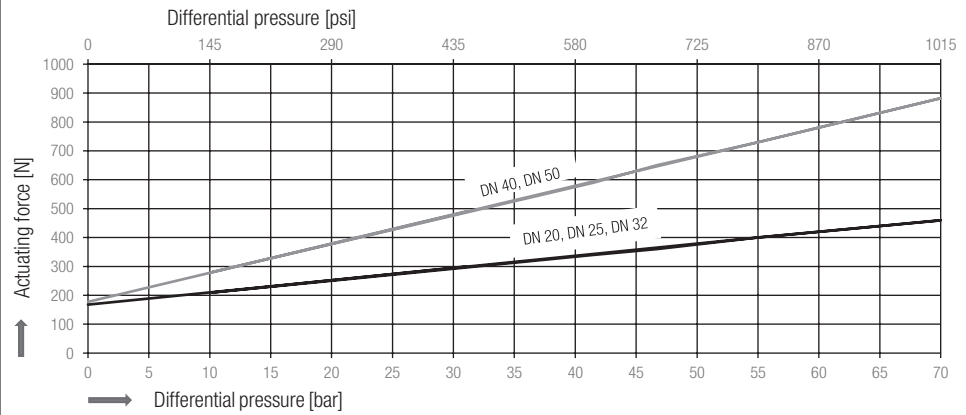
¹⁾ Ratings for strength of body/cover to ASME B16.5

Operating data: Maximum pressure 70 [bar] at boiling temperature 287 [°C]

Actuating force for PA

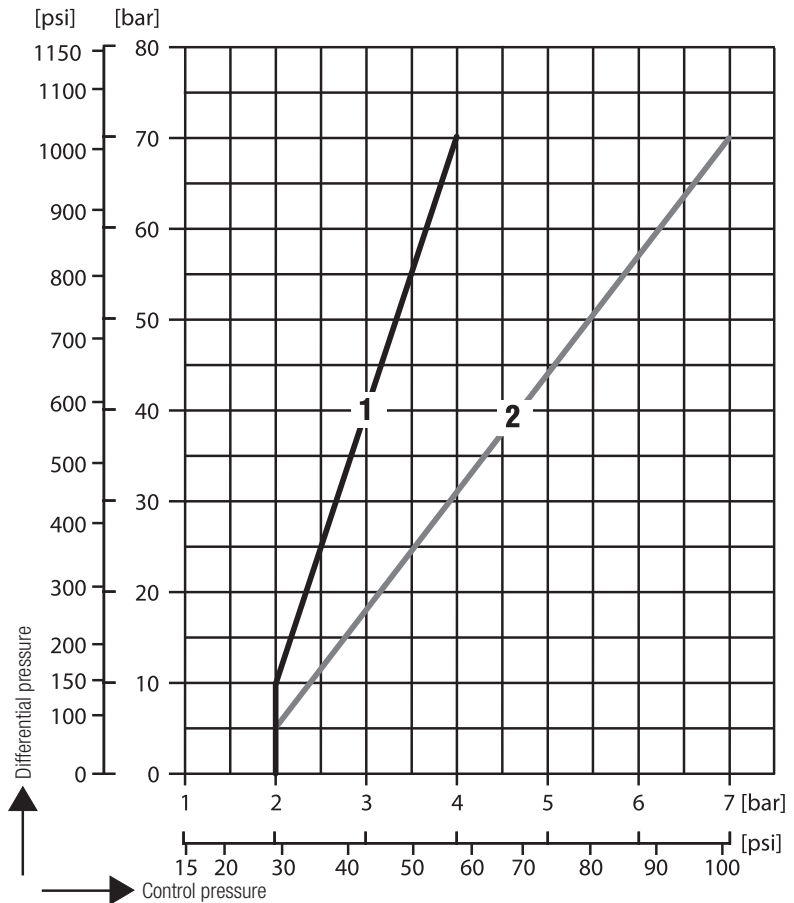
Type	End connection	Maximum actuating force [N]	
		DN 20-32	DN 40, DN 50
PA 46	Flange PN 40, EN butt-weld end	300	490
	Flange CLASS 150	210	280
	Flange CLASS 300, ASME socket-weld end and butt-weld end	340	590
PA 47	Flange PN 63, EN butt-weld ends	360	650
	Flange CLASS 600, ASME socket-weld ends and butt-weld ends	400	730
PA 48	Flange PN 10, EN butt-weld ends	459	882
	Flange CLASS 600, ASME butt-weld ends	400	730

Actuating force based on differential pressure for PA



Control pressure for MPA

The control fluid for the diaphragm actuator is compressed air or pressurised water. The control pressure must not exceed 8 bar. Use the diagram below to determine the minimum control pressure based on the differential pressure.



1 DN 20 – 32
2 DN 40, DN 50

Dimensions

	PA	MPA
∅ D [mm] 235		235
H1 [mm]	See tables below	
H2 [mm]	DN 20-32: 55 mm DN 40/50: 80 mm	DN 20-32: 55 mm DN 40/50: 80 mm
H3 [mm]	250	360
H4 [mm]	350	
H5 (space required for removing pressure plate) [mm]	25	25
X [mm]	PA 46 / PA 47: 480 PA 48: 540	
L [mm]	See tables below	

Leave sufficient space for servicing. When the equipment is securely installed, a minimum space of 150 mm is required for removing or subsequently installing the actuator.

PA 46 / MPA 46, flange, PN 40

DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
H1	[mm]	105.0	115.0	140.0	150.0	165.0
L	[mm]	150.0	160.0	180.0	200.0	230.0
Weight of PA	kg	8.8	9.3	10.6	13.8	15.6
Weight of MPA		13.2	13.7	15.0	18.2	20.0

PA 46 / MPA 46, flange, CLASS 150

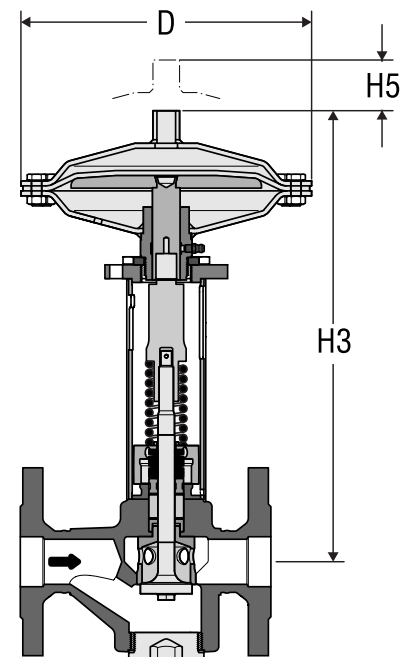
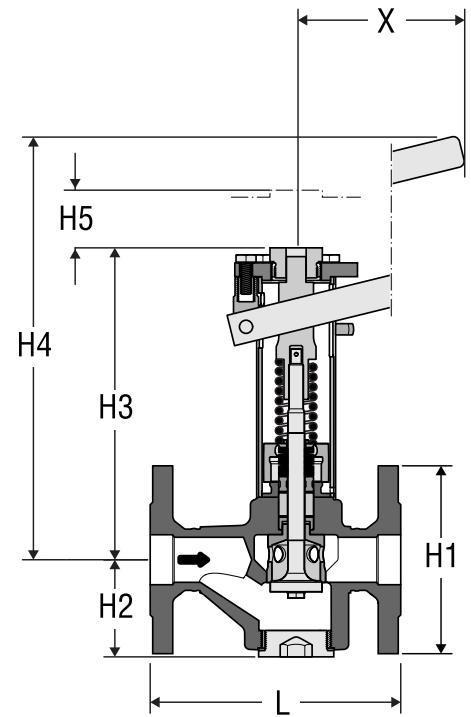
DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
H1	[mm]	98.4	107.9	117.5	127.0	152.4
L	[mm]	150.0	160.0	180.0	230.0	230.0
Weight of PA	kg	8.8	9.3	10.6	13.8	15.6
Weight of MPA		13.2	13.7	15.0	18.2	20.0

PA 46 / MPA 46, flange, CLASS 300

DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
H1	[mm]	117.5	123.8	133.3	155.6	165.1
L	[mm]	150.0	160.0	180.0	230.0	230.0
Weight of PA	kg	8.8	9.3	10.6	13.8	15.6
Weight of MPA		13.2	13.7	15.0	18.2	20.0

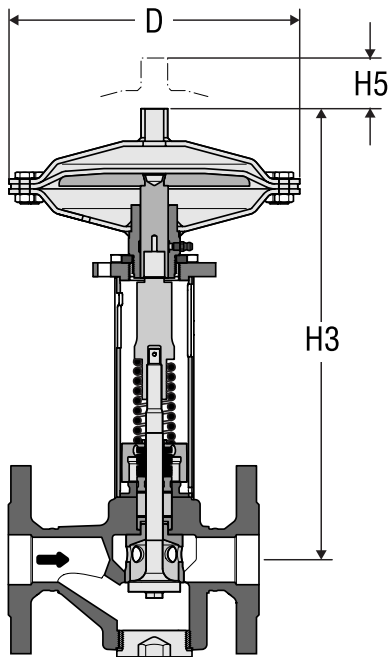
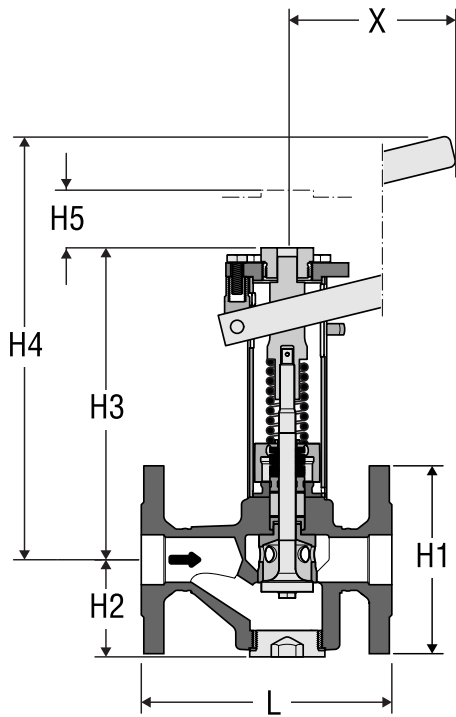
Dimensions and weights

PA, MPA



Dimensions and weights

PA, MPA



PA 46 / MPA 46, butt-weld end, EN 12627 but with joint type ISO 9692-1 code no. 1.3 (30° chamfer), DIN 2559-2

DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
For pipe	[mm]	26.9×2.3	33.7×2.6	42.4×3.6	48.3×2.6	60.3×3.2
L	[mm]	200.0	200.0	200.0	250.0	250.0
Weight of PA	kg	8.2	8.2	8.9	12.0	13.3
Weight of MPA		12.6	12.6	13.3	16.4	17.7

PA 46 / MPA 46, butt-weld end, ASME B16.25, Schedule 40, ASME B36.10

DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
For pipe	[mm]	26.7×2.9	33.4×3.4	42.2×3.6	48.3×3.7	60.3×3.9
L	[mm]	200.0	200.0	200.0	250.0	250.0
Weight of PA	kg	8.2	8.2	8.9	12.0	13.3
Weight of MPA		12.6	12.6	13.3	16.4	17.7

PA 47 / MPA 47, flange, PN 63

DN	[mm]	25	40	50
	[in]	1	1½	2
H1	[mm]	140.0	170.0	180.0
L	[mm]	190.0	220.0	250.0
Weight of PA	kg	9.3	13.8	15.6
Weight of MPA		13.7	18.2	20.0

PA 48 / MPA 48, flange, PN 100

DN	[mm]	25	40	50
	[in]	1	1½	2
H1	[mm]	140.0	170.0	195.0
L	[mm]	190.0	220.0	250.0
Weight of PA	kg	9.9	14.4	17.8
Weight of MPA		13.7	18.2	20.2

PA 47/48 / MPA 47/48, flange, CLASS 600

DN	[mm]	25	40	50
	[in]	1	1½	2
H1	[mm]	123.8	155.6	165.1
L	[mm]	216.0	216.0	250.0
Weight of PA 47	kg	9.3	13.8	15.6
Weight of PA 48		9.9	14.4	16.2
Weight of MPA		13.7	18.2	20.0

PA 47/48 / MPA 47/48, butt-weld end, EN 12627 but with joint type ISO 9692-1 code no. 1.3 (30° chamfer), DIN 2559-2

DN	[mm]	25	40	50
	[in]	1	1½	2
For pipe	[mm]	33.7×2.6	48.3×2.9	60.3×2.9
L	[mm]	200.0	250.0	250.0
Weight of PA 47	kg	8.2	12.0	13.3
Weight of PA 48		8.8	12.6	13.9
Weight of MPA		12.6	16.4	17.7

PA 47/48 / MPA 47/48, butt-weld end, ASME B16.25, Schedule 80, ASME B36.10

DN	[mm]	25	40	50
	[in]	1	1½	2
For pipe	[mm]	33.4×4.5	48.3×5.1	60.3×5.5
L	[mm]	200.0	250.0	250.0
Weight of PA 47	kg	8.2	12.0	13.3
Weight of PA 48		8.8	12.6	13.9
Weight of MPA		12.6	16.4	17.7

PA 46/47/48 / MPA 46/47/48, socket-weld end, DIN EN 12760, ASME B16.11, CLASS 3000

DN	[mm]	20	25	32	40	50
	[in]	¾	1	1¼	1½	2
For pipe	[mm]	26.9×26.7	33.7×33.4	42.4×42.2	48.3×48.3	60.3×60.3
L	[mm]	200.0	200.0	200.0	250.0	250.0
Weight of PA 46/47	kg	7.4	7.7	8.6	11.4	12.6
Weight of PA 48		8.0	8.3	9.2	12.0	13.2
Weight of MPA		11.8	12.1	13.0	15.8	17.0

Rapid-Action Intermittent Blowdown Valve

PA 46, PN 40 /

CLASS 150 / 300, DN 20-50

PA 47, PN 63 /

CLASS 600, DN 25, 40, 50

PA 48, PN 100 /

CLASS 600, DN 25, 40, 50

MPA 46, PN 40 /

CLASS 150 / 300, DN 20-50

MPA 47, PN 63 /

CLASS 600, DN 25, 40, 50

MPA 48, PN 100 /

CLASS 600, DN 25, 40, 50

Application of European Directives

Pressure Equipment Directive

The equipment conforms to this directive and can be used for the following fluids:

■ Group 2 fluids

ATEX Directive

Pay attention to the instructions below if using in potentially explosive environments.

The equipment does not have its own potential ignition source and is therefore not subject to this directive.

If it is possible for fluid to escape, e.g. through actuating mechanisms or leaks in threaded joints, the plant manufacturer or owner must take this into consideration when dividing the area into zones.

The equipment has classification: CE Ex II 2G/D c X.

For use in potentially explosive atmospheres in zones (surrounding atmosphere to Directive 1999/92/EC) 1, 2, 21 and 22, please read and observe the following information:

The sign "X" in the Ex label signifies that operation at an excessive surface temperature caused by the medium must be avoided. The equipment itself does not generate additional surface temperatures.

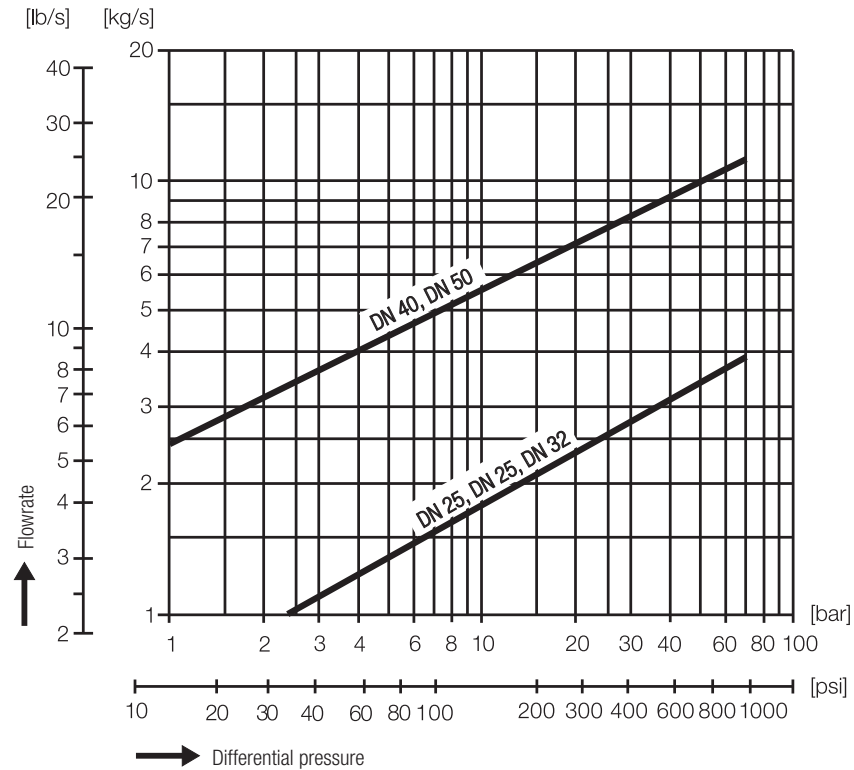
Once installed, static electricity may arise between the equipment and the connected system. If used in potentially explosive atmospheres, the plant manufacturer or owner is responsible for discharging or preventing possible static charge. If it is possible for fluid to escape, e.g. through actuating mechanisms or leaks in threaded joints, the plant manufacturer or owner must take this into consideration when dividing the area into zones.

If the MPA has a pneumatic drive, if incorrectly discharged the exhaust air (compressed air) required for operation can lead to swirls of potentially explosive dust.

Please note our general terms of business.

Capacity chart

The chart shows the maximum capacity for hot water. The capacity is dependent on the differential pressure. The differential pressure is calculated from the pressure upstream of the equipment minus the pressure downstream of the equipment.



Flow characteristics

DN	Kvs value [m ³ /h]
20, 25, 32	5.1
40, 50	16.5

The Kvs value is the metric measure for the volume flow of water at a temperature of 5 to 30°C in [m³/h] with a pressure drop of across the valve of 1 bar and the respective opening angle of the hand lever.

Important notes

- The torsional and flexural torques in the pipe are a function of the max. admissible pressure (p_{max}) and the position of the PA hand lever set crosswise or lengthwise to the pipe. The maximum actuating forces are indicated in the "Actuating force/Control pressure" table.
- If pressurised water is used as control fluid for the diaphragm actuator, make sure that the control line to the diaphragm actuator is made of corrosion-resistant material.
- To prevent water hammer, we recommend routing the pipe downstream from the intermittent blowdown valve with a downhill gradient, or draining the pipe before boiler blowdown.
- The pipe between the steam boiler and the intermittent blowdown valve must not be more than two metres long!

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