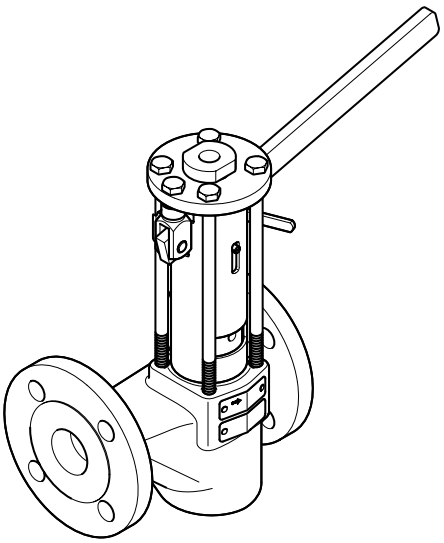
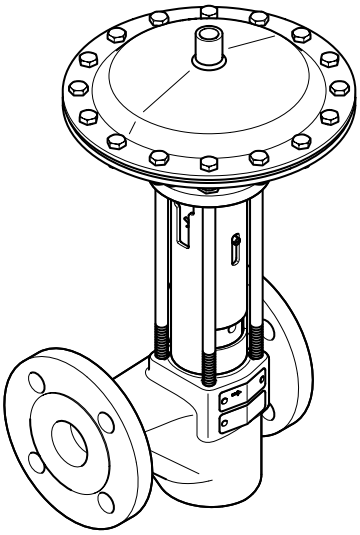


PA 46, PA 47



MPA 46, MPA 47

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
MPA 46, PN 40 / CLASS 150 / 300, DN 20-50
MPA 47, PN 63 / 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 or PA 47 (manually operated)
- Rapid-action intermittent blowdown valve MPA 46 or MPA 47 (automatically operated)

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

The equipment must only be used within the allowable pressure and temperature limits and only if the chemical and corrosive influences on the equipment are taken into account.

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 46 and PA 47 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 46 and MPA 47 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 short blowdown.

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

- the TA programme-controlled blowdown unit, see data sheet
- the continuous blowdown controller LRR 1-40, LRR 1-52, LRR 1-53, 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 335093 for PA 46 or PA 47 (diaphragm actuator, spacer disc)
- TA program controller for MPA 46 and MPA 47
- Retrofit kit 335197 containing proximity switch for MPA 46 and MPA 47 (one limit switch)
- Retrofit kit 335140 containing proximity switch for MPA 46 and MPA 47 (two limit switches)
- Emergency lever 335060 for MPA

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 ends via transition pieces to EN 12627 welded joint geometry ISO 9692-1 code number 1.3 (30° chamfer)
- Butt-weld ends 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 B 16.5)
- Socket-weld end DIN EN 12760/ASME B 16.11 CLASS 3000
- Butt-weld ends via transition pieces to EN 12627 welded joint geometry ISO 9692-1 code number 1.3 (30° chamfer)
- Butt-weld ends via transition pieces Sched 80 xs (ASME B 16.25, ASME B 36.10)

Materials of construction

Component part	PA 46, PA 47, MPA 46, MPA 47	
	DIN / EN	ASTM
Body[1])	1.0460	A 105
Union nut[1])	1.0460	A 105
Sealing plug[1])	1.7225	A 193 B7
Gasket	1.4301	
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
Diaphragm (MPA only)	EPDM	EPDM

[1]) Pressure-bearing components

Limiting conditions PA 46, 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]) Operating limits 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]	20.0	100.0	200.0	300.0

[1]) Operating limits 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]	20.0	100.0	200.0	300.0

[1]) Operating limits for strength of body/cover to ASME B16.34

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

Limiting conditions PA 47, 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]) Operating limits 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]	20.0	100.0	200.0	300.0

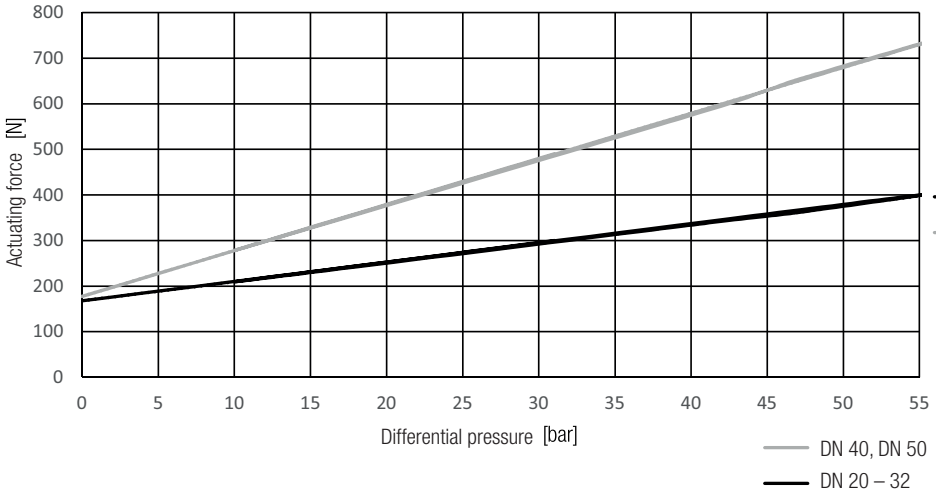
[1]) Operating limits for strength of body/cover to ASME B16.34

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

Actuating force for PA

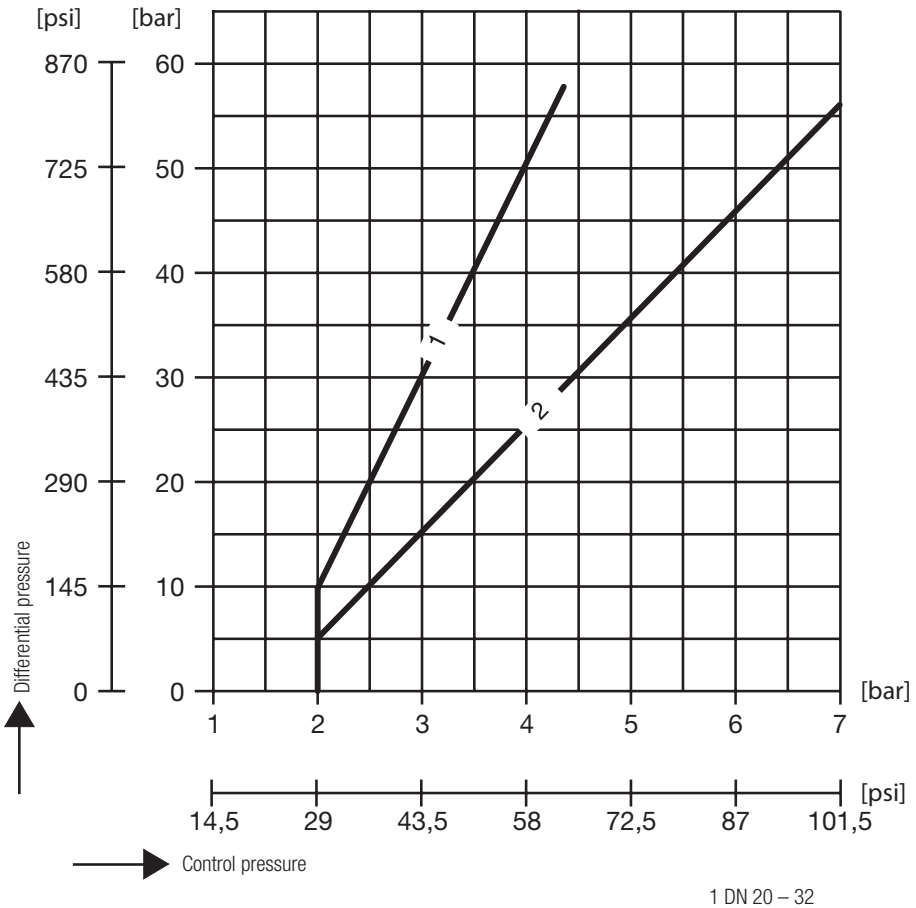
Type	End connection	Max. actuating force [N]	
		DN 20-32:	DN 40, DN 50
PA 46	Flange PN 40, EN butt-weld ends	300	490
	Flange CLASS 150	210	280
	Flange CLASS 300, ASME socket-weld ends and butt-weld ends	340	590
PA 47	Flange PN 63, EN butt-weld ends	360	650
	Flange CLASS 600, ASME socket-weld ends, butt-weld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

Actuating force based on the differential pressure for PA



Control pressure for MPA 46 and MPA 47

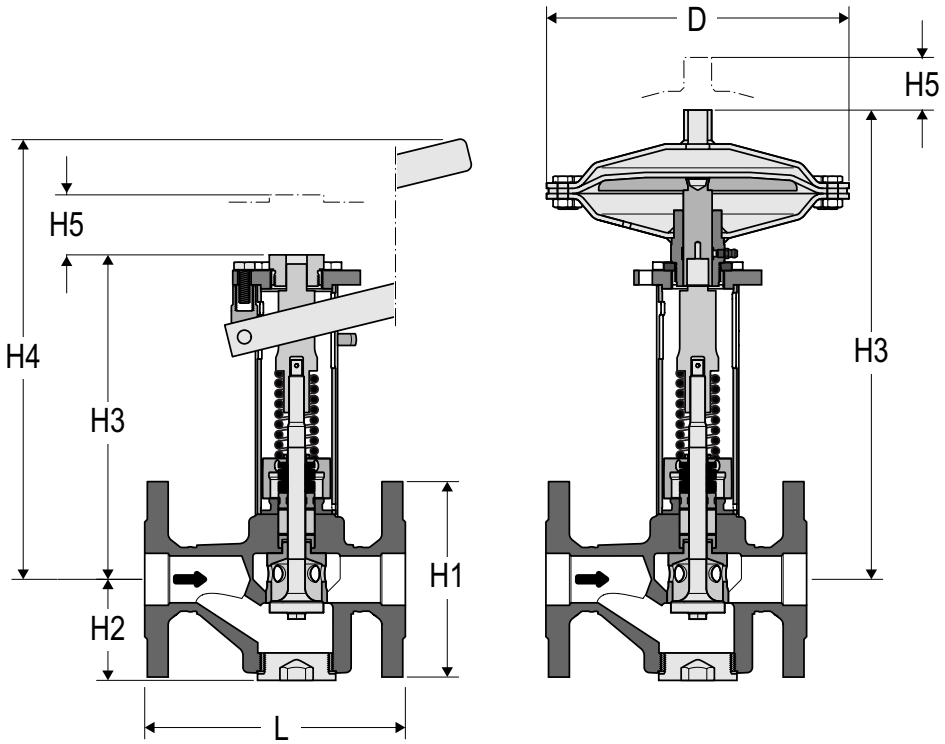
The control fluid for the diaphragm actuator is compressed air or pressurized water. The control pressure must not exceed 8 bar. Use the following diagram to determine the minimum control pressure based on the differential pressure.



1 DN 20 – 32
2 DN 40, DN 50

Dimensions and weights

PA, MPA



Dimensions

	PA	MPA
∅ D [mm] 235		235
H1 [mm]	See following tables	
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
L [mm]	See following tables	

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, Flansch, 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 PA	kg	8.8	9.3	10.6	13.8	15.6
Weight 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 PA	kg	8.8	9.3	10.6	13.8	15.6
Weight 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 PA	kg	8.8	9.3	10.6	13.8	15.6
Weight MPA		13.2	13.7	15.0	18.2	20.0

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 PA	kg	8.2	8.2	8.9	12.0	13.3
Weight 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 PA	kg	8.2	8.2	8.9	12.0	13.3
Weight 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 PA	kg	9.3	13.8	15.6
Weight MPA		13.7	18.2	20.0

PA 47 / MPA 47, 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 PA	kg	9.3	13.8	15.6
Weight MPA		13.7	18.2	20.0

PA 47 / MPA 47, 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 PA	kg	8.2	12.0	13.3
Weight MPA		12.6	16.4	17.7

PA 47 / MPA 47, 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 PA	kg	8.2	12.0	13.3
Weight MPA		12.6	16.4	17.7

PA 46 / MPA 46 and PA 47 / MPA 47, 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 PA	kg	7.4	7.7	8.6	11.4	12.6
Weight 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
MPA 46, PN 40 / CLASS 150 / 300, DN 20-50
MPA 47, PN 63 / CLASS 600, DN 25, 40, 50

Application of European Directives

Pressure Equipment Directive (PED)

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

■ Fluids of group 2

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 not subject to this directive.

If there is a possibility that medium might escape, e.g. via actuating devices or leaks in screwed couplings, the manufacturer or owner of the system 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.

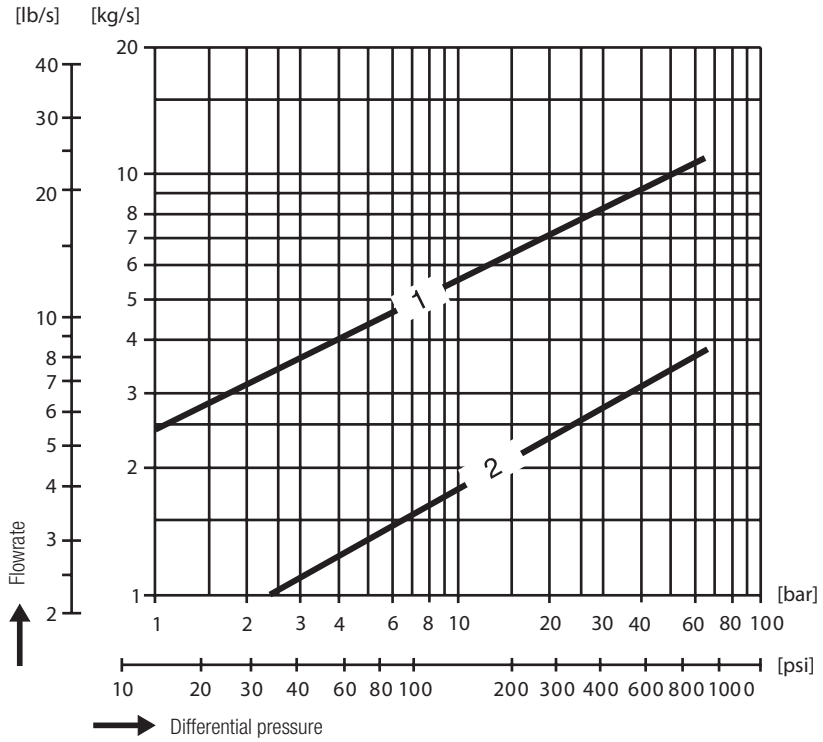
When installed, static electricity may arise between the equipment and the connected system. During use in potentially explosive atmospheres, the discharge or prevention of possible electrostatic charging is the responsibility of the manufacturer or owner of the system. If there is a possibility that medium might escape, e.g. via actuating devices or leaks in screwed couplings, the manufacturer or owner of the system 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.

Supply in accordance with 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 [m³/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 across the valve of 1 bar and the respective opening angle of the regulating lever.

Important Notes

- The torsional and flexural torques in the pipeline are a function of the max. admissible pressure (pmax) and the position of the PA 46 / PA 47 handlever set crosswise or lengthwise to the pipe. The max. actuating forces are indicated in the table Actuating force / Control pressure.
- If pressurized water is used as control fluid for the diaphragm actuator make sure that the control line to the diaphragm actuator is made from corrosion resistant material.
- To avoid waterhammer lay the pipe downstream of the intermittent valve in such a way that it has a slight fall, or evacuate the pipe before carrying out the boiler blowdown.
- The length of the pipe between the steam boiler and the intermittent valve for removing boiler sludge must not exceed two metres!

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