



GESTRA® Rapid-Action Intermittent Blowdown Valves · Product Range B

(M)PA 46
(M)PA 47
(M)PA 110

Rapid-Action Intermittent Blowdown Valves

(M)PA 46, (M)PA 47, (M)PA 110

PN 40, DN 20 – 50; PN 63, DN 25, 40, 50; PN 250, DN 25

Application

Automatic, programme-controlled intermittent blowdown of land and marine boilers, in particular boilers operating without constant supervision in accordance with TRD 604 (German regulations concerning the operation of steam boilers).

Description

The valves type MPA are provided with a diaphragm actuator suitable for compressed air or pressurized water and a rapid-closing mechanism. The opening pulse is supplied by the automatic intermittent blowdown control unit type TA (cf. data sheet TA). The valves type

PA are manually operated and feature a rapid-action mechanism.

Design

(M)PA 46 / (M)PA47

Straight-through valves with rapid-closing mechanism and diaphragm actuator designed with flanged ends or butt-weld ends. MPA with diaphragm actuator, PA with hand lever. Self-tightening stuffing box.

(M)PA 110

Straight-through valve with rapid-closing mechanism and diaphragm actuator designed with flanged ends or butt-weld ends. MPA with diaphragm actuator, PA with hand lever.

Connections		
Type	Standard	On request
(M)PA 46	Flanges to DIN, PN 40	Flanges to Class 150, 300 Butt-weld ends for DIN and ASME pipes Socket-weld ends for DIN and ASME pipes
(M)PA 47	Flanges to DIN, PN 63	Flanges to Class 400 Butt-weld ends for DIN and ASME pipes Socket-weld ends for DIN and ASME pipes
(M)PA 110	Butt-weld ends for DIN pipe 33.7 x 3.6	Other butt-weld ends Socket-weld ends Flanges acc. to DIN or ASME

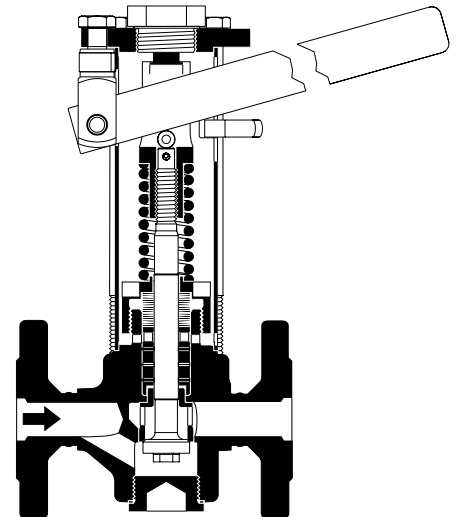
Pressure Ratings			
(M)PA 46	EN – PN 40	Class 150, 300	
(M)PA 47	EN – PN 63	Class 400	
(M)PA 110	EN – PN 250	Class 900/1500	

Materials

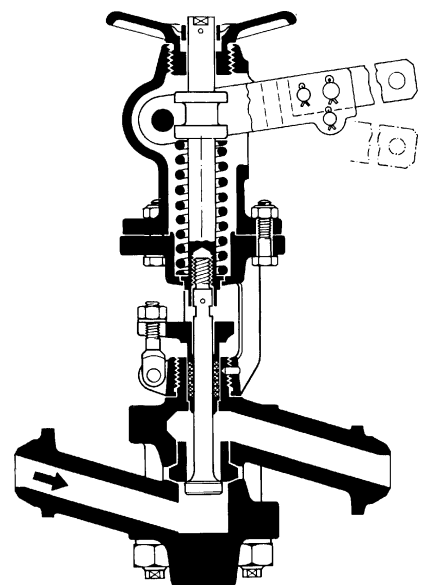
(M)PA 46, (M)PA 47 DN 20 – 50	
Body *)	DIN material 1.0460 (equivalent: A 105)
Stuffing box union *)	DIN material 1.0460 (equivalent: A 105)
Sealing plug *)	DIN material 1.7225 (equivalent: A193-B7)
Gasket	1.4301
Seat, hardened	1.4034
Valve cone, hardened	1.4122
Packing	PTFE – silk
Disk springs	1.8159
Compression springs	1.1200

(M)PA 110	
Body *)	1.7335
Valve yoke	1.0460
Seat, hardened	1.4571
Valve cone, hardened	1.4571
Bolt *)	1.7709
Nut *)	1.7258
Packing	Graphite
Valve head	0.8035
Compression spring	1.1200

*) Pressure-bearing part



PA 46 / PA 47



PA 110

Blowdown Intervals and Blowdown Duration

When opening a GESTRA intermittent blowdown valve, its quick-opening action creates a suction effect causing the sludge to be blown down. This desludging operation automatically provides simultaneous desalting.

A blowdown period – opening period of the valve – lasts approx. 2 seconds. To be able to determine the periods when blowdown is to be repeated it is necessary to know the quantity of boiler water to be discharged.

1. The formula on page 4 calculates the boiler-

water quantity in kg/h to be discharged to keep the boiler-water conductivity below the admissible value, e. g.: **10 kg/h**

- Chart 1 gives the discharge capacity blowdown in kg/s for the existing valve or the valve suitable for the size of the boiler standpipe e. g. **2.5 kg/s**
- The blowdown duration can now be calculated, in this case **4 seconds** per hour. Since the blowdown valve stays only open for **2 seconds** during each blowdown operation, this implies 2 operations per hour. The blowdown interval is therefore $60 : 2 = \mathbf{30 \text{ minutes}}$.

The automatic intermittent blowdown control unit TA (see separate data sheet) provides the following programme:

Blowdown duration (opening period) normally 2 seconds.
Blowdown interval adjustable, e. g. 30 minutes.

It is of course possible to adjust larger intervals, i. e. to blowdown less frequently and to use a GESTRA Reactomat BA or BAE for continuous desalting.

Continuous desalting provides significant energy (\Rightarrow heat recovery) and cost savings.

Pressure / Temperature Ratings

Acc. to EN 1092-1 for: 1.0460 acc. to PED and AD 2000 or A 105 acc. to PED

	Ratings according to		max. pressure [bar] at t =					Control fluid	Max. control pressure
			100 °C	200 °C	300 °C	400 °C	ts/p max.		
(M)PA 46	PN 40 1.0460	EN 1092-1	37.3	30.2	25.8		234/29	Water or compressed air	8 bar
	PN 40 A105	EN 1092-1	40	37.9	33.5		246/36		
	Class 150 A105	ASME B16.34	17.7	14.0	10.2		198/14		
	Class 300 A105	ASME B16.34	46.4	43.9	38.9		254/41		
(M)PA 47	PN 63 1.0460	EN 1092-1	58.8	47.6	40.6		257/44	Water or compressed air	8 bar
	PN 63 A105	EN 1092-1	63	59.6	52.7		271/55		
	Class 400 A105	ASME B16.34	61.8	58.4	51.7		270/54		
(M)PA 110	PN 250 1.7335	EN 1092-1	250	250	227.7	200	369/206	Compressed air	6 bar
	PN 250 A182-F12	EN 1092-1	250	250	243	226.5	374/221		
	Class 600 A182-F12	ASME B16.34	103	95.8	85.7	73.3	300/85		
	Class 900 A182-F12	ASME B16.34	154.4	143.9	128.6	109.8	326/124		
	Class 1500 A182-F12	ASME B16.34	257.4	239.7	214.4	183.1	363/196		

Retrofit set for manual emergency operation

Retrofit set – Manual emergency operating device for MPA 46/47: **335060**

comprising: emergency operating lever, clevis, toggle bolt, hexagon-head screw.

Enquiry Specification

MPA

Rapid-action intermittent blowdown valves with diaphragm actuator and rapid-closing mechanism.

Indications on nominal pressure (PN), nominal size (DN), connections, service pressure, back pressure, temperature, fluid, application (e. g. type of boiler).

Specifications on intermittent blowdown control unit type TA:

Control fluid (compressed air or pressurized water),

Control pressure (see chart)

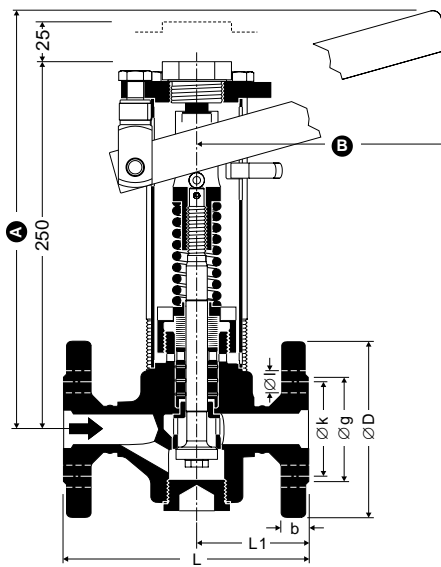
Mains supply (230 V / 50 or 60 Hz).

PA

Rapid-action intermittent blowdown valve with hand-lever actuation, with rapid-closing mechanism and locking device.

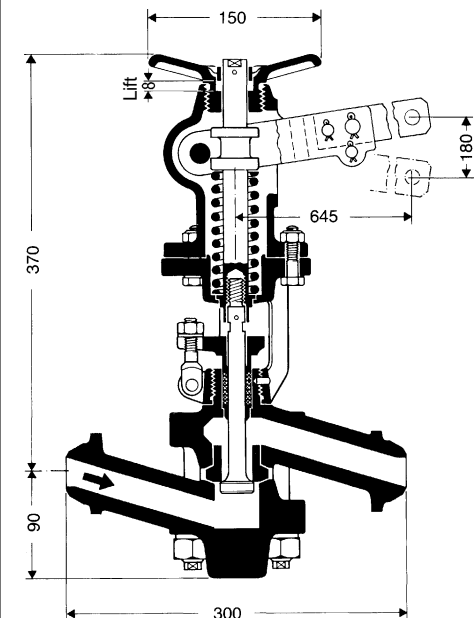
Indications on nominal pressure (PN), nominal size (DN), connections, service pressure, back pressure, temperature, fluid, application (e. g. type of boiler).

PA 46 / PA 47



Type	A	B
PA 46, DN 20-50 PN 40	approx. 340	approx. 455
PA 46, DN 20-50 Class 150	approx. 410	approx. 695
PA 47, DN 25	approx. 340	approx. 455
PA 47, DN 40/50	approx. 410	approx. 695

PA 110

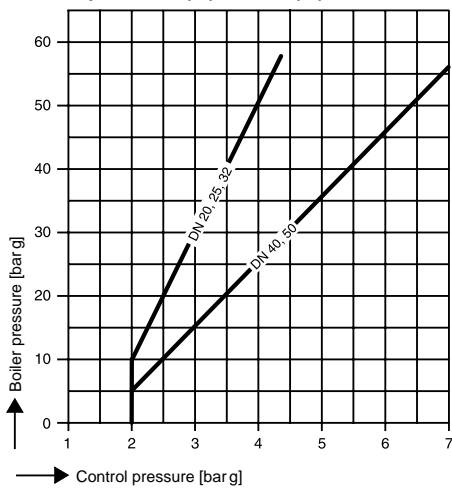


Dimensions and weights

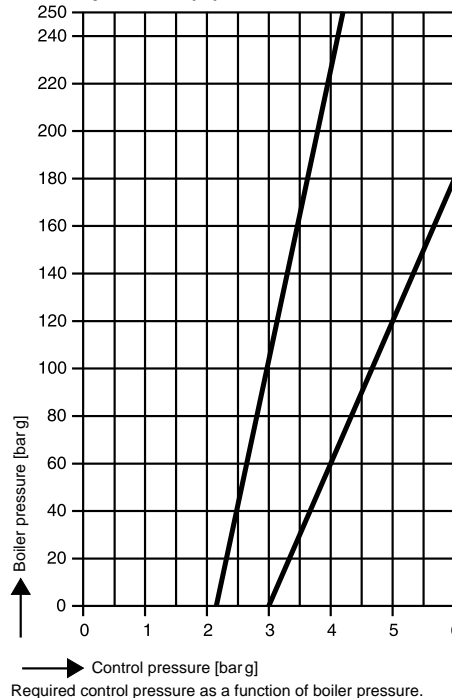
(M)PA 46, (M)PA 47 DN 20 – 50						
DN	[mm] [in]	20 ¾	25 1	32 1¼	40 1½	50 2
Flanged Class 150	L	150	160	180	230	230
	L1	68	73	83	98.5	98.5
Flanged Class 300	L	150	160	180	230	230
	L1	68	73	83	98.5	98.5
Flanged Class 400	L		216		216	250
	L1		101		91.5	108.5
Butt-weld ends via transition pieces	L	200	200	200	250	250
	L1	93	93	93	108.5	108.5
Socket-weld ends	L	200	200	200	250	250
	L1	93	93	93	108.5	108.5
Flanged DIN PN 40	L	150	160	180	200	230
	L1	68	73	83	83.5	98.5
	D	105	115	140	150	165
	k	75	85	100	110	125
	g	58	68	78	88	102
	b	18	18	18	18	20
	l	14	14	18	18	18
Number of bolts	n	4	4	4	4	4
Flanged DIN PN 63	L		190		200	250
	L1		88		73.5	108.5
	D		140		170	180
	k		100		125	135
	g		68		88	102
	b		24		26	26
	l		18		22	22
Number of bolts	n		4		4	4
Weight MPA [kg]	m	13.9	14.5	15.8	18.9	20.7
Weight PA [kg]	m	8.8	9.4	10.7	13.8	15.6

(M)PA 110, PN 250, DN 25						
DN	[mm] [in]	20 ¾	25 1	32 1¼	40 1½	50 2
Flanged DIN PN 100/160	L		390			
Flanged DIN PN 250	L		410			
Flanged Class 600	L		410			
Flanged Class 900/1500	L		440			
Butt-weld end	L		300			
Butt-weld ends via transition pieces	L		400			

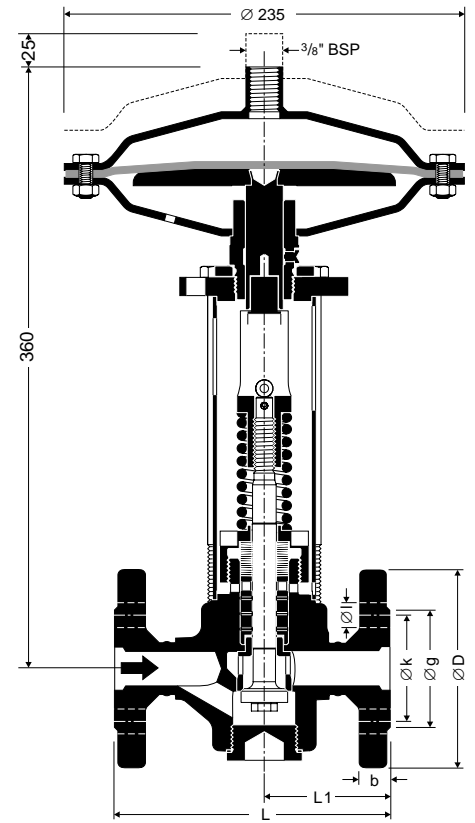
Control pressure (M)PA 46 / (M)PA 47



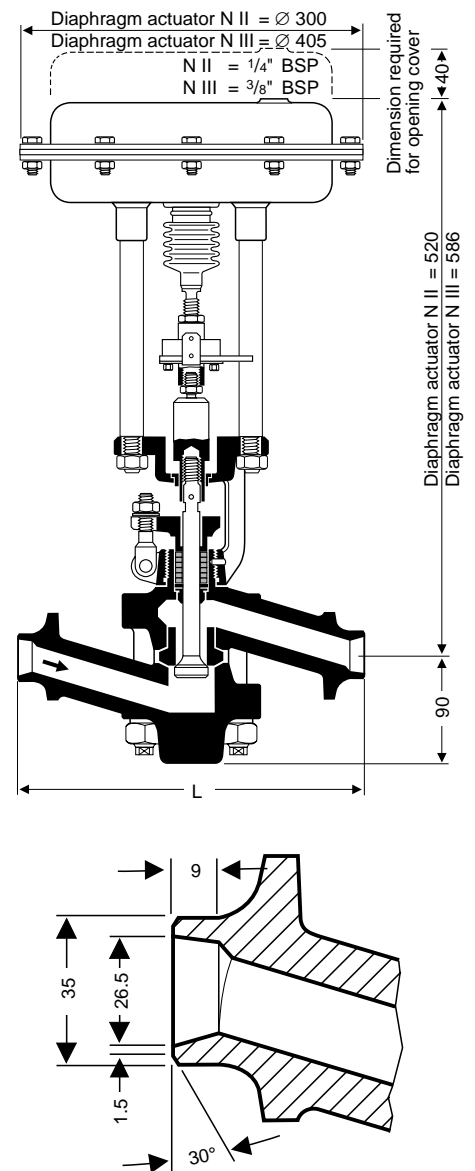
Control pressure (M)PA 110



MPA 46, MPA 47



MPA 110



Rapid-Action Intermittent Blowdown Valves

(M)PA 46, (M)PA 47, (M)PA 110

PN 40, DN 20 – 50; PN 63, DN 25, 40, 50; PN 250, DN 25

Calculation of boiler water quantity to be discharged according to formula:

$$A = \frac{Q \cdot S}{K - S}$$

Conductivity of feedwater: S [μ S/cm]

Admissible conductivity of boiler water: K [μ S/cm]

Boiler capacity: Q [kg/h]

Boiler water quantity to be discharged: A [kg/h]

Example

Conductivity of feedwater: S = 20 μ S/cm

Admissible conductivity of boiler water: K = 4000 μ S/cm

Boiler capacity: Q = 2000 kg/h

Boiler water quantity to be discharged: A \approx 10 kg/h

Reading chart 1

Boiler pressure: 25 bar

Nominal size of intermittent boiler blowdown: DN 32

Flowrate: 2.5 kg/s

K _v -values	
(M)PA 46/47 DN 20, 25, 32	5.1 m ³ /h
(M)PA 46/47 DN 40, 50	16.5 m ³ /h

When ordering please state

Steam pressure, back pressure, amount of condensate, connection, size (DN), application (e. g. type of boiler or steam user).

The following test certificates can be issued on request, at extra cost:

In accordance with DIN EN 10204/2.2 and -3.1 B.

All inspection requirements have to be stated with the order. After supply of the equipment certification cannot be established. For tests and inspection charges please consult us.



These products meet the requirement of the Pressure Equipment Directive (PED) 97/23/EC. DN 40, 50 with CE marking.

Supply in accordance with our general terms of business.

Chart 1

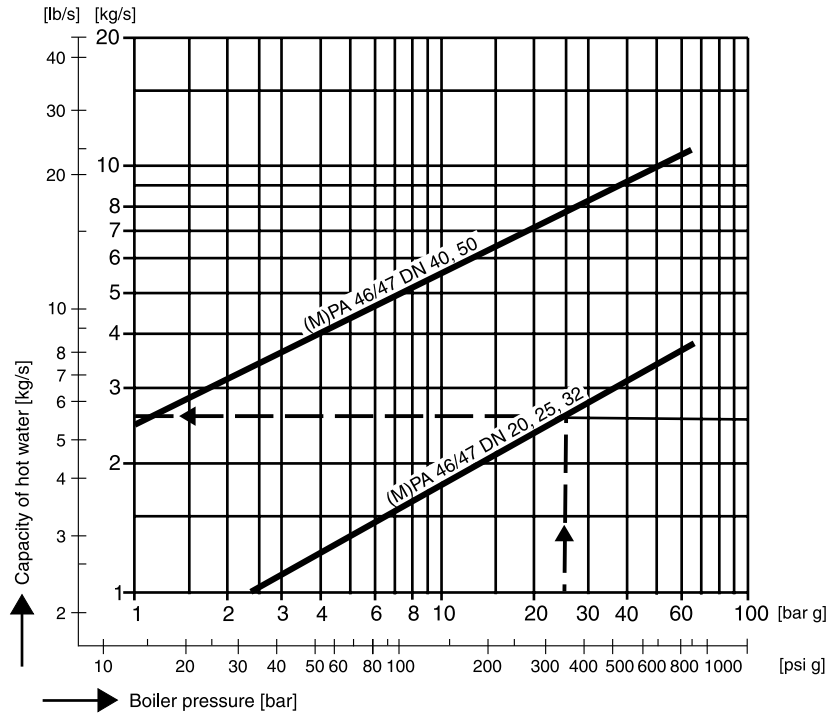
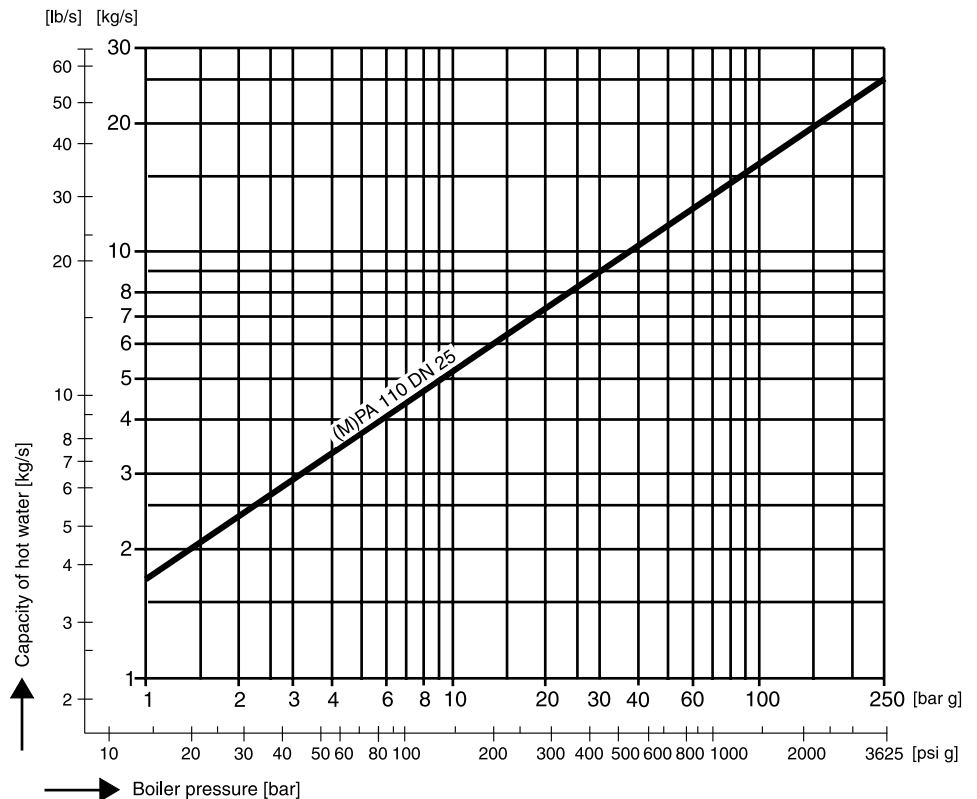


Chart 2



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