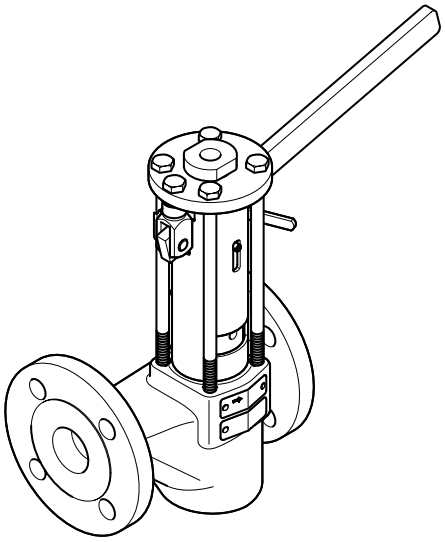
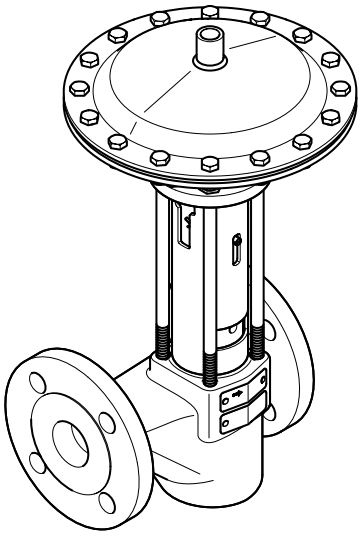


PA 46, PA 47, PA 48



MPA 46, MPA 47, MPA 48

Rapid-Action Intermittent Blowdown Valves

PA 46, PN 40 / CL 150 / 300, DN 20-50
PA 47, PN 63 / CL 400, DN 25, 40, 50
PA 48, PN 100 / CL 600, DN 25, 40, 50
MPA 46, PN 40 / CL 150 / 300, DN 20-50
MPA 47, PN 63 / CL 400, DN 25, 40, 50
MPA 48, PN 100 / CL 600, DN 25, 40, 50

Description

The rapid-action intermittent blowdown valves described below 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)

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

If the units are used outside their admissible pressure and temperature ratings, chemical and corrosive influences must be taken into consideration.

Fluids

The equipment is designed for the following fluids, in accordance with the EU Pressure Equipment Directive (Pressure Equipment (Safety) Regulations in the UK):

- Group 2 fluids

Chemical and corrosive influences must be taken into consideration.

Use in potentially explosive atmospheres

Pay attention to the instructions below if using in potentially explosive atmospheres:

The maximum surface temperature while the equipment is in operation is dependent on the operating fluid. Operation of the equipment in itself does not generate higher surface temperatures. This is evident in the classification, which indicates the relevant temperature classes and temperature ranges.

Once installed, static electricity may arise between the equipment and the connected system. If the equipment is 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 actuator, if incorrectly discharged the exhaust air (compressed air) required for operation can lead to swirls of potentially explosive dust. The plant manufacturer or owner must take this into consideration when dividing the area into zones.

(M)PA 46/47/48 and PA 110 equipment has the classification:

Ex II 2G Ex h IIA T6...T1 Gb

II 2D Ex h IIIA T20°C...T374°C Db

MPA 110 equipment does not have its own potential source of ignition (as per ATEX Directive).

Function

When the intermittent blowdown valve opens, the large cross-sectional area of the orifice creates a suction effect, discharging precipitated sludge.

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.

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 proximity switch for MPA 4x (one limit switch)
- Retrofit kit 337946 proximity switch for MPA 4x (two limit switches)
- Emergency lever 337867 for MPA 46/47 and 338073 for MPA 48

Connections

We reserve the right to design the butt-weld end and socket-weld end with transition pieces if necessary.

PA 46, MPA 46

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

PA 47, MPA 47

- Flange EN 1092-1 B2, PN 63
- Flange ASME B 16.5, CL 400 RF
- Flange ASME B 16.5, CL 400 RFS
- Socket-weld end DIN EN 12760/ASME B 16.11 CL 3000
- Butt-weld end EN 12627, welded joint geometry ISO 9692-1, code no. 1.3 (30° chamfer)
- Butt-weld end ASME B 16.25, ASME B 36.10, Sched 80 xs

PA 48, MPA 48

- Flange EN 1092-1 B2, PN 100
- Flange ASME B 16.5, CL 600 RF
- Flange ASME B 16.5, CL 600 RFS
- Socket-weld end DIN EN 12760/ASME B 16.11 CL 3000
- Butt-weld end EN 12627, welded joint geometry ISO 9692-1, code no. 1.3 (30° chamfer)
- Butt-weld end ASME B 16.25, ASME B 36.10, Sched 80 xs

Materials

Component	PA 46, PA 47, PA 48, MPA 46, MPA 47, MPA 48	
	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

PA 46, MPA 46 flange PN 40, butt-weld end EN

p Pressure[1])	barg	40.0	37.1	33.3	27.6
T Temperature[1])	°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

PA 46, MPA 46 flange CL 150

p Pressure[1])	barg	19.6	17.7	13.8	10.2
T Temperature[1])	°C	38.0	100.0	200.0	300.0

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

PA 46, MPA 46 flange CL 300, socket-weld end EN/ASME, butt-weld end ASME

p Pressure[1])	bar	51.1	46.6	43.8	39.8
T Temperature[1])	°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

PA 47, MPA 47 flange PN 63, butt-weld end EN

p Pressure[1])	barg	63.0	58.5	52.5	43.5
T Temperature[1])	°C	20.0	100.0	200.0	300.0

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

Operating data: Maximum pressure 47 bar at boiling temperature 261 °C

PA 47, MPA 47 flange CL 400, socket-weld end EN/ASME, butt-weld end ASME

p Pressure[1])	barg	68.1	62.1	58.4	53.1
T Temperature[1])	°C	–29.0 — 20.0	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 270 °C

PA 48, MPA 48 flange PN 100, butt-weld end EN

p Pressure[1])	barg	100.0	97.3	83.3	69.0
T Temperature[1])	°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 bar at boiling temperature 287 °C

PA 48, MPA 48 flange CL 600, socket-weld end EN/ASME, butt-weld end ASME

p Pressure[1])	barg	102.1	93.2	87.6	79.6
T Temperature[1])	°C	– 29.0 — 20.0	100.0	200.0	300.0

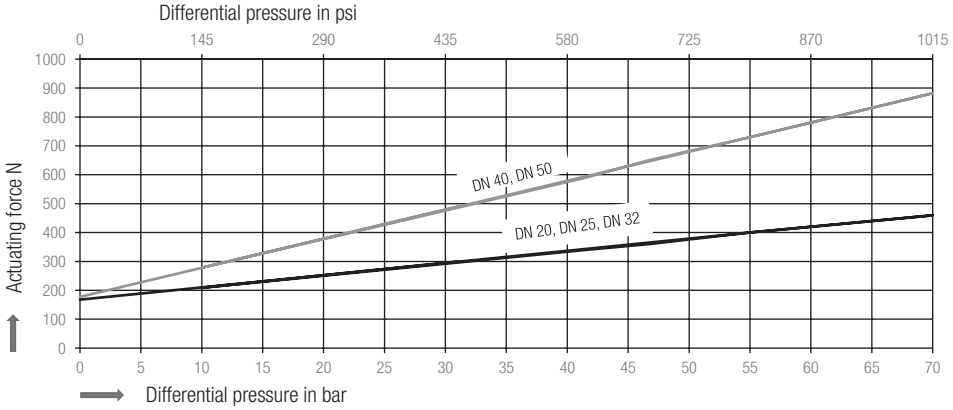
[1]) Ratings for strength of body/cover to ASME B16.5

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

Actuating force for PA

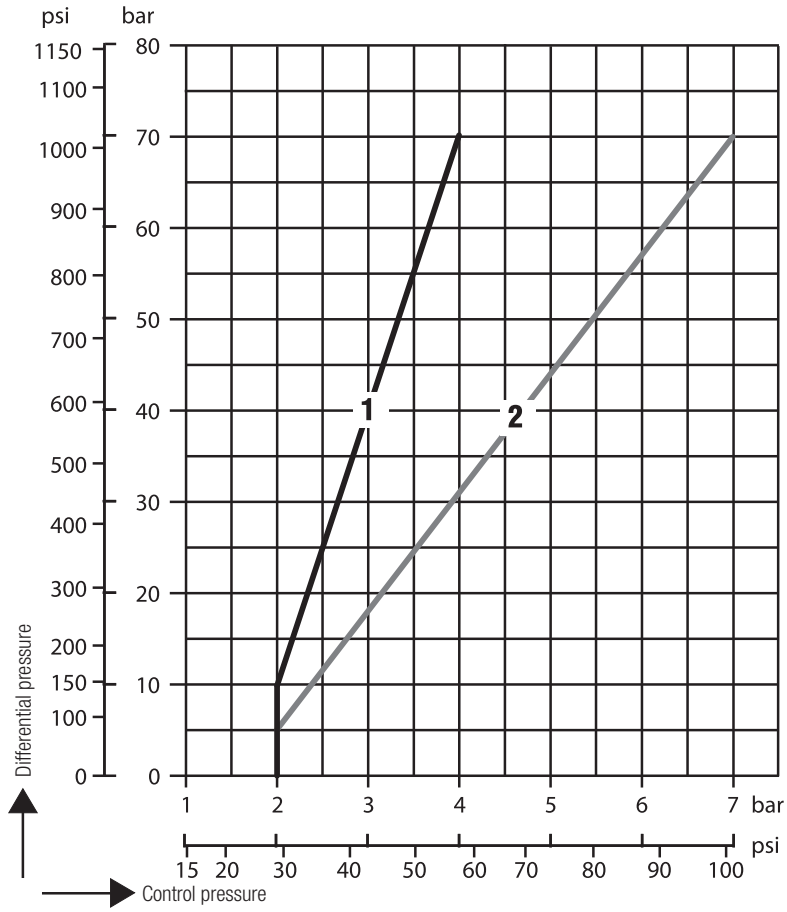
Type	Connection	Maximum actuating force N	
		DN 20-32	DN 40, DN 50
PA 46	Flange PN 40, EN butt-weld end	300	490
	Flange CL 150	210	280
	Flange CL 300, ASME socket-weld end and butt-weld end	340	590
PA 47	Flange PN 63, EN butt-weld end	360	650
	Flange CL 400, ASME socket-weld end and butt-weld end	400	730
PA 48	Flange PN 100, EN butt-weld end	459	882
	Flange CL 600, ASME socket-weld end and butt-weld end	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 and weights

		PA	MPA
∅ D	mm		235
H1	mm	See tables below	
H2	mm	DN 20-32: 55 DN 40/50: 80	DN 20-32: 55 DN 40/50: 80
H3	mm	DN 20-32: 240 DN 40/50: 250	DN 20-32: 350 DN 40/50: 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	

Pay attention to service dimensions. When the equipment is securely installed, a minimum space of 150 mm is required for removing or retrofitting the actuator.

PA 46, MPA 46, flange PN 40

Nominal size	**DN**	**20**	**25**	**32**	**40**	**50**
	NPS	**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 CL 150

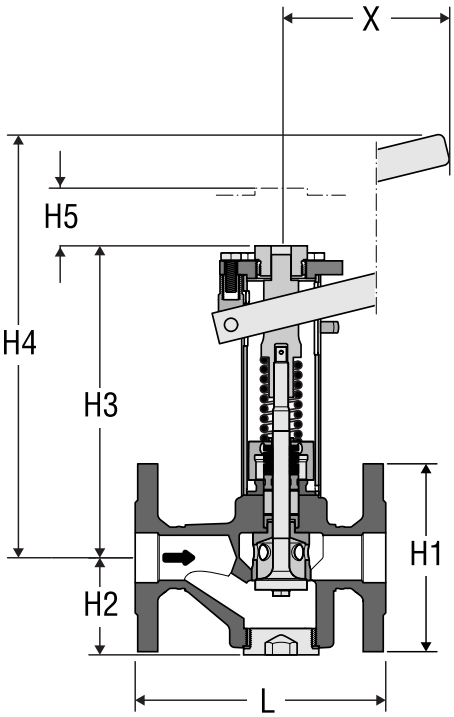
Nominal size	**DN**	**20**	**25**	**32**	**40**	**50**
	NPS	**¾"**	**1"**	**1¼"**	**1½"**	**2"**
H1	mm	98.4	107.9	117.5	127.0	152.4
L	mm	150.0	160.0	180.0	230.0	230.0
Weight of PA	kg	8.8	9.3	10.6	13.8	15.6
Weight of MPA		13.2	13.7	15.0	18.2	20.0

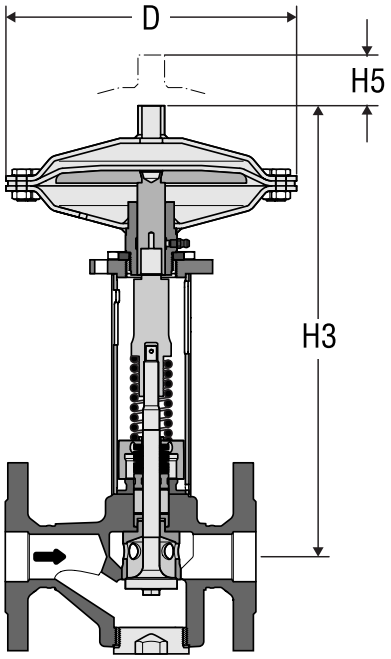
PA 46, MPA 46, flange CL 300

Nominal size	**DN**	**20**	**25**	**32**	**40**	**50**
	NPS	**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

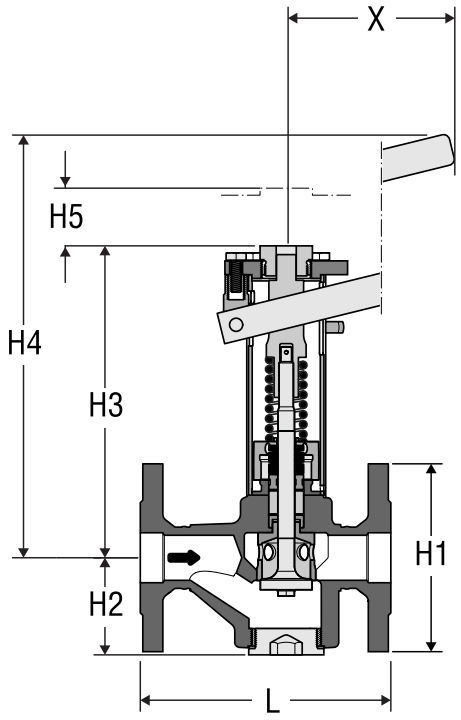
PA, MPA

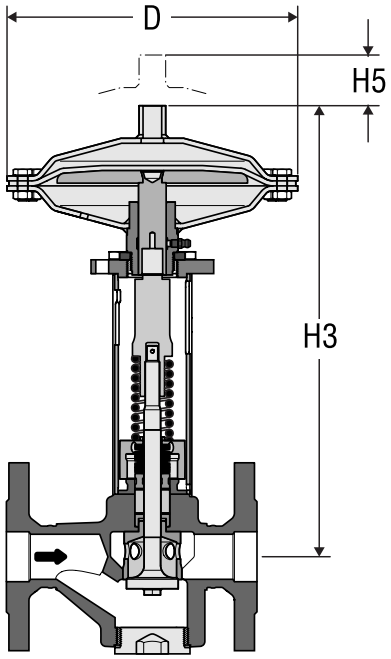




Dimensions

PA, MPA





PA 46, MPA 46, EN butt-weld end

Nominal size	DN	20	25	32	40	50
	NPS	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, ASME butt-weld end

Nominal size	DN	20	25	32	40	50
	NPS	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

Nominal size	DN	25	40	50
	NPS	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

Nominal size	DN	25	40	50
	NPS	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, MPA 47 flange CL 400, PA 48, MPA 48 flange CL 600

Nominal size	DN	25	40	50
	NPS	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, EN butt-weld end

Nominal size	DN	25	40	50
	NPS	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, ASME butt-weld end

Nominal size	DN	25	40	50
	NPS	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, EN/ASME socket-weld end

Nominal size	DN	20	25	32	40	50
	NPS	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 Valves

PA 46, PN 40 /
CL 150 / 300, DN 20-50
PA 47, PN 63 /
CL 400, DN 25, 40, 50
PA 48, PN 100 /
CL 600, DN 25, 40, 50
MPA 46, PN 40 /
CL 150 / 300, DN 20-50
MPA 47, PN 63 /
CL 400, DN 25, 40, 50
MPA 48, PN 100 /
CL 600, DN 25, 40, 50

Important notes

- The torsional and flexural torques in the pipe are a function of the max. admissible pressure (pmax) 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!

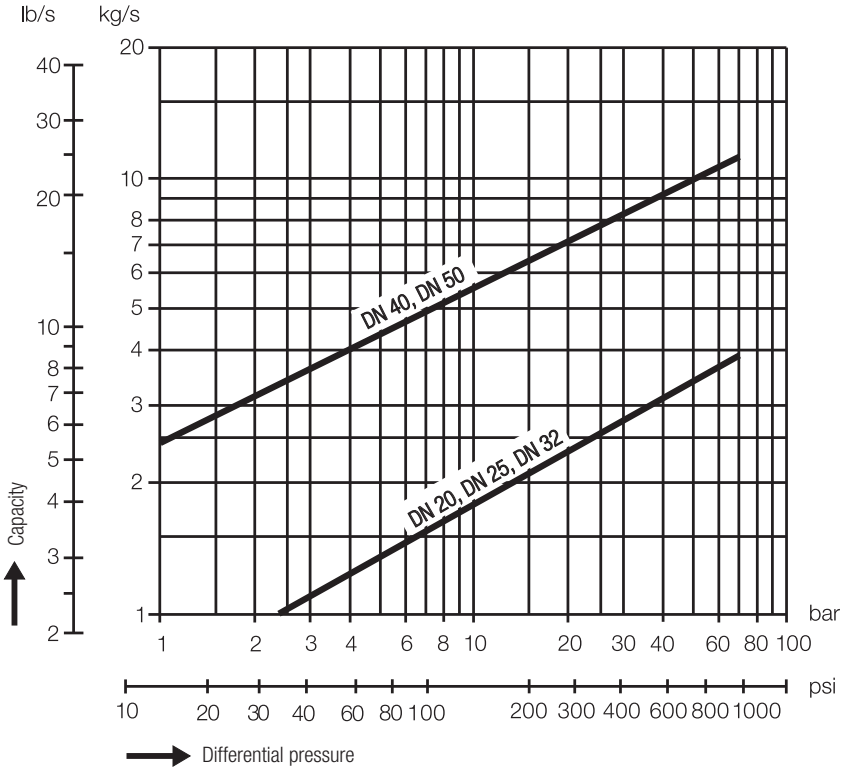
Directives and standards

You can find details on the conformity of the equipment and the applicable standards and directives in the Declaration of Conformity and associated certificates or approvals.

Please note our general terms of business.

Flow 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.

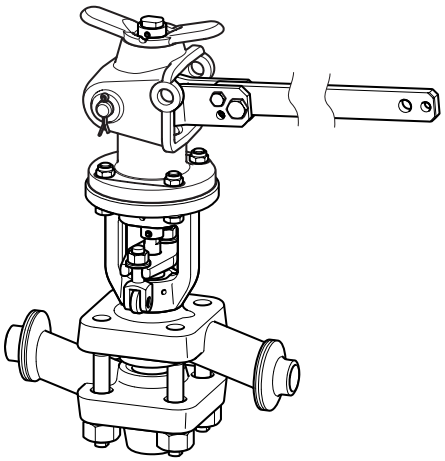


Flow characteristics

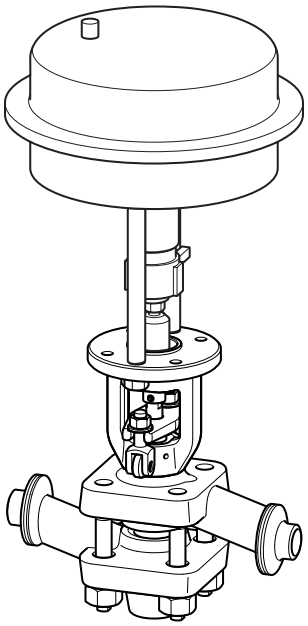
DN	Kvs value m³/h
20, 25, 32	5.1
40, 50	16.5

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 of 1 bar and a fully open hand lever.

GESTRA AG
Münchener Straße 77, 28215 Bremen, Germany
Tel. +49 421 3503 0, Fax +49 421 3503 393
e-mail info@de.gestra.com, website www.gestra.com



PA 110



MPA 110

Rapid-Action Intermittent Blowdown Valve
PA 110, MPA 110
PN 160/250, CL 600/900/1500
DN 25

Description

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

- Rapid-action intermittent blowdown valve PA 110 (manually operated)
- Rapid-action intermittent blowdown valve MPA 110 (automatically operated)

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

The PA110 is intended for manual operation. To blow down the boiler the lever of the intermittent blowdown valve is completely opened manually for two or 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 lever is slowly released the spring forces the valve cone back into the valve seat and the valve is closed rapidly.

The MPA110 is equipped with a diaphragm actuator for automatic operation. Compressed air is used as control fluid. The diaphragm actuator opens the intermittent blowdown valve to perform a short blowdown.

The diaphragm actuator comes in two versions. The diaphragm actuator NII is designed for differential pressures up to 160 bar and the diaphragm actuator NIII for differential pressures up to 220 bar.

The opening of the valve can be triggered by:

- the programme-controlled blowdown unit TA, see data sheet TA,
- the intermittent blowdown controller LRR 1-40, see data sheet LRR 1-40 or
- SPECTOR*control* with CAN bus

Optional extras

The following add-on equipment is available:

- Retrofitting kit 332614 for converting PA110 so that it can use a diaphragm actuator

End connections

- Butt-weld end EN 12627, weld joint geometry ISO 9692-1, code number 1.3 (30° chamfer), for tube 33.7 × ≥ 3.6
- Butt-weld end ASME B 16.25 ASME B 36.10 Sched 80
- Butt-weld end ASME B 16.25 ASME B 36.10 Sched 160
- Flange EN 1092-1 B2 PN 160
- Flange EN 1092-1 B2 PN 250
- Flange ASME B 16.5 CLASS 400/600 RF
- Flange ASME B 16.5 CLASS 900/1500 RF
- Flange ASME B 16.5 CLASS 900/1500 RJ
- Socket-weld end DIN EN 12760/ASME B 16.11 CLASS 6000
- Special butt-weld end DIN EN 12627, weld joint geometry ISO 9692-1, code number 1.3 (30° chamfer), for tube 33.7 × ≥ 2.6

Other end connections available on request.

Materials of construction

Component parts	EN	ASTM
Body[1])	13CrMo4-5 (1.7335)	A182-F12
Yoke	P250GH (1.0460)	A105
Seat bushing for valve cone[1])	X6CrNiMoTi17-12-2 (1.4571)	AISI316Ti
Threaded bolt[1])	21CrMoV 5-7 (1.7709)	–
Nut[1])	21CrMoV 5-7 (1.7709)	–
Packing	Graphite	–
Bonnet	EN-GJMW-350-4 (0.8035)	–
Compression spring	EN 10270-1	–

[1]) Pressure parts

Pressure and temperature ratings

End connection		**Flange PN 160 and Butt-weld end EN (for tube 33.7 × ≥ 2.6)**				
Pressure[1]) p	[barg]	160	160	160	160	144
Temperature[1]) T	[°C]	20	100	200	300	400
Max. pressure at boiling point	[bar/°C]	154/344				

1) Resistance limits for body/cover to EN 1092-1

End connection		**Flange PN 250 and Butt-weld end EN (for tube 33.7 × ≥ 3.6)**				
Pressure[1]) p	[barg]	250	250	250	250	225
Temperature[1]) T	[°C]	20	100	200	300	400
Max. pressure at boiling point	[bar/°C]	220/374				

1) Resistance limits for body/cover to EN 1092-1

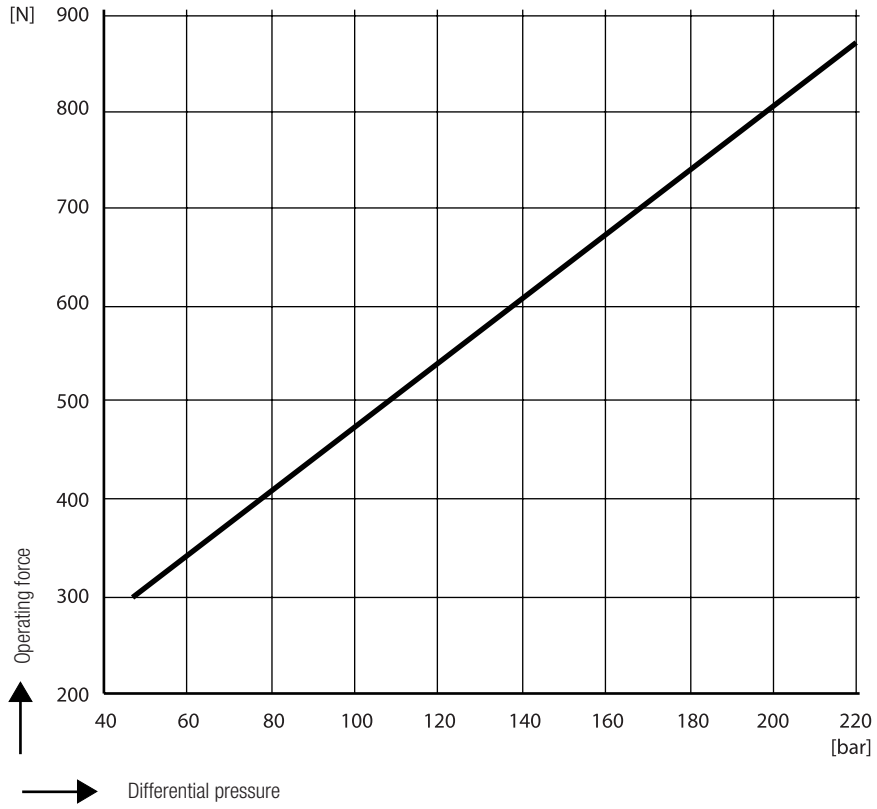
End connection		**Flange CLASS 400/600**				
Pressure[1]) p	[barg]	103.0	100.9	92.5	85.7	73.3
Temperature[1]) T	[°C]	38	100	200	300	400
Max. pressure at boiling point	[bar/°C]	85/300				

1) Resistance limits for body/cover to ASME B 16.5

End connection		**Flansch CLASS 1500, Butt-weld end Sched. 80 and Sched. 160 Socket-weld end CLASS 6000**				
Pressure[1]) p	[barg]	258.6	252.2	231.3	214.4	183.1
Temperature[1]) T	[°C]	38	100	200	300	400
Max. pressure at boiling point	[bar/°C]	195/364				

1) Resistance limits for body/cover to ASME B 16.5

Operating force for PA



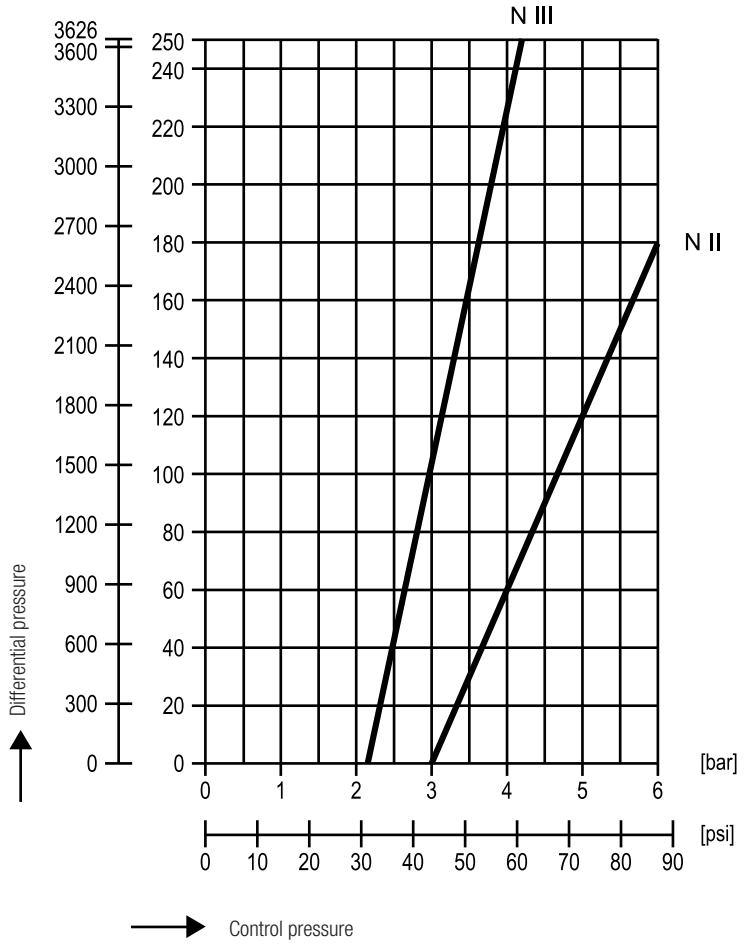
Control pressure for MPA 110

The diaphragm actuator is actuated by means of compressed air. The control pressure must not exceed 6 bar.

■ Use the following diagram to ascertain the minimum control pressure as a function of the differential pressure and the type of actuator.

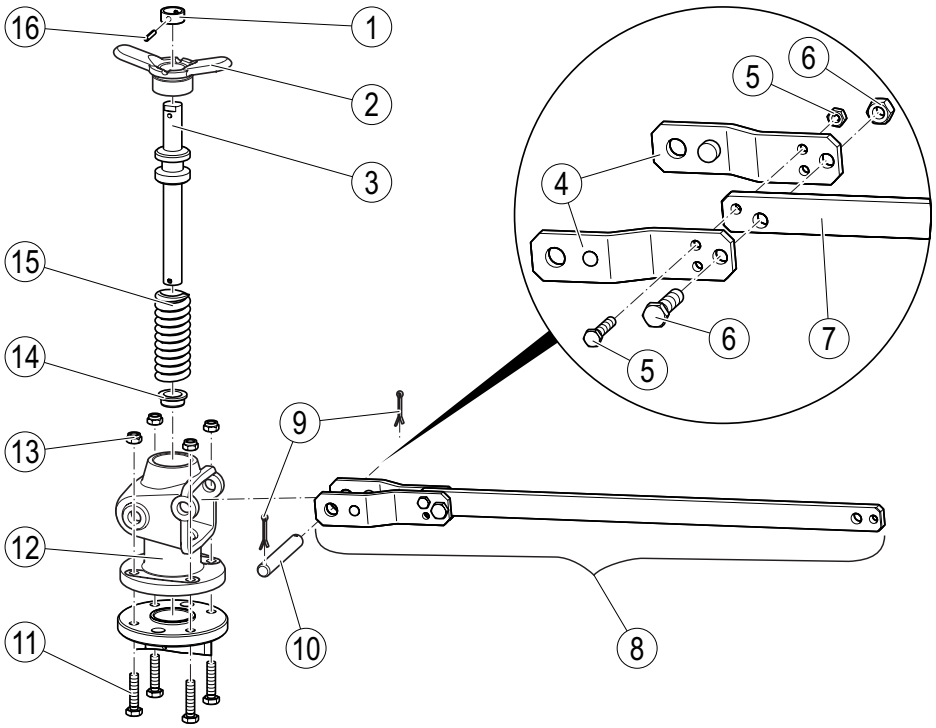
N II Actuator for differential pressures up to 160 bar/2320 psi

N III Actuator for differential pressures over 160 bar/2320 psi



Design

Actuator PA

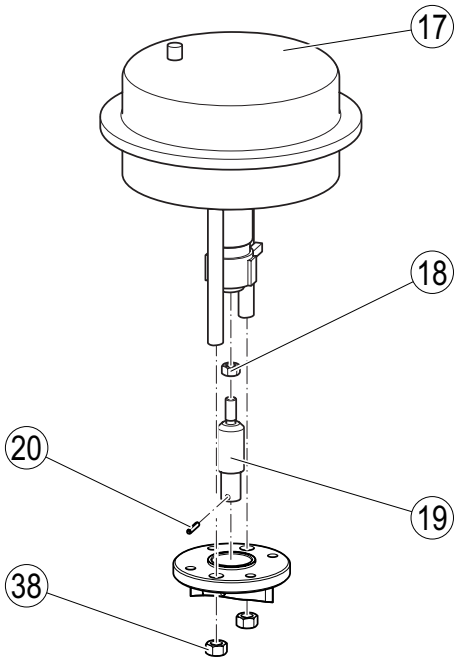


Item no.	Designation
1	Spindle bush
2	Toggle handle
3	Stem
4	Lever brackets
5	Nut M8 and bolt
6	Nut M12 and bolt
7	Lever extension
8	Lever assembly

Item no.	Designation
9	Split pin
10	Joint bolt
11	Bolt
12	Bonnet
13	Lock nut
14	Sleeve
15	Compression spring
16	Spring pin

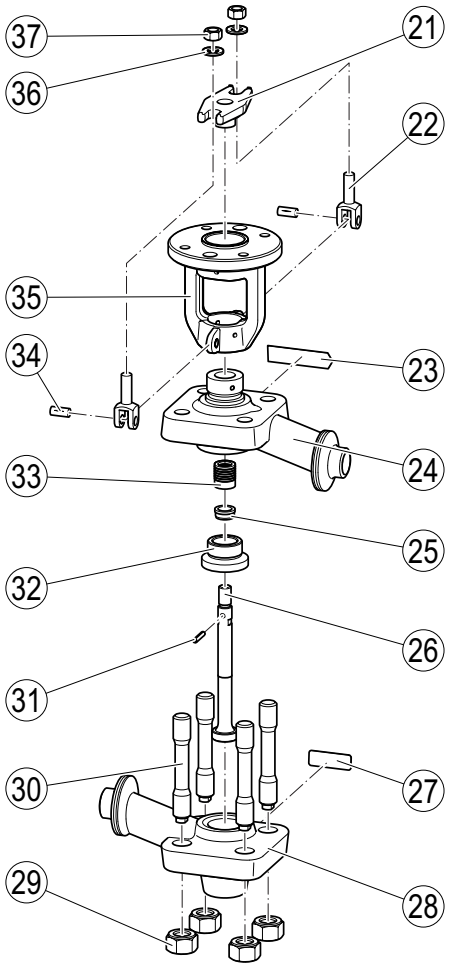
Actuator MPA

The MPA 110 is available with two different types of diaphragm actuator N II or N III. The main difference between these actuators is the size of the diaphragm.



Item no.	Designation
17	Diaphragm actuator
18	Nut
19	Spindle extension
20	Spring pin
38	Nut

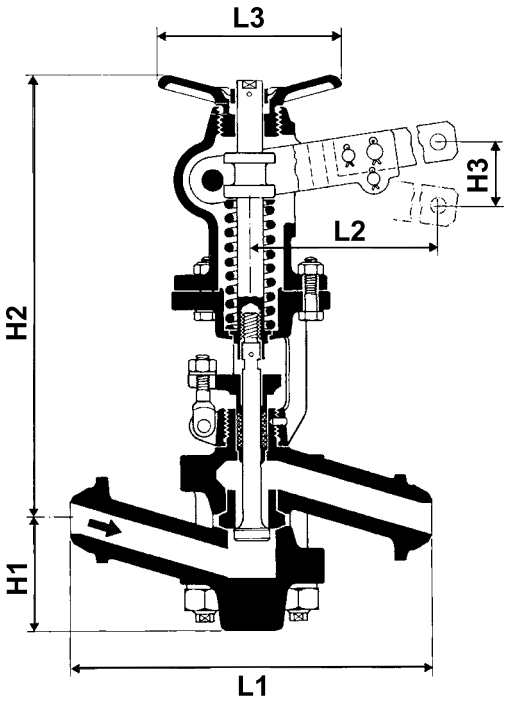
Body PA/MPA110



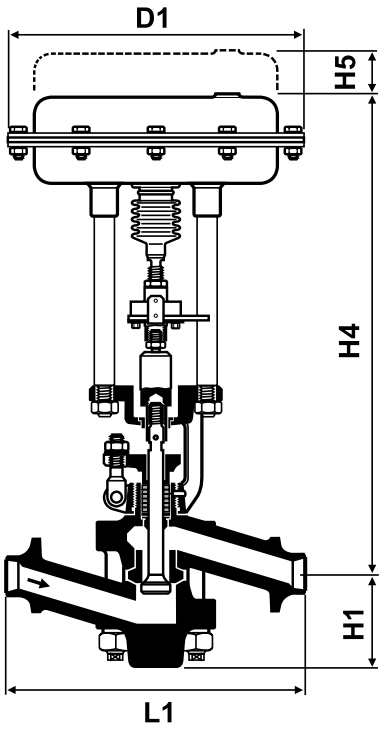
Item no.	Designation
21	Stuffing box
22	Hinged bolt
23	Name plate on upper body
24	Upper body
25	Bushing
26	Valve plug
27	Name plate on lower body
28	Lower body
29	Nut
30	Stud bolts
31	Spring pin
32	Seat bushing
33	Packing rings
34	Grooved pin
35	Yoke
36	Washer
37	Nut

Dimensions and weights

PA 110



MPA 110



Dimensions [mm]	N II*)	N III*)
D1	300	405
H1	90	
H2	370	
H3	180	
H4	520	586
H5 (space required for servicing)	40	
L1	See the following table	
L2	645	
L3	150	

*) Diaphragm actuator

End connection	Dimension L1 [mm]	Weight, approx. [kg]		
		PA 110	MPA 110/NII	MPA 110/NIII
Flange PN 63/100/160, DN25	390	29	49	74
Flange PN 250, DN25	410	30	50	75
Flange Class 400/600, DN25	410	29	49	74
Flange Class 900/1500, DN25	440	30	50	75
Butt-weld end, EN or ASME DN25	300	23	43	68
Special butt-weld ends via transition pieces, DN25	400	24	44	69
Socket-weld end	280	29	49	74

*) Diaphragm actuator

Rapid-Action Intermittent
Blowdown Valve
PA 110, MPA 110
PN 160/250, CL 600/900/1500
DN 25

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

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

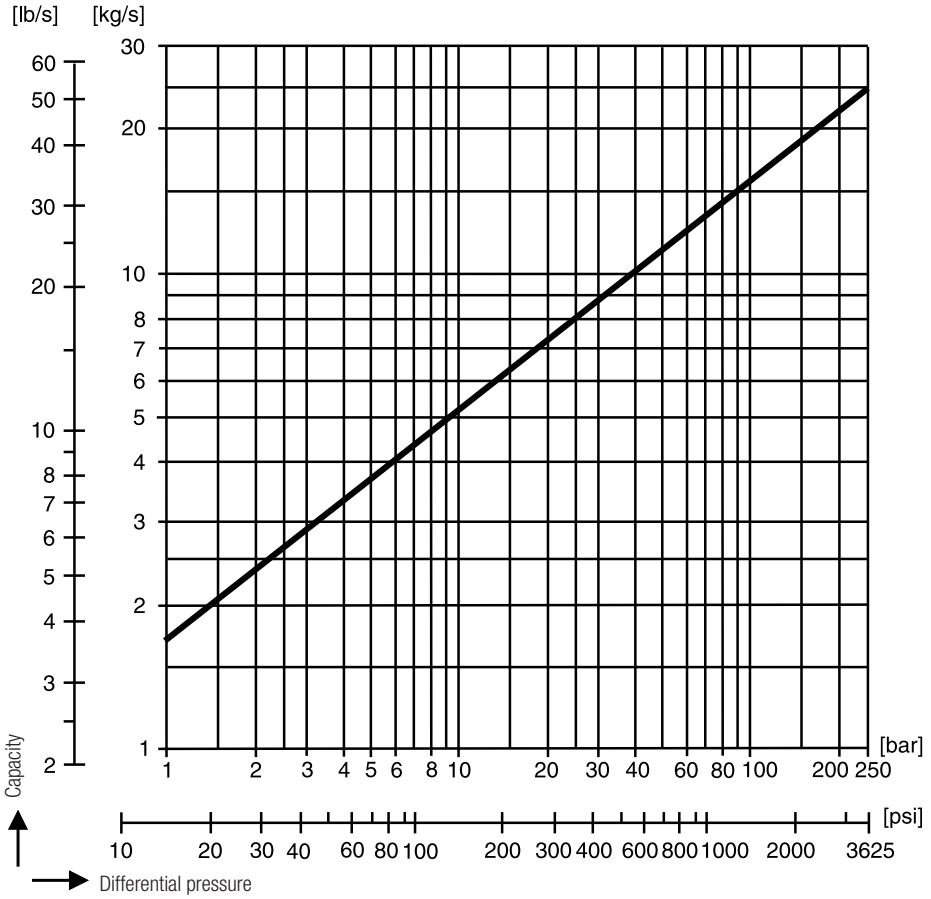
For use in potentially explosive atmospheres in zones (surrounding atmosphere to Directive 1999/92/EC) 1, 2, 21 and 22, please read and observe the following information: The sign "X" in the Ex label signifies that operation at an excessive surface temperature caused by the medium must be avoided. The 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.

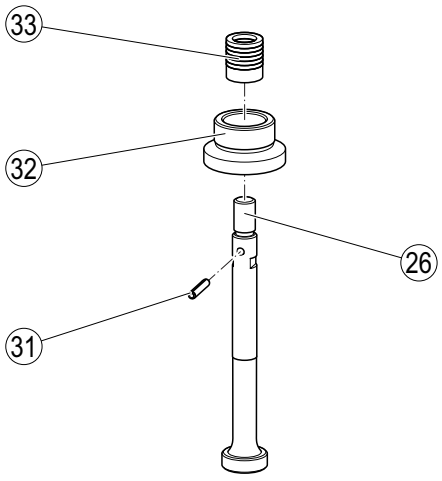
If the MPA has a pneumatic drive, if incorrectly discharged the exhaust air (compressed air) required for operation can lead to swirls of potentially explosive dust.

Capacity Chart

The chart shows the maximum capacity for hot water. The capacity is a function of the differential pressure (= inlet pressure minus outlet back pressure).



Spare Parts



Item no.	Designation	Qty.	Stock code #
33, 31	Spare part kit, consisting of: 6 packing rings 1 spring pin	1	333712
33, 31, 26, 32	Spare part kit, consisting of: 6 packing rings 1 spring pin 1 valve cone 1 seat bushing	1	333571
17	Diaphragm actuator NII	1	332610
	Diaphragm actuator NIII	1	332611
–	Diaphragm for NII actuator (only for MPA 110)	1	147599
–	Diaphragm for NIII actuator (only for MPA 110)	1	1503257

Supply in accordance with our general terms of business.

GESTRA AG
Münchener Straße 77, 28215 Bremen, Germany
Telefon +49 421 3503-0, Telefax +49 421 3503-393
E-mail info@de.gestra.com, Web www.gestra.de

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