We provide products which ensure safety and quality, do you ?

VALVE

VALVE - ACTUATOR - INSTRUMENT - MACHINE

INSTRUMENT

VALVE

HIGH PERFORMANCE VALVE

STEAM EQUIPMENT

FLOW & LEVEL

SEALING

ACCESSORIES

CONTROL VALVE

PT. BUDIJAYA MAKMURSENTOSA

"YOUR TRUST IS OUR GREATEST ASSET"

OFFICE

WAREHOUSE

STOCK

PT. BUDIJAYA MAKMURSENTOSA

"YOUR TRUST IS OUR GREATEST ASSET"

OUR MAJOR CUSTOMER

PALM OIL MILL

OIL & GAS

ELECTRICAL

PULP & PAPER

REFINERY

POWER PLANT

OLEOCHEMICAL

VALVE

INSTRUMENT

Scotch Yoke Pneumatic Actuator

Scotch Yoke Pneumatic Actuator

The BM Series pneumatic actuator is designed using Scotch-Yoke technology. Scotch-Yoke technology is well known to all users as the most suitable actuator mechanism for valve and damper operation as it produces higher torque at both and end position. The latest manufacturing technologies have been operated in order to supply a high quality and cycle-life on **actuator** . Our extensive inventory & engineering capabilities allow us to provide reliable and safety product to our customer with satisfaction.

SPECIFICATION

Pressure Range	Maximum Working Pressure : 10 Bar(143 Psi)
Temperature Range	Standard: -20℃~80℃ Low: -40℃~110℃ High: -20℃~150℃
Movement	90 degree +5~ -10 (optional -30 degree)
Lubrication	All moving parts are lubricated for long life cycle.
Life Cycle	More than 1,000,000 Operations.

FEATURES

Center Stopper Bolt

Adjustment for open & close positions
90 degree : adjustable +5 ~ -10 degree
Max : -30 degree

Mounting Holes

Easy to mount accessory
VDI/VDE 3845 NAMUR

NAMUR Drive Shaft

Mechanical Stopper

Cylinder

Hard anodized aluminum

O-Ring

Specially treated for
reducing friction

Spring Pack

Pre-compressed for safety

Guide Ring

For longer working life cycle

Mounting Holes

International standard
ISO5211, DIN3337, NAMUR

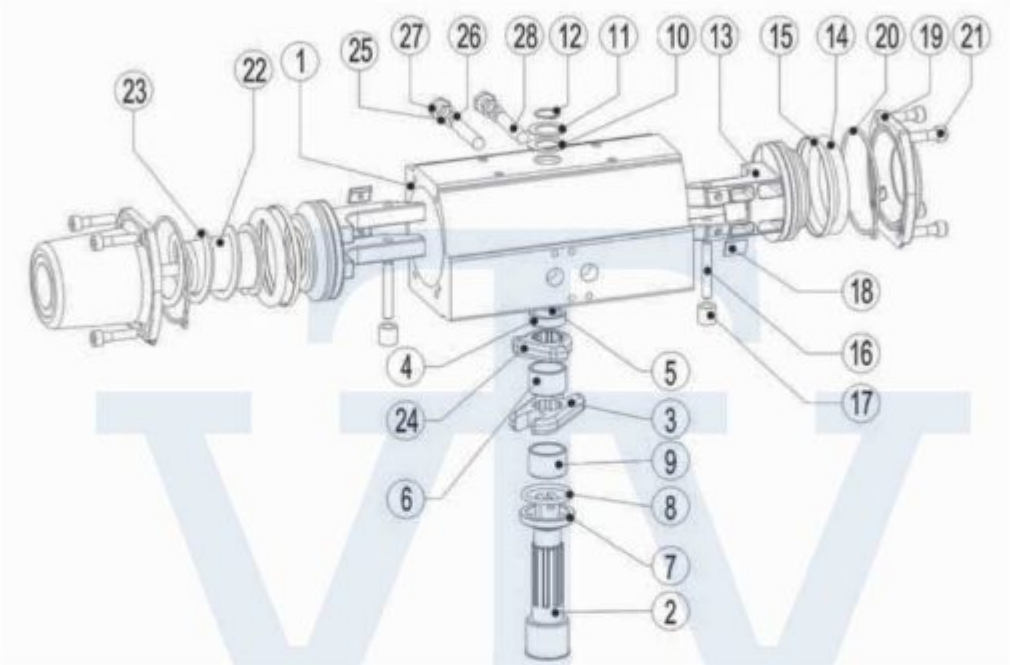
Direct Mounting NAMUR

Double Square Drive Shaft

ISO5211 NAMUR

Specification is subject to change without prior notice

PART LIST (BM - SERIES)



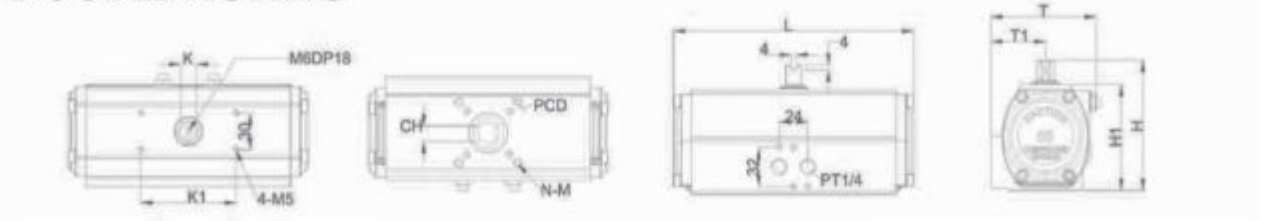
NO.	Part Name	Materials
1	Body	Aluminum Alloy
2	Shaft	Steel Alloy (Nickel Plated)
3	Crank	Steel Alloy
4	Bushing (Top)	Engineering Plastic
5	Body O-ring (Top)	NBR
6	Shaft Roller (Top)	Engineering Plastic
7	Bushing (Bottom)	Engineering Plastic
8	Body O-ring (Bottom)	NBR
9	Shaft Roller (Bottom)	Engineering Plastic
10	Body Washer (Bottom)	Engineering Plastic
11	Body Washer (Top)	Stainless Steel
12	Body Snap-ring	Stainless Steel
13	Piston	Aluminum Alloy
14	Piston O-ring	NBR

NO.	Part Name	Materials
15	Piston Guide-ring	Engineering Plastic
16	Piston Pin	Steel Alloy
17	Piston Roller	Steel Alloy
18	Piston Pad	Engineering Plastic
19	Cover	Aluminum Alloy
20	Cover O-ring	NBR
21	Cover Bolt	Steel Alloy
22	Spring Cap	Engineering Plastic
23	Spring	Steel Alloy
24	Stopper	Steel Alloy
25	Adjust Washer	Stainless Steel
26	Adjust Nut	Stainless Steel
27	Adjust O-ring	NBR
28	Adjust Bolt	Steel Alloy

Specification is subject to change without prior notice

DIMENSION

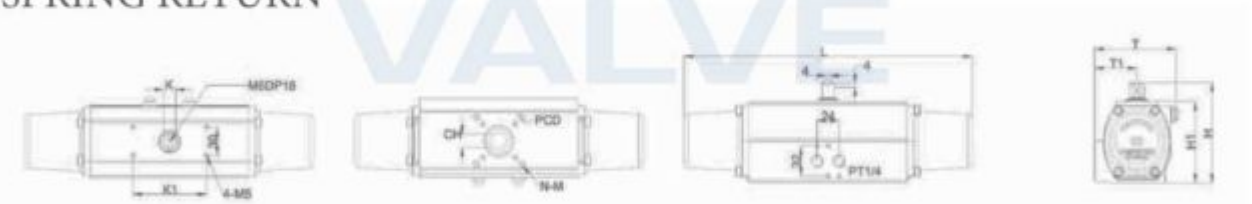
DOUBLE ACTING



MODEL	K1	ISO5211	P.C.D(ø)	N-M	K	L	T	T1	H	H1	CH	DTH	WG(Kg)
BM 50 DA	80	F03/F05/F07	36/50/70	4-M5/M6/M8	10	162	75	40	90	70	11x11 14x14	13 14	1.6
BM 65 DA	80	F05/F07	50/70	4-M6/M8	13	198	89	46	107	87	14x14	17	2.7
BM 80 DA	80	F07	70	4-M8	17	262	101	49.5	126	106	17x17	19	4.3
BM 100 DA	80	F07/F10	70/102	4-M8/M10	22	311	129	61.5	148	128	22x22	26	7.5
BM 125 DA	80	F07/F10	70/102	4-M8/M10	22	390	151	72	174	154	22x22	26	11.6
BM 140 DA	80	F10/F12	102/125	4-M10/M12	22	445	162	77	190	170	27x27	30	18
BM 160 DA	80	F14	140	4-M16	32	529	181	88	210	190	36-36	42	26
BM 210 DA	130	F16	165	4-M20	36	605	231	115	284	254	46x46	60	47.2

UNIT : mm

SPRING RETURN



MODEL	K1	ISO5211	P.C.D(ø)	N-M	K	L	T	T1	H	H1	CH	DTH	WG(Kg)
BM 50 SR	80	F03/F05/F07	36/50/70	4-M5/M6/M8	10	257	75	40	90	70	11x11 14x14	13 14	1.7
BM 65 SR	80	F05/F07	50/70	4-M6/M8	13	314	89	46	107	87	14x14	17	3.4
BM 80 SR	80	F07	70	4-M8	17	430	101	49.5	126	106	17x17	19	5.7
BM 100 SR	80	F07/F10	70/102	4-M8/M10	22	500	129	61.5	148	128	22x22	26	10.6
BM 125 SR	80	F07/F10	70/102	4-M8/M10	22	606	151	72	174	154	22x22	26	17.9
BM 140 SR	80	F10/F12	102/125	4-M10/M12	22	710	162	77	190	170	27x27	30	24.5
BM 160 SR	80	F14	140	4-M16	32	815	181	88	210	190	36-36	42	36
BM 210 SR	130	F16	165	4-M20	36	982	231	115	284	254	46x46	60	76.9

Specification is subject to change without prior notice

TORQUE

DOUBLE ACTING OUTPUT TORQUE

Committed to continuous improvement

Model	Angle	Supply Air:3Bar		Supply Air:4Bar		Supply Air:4.5Bar		Supply Air:5Bar		Supply Air:6Bar	
		Air to Close	Air to Open	Air to Close	Air to Open	Air to Close	Air to Open	Air to Close	Air to Open	Air to Close	Air to Open
50 DA	0°	29.0	21.0	37.0	28.0	37.5	32.5	38.0	37.0	42.0	41.0
	45°	15.0	16.0	20.0	21.0	22.5	23.5	25.0	26.0	30.0	31.0
	90°	25.0	25.0	33.0	38.0	36.0	39.0	39.0	40.0	50.0	52.0
65 DA	0°	63.0	59.0	85.0	78.0	95.0	86.5	105.0	95.0	131.0	116.0
	45°	33.0	38.0	45.0	49.0	51.0	56.0	57.0	63.0	68.0	73.0
	90°	54.0	52.0	72.0	71.0	80.0	82.0	88.0	93.0	107.0	107.0
80 DA	0°	121.0	105.0	164.0	143.0	160.0	163.0	156.0	183.0	261.0	210.0
	45°	65.0	69.0	84.0	92.0	98.0	106.5	112.0	121.0	130.0	144.0
	90°	97.0	101.0	130.0	133.0	150.5	144.5	171.0	156.0	198.0	209.0
100 DA	0°	194.0	186.0	265.0	247.0	298.5	269.5	332.0	292.0	393.0	368.0
	45°	110.0	127.0	147.0	165.0	166.0	180.5	185.0	196.0	237.0	250.0
	90°	173.0	179.0	231.0	237.0	264.0	269.0	297.0	301.0	348.0	363.0
125 DA	0°	428.0	432.0	576.0	551.0	650.5	614.5	725.0	678.0	886.9	793.9
	45°	255.0	273.0	339.0	360.0	382.0	401.5	425.0	443.0	513.0	531.0
	90°	385.0	375.0	510.0	491.0	572.5	552.0	635.0	613.0	750.0	732.0
140 DA	0°	623.0	576.0	829.9	753.9	967.4	838.4	1104.9	922.9	1310.9	1096.9
	45°	333.0	331.0	450.0	455.0	514.5	518.5	579.0	582.0	691.0	668.0
	90°	520.0	523.0	689.0	720.0	775.9	799.9	862.9	879.9	1054.9	969.9
160 DA	0°	952.9	812.9	1146.9	1061.9	1315.9	1186.9	1484.9	1311.9	1799.9	1599.9
	45°	540.0	569.0	730.0	757.9	824.9	853.4	919.9	948.9	1109.9	1132.9
	90°	879.9	978.9	1169.9	1319.9	1308.9	1477.4	1447.9	1634.9	1749.9	2026.9
210 DA	0°	1979.9	1909.9	2799.8	2599.8	2939.8	2859.8	3299.8	3199.8	3919.7	3819.7
	45°	1099.9	1149.9	1459.9	1499.9	1709.9	1749.9	1919.9	1949.9	2299.8	2399.8
	90°	1669.9	1719.9	2149.9	2299.8	2599.8	2709.8	2799.8	2899.8	3349.8	3449.8

Unit : N-m

Specification is subject to change without prior notice

SPRING RETURN OUTPUT TORQUE

Maximize the torque

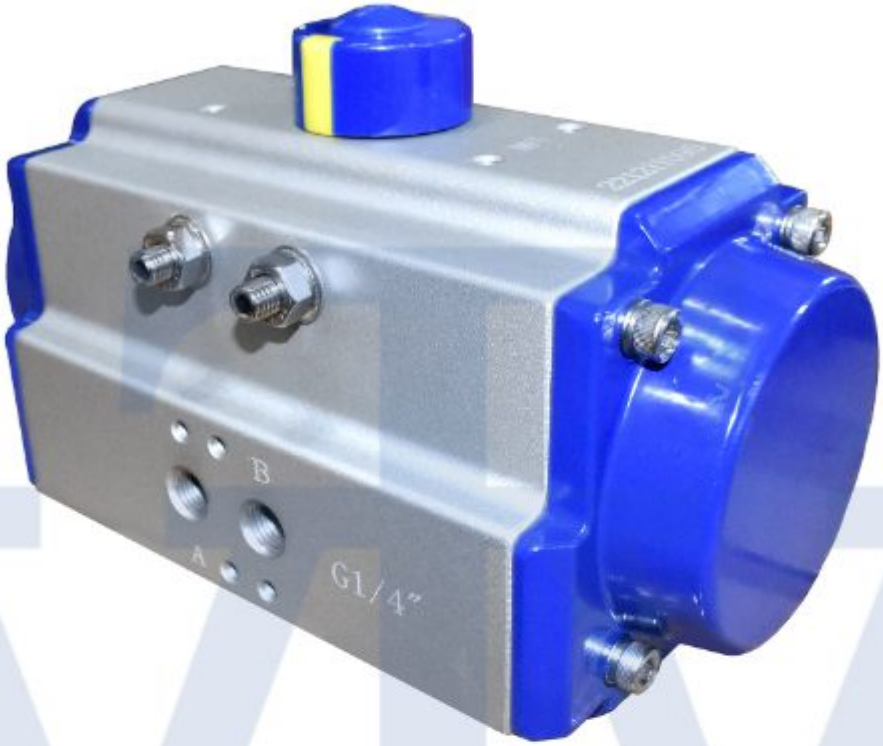
Model	Angle	Spring torque: Weak			Spring torque: Middle				Spring torque: Strong			
		Spring	Air:3Bar	Air:4Bar	Spring	Air:4Bar	Air:4.5Bar	Air:5Bar	Spring	Air:6Bar	Air:7Bar	Air:8Bar
AS50	0°	10.5	14.3	21.9	16.2	19.0	22.8	26.6	23.0	28.3	35.2	42.8
	45°	8.2	6.7	11.9	12.0	8.2	10.8	13.6	16.5	14.3	20.0	24.7
	90°	16.2	7.6	17.1	24.2	8.2	11.4	16.2	33.3	14.0	23.8	33.3
AS65	0°	29.5	35.2	53.2	43.7	41.3	49.4	58.0	56.6	64.9	83.6	95.0
	45°	15.6	17.1	28.5	24.9	17.6	23.3	28.5	34.4	32.3	44.7	56.1
	90°	29.2	28.5	47.0	47.2	20.0	30.6	41.2	65.2	39.9	60.8	84.6
AS80	0°	47.5	71.3	104.5	76.0	76.0	95.0	114.0	114.0	123.5	156.8	190.0
	45°	33.3	28.5	52.3	42.8	33.3	42.8	57.0	61.8	61.8	80.8	99.8
	90°	61.8	47.5	95.0	85.5	42.8	61.8	85.5	118.8	85.5	128.3	171.0
AS100	0°	95.0	109.3	161.5	114.0	133.0	166.3	199.5	152.0	237.5	299.3	356.3
	45°	61.8	47.5	90.3	76.0	57.0	76.0	95.0	99.8	118.8	161.5	204.3
	90°	109.3	61.8	133.0	152.0	61.8	99.8	133.0	209.0	152.0	228.0	304.0
AS125	0°	109.3	332.5	465.5	285.0	318.3	384.8	451.3	408.5	470.3	589.0	712.5
	45°	57.0	180.5	261.3	166.3	161.5	204.3	247.0	237.5	247.0	327.8	408.5
	90°	118.8	313.5	489.3	318.3	237.5	318.3	408.5	446.5	384.8	560.5	712.5
AS140	0°	133.0	475.0	674.5	384.8	460.8	555.8	655.5	574.8	693.5	883.5	1,073.5
	45°	85.5	228.0	342.0	228.0	199.5	247.0	313.5	332.5	318.3	427.5	532.0
	90°	152.0	251.8	532.0	446.5	275.5	375.3	475.0	617.5	465.5	674.5	883.5
AS160	0°	313.5	627.0	921.5	503.5	750.5	902.5	1,045.0	868.3	1,059.3	1,339.5	1,615.0
	45°	194.8	299.3	475.0	289.8	380.0	465.5	551.0	498.8	508.3	679.3	850.3
	90°	384.8	460.8	826.5	536.8	608.0	769.5	950.0	940.5	731.5	1,121.0	1,520.0
AS185	0°	456.0	912.0	1,282.5	1,035.5	921.5	1,111.5	1,292.0	1,548.5	1,292.0	1,634.0	1,976.0
	45°	266.0	513.0	779.0	579.5	465.5	598.5	741.0	874.0	703.0	969.0	1,235.0
	90°	541.5	798.0	1,301.5	1,140.0	808.0	855.0	1,092.5	1,681.5	931.0	1,415.5	1,928.5
AS210	0°	418.0	1,577.0	2,156.5	1,206.5	1,491.5	1,833.5	2,109.0	1,681.5	2,375.0	2,945.0	3,515.0
	45°	247.0	779.0	1,149.5	674.5	717.3	921.5	1,097.3	1,035.5	1,092.5	1,463.0	1,833.5
	90°	475.0	1,197.0	1,824.0	1,239.8	978.5	1,349.0	1,719.5	1,947.5	1,472.5	2,099.5	2,707.5
AS250	0°	731.5	2,631.5	3,686.0	2,213.5	2,555.5	3,097.0	3,610.0	3,277.5	3,942.5	4,864.0	5,776.0
	45°	418.0	1,425.0	2,090.0	1,254.0	1,282.5	1,605.5	1,947.5	1,738.5	2,071.0	2,726.5	3,363.0
	90°	874.0	2,299.0	3,515.0	2,432.0	1,767.0	2,318.0	2,945.0	3,315.5	2,888.0	4,028.0	5,168.0
AS300	0°	-	-	-	6,421.0	3,837.9	4,308.0	4,547.3	8,566.0	5,740.0	6,361.8	7,270.7
	45°	-	-	-	2,283.0	1,834.1	2,172.0	2,292.7	3,046.0	2,894.0	3,207.5	3,665.7
	90°	-	-	-	3,266.0	3,712.2	4,396.0	4,640.2	4,359.0	5,857.0	6,491.5	7,418.9

•You may select spring types from strong/middle/weak; if unspecified in P/O, the standard type (as shown in the blue box) is provided.

VTV VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - Operating Conditions

Rack & Pinion Series



1. Pressure Ranges

2 bar(29 psig) to 8 bar(116 psig) double acting
3 bar(44 psig) to 8 bar(116 psig) spring return

2. Temperature Ranges

*Std.(NBR O-rings): -20°C(-4°F) to +80°C(+176°F)
*Lower Temp. (HNBR O-rings):-40°C(-40°F) to +80°C(+176°F)
*High Temp. (Viton O-rings): -15°C(+5°F) to +150°C(+300°F)

Note: Special grease is required for low and high temperature service condition.

3. Wide Range Available

The actuator range consists of 14 sizes, with torques from 9Nm(80in.lbs) to 3,920Nm (34,660in.lbs) at 6 bar (87 psig) air supply.

4. Operating Media

Filtered dry or lubricated air for non-corrosive gas, water or light hydraulic oil. The maximum particle size must not exceed 30 microns.

5. Stroke Adjustment

0°and 90° with standard adjustment ± 5°.

6. Lubrication

All moving parts are factory lubricated for entire life cycle of actuator.

7. Construction

Twin piston rack and pinion actuator design, suitable for indoor and outdoor installation.

8. Connections

Bottom drilling complies with ISO 5211/DIN 3337 to match valve. Interface for solenoid valve, shaft top end and top drilling for assembling accessories are in accordance with VDI/VDE-3845, NAMUR standard.

9. Inspection

Every actuator is hydraulically tested, certified and guaranteed for a minimum of 1 million cycles.

Specification is subject to change without prior notice

Pneumatic Actuator - Features

Rack & Pinion Series

Actuator Body

The aluminium extrusion is hard anodized (over 30um) to protect against wear and corrosion while reducion piston friction to the absolute minimum. Other options such as Nickel, Ceramic, PTFE, Polyester coated are available

Travel Adjustment

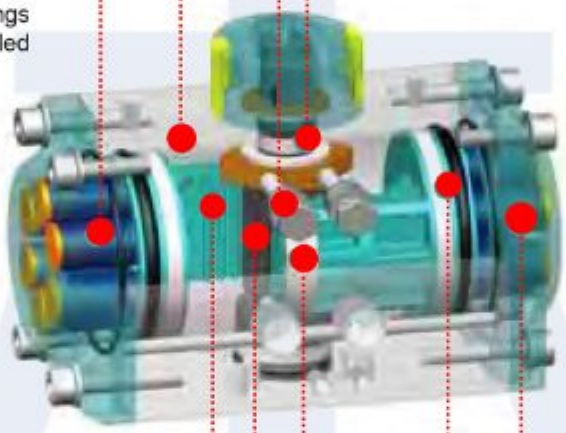
The standard adjustment is ± 5° in both the open and closed positions through easily accessible external adjustment bolts

Indicator

A position indicator with Namur mounting is standard on all VTV pneumatic actuators for mounting accessories

High Performance Springs

The high tensile steel springs are coated with Epoxy coated for corrosion resistance and longer service. The pre-loaded springs can be safely & rapidly disassembled



End Caps

Epoxy coated (over 80um) die cast aluminum end caps provide maximum resistance against potentially corrosive elements. Other treatments such as Nickel, Ceramic, PTFE, Polyester coated are available

Pistons

The precisely-balanced and hard anodized treatment (over 30um) die cast aluminium pistons are fitted with high quality rings and guides.The twin rack and piston design creates a constant torque output on all actuators

O-Rings

NBR O-rings provide trouble-free operation at standard temperature ranges. Viton and HNBR O-rings are available for high or low temperature applications

Pinion

The hardened alloy steel pinion is precision ground and Nickel plated (over 15um) in order to reduce friction, provide maximum wear resistance. Full conformance with the newest standards of ISO5211 & DIN3337. The dimensions can be customized and as options, stainless steel and aluminium alloy are also available

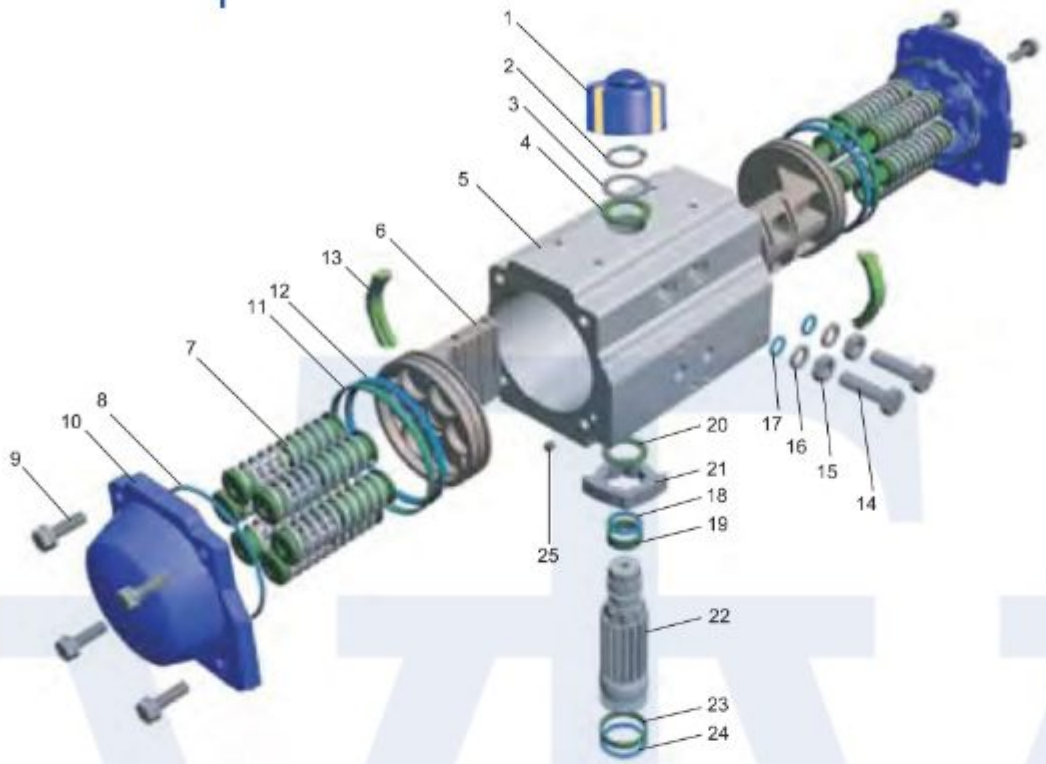
Bearings & Guides

The highly durable compound material provides high trust stability with minimum friction and long life

VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - BMD Series Part List

Rack & Pinion Series



Item	Description	Material	Protection	Q'ty	Optional
1	Indicator	Plastic		1	
2	Spring Clip	Stainless Steel		1	
3	Thrust Washer(Pinion)	Stainless Steel		1	
4	Thrust Bearing(Pinion)	Nylon 66		1	
5	Actuator Body	Extruded Alluminum Alloy	Hard Anodized(over 30um)	1	Nickel or PTFE coated
6	Piston	Die Cast Aluminum Alloy	Hard Anodized(over 30um)	2	
7	Spring(Cartridge)	High Performance Spring Steel	Epoxy Coated	0-12	
8*	End Cap Seals	NBR		2	Viton / HNBR
9	End Cap Bolts	Stainless Steel		8	
10	End Cap	Die Cast Aluminum	Epoxy Coated(over 80um)	2	Nickel or PTFE coated
11*	Piston Bearing	Nylon 66		2	
12*	Piston Seal	NBR		2	Viton / HNBR
13*	Piston Guide	Nylon 66		2	
14	Stroke Bolt	Stainless Steel		2	
15	Stroke Bolt Retaining Nut	Stainless Steel		2	
16	Stroke Bolt Washer	Stainless Steel		2	
17*	Stroke Bolt O-Ring	NBR		2	Viton / HNBR
18*	O-Ring(Top Pinion)	NBR		1	Viton / HNBR
19*	Bearing(Top Pinion)	Nylon 66		1	
20*	Thrust Bearing(Pinion)	Nylon 66		1	
21	Stroke Cam	Stainless Steel		1	
22	Pinion	Alloy Steel	Nickel Plated(over 15um)	1	S.S. or Alu.Alloy
23*	Bearing(Lower Pinion)	Nylon 66		1	
24*	O-Ring(Lower Pinion)	NBR		1	Viton / HNBR
25*	Plug	NBR		2	Viton / HNBR

* Note: Recommended spare parts for maintenance.

Specification is subject to change without prior notice

VTV VALVE
RELIABLE FOR THE FUTURE

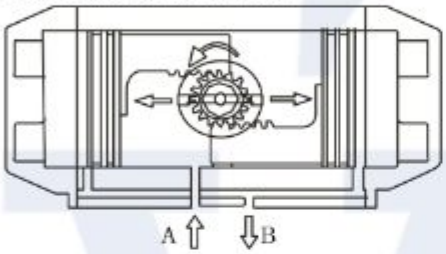
Pneumatic Actuator - Double Acting

Rack & Pinion Series

Sizing example of VTV double acting actuator :
Valve torque 100Nm plus 20% safety factor = 120Nm. Minimum operating pressure 6bar(87psig). By reading down the 6bar(87 psig) column the figure below 120Nm is 135.0Nm, The model number shown in the left hand column is therefore BMD-092

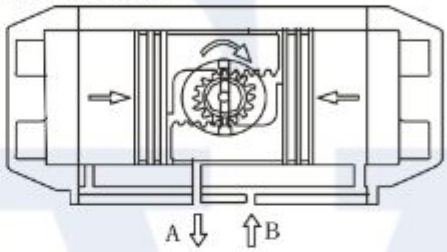
The operating priciple of double acting actuator

CCW-counter-clockwise



Air to port A forces the pistons outwards, causing the piston to turn counter-clockwise while air is being exhausted from port B.

CW-clockwise



Air to port B forces the pistons inwards, causing the piston to turn clockwise while air is being exhausted from port A.

Torque Table of Double Acting Actuator

Unit : Nm

Model	Air Supply Pressure(unit:bar)							
	3.0	4.0	4.5	5.0	5.5	6.0	7.0	8.0
	Output Torque(Nm)							
BMD-032	4.6	6.1	6.9	7.6	8.4	9.2	10.7	12.2
BMD-040	7.0	10.0	11.0	12.0	13.0	14.0	17.0	19.0
BMD-052	12.0	16.0	18.0	20.0	21.9	23.9	27.9	31.9
BMD-063	21.9	29.2	32.8	36.5	40.1	43.8	51.1	58.4
BMD-075	30.1	40.1	45.1	50.2	55.2	60.2	70.2	80.3
BMD-083	47.0	62.7	70.5	78.4	86.2	94.1	109.7	125.4
BMD-092	67.7	90.3	101.6	112.9	124.1	135.4	158.0	180.6
BMD-105	99	132	149	165	182	198	231	265
BMD-125	151	201	226	251	276	301	351	401
BMD-140	257	342	385	428	470	513	599	684
BMD-160	399	532	599	665	732	798	931	1064
BMD-190	638	851	958	1064	1170	1277	1490	1702
BMD-210	798	1064	1197	1330	1463	1596	1862	2128
BMD-240	1154	1539	1731	1924	2116	2309	2693	3078
BMD-270	1755	2339	2632	2924	3217	3509	4094	4679
BMD-300	2289	3052	3434	3815	4197	4578	5341	6104
BMD-350	3427	4570	5141	5712	6283	6854	7997	9139
BMD-400	4884	6512	7326	8140	8954	9768	11396	13024

Specification is subject to change without prior notice

VTV VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - Spring Return (Fail Safe)

Rack & Pinion Series

Sizing example of VTV spring return actuator:

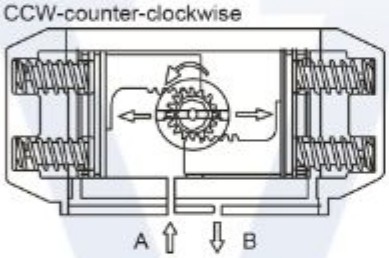
Spring to close when air fails (air to open):

Valve torque 60Nm plus 20% safety factor = 72 Nm. Minimum operating pressure: 6bar(87psig). The spring return VTV actuator selected is BMS-105-12. The BMS-105-12 has the following output torques:

1. air torque 0°(valve close) = 122.5Nm > 72Nm
2. air torque 90°(valve open) = 80.6Nm
3. spring torque 90° (valve open) = 118.1Nm
4. spring torque 0° (valve close) = 75.9Nm > 72Nm

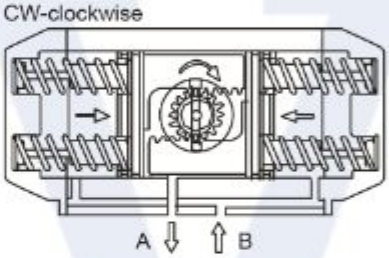
The operating priciple of single acting spring return actuator

CCW-counter-clockwise



Air to port A forces the pistons outwards, causing the springs to compress. The pinion turns counter-clockwise while air is being exhausted through port B.

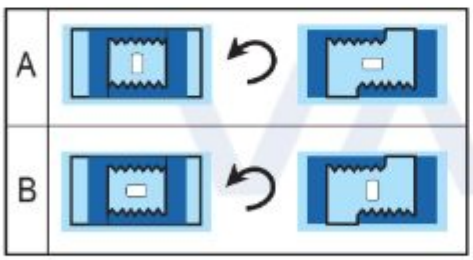
CW-clockwise



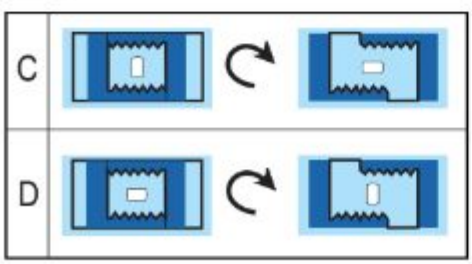
Loss of air pressure through port A allows the stored energy in the springs to force the pistons inwards. The pinion turns clockwise while air is being exhausted through port A.

Mounting Variations

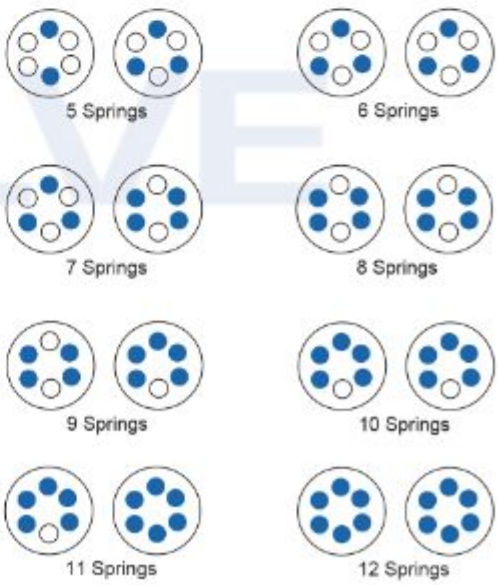
CCW-counter-clockwise



CW-clockwise



Spring Arrangement



VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - Torque Table (Nm)

Rack & Pinion Series

unit:Nm

Model	Spring Set	Spring Torque (Nm)		Air Supply Pressure(Unit:bar)													
				2.5		3.0		4.0		5.0		6.0		7.0		8.0	
				Air Torque Output(Nm)													
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
BMS-052	5	4.3	6.2	5.7	3.8	7.6	5.7	---	---	---	---	---	---	---	---	---	---
	6	5.0	7.4	4.9	2.5	6.9	4.5	10.9	8.5	---	---	---	---	---	---	---	---
	7	5.9	8.6	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4	---	---	---	---	---	---
	8	6.7	9.9	---	---	5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1	---	---	---	---
	9	7.6	11.1	---	---	4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8	---	---
	10	8.5	12.4	---	---	---	---	7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6	---	---
	11	9.3	13.6	---	---	---	---	6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3
	12	10.2	14.8	---	---	---	---	---	---	9.7	4.2	13.8	9.1	17.8	12.2	21.8	17.1
BMS-063	5	6.8	10.4	14.1	7.7	15.0	11.4	22.3	14.9	---	---	---	---	---	---	---	---
	6	8.2	12.5	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9	---	---	---	---	---	---
	7	9.6	14.6	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9	---	---	---	---	---	---
	8	10.9	16.7	---	---	10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	40.1	34.3	---	---
	9	12.3	18.8	---	---	---	---	16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2	---	---
	10	13.7	20.9	---	---	---	---	11.4	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4
	11	15.0	22.9	---	---	---	---	---	---	21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3
	12	16.4	25.0	---	---	---	---	---	---	20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3
BMS-075	5	10.5	14.5	14.5	10.6	19.4	15.5	29.5	25.7	---	---	---	---	---	---	---	---
	6	12.7	17.4	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8	---	---	---	---	---	---
	7	14.8	20.3	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9	---	---	---	---	---	---
	8	16.9	23.2	---	---	13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0	---	---
	9	19.0	26.1	---	---	---	---	21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2	---	---
	10	21.1	29.0	---	---	---	---	19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2
	11	23.2	31.9	---	---	---	---	---	---	27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4
	12	25.3	34.7	---	---	---	---	---	---	24.9	15.4	34.9	25.4	44.9	35.4	54.9	45.4
BMS-083	5	15.8	23.0	23.7	16.1	31.1	24.0	46.8	37.9	---	---	---	---	---	---	---	---
	6	19.0	27.6	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7	---	---	---	---	---	---
	7	22.1	32.2	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2	---	---	---	---	---	---
	8	25.3	36.8	---	---	21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9	---	---
	9	28.5	41.4	---	---	---	---	34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3	---	---
	10	31.6	46.0	---	---	---	---	31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3
	11	34.8	50.6	---	---	---	---	---	---	43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8
	12	38.0	55.2	---	---	---	---	---	---	40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2
BMS-092	5	23.3	34.4	33.1	22.0	44.2	33.2	66.8	55.9	---	---	---	---	---	---	---	---
	6	28.0	41.2	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6	---	---	---	---	---	---
	7	32.7	48.1	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7	---	---	---	---	---	---
	8	37.3	55.0	---	---	31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0	---	---
	9	42.0	61.9	---	---	---	---	48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1	---	---
	10	46.7	68.7	---	---	---	---	43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8
	11	51.4	75.6	---	---	---	---	---	---	61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0
	12	56.0	82.5	---	---	---	---	---	---	56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1
BMS-105	5	31.6	49.2	51.0	33.4	67.5	49.9	100.6	83.0	---	---	---	---	---	---	---	---
	6	38.0	59.1	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2	---	---	---	---	---	---
	7	44.3	68.9	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4	---	---	---	---	---	---
	8	50.6	78.7	---	---	48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7	---	---
	9	56.9	88.6	---	---	---	---	75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9	---	---
	10	63.3	98.4	---	---	---	---	68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7
	11	69.6	108.3	---	---	---	---	---	---	95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2
	12	75.9	118.1	---	---	---	---	---	---	89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7
BMS-152	5	52	79	73	47	98	72	148	122	---	---	---	---	---	---	---	---
	6	63	94	63	31	88	56	138	107	188	157	---	---	---	---	---	---
	7	73	110	52	15	77	40	127	90	178	141	---	---	---	---	---	---
	8	84	125	---	---	67	25	117	75	167	125	217	176	268	226	---	---
	9	94	141	---	---	---	---	107	59	157	109	207	159	257	210	---	---
	10	105	157	---	---	---	---	96	44	146	94	196	144	247	194	297	245
	11	115	173	---	---	---	---	---	---	136	78	186	128	236	178	286	228
	12	125	188	---	---	---	---	---	---	125	63	176	113	226	163	276	213
BMS-140	5	86	129	128	85	171	127	256	213	---	---	---	---	---	---	---	---
	6	103	155	111	59	154	102	239	187	325	273	---	---	---	---	---	---
	7	120	181	94	33	137	76	222	162	308	247	---	---	---	---	---	---
	8	137	206	---	---	120	50	205	136	291	221	376	307	462	392	---	---
	9	155	232	---	---	---	---	187	110	273	196	358	281	444	367	---	---
	10	172	258	---	---	---	---	170	84	256	169	341	255	427	340	512	426
	11	189	284	---	---	---	---	---	---	238	143	324	229	409	314	495	400
	12	206	310	---	---	---	---	---	---	221	118	307	203	392	289	478	374

Specification is subject to change without prior notice

VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - Torque Table (Nm)

Rack & Pinion Series

unit:Nm

Model	Spring Set	Spring Torque (Nm)		Air Supply Pressure(Unit:bar)													
				2.5		3.0		4.0		5.0		6.0		7.0		8.0	
				Air Torque Output(Nm)													
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
BMS-160	5	140	208	193	124	259	191	392	324	---	---	---	---	---	---	---	---
	6	168	250	165	83	232	149	365	282	498	415	---	---	---	---	---	---
	7	196	292	137	41	203	107	336	240	469	373	---	---	---	---	---	---
	8	223	333	---	---	176	66	309	199	442	332	575	465	708	598	---	---
	9	251	375	---	---	---	---	280	157	413	290	546	423	679	556	---	---
	10	279	417	---	---	---	---	253	115	386	248	519	381	652	514	785	647
	11	307	458	---	---	---	---	---	---	358	207	491	340	624	473	757	606
	12	335	500	---	---	---	---	---	---	330	165	463	298	596	431	729	564
BMS-190	5	200	309	332	222	438	329	651	542	---	---	---	---	---	---	---	---
	6	240	371	292	161	398	267	611	480	824	693	---	---	---	---	---	---
	7	280	433	252	99	358	205	571	418	784	631	---	---	---	---	---	---
	8	320	495	---	---	318	143	531	356	744	569	957	782	1169	995	---	---
	9	360	557	---	---	---	---	491	295	704	507	917	720	1130	933	---	---
	10	400	618	---	---	---	---	451	233	664	446	877	658	1090	871	1302	1084
	11	440	680	---	---	---	---	---	---	624	384	837	597	1050	809	1263	1022
	12	480	742	---	---	---	---	---	---	584	322	797	535	1010	748	1223	960
BMS-210	5	275	380	390	285	523	418	789	684	---	---	---	---	---	---	---	---
	6	330	456	335	209	468	342	734	608	1000	874	---	---	---	---	---	---
	7	385	532	280	133	413	266	679	532	945	798	---	---	---	---	---	---
	8	440	608	---	---	358	190	624	456	890	722	1156	988	1422	1254	---	---
	9	495	684	---	---	---	---	569	380	835	646	1101	912	1367	1178	---	---
	10	550	760	---	---	---	---	514	304	780	570	1046	836	1312	1102	1578	1368
	11	605	836	---	---	---	---	---	---	725	494	991	760	1257	1026	1523	1292
	12	660	912	---	---	---	---	---	---	670	418	936	684	1202	950	1468	1216
BMS-240	5	410	554	552	409	744	600	1129	985	---	---	---	---	---	---	---	---
	6	490	665	470	297	662	489	1047	874	1432	1259	---	---	---	---	---	---
	7	575	775	388	187	580	379	964	764	1349	1149	---	---	---	---	---	---
	8	656	886	---	---	498	268	883	653	1267	1037	1652	1422	2037	1807	---	---
	9	739	998	---	---	---	---	800	542	1185	926	1569	1311	1954	1696	---	---
	10	821	1108	---	---	---	---	718	431	1103	816	1488	1201	1872	1586	2257	1970
	11	903	1219	---	---	---	---	---	---	1021	705	1406	1090	1791	1471	2176	1859
	12	985	1330	---	---	---	---	---	---	939	594	1323	979	1708	1363	2093	1748
BMS-270	5	560	787	903	675	1195	968	1779	1552	---	---	---	---	---	---	---	---
	6	672	943	790	519	1083	811	1667	1396	2252	1981	---	---	---	---	---	---
	7	783	1101	679	361	972	654	1556	1238	2141	1823	---	---	---	---	---	---
	8	895	1258	---	---	860	479	1444	1081	2029	1666	2614	2252	3199	2836	---	---
	9	1007	1416	---	---	---	---	1332	923	1917	1509	2502	2094	3087	2678	---	---
	10	1119	1572	---	---	---	---	1220	767	1805	1352	2390	1937	2974	2521	3560	3107
	11	1231	1730	---	---	---	---	---	---	1693	1197	2278	1779	2862	2364	3448	2949
	12	1342	1887	---	---	---	---	---	---	1582	1037	2167	1623	2751	2207	3336	2792
BMS-300	5	730	1061	1097	729	---	---	---	---	---	---	---	---	---	---	---	---
	6	876	1273	935	494	1316	875	---	---	---	---	---	---	---	---	---	---
	7	1022	1485	772	258	1153	639	1916	1402	---	---	---	---	---	---	---	---
	8	1168	1697	---	---	991	403	1754	1166	2517	1929	---	---	---	---	---	---
	9	1314	1909	---	---	---	---	1592	930	2355	1693	3118	2456	---	---	---	---
	10	1460	2122	---	---	---	---	1430	695	2193	1458	2956	2221	3719	2984	4482	3747
	11	1606	2334	---	---	---	---	---	---	2030	1222	2793	1985	3556	2748	4319	3511
	12	1752	2546	---	---	---	---	---	---	1868	986	2631	1749	3394	2512	4157	3275
BMS-350	5	1173	1702	1553	964	---	---	---	---	---	---	---	---	---	---	---	---
	6	1408	2043	1292	586	1863	1157	---	---	---	---	---	---	---	---	---	---
	7	1642	2383	1031	208	1602	779	2745	1922	---	---	---	---	---	---	---	---
	8	1877	2724	---	---	1341	401	2484	1544	3626	2686	---	---	---	---	---	---
	9	2112	3064	---	---	---	---	2224	1165	3336	2307	4508	3449	---	---	---	---
	10	2346	3405	---	---	---	---	1963	787	3105	1929	4247	3071	5390	4214	6532	5356
	11	2581	3745	---	---	---	---	---	---	2844	1551	3986	2693	5129	3836	6271	4978
	12	2816	4086	---	---	---	---	---	---	2584	1172	3726	2314	4869	3457	6011	4599
BMS-400	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	7	1837	2880	2028	869	---	---	---	---	---	---	---	---	---	---	---	---
	8	2100	3292	1736	411	2550	1225	---	---	---	---	---	---	---	---	---	---
	9	2362	3703	---	---	2259	768	3887	2396	---	---	---	---	---	---	---	---
	10	2624	4115	---	---	1967	311	3595	1939	5223	3567	---	---	---	---	---	---
	11	2887	4526	---	---	---	---	3303	1482	4931	3110	6559	4738	---	---	---	---
	12	3149	4938	---	---	---	---	3012	1025	4640	2653	6268	4281	7895	5908	9523	7536

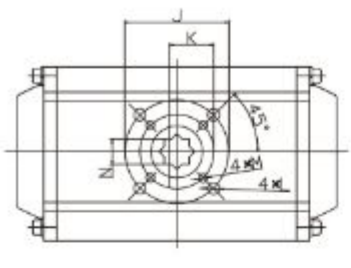
Specification is subject to change without prior notice

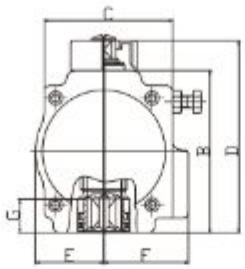
VALVE

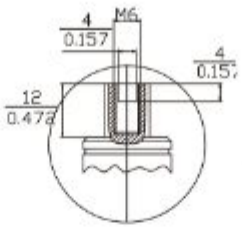
RELIABLE FOR THE FUTURE

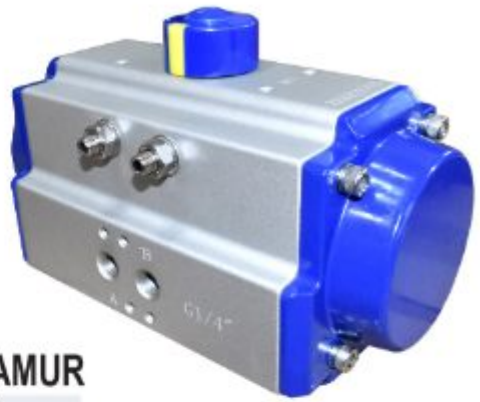
Pneumatic Actuator - Dimension Table

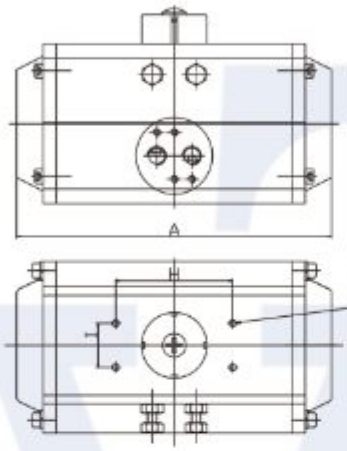
Rack & Pinion Series











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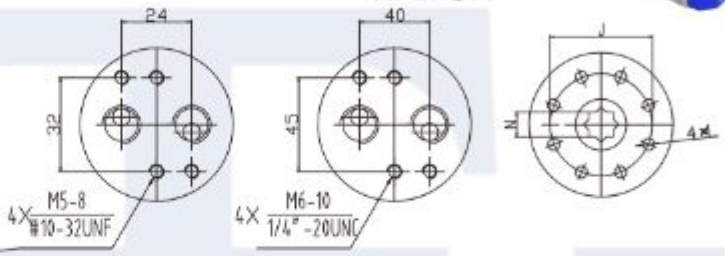


1/4" NAMUR 1/2" NAMUR BM-400

Dimension Table

Unit: mm / inch

Model	A	B	C	D	E	F	G	H	I	N	J	K	L	M	Air Connection
BM-032	110	45	45	65	22.5	22.5	11	50	25	9	F03	---	M5*7.5	---	1/8"
	4.33	1.77	1.77	2.65	0.89	0.89	0.89	1.97	0.98	0.35			#10-24UNF		
BM-040	122	60	52	80	28.5	36.5	14	80	30	11	F05	F03	M6*10	M5*7.5	1/4"
	4.80	2.36	2.05	3.15	1.12	1.44	0.55	3.15	1.18	0.43			1/4"-20UNC	#10-24UNF	
BM-052	146	72	60	92	26	41.5	14	80	30	11	F05	F03	M6*10	M5*7.5	1/8" or 1/4"(std)
	5.74	2.83	2.36	3.62	1.02	16.33	0.55	3.15	1.18	0.43			1/4"-20UNC	#10-24UNF	
BM-063	169	88	69.5	108	33.5	47	17	80	30	14	F07	F05	M8*13	M6*10	1/8" or 1/4"(std)
	6.65	3.46	27.36	2.25	1.31	1.85	0.66	3.15	1.18	0.55			5/16"-20UNC	1/4"-20UNC	
BM-075	186	100	78	120	39	53	17	80	30	14	F07	F05	M8*13	M6*10	1/8" or 1/4"(std)
	7.32	3.93	3.07	4.72	1.53	2.08	0.66	3.15	1.18	0.55			5/16"-20UNC	1/4"-20UNC	
BM-083	210	109	86	129	40	57	20	80	30	17	F07	F05	M8*13	M6*10	1/8" or 1/4"(std)
	8.26	4.29	3.38	5.07	1.57	2.24	0.79	3.15	1.18	0.67			5/16"-20UNC	1/4"-20UNC	
BM-092	264	117	90.5	137	44.5	58.5	20	80	30	17	F07	F05	M8*13	M6*10	1/8" or 1/4"(std)
	10.39	4.6	3.56	5.39	1.75	2.3	0.79	3.15	1.18	0.67			5/16"-20UNC	1/4"-20UNC	
BM-105	272	133	104	153	52	64	26	80	30	22	F10	F07	M10*16	M8*13	1/4"
	10.7	5.23	4.09	6.02	2.04	2.51	1.02	3.15	1.18	0.87			3/8"-20UNC	5/16"-20UNC	
BM-125	302	155	120	185	60	74.5	25	130	30	22	F10	F07	M10*16	M8*13	1/4"
	11.88	6.1	4.72	7.28	2.36	2.93	0.98	5.11	1.18	0.87			3/8"-20UNC	5/16"-20UNC	
BM-140	398	172	125	202	65	77	30	130	30	27	F12	F10	M12*20	M10*16	1/4"
	15.66	6.77	4.92	7.95	2.55	3.03	1.18	5.11	1.18	1.06			1/2"-20UNC	3/8"-20UNC	
BM-160	456	197	142	227	74	87	30	130	30	27	F12	F10	M12*20	M10*16	1/4"
	17.95	7.75	5.59	8.93	2.91	3.42	1.18	5.11	1.18	1.06			1/2"-20UNC	3/8"-20UNC	
BM-190	534	230	172	260	86	103	40	130	30	36	F14	---	M16*20	---	1/4"
	21.02	9.05	6.77	10.23	3.38	4.05	1.57	5.11	1.18	1.42			5/8"-20UNC		
BM-210	536	255	194	285	97	113	43	130	30	36	F14	---	M16*20	---	1/4"
	21.1	10.03	7.63	1.12	3.81	4.44	1.69	5.11	1.18	1.42			5/8"-20UNC		
BM-240	612	290	230	320	115	130	50	130	30	46	F16	---	M20*25	---	1/4" or 3/8"(std)
	24.09	11.41	9.05	12.59	4.52	5.11	1.97	5.11	1.18	1.81			3/4"-20UNC		
BM-270	718	330	252	360	126	147	50	130	30	46	F16	---	M20*25	---	1/2"
	28.26	12.99	9.92	14.17	4.96	5.78	1.97	5.11	1.18	1.81			3/4"-20UNC		
BM-300	784	354	335	384	162	173	50	130	30	46	F16	---	M20*25	---	1/2"
	30.86	13.93	13.2	15.11	6.37	6.8	1.97	5.11	1.18	1.81			3/4"-20UNC		
BM-350	845	410	385	440	190	195	50	130	30	46	F16	F25	M20*25	---	1/2"
	33.26	16.14	15.15	17.32	7.48	7.67	1.97	5.11	1.18	1.81			3/4"-20UNC		
BM-400	956	466	520	496	260	260	60	130	30	55	F16	F25	M16*20	---	1/2"
	37.63	18.34	20.47	19.52	10.23	10.23	2.36	5.11	1.18	2.16			5/8"-20UNC		

Specification is subject to change without prior notice

VALVE
RELIABLE FOR THE FUTURE

Pneumatic Actuator - Accessories

Rack & Pinion Series

IEC/ATEX/FM/CSA Approved

316SS

3/2 & 5/2 way in-line & Namur Mounted Solenoid Valve.

1. Spool valve structure
2. Static seal design
3. Material in aluminum & 316SS
4. Encapsulated coil in NASS coil
5. EExdIICT6 coil enclosure in Aluminum & 316SS.

Approved by ATEX & NEPSI.

NEPSI Approved

Rotary & Linear Type E/P Positioner

1. The optional output signal: mechanical switch & 4-20mADC feedback
2. The optional accessories: air filter regulator or dome type indicator(only in IP66, rotary type)
3. Enclosure in IP66,EExdIIBT6 & EExdIICT6(Approved by ATEX & NEPSI)

ATEX / NEPSI Approved

316SS 30M/24hrs tested by the third party

Position Monitoring Switchbox

1. Sensor Type:
   Mechanical Type (2,3 or 4 x SPDT, DPDT)
   Proximity Type (Autonis, P+F, Truck ...)
2. The optional output signal: 4-20mADC or 0-5K/10K ohm potentiometer
3. Housing material in aluminum or 316SS
4. Enclosure in IP67,EExdIIBT6 & EExdIICT6 (Approved by ATEX & NEPSI)
5. IP68 enclosure tested in 30M / 24Hoirs

Manual Override (Declutchable Wormgear Operator)

1. Cast Iron/Aluminum Body:
   The output torque: 300/ 700/ 1,200/ 2,000/ 3,100Nm
2. Ductile Iron Body:
   The output torque: 12,000/ 18,000/ 25,000/ 32,000/ 70,000Nm
   The actuator & valve connection complies with ISO5211 standard

Air Filter Regulator

1. 5um filtration & high flow capacity
2. Panel Mounting is optional
3. 1/4" vented spring case is optional
4. Housing material in aluminum & 316SS

Electric Actuator HQ Series

HQ Series

PERFORMANCE

TYPE (MODEL)	Maximum output torque	Operating time(sec.) 60/50Hz	Maximum bore size	Motor class F Model & frame size	Rated current(A) 60Hz				Duty cycle IEC 34-1	Number of handle turn	Weight
					1 Phase		3 Phase				
	Kg-m	90°	mm	M × F	110V	220V	380V	440V	S4(%)	N	Kg
HQ-008	8	13/16	ϕ20	15 × 70	0.96/0.97	0.47/0.46	N/A	N/A	70	10	7.4
HQ-010	10	16/20	ϕ20	15 × 70	0.96/0.97	0.47/0.46	N/A	N/A	70	10	7.4
HQ-015	15	21/25	ϕ22	40 × 80	1.51/1.62	0.72/0.84	0.35/0.27	0.55/0.34	70	11	16.6
HQ-020	20	21/25	ϕ22	40 × 80	1.51/1.62	0.72/0.84	0.35/0.27	0.55/0.34	70	11	16.6
HQ-030	30	26/31	ϕ35	40 × 90	1.37/1.67	0.68/0.81	0.33/0.27	0.43/0.30	70	13.5	22
HQ-050	50	26/31	ϕ35	90 × 90	4.27/3.56	1.37/1.27	0.51/0.42	0.66/0.46	70	13.5	23
HQ-060	60	26/31	ϕ35	90 × 90	4.27/3.56	1.37/1.27	0.51/0.42	0.66/0.46	70	13.5	23
HQ-080	80	31/37	ϕ45	180 × 90	3.47/4.45	1.81/2.32	0.83/0.61	1.10/0.73	70	16.5	29
HQ-120	120	31/37	ϕ45	180 × 90	3.47/4.45	1.81/2.32	0.83/0.61	1.10/0.73	70	16.5	29
HQ-200	200	93/112	ϕ65	180 × 90	3.47/4.45	1.81/2.32	0.83/0.61	1.10/0.73	70	49.5	75
HQ-300	300	93/112	ϕ65	180 × 90	3.47/4.45	1.81/2.32	0.83/0.61	1.10/0.73	70	49.5	75

STANDARD SPECIFICATION

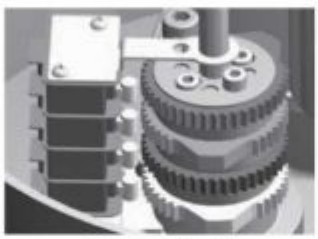
Enclosure	Weatherproof enclosure IP67, NEMA 4 and 6
Power supply	110 / 220V AC 1PH, 380 / 440V AC 3PH 50 / 60Hz, ±10%
Control power supply	110 / 220V AC 1PH, 50 / 60Hz, ±10%
Duty cycle(on-off)	S2, 100% Max 30Min
Duty cycle(modulating)	S4, 70% Max 300~1600 start/hour
Motor	Induction motor (Reversibe motor)
Limit switches	Open / close, SPDT, 250V AC 16A rating
Additional limit switches	Open / close, SPDT, 250V AC 16A rating
Torque switches	Open / close, SPDT, 250V AC 16A rating (exept HQ-008)
Stall protection/operating temp'	Built-in thermal protection, open 150℃±5℃ / close 97℃±15℃
Travel angle	90°±10° (0°~110°)
Indicator	Continuous position indicator
Manual override	Declutching mechanism
Self locking	Provided by double worm gearing
Mechanical stopper	2× external adjustable screws
Space heater	10W(110/220V AC) Anti-condensation
Cable entries	Three PF3/4" tap (standard type only)
Lubrication	Grease moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Steel, Aluminium alloy, Al bronze, Polycarbonate
Ambient temperature	-20℃~+70℃ (except option electronic board)
Ambient humidity	90% RH Max.(non-condensing)
Anti vibration	X Y Z 10g, 0.2~34Hz, 30minute
External coating	Anodizing treatment before dry powder, Polyester, Munsell no. 5R 3.5/12

Specification is subject to change without prior notice

OPTION SPECIFICATION

EXA	Explosionproof enclosure actuator (Eexd II B T4)	HQ-series
WTA	Watertight enclosure actuator (IP68 10M 72HR)	HQ-series
PIU	Potentiometer unit (0~1㏀)	HQ-series
PCU	Proportional control unit (input, output 0~10V DC, 4~20mA DC)	HQ-series
ATS	Additional torque switches (SPDT x 2EA 250V AC 10A Rating)	except HQ-008/010
SICU	Semi-Integral control unit (LCU + IMS + phase protect indicator)	except HQ-008/010
ICU	Intelligent digital control unit (LCU + IMS + auto phase discriminator)	except HQ-008/010
CPT	Current position transmitter (output 4~20mA DC)	HQ-series
EXT	Extension 120°, 180°, 270° turn	except HQ-200, 300
RBP	Rechargeable battery backup	HQ-008, 015, 020, 030
DCM	DC motor (24V DC)	HQ-008, 015, 020, 030
ADCM	Multi AC/DC 24V(integral)	HQ-008, 015, 020, 030
LPA	Lever plate actuator	except HQ-008/010
SLU	Signal lamp unit (white-power on, red-open, green-close, yellow-over torque)	except HQ-008/010
FPA1	Fire Proofing Actuator 1050 ±5℃ / 50min	Engineering consult in advance
FPA2	Fire Proofing Actuator 250 ±5℃ / 150min	Engineering consult in advance

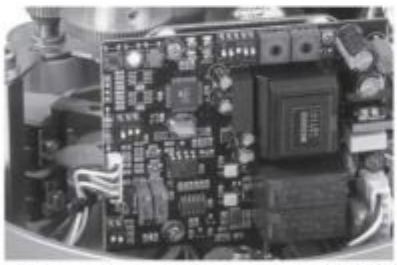
(Standard cam)



(Cam block)

(D-Type cam)

- 2 travel limit switches for operation
- 2 auxiliary limit switches as dry contect for customer usage
- Easy setting from upside by two screws for tight lockup
- Each cam be set independently



Proportional Control Unit (PCU)

- Input signal range : 0~10VDC, 1~5VDC, 4~20mA, 20~4mA
- Output signal range : 4~20mA, 0~10VDC
- Adjustable range : Zero 8mA, Open 16mA
- Position conversion accuracy :
  ±0.5~1.5%(depends on installation)

Potentiometer Kit (PIU)

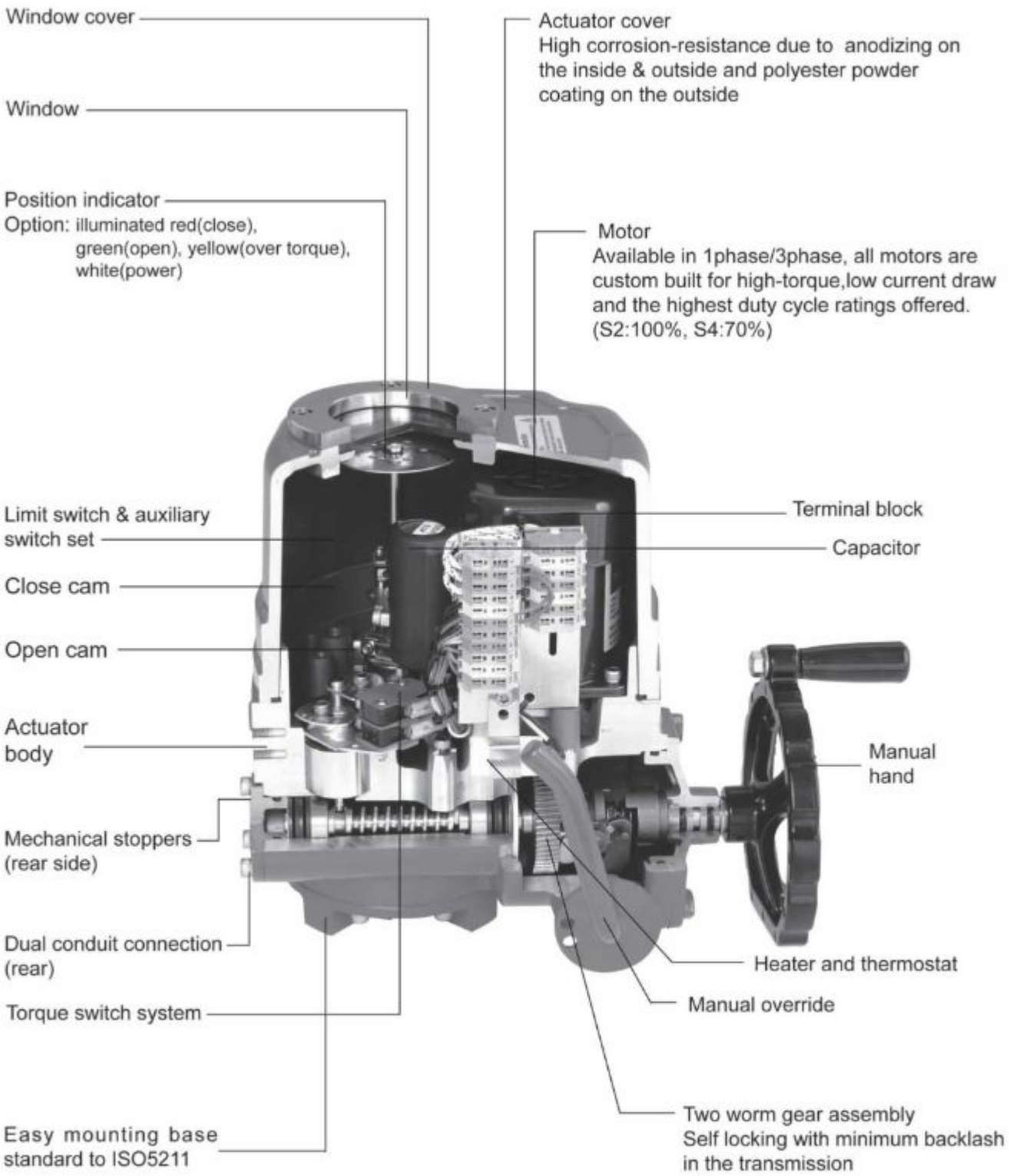
- 0~1K ohm(±0.5%), high resolution

Fire Proofing Actuator (FPA)

Rechargeable Battary Backup

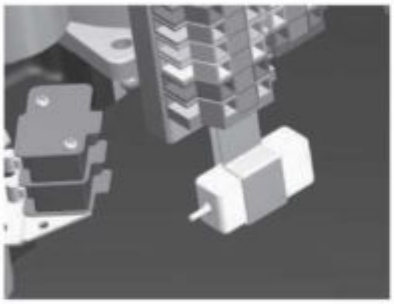
Specification is subject to change without prior notice

CONSTRUCTION



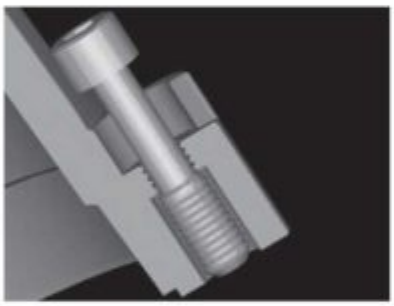
Terminal block

- Enough number of terminal strips for customer's convenience
- Proven reliability and tight wiring connection.
- Stripped length: 8-9 mm / 0.33 in(2.5mm^2)
- Terminal dimensions: 10 × 22 × 32mm



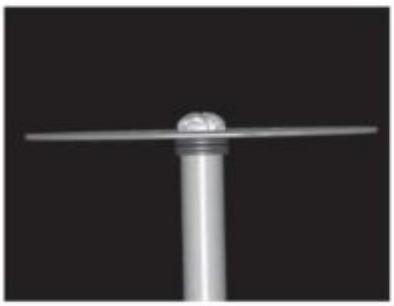
Heater

- Ceramic housing with thermostat to prevent over heat comparing with set temperature.
- No risk of electricity leakage.



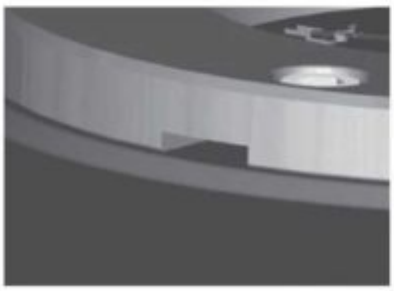
Captive cover bolt

- Cover bolts are specially designed to prevent loosing it during maintenance or installation.
- All external bolts are stainless steel for rust prevention.



Indicator sustained by spring

- Direction of visual indicator is set by factory.
- In case of changing it's direction, just grip the indicator plate and change the position.
- Spring beneath indicator plate sustains the set position unchanged.
- No need to loose screw and tight it again at all !

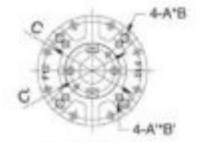


Slot on window cover for draining rainwater

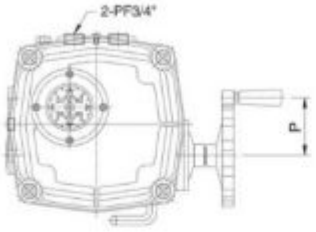
- Rainwater inside of window cover may affect the sealing of window.
- To prevent this, drain slut is useful to prevent this effect.

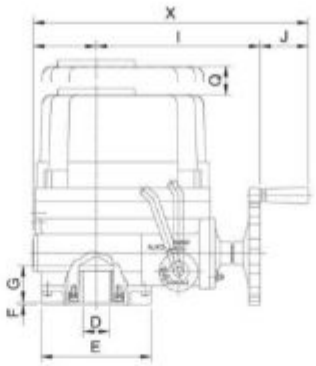
DIMENSIONAL DRAWING

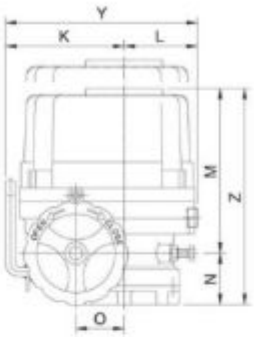
HQ008, HQ010, HQ015, HQ020, HQ030, HQ050, HQ060, HQ080, HQ120



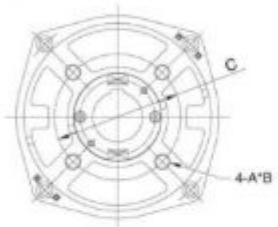
BASE ISO5211







HQ200, HQ300



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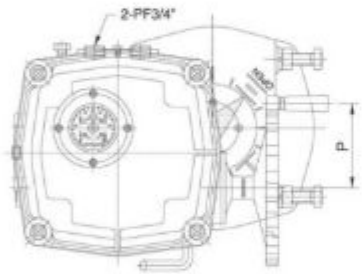
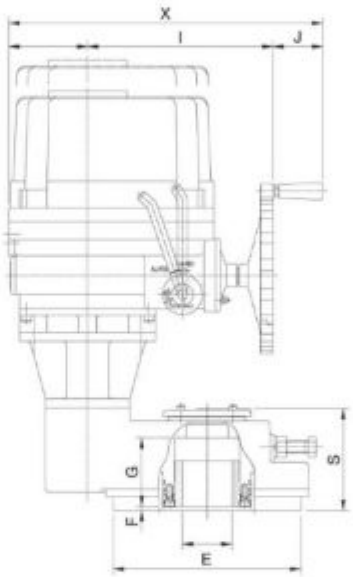
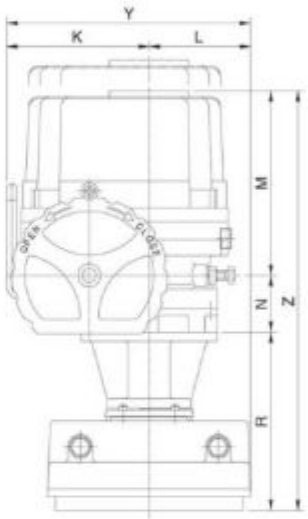






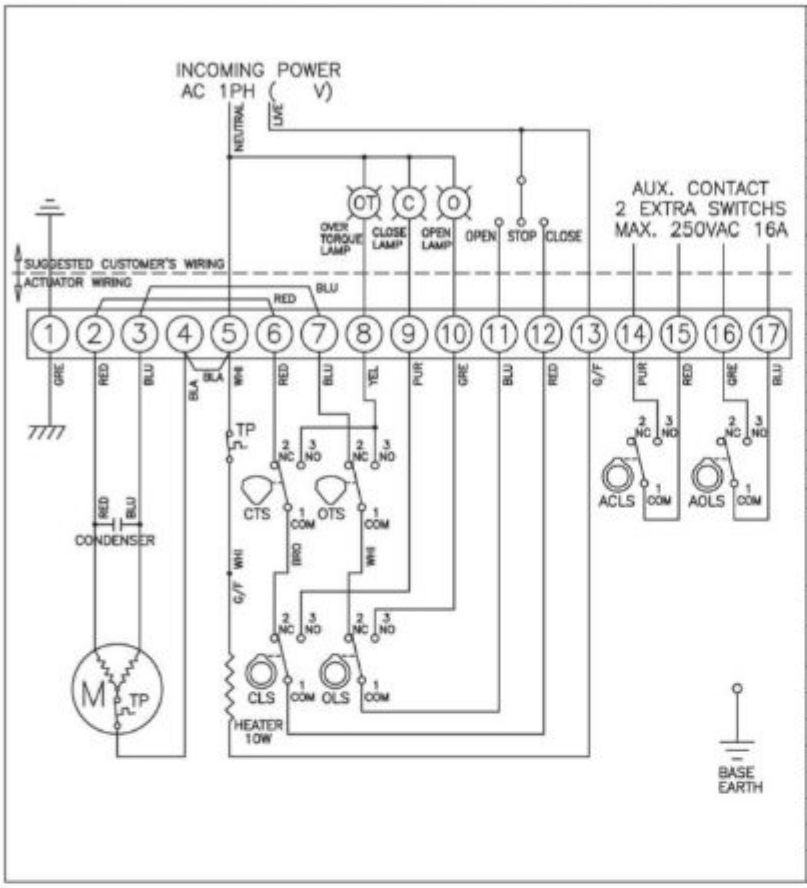
DIMENSION

unit(mm)

Model	Base ISO 5211	A	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
	ϕC	B	(max)																		
HQ008	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	–	–	258	170	235
	ϕ70	12																			
HQ010	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	–	–	258	170	235
	ϕ70	12																			
HQ015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	–	–	338	229	268
	ϕ70 ϕ102	12/15																			
HQ020	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	–	–	338	229	268
	ϕ70 ϕ102	12/15																			
HQ030	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	–	–	368	259	304
	ϕ102 ϕ125	15/18																			
HQ050	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	–	–	368	259	304
	ϕ102 ϕ125	15/18																			
HQ060	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	–	–	368	259	304
	ϕ102/ϕ125	15/18																			
HQ080	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	–	–	410	297	330
	ϕ125*/ϕ140	18/24																			
HQ120	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	–	–	410	297	330
	ϕ125/ϕ140	18/24																			
HQ200	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	ϕ140*/ϕ165	24*/30																			
HQ300	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	ϕ140*/ϕ165	24*/30																			

Specification is subject to change without prior notice

Standard Type (1- phase, 50/60Hz)



TORQUE AND LIMIT SWITCH OPERATION		
SWITCH	CLOSE ← INTERMEDIATE → OPEN	
CLS 1-2		
CLS 1-3		
OLS 1-2		
OLS 1-3		
ACLS1-2		
ACLS1-3		
AOLS1-2		
AOLS1-3		
CTS 1-3	* CLOSING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE	
OTS 1-3	* OPENING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE	

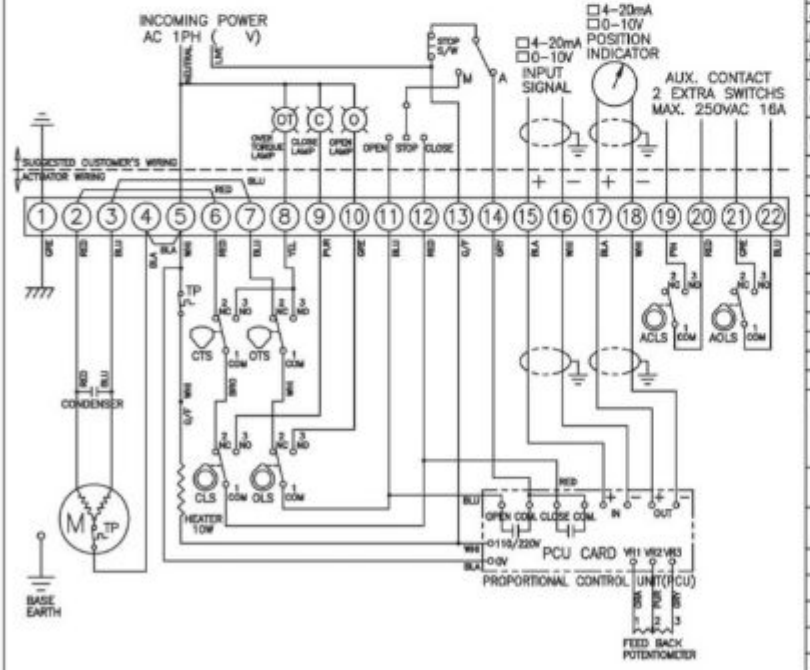
SYMBOL	DESCRIPTION	RATING
CLS	CLOSE LIMIT SWITCH	250VAC 10A
OLS	OPEN LIMIT SWITCH	250VAC 10A
CTS	CLOSE TORQUE SWITCH	250VAC 10A
OTS	OPEN TORQUE SWITCH	250VAC 10A
ACLS	AUX. CLOSE LIMIT SWITCH	250VAC 16A
AOLS	AUX. OPEN LIMIT SWITCH	250VAC 16A
TP	THERMAL PROTECTOR	250VAC 15A

*EACH ACTUATOR SHOULD BE POWERED THROUGH IT'S OWN INDIVIDUAL SWITCH OR RELAY CONTACTS TO PREVENT CROSS FEED BETWEEN TWO OR MORE ACTUATORS.

DRAW	P.S. KIM	CHECK	
DESIGN	S.M. HAN	APPR.	

	PART NAME 1PH WIRING DIAGRAM STANDARD
	DWG. NO HQ-11000-A
HQ-200 HQ-080 HQ-030 HQ-015	ISSU. DEPT. HADR / DATE 2001.05.10
APPLICATION	HKC HK CONTROMATIC CO., LTD.

Proportional Type (1- phase, 50/60Hz)



TORQUE AND LIMIT SWITCH OPERATION		
SWITCH	CLOSE ← INTERMEDIATE → OPEN	
CLS 1-2		
CLS 1-3		
OLS 1-2		
OLS 1-3		
ACLS1-2		
ACLS1-3		
AOLS1-2		
AOLS1-3		
CTS 1-3	* CLOSING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE	
OTS 1-3	* OPENING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE	

SYMBOL	DESCRIPTION	RATING
CLS	CLOSE LIMIT SWITCH	250VAC 10A
OLS	OPEN LIMIT SWITCH	250VAC 10A
CTS	CLOSE TORQUE SWITCH	250VAC 10A
OTS	OPEN TORQUE SWITCH	250VAC 10A
ACLS	AUX. CLOSE LIMIT SWITCH	250VAC 16A
AOLS	AUX. OPEN LIMIT SWITCH	250VAC 16A
TP	THERMAL PROTECTOR	250VAC 15A

*EACH ACTUATOR SHOULD BE POWERED THROUGH IT'S OWN INDIVIDUAL SWITCH OR RELAY CONTACTS TO PREVENT CROSS FEED BETWEEN TWO OR MORE ACTUATORS.

DRAW	P.S. KIM	CHECK	
DESIGN	S.M. HAN	APPR.	

	PART NAME 1PH WIRING DIAGRAM PCU
HQ-300 HQ-200	DWG. NO HQ-15000-A
HQ-080 HQ-030 HQ-015	ISSU. DEPT. HADR / DATE 2001.05.10
APPLICATION	HKC HK CONTROMATIC CO., LTD.

※ Wiring drawings are provided upon request.

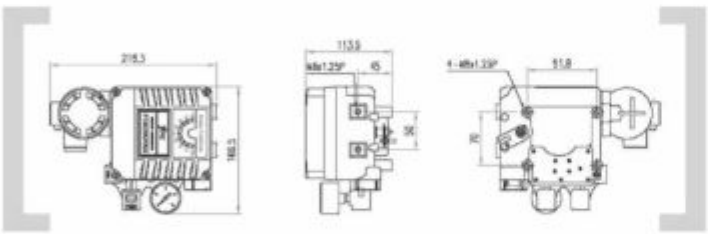
rotork®

Electro-Pneumatic Positioner YT-1000R (Rotary Type)

Ordering Symbols: YT-1000R

Model	Acting Type	Explosion Protection	Lever Type	Orifice Type	Conduit - Air Connection	Operating Temp *2	Option1	Option2 *2
YT-1000R	S Single	N Non-Explosion	1 M6×34L	1 Φ1	1 G1/2 - PT1/4	S -20℃ ~ 60℃	0 NONE (Std)	0 NONE
	D Double	M ATEX, IECEx, TS, KCs	2 M6×63L	2 Φ2	2 G1/2 - NPT1/4	H -20℃ ~ 120℃	1 Dome Cover	1 + SPTM(Internal)
		A CSA, FM	3 M8×34L	3 None	3 G1/2 - G1/4	L -40℃ ~ 70℃		2 + SPTM(External)
		C KCs, NEPSI	4 M8×63L		4 M20 - NPT1/4 *1			3 + L/S(Internal)
		I KCs	5 NAMUR		5 NPT1/2 - NPT1/4			4 + L/S(External)
		X TIIS						5 + SPTM + L/S(Internal)
								6 + SPTM + L/S(External)

*1 M20 adapter is attached to conduit entry
*2 With high-low temp and/or internal external SPTM, L/S option, positioner must be non-explosion type.



Specifications

Item · Type		Single	Double
Input Signal		4-20mA DC	
Impedance		250±15 Ω	
Supply Pressure		0.14~0.7MPa(1.4~7 bar)	
Stroke		0 ~ 90°	
Air Connection		PT(NPT,G)1/4	
Gauge Connection		PT(NPT) 1/8	
Conduit		G(PF,NPT)1/2, M20	
Explosion Protection Type		**ATEX** (II 2 G)Ex d[ia]mb IIB T5 **IECEx** (II 2 G)Ex d[ia]mb IIB T5 **KCs** Ex d[ia]mb IIB T5/Ex d IIC T5 IP66/Ex ia IIB T6 Gb **TS** Ex db[ia]mb IIB T5 Gb X **CSA** (Class I, Zone 1)Ex d[ia]mb IIB T5 **FM** XP-S/I/1/CD/T5 Ta=60℃; DIP/II,III/1/EFG/T5 Ta=60℃; Type 4X **NEPSI** Ex d[ia]mb IIC T6 Gb **TIIS** Ex d[ia]mb IIB T5	
Ingress Protection		IP66	
Operating Temp	Operating	-20℃~70℃(-4~158°F)	
	Explosion	-20℃~60℃(-4~140°F)	
Linearity		±1% F.S.	±2% F.S.
Hysteresis		±1% F.S.	
Sensitivity		±0.2% F.S.	±0.5% F.S.
Repeatability		±0.5% F.S.	
Air Consumption		2.5LPM (sup=0.14MPa)	
Flow Capacity		80LPM (sup=0.14MPa)	
Material		Aluminum Diecasting	
Weight		2.8kg (6.2 lb)	

* For additional **SPTM, L/S specification** refer to p. 25,27(Int.) and 26,28(Ext.).

The Electro-Pneumatic Positioner YT-1000R is used for operation of pneumatic rotary valve actuators by means of electrical controller or control system with an analog output signal of DC 4 to 20mA or split ranges.

- Simple zero and span adjustment
- No resonance between 5-200Hz
- Auto/Manual switch
- RA v.s. DA action and 1/2 split range setting by simple adjustment.
- Internal feedback signal is available as an option (weather proof only)

Specification is subject to change without prior notice

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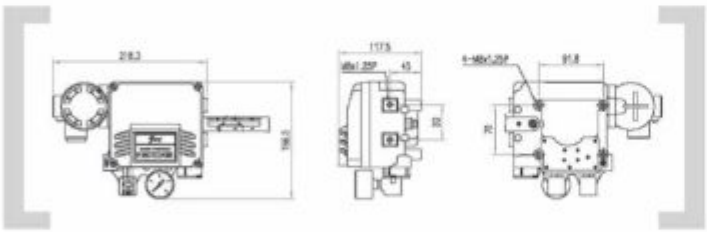
Electro-Pneumatic Positioner YT-1000L (Linear Type)

Ordering Symbols: YT-1000L

Model	Acting Type	Explosion Protection	Lever Type	Orifice Type	Conduit - Air Connection	Operating Temp	Option *2
YT-1000L	S Single	N Non-Explosion	1 10 ~ 40mm	1 Φ1	1 G1/2 - PT1/4	S -20℃ ~ 60℃	0 NONE
	D Double	M ATEX, IECEx, TS, KCs	2 30 ~ 70mm	2 Φ2	2 G1/2 - NPT1/4	H -20℃ ~ 120℃	2 + SPTM (Smart type)
		A CSA, FM	3 60 ~ 100mm	3 None	3 G1/2 - G1/4	L -40℃ ~ 70℃	3 + SPTM with LCD(Smart type)
		C KCs, NEPSI	4 100 ~ 150mm		4 M20 - NPT1/4 *1		
		I KCs			5 NPT1/2 - NPT1/4		
		X TIIS					

*1 M20 adapter is attached to conduit entry

*2 With high-low temp and/or internal SPTM option, positioner must be non-explosion type .



Specifications

Item · Type		Single	Double
Input Signal		4-20mA DC	
Impedance		250±15 Ω	
Supply Pressure		0.14~0.7MPa(1.4~7 bar)	
Stroke		10 ~150mm	
Air Connection		PT(NPT,G)1/4	
Gauge Connection		PT(NPT) 1/8	
Conduit		G(PF,NPT)1/2, M20	
Explosion Protection Type		ATEX (II 2 G)Ex d mb IIB T5 IECEx (II 2 G)EEx md IIB T5 KCs Ex d mb IIB T5/Ex d IIC T5 IP66/Ex ia IIB T6 Gb TS Ex db mb IIB T5 Gb X CSA (Class I, Zone 1)Ex d mb IIB T5 FM XP-S/1/CD/T5 Ta=60℃; DIP/II, III/1/EFG/T5 Ta=60℃ ;Type 4X NEPSI Ex d mb IIC T6 Gb TIIS Ex d mb IIB T5	
Ingress Protection		IP66	
Operating Temp	Operating	-20℃~70℃(-4~158℉)	
	Explosion	-20℃~60℃(-4~140℉)	
Linearity		±1% F.S.	±2% F.S.
Hysteresis		±1% F.S.	
Sensitivity		±0.2% F.S.	±0.5% F.S.
Repeatability		±0.5% F.S.	
Air Consumption		2.5 LPM (sup=0.14MPa)	
Flow Capacity		80LPM (sup=0.14MPa)	
Material		Aluminum Diecasting	
Weight		2.7kg (6.1 lb)	

The Electro-Pneumatic Positioner YT-1000L is used for operation of pneumatic rotary valve actuators by means of electrical controller or control system with an analog output signal of DC 4 to 20mA or split ranges.

- Simple zero and span adjustment
- No resonance between 5-200Hz
- Auto/Manual switch
- RA v.s. DA action and 1/2 split range setting by simple adjustment.
- Internal feedback signal is available as an option (weather proof only)

Valve Position Monitor APL-2, 3, 4, 5N Series

(IP67,IP68)

MODEL : APL - 2N

- Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(Option)
- Solid and compact design
- Bolts on visual position indicator
  (Re-adjustment available upon required direction)
- Dual cable entries : 2 x 1/2 NPT(Standard)
  M20, PG13.5, PF1/2″, PT1/2″.(Option)
- Terminal Strips : 8 points(0.08-2. 5㎟)
- Captive cover bolts
- Easy mounting bracket
  NAMUR standard stainless steel shaft and bracket.

(IP67,IP68)

MODEL : APL - 3N

- Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(Option)
- Solid and Flexible design & various options ava ilable
  • 3~4 additional switches • 8~16 points Terminal Strips
- Bolts on visual position indicator
- Dual cable entries : 2 x 1/2 NPT(Standard)
  M20, PG13.5, PF1/2″, PT1/2″.(Option)
- Terminal Strips : 8 points(0.08-2. 5㎟)
- Captive cover bolts
- Easy mounting bracket
  NAMUR standard stainless steel shaft and stainless steel or steel bracket.

(E EX d IIB T 6)

MODEL : APL - 4N

- Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68(Option)
  Explosionproof : E EX d IIB T6
- Solid and Durable design & various options ava ilable
  • 3~4 additional switches
  • 8~20 points Terminal Strips
  • various options switches
- Bolts on visual position indicator
- Cable entries : 2 x 3/4 NPT(Standard)
  M20, M25, PF3/4″, PT3/4″ 4Cable entries(Option)
- Terminal Strips : 8 points(0.08-2. 5㎟)
- Captive cover bolts
- Easy mounting bracket
  NAMUR standard stainless steel shaft and stainless steel or steel bracket.

(E EX d IIC T 6)

- Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68(Option)
  Explosionproof : E EX d IIC T6, E EX ia IIC T6, E EX d IIB T6
- Solid and compact design
- Shaft holder built in the cover(Dual shaft)
  Easy to set the visual position indicator.
  Unique design to put the visual indicator on the threaded joint type cover.
- Bolts on visual position indicator
- Dual Cable entries : 2 x 3/4 PF(Standard)
  M20, M25, NPT3/4″, PT3/4″(Option)
- Terminal Strips : 8 points(0.08-2. 5㎟)
- Captive cover bolts & Spring loaded cover bolts
  No worry to loose bolts while cover open
  & Unique design to hold bolts inside cover
- Easy mounting bracket
  NAMUR standard stainless steel shaft and stainless steel or steel bracket.

FEATURES

- Solid and flexible design
  Aluminium die-casting housing and powder coating.
- Bolts on visual position indicator
- Quick-set" cam
  Spring loaded splined cam.
  No need to adjust again after initial setting.
  Easy setting without tool
- Dual cable entries
- Captive cover bolts
  No worry to loose bolts while cover open.
  Spring loaded cover bolts(APL-5N)
- Easy mounting bracket
  NAMUR standard stainless steel shaft and bracket.

STANDARD SPECIFICATION

Specification \ Model	APL- 2N Series	APL- 3N Series	APL- 4N Series	APL- 5N Series
Enclosure	Weatherproof IP67/NEMA4&4X	Weatherproof IP67/NEMA4&4X	Weatherproof IP67/NEMA4&4X Explosionproof E EX d IIB T6	Weatherproof IP67/NEMA4&4X Explosionproof E EX d IIC T6
Cable entries	Two NPT1/2"	Two NPT1/2"	Two NPT3/4"	Two NPT3/4"
Ambient temperature	-20℃~ 80℃	-20℃~ 80℃	-20℃~ 60℃	-20℃~ 60℃
Terminal strips	8 points (0.08-2.5㎟)	8 points (0.08-2.5㎟)	8 points (0.08-2.5㎟)	8 points (0.08-2.5㎟)
Position indicator	0 ~ 90° (90° turn free join) close:red open:yellow	0 ~ 90° (90° turn free join) close:red open:yellow	0 ~ 90° (90° turn free join) close:red open:yellow	0 ~ 90° (90° turn free join) close:red open:yellow
Switches	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2
Painting	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)

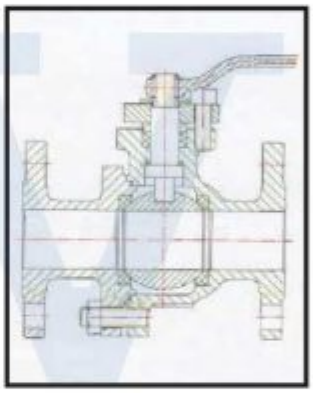
OPTION SPECIFICATION

Specification \ Model	APL- 2N Series	APL- 3N Series	APL- 4N Series	APL- 5N Series
Enclosure	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68 Explosionproof E EX d IIB T6 E EX ia IIC T6
Cable entries	Two PF1/2", PT1/2" M20, PG13.5	Two PF1/2", PT1/2" M20, PG13.5	FOUR PF3/4", PT3/4" M20, M25	Two NPT3/4" PT3/4"
Option temperature	-	-40℃ ~ 80℃ -20℃ ~ 150℃	-	-
Terminal strips	-	16 points (0.08-2.5㎟)	20 points (0.08-2.5mm)	-
Position indicator	three position close:red open:Green	three position close:red open:Green	three position close:red open:Green	three position close:red open:Green
Switches	-	Mechanical switch x4 proximity sensor x4	Mechanical switch x4 proximity sensor x4	Mechanical switch x4 proximity sensor x4
Potentiometer	-	1k ohm standard. 5k ohm. 0-10k ohm	1k ohm standard. 5k ohm. 0-10k ohm	1k ohm standard. 5k ohm. 0-10k ohm
Current output signal unit	-	4~20mA DC 12.5 to 37VDC (24V typical)	4~20mA DC 12.5 to 37VDC (24V typical)	4~20mA DC 12.5 to 37VDC (24V typical)
Painting	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver

Specification is subject to change without prior notice

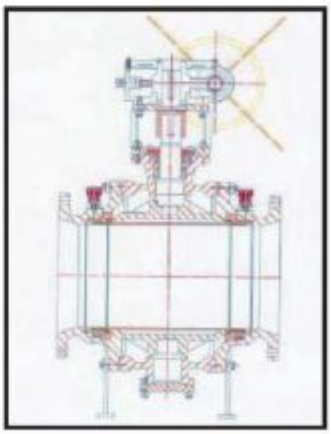
◆ FLOATING BALL VALVES

In this type of valve, the ball has some freedom to move along the axis of the valve while being prevented from rotating againts the stem. When line pressure is applied to the closed ball, it moves slightly (or floats) downstream to maintain contact with the downstream seat where primary sealing occurs. This design is restricted in its use by size and service pressure, as the torque required to operate the valve will increase dramatically in accordance with these two factors.



◆ TRUNNION MOUNTED BALL VALVES

The ball is held in a fixed axial position by upper and lower stems (Trunnion) and can move only in a rotational mode. The seats are contained in metal carriers which are spring loaded againts the ball. The line pressure applied to a closed valve increases the load on the upstream seat to effect a tight seal. Therefore, the primary sealing is on the upstream seat. Independent floating seats are spring loaded to permit draining of the body cavity effectively providing a "Double Block and Bleed" function.



MODEL : BV-101 | One Piece Body Ball Valve Reduced Port |

Connection : Screw BSP, NPT

◆ SPECIFICATION

- For chemical and industrial application
- Blow-out proof stem design
- 100% air tested under water at 80-100 psi
- Working pressure : 1000 PSI
- Temperature range -50°C to 220°C

◆ OPTION

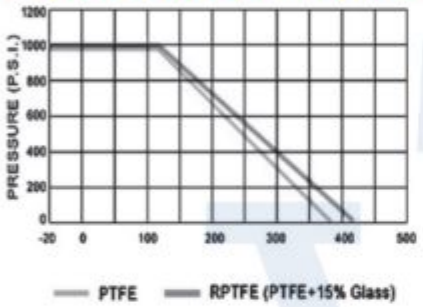
- Locking device
- Oval handle
- Butterfly handle

Flow
⟷
Working Positions
✳

1000WOG / PN 63
SIZE : 1/4" - 2"

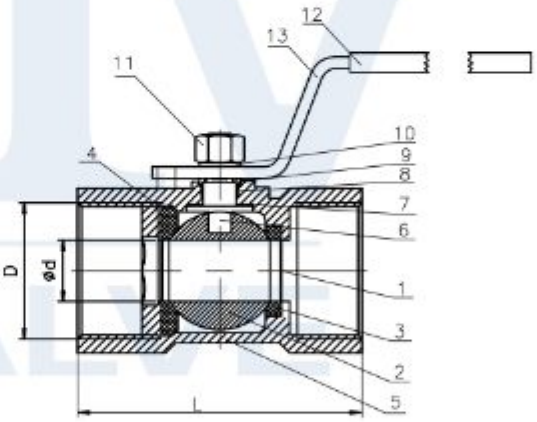
VTV VALVE : 1-piece ball valve is design for most of the industrial pipe line. On his economic type, the valve become the very basic one in most industrial works

◆ PRESSURE / TEMPERATURE



◆ DIMENSIONS (mm)

Size	DN	d	L	Weight (Kg)
1/4"	6	5	40	0.06
3/8"	10	7	45	0.085
1/2"	15	9	52	0.125
3/4"	20	12	55	0.2
1"	25	15	67	0.3
1" - 1/4"	32	20	74	0.5
1" - 1/2"	40	5	80	0.66
2"	50	32	92	1
2" - 1/2"	65	38	110	1.8
3"	80	50	133	2.55
4"	100	65	185	5.3



◆ MATERIAL LIST

No.	Parts	Material
1	Seal	PTFE
2	Ball	316
3	Seal	PTFE
4	Cap	CF8M
5	Body	CF8M
6	Stem	316
7	Thrust Washer	PTFE
8	Packing	PTFE
9	Giand Nut	201
10	Washer	201
11	Nut	201
12	Sleeve	PVC
13	Handle	201

Specification is subject to change without prior notice

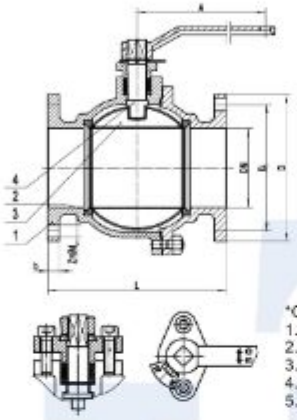
MODEL : BV-201 [Two Piece Body Ball Valve Full Port]

Connection : Flange JIS10K **Material : Cast Iron**

◆ MAIN PARAMETER SPECIFICATION

1. Face to Face	: JIS B2002
2. End Flange Dimensions	: JIS B2212
3. Working Pressure	: 10K
4. Pressure test	: JIS B2003
5. Actuator Mounting Pad	: ISO 5211*

Flow
⟷
Working Positions
✳



*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600
5. With Mounting Pad

◆ MATERIAL LIST

No	Part Name	Material
1	Body	Cast Iron- FC200-A126
2	Ball	ASTM A351-CF8-SS304
3	*Seat	PTFE
4	Stem	SS13%Cr

◆ DIMENSIONS (mm)

DN	L	D	D1	A	Weight (kg)
40	165 ±1.5	140	105	210.5	8.28
50	180 ±1.5	155	120	210.5	10.47
65	190 ±1.5	175	140	235	14.23
80	200 ±2	185	150	235	17
100	230 ±2	210	175	317	25.76
125	300 ±2	250	210	629.5	41
150	340 ±2	280	240	629.5	57.4
200	450 ±2	330	290	1100	101.6

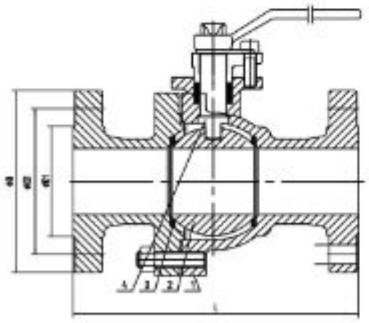
MODEL : BV-201 [Two Piece Body Ball Valve Full Port]

Connection : Flange JIS10K **Material : WCB, CF8, CF8M**

Flow
⟷
Working Positions
✳

◆ MAIN PARAMETER SPECIFICATION

1. Face to Face	: JIS B2002
2. End Flange Dimensions	: JIS B2212
3. Working Pressure	: 10K
4. Pressure test	: JIS B2003
5. Actuator Mounting Pad	: ISO 5211*



*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600
5. With Mounting Pad

◆ MATERIAL LIST

No	Part Name	Material		
1	Body	A216-WCB	CF8	CF8M
2	Ball	CF8	CF8	CF8M
3	*Seat	PTFE	PTFE 15% Glassfield	PTFE 15% Glassfield
4	Stem	SS13%Cr	SS304	SS316

◆ DIMENSIONS (mm)

Size	DN	L	D	D1	D2	Weight (Kg)
1/2"	15	108	95	70	52	1.95
3/4"	20	117	100	75	58	2.45
1"	25	127	125	90	70	3.9
1" - 1/4"	32	140	135	100	80	4.9
1" - 1/2"	40	165	140	105	85	6.15
2"	50	178	155	120	100	7.5
2" - 1/2"	65	190	175	140	120	10.8
3"	80	203	185	150	130	13.6
4"	100	229	210	175	155	18.6
5"	125	356	250	210	185	35
6"	150	394	280	240	215	42.6
8"	200	457	330	290	265	72
10"	250	533	400	355	325	-

MODEL : BV-202 [Two Piece Body Ball Valve Full Port]

Connection : ANSI 150

◆ SPECIFICATION

Valve Design	: MSS-SP-72
Face to face	: ASTM / ANSI B16.10*
Flange connection	: ANSI B16.1
Pressure test	: API 598 (ISO 5208)

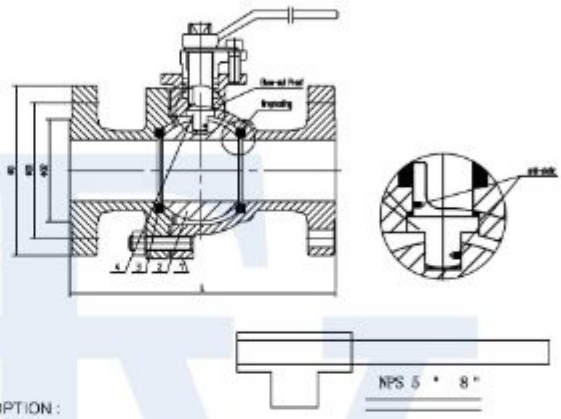
Flow
⟷
Working Positions
✳

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

◆ **FEATURES**
1. Anti Static device
2. Fire safe design

◆ MATERIAL LIST

No	Part Name	MATERIAL		
1	Body	A216-WCB	CF8	CF8M
2	Ball	CF8	CF8	CF8M
3	*Seat	PTFE	PTFE 15% Glassfield	PTFE 15% Glassfield
4	Stem	SS13%Cr	SS304	AISI 316



◆ DIMENSIONS (mm)

Size	DN	L	D	D1	D2	Weight (Kg)
1/2"	15	108	90	60.3	34.9	1.85
3/4"	20	117	100	69.9	42.9	2.15
1"	25	127	110	79.4	50.8	3.1
1" - 1/4"	32	140	115	88.9	63.5	3.8
1" - 1/2"	40	165	125	98.4	73	5.3
2"	50	178	150	120.7	92.1	7.25
2" - 1/2"	65	190	180	139.7	104.8	11.35
3"	80	203	190	152.4	127	14.9
4"	100	229	230	190.5	157.2	22.2
5"	125	356	255	215.9	185.7	36
6"	150	394	280	241.3	215.9	44
8"	200	457	345	298.5	269.9	83
10"	250	533	405	362	323.8	163

*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600

MODEL : BV-202 [Two Piece Body Ball Valve Full Port]

Connection : ANSI 300

Flow
⟷
Working Positions
✳

◆ SPECIFICATION

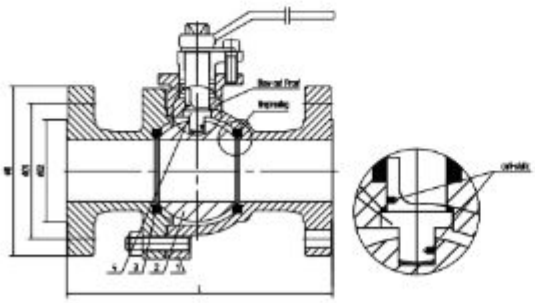
Valve Design	: MSS-SP-72
Face to face	: ASTM / ANSI B16.10*
Flange connection	: ANSI B16.1
Pressure test	: API 598 (ISO 5208)

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

◆ **FEATURES**
1. Anti Static device
2. Fire safe design

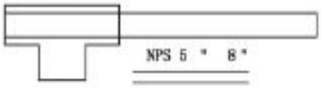
◆ MATERIAL LIST

No	Part Name	MATERIAL		
1	Body	A216-WCB	CF8	CF8M
2	Ball	CF8	CF8	CF8M
3	*Seat	PTFE	PTFE 15% Glassfield	PTFE 15% Glassfield
4	Stem	SS13%Cr	SS304	AISI 316



◆ DIMENSIONS (mm)

Size	DN	L	D	D1	D2	Weight (Kg)
1/2"	15	140	95	66.7	34.9	2.4
3/4"	20	152	115	82.6	42.9	3.4
1"	25	165	125	88.9	50.8	4.85
1" - 1/4"	32	178	135	98.4	63.5	6.05
1" - 1/2"	40	190	155	114.3	73	9.15
2"	50	216	165	127	92.1	11.4
2" - 1/2"	65	241	190	149.2	104.8	18
3"	80	282	210	168.3	127	26.5
4"	100	305	255	200	157.2	39.4
5"	125	381	280	235	185.7	49
6"	150	403	320	269.9	215.9	65
8"	200	502	380	330.2	269.9	100
10"	250	568	445	387.4	323.8	225



*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600

*Specification is subject to change without prior notice

MODEL : BV-203 [Two Piece Body Ball Valve Full Port]

Connection : PN 16 **Material : Cast Iron**

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Water
3. Sewerage Industries

Flow
⟷
Working Positions
✳

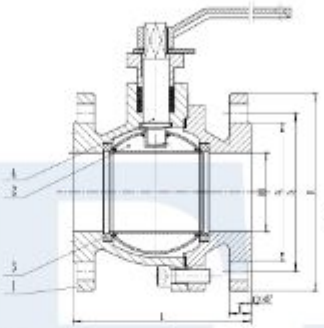
◆ MATERIAL LIST

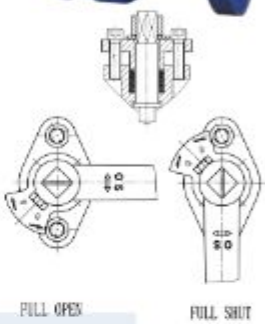
No	Part Name	Material
1	Body	GG25
2	Ball	CF8
3	*Seat	PTFE
4	Stem	SS13%Cr

◆ Suitable for :
1. Water
2. Oil
3. Gases

◆ DIMENSIONS (mm)

DN	L	D	D1	D2	b	f	z-Ød	Weight (kg)
40	140 ±1.5	150	110	88	18	3	4-Ø19	7.5
50	150 ±1.5	165	125	102	20	3	4-Ø19	9.9
65	170 ±1.5	185	145	122	20	3	4-Ø19	14
80	180 ±2	200	160	138	22	3	8-Ø19	18
100	190 ±2	220	180	158	24	3	8-Ø19	24
125	325 ±2	250	210	188	26	3	8-Ø19	3.5
150	350 ±2	285	240	211	26	3	8-Ø19	50.4
200	400 ±2	340	295	266	30	3	12-Ø19	72.3





*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600

MODEL : BV-203 [Two Piece Body Ball Valve Full Port]

Connection : PN 16 **Material : WCB, CF8, CF8M**

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Water
3. Sewerage Industries

Flow
⟷
Working Positions
✳

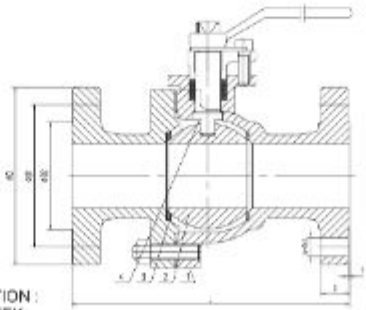
◆ MATERIAL LIST

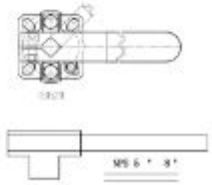
No	Part Name	Material		
1	Body	WCB	CF8	CF8M
2	Ball	CF8	CF8	CF8M
3	*Seat	PTFE 15% Glassfield	PTFE	PTFE 25% Glassfield
4	Stem	SS13Cr	SS304	SS316

◆ Suitable for :
1. Water
2. Oil
3. Gases

◆ DIMENSIONS (mm)

DN	L	D		D1	D2	b	z-Ød	Weight (kg)
		SS304	SS316					
15	130	95	95	665	45	14	4-Ø14	1.95
20	140	105	105	75	55	14	4-Ø14	2.45
25	150	115	115	85	65	14	4-Ø14	3.45
32	165	135	140	100	78	16	4-Ø18	4.5
40	180	145	150	110	85	16	4-Ø18	6.2
50	200	160	165	125	100	16	4-Ø18	8.35
65	220	180	185	145	120	18	4-Ø18	12.2
80	250	195	200	160	135	20	8-Ø18	15
100	280	215	220	180	155	20	8-Ø18	23
125	320	125	250	210	185	22	8-Ø18	38
150	360	150	285	240	210	24	8-Ø23	45
200	400	203	340	295	265	26	12-Ø23	72





*OPTION :
1. PEEK
2. 15% Glass PTFE
3. 25% Carbon Full PTF
4. TFM 1600

MODEL : BV-301 [Three Piece Body Ball Valve Full Port]

Connection : Butt Weld, Socket Weld, Screw BSP | NPT

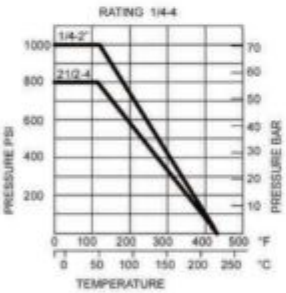
VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Food Industries
3. Rubber Glove Industries
4. Petrochemical Plant
5. Building Services

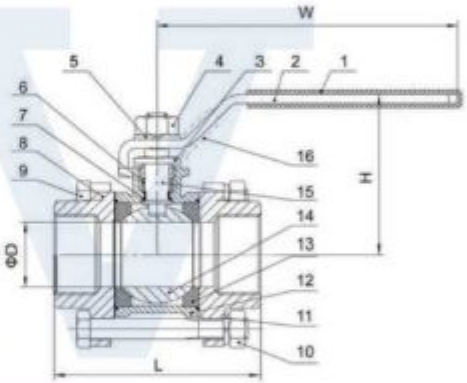
Flow
⟷
Working Positions
✳

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

◆ **FEATURES**

1. 1000PSI/PN63
2. Full Port
3. Investment Casting
4. Blow-out proof Stem
5. Locking Device Handle (option)
6. PED97/23/PE (CE0035) Approved
7. Anti-Static device (option)
8. Thread: ASME B2.1, BS21.DIN2999/259, ISO228-1, JIS B 0203, ISO7/1
9. Inspection Testing: API598, EN12266





◆ **MATERIAL LIST**

ITEM	DESIGNATION	QTY	MATERIAL
1	HANDLE SLEEVE	1	PVC
2	HANDLE	1	304
3	GLAND NUT	1	304/316
4	STEM NUT	1	304
5	STEM WASHER	1	304
6	STEM PACKING	1	PTFE
7	THRUST WASHER	1	PTFE
8	END CAP	2	CF8/CF8M
9	BOLT	4(6)	304
10	NUT	4(6)	304
11	SPRING WASHER	4(6)	304
12	BODY	1	CF8/CF8M
13	BALL SEAT	2	RPTFE
14	BALL	1	CF8/CF8M
15	STEM	1	304/316
16	LOCKING DEVICE	1	304

◆ **DIMENSIONS (mm)**

SIZE	D	L	H	W
1/4"	11	50	48	103
3/8"	12	50	48	103
1/2"	15	60	52	103
3/4"	20	70	61	123
1"	25	80	65	123
1-1/4"	32	93	79	153
1-1/2"	38	100	83	153
2"	50	125	97	185
2-1/2"	64	158	135	243
3"	76	179	144	243
4"	94	223	172	315

Specification is subject to change without prior notice

MODEL : BV-301M [Three Piece Body Ball Valve Full Port]

Connection : Butt Weld, Socket Weld, Screw NPT

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Food Industries
3. Rubber Glove Industries
4. Petrochemical Plant
5. Building Services

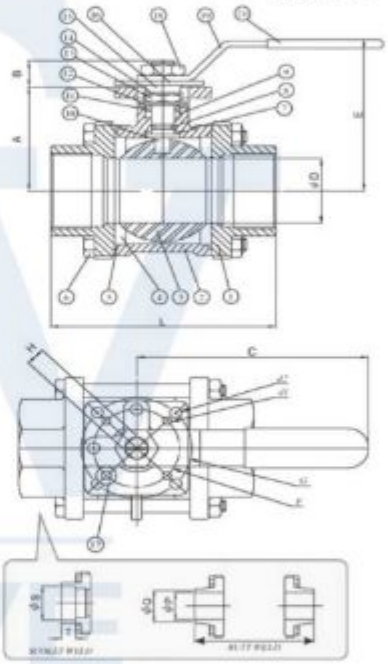
Flow
⟷
Working Positions
✳

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

◆ SPECIFICATION

1. Body & ends caps quality investment casting
2. With ISO 5211 direct mounting pad
3. Adjustable stem packing
4. Available in stainless steel or carbon steel
5. Blow-out proof stem design
6. Working pressure : 1000/800 psi
7. Temperature range -20°F to 450°F
8. With locking function
9. Inspection Testing: API598, EN12266

1000WOG / PN 63
SIZE : 1/4" - 4"



◆ MATERIAL LIST

ITEM	PART NAME	MATERIALS
1	END CAP	CF8M
2	BODY	CF8M
3	BALL	SS 316
4	SEAT	PTFE
5	GASKET	PTFE
6	BOLTS	SS 304
7	THRUST WASHER	RPTFE
8	O-RING	VITON
9	STEM PACKING	PTFE
10	STEM	SS 316
11	GLAND	SS 304
12	DISK WASHER	SS 301
13	STEM NUT	SS 304
14	NUT STOP	SS 304
15	SPACE WASHER	SS 304
16	PLATER	SS 304
17	STOP PIN	SS 304
18	HANDLE NUT	SS 304
19	HANDLE	SS 304
20	SLEEVE	PLASTIC

◆ DIMENSIONS (mm)

SIZE	A	B	C	D	d1	d2	E	F	G	H	L	S	T	P	Q	L1	W (kg)
1/4"	35	11	130	11	6.0	6.0	58	36	42	9	55	14.2	11.1	10	12.5	60.5	0.48
3/8"	35	11	130	12.5	6.0	6.0	58	36	42	9	60	17.5	11.1	12	14.5	60.5	0.48
1/2"	35	11	130	15	6.0	6.0	58	36	42	9	75	21.8	12.7	15	17.5	63.5	0.48
3/4"	40	11	130	20	6.0	6.0	64	36	42	9	80	27.1	14.3	20	22.5	75.5	0.84
1"	48	14	155	25	6.0	7.0	77	42	50	11	90	33.8	15.9	25	28	86	1.24
1 1/4"	53.5	14	155	32	6.0	7.0	83	42	50	11	110	42.5	17.5	32	35	104	1.98
1 1/2"	63.5	18	205	38	7.0	9.0	92	50	70	14	120	48.7	19.1	38	41	117	2.9
2"	72	18	205	50	7.0	9.0	100	50	70	14	140	61.1	22.2	50	54	138	4.42
2-1/2"	92	22	290	65	9.0	11.3	140	70	102	17	162	73.9	22.2	65	70	170	9.15
3"	102	22	290	80	9.0	11.3	150	70	102	17	184	89.9	25.4	80	85	192	13.42
4"	32	26	335	100	11.3	13.5	195	102	125	22	228	115.2	32	100	105	226	23.3

◆ BREAK-TORQUE VALUE (Nm / at 0 psi)

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2-1/2"	3"	4"
FREASE	3.5	3.5	5	5.5	7	11	17	23	35	46	72
NON-GREASE	5	5	6	7	9.5	16	27	30	68	85	105

Note 1 : The greases use including lubricant & anti-size grease are both SILICONE-FREE.
Note 2 : Strongly suggest increasing at least 30%~40% for safety factor for mounting actuator.

Specification is subject to change without prior notice

MODEL : BV-302 [Three Piece Body Ball Valve Full Port]

Connection : Butt Weld, Socket Weld, Screw BSP | NPT

VALVE

◆ SPECIFICATION

1. Body & end caps quality investment casting
2. Full bore design
3. With ISO 5211 direct mounting pad
4. Adjustable stem packing
5. Available in stainless steel or carbon steel
6. Blow-out proof stem design
7. 100% air tested under water at 80-100 psi
8. Working pressure :
   TFM seat: 1/4"~2", 2250 psi
   DELRIN/ PEEK seat: 2-1/2"~3", 2250 psi
9. Temperature range: see Pressure/Temperature table
10. With locking function
11. Inspection Testing: API598, EN12266

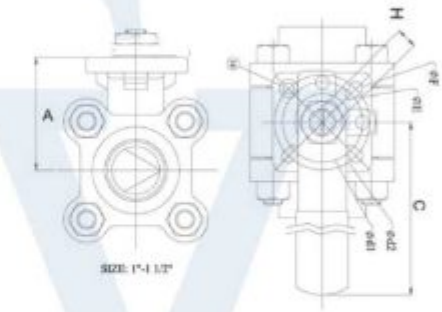
Flow
⟷
Working Positions
✳

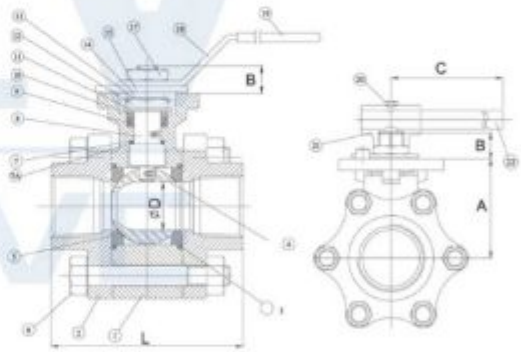
◆ Suitable for :

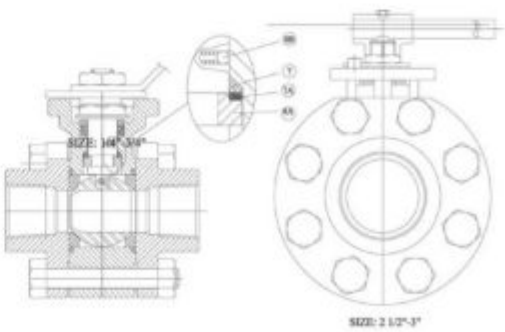
1. Water
2. Oil
3. Gases

◆ OPTION

1. Fire safe design (with SS housing)
2. Spring handle (dead man handle)
3. Steam Jacket
4. V-ball for control valve (ball valve type)
5. Cryogenic type
6. PTFE/ PFA coating (40-70 um)
7. Hastalloy C/ Super duplex/ Alloy 20/ Monel







◆ MATERIAL LIST

ITEM	PART NAME	MATERIALS
1	BODY	CF8M
2	END CAP	CF8M
3	GASKET(BODY)	TFM
4	BALL	SS 316
5	BALL SEATS	TFM/ DELRIN/ PEEK
6	BOLTS	SS 304
7	THRUST WASHER	TFM
7A	THRUST WASHER	PEEK
8	STEM	SS 316
8A	HALF SPLIT RING	SS 316
8B	ANTI-STATIC	SS 316
9	STEM PACKING	TFM
10	GLAND WASHER	SS 304
11	DISK WASHER	SS 301
12	STEM NUT	SS 304
13	NUT STOP	SS 304
14	SPACE WASHER	SS 304
15	PLATER	SS 304
16	STOP PIN	SS 304
17	HANDLE NUT	SS 304
18	HANDLE	SS 304
19	HANDLE COVER	PLASTIC
20	SET BOLT	SS 304
21	LEVER HEAD	CF 8
22	LEVER	STEEL PIPE

MODEL : BV-302 [Three Piece Body Ball Valve Full Port]

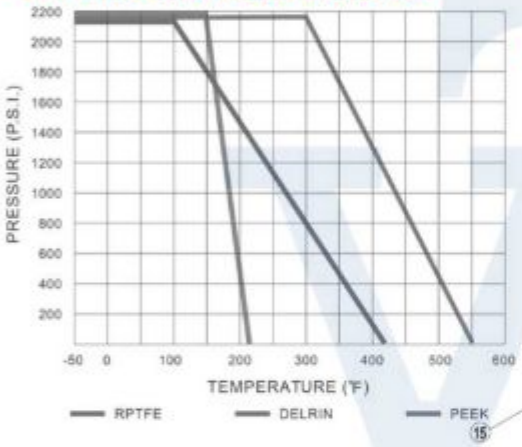
Connection : Butt Weld, Socket Weld, Screw BSP | NPT

VALVE

◆ DIMENSIONS (mm)

SIZE	A	B	C	D	d1	d2	E	F	H	L	SW		BW(40#)		BW(80#)	
											S	T	OD	ID	OD	ID
1/4"	44	11	130	11	6.0	6.0	36	42	9	66	14.2	11.1	14.0	9.2	14.0	7.5
3/8"	44	11	130	12.5	6.0	6.0	36	42	9	66	17.5	11.1	17.0	12.7	17.0	10.8
1/2"	44	11	130	15	6.0	6.0	36	42	9	68	21.8	12.7	21.3	15.9	21.3	13.8
3/4"	48	14	155	20	6.0	6.0	42	50	11	92	27.1	14.3	26.7	20.6	26.7	18.9
1"	53	14	155	25	6.0	7.0	42	50	11	104	33.8	15.9	33.3	26.6	33.3	24.3
1-1/4"	60	18	205	32	7.0	9.2	50	70	14	113	42.5	17.5	42.2	35.1	42.2	32.5
1-1/2"	70	18	205	38	7.0	9.2	50	70	14	124	48.7	18.3	48.5	40.5	48.5	38.1
2"	87	21	300	50	9.2	11.4	70	102	17	146	61.1	21.3	60.5	52.4	60.5	49.3
2-1/2"	105	21	350	63.5	9.2	11.4	70	102	17	175	73.9	22.2	73.2	62.7	73.2	59.0
3"	119	25	400	78	11.4	13.5	102	125	22	195	89.9	25.4	89.2	78.0	89.2	73.7

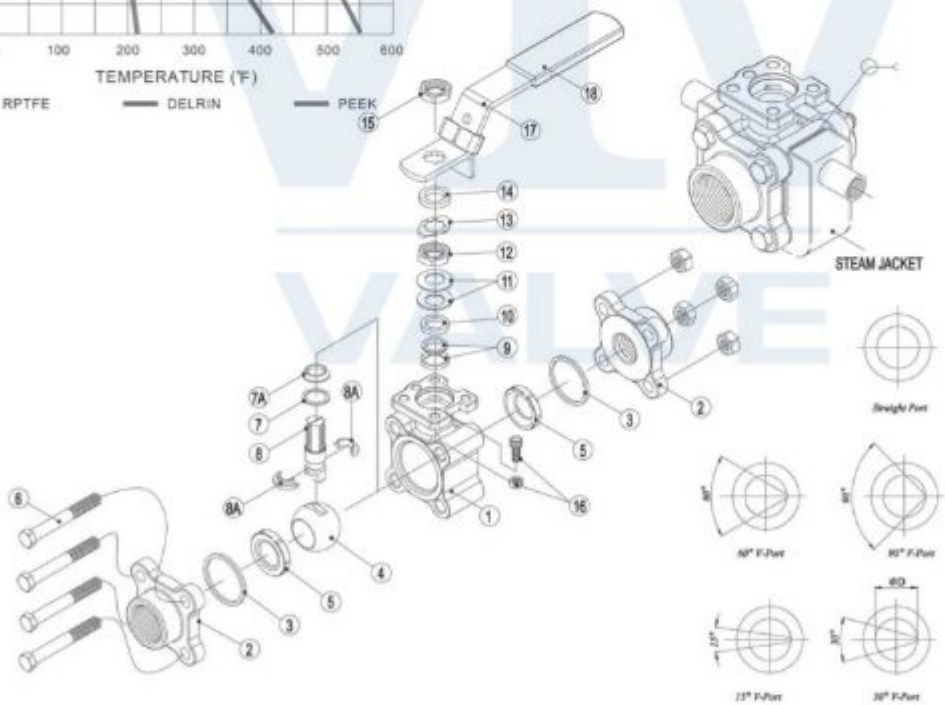
◆ PRESSURE / TEMPERATURE



◆ BREAK-TORQUE VALUE (Nm / at 200 psi)

SIZE	1/4"	3/8"	1/2"	3/4"	1"
GREASE	8	8	12	15	18

SIZE	1 1/4"	1 1/2"	2"	2-1/2" (DELRIN)	3" (DELRIN)
GREASE	25	47	83	165	198



Specification is subject to change without prior notice

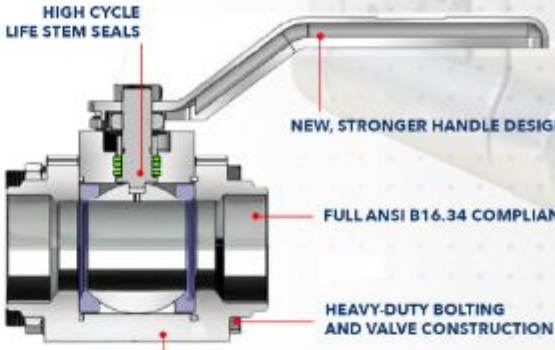
valtaco

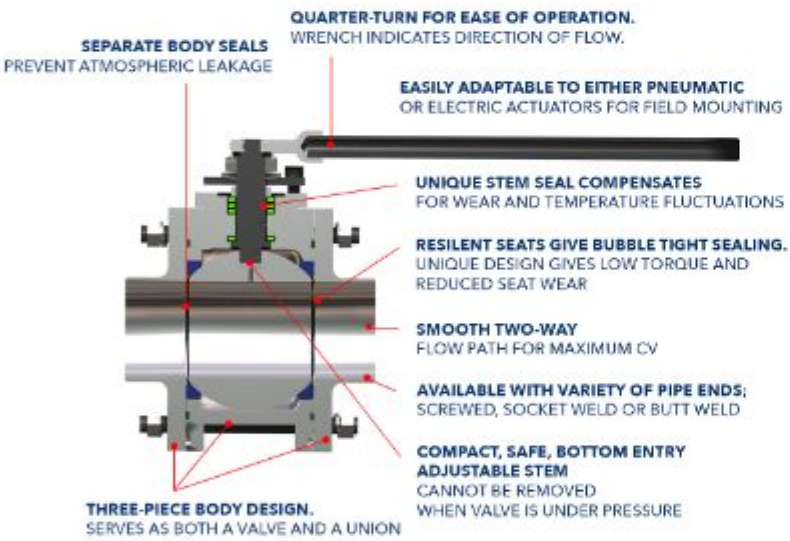
HIGH PERFORMANCE 3PCS BODY

BALL VALVE

16i

Body	A351-CF8M	A216-WCB
Solid Ball	A351-CF8M	A351-CF8M
End Body	A351-CF8M	A216-WCB
Seat	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Body Seal	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Stem Seal	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Operated	Lever | Oval | T Handle | Gear	
Pressure Rating	PN 64 | PN 100	
Size	DN 15 - DN 50	
Port	Full | Reduce Bore	
Mounting Pad	ISO 5211	
Fire Safe	Certify API 607	
Marking	CE Marking	





26i

Body	A351-CF8M	A216-WCB
Solid Ball	A351-CF8M	A351-CF8M
End Body	A351-CF8M	A216-WCB
Seat	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Body Seal	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Stem Seal	PTFE | MULTIFILL | DELRIN | PEEK | INOX	
Operated	Lever | Oval | T Handle | Gear	
Pressure Rating	PN 64 | PN 100	
Size	DN 15 - DN 50	
Port	Full | Reduce Bore	
Mounting Pad	ISO 5211	
Fire Safe	Certify API 607	
Marking	CE Marking	

Features and Advantages

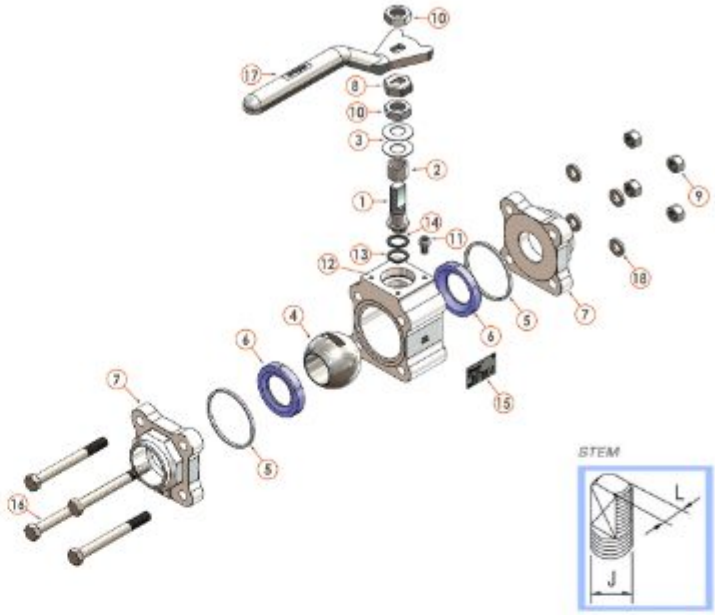
- *Switzerland Ball Valve design proven in Oleochemical & Refinery more than 40 years and continues*
- *Manufacture with CNC Torque & Machine to ensure precision in every movement*
- *Sealing material from origin powder ensure long life cycle service*
- *Various seat material to handle variagated areas*
- *in house casting & machining to fulfill customer delivery times*
- *100% in house tested API 598*

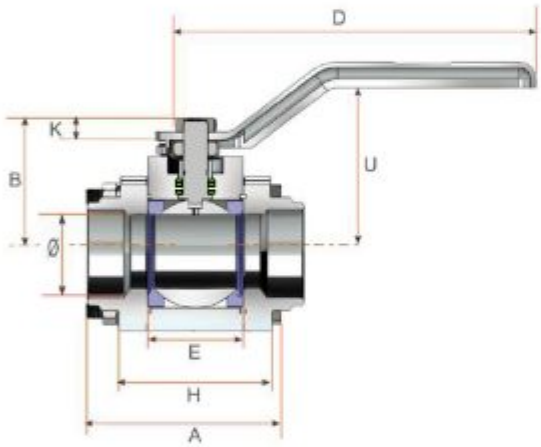
Valvulas Worcester de México SA de CV
is a company with more than **50 year** of experience manufacturing ball valves.
Established in Mexico City and proud of its **"Valtaco"** brand.

Our series **15i** is a **High Quality Forged Steel**
and our series **26** is a **High Performance Cast Steel Ball Valves.**
We encourage you to test our valve on your field.

Specification is subject to change without prior notice

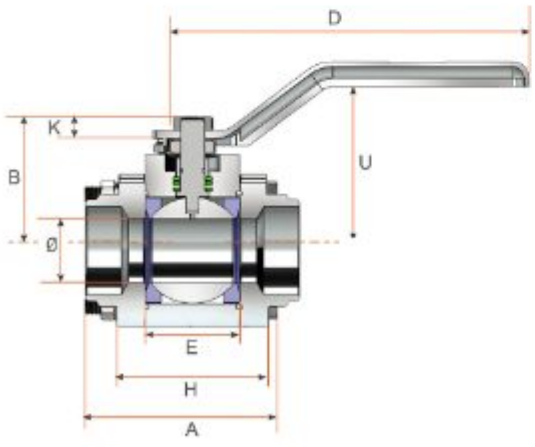
No.	Material	16 44	16 66
1	Stem	316	
2	ISO Separator	304	
3	N3 Belleville washer	304	
4	Ball	316	
5	Body Seal	PTFE	
6	Seat with Angle	R-PTFE	
7	Machined lid	A216 WCB	A351 CF8M
8	Retaining cap	304	
9	Screw nut body	304	
10	Retaining cap	304	
11	Allen Srew	A216 WCB	
12	ISO Body with Top	A216 WCB	A351 CF8M
13	Lower Stem Seal	MULTIFILL	
14	Top stem seal	316	
15	Valtaco Nameplate	304	
16	Hex head screw to attach caps with bodies		
17	Handle	316	
18	Pressure Washer	304	





Full Bore DN 8 - 40 (1/4" - 1 1/2")

Full Bore DN 8 - 40(1/4" - 1 1/2")																
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch		
DN	8		10		15		20		25		32		40			
SIZE	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"			
BW Sch05	-	-	-	-	18	0.71	23.4	0.92	30.1	1.185	38.9	1.530	45	1.770		
BW Sch10	17.1	.674	17.1	.674	17.1	.674	22.5	0.884	27.9	1.097	35.6	1.442	42.7	1.682		
BW Sch40	15.8	.622	15.8	.622	15.8	.622	20.9	0.824	26.6	1.049	35.1	1.380	40.9	1.610		
BW Sch80	11.9	.546	11.9	.546	11.8	.742	24.3	.957	12.5	1.278	38.1	1.500	49.3	1.939		
SW	17.5	.690	21.7	.855	21.72	0.855	27.06	1.065	33.78	1.330	42.54	1.675	48.64	1.915		
ø	11.2	0.438	11.2	0.438	14.3	.563	20.57	.810	25.4	1.000	36.75	1.250	38.1	1.500		
A	63.3	2.61	63.3	2.61	71.8	2.83	94.5	3.72	107.18	4.22	115.8	4.56	127.3	5.01		
C	72.0	2.83	72.0	2.83	75.2	2.96	98.8	3.89	123.9	4.88	108.9	4.29	138.9	5.46		
D	150	5.91	150	5.91	150	5.91	175	6.89	175	6.89	200	7.87	200	7.87		
E	20.6	.813	20.6	.813	24.6	.969	31.7	1.25	41.3	1.625	48.5	1.910	56.3	2.218		
F	44.5	1.75	44.5	1.75	50.8	2.00	60.2	2.37	66.8	6.62	81	3.19	91	3.58		
G	15.9	1.75	15.9	1.75	19.1	0.750	22.2	0.875	25.4	1.000	28.6	1.125	33.3	1.313		
H	40.1	1.58	40.1	1.58	47	1.85	56	2.20	62.6	2.05	78.2	3.08	88	3.46		
J	1/8		3/8		3/8		7/16		7/16		9/16		9/16			
K	10.6	.420	10.6	.420	12.4	.490	9.1	.36	10.9	.431	11.9	.47	11.9	0.47		
L	5.5	0.22	5.5	0.22	5.5	0.22	7.5	0.30	7.5	0.30	8.7	0.34	8.7	0.34		
M	28.4	1.156	29.4	1.156	31.9	1.25	34.8	1.57	44.7	1.76	68.3	2.69	58	2.28		
P	25.4	1.00	25.4	1.00	25.4	1.00	29.7	1.17	29.7	1.17	35.3	1.39	35	1.38		
S	1/4"-28 UNF		1/4"-28 UNF		1/4"-28 UNF		5/16"-24 UNF		5/16"-24 UNF		3/8"-24 UNF		3/8"-24 UNF			
U	60.7	2.39	60.7	2.39	64.0	2.52	87.9	3.46	97.5	3.84	97.5	3.84	98	3.86		
V	M5		M5		M5		M5		M5		M6		M6			
ISO TOP	N/A		N/A		N/A		F04		F04		F05		F05			
kg	0.8		0.8		1.0		1.58		2.32		3.84		5.62			
lb	1.76		1.76		2.21		3.3		3.74		5.01		11.06			

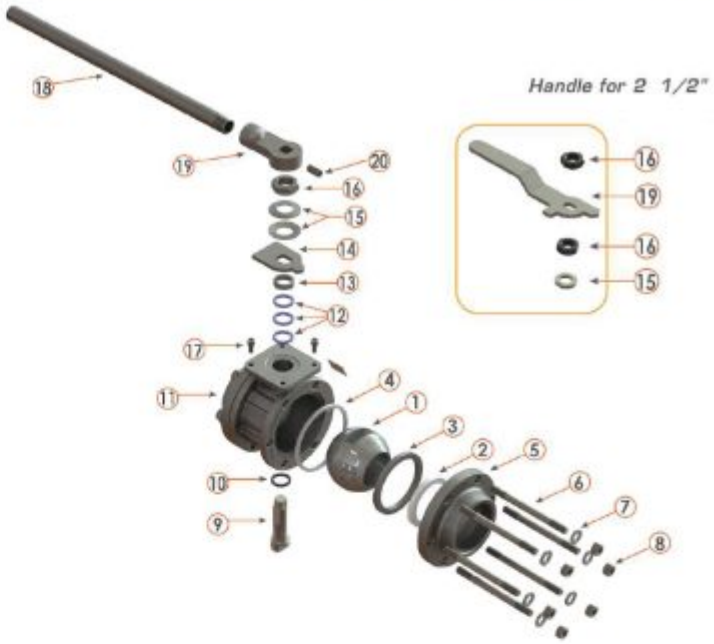


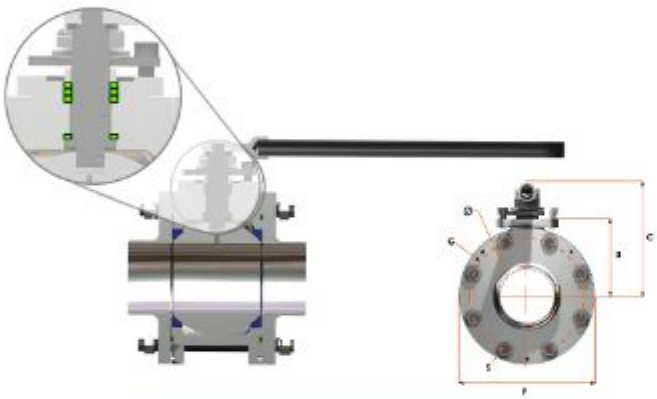
Reduced Bore DN 15 - 50 (1/2" - 2")

Reduced Bore DN 15 - 50(1/2"- 2")												
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
DN	15		20		25		32		40		50	
SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
BW Sch05	18	0.710	23.4	0.920	30.1	1.185	38.9	1.530	45	1.770	57	2.245
BW Sch10	17.1	0.674	22.5	0.884	27.9	1.097	35.6	1.442	42.7	1.682	54.8	2.157
BW Sch40	15.8	0.622	20.9	0.824	26.6	1.049	35.1	1.380	40.9	1.610	52.5	2.067
BW Sch80	11.9	0.546	20.9	0.824	24.3	0.957	32.5	1.278	38.1	1.500	49.3	1.939
SW	21.72	0.855	18.8	0.742	33.78	1.330	42.54	1.675	48.64	1.915	61.11	2.406
ø	11.1	.438	27.06	1.065	20.7	.813	24.5	1.00	31.75	1.25	38.1	1.50
A	63.3	2.61	14.3	.563	94.5	3.72	107.18	4.22	115.8	4.56	127.3	5.01
C	72.0	2.83	44.0	1.77	54.6	2.15	59.2	2.33	72.9	2.87	77.7	3.06
D	150	5.91	75.2	2.96	98.8	3.89	123.9	4.88	109	4.29	138.7	5.46
E	20.65	0.813	150	5.91	175	6.89	175	6.89	200	7.87	200	7.87
F	44.5	1.75	24.6	.969	90.2	2.37	41.3	1.625	81	3.19	91	3.58
G	15.9	0.625	50.8	2.00	22.2	0.875	25.4	1.000	28.6	1.125	33.3	1.313
H	40.1	1.58	19.1	0.750	56	2.20	62.6	2.05	78.2	3.08	88	3.46
J	1/8		3/8		7/16		7/16		9/16		9/16	
K	10.6	.420	12.4	0.49	9.1	.36	10.9	.431	11.9	0.47	11.9	0.47
L	5.5	0.22	5.5	0.22	7.5	0.30	7.5	0.30	8.7	0.34	8.7	0.34
M	28.4	1.556	31.9	1.25	34.8	1.57	44.7	1.76	68.3	2.69	57.15	2.25
P	25.4	1.00	25.4	1.00	29.7	1.17	29.7	1.17	35.3	1.39	35.3	1.39
S	1/4"-28 UNF		1/4"-28 UNF		5/16"-24 UNF		5/16"-24 UNF		3/8"-24 UNF		3/8"-24 UNF	
U	60.7	2.39	64.0	2.52	87.9	3.46	97.5	3.84	97.5	3.84	98	3.86
V	M5		M5		M5		M5		M6		M6	
ISO TOP	N/A		N/A		F04		F04		F05		F05	
kg	0.80		1.00		1.70		2.32		3.84		5.02	
lb	1.76		2.21		3.74		5.01		8.47		11.06	

Specification is subject to change without prior notice

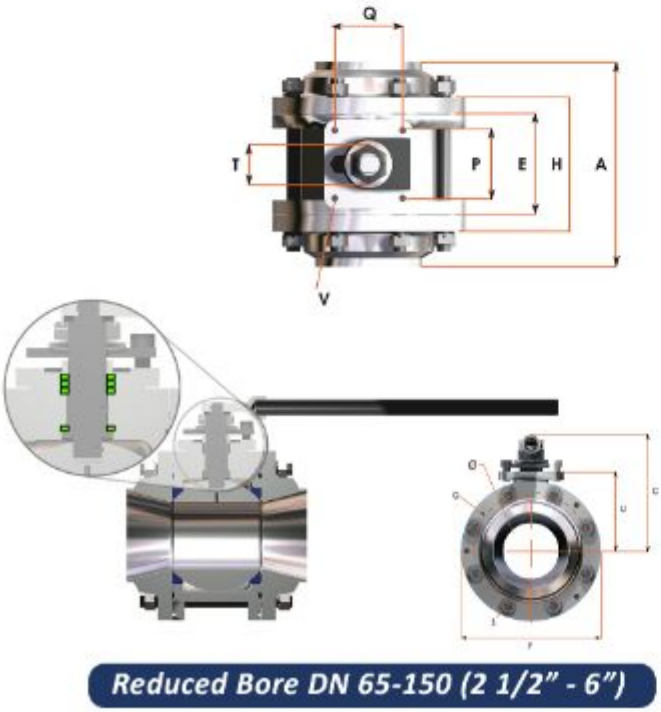
No.	Material	2666	2644
1	Ball	CF8M, AISI 316	
2	Seat	MULTIFILL	
3	Centering Ring	CF8M	WCB
4	Seal	RPTFE	
5	End	CF8M	WCB
6	Stud	AISI 304	AISI 1040, AISI 1060
7	Lock Washer	AISI 304	AISI 1040, AISI 1060
8	Hex Nut	A-194-2HM	SAE J429 Gr.5
9	Stem	AISI 316	
10	Thrust Bearing	MULTIFILL	
11	Body	CF8M	WCB
12	Stem Seal	MULTIFILL	
13	Stem Follower	AISI 304, 316	C1040, 1060
14	Stop Plate	AISI 304, 316	C1010, 1020
15	BelleVille Washer	AISI 304	AISI 1040, AISI 1060
16	Retaining Nut	A-194-2HM	SAE J429 Gr.5
17	Stop Screw	AISI 304	SAE J429 Gr.5
18	Lever	A-249-TP316	A-106
19	Handle	CF8M	WCB
20	Retention Screw	AISI 304	SAE J429 Gr.5





Full Bore DN 50-100 (2" - 4")

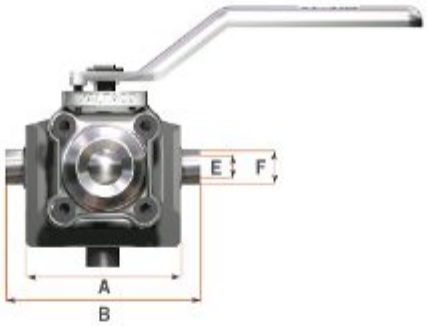
Full Bore DN 50-100 (2"- 4")				
DN	50	65	80	100
SIZE	2"	2 1/2"	3"	4"
BW Sch05	57	68.8	84.7	110.1
BW Sch10	54.8	66.9	82.8	108.2
BW Sch40	52.5	62.7	77.9	102.3
SW	62	74.7	90.7	116.1
Ø	50.8	63.5	82.6	111.1
A	151	178	219	298
C	104	147	162	228
D	187	324	324	728
E	67	83	108	146
F	148	165	206	289
G	129	141	175	238
H	98	118	143	187
J	3/4"-16 UNF	1"-14UNS	1"-14UNS	1 1/2"-14UNF
L	12.1	18.8	18.8	28.4
M		18.8	18.8	28.4
P	49.5	72.1	72.1	81
Q	49.5	72.1	72.1	81
S	7/16-14UNC	1/2-13UNC	9/16-12UNC	3/4-12UNC
T	45	57	57	47
U	78	101	116	157
V	M8	M10	M10	M12
kg	11	17	28	80



Reduced Bore DN 65-150 (2 1/2" - 6")

Reduce Bore DN 65-150 (2 1/2"- 6")				
DN	65	80	100	150
SIZE	2 1/2"	3"	4"	6"
BW Sch05	68.8	84.7	110.1	162.7
BW Sch10	66.9	82.8	108.2	161.5
BW Sch40	62.7	77.9	102.3	154.1
SW	74.7	90.7	116.1	170.7
Ø	50.8	63.5	82.6	111.1
A	151	178	219	298
C	104	147	162	228
D	187	324	324	728
E	67	83	108	146
F	148	165	206	289
G	129	141	175	238
H	98	118	143	187
J	3/4"-16 UNF	1"-14UNS	1"-14UNS	1 1/2"-14UNF
L	12.1	18.8	18.8	28.4
M		18.8	18.8	28.4
P	49.5	72.1	72.1	81
Q	49.5	72.1	72.1	81
S	7/16-14UNC	1/2-13UNC	9/16-12UNC	3/4-12UNC
T	45	57	57	47
U	78	101	116	157
V	M8	M10	M10	M12
kg	11	17	28	80

Specification is subject to change without prior notice



Max. Pressure for Heating Jacket 20 bar

Heating Jacket 15i - DN 8 - 50

Dimension														
DN	NPS	mm	inch	mm	inch	mm	inch	mm	inch	inch	mm	inch	mm	inch
		A	A	B	B	C	C	D	D	E	F	F	G	G
8-15	1/4" - 1/2"	62	2.44	81	3.19	30	1.18	40	1.57	1/8"	14	0.55	18	0.7
20	3/4"	70	2.76	90	3.54	35	1.38	45	1.77	1/4"	18	0.71	20	0.8
25	1"	83	3.27	105	4.13	42	1.65	53	2.09	1/4"	18	0.71	28	1.1
32	1 1/4"	93	3.66	116	4.57	46	1.81	58	2.28	3/8"	22	0.87	36	1.4
40	1 1/2"	107	4.21	130	5.12	53	2.09	65	2.56	3/8"	22	0.87	40	1.6
50	2"	117	4.61	140	5.51	58	2.28	70	2.76	1/2"	22	0.87	48	1.9

How to Order Chart

1	2	3	4	5	6
16	i	66	PR	BSPP	RRCC

1	Model	**16** (Size : 3/8" - 2") **26** (Size : 2.5" - 6")
2	Special Feature	**I** : Standard **AF** : Fire Safe **HM**: Jacketed
3	Body Material	**66** : A351 CF8M **44** : A216-WCB
4	Port	**PR** : Reduce Bore **PT** : Full Bore

5	Connection		BSPP BSPT NPT BW SW
6	Seats	R	PTFE
	Body Seals	R	PTFE
	Inferior Washer	C	MULTIFIL
	Stem Seal	C	MULTIFIL

TECHNICAL DATA (Seat Materials)

C **MULTIFIL**
Made of PTFE filled with glass, carbon and graphite, it is specified to work at 1500 psi from -248°F a 500°F. It also has larger life cycle than other materials. These seats are grayish brown color.

D **DELRIN (LUBETAL)**
It is a material for high pressures, specified to work up to 6000 psi. The temperature range is from -67°F to 180°F. This material should not be used for oxygen services. It is made of "DuPont Acetal Homopolymer" and filled with PTFE and glass fiber. Its color is "bone-white".

P **PEEK**
(Poly Ether Ketone). It has good capacity for working at high pressures and temperature, specified to work at 6000 psi from -67°F a 599°F. It has an excellent resistance to abrasion and it is chemically resistant to most of the fluids except for sulfuric ones and highly oxidizing acids and halon. Its color is Black.

R **PTFE**
It is specified to work at 1500 psi from -49°F a 446°F. These seats are made from glass and reinforced PTFE. These seats are harder than virgin PTFE and have higher pressure-temperature ratings. Chemical resistance is the same as virgin Teflon (except for hot Strong caustics). These seats come in blue in order to distinguish them.

I **INOXIDABLE / STAINLESS PTFE**
Made of virgin PTFE and stainless steel resin. These seats have very good capacity for working at high pressures and temperatures. It is specified to work at 3000 psi from -320°F to 662°F. It is an excellent material for seats in steam applications and thermal fluids (hot oil) and it is a good material for difficult applications. It also has a larger life cycle than other materials and a very good resistance to abrasion.

Specification is subject to change without prior notice

VTV High Precision Blanketing Gas Regulators

Connection : PN16, 40, 64 | ANSI 150LB, 300LB, 600LB

VALVE

◆ Body Size(Flanged connection)

DN15(1/2"),DN20(3/4"),DN25(1"),DN40(11/2"),DN50(2") DN65(21/2"),DN80(3"),DN100(4")

◆ Flow Factor

Diameter of Valve	DN15,DN20,DN25,DN40,DN50								40	50	65	80	100
KV	0.3	0.6	1	1.6	2.5	4.5	6.5	9	22	36	58	90	145

Remak: maximum 4.5 KV is allow for DN15,
maximum 6.5 KV is for DN20,
the diameter is not limited for other types.

◆ Division of Regulation Pressure range

0.2-0.4KPa, 0.25-0.65KPa, 0.4-1.2KPa, 0.9-2.7KPa, 1.5-5KPa, 3-9KPa, 4-12KPa

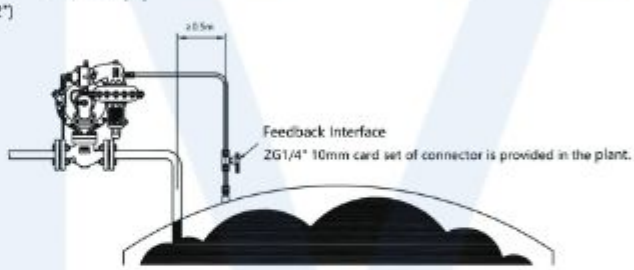
◆ Pressure Measuring Method

Measured at outside. Applied to the tank nitrogen blanketing , measuring from top of tank.

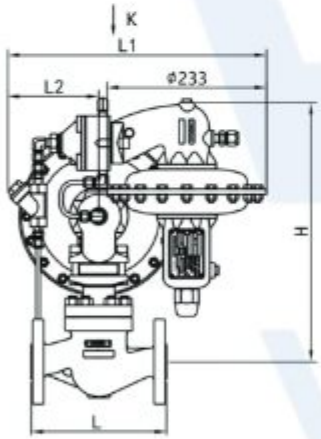
BM 592 ——— □ — □

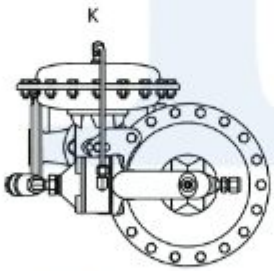
DN: 15-DN15(1/2") 40-DN40(11/2") 80-DN80(3")
20-DN20(3/4") 50-DN50(2") 100-DN100(4")
25-DN25(1") 65-DN65(21/2")

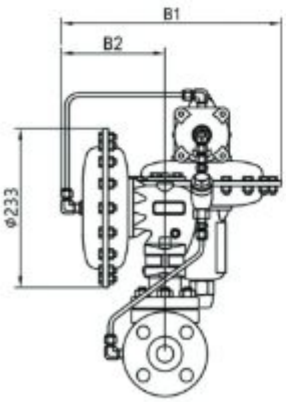
PN: 16-PN16 150-150LB
40-PN40 300-300LB
64-PN64 600-600LB



◆ Dimension







Nominal Diameter		15	20	25	40	50	65	80	100
PN16(150LB)	L	181	181	184	222	254	276	298	352
PN40(300LB)		181	194	197	235	267	292	317	368
PN64(600LB)		206	206	210	251	286	311	337	337
L1		377					425		
L2		132					164		
H		375	375	385	400	406	485	490	505
B1		322					386		
B2		152					225		
PN16(150LB)	Kg Weight	20	22	23	28	31	45	58	71
PN40(300LB)		20	22	23	28	31	45	60	75
PN64(600LB)		22	25	27	33	36	53	65	83

Remark: The weight will be different due to different configurations, the weight indicates average weight

Specification is subject to change without prior notice

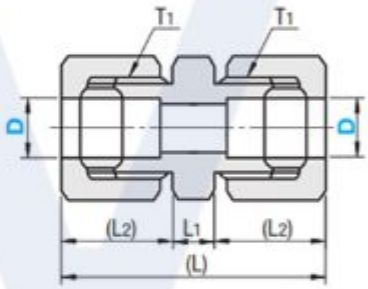
Material	ASTM :	: Copper (C10200,C11000,C10100,C10200,C12000,C11600, : Bronze (C50500,C51100,C52100,C60800,C61000,C61900,C63010,
Pipe Shape	Round, Square, Rectangular	
Pipe Specification	RoundWall thickness:0.81mm	
Pipe Length	15 meter / roll	
Surface Treatment	Mill, Polished, Bright, Oiled, Hair line, Brush, Mirror, Sand Blast, or as required.	
Application	The copper tubes are made of pure electrolysis copper. They are precise in size and smooth on surface. Besides, they are of good heat conductibility. Thus, they are widely used for heat exchangers, radiators, coolers, electro-heat-up pipe, Air conditioner and refrigerators. The straight pipes can be used for oil transportation, brake pipes, water pipes and gas pipe for construction.	

(L)	L_1	(L_2)	T_1G (PF)	Square	
				Main Body	Nut
48	8	20.0	3/8	19	19

Copper Pipe Fittings
Male Threaded Connector

Copper Pipe
Fittings Union Tees

Copper Pipe
Fittings Union



MODEL : VPA-26S [Intermittent Blowdown Valve]

Connection : Flange PN 40

ADCA STEAM EQUIPMENT

Cast steel

DESCRIPTION

The VPA26S blowdown valve was specially designed for application on steam boilers removing the concentrations of solids avoiding boiler damages, unstable water level control and other typical problems.
The valves are provided with a diaphragm actuator suitable for compressed air motive fluid.
The opening signal is supplied by an automatic intermittent control unit or manually (optional).
Connections are flanged.

OPERATION

The valve can be operated manually or using a pneumatic actuator. Valve aperture depends from the boiler manufacturer specification (example: once a day during five seconds).

MAIN FEATURES

High quality hardened valve and seat.
Manual or automatic control.
Can be locked in the open position if supplied with the manual operation lever.

VALVE BODY LIMITING CONDITIONS VPA26S - PN25		VALVE BODY LIMITING CONDITIONS VPA26S - PN40	
ALLOWABLE PRESSURES	RELATED TEMP.	ALLOWABLE PRESSURES	RELATED TEMP.
25 bar	-10 /50° C	40 bar	-10 /50° C
20,8 bar	200 °C	33,3 bar	200 °C
19 bar	250 °C	30,4 bar	250 °C
17,2 bar	300 °C	27,6 bar	300 °C
16 bar	350 °C	23,8 bar	400 °C

* Rating according to EN1092-1:2007

OPTIONS: Air filter regulator
Solenoid valve with cycling timer .
Mechanical limit switch
Water powered actuator
Stainless steel construction.

USE: Intermittent blowdown of steam boilers.

AVAILABLE MODELS: VPA 26S

VALVE SIZES: DN20 to DN50
CONNECTIONS: Flanged EN 1092-1

ACTUATORS: PA-205; PA-280.
ACTUATOR CONN: 1/4" NPT-F

HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow of steam or water.Refer to valve calculation data sheet or consult the factory.

MAX. AIR/WATER SUPPLY PRESS.: 3,5 bar

AMBIENT TEMPERATURE: -20°C ...+70°C

STEM SEALING: Graphite - up to 400°C

PLUG CHARACTRERISTIC: PT - On-off

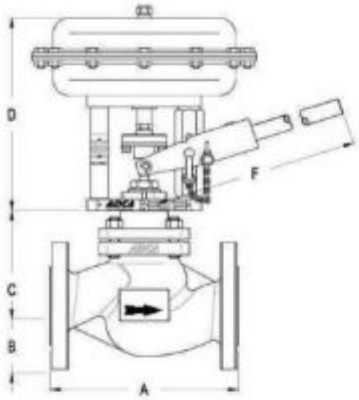
PORT: Full port or reduced on request

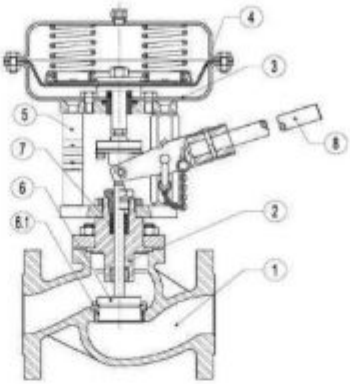
CE MARKING (PED - European Directive 97/23/EC)		
PN 25	PN 40	Category
DN20 to DN40	DN20 to DN32	SEP - art. 3, paragraph3
DN50	DN40 to DN50	1 (CE Marked)

Specification is subject to change without prior notice

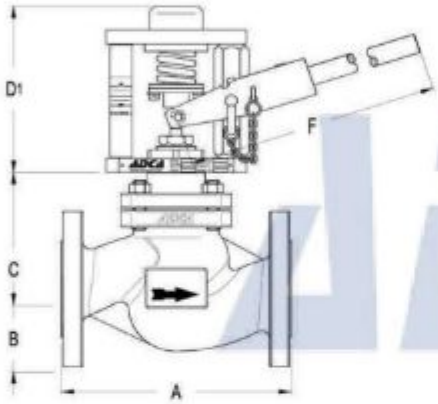
MODEL : VPA-26S [Intermittent Blowdown Valve]

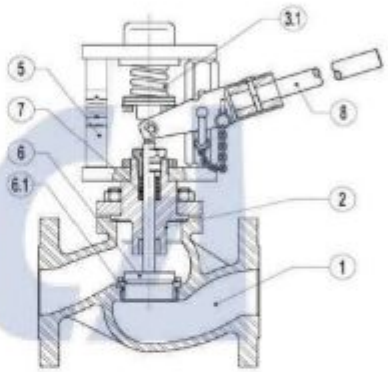
Connection : Flange PN 40





VPA26S– with pneumatic actuator and manual operation





VPA26S– manual operation only

DIMENSIONS (mm) - VALVE BODY							
DN	A	B	C	D1	F	* WGT. Kgs	**WGT Kgs
20	150	53	80	175	380	15	12
25	160	58	85	175	380	16	13
32	180	70	90	175	380	20	17
40	200	75	95	175	650	25	22
50	230	83	105	175	650	34	31

* Valve with pneumatic actuator; ** Valve with manual lever only

FLOW RATE COEFFICIENTS						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Kvs	-	6	7,5	11	24	30

Kvs in m3/h , see data sheet IS PV10.00 E

VALVE STROKE IN mm						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Stroke	-	12	12	12	12	12

MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve Body	A216 WCB / 1.0619
2	Bonnet	CF8 / 1.4308
3	* Actuator	Steel Fe410.1/St.Steel
3.1	* Spring	Spring Steel
4	* Diaphragm	NBR 70
5	Yoke	Carbon Steel/St.Steel
6	* Valve Plug	Hardened St. Steel
6.1	* Valve Seat	Hardened St. Steel
7	Packing	Graphite
8	Valve Lever	Stainless steel / 1.4301

* Available spare parts.

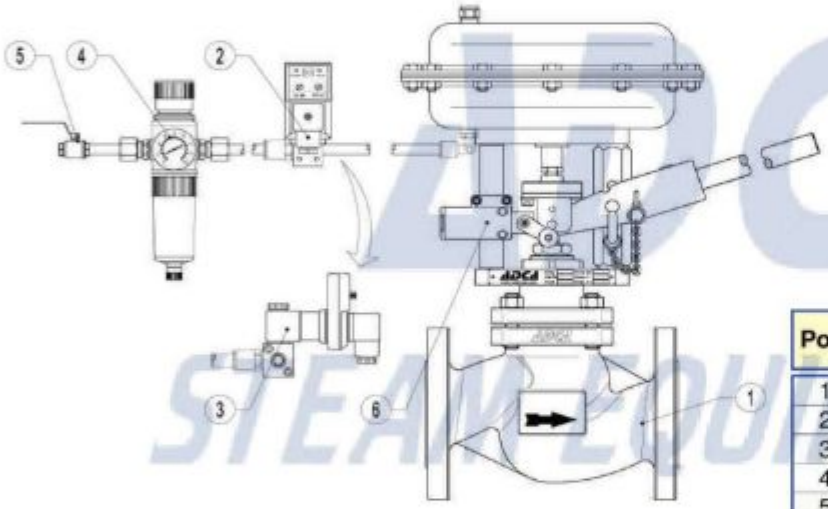
DIMENSIONS - ACTUATOR			
Type	ø E (mm)	D (mm)	
		DN15-100 DA/RA	DN125-200 DA
PA-205	210	235	N/A
PA-280	275	240	N/A

Specification is subject to change without prior notice

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally closed valve (fluid to close) - Reverse action actuator (air signal to open)							
ACTUATOR (Pressure)	MIN. AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PA-205 (0 - 1 bar)	3,5 bar	—	25	25	25	25	15
PA-280 (0 - 1 bar)	3,5 bar	—	—	—	—	—	25

Important:
The pressure drop values are referred to closed valves.
For valve sizes DN65 and above please consult.
Special spring drops available on request.
The pressure drop values must be used within the body rating limits.

TYPICAL INSTALLATION



Pos.	Designation
1	VPA26S Blowdown Valve
2	ADCA Digital Timer plus Connector
3	ADCA Solenoid Valve 3/2
4	ADCA P10 Air Filter Regulator
5	Ball Valve
6	Limit Switch

Design with actuator and manual operation

Manual operation only

"ADCATROL" TDS BLOWDOWN CONTROL VALVES
VPC Series

DESCRIPTION

The Adcatrol VPC series control valves are specially designed for the blowdown of steam boilers in order to control the TDS concentration in combination with a TDS controller (BCS) and probe (SPS series).
These valves can also be used for any application where high pressure drop and low flow rates are present.

MAIN FEATURES

Single seated, two way, direct action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal hardened sealing as standard.

VPC-32

VPC-25

OPTIONS:	Pneumatic or electric actuators Air filter regulator
USE:	Saturated and superheated steam Hot and superheated water
AVAILABLE MODELS:	VPC-32-Fabricated steel construction VPC-25-Cast steel
VALVE SIZES:	DN15,20,25 and 40
CONNECTIONS:	Flanged EN 1092-1 ANSI Class 150 and 300 lbs
PNEUMATIC ACTUATORS:	PA-205, PA-280.
ACTUATOR CONN:	¼" NPT-F
CONTROL SIGNAL:	0,4 – 2 bar
ELECTRIC ACT.:	Consult catalogue IS EL20.00 E and IS ELR21.00 E
MAX.AIR SUPPLY:	3,5 bar
AMBIENT TEMPERATURE:	-20°C ....+70°C
STEM SEALING:	PTFE/GR V-Rings-220°C (Standard bonnet) Graphite – up to 300°C (Extended bonnet)
PLUG CHARACT.:	PL - Linear
PLUG DESIGN:	Contoured Microflow
PORT:	Full port or reduced on request

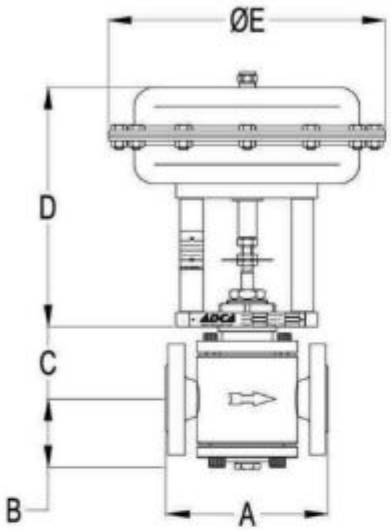
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted, but according to the required actual flow. Refer to the valve calculation data sheet or consult the factory.

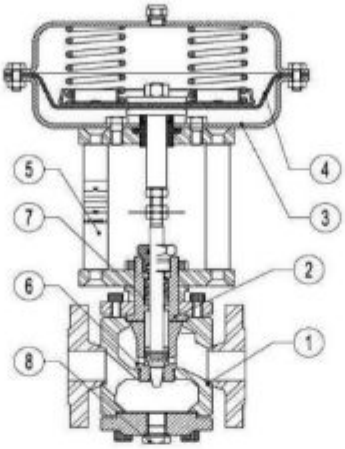
VALVE BODY LIMITING CONDITIONS VPC 32		VALVE BODY LIMITING CONDITIONS VPC 25	
PRESSURE/TEMPERATURE		PRESSURE/TEMPERATURE	
40 bar	-10/50°C	40 bar	-10/50°C
33,3 bar	200 °C	30,2 bar	200 °C
30,4 bar	250 °C	25,8 bar	300 °C
27,6 bar	300 °C	24 bar	350 °C

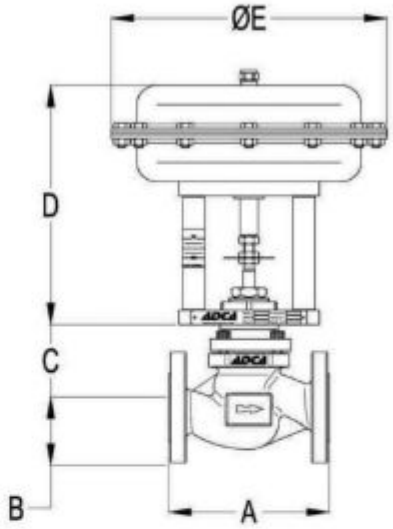
Maximum temperature limited to the valve packing selected

CE MARKING (PED - European Directive 97/23/EC)	
PN 40	Category
DN15 to DN25	SEP - art. 3, paragraph3
DN40	1 (CE Marked)

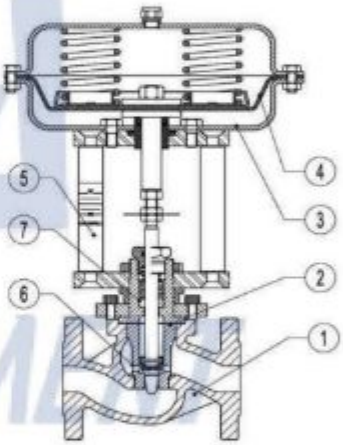
Specification is subject to change without prior notice







DIMENSIONS - VALVE BODY VPC-32					
DN	A (mm)	B (mm)	C (mm) BONNET		
			STANDARD	FINNED	EXTENDED
15	150	71	75	140	140
20	150	71	75	140	140
25	160	71	75	140	140
40	200	82	96	163	163



DIMENSIONS - VALVE BODY VPC-25					
DN	A (mm)	B (mm)	C (mm) BONNET		
			STANDARD	FINNED	EXTENDED
15	130	48	85	150	150
20	150	53	85	150	150
25	160	58	90	170	170
40	200	75	115	195	195

DIMENSIONS PNEUMATIC ACTUATOR		
Type	ø E (mm)	D (mm) DN15-DN50 DA/RA
PA-205	210	235
PA-280	275	240

MATERIALS			
POS.	DESIGNATION	VPC 32	VPC 25
1	Valve Body	S355 J2 G3 / 1.0570	ASTM A216WCB / 1.0619 GP240GH / 1.0619
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	* Actuator (Steel)	S235JRG2 / 1.0038	S235JrG2 / 1.0038
	* Actuator (St.steel)	AISI304 / 1.4301	AISI304 / 1.4301
4	Diaphragm	NBR70	NBR 70
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301	AISI304 / 1.4301
6	Valve plug	Hardened St.Steel	Hardened St.Steel
7	Standard packing	Graphite	Graphite
8	Sample take off	AISI304 / 1.4301	-

*** Electric actuator : see IS EL20.00 E**

Kvs VALUES FOR ADCATROL CONTROL VALVES VPC					
SEAT D. mm	VALVE STROKE mm	VALVE SIZES			
		DN15	DN20	DN25	DN40
4A	20	0,1	—	—	—
4B		0,25	—	—	—
4C		0,5	—	—	—
8A		1	1	—	—
8B		1,7	1,7	—	—
12A		2,1	2,5	3	—
12B		2,7	3,7	4	—
15A		3,8	4,7	5,8	6,8
20A			5,1	6,3	9,3
25A				9,4	14,6

Letters after the Kvs are for codification purposes only.

MAX. PERM.PRESS.DROP IN bar - N.C.(fluid to open) - Reverse action actuator (air signal to open)					
ACTUATOR	CONTROL SIGNAL	SIZES			
		DN15	DN20	DN25	DN40
PA-205	0,4 ÷ 2 bar	18	15	12	8
PA-280	0,4 ÷ 2 bar	45	40	35	25

Special spring pressure drops available on request.
The pressure drop values must be used within the body rating limits.
For electric actuator selection please consult catalogue IS EL.20.00 E or our technical department.
For conversion Kvs = Cv(US) x 0,855

CALCULATING THE AMOUNT OF BOILER BLOWDOWN

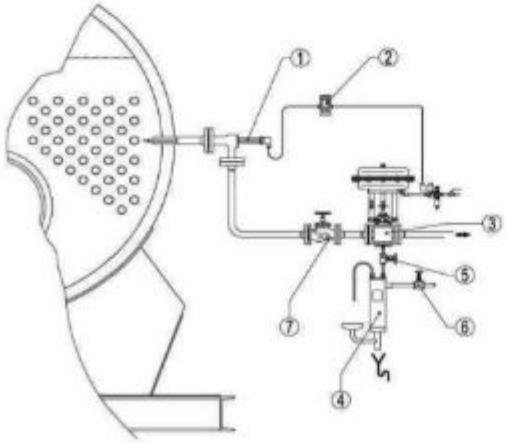
The boiler blowdown system design depends on the amount of boiler water which has to be blown down. This amount depends on:
(Rs)-Recommended boiler water TDS in ppm (parts per million) or µS/cm. Usually recommended by the boiler manufacturer or water treatment specialist.
(Fs)-Feed water TDS (same units) .Sample for analysis must be taken from fresh water feed tank or feed water line. Do not use a sample of the make-up feed water otherwise wrong figures can be obtained.
(Q)-Steam boiler maximum flow rate in Kgs/h
(Br)- The blow down rate or amount of water to be discharged in Kgs/h can be obtained using the following formula:

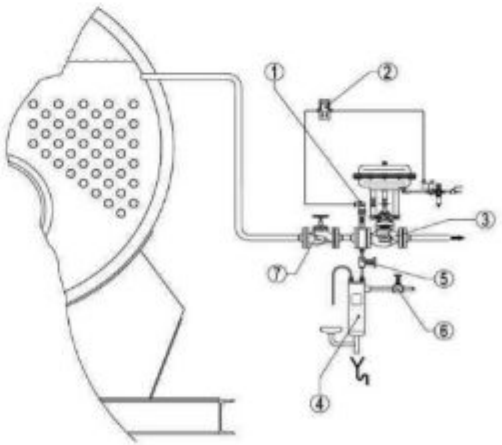
$Br = Q \cdot Fs / Rs - Fs$

Example:
Boiler pressure: 12 bar
Q - Boiler capacity: 12 000 Kg/h
Fs - Conductivity of feed water: 100 µS/cm
Rs - Recommended boiler water TDS 3000 µS/cm

$Br = 12000 \cdot 100 / 3000 - 100$; Br = 413,8 Kgs/h
Using the formula available in IS PV10.00 E, it is now possible to determine the necessary Kv valve value and select the right valve size (IS VPC.50 E).

TYPICAL INSTALLATION



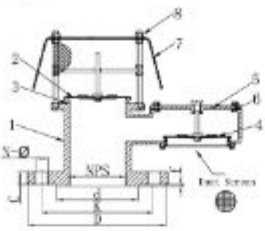


VTV Pressure Vacuum Relief Valve / Breather Valve

Connection : Universal

VTV BV - I : BREATHER VALVE

PVV-200 BV-I



◆ Product Advantage :
- High ventilation capacity
- Good sealing
- Allowable leakage less than requirements of API2000
- Replace valve plates on-site easily.

Technical Detail	
Housing Material	WCB
Internal Material	SS304
Connection Flangel	ANSI 150LB #RF
Setting Pressure	+100mmH20
Setting Vacuum	-30mmH20

◆ MATERIAL :

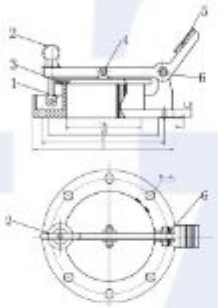
No	Code	Part Name	Material
1	PVV-200	Body	WCB
2	PVV-200	Pressure Pallet	SS304+FEP
3	PVV-200	Seat	SS304
4	PVV-200	Vacuum Pallet	SS304+FEP
5	PVV-200	Cover	WCB
6	PVV-200	Gasket	PTFE
7	PVV-200	Cap	SS304
8	PVV-200	All of fastener	SS304

◆ DIMENSION :

NPS	D	K	d	C	f	N-Ø
6 "	280	241.3	215.9	23.9	2	8-22

VTV GLY-I : TREADLE TYPE GAUGE HATCH

LYK - 150



◆ Product Advantage :
- Good sealing
- Easy to operate
- Replace valve plates on-site easily.

Technical Detail	
Design Standard	EN16852
Flange Standard :	ANSI 150#RF
Max Operating Pressure	30bar
Design Temperature	-30/+60°C
Medium	Gas/Air

◆ MATERIAL :

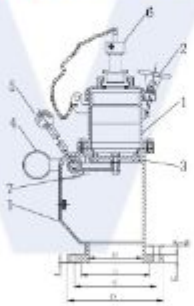
No	Code	Part Name	Material
1	LYK-150	Body	WCB
2	LYK-150	Handwheel	SS304
3	LYK-150	Cover	Rubber
4	LYK-150	Eye Bolt	SS304
5	LYK-150	Pedal	WCB
6	LYK-150	Eye Bolt	SS304

◆ DIMENSION :

NPS	D	K	d	C	f	N-Ø
6 "	280	241.3	215.9	23.9	2	8-22

VTV LK-HB : ENVIRONMENTALLY TYPE GAUGE HATCH

LKHB - 100



◆ Product Advantage :
- Good sealing
- Easy to operate
- Replace valve plates on-site easily.

Technical Detail	
Design Standard	EN16852
Flange Standard :	ANSI 150#RF
Max Operating Pressure	30bar
Design Temperature	-30/+60°C
Medium	Gas/Air

◆ MATERIAL :

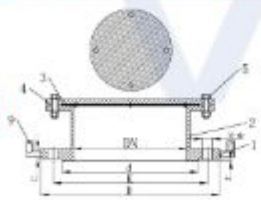
No	Code	Part Name	Material
1	LKHB-100	Body	WCB
2	LKHB-100	Handwheel	WCB
3	LKHB-100	Gasket	Fluororubber O-ring
4	LKHB-100	Stabilizer Bar	WCB
5	LKHB-100	Action Bar	WCB
6	LKHB-100	Sealing Plug	Aluminium
7	LKHB-100	Rotation Shaft	SS304

◆ DIMENSION :

NPS	D	K	d	C	f	N-Ø L
4 "	230	190.5	157.2	22.3	2	8-19

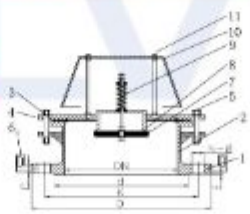
VTV HRK-I : EMERGENCY BREATHING MANHOLE

YFGYXA - 250



VTV HRK-II : EMERGENCY BREATHING MANHOLE

YFGYXA - 600



Technical Detail	
Housing Material	WCB
Seat Material	SS304
Connection Flangel	ANSI 150LB #RF
Setting Pressure	+200mmH20
Setting Vacuum	-30mmH20

◆ Product Advantage :
- Good sealing
- Allowable leakage less than requirements of API2000,
- Replace valve plates on-site easily

◆ MATERIAL :

No	Code	Part Name	Material
1	YFGYXA-250	Flange	WCB
	YFGYXA-600		
2	YFGYXA-250	Body	WCB
	YFGYXA-600		
3	YFGYXA-250	Seat	SS304
	YFGYXA-600		
4	YFGYXA-250	Pressure Pallet	WCB+FEP
	YFGYXA-600		
5	YFGYXA-250	Nut&Bolt	SS304
	YFGYXA-600		
6	YFGYXA-600	Seat	SS304
7	YFGYXA-600	Vacuum Pallet	SS304+FEP
8	YFGYXA-600	Sping	SS304
9	YFGYXA-250	Ear	WCB
	YFGYXA-600		
10	YFGYXA-600	Cap	SS304
11	YFGYXA-600	All of fastener	SS304

◆ DIMENSION :

NPS	D	K	d	C	f	N-Ø L
24 "	815	749.3	692.2	46.1	2	20-35

Remark:
1. During the hoisting of pressure relief manhole, triangle fixing method shall be adopted and hoisting shall be conducted vertically to ensure that the tripping of pressure relief manhole is vertical.
2. The inside of the tank shall be clean and free from large solid particles (such as sand, gravel or iron chips).
3. In order to ensure the normal operation of the pressure relief manhole within the normal temperature range, it should be used as the safety equipment for daily maintenance and inspection. If the sealing surface is found to be frosted or crystallized, it should be cleaned in time to prevent damage to the diaphragm.
4. Design and manufacturing standards shall be in accordance with API 2000
5. Carry out leakage test according to API 2000, i.e. measure the leakage of the valve at 85% of the set pressure.

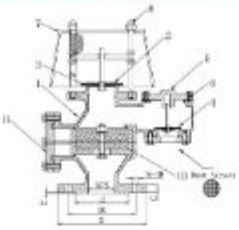
Specification is subject to change without prior notice

VTV Pressure Vacuum Relief Valve / Breather Valve

Connection : Universal

VTV BV-IZ : BREATHER VALVE WITH INSIDE ELEMENTS

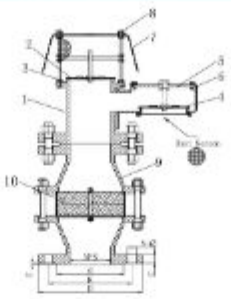
PVV - 100



Technical Detail	
Housing Material	WCB
Internal Material	SS304
Connection Flangel	ANSI 150LB #RF
Setting Pressure	+100mmH20
Setting Vacuum	-30mmH20

VTV BV - I/ZGB : BREATHER VALVE WITH FLAME ARRESTER

PVV - 300 BV-1/ZGB



◆ Product Advantage :

- High ventilation capacity
- Good sealing
- Allowable leakage less than requirements of API2000
- Replace valve plates on-site easily
- Passed ISO16852 Burn resistant tes and fire resistance performance test.

◆ MATERIAL :

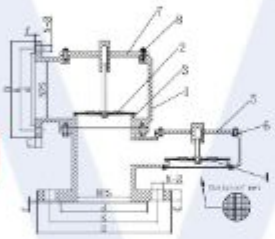
No	Code	Part Name	Material
1	PVV-100 PVV-300	Body	WCB
2	PVV-100 PVV-300	Pressure Pallet	SS304+FEP
3	PVV-100 PVV-300	Valve Seat	SS304
4	PVV-100 PVV-300	Vacuum Pallet	SS304+FEP
5	PVV-100 PVV-300	Cover	WCB
6	PVV-100 PVV-300	Gasket	PTFE
7	PVV-100 PVV-300	Cap	SS304
8	PVV-100 PVV-300	All of Fastener	SS304
9	PVV-300	Flame Arrester	WCB
10	PVV-100 PVV-300	Flame Elements	SS304
11	PVV-100	Cover	WCB

◆ DIMENSION :

NPS	D	K	d	C	f	N-Ø
6 "	280	241.3	215.9	23.9	2	8-22

VTV BV-IV : BREATHER VALVE WITH PIPE

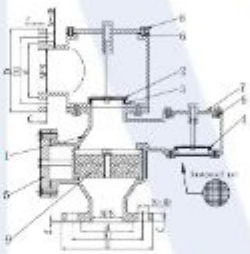
PVV - 200 BV-IV



Technical Detail	
Housing Material	WCB
Internal Material	SS304
Connection Flangel	ANSI 150LB #RF
Setting Pressure	+100mmH20
Setting Vacuum	-30mmH20

VTV BV-IVZ : BREATHER VALVE WITH INSIDE ELEMENTS & PIPE

PVV - 100 BV-IVZ



◆ Product Advantage :

- VOCs gas recovery device
- Good sealing
- Allowable leakage less than requirements of API2000
- Replace valve plates on-site easily.

◆ MATERIAL :

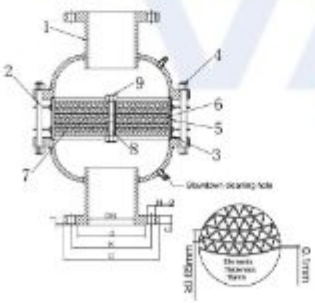
No	Code	Part Name	Material
1	PVV-100 PVV-200	Body	WCB
2	PVV-100 PVV-200	Pressure Pallet	SS304+FEP
3	PVV-100 PVV-200	Seat	SS304
4	PVV-100 PVV-200	Vacuum Pallet	SS304+FEP
5	PVV-100 PVV-200	Cover	WCB
6	PVV-100 PVV-200	Gasket	PTFE
7	PVV-100 PVV-200	Cover	WCB
8	PVV-100 PVV-200	All of fastener	SS304
9	PVV-100	Flame Elements	SS304

◆ DIMENSION :

NPS		D	K	d	C	f	N-Ø L
BV-IV	3"	190	152.4	127	22.3	2	4-Ø19
BV-IVZ	6 "	280	241.3	215.9	23.9	2	8-Ø22

VTV GZJII-H : IN LINE DETONATION FLAME ARRESTER

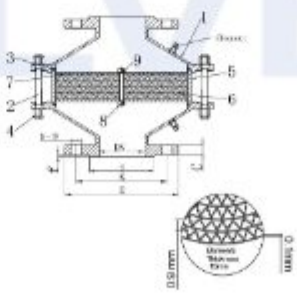
PVV-200 CGB-I



Technical Detail	
Design Standard	EN16852
Type	Explosion Flame arrester
Explosion Group	BS5501:IIA
Flame source distance	+/- 25 m
Flange Standard	ANSI B16.5#RF
Max Operating Pressure	40bar
Design Temperature	-30/+400°C
Medium	Gas mixture

VTV CGB-I : END OF LINE DEFLAGRATE FLAME ARRESTER

PVV-200 GZJII



◆ Product Advantage :

- Satisfy ISO16852 standard
- High ventilation capacity
- Low pressure drop
- Detachable flame elements case (CGB-1)
- It's easy to clean and maintain.

◆ MATERIAL :

No	Code	Part Name	Material
1	PVV-200 CGB-I PVV-200 GZJII	Body	WCB Q235B
2	PVV-200 CGB-I PVV-200 GZJII	Stud	SS304
3	PVV-200 CGB-I PVV-200 GZJII	Gasket	Fluororubber O-ring
4	PVV-200 CGB-I PVV-200 GZJII	Nut & Washer	SS304
5	PVV-200 CGB-I PVV-200 GZJII	Flame Elements case	SS304 Q235B
6	PVV-200 CGB-I PVV-200 GZJII	Flame Elements	SS316 SS304
7	PVV-200 CGB-I PVV-200 GZJII	Elements Plate	SS304 Q235B
8	PVV-200 CGB-I PVV-200 GZJII	Nut & Washer	SS304
9	PVV-200 CGB-I PVV-200 GZJII	Stud	SS304

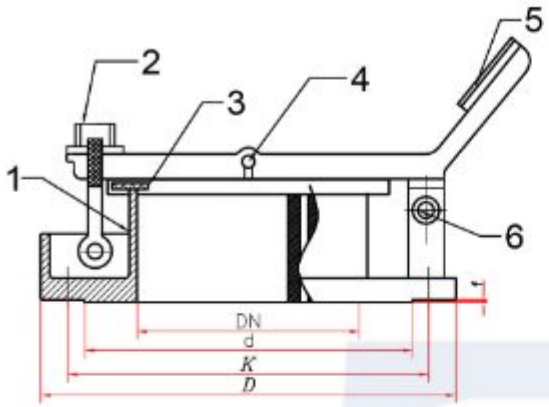
◆ DIMENSION :

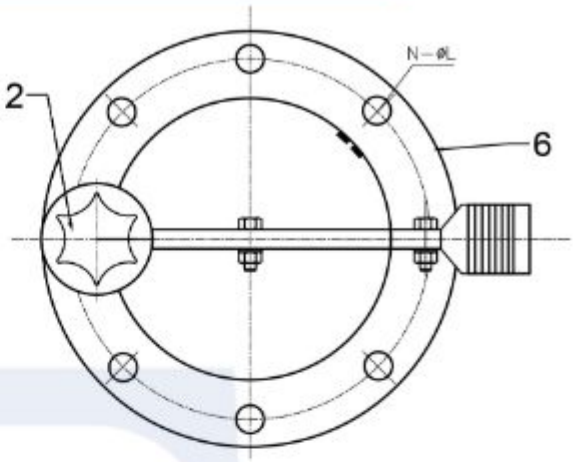
NPS	D	K	d	C	f	N-Ø
6 "	280	241.3	215.9	23.9	2	8-22

Specification is subject to change without prior notice

Gauge Hatch

GLH - 1





Remark:

1) Design Standard: EN16852
2) Flange Standard: ASME B16.35
3) Max Operating Pressure: 30bar
4) Design Temperature: -30/+60° C
5) Medium:Gas/Air

DN	D	K	d	C	f	N-ΦL
4"	230	190.5	157.2	22.3	2	8-Φ19

ITEM	Part NO.	Parts	Qty	Material
6	LYK-150.7	Eye bolt	1	SS304
5	LYK-150.6	Pedal	1	SS304
4	LYK-150.4	Eye bolt	1	SS304
3	LYK-150.3	Cover	1	SS304
2	LYK-150.2	Handwheel	1	SS304
1	LYK-150.1	Body	1	SS304

Gauge Hatch GLY-1

1. Summarize

It is a special accessory for measuring the height of oil level in tank and sampling oil. There is one on the top of each tank, mostly near the ladder platform. The diameter of the measuring hole is 468 inch. It is equipped with a sealed hole cover and a tightening bolt. In order to prevent sparks from colliding with iron when the hole cover is closed, an oil-resistant rubber pad is embedded in the sealing groove of the hole cover. Because the steel tape used for measuring is easy to produce sparks by friction at the contact outlet, copper (or aluminium) sleeves are inserted inside the bore pipe or non-ferrous metal guide grooves (ruler grooves) which do not generate sparks are installed outside the fixed measuring points.

2. Function

In order to ensure that the measurement error is reduced by lowering the ruler along the same position every time when measuring oil, a guide groove of aluminum or copper is installed on one side of the inner wall of the oil measuring hole. There should be no welding seam on the bottom plate of oil tank under the oil measuring hole. If necessary, a measuring datum plate can be welded there to reduce the relative error of each measurement. Oil tank fires often occur in the position of measuring holes. The main reason is that oil and gas rush out from the tank when the hole cover is opened during the measuring operation. If electrostatic sparks or impact friction sparks occur, the oil and gas will ignite.

3. Style and Material

1. Pedal type

2. Rotary type

3. Material :

WCB、304、316、316L。

MODEL : BV - 10 | Lined Butterfly Valve

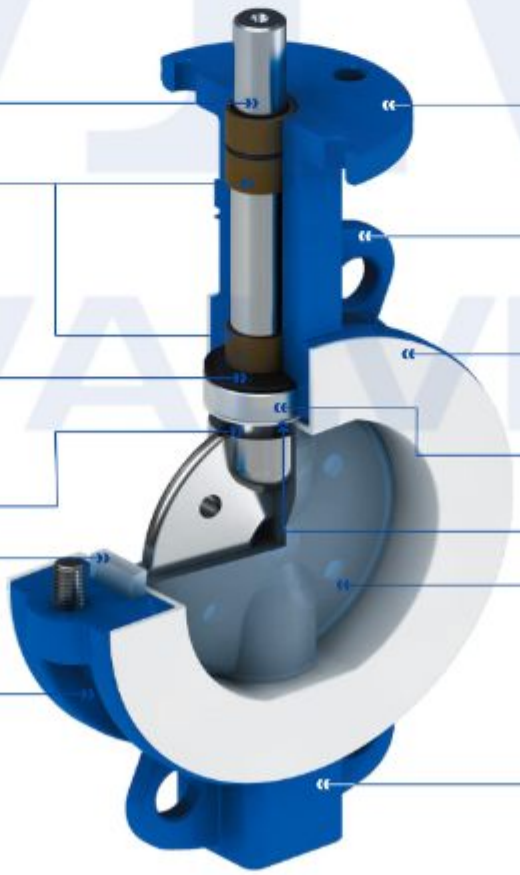
Connection : Universal

VTV VALVE

■ Lined butterfly valve

The VTV butterfly valves'special feature is the seat ring design. The interference between the disc and the raised central area of the seat ring shuts off the flow completely. The resilient elastomeric seat cushion ensures reliable shut-off for the life of the valve.
The upper and lower positions of the seal ring, where the stem passes through, use a triple seal design to prevent leakage to the atmosphere.
Triple Seal Prevent Leakage
Primary Seal: ① Seat.
Secondary Seal: ② O ring
Tertiary Seal: ③ Taper PTFE seal ring

Size	50mm~900mm (2"~36")
Working pressure	0.1mbar~10bar
Temperature range	-20° C ~ 200° C according to working conditions, other temperatures on request.
Design and Manufacture	API609 DIN EN1092 JIS B2032
Face to Face	ASME B16.10 DIN EN558. 1 JIS B2002
Flange Ends	ASME B16.5 DIN 2532 JIS B2212 (150lb, 10k, Pn10)
Visual Inspection	MSS Sp54
Testing	API 598 DIN 3230 JIS B2003
Pressure & Temperature	ASME B16.34
Operator Type	Lever/ Gear/ Pneumatic/ Electric
Spark testing	14kv



Stem design (Square, double-D, single key ,double key)

Self lubricating bushing could endure under pressure and three point form SL design could prevent disc be deformed

Double belleville springs exert uniform loading through the pusher, pressing the PTFE seal ring and the shoulder of the disc hub together resulting in a leak free mechanical stem seal

O-ring (the second seal)

Elastomer back-up immersed in body ensures zero leakage between disc and seat.

Two piece body (wafer and lug type)precision casting moulds with clear mark.

ISO5211 pad universal mounting permits easy automations even with the valves in the pipe line

Integral body locating holes to ensure perfect centering of the valves between flange. Applied to different international standard

PTFE seat Precision machinery processing, extra wide spheroidal seat design provides positives shut off (the primary seal)

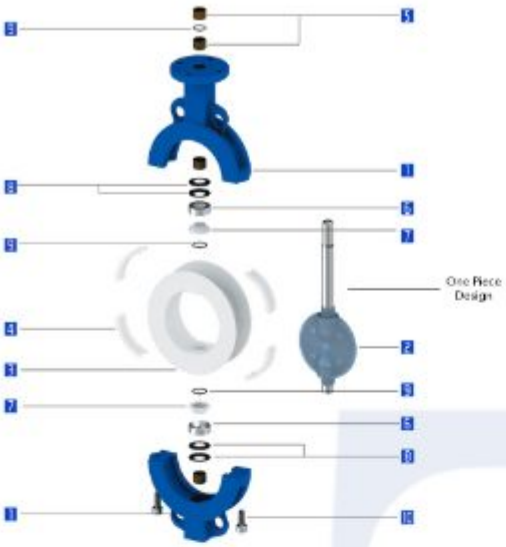
Taper metal seal cartridge (the third seal)

Taper PTFE sealing seal

One piece disc-stem, blow out-proof machined.Rated for full vacuum and thermal cycling. Minimum lined thickness 3mm eliminates permeations and possible delamination

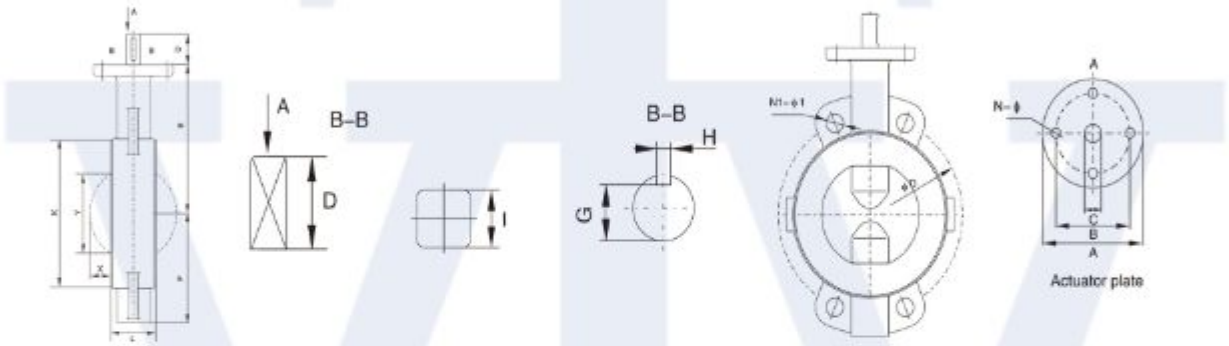
Epoxy coating paint with baked finished

Specification is subject to change without prior notice



MATERIALS SELECTION

No	Description	Qty.	Materials		Materials According to Norms		
					ASTM	JIS	DIN
1	BODY	2	Carbon Steel		A216-WCB	G5151 SCPH2	GS-45(1.0446)
			Stainless Steel		A351-CF8	G5121 SCS13A	G-X6CrNiMo1810
			Ductile Iron		ASTM A395	FCD400	GGG-40 (0.7040)
2	ONE-PIECE DISC	1	Carbon Steel	PTFE/UHMWPE/ PO/PS/FEP/PFA	A216-WCB	G5151 SCPH2	GS-45(1.0446)
			Stainless Steel		A351-CF8	G5121 SCS13A	G-X6CrNiMo1810
			Ductile Iron		A536-60-40-18	FCD350-22	1693-1900GGG-35.3(0.7033)
3	BODY LINER/SEAT)	1	PTFE/UHMWPE/POPE/FER/PFA		-	-	-
4	ELASTIC SPACER	2	Silicone Rubber		-	-	-
5	AXLE SLEEVE	4	Carbon Steel+PTFE		1020+PTFE	S20C+PTFE	C20+PTFE
6	TAPER SEAL CARTRIDGE	2	Carbon Steel		1020	S20C	C20
7	TAPER SEAL RING	2	PTFE		-	-	-
8	BELLEVILLE SPRING	4	Spring Steel		852100	Su52	100Cr6
9	O-RING	3	VITON		-	-	-
10	HEX BOLT	2	Stainless Steel		A 182 F304	G4303-SUSF304	X5CrNi18 10 DIN 17440



WAFER TYPE DIMENSION

DN	NPS	Dimensions in mm														A	ASME 150LB		JIS 10K		DIN Pn10		Weight	CV	Torque
mm	in	A	B	C	D	E	F	G	H	I	N–Φ	L	K	X	Y	ISO 5211	ΦD	N1–Φ1	ΦD	N1–Φ1	ΦD	N1–Φ1	[Kg]		[N-m]
50	2	77	57	12.6	23	115	60	/	/	11	4–10	52	100	9	42	F07	120.7	4–19	120	4–19	125	4–18	2.2	210	25
65	1½	77	57	12.6	23	115	60	/	/	11	4–10	52	100	9	42	F07	139.7	4–19	140	4–19	145	4–18	2.2	210	25
80	3	92	70	12.6	26	150	86	/	/	11	4–10	46	135	18	66	F07	152.4	4–19	150	8–19	160	4–18	4.2	410	50
100	4	92	70	15.9	26	160	115	/	/	14	4–10	52	158	25	85	F07	190.5	8–19	175	8–19	180	8–18	6.4	710	80
125	5	92	70	15.9	26	175	130	/	/	14	4–10	56	185	35	112	F07	215.9	8–22	210	8–23	210	8–18	7.9	1150	90
150	6	115	89	22.2	28	192	145	/	/	17	4–14	56	210	48	139	F07	241.3	8–22	240	8–23	240	8–23	10.4	1750	130
200	8	115	89	22.2	28	220	175	/	/	17	4–14	60	263	69	187	F10	298.5	8–22	290	12–23	295	8–23	17	3550	180
250	10	140	108	31.8	35	275	215	/	/	24	4–14	68	320	90	237	F10	362	12–25	355	12–25	350	12–23	25	5100	400
300	12	140	108	31.8	35	310	250	/	/	24	4–14	78	368	112	290	F12	431.8	12–25	400	16–25	400	12–23	34.5	8870	610
350	14	210	165	38	55	360	285	33	10	/	4–22	78	410	136	341	F14	476.3	20–1 3/8	445	16–25	460	16–23	75	9200	850
400	16	210	165	38	55	395	320	33	10	/	4–22	102	460	147	383	F14	539.8	20–1 1/4	510	16–27	515	16–27	110	14500	1170
450	18	210	165	44	65	435	360	38.5	14	/	4–22	114	518	167	432	F14	577.9	16–1 1/4	565	20–27	/	/	130	20100	1560
500	20	210	165	44	65	435	385	38.5	14	/	4–22	127	565	181	473	F14	635	16–1 1/8	620	20–27	620	20–27	190	22000	1820
600	24	210	165	55	75	525	445	49	16	/	4–22	154	658	218	569	F14	749.3	12–1 1/8	730	24–33	725	20–30	280	31000	2990

Specification is subject to change without prior notice

MODEL : BV-10 [General Butterfly Valve]

Connection : Universal, Wafer JIS 10K, PN 16, ANSI 150

VALVE

◆ TECHNICAL DATA

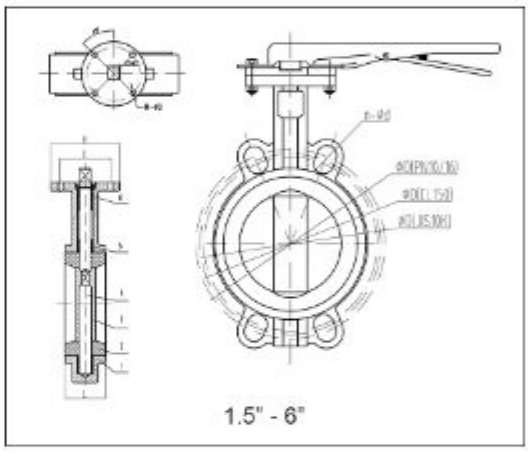
Size : DN40-DN1000
W.P : PN10 | PN16 | JIS10K | ANSI 150
Working Tem : -45--200°C
Suitable Mediums : Fresh Water, Sewage, Sea Water, Air, Oils, Acids, Salt etc.

◆ STANDARD

Design acc. To BS5155, BS EN593 API609
FTF to DIN3202,BS5155, BS EN558, ISO5752
Top Flange to ISO5211
Pressure test to BS EN12266-1,DIN3230,BS5155

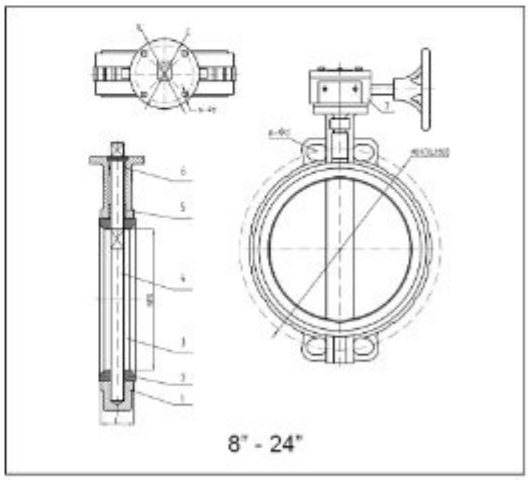
◆ MATERIAL LIST

No.	Parts	Material
1	Body	CI(1 1/2"-12") / DI(14"-24")
2	Liner (Seat)	EPDM/NBR
3	Disc	CF8M
4	Shaft	SS410
5	Bushing	FRP
6	O-Ring	NBR



◆ DIMENSIONS (mm)

SIZE	L	K	E	□x□	N-ØD	ISO	PN10 ØD	PN16 ØD	CL150 ØD	JIS10 K ØD	Weight Kgs
1.5"	33	Ø54	Ø42	9X9	4-Ø8	F04	110		98.5	105	2.3
2"	42	Ø65	Ø50	9X9	4-Ø8	F05	125		121	120	2.5
2.5"	46	Ø65	Ø50	9X9	4-Ø8	F05	145		140	140	2.9
3"	46	Ø65	Ø50	9X9	4-Ø8	F05	160		153	150	3.1
4"	52	Ø90	Ø70	11X11	4-Ø10	F05	180		191	175	4.8
5"	56	Ø90	Ø70	11x14	4-Ø10	F07	210		216	210	6.1
6"	56	Ø90	Ø70	14x14	4-Ø10	F07	240		242	240	7.1
8"	60	Ø125	Ø42	17X17	4-Ø12	F10	295		299	190	17.4
10"	66	Ø125	Ø50	22X22	4-Ø12	F10	350	355	362	355	23
12"	76	Ø125	Ø50	22X22	4-Ø12	F10	400	410	432	400	35
14"	76	Ø125	Ø50	22X22	4-Ø12	F10	460	470	476	-	40
16"	101	Ø175	Ø70	27X27	4-Ø18	F14	515	525	539.5	-	71
18"	112	Ø175	Ø70	27X27	4-Ø18	F14	565	585	578	-	80
20"	125	Ø175	Ø70	32X32	4-Ø18	F14	620	650	635	-	110
24"	152	Ø210	Ø70	36X36	4-Ø22	F16	725	770	749.5	-	192



Specification is subject to change without prior notice

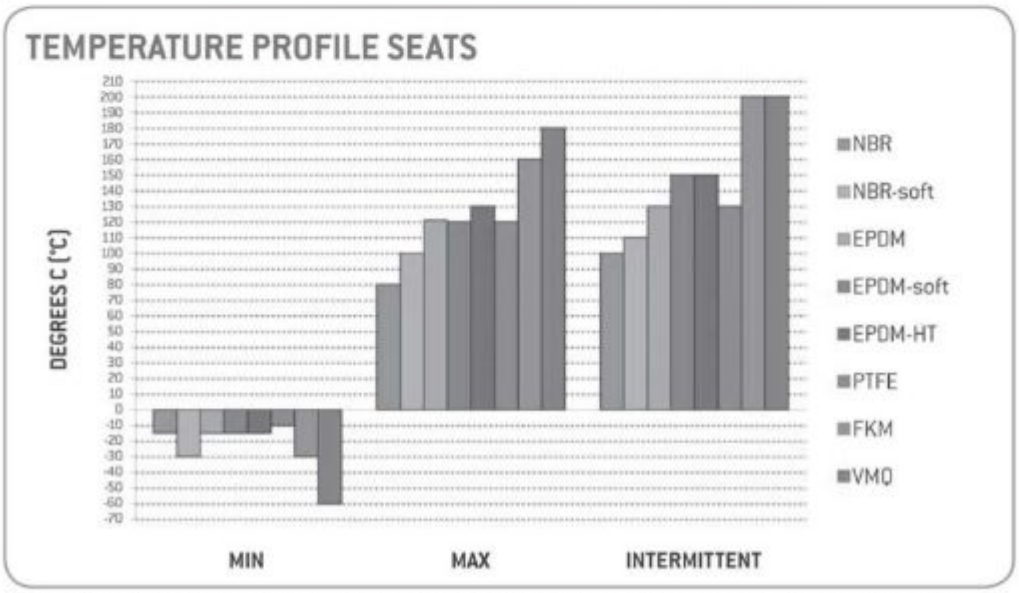
rubber - seat material

The field of application and/or chemical resistance suggested by us derives from our long experience in valve manufacturing but are purely indicative. Since many factors influence the liner - type of fluid, concentration, temperature, pressure, type of flow (turbulent, laminar), impurities, etc - the final choice of liner is up to our customers based on their specific process characteristics and applications.

FKM Fluorocarbon elastomers are compatible with a broad spectrum of chemicals. Because of this extensive chemical compatibility, which spans considerable concentration and temperature ranges from -30°C to + 160°C, fluorocarbon elastomers have gained wide acceptance as material of construction for butterfly valves. FKM can be used is most applications involving mineral acids, salt solutions, chlorinated hydrocarbons and petroleum oils. They are particulary good in hydrocarbon service however they are not suitable for hot water and steam service.

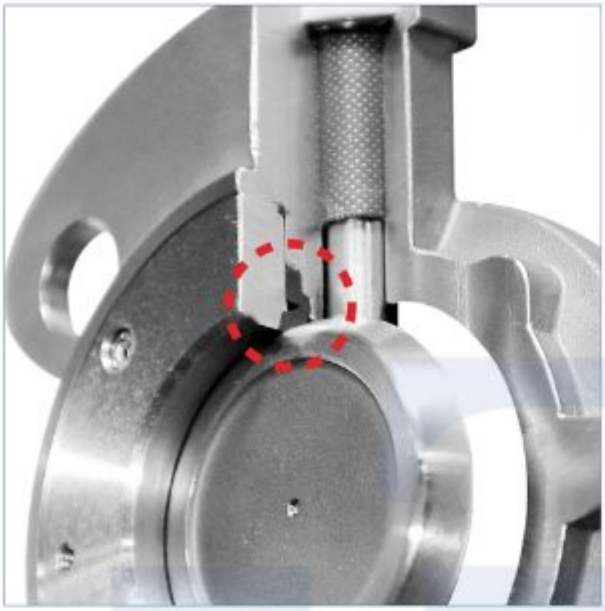
VMQ Silicons are primarily based on a sequence of silicon and oxygen atoms rather that a long chain of carbon atoms. This silicon-oxygen backbone is much stronger than a carbon--based backbone, making silicons much more resistant to extreme temperature, range -60°C to 180°C. In addition to being generally inert silicons are odourless, tasteless, non-toxic and fungus resistance making them suitable for food & beverage applications. Silicons are not well suited for dynamic use due to their poor tear and tensile strenght. Silicons are also gas permeable.

TFM TFM is manufactured with PTFE and a 1% fraction of perfluoropropyl vinyl ether (PPVE). While the properties of conventional PTFE will be conserved, the additive PPVE leads to a better allocation of the PTFE particles and thus to a higher density of the molecular structure. This leads - in comparison with conventional PTFE - to a cold flow which is considerably lower for TFM, a reduced permeation that leads to better barrier properties and a asmooth surface that provokes only a slight abrasion of the liner and less particies in the medium. Temperature ranging from -20°C to +200°C



EPDM – Soft is soft seat / EPDM – HT : EPDM that is manufactured through other production process which broadens temperature range

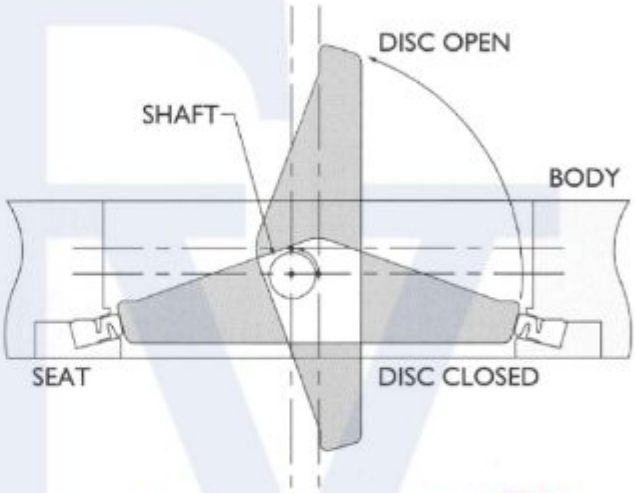
Specification is subject to change without prior notice



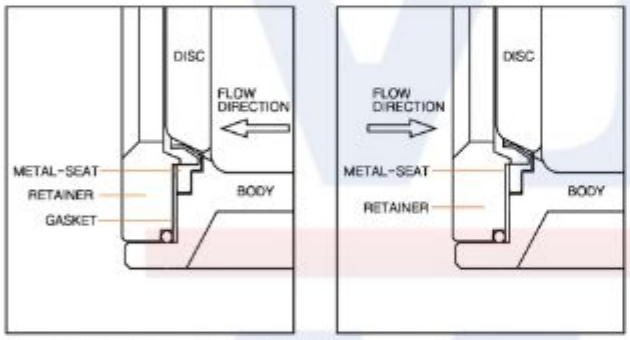
Structural Characteristics of the VTV - MAX High Performance Butterfly Valve Seat Design

Eccentric Double Offset Design Seating

The double offset shaft/disc design ensures bidirectional sealing throughtout the full pressure of the valve. The cam-like action produced by the offset stem and disc, effectively lifts the disc off the seat during the initial opening of the valve, reducing seat wear and eliminating seat deformation at the top and bottom. When the disc is in the open position, there is no contact between the disc and seat. Operating torques are reduced and seat life is extended



Soft Seat

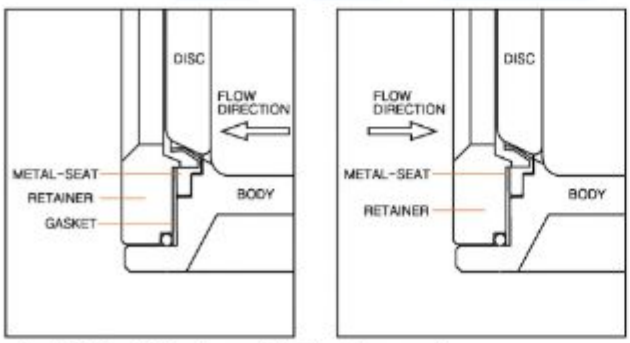


Seat Material Maximum Working Temperature

PTFE - SEAT 190°C (375°F) TFM - SEAT 246°C (475°F)

RTFE - SEAT 230°C (446°F) PEEK - SEAT 270°C (529°F)

Metal Seat



Seat Material Maximum Working Temperature

METAL - SEAT 450°C

Class VI of ANSI / FCI 70 - 2 Class VI Leakage Rate

HP BUTTERFLY VALVE WITH PNEUMATIC ACTUATED

HP BUTTERFLY VALVE WITH ELECTRIC ACTUATED

LEVER

GEAR

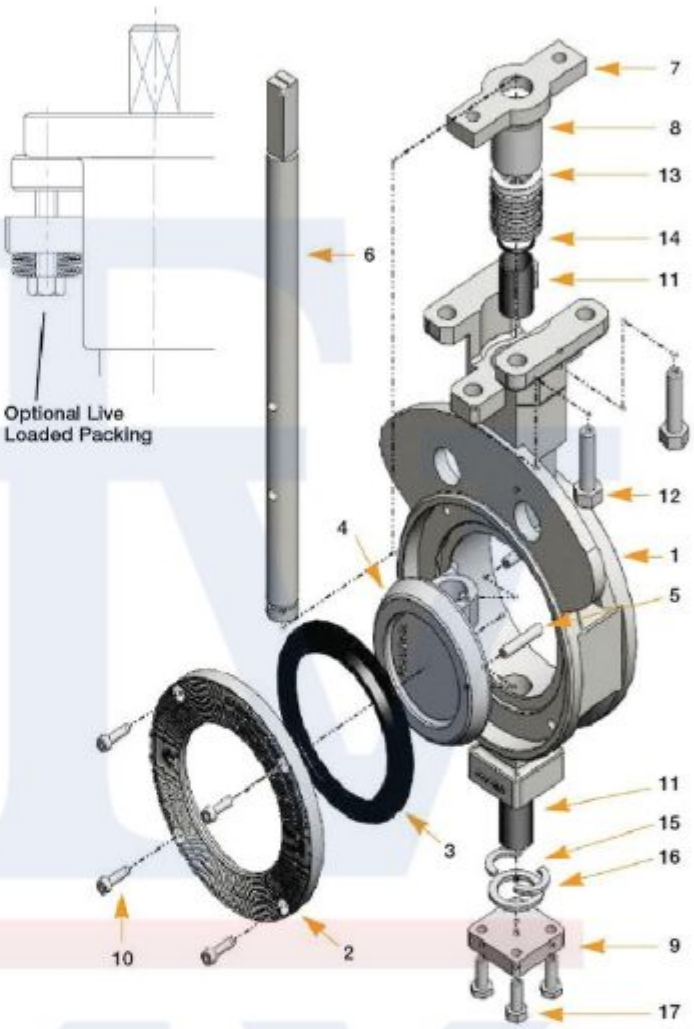
Specification is subject to change without prior notice

HOW TO ORDER

1	2	3	4	5	6	7	8	9		10
W	1	M	V	050	W	W	2	G	/	-

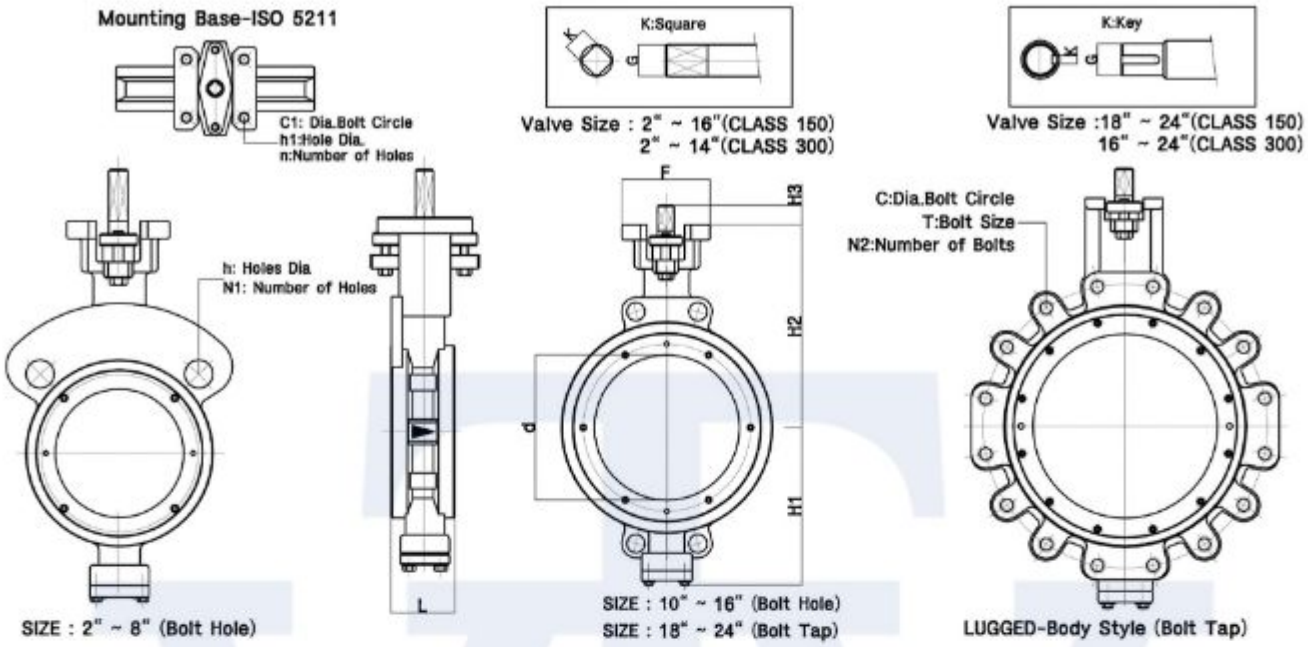
1	VALVE TYPE	L	Lugged Type
		W	Wafer Type
2	PRESSURE RATING	1	ASME Class 150
		2	ASME Class 300
3	SEAT MATERIAL	P	PTFE
		R	RTFE
		M	Metal - SS316L
4	PACKING CONTRUCTION	V	V-Packing - Temp. Max. 230 Deg C
		G	Graphite - Temp. Max. 450 Deg C
5	VALVE SIZE	XXX	eg. 2" = 050
6	BODY MATERIAL	A	ASTM A351 Gr. CF8
		W	ASTM A351 Gr. CF8M
		C	Carbon Steel
7	DISC MATERIAL	L	ASTM A351 Gr. CF8
		W	ASTM A351 Gr. CF8M
8	STEM & PIN MATERIAL	1	17 - 4PH
		2	SS316
9	OPERATED TYPE	L	Lever (Up to 8")
		G	Gear (8" & above)
		P	Pneumatic Actuator
		E	Electric Actuator
10	ACCESSORIES	XXX	eg. Positioner / Solenoid / Limit switch

EXPLODED VIEW



ITEM	PART DESCRIPTION	MATERIAL		
1	BODY	A216-WCB	Stainless steel ASTM A351 Gr. CF8	Stainless steel ASTM A351 Gr. CF8M
2	SEAT RETAINER	A216-WCB	Stainless steel ASTM A351 Gr. CF8	Stainless steel ASTM A351 Gr. CF8M
3	SEAT	PTFE	RTFE	Stainless steel ASTM A351 Gr. CF8M
4	DISC	Stainless steel ASTM A351 Gr. CF8		Stainless steel ASTM A351 Gr. CF8M
5	DISC PIN	Stainless steel SS316		
6	STEM	17 - 4PH	Stainless steel SS304	Stainless steel SS316
7	PACKING GLAND	Stainless steel ASTM A351 Gr. CF8		
8	PACKING FOLLOWER	Stainless steel ASTM A351 Gr. CF8		
9	BOTTOM COVER	Stainless steel ASTM A351 Gr. CF8		
10	RETAINER BOLT	Stainless steel SS316 - A193. GR. B8M		
11	STEM BEARING	RTFE		
12	GLAND BOLT	Stainless steel SS316 - A193. GR. B8M		
13	PACKING	V-Packing PTFE		
14	PACKING RETAINER	Viton		
15	SHAFT RETAINER	Stainless steel SS316 - A193. GR. B8M		
16	BOTTOM PACKING	PTFE		
17	BOTTOM BOLT	Stainless steel SS316 - A193. GR. B8M		

Specification is subject to change without prior notice



Note :
1. Face to face Dimension : Comply to API 609 Category B, ISO 5752 Short
2. End Connection Flange Dimension : Comply to ANSI B16.5

ANSI Class 150 High Performance Butterfly Valve (mm)

SIZE		d	L	H1		H2	H3	F	G	K	Flange Dimension					Mounting Base			
inch	mm			Water	Lug						C	H	T	N1	N2	C1	n	h1	ISO
2	50	49	43	83	83	123	35	70	13	11	120.7	19.1	5/8" - 11unc	2	4	70	4	10	F07
2.5	65	62	47	94	95	144	35	70	13	11	139.7	19.1	5/8" - 11unc	2	4	70	4	10	F07
3	80	73	48	102	105	154	35	70	16	11	152.4	19.1	5/8" - 11unc	2	4	70	4	10	F07
4	100	95	54	117	121	174	35	70	16	11	190.5	19.1	5/8" - 11unc	2	8	70	4	10	F07
5	125	122	57	135	140	193	35	70	19	14	215.8	22.2	3-4" - 10unc	2	8	70	4	10	F07
6	150	141	57	155	161	213	35	70	22	17	241.3	22.2	3-4" - 10unc	2	8	70	4	10	F07
8	200	194	65	197	182	250	50	115	28	22	298.5	22.2	3-4" - 10unc	2	8	102	4	12	F10
10	250	238	72	228	228	275	50	115	35	22	362.0	25.4	7/8" - 9unc	4	12	125	4	12	F12
12	300	278	81	260	260	306	50	130	35	27	431.8	25.4	7/8" - 9unc	4	12	125	4	17	F12
14	350	318	92	290	290	330	50	130	38	27	476.3	1" - 8unc		4	12	125	4	17	F12
16	400	360	102	330	330	390	55	165	45	36	539.8	1" - 8unc		4	16	165	4	23	F16
18	450	433	114	360	360	425	80	165	50	16*10	577.9	1.1/8" - 8unc		4	16	165	4	23	F16
20	500	470	127	390	390	450	80	165	55	16*10	635.0	1.1/8" - 8unc		4	20	165	4	23	F16
22	550	520	154	425	425	495	80	250	60	18*11	692.2	1.1/4" - 8unc		4	20	165	4	23	F16
24	600	580	154	440	440	510	110	250	65	20*12	749.3	1.1/4" - 8unc		6	20	254	4	23	F25

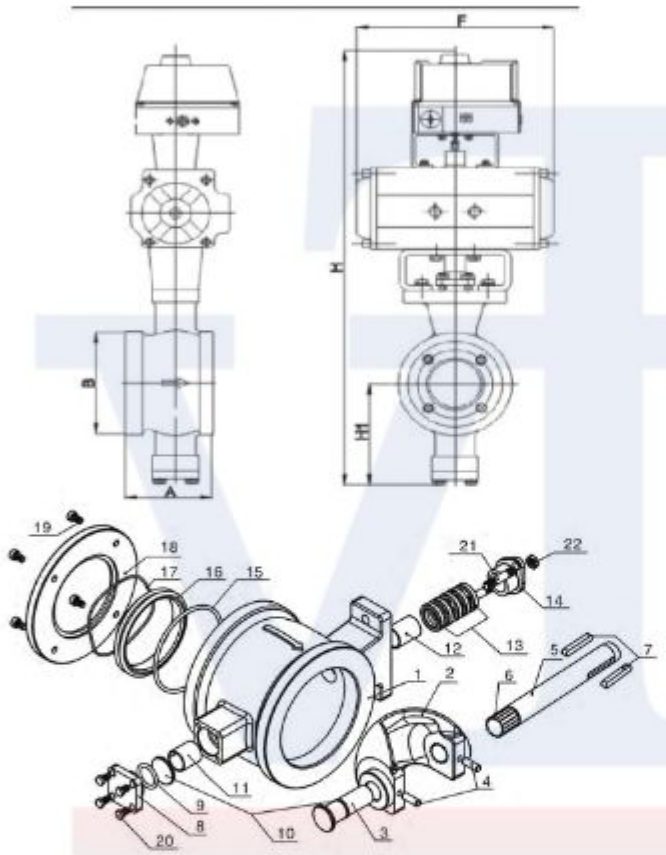
ANSI Class 300 High Performance Butterfly Valve (mm)

SIZE		d	L	H1		H2	H3	F	G	K	Flange Dimension					Mounting Base			
inch	mm			Water	Lug						C	H	T	N1	N2	C1	n	h1	ISO
2	50	49	43	83	83	123	35	70	13	11	127.0	19.1	5/8" - 11unc	2	8	70	4	10	F07
2.5	65	62	47	94	95	144	35	70	13	11	149.4	22.2	3/4" - 10unc	2	8	70	4	10	F07
3	80	73	48	102	105	154	35	70	16	11	168.1	22.2	3/4" - 10unc	2	8	70	4	10	F07
4	100	95	54	117	121	174	35	70	16	11	200.2	22.2	3/4" - 10unc	2	8	70	4	10	F07
5	125	122	57	135	140	193	35	70	19	14	235.0	22.2	3/4" - 10unc	2	8	70	4	10	F07
6	150	141	59	155	161	213	35	70	22	17	269.7	22.2	3/4" - 10unc	2	12	70	4	10	F07
8	200	194	73	210	210	250	50	115	30	22	330.2	25.4	7/8" - 9unc	2	12	102	4	12	F10
10	250	238	83	240	240	280	50	115	35	27	387.4	28.6	1" - 8unc	4	16	125	4	12	F12
12	300	278	92	270	270	320	50	130	38	27	450.9	31.8	1.1/8" - 8unc	4	16	125	4	17	F12
14	350	318	117	320	320	370	55	165	45	36	514.4	1.1/8" - 8unc		4	20	125	4	17	F12
16	400	359	122	360	360	420	80	165	50	16*10	571.5	1.1/4" - 8unc		4	20	165	4	23	F16
18	450	430	149	400	400	460	80	165	65	20*12	628.7	1.1/4" - 8unc		4	24	165	4	23	F16
20	500	468	159	450	450	500	80	165	65	20*12	685.8	1.1/4" - 8unc		4	24	165	4	23	F16
24	600	578	181	520	520	570	110	250	80	22*14	812.8	1.1/2" - 8unc		6	24	254	4	23	F25

Specification is subject to change without prior notice

SERVICE

Hyper Condensate Valve is quarter turn control valve mainly recommended for throttle service, but it is also applicable for shut off service. Hyper Condensate Valve is in V-notch design with strong cutting force and self-cleanness, especially suitable for control of medium containing fibre and tiny solids. Therefore, it is widely used in the control systems in industries such as pulp and paper, petrochemistry, petroleum, chemical fibre, power, metallurgy, pharmacy, environmental protection etc.



DN \ Code	A	B	F	H1	H
25	62	68	178	87	515
32	62	78	178	87	515
40	62	85	178	87	525
50	75	100	214	97	550
65	90	120	246	112	585
80	100	130	246	112	600
100	115	158	295	122	625
125	129	180	340	142	650
150	160	216	398	165	750
200	200	268	478	195	850
250	240	325	562	237	970

PARTS LIST

No.	Name	Material
1	Body	CF8 | CF8M
2	Ball	CF8 | CF8M with Hard Chromium
3	Lower Shaft	17-4PH
4	Cylinderial Pin	17-4PH
5	Upper Shaft	17-4PH
6	Spline	17-4PH
7	Flat Key	17-4PH
8	Cover plate	CF8 | CF8M
9	O-ring	Viton
10	Gasket	PTFE
11	Self-Lubrating Bearing	Composite Material
12	Self-Lubrating Bearing	Composite Material
13	Packing	PTFE
14	Gland	CF8
15	O-ring	Viton
16	Seat	SS316L
17	Wavy Spring	SS316
18	Retainer	SS304 | SS316
19	Socker Head Screw	SS304 | SS316
20	Hexagon Screw	SS304 | SS316
21	Stud	SS304 | SS316
22	Hexagon Nut	SS304 | SS316

Maximum Allowable Differential Pressure & Rated CV

DN	Wafer connection		Wafer connection		Rated Cv
	Max.shut off dp. (bar)	Max.control dp. (bar)	Max.shut off dp. (bar)	Max.control dp. (bar)	
25	50	35	40	35	27
32	50	35	40	35	47
40	50	35	40	35	70
50	50	35	40	35	110
65	50	35	40	35	170
80	50	35	40	35	280
100	40	25	40	25	410
125	40	25	40	25	750
150	40	25	40	25	980
200	35	25	35	25	1720
250	35	20	35	20	2900
300			30	10	3800
350			30	10	7000
400			30	10	9800
450			30	10	12000
500			30	10	23000

Specification is subject to change without prior notice

HOW TO ORDER

SB	080	F1	16	C	C	1	V
1	2	3	4	5	6	7	8

1 VALVE TYPE
SB | Hyper Condensate Valve

2 VALVE SIZE
80 | DN 80 / 3"
100 | DN 100 / 4"
150 | DN 150 / 6"
200 | DN 200 / 8"
250 | DN 250 / 10"
XXX | DN XXX

3 CONNECTION TYPE
F1 | FLANGELESS / WAFER

4 PRESSURE RATING
10 | JIS 10K
16 | PN 16
150 | ANSI 150

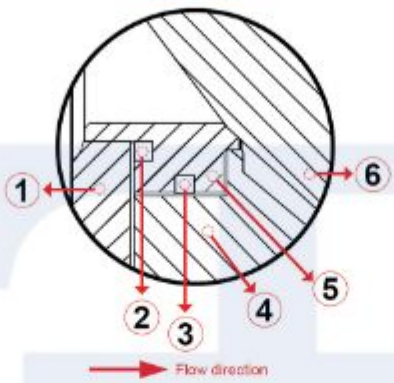
5 BODY MATERIAL
C | CFB + STELLITE
F | CF8M + STELLITE

6 BALL MATERIAL
C | CFB
F | CF8M

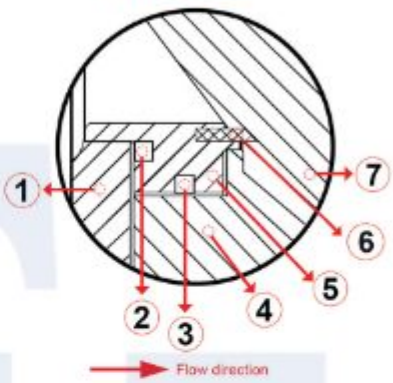
7 SEAT
1 | METAL - SS316L
2 | RTFE

8 O RING
V | VITON

METAL - SEATED



PTFE - SEATED



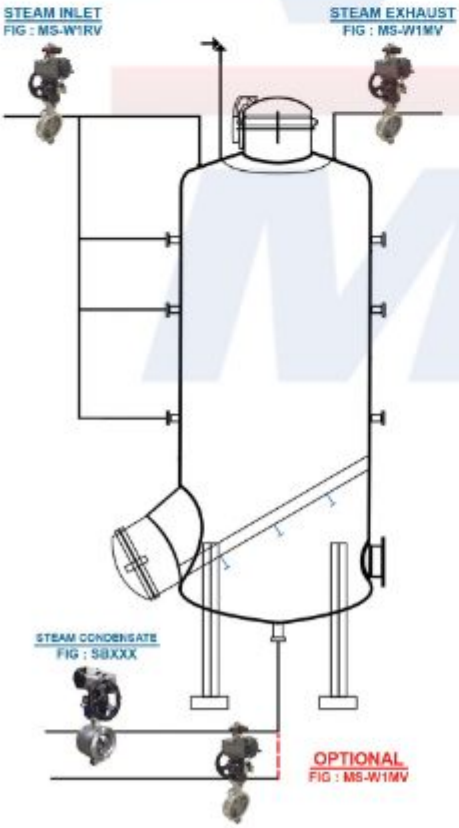
METAL SEATED

No.	Name	Temp. Range
1	Retainer	-20~160 -20~230
2	Spring	
3	O - Ring	
4	Valve Body	
5	Metal Seat	
6	Ball	

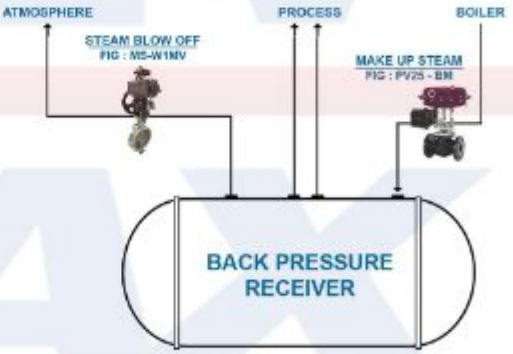
PTFE - SEATED

No.	Name	Temp. Range
1	Retainer	-20~160
2	Spring	
3	O - Ring	
4	Valve Body	
5	Seat Ring	
6	PTFE	
7	BALL	

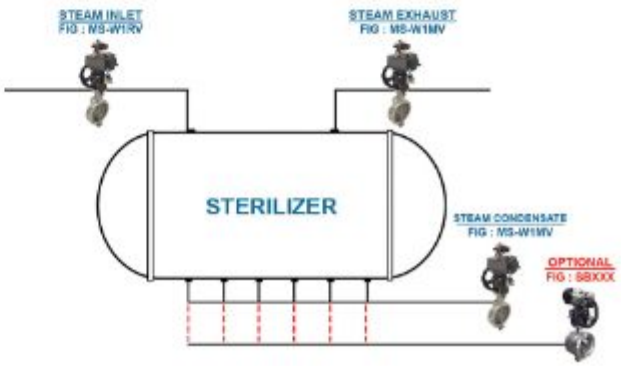
VTV MAX AT VERTICAL STERILIZER SYSTEM



VTV MAX & ADCA CONTROL VALVE BPR SYSTEM



VTV MAX AT HORIZONTAL STERILIZER SYSTEM



Specification is subject to change without prior notice

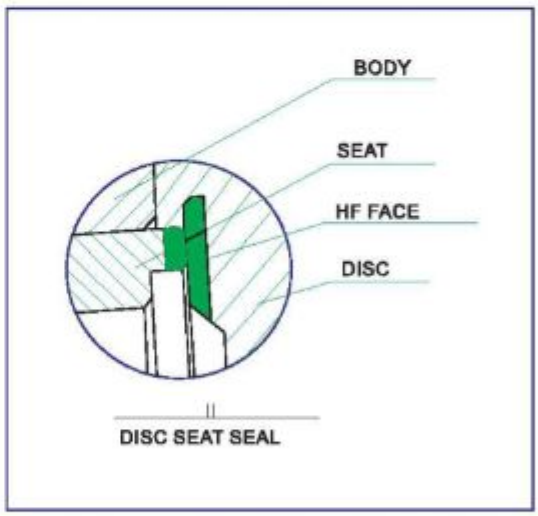
◆ MAIN CHARACTER AND PURPOSE:

1. The check valve is good of non-return function. It is safe, realible, and obstruction of the liquid is low. This valve is build to prevent the flow backward it is applicable to the medium of oil, chemical, etc.

2. The sealing is based on the self-weight of the disc and the flow backward function. it allows the disc pass the hinge to circle arround the hinge pin, by contact directly with the body seal face, the check valve can interrupt the medium and force the liquid to flow in one direction only.

3. The valve is full bore or reduce by vertical construction. The stainless steel or co-r-w hard sealing face is overlaying on the seal face. The seal face is realible, wear-resisting, and endure the washout. Its using time is along.

4. Valve size NPS ≥6 using the eye bolt to have easy transport.



MODEL : DC-207 | Disco Check Valve |

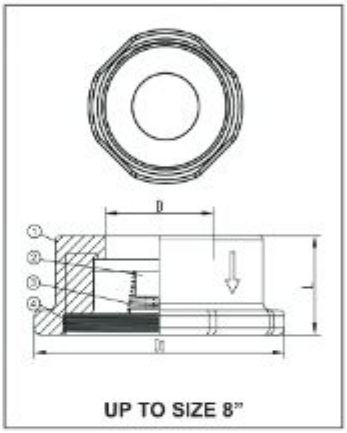
Connection : Wafer PN 40

VTV VALVE, serving Multi-Nation end users in a wide range of applications in many industries including :
1. Palm Oil and Refinery Plant
2. Food Industries
3. Petrochemical Plant
4. Cooling System
5. Heating

◆ **SUITABLE FOR :**
1. Water
2. Steam
3. Oil
4. Gases
5. Non-abrasive media

◆ **MATERIAL LIST (UP TO SIZE 8")**

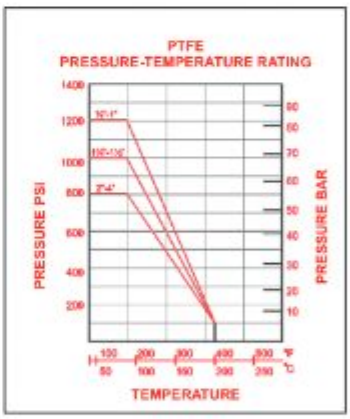
No.	Part Name	Material
1	Body	CF8/CF8M
2	Disc	CF8/CF8M
3	Spring	SS201/SS304
4	Cap	CF8/CF8M



UP TO SIZE 8"

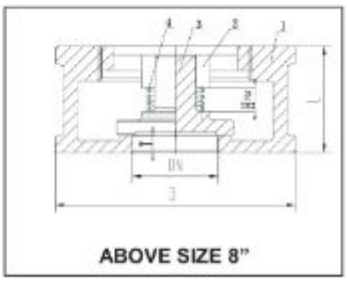
◆ **DIMENSIONS UP TO SIZE 8" (mm)**

SIZE	DN	D	D1	L	KG
1/2"	15	14	52	22	0.145
3/4"	20	19	62	24	0.209
1"	25	24	72	26	0.338
1-1/4"	32	30	83	30	0.508
1-1/2"	40	38	93	32	0.684
2"	50	46	106	40	0.974
2-1/2"	65	62	125	46	1.492
3"	80	78	143	50	2.042
4"	100	96	163	60	2.929
5"	125	118	195	78	4.455
6"	150	142	220	95	6.243
8"	200	175	273	105	11.336



◆ **MATERIAL LIST ABOVE SIZE 8" (mm)**

No.	Part Name	Material
1	Body	CF8M
2	Bonnet	CF8M
3	Disc	CF8M
4	Spring	316


ABOVE SIZE 8"

◆ **DIMENSIONS ABOVE SIZE 8" (mm)**

NPS	DN	D	L	H	T
10"	230	320	145	65	15
12"	280	380	160	75	15

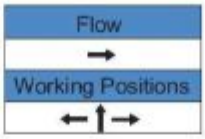
Specification is subject to change without prior notice

MODEL : SD-206 [Single Door Check Valve]

Connection : Wafer JIS 10K, ANSI 125 | 150, PN 16

◆ TECHNICAL DATA

Size	: DN50-DN600
Working Pressure	: PN16
Face to face	: DIN3202-K3
Flange Drilling	: ANSI125, EN1092PN16, JIS 10K AS2129 Table
Inspection and Test	: API598

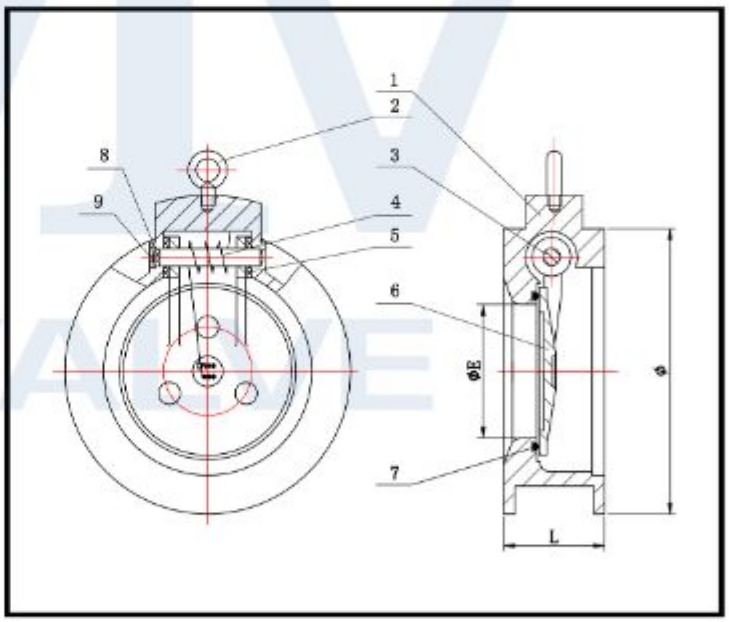


◆ PRODUCT FEATURES

This type of water swing check valve incorporates several excellence distinguishing it from conventional check valves for silent, fast, no slam operation. The most prominent of these is the accurately machined clapper and its special quick closing action. Spring loading of disc assures instantaneous closure to reversing flow, preventing build-up of momentum, the causes free movement of the disc and eliminates seizure under extreme conditions. Resilient seat inserts are standard for positive sealing of hard-to-hold solvents and fluids.

◆ MATERIAL LIST

No.	Description	Material
1	BODY	GG25
2	RING	
3	SHAFT	304
4	SPRING	304
5	GASKET	F4
6	DISC	CF8
7	GASKET RING	VITON
8	GASKET	NBR
9	STUB CREW	



◆ DIMENSIONS(mm)

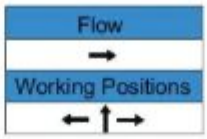
SIZE (inch)	L	ØE	Ø	Weight (Kg)
2	44.5	33	101	1.5
2.5	47.6	43	121	2
3	50.8	52	131	2.8
4	57.2	74	156	4.1
5	63.5	95	1487	6.4
6	69.9	118	217	8.2
7	73	163	267	13
10	79.4	194	330	22
12	85.7	238	375	27.5
14	108	266	418	50
16	108	318	480	60

MODEL : DD-205 [Double Door Check Valve]

Connection : Wafer JIS 10K, ANSI 150, PN 16

VTV VALVE

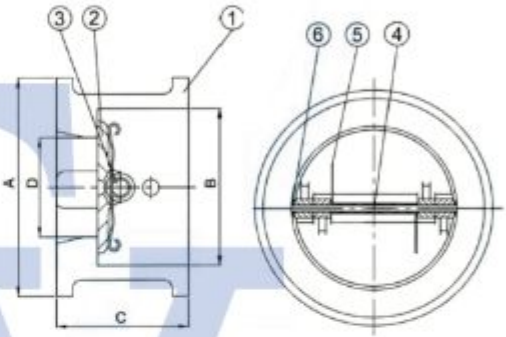
VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Food Industries
3. Petrochemical Plant
4. Cooling System



◆ **Suitable for :** 1. Water
2. Oil
3. Gases

◆ **MATERIAL LIST**

NO.	PART NAME	MATERIAL				
1	Body	A126B	WCB	CF8	CF8M	CF3M
2	Plates	CF8	CF8	CF8	CF8	CF3M
3	Hinge Pin	SS304	SS304	SS304	SS316	SUS316L
4	Seat	Viton	Viton	Viton	Viton	Viton
5	Spring	SUS304	SUS304	SUS304	SUS316	SUS316
6	Washer	SUS304	SUS304	SUS304	SUS316	SUS316



◆ **DIMENSIONS**

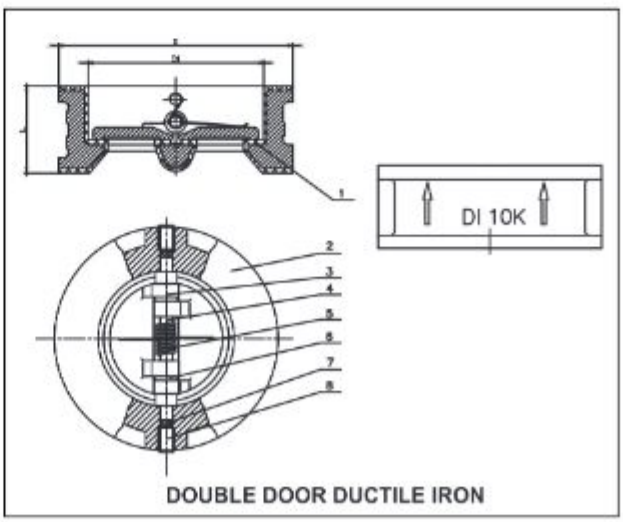
Mark	Size																		
	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"
A	103	123	134	173	190	219	270	332	403	448	513	538	593	637	720 760	770 820	815 870	870 930	980 1040
B	70	80	90	115	140	170	225	280	323	358	435	485	530	630	630	730	780	830	900
C	60	67	73	73	83	98	127	146	181	184	191	203	219	222	222	280	305	356	368
D	45	52	68	90	110	135	186	240	275	295	360	400	450	550	550	650	700	750	850
Weight (Kg)	3	5	7	9	14	16	26	48	78	90	120	182	202	255	324				

◆ **MATERIAL LIST DUCTILE IRON (mm)**

NO.	PART NAME	MATERIAL
1	Seat	EPDM
2	Body	D.I + Fully Lined EPDMI
3	Disc	CF8
4	Stem	SS416
5	Spring	SS304
6	Shim	PTFE
7	Seal	EPDM
8	Plug	WCB

◆ **DIMENSIONS DUCTILE IRON (mm)**

DN	50	65	80	10	125	150
D	101	121	131	156	187	217
D1	65	78	94	114	143	167
L	46	51	70	70	78	82
Weight (Kg)	1.5	2	3	4.3	5.8	7.5

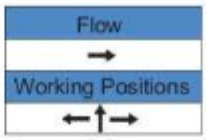


VTV VALVE

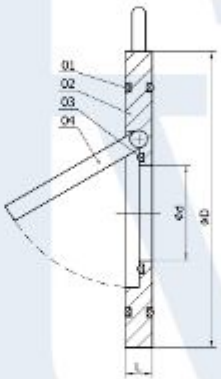
MODEL : SD-205 [Superlite Check Valve]

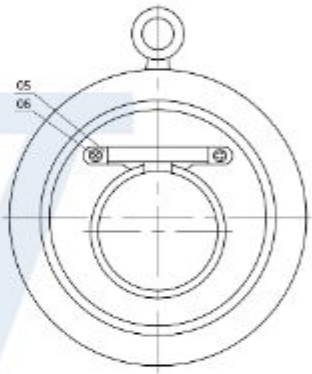
Connection : JIS 10K, ANSI 150, PN 16

Small, lightweight, and easy to maintain.
Maintenance free and prevent pressure drop
Material : SS304, SS316



◆ **Suitable for :** 1. Water
2. Oil
3. Gases





◆ **MATERIAL LIST**

No.	Parts	Material	
1	O-ring	VITON	
2	Body	CF8	CF8M
3	O-ring	VITON	
4	Disc	CF8	CF8M
5	Baffle	304	316
6	Bolt	304	316

◆ **DIMENSIONS (mm)**

DN	NPS	L			d			D			Kg/Pc		
		JIS10K	ANSI150	PN16	JIS10K	ANSI150	PN16	JIS10K	ANSI150	PN16	JIS10K	ANSI150	PN16
40	1-1/2"	15	-	15	24	-	24	85	-	90	≈0.5		
50	2"	15	15	15	32	32	32	100	95	105	≈0.88		
65	2-1/2"	15	15	15	43	43	43	120	118	125	≈1.3		
80	3"	15	15	15	55	55	55	130	132	140	≈1.55		
100	4"	15	15	15	78	77	77	155	160	160	≈1.96		
125	5"	16	16	16	97	97	97	185	185	185	≈2.56		
150	6"	19	19	19	123	122	122	215	218	218	≈4.34		
200	8"	25	25	25	148	145	145	265	270	270	≈7.72		
250	10"	29	29	29	198	200	200	330	325	325	≈12.64		
300	12"	38	38	38	250	250	250	375	380	378	≈18.66		

MODEL : 113BM [Low Pressure Drop Check Valve]

Connection : Wafer PN 10, 16 ,40, ANSI 150, 300

•VTV-VALVE LOW PRESSURE DROP CHECK VALVE

The type 113BM check valve is unidirectional. Therefore the assembly should be always according to the Direction of flow of the fluid so the counter pressure is on the disk. The assembly of the valve can be made either horizontally or vertically, it dependson the works.

It is necessary to supervise and keep the correct distancebetween flanges, as well as a good aligment and parallelism between the valve and the pipe.

For assembly of this valve a watertightness joint between flanges should be placed.

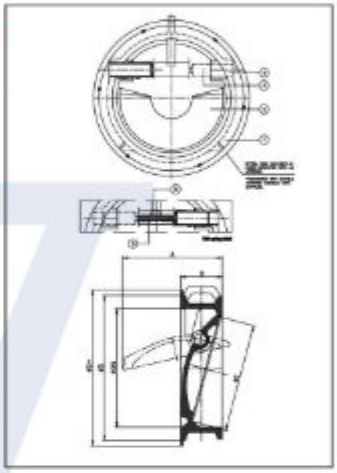
•ADVANTAGES

- High Capacity
- Short Face to Face
- Suitable for all the standard flanges
- for high performance and pressure
- Doesn't need any maintenance
- SS316 Material for corrosion resistant
- Metal Seated
- Excellent tightness
- Fast acting & Quick closing reaction
- Installation can be Horizontal & Vertical
- Low pressure drop and opening pressure

•MATERIALS

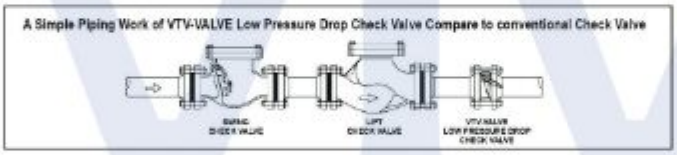
- AISI 316 (CF8M) : -Special alloys under request
  -Spindle in AISI 316

No.	Description	Material
1	Body	CF8M
2	Disc	CF8M
3	Free Stem	AISI316L
4	Welded Stem	AISI316L
5	Rod	AISI316L
6	Spring	AISI302



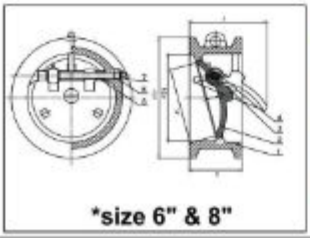
Valves manufactured following European Pressure Equipment Directive PED2014/68/EU

Flow
→
Working Positions
←↑→



• DIMENSIONS (mm)

DN	INCHES	A	B	ØC	ØD						Weight
					PN10	PN16	PN25	PN40	ANSI150	ANSI300	Kg
40	1-1/2"	46	33	34		93	93	93	84.0		1.2
50	2"	57	43	44	107	107	107	107	102.5		1.5
65	2-1/12"	67	46	58	127	127	127	127	121.5	107	2
80	3"	87	64	72	142	142	142	142	134.5	127	3
100	4"	100	64	90	162	162	162	162	172.5**	142	5
125	5"	117	70	112	194	194	194	194	194	178*	7
*152	6"	135	76	135		218					8
*203	8"	178	89	180		273					17
250	10"	220	114	225	329	329	340	352*	337.5	306*	27
300	12"	262	114	270	378	384	401*	418*	407.5*	325*	35
350	14"	303	127	315	438	444	458*	475*	448.5*	418*	55
400	16"	355	140	365	490	496	515*	547*	512*	482*	65
450	18"	390	152	420	539	556*	565*	586*	547*		95
500	20"	440	152	460	594	618*	625*	629*	604.5*		120
600	24"	530	178	555	696	732*	732*	747*	715.5*		180
700	28"	610	229	650	811	805	834*	852*	828*		250



No.	Description	Material
1	Body + Seat	ASTM A351 CF8M+316
2	Disc	ASTM A351 CF8M
3	Hinge Pin	ASTM A276 SS316
4	Bushing	ASTM A276 SS316
5	Spacer	ASTM A276 SS316
6	Gasket	ASTM A276 SS316
7	Plug	ASTM A276 SS316

Specification is subject to change without prior notice

MODEL : LC-208 [Flange Lift Check Valve]

Connection : PN 16, PN 40

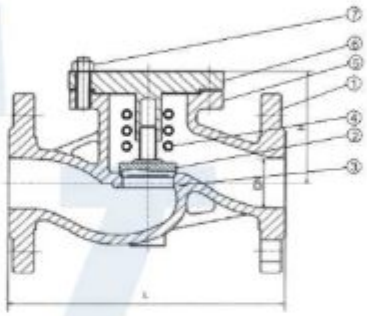
VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Food Industries
3. Petrochemical Plant
4. Cooling System
5. Heating

Flow
→
Working Positions
←↑→

◆ **Suitable for :** 1. Water
2. Steam
3. Oil
4. Gases
5. Non-abrasive media

◆ SPECIFICATION

Standard PN16 ~ 40, DN15 ~ 300
Design and manufacture : DIN3356



◆ PRESSURE / TEMPERATURE RATING

PN 16 : 16 bar - 120°C | 13 bar - 200°C | 10 bar - 300°C
PN 40 : 40 bar - 100°C | 35 bar - 200°C | 28 bar - 300°C

◆ MATERIAL LIST

No	Parts Name	Material	
		PN16	PN40
1	Body	Cast Iron (FC200)	Cast Steel (WCB)
2	Disc	SS410	SS410
3	Seat Ring	SS410	SS410
4	Spring	SS304 (CF8)	SS304 (CF8)
5	Bonnet	Cast Iron (FC200)	Cast Steel (WCB)
6	Bolt	Cast Iron (FC200)	Cast Steel (WCB)
7	Nut	Cast Iron (FC200)	Cast Steel (WCB)

◆ DIMENSIONS (mm)

DN		15	20	25	32	40	50	65	80	100	125	150	200	250	300
L		130	150	160	180	200	230	290	310	350	400	480	600	730	850
H		70	70	80	80	85	95	110	130	155	165	215	285	325	365
Weight	PN16	2.4	3	3.8	5.7	7.4	10.5	15.2	20.5	31	49	69	133	198	278
	PN40	4	5	6	7	10	12.5	22.7	28.5	40	64	90	170	240	370

Specification is subject to change without prior notice

MODEL : SC-209 [Flange Swing Check Valve]

Connection : Flange JIS 10K, PN 16 | 40

VTV VALVE

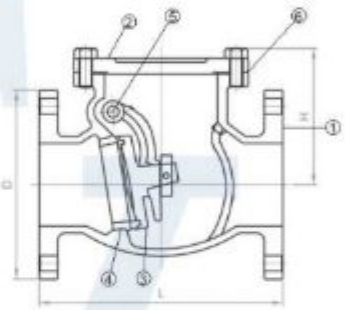
VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Food Industries
3. Petrochemical Plant
4. Cooling System
5. Fire Protection System
6. Power Plant
7. Water Treatment Plant

Flow
→
Working Positions
←↑→

◆ **Suitable for :** 1. Water
2. Oil

◆ SPECIFICATION

Valve Design : DIN 3840
Face to face : DIN 3202
Flanges : DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
Testing : DIN 3352 Part 1
DIN 3230 Part 3



◆ PRESSURE / TEMPERATURE RATING

JIS 10K : 10 bar - 120°C | 7 bar - 200°C | 5 bar - 300°C
PN 16 : 16 bar - 120°C | 13 bar - 200°C | 10 bar - 300°C
PN 40 : 36 bar - 120°C | 33 bar - 200°C | 27 bar - 300°C

◆ MATERIAL LIST

ITEM	PART NAME	MATERIAL			
1	BODY	FC200	GS-C-25	SS304	SS316
2	COVER	FC200	GS-C-25	SS304	SS316
3	DISC	SS410	WCB + 13%CR	SS304	SS316
4	SEAT RING	SS410	A105 + 13%CR	SS304	SS316
5	HINGE	DUCTILE	WCB	SS304	SS316
6	GASKET	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE

◆ DIMENSIONS (mm)

DN	40	50	65	80	100	125	150	200	250	300
	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"
L	190	203	220	240	292	330	356	495	622	698
H	100	105	115	140	155	170	203	246	283	330
D	140	155	175	185	210	250	280	330	400	445
Weight (Kg)	17	17.6	20.5	28	45	60	77	128	199	308

Specification is subject to change without prior notice

MODEL : SC-209 [Flange Swing Check Valve]

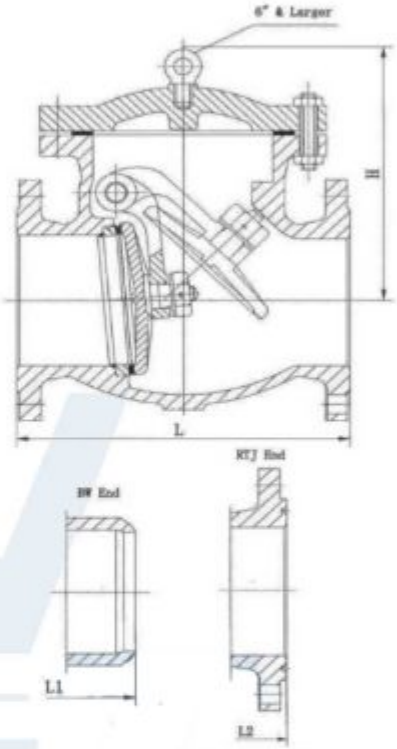
Connection : ANSI 150

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

Flow
→
Working Positions
←↑→

◆ SPECIFICATION

Rating P-T	: ASME B16.34
Design	: API 600 Trims
Face to face	: ASME B16.1
Testing	: API 598
Flange Connection	: ASME B16.5



◆ MATERIAL LIST

Parts	Materials
Body	ASTM A216-WCB
Cover	ASTM A216-WCB ASTM A105 (4" & smaller)
Disc	ASTM A216-WCB+Cr13 Overlay ASTM A217-CA15(12" & smaller)
Hinge	ASTM A216-WCB
Seat ring	ASTM A105+STL. Overlay
Hinge pin	ASTM A276-420
Washer	ASTM A276-420
Gasket	Reinforced graphite
Plug	Carbon steel
Cover stud/nut	ASTM A193-B7/ASTM A194-2H
Disc nut	ASTM A276-420
Split pin	ASTM A276-420
Hook screw	Carbon steel

◆ DIMENSIONS (mm) and WEIGHTS (Kg)

NPS	in	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
L	in	8	8.5	9.5	11.5	13	14	19.5	24.5	27.5	31	34	38.5	38.5	51	51	57	60
(RF)	mm	203	216	241	292	330	356	495	622	699	787	864	978	978	1295	1295	1448	1524
L1	in	8.5	9	10	12	13.5	14.5	20	25	28	31.5	34.5	39	39	51.5	-	-	-
(BW)	mm	216	229	254	305	343	368	508	635	711	800	876	991	991	1308			
L2	in	7.5	8	8.5	9.5	10.5	11	12	13.5	14.5	15.5	16.5	17.5	18.5	20.5	-	-	-
(RTJ)	mm	191	203	216	241	267	279	305	343	368	394	419	445	470	521			
H	in	5.9	6.6	6.7	8	9.1	11.7	13.8	15.3	17.2	18.8	20.7	22.9	24.7	34.6	35.8	36.8	38.2
(Open)	mm	150.5	168	171	204	230	296.5	351.5	389.5	437.5	476.5	525	582	627	880	910	935	970
WT	RF	14	20	25	40	56	71	118	177	263	353	542	632	855	970	1276	1600	1990
(Kg)	BW	10	12	17	29	45	57	96	143	227	294	468	552	755	831	1120	1420	1760

Specification is subject to change without prior notice

MODEL : SC-209 [Flange Swing Check Valve]

Connection : ANSI 300 | 600

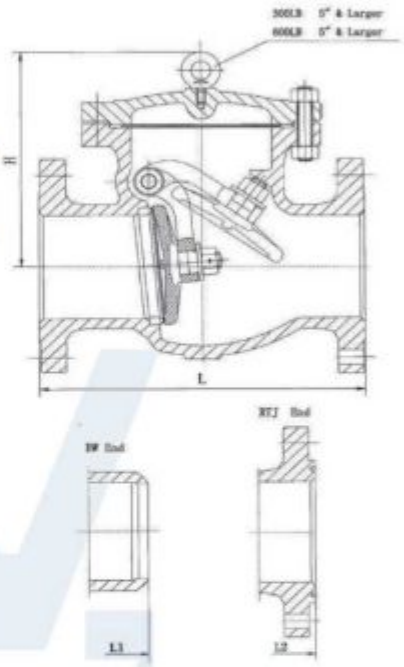
VALVE

◆ **Suitable for :** 1. Water
2. Oil
3. Gases

Flow
→
Working Positions
←↑→

◆ SPECIFICATION

Rating P-T	: ASME B16.34
Design	: API 600 Trims
Face to face	: ASME B16.1
Testing	: API 598
Flange Connection	: ASME B16.5



◆ MATERIAL LIST

Parts	Materials
Body	ASTM A216-WCB
Cover	ASTM A216-WCB ASTM A105 (4" & smaller)
Disc	ASTM A216-WCB+Cr13 Overlay ASTM A217-CA15(10" & smaller)
Hinge	ASTM A216-WCB
Seat ring	ASTM A105+STL Overlay
Hinge pin	ASTM A276-420
Washer	ASTM A276-420
Gasket	Spiral wound graphite
Plug	Carbon steel
Cover stud/nut	ASTM A193-B7/ASTM A194-2H
Disc nut	ASTM A276-420
Split pin	ASTM A276-420
Hook screw	Carbon steel

◆ DIMENSIONS (mm) and WEIGHTS (Kg)

300#	NPS	in	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
	DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
	L-L1	in	10.5	11.5	12.5	14	15.75	17.5	21	24.5	28	33	34	38.5	40	53	53	59	62.75
	(RF-BW)	mm	267	292	318	356	400	445	533	622	711	838	864	978	1016	1346	1346	1499	1594
	L2	in	11.12	12.12	13.12	14.62	16.37	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88	54	60	63.75
	(RJT)	mm	283	308	333	371	416	460	549	638	727	854	879	994	1035	1369	1372	1524	1619
	H	in	6.9	7.3	8.5	10.2	12	12.5	15	17.1	20.1	22.1	23.5	26.6	28.7	33.9	36.6	45.8	50
	(Open)	mm	176	185	216	259	304	317	380	434	511	561	596	675	730	860	930	1163	1270
	WT	RF	20	30	38	64	84	115	191	310	450	644	840	1025	1320	1931	2375	2660	3230
	(Kg)	BW	16	22	30	53	73	101	169	276	414	585	766	945	1220	1792	1995	2260	2780

600#	NPS	in	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30
	DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
	L-L1	in	11.5	13	14	17	20	22	26	31	33	35	39	43	47	55	-	-	-
	(RF-BW)	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397			
	L2	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	-	-	-
	(RJT)	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407			
	H	in	7.2	8.3	9.1	10.4	11.6	14.7	16.8	20.4	22.4	24.5	26.8	29.6	38.4	43.7	-	-	-
	(Open)	mm	184	210	232	263	295	374	426	517	569	622	680	752	975	1111			
	WT	RF	28	45	56	93	160	202	339	513	750	885	1220	1620	2120	3100	-	-	-
	(Kg)	BW	21	35	42	64	115	145	256	375	589	694	932	1279	1702	2497			

Specification is subject to change without prior notice

TWO-WAY GLOBE CONTROL VALVES V16/2

DESCRIPTION

The ADCATrol V16/2 is a series of single seated, two-way globe control valves designed for simple process engineering and industrial applications with non-critical operating conditions.These valves can be assembled with pneumatic, hydraulic or electric actuators, for modulating and shut-off control tasks

MAIN FEATURES	
PN16, PN40	ANSI 150, ANSI 300
• Compact and cost-effective design. • Stem guided (up to DN 50) and post guided (from DN 65 to DN 100). • Stainless steel bonnet and trim.	• Compact and cost-effective. • Modular design to meet process requirements. • Stem guided (up to 2") and post guided (from 21/2" to 4"). • Parabolic plug design. • Stainless steel trim.
OPTIONS AND ACCESSORIES:	
PN16, PN40	ANSI 150, ANSI 300
• Stellited seat and plug. • Various stem sealing options including sealed versions. • Silencers.	• Bonnet extension for high and low temperatures Various stem sealing options including bellows sealing • Soft or stellited valve sealing. • Reduced bore trims. • Silencers.
USE:	
PN16, PN40	ANSI 150, ANSI 300
Saturated and superheated steam. Hot and superheated water Air, gases and others.	
AVAILABLE MODELS:	
PN16, PN40	ANSI 150, ANSI 300
• V16/2G – SG iron. • V16/2S – carbon steel. • V16/2I – stainless steel.	• V16/2S – carbon steel.
SIZE :	
PN16, PN40	ANSI 150, ANSI 300
DN 15 to DN 100.	
CONNECTION :	
PN16, PN40	ANSI 150, ANSI 300
• V16/2G – Flanged EN 1092-2 PN 16. • V16/2S and V16/2I – Flanged EN 1092-1 PN 16 or PN 40 Standard PN16 DN 65 flanges are supplied with 4 holes 8 holes, according to EN 1092-1/-2, on request.	• Flanged ASME B16.5 Class 150 or 300.

BODY LIMITING CONDITIONS V16/2S			
CLASS 150		CLASS 300	
ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.
19,3 bar	-10 ºC / 50 ºC	50 bar	-10 ºC / 50 ºC
15,8 bar	150 ºC	43,9 bar	200 ºC
12,1 bar	250 ºC	36,9 bar	350 ºC
8,4 bar	350 ºC	34,6 bar	400 ºC

* Rating according to EN 1759-1:2004.

CE MARKING - GROUP 2 (PED - European Directive)				
ANSI 150	ANSI 300	PN16	PN40	Category
DN 15 to 50	DN 15 to 25	DN 15 to 50	DN 15 to 32	SEP
DN 65 to 100	DN 40 to 100	DN 65 to 100	DN 40 to 100	1 (CE marked)

BODY LIMITING CONDITIONS									
V16/2G **		V16/2S *				V16/2I *			
FLANGED PN 16		FLANGED PN 16		FLANGED PN 40		FLANGED PN 16		FLANGED PN 40	
ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.
16 bar	-10 ºC / 50 ºC	16 bar	-10 ºC / 50 ºC	40 bar	-10 ºC / 50 ºC	16 bar	-10 ºC / 50 ºC	40 bar	-10 ºC / 50 ºC
14,7 bar	200 ºC	16 bar	200 ºC	40 bar	200 ºC	13,4 bar	200 ºC	33,7 bar	200 ºC
13,9 bar	250 ºC	15,6 bar	250 ºC	35,2 bar	300 ºC	12,7 bar	250 ºC	29,7 bar	300 ºC
12,8 bar	300 ºC	14 bar	300 ºC	32,3 bar	350 ºC	11,8 bar	300 ºC	28,5 bar	350 ºC
11,2 bar	350 ºC	12,9 bar	350 ºC	29,5 bar	400 ºC	11,4 bar	350 ºC	27,4 bar	400 ºC

* Rating according to EN 1092-1:2018; ** Rating according to EN 1092-2:2007.

Specification is subject to change without prior notice

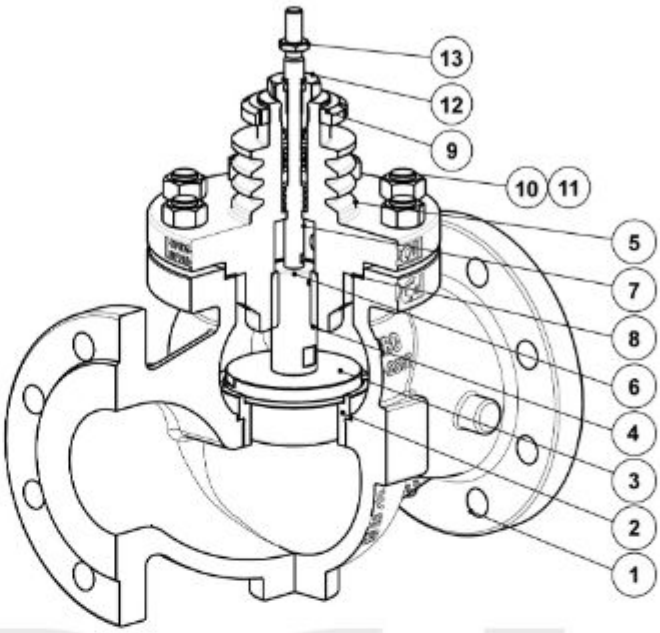
MODEL : 2-Way Control Valve V16/2s (Old model PV-25)

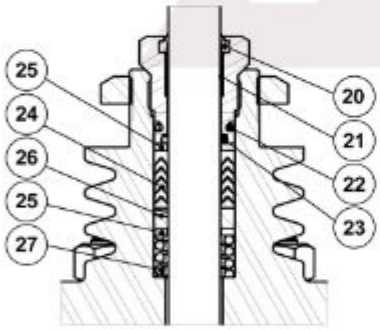
Connection : Flange PN16, PN40, ANSI150, ANSI300

ADCA STEAM EQUIPMENT

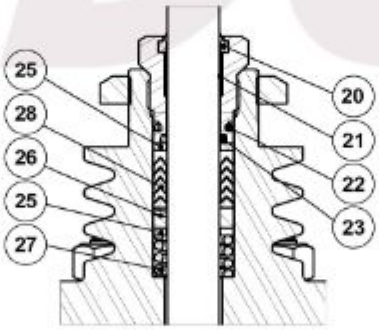
MATERIALS		
POS. Nº	DESIGNATION	MATERIAL
1	Valve body (V16/2G)	GJS-400-15 / 0.7040
	Valve body (V16/2S)	A216 WCB / 1.0619
	Valve body (V16/2I)	A351 CF8M / 1.4408
	Valve body (ASME)	A216 WCB / 1.0619
2	* Seat	AISI 316L / 1.4404
3	* Valve plug	AISI 316L / 1.4404
4	Lower stem guide	Bronze CB1
5	Bonnet	A351 CF8M / 1.4408
	Bonnet (ASME)	A351 CF8M / 1.4408; A216 WCB / 1.0619
6	* Post stem (DN 65 to DN 100)	AISI 316L / 1.4404
7	* Stem	AISI 316L / 1.4404
8	* Gasket	Stainless steel / Graphite
9	Lock nut	A351 CF8 / 1.4308
10	Nuts (V16/2G and V16/2S)	Steel 8.8
	Nuts (V16/2I)	Stainless steel A2-70
	Nuts (ASME)	EN 10269 steel
11	Studs (V16/2G and V16/2S)	34CrNiMo6 / 1.6582
	Studs (V16/2I)	Stainless steel A2-70
	Studs (ASME)	EN 10269 steel
12	* Packing nut	AISI 303 / 1.4305
13	Lock nut	AISI 304 / 1.4301
20	* Scraper ring	Viton
	* Scraper ring (ASME)	Viton; NBR
21	* Plain bearing	Bronze / PTFE
22	* O-ring	EPDM
23	* O-ring	Viton
24	* Chevron packing set	PTFE ; Graphite filled PTFE
25	Washer	AISI 304 / 1.4301
26	* Stem guide	Stainless steel filled PTFE
27	* Spring	AISI 302 / 1.4310
28	* Chevron packing set	PTFE
29	O-ring guide	AISI 304 / 1.4301
30	* O-ring	EPDM
31	* O-ring	EPDM
32	* Packing set	Expanded graphite
33	Packing spacer	AISI 304 / 1.4301
34	* Safety packing set	Graphite filled PTFE
35	Bellows bonnet	AISI 316L / 1.4404
	Bellows bonnet (ASME)	A105 / 1.0432; AISI 316 / 1.4401
36	Bolts	Stainless steel A2-70
	Bolts or studs and nuts (ASME)	EN 10269 steel
37	Gasket	Copper
38	Compression fitting	AISI 316 / 1.4401
39	* Gasket	Stainless steel / Graphite
40	* Gasket	Stainless steel / Graphite
41	* Metal bellows	AISI 316Ti / 1.4571
42	* Locking pin	AISI 303 / 1.4305
43	* Safety packing set	Expanded graphite
44	Packing spacer	AISI 304 / 1.4301

*Available spare parts

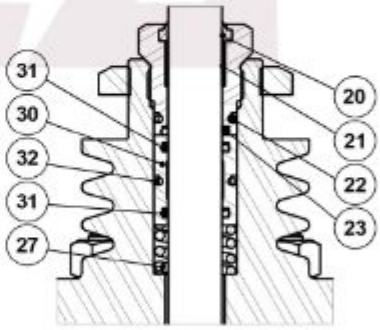




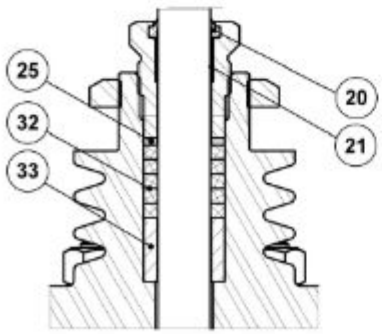
PTFE/GR V-RINGS
(V1.2)



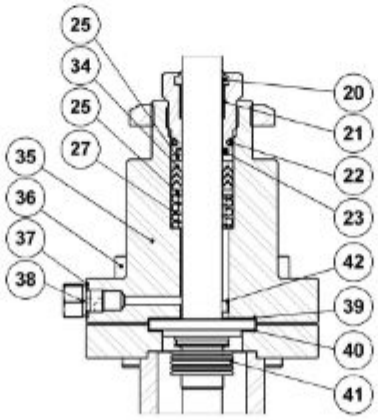
PTFE V-RINGS
(V2.2)



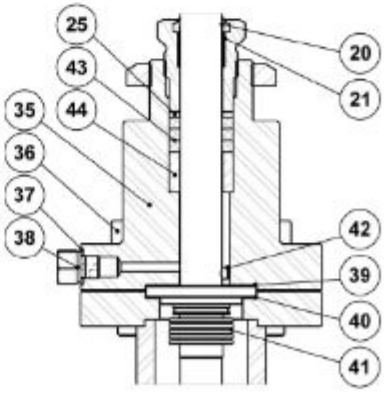
EPDM
(EP1)



GRAPHITE
(G1)



BELLOWS SEALING
(BV1)



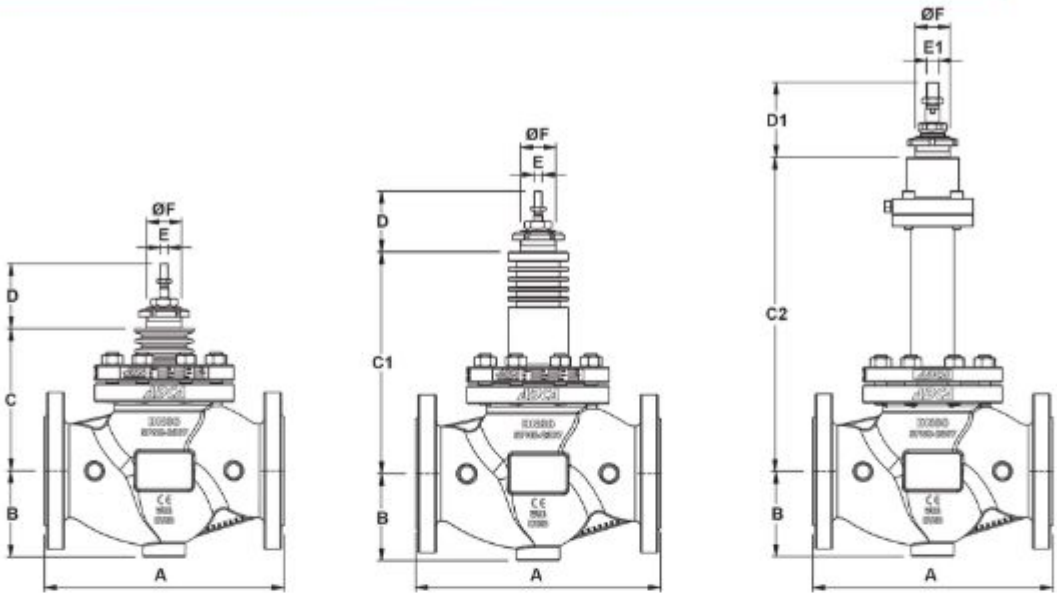
BELLOWS SEALING
(BG1)

Specification is subject to change without prior notice

MODEL : 2-Way Control Valve V16/2s (Old model PV-25)

Connection : Flange PN16, PN40, ANSI150, ANSI300

ADCA STEAM EQUIPMENT



Valve with standard bonnet *Valve with extended bonnet* *Bellows sealed valve*

DIMENSIONS										
DIMENSION		DN 15	DN 20	DN 25	DN 32*	DN 40	DN 50	DN 65	DN 80	DN 100
A	PN16, PN40	130	150	160	180	200	230	290	310	350
	#150	184 a)	184 a)	184	-	222	254	276	298	352
	#300	190 a)	194 a)	197	-	235	267	292	318	368
B	PN16, PN40	48	53	58	70	75	83	93	100	118
	#150	44,5	49	54	-	65	85	100	110	130
	#300	47,5	58,5	62	-	78	85	100	110	130
C	PN16, PN40	104	104	109	109	113	125	176	182	194
	#150,#300	85	85	90	-	115	125	176	175	190
C1	PN16, PN40	169	169	189	189	193	215	276	282	314
	#150,#300	150	150	170	-	195	204	276	275	310
C2	PN16, PN40	271	271	271	271	271	275	365	371	373
	#150,#300	314	314	322	-	317	317	415	442	451
D	PN16, PN40	77								
	#150,#300	77			-	77		82		
D1	#150,#300	77			-	77		92		
E	PN16, PN40	M10 x 1								
	#150,#300	M10 x 1			-	M10 x 1		M16 x 5		
F		M40 x 1,5					M45 x 1,5			

Remark: Standard PN 16 DN 65 flanges are supplied with 4 holes. 8 holes, according to EN 1092-1/-2, on request.

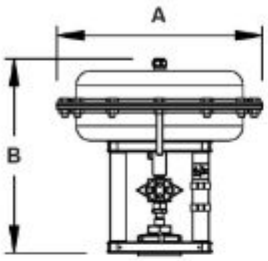
a) With welded-on flanges. Remark: In the beginning of year 2022 new face to face dimensions have been defined for some Class 150 valves. Valves may still be supplied with the previous face to face dimensions under request. Consult the manufacturer.

WEIGHT (kg)										
		SIZE								
		DN 15	DN 20	DN 25	DN 32*	DN 40	DN 50	DN 65	DN 80	DN 100
STANDARD	PN16, PN40	5,1	6	6,9	10	12,6	16,4	31,8	38,2	50,6
	Class 150	4,5	5	6,1	-	11,1	15,2	29,4	35	50,6
	Class 300	4,9	6	7,5	-	13,9	17,5	32,5	40,3	58,5
EXTENDED	PN16, PN40	5,8	6,7	7,6	10,9	13,5	17,3	32,2	38,5	51,1
	Class 150	5,2	5,7	6,8	-	12,4	16,4	30,1	35,7	51,1
	Class 300	5,6	6,7	8,2	-	15,2	18,7	33,2	41	59
BELLOWS	PN16, PN40	7,8	8,7	9,5	12,6	15,3	18,8	32,6	38,7	51,6
	Class 150	8,7	9,2	10,2	-	15,1	19	33,2	38,7	53,5
	Class 300	9,1	10,2	11,6	-	17,9	21,3	36,3	44	61,4

MAX. PERMISSIBLE ACTUATING FORCES/THRUST (kN)									
MAX FORCE/THRUST	SIZE								
	DN 15	DN 20	DN 25	DN 32*	DN 40	DN 50	DN 65	DN 80	DN 100
	12								

*Available only for PN16 & PN40

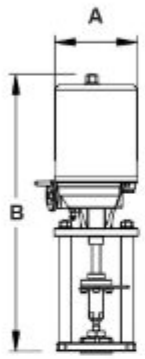
Specification is subject to change without prior notice



PA SERIES PNEUMATIC ACTUATORS

DIMENSIONS-PA SERIES PNEUMATIC ACTUATORS (mm)									
DIMENSION	PA10	PA206	PA25 **	PA281	PA40 **	PA341	PA436 **	PA436	PA80
A	170	209	250	275	300	336	430	430	405
B	251	236	260	243	325	323	316 / 336 *	291 / 311 *	505
WEIGHT (kg)	6,3	6,2	10,1	9,6	18,7	14,3	24,4 / 28 *	24,4 / 28 *	50,4

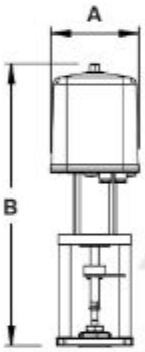
*For actuators with spring ranges 1 to 2 bar, 1,5 to 3 bar and 2 to 4 bar.
For more information, please consult IS 3.70 and IS 3.70A – PA Linear pneumatic actuators.
**Available only for PN16 & PN40



EL SERIES ELECTRIC ACTUATORS

DIMENSIONS – EL SERIES ELECTRIC ACTUATORS (mm)				
DIMENSION	EL12	EL20 - 45	EL80 - EL120	EL250
A	129	148	188	216
B	333	485	587	683
WEIGHT (kg)	2,1	8	13	19

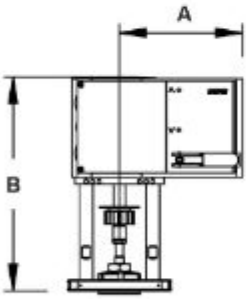
For more information, please consult IS 3.72 – EL Linear electric actuators.



ELR SERIES ELECTRIC ACTUATORS

DIMENSIONS – ELR SERIES ELECTRIC ACTUATORS (mm)			
DIMENSION	ELR2.1	ELR2.2	ELR2.3
A	162	162	162
B	518 / 555 *	536 / 573 *	557 / 593 *
WEIGHT (kg)	8,7	9,3	10

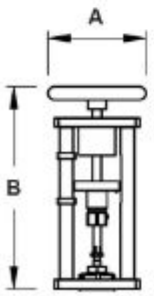
*With PEL electronic positioner.
For more information, please consult IS 3.73 – ELR Linear electric actuators fail safe.



AV SERIES ELECTRIC ACTUATORS

DIMENSIONS – AV SERIES ELECTRIC ACTUATORS (mm)			
DIMENSION	AVM234S	AVF234S	AVM234S - AVF234S *
A	166	166	166
B	314	314	289
WEIGHT (kg)	4,1	4,1	4,1

For more information, please consult IS 3.74 – AVM234S-AVF234S Linear electric actuators.
*Available only for PN16, PN40



MANUAL OPERATION HANDWHEEL

DIMENSIONS – MANUAL OPERATION HANDWHEEL (mm)	
DIMENSION	MAH
A	160
B	331
WEIGHT (kg)	5,6

MODEL : 2-Way Control Valve V16/2s (Old model PV-25)

Connection : Flange PN16, PN40, ANSI150, ANSI300

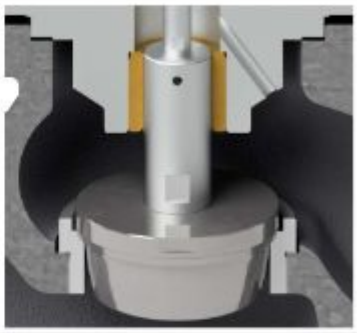
DCA STEAM EQUIPMENT

BONNET DESIGN

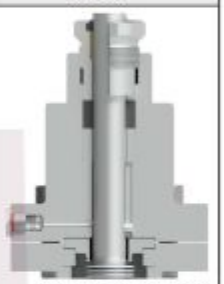
STANDARD	EXTENDED
	
-10 °C to 250 °C	Above 250 °C

TRIM DESIGN

UNBALANCED TRIM



STEM SEALING

PTFE/GR V-RINGS (V1.2)	PTFE V-RINGS (V2.2)	EPDM (EP1)	GRAPHITE (G1)	BELLOWS (BV1)	BELLOWS (BG1)
					
-10 °C to 220 °C	-10 °C to 180 °C	-10 °C to 150 °C *	-10 °C to 400 °C	- 60 °C to 220 °C **	- 60 °C to 400 °C **

* Up to 180 °C in steam and hot water applications.** Maximum operating pressure: 25 bar.

PLUG DESIGN

PARABOLIC

Sealing: Metal to metal
Characteristic: Equal percentage (EQP), linear (PL)
Flow direction: From below
Rangeability: 50:1 (EQP), 30:1 (PL)
Leakage: Class IV, acc. to IEC 60534-4

PARABOLIC (SOFT SEALING)

Sealing: PTFE/GR
Characteristic: Equal percentage (EQP), linear (PL),
Flow direction: From below
Rangeability: 50:1 (EQP), 30:1 (PL)
Leakage: Class VI, acc. to IEC 60534-4
Max. temp.: 200 °C

FLOW RATE COEFFICIENTS – PARABOLIC PL AND EQP PLUGS

SIZE	Kvs (m³/h)										
	2,1	2,7	4	6,3	10	16	25	40	63	100	160
DN 15	•	•	•								
DN 20	•	•	•	•							
DN 25	•	•	•	•	•						
DN 32*			•	•	•	•					
DN 40				•	•	•	•				
DN 50					•	•	•	•			
DN 65						•	•	•	•		
DN 80							•	•	•	•	
DN 100								•	•	•	•
SEAT Ø (mm)	12		15	19,2	25	32	38	48	65	76	96
STROKE (mm)	20								30		

For conversion Kvs = Cv (US) x 0,865.
*Available only for PN16, PN40

Specification is subject to change without prior notice

LINEAR ELECTRIC ACTUATORS
Type EL

EL12, EL20, EL45, EL80, EL120, EL250

DESCRIPTION

Electric linear actuators EL series for modulating and open-close duty of control and process technology to operate control valves.
The self-locking stem/stem nut is driven by an electric motor via a gearing. Load and limit switches define the stops for the end positions.

MAIN FEATURES

- Valve protection against excessive force due to load-dependent seating.
- Comfortable manual operation when disengaging the actuator motor.
- Mounting to valve made via yoke or mounting flange DIN 3358. The design enables easy connection to all types of valves. Standard version is suitable for Adcatrol valves.
- Generating a defined closing force in the end position leads to constantly tight shut-off of the valve.
- A robust metal cover protects efficiently against external contamination and manipulation.
- The actuators are in enclosure protection IP 65 (EL12 IP43) and are designed for rugged industrial use.
- Stall proof synchronous motors (or brake motors for higher positioning forces) ensure highest positioning accuracy.
- Mechanical stroke indication via anti-rotation bar.
- Exact, backlash-free measurement of actual valve stroke by direct coupling to the valve stem.
- Universally usable actuators due to control via 3-point-step controllers, analogue input signals (0...10 V, 0 (4)...20 mA), or fieldbus systems.
- Easy supplement to actuator with optional devices due to modular design.
- Limit switches, easily adjustable, for stroke limitation (not necessary for Adcatrol valves) or as signal for intermediate positions.
- Integrated, adjustable stroke setting to nominal stroke over the complete stroke range (without exchanging pinions, ...).

ADCA STEAM EQUIPMENT

TECHNICAL DATA						
Type		EL12	EL20	EL45	EL45.1	EL45.2
Positioning force	kN	1,2	2,0	4,5		
Positioning speed [1]	mm/min (mm/s)	8 (0,14)	15 (0,25)	17 (0,28)	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	4	6,6	28	28	32
Nominal current (230 V)	A	0,017	0,029	0,135	0,135	0.160
Type of motor [3]		syn	syn	syn	syn	syn
Motor protection [4]		B	B	B	B	B
Max. stroke	mm	35 mm	75 (standard 55mm)			
Supply voltages [2]		24 V / 115 V / 230 V / 400 V 50/60 Hz, 24 V DC				
Type of duty acc. to IEC 34-1		S1 – 100%		S4 – 30% c.d.f. 600 c/h		
Cable entry		3 x M16 x 1,5	2 x M16x1.5 and 1 dummy plug M16x1.5			
Electrical connection		Inside terminal board, terminal configuration according to electrical connection wiring diagram				
Switch off in end position		2 load-dependent switches, max. 250 V AC, rating for resistive load, max. 5 A, for inductive load, max. 3 A				
Mounting position		as desired, however downward position not possible				
Ambient temperature		–20 °C to +60 °C				
Lubricant for gearing		Klüber Mickrolube GL 261 grease				
Position indicator		by anti-rotation bar				
Manual adjustment		crank handle	by means of lateral hand wheel			
Enclosure protection acc. to EN 60529		IP 43	IP 65			
Trapezoidal thread		Tr 8 x 1,5	Tr 14 x 3			
Connection type		EN ISO 5210 F05 (also refer to options)				
Weight	kg	2,1	8,0			

TECHNICAL DATA							
Type		EL80	EL80.1	EL80.2	EL120	EL120.1	EL120.2
Positioning force	kN	8,0			12		
Positioning speed [1]	mm/min (mm/s)	13,5 (0,2)	25 (0,4)	50 (0,8)	13,5 (0,2)	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	25	34	152	25	34	152
Nominal current (230 V)	A	0,11	0,15	0,78	0.11	0.15	0.78
Type of motor [3]		syn	syn	asyn	syn	syn	asyn
Motor protection [4]		B	B	T	B	B	T
Max. stroke mm		80					
Supply voltages [2]		24 V / 115 V / 230 V / 400 V 50/60 Hz, 24 V DC					
Type of duty acc. to IEC 34-1		S4 – 30% c.d.f. 600 c/h					
Cable entry		2 x M16x1.5 and 1 dummy plug M16x1.5					
Electrical connection		Inside terminal board, terminal configuration according to electrical connection diagram					
Switch off in end position		max. 3 A					
Mounting position		as desired, however downward position not possible					
Ambient temperature		–20 °C to +60 °C					
Lubricant for gearing		Klüber Microlube GL 261 grease					
Position indicator		by anti-rotation bar					
Manual adjustment		by means of lateral hand wheel					
60529		IP 65					
Trapezoidal thread		Tr 20 x 4					
Connection type		DIN 3210 G0 (also refer to options)					
Weight	kg	13,0					

ADCA STEAM EQUIPMENT

MODEL : EL-Series | Linear Electric Actuators

Connection : Flange PN 16, PN 40, ANSI 150, ANSI 300

TECHNICAL DATA							
Type		-	-	-	-	**EL250.1**	**EL250.2**
Positioning force	kN		-			25	
Positioning speed [1]	mm/min (mm/s)	-	-	-	-	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	-	-	-	-	157	218
Nominal current (230 V)	A	-	-	-	-	0.73	1.0
Type of motor [3]		-	-	-	-	asyn	asyn
Motor protection [4]		-	-	-	-	T	T
Max. stroke mm		100					
Supply voltages [2]		115 V / 230 V 50/60 Hz, 24 V DC					
Type of duty acc. to IEC 34-1		S4 – 30% c.d.f. 600 c/h					
Cable entry		2 x M20x1.5 and 1 dummy plug M20x1.5					
Electrical connection		Inside terminal board, terminal configuration according to electrical connection diagram					
Switch off in end position		max. 3 A					
Mounting position		as desired, however downward position not possible					
Ambient temperature		–20 °C to +60 °C					
Lubricant for gearing		Klüber Microlube GL 261 grease					
Position indicator		by anti-rotation bar					
Manual adjustment		by means of lateral hand wheel					
60529		IP 65					
Trapezoidal thread		Tr 26 x 5					
Connection type		DIN 3210 G0 (also refer to options)					
Weight	kg	19,0					

1) at 60 Hz, the positioning speeds and input power increase by 20%
2) other supply voltages on request

3) syn synchronous motor
asyn asynchronous motor
4) B stallproof motor
T

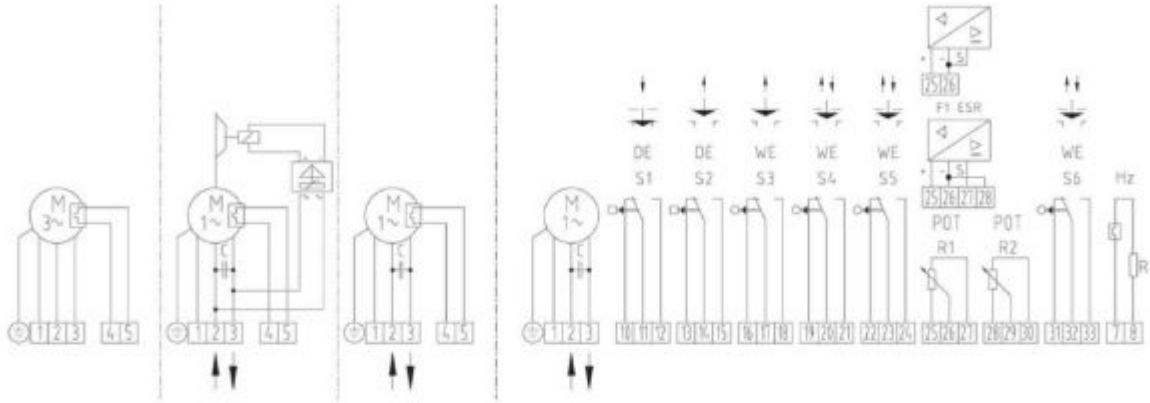
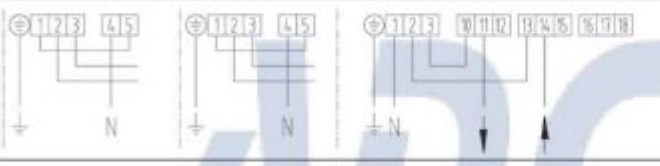
ACCESSORIES AND OPTIONS		
Accessories for actuators		
	Yoke for adaptation to valves refer to dimension sheet.	STALA/ FLA
	Mounting flange with central attachment Mxx refer to dimension sheet (thrust rod must be secured against revolving).	ZFLA
	Compact plug 10/24 poles with additional housing at actuator Voltages ≤ 600 V.	KS
	Special finish coating for use in the tropics "tropics coating".	LA-TR
	Version with bellows at thrust rod (for EL20, EL45, EL80, EL120).	A-FAB

Options for actuators		
	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, max. 250 V AC, rating for resistive load max. 5 A, for inductive load max. 3 A, max. 2 switches for EL20 and EL45, max. 4 switches for EL80 and EL120.	WE
	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, with gold-plated contacts for low voltage, max. 30 V AC, rating for resistive load max. 0.1 A, max. 2 switches for EL20 and EL45, max. 4 switches for EL80 and EL120.	WE-G
	Potentiometer 100/130/200/500/1000/5000 Ohms or 10 kOhms Linearity error ≤ 0.5 %, max. 1.5 W, contact current 30 mA max. 2 pieces	POT
	Electronic position feedback 2-/3-/4-wire system Inductive travel measuring, output 0 (4)...20 mA Connection 24 V DC	ESR
	Positioning electronics for actuator control Input 0...10 V, 0 (4)...20 mA, output 0...10 V, 0 (4)...20 mA Supply voltage 24, 115, 230 V 50/60 Hz	PEL
	Heating resistor with thermoswitch against moisture with automatic temperature regulation, max. 15 Watts Supply voltage 24, 115, 230 V 50/60 Hz	HZ/WP

STEAM EQUIPMENT

Specification is subject to change without prior notice

ELECTRICAL CONNECTION

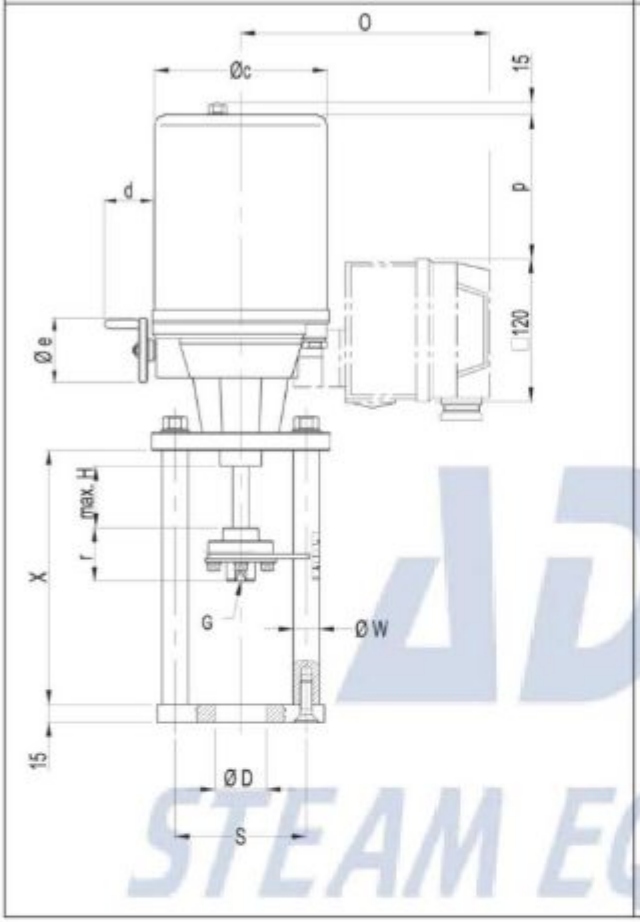
3 ~ asynchronous motor with brake and thermoswitch	1 ~ asynchronous motor with brake and thermoswitch	Synchronous motor with thermoswitch	synchronous motor	Basic wiring diagram including options	
					
					Switch off in end postion via two load-dependant switches to control e.g. three-way mixing valves.
					Switch off in end position via a load-dependent switch and a limit switch to control e.g. full-way valves without upper stop. Monitoring blocking in OPEN direction.
					Control of three-phase actuators with thermoswitch. Switch off in end position via two load-dependant switches to control e.g. three-way mixing valves. For motors without thermoswitch, the wiring to terminal 4 and 5 is not applicable.
					Control of three-phase actuators with thermoswitch. Switch off in end position via a load-dependent switch and a limit switch to control e.g. full-way valves without upper stop. Monitoring blocking in OPEN direction. For motors without thermoswitch, the wiring to terminal 4 and 5 is not applicable.

WE	Limit switch
HZ	Heater with thermoswitch
POT	Potentiometer
ESR	Electronic position feedback
PEL	Positioning electronics
WSE	External reversing contactor unit
REG	Process controller

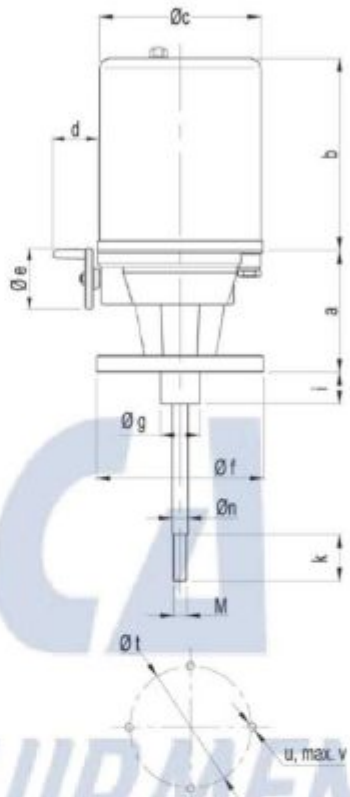
DIMENSIONS

EL20 - EL45- EL80 – EL120

Mounting with yoke – for Adcatrol valves



Mounting according to EN ISO 5210 G0



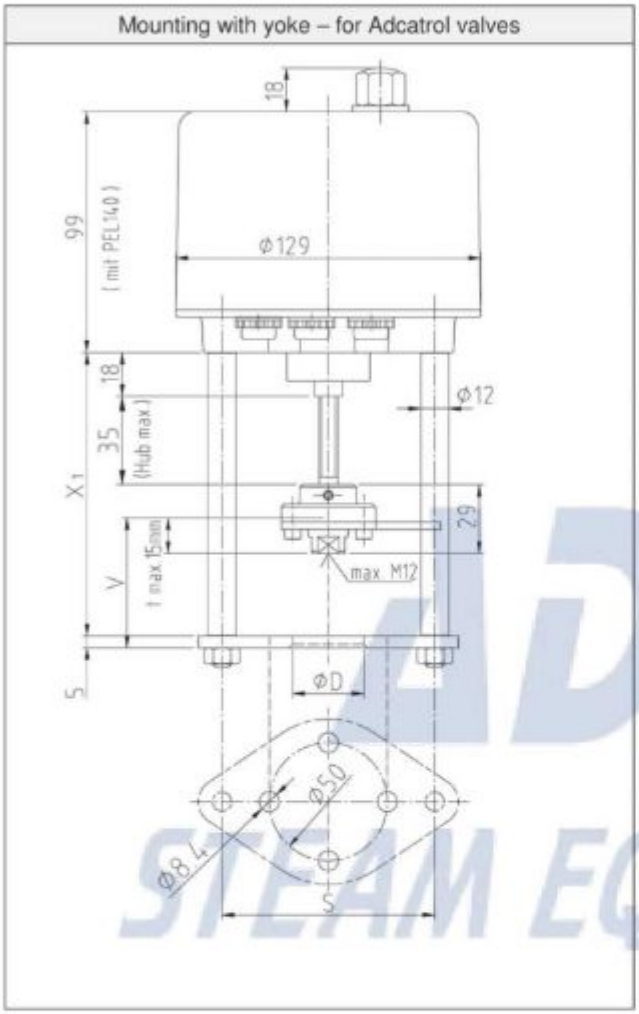
DIMENSIONS							
Type	EL20- EL45	EL80 - EL120	EL250	Type	EL20 - EL45	EL80 - EL120	EL250
a	94.5	130	190	o	210	220	240
b	173	197	226	p	115	179	164
Ø c	145	188	216	r	45	45	51
d	42	69	70	Ø w	22	22	22
Ø e	54	100	100	M		M16x1,5	M20x1,5
Ø f	74	130	130	max. G	M20	M20	M20
Ø g	35 f8	60	60	Ø D	Ø 40, Ø 45	Ø 40, Ø 45	Ø 45, 65
i	3	26	3	G	M10	M10	M16
k		16	22	S	110 (100)	110 (100)	125
n	14	20	26	X	190 - 228		235
Ø t	50	102	102				
u	M6	M10	M10				
v							
H	Stroke actuators (see technical data)						

ADCA STEAM EQUIPMENT

DIMENSIONS

EL12

Mounting with yoke – for Adcatrol valves

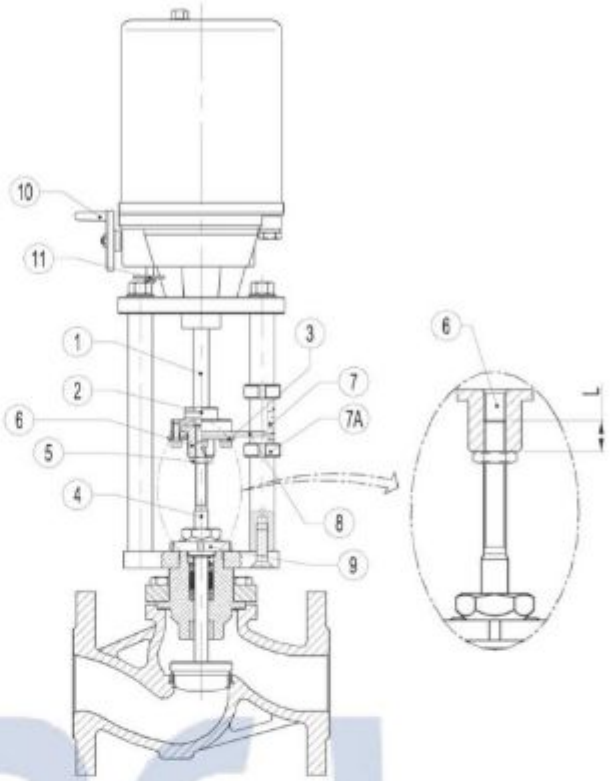


Type	EL 12
Ø D	40
S	100
X1	160
X2	55

ADCA STEAM EQUIPMENT

COMBINATION WITH A CONTROL VALVE (short instruction)

On delivery the driving rod (1) is driven out to the bottom end limit (anti-rotation flange at bottom mark).
Further procedure:
-Insert valve stem (4) into the valve all the way to limit stop
-Move the driving rod (1) up by rotating the hand wheel anti-clockwise by about 20 mm (see manual operation).
-Lift the actuator and yoke over the valve stem, place onto the top of the valve and secure using the mounting nut (9)
-Unscrew the locking plate (3) and the anti-rotation flange (8) in succession from the coupling flange (2) and allow it to fall over the stem.
-Remove the threaded socket (6) from the coupling flange and screw it onto the stem according to dimension L from table 1.
-Drive out the rod by rotating the hand wheel clockwise until the threaded socket (6) stops in the coupling flange (2).
Screw the anti-rotation flange (8) and the locking plate (3) onto the coupling flange
-Tighten the stem with the nut (5) against the threaded socket.
- When mounting pay attention that the valve plug is not pressed onto the seat and is not turned.
For electrical connections please report to IMI EL20.00



MANUAL OPERATION

The manual adjustment must not be disengaged or engaged while the motors is running.
Execute the manual adjustment only with motor being at standstill, hereto:
-With the left hand press the disengaging rod (11) with plate in direction of the outgoing driving rod toward the bottom
-Simultaneously turn the handwheel (10) with the right hand until the coupling-in has sensible been executed
-To actuate the linear actuator now turn the handwheel, hold the disengaging rod with the plate in engaged position
Turning crank handle to the right (clockwise), the driving rod moves out of the actuator
Turning crank handle to the left (anti-clockwise), the driving rod moves into the actuator
(The linear actuator is automatically switched back to motoric operation, as soon as the disengaging rod will be released).

STEAM EQUIPMENT

(L) Dimensions in mm

Valve Type	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EV16G	18	18	18	13	12	14	25	25	19	-	-	-
EV40S	18	18	18	13	12	14	25	25	19	-	-	-

Table1

Actuator selection for two way valves type EV16G, EV25G and EV40S

Actuator Type	Differential pressure (bar)											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EL12	38	20	12	6,5	3,5	1,8	-	-	-	-	-	-
EL20	40	40	28	16	9,9	5,8	3	1,7	0,6	-	-	-
EL45	40	40	40	40	29,8	18,5	10,5	6,6	3,8	-	-	-
EL80	40	40	40	40	40	36,4	21	13,6	8,2	-	-	-
EL120	-	-	-	-	40	40	33,1	21,6	13,3	8,3	5,6	3
EL250	-	-	-	-	-	-	40	40	30,2	19,1	12,1	5,5

Remarks: V-rings stem packing.

Actuator selection for three way valves type EV253G and EV403S

Actuator Type	Differential pressure (bar)											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EL12	25	22	13,2	7,1	3,8	1,9	-	-	-	-	-	-
EL20	25	25	25	17,3	10,8	6,6	3,4	2	1,1	-	-	-
EL45	-	-	-	25	25	19,8	11,6	7,3	3,8	2,4	1,5	-
EL80	-	-	-	-	25	25	23,1	14,8	8,9	5,5	3,6	-
EL120	-	-	-	-	25	25	25	23,1	14,5	9,1	6,1	-
EL250	-	-	-	-	-	-	-	-	-	-	-	-

2.3.02-L

Cast iron, PN 16, DN 15/4 – 50 mm

GB-1

Characteristics

- Nominal pressure PN 16
- Regulating capability $\frac{k_{vs}}{k_{vr}} > 25$
- Single-seated, tightly closing
- Quadratic characteristic

Applications

Control valves type M1F are designed for regulating low, medium and high pressure hot water, steam and lubricating oils.
The valves are used in conjunction with our temperature or pressure differential regulators for controlling industrial processes, district or central heating plants or marine installations.

Dimensioning

For sizing of control valves and selection of actuators, please see "Quick Choice" leaflet no. 9.0.00.

Design

The valve components - spindle, seat and cone - are made of stainless steel.
The valve body is made of cast iron EN-GJS-400-15 with flanges drilled according to EN 1092-2. The thread for the actuator connection is G1B ISO 228.
The valves are single-seated and designed for tight closure. The leakage rate is less than 0.05% of the full flow (according to VDI/VDE 2174).

Quality assurance

All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment.

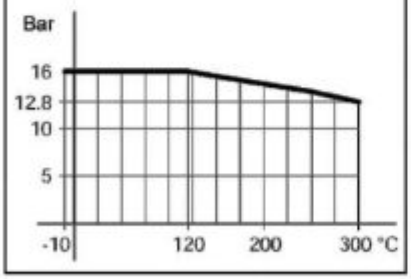
Function

Without the actuator being connected, the valve is held in open position by means of a spring. With pressure on the spindle the valve will close.
In connection with our thermostats or electronic actuators, the valves will close at rising temperatures. For cooling circuits a reverse acting valve can be used.
The quadratic characteristic will not cease until the flow has dropped below 4% of the full flow.

Technical data

Materials:	
- Valve body	Cast iron EN-GJS-400-15
- Components	Stainless steel
- Bolts, nuts	24 CrMo 4/A4
Nominal pressure	PN 16
Seating	Single-seated
Valve characteristic	Quadratic
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$
Seat leakage	≤ 0.05% of k_{vs}
Temperature range	See diagram
Mounting	See page 2
Flanged ends drilled according to	EN 1092-2 PN 16
Counter flanges	DIN 2633/BS 4504
Colour	Grey

Pressure/Temperature diagram



Specifications

Type	Flange connection DN in mm	Opening mm	k_{vs}-value m³/h	Lifting height mm	Weight kg
15/4 M1F	15	4	0.20	6	3
15/6 M1F	15	6	0.45	6	3
15/9 M1F	15	9	0.95	6	3.1
15/12 M1F	15	12	1.70	6	3.1
15 M1F	15	15	2.75	6	3.1
20 M1F	20	20	5	6.5	4.2
25 M1F	25	25	7.50	7	5.5
32 M1F	32	32	12.50	8	8.1
40 M1F	40	40	20	9	9.7
50 M1F	50	50	30	10	14

Specification is subject to change without prior notice

MODEL : M1F [2-way Temperature Control Valve]

Connection : Flange PN 16

Definition of k_{VS}-value

The k_{VS}-value is identical to the IEC flow coefficient k_V and defined as the water flow rate in m^3/h through the fully open valve by a constant differential pressure, Δp_V, of 1 bar.

Mounting

Up to 170°C the valve can be installed vertically as well as horizontally. For media temperature above 170°C, a cooling unit of type KS has to be applied. It must then be installed with actuator/ thermostats downwards, and according to the following instructions:

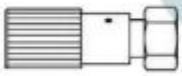
Valve Temperature	Cooling Unit	Suitable for
170°C - 250°C	KS-4	All actuators
250°C - 300°C	KS-5	Thermostats
250°C - 300°C	KS-6	Valve Motors

Strainer

It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

Accessories

Manual Adjusting Device

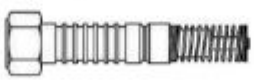


The device has a built-in stuffing box. For sealing and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

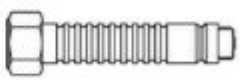
Cooling Unit KS-4

Cooling unit protecting the stuffing box of the motor/thermostat. To be applied at valve temperatures between 170°C and 250°C.

Cooling Unit KS-5

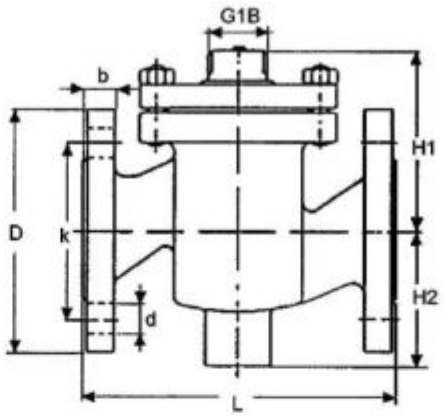


Cooling Unit KS-6



Cooling units with built-in bellow glands, replacing stuffing box of thermostat (KS-5) or valve motor (KS-6). Must be applied at valve temperatures above 250°C.

Dimension sketch



Type	L mm	H1 mm	H2 mm	b mm	D (dia.) mm	k (dia.) mm	d mm dia. (number)
15/4 M1F	130	80	60	14	95	65	14 x (4)
15/6 M1F	130	80	60	14	95	65	14 x (4)
15/9 M1F	130	80	60	14	95	65	14 x (4)
15/12 M1F	130	80	60	14	95	65	14 x (4)
15 M1F	130	80	60	14	95	65	14 x (4)
20 M1F	150	85	65	16	105	75	14 x (4)
25 M1F	160	95	70	16	115	85	14 x (4)
32 M1F	180	105	75	18	140	100	18 x (4)
40 M1F	200	110	85	18	150	110	18 x (4)
50 M1F	230	125	95	20	165	125	18 x (4)

Specification is subject to change without prior notice

2.3.03.01-C

Cast iron, PN 16, DN 15 – 80 mm

GB-1

Characteristics

- Nominal pressure PN 16
- Pressure balanced valve
- Regulating capability $\frac{k_{vs}}{k_{vr}} > 25$
- Single-seated, balanced
- Quadratic characteristic

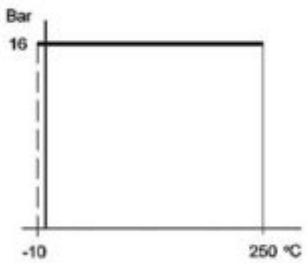
Applications

Balanced control valves type **M1FBN** are designed for regulating hot water, steam and hot oil systems.
Balanced valves are used in installations where the system pressure necessitates a closing force greater than available in the actuator programme for a standard single seated valve, and where the leakage rate for a double-seated valve is unacceptable.
The valves are used in conjunction with our temperature- or pressure differential regulators for controlling industrial processes, district or central heating plants or marine installations.

Design

The valve components - spindle, seat, cone - are made of stainless steel.

Pressure/Temperature diagram



The valve body is made of cast iron EN-GJS-400-15 with flanges drilled according to EN 1092-2 or ANSI B16.5 Class 150. The thread for the actuator connection is G1B ISO 228.
The valves are single-seated and designed for tight closure. The leakage rate is less than 0.05% of the full flow (according to VDI/VDE 2174).

Quality assurance

All valves are manufactured under an ISO 9001 certification and are pressure and leakage tested before shipment.
For marine applications the valves can be supplied with relevant test certificates from recognized classification societies.

Function

Without an actuator being connected, the valve is held in open position by means of a spring. With force on the spindle the valve will close.
In connection with our thermostats or electric actuators, the valves will close at rising temperatures. For cooling circuits a reverse acting double-seated valve can be used.
The quadratic characteristic will not cease until the flow has dropped below 4% of the full flow.

Technical data

Materials:	
- Valve body	Cast iron EN-GJS-400-15
- Components	Stainless steel
- Nuts, bolts	24 CrMo 5/A4
Nominal pressure	PN 16
Seating	Single-seated
Valve characteristic	Quadratic
Regulating capability	$\frac{k_{vs}}{k_{vr}} > 25$

Leakage	≤ 0.05% of k_{vs}
Temperature range	See pressure/temperature diagram
Flanges drilled according to	EN 1092-2 PN 16 or ANSI B16.5 Class 150
Colour	Grey

Definition of k_{vs}-value

The k_{vs}-value is identical to the IEC flow coefficient k_v and defined as the water flow rate in m³/h through the fully open valve by a constant differential pressure, Δp_v, of 1 bar.

Mounting

Up to 170°C the valve can be installed vertically as well as horizontally. For media temperature above 170°C, a cooling unit of type KS-4 has to be applied. It must then be installed with electric actuator/ thermostat downwards.

Strainer

It is recommended to use a strainer in front of the control valve if the liquid contains suspended particles.

Specifications

Type	Flange connection DN in mm	Opening mm	k_{vs}-value m³/h	Lifting height mm	Weight kg
15 M1FBN	15	15	4	7.5	4
20 M1FBN	20	20	6.3	7.5	5
25 M1FBN	25	25	10	9	6
32 M1FBN	32	32	16	10	9
40 M1FBN	40	40	25	11	13
50 M1FBN	50	50	35	11.5	16
65 M1FBN	65	65	58	14.5	23
80 M1FBN	80	80	80	16	38

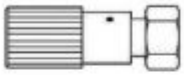
Specification is subject to change without prior notice

Balanced 2-way Control Valves type M1FBN
Cast iron, PN 16, DN 15 – 80 mm

2.3.03.01-C
GB-2

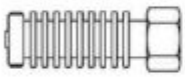
Accessories

Manual adjusting device



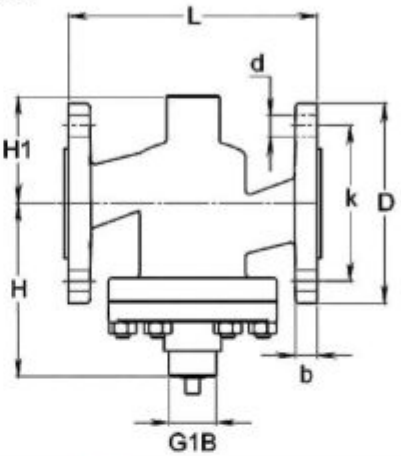
The device has a built-in stuffing box. For sealing and manual operation of valves when an actuator has not been fitted, e.g. during periods of construction.

Cooling unit KS-4



Cooling unit protecting the stuffing box of the electric actuator / thermostat. To be applied at valve temperatures between 170°C and 250°C.

Dimension sketch



Dimensions

Type	L mm	H mm	H1 mm	D (dia.) mm	b mm	k (dia.) mm	d mm dia. (number)
15 M1FBN	130	101	80	95	14	65	14x(4)
20 M1FBN	150	107	85	105	16	75	14x(4)
25 M1FBN	160	112	70	115	16	85	14x(4)
32 M1FBN	180	122	75	140	18	100	18x(4)
40 M1FBN	200	125	85	150	19	110	18x(4)
50 M1FBN	230	140	95	165	19	125	18x(4)
65 M1FBN	290	154	110	185	19	145	18x(4)
80 M1FBN	310	164	115	200	19	160	19x(8)

Dimensioning

Type	Water / Steam			Thermostats V2	Thermostats V4	Thermostats V8	Valve actuators V / AV	Valve actuators VB / VBA	Pressure differential controllers TD66-4	Pressure differential controllers TD66-8
15 M1FBN	Water:	Δp_L & max. p_1	bar	10	16	16	16	16	16	16
	Steam:	Δp_L & max. p_1	bar	9						
20 M1FBN	Water:	Δp_L & max. p_1	bar	9						
	Steam:	Δp_L & max. p_1	bar	8						
25 M1FBN	Water:	Δp_L & max. p_1	bar	8						
	Steam:	Δp_L & max. p_1	bar	7						
32 M1FBN	Water:	Δp_L & max. p_1	bar	7						
	Steam:	Δp_L & max. p_1	bar	6						
40 M1FBN	Water:	Δp_L & max. p_1	bar	-	10				10	
	Steam:	Δp_L & max. p_1	bar	-	9				9	
50 M1FBN	Water:	Δp_L & max. p_1	bar	-	9				9	
	Steam:	Δp_L & max. p_1	bar	-	8				8	
65 M1FBN	Water:	Δp_L & max. p_1	bar	-	7			-	8	
	Steam:	Δp_L & max. p_1	bar	-	6			-	7	
80 M1FBN	Water:	Δp_L & max. p_1	bar	-	5			-	5	
	Steam:	Δp_L & max. p_1	bar	-	4			-	4	

p_1 = absolute pressure

Specification is subject to change without prior notice

MODEL : M2F | 2-Way Control Valve

Connection : CI, PN 16

APPLICATIONS - Control valves type M2F are designed for regulating hot water, steam and lubricating oil systems. The double-seated valves are used in installations where the system pressure necessitates a closing force greater than available in the actuator programme for a single-seated valve. The valves are used in conjunction with our temperature or pressure differential regulators for controlling industrial processes, district or central heating plants or marine installations.

DESIGN - The valve components - spindle, seats and cone - are made of stainless steel. The valve body is made of cast iron EN-GJS-400-15 with flanges drilled according to EN 1092-2. The thread for the actuator connection is G1B ISO 228. The valves are double-seated. The leakage rate is less than 0.5% of the full flow (according to VDI/VDE 2174).

FUNCTION - Without the actuator being connected, the valve is held in open position by means of a spring. With pressure on the spindle the valve will close. In connection with our thermostats or electronic actuators, the valves will close at rising temperatures. For cooling circuits the valve can be used in conjunction with a reverse acting electric actuator. Alternatively a reverse acting valve can be used with our self-acting thermostats. The quadratic characteristic (DN20-80mm) will not cease and linear characteristic (DN100-150mm) will not cease, until the flow has dropped below 4% of the full flow.

MOUNTING - The valve can be installed with vertical as well as horizontal spindles. For valve temperatures of max. 170°C, the thermostat/ actuator can be fitted below or above the valve. For valve mounted with thermostats in media temperatures above 170°C,a cooling unit has to be applied with connection downwards (please refer to data sheet for thermostat accessories). For electric actuators a high temperature adaptor must be used (please refer to datasheets for the electric actuators).

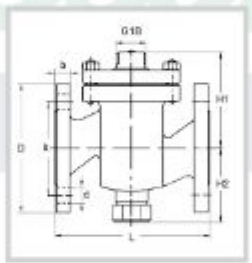
DN20 - 80 mm

DN100 - 150 mm

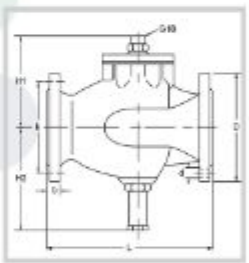
FEATURES

- Simple design secures reliable controls.
- Location of the pack box in the actuator makes the valve service friendly
- Reliable and secure due to internal parts of stainless steel

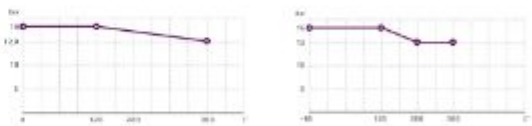
Parts Name / Size	MATERIAL	
	DN20 - DN80	DN100 - DN150
Body	Cast Iron (EN-GJS-400-15)	
Spring	1.4568	-
Cone	1.4408, 1.4305	-
Components	-	Stainless Steel
Gasket	Stainless Steel Foil and Graphite	-
Upper seat	AISI 303	-
Lower Seat	1.430, 1.4305, 1.4307	-
Bolts, Nuts	24 CrMo 4/A4	
Nominal pressure	PN 16	
Seating	Double - Seated	
Flow characteristic	Quadratic	Almost Quadratic
Leakage rate	<0.5% of Kvs	
Regulating Capability	Kvs / Kvr > 25	
Flanges drilled accoording to	EN 1092 - 2 PN 16	
Counter flanges Adjustable seat interspace	DIN 2633 / BS 4504	



DN20 - 80 mm



DN100 - 150 mm



Pressure Temperature Diagram

Type	Flange connection	Opening	k-value	Lifting height	L	H1	H2	b	D (dia.)	k (dia.)	d mm dia.	Weight
	DN in mm	mm	m^3/h	mm	mm	mm	mm	mm	mm	mm	(number)	kg
20 M2F	20	20	5	6.5	150	85	70	16	105	75	14x(4)	5
25 M2F	25	25	7.5	7	160	95	77	16	115	85	14x(4)	6.5
32 M2F	32	32	12.5	8	180	105	82	18	140	100	19x(4)	9
40 M2F	40	40	20	9	200	110	92	19	150	110	19x(4)	11
50 M2F	50	50	30	10	230	125	102	19	165	125	19x(4)	16
65 M2F	65	65	50	11	290	135	120	19	185	145	19x(4)	21
80 M2F	80	80	80	13	310	145	130	19	200	160	19x(8)	38
100 M2F	100	100	125	20	350	185	209	24	220	180	18x(8)	32
125 M2F	125	125	215	20	400	205	224	26	250	210	18x(8)	50
150 M2F	150	150	310	20	400	240	244	26	285	240	22x(8)	70

Specification is subject to change without prior notice

Calibration

The controller is easy to calibrate in case of discrepancies between the set temperature and the actual temperature. Move the scale (2) until the set temperature is the same as the actual temperature. The scale will now be accurate.

Adjusting The Temperature

Turn the handle (1) until the top of the scale bushing points to the wanted temperature on the scale (2).
The temperature seating can be changed at any time, also while the controller is in use.

Thermostats Of Stainless Steel

Clorius Controls additionally offers thermostats of stainless steel, which are particularly suitable for installation in demanding environments such as outdoor plants and in non-magnetic areas, e.g. in submarines.

Product Range

When ordering a controller please specify the following:

- Controller type
- Temperature range
- Length of capillary tube
- Material of capillary tube
- Type of sensor
- Material of sensor
- Sensor connection

Please refer to our data sheets for our self-acting temperature controllers - in order to find the correct specfications for your needs.

Below you will find an overview of the main controller types:

Technical Data		Controller Types					
		V2.05	V4.03	V4.05	V4.10	V8.09	V8.18
Max. closing force	N	400	500	500	500	800	800
Setting range for standard thermostats [1]	°C	0-60	0-160	0-120	0-60	0-120	0-60
		30-90		40-160	30-90	40-160	30-90
		60-120			60-120		60-120
Neutral zone	°C	2.5	2	2	2	1.5	1.5
For valves with rated travel up to:	mm	10	21	21	21	21	21
Travel (amplification) in range:	-30 to 160°C [2] mm/°C	0.5	0.3	0.5	1	0.9	1.8
	140 to 280°C [3] mm/°C	0.7	0.33	0.7	1.33	1.2	2.4

[1] Setting ranges from -30 to 280°C on request. - Excess temp. safety range: 40°C [2] Glycerine [3] Paraffin

Specification is subject to change without prior notice

MODEL : DIAPHRAGM VALVE | PV111 (PVC,PP,PTFE)

Connection: Flange JIS10K, PN10 & ANSI150

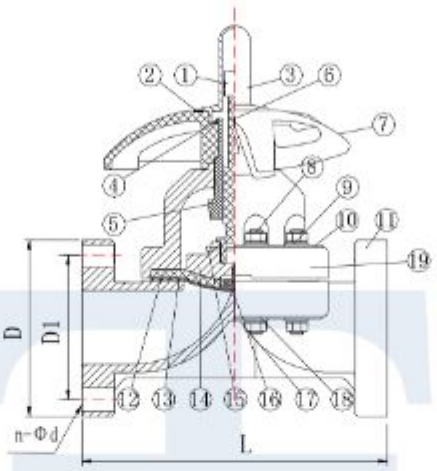
VALVE

Feature

1. Near - Linear Flow Characteristics
2. The Gauge Cover also serves as an Indicator, allowing easy check of Opening Degree
3. Resistant to High Abrasion and Chemical

MATERIAL

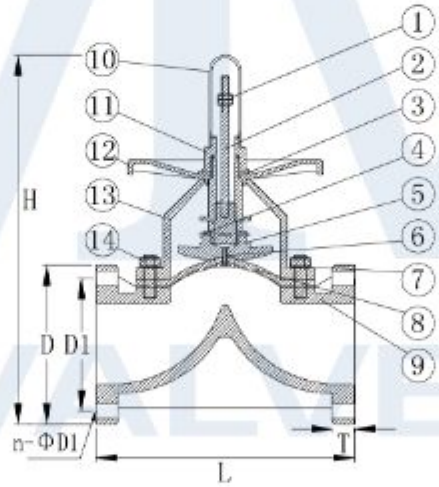
No	Parts Name	MATERIAL
1	Gasket	Steel/SS304
2	Indicator	PP
3	Cap	AS
4	Stop ring	Steel
5	Stem nut	Steel
6	Stem	Steel
7	Hand wheel	ABS
8	Nut	Steel/SS304
9	Washer	Steel/SS304
10	Gasket	Steel/SS304
11	Body	CPVC/PVC-U/PP/PVDF
12	Cushion	EPDM
13	Diaphragm	PTFE
14	Disc	CPVC/PVC-U/PP/PVDF
15	Pin	Steel
16	Screw	Steel/SS304
17	Bolt	Steel/SS304
18	Gasket	Steel/SS304
19	Bonnet	CPVC/PVC-U/PP/PVDF



RPV111 (Size 1/2 " - 4")

MATERIAL

No	Parts Name	MATERIAL
1	Set Nut	Steel/SS304
2	Stem	Steel
3	Gasket	PP-G
4	Pin	Steel
5	Compressor	Cast Iron
6	Screw	Steel/SS304
7	Gasket	PP-GF
8	Cover	AS
9	Cap	PP-G
10	Hand Wheel	ABS
11	Diaphragm	PTFE+EPDM
12	Body	CPVC/PVC-U/PP/PVDF
13	Bonnet	CPVC/PVC-U/PP/PVDF
14	Bolt&Nut	Steel/SS304



RPV112 (Size 5 " - 10")

DIMENSIONS (mm)

SIZE		DI			D	L	n-Φd			Weight
DN	INCH	PN10	ANSI150	JIS10K			PN10	ANSI150	JIS10K	Kg
DN15	1/2"	65	60	70	95	125	4-14	4-16	4-15	0.9
DN20	3/4"	75	70	75	105	135	4-14	4-16	4-15	1.2
DN25	1"	85	80	90	115	145	4-14	4-16	4-19	1.4
DN32	1 - 1/4"	100	89	100	135	160	4-18	4-16	4-19	1.8
DN40	1 - 1/2"	110	98	105	145	180	4-18	4-16	4-19	2.6
DN50	2"	125	120	120	160	210	4-18	4-19	4-19	3.4
DN65	2 - 1/2"	145	140	140	180	250	4-18	4-19	4-19	5.8
DN80	3"	160	152	150	195	300	8-18	4-19	8-19	7.4
DN100	4"	180	190	170	215	350	8-18	8-19	8-19	11
DN125	5"	210	216	210	255	400	8-18	8-22	8-19	18
DN150	6"	240	241	240	280	460	8-22	8-22	8-23	31
DN200	8"	295	298	290	340	570	8-22	8-22	12-23	45
DN250	10"	350	362	355	395	680	12-22	12-26	12-25	58

Specification is subject to change without prior notice

MODEL : EXJO | Expansion Joint

Connection : Flange PN 16, PN 40, ANSI 150, ANSI 300

VTV VALVE

Flow →

VTV BELLOWS CONNECTORS

WITH TIE RODS

The Bellow Pump Connector, which is kept stocked to 14" for fast delivery, is designed to meet a broad set of needs. It has a 2-ply construction and tie rods that allow it to work well, and economically, in many situations.

SIZE	SHORT/ LONG*	COMPRESSION*			FLANGED ENDS						WELD ENDS					
		50 psi (in)	150 psi (in)	300 psi (in)	50 psi		150 psi		300 psi		50 psi		150 psi		300 psi	
					OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)	OAL (in)	WT (lbs)
2"	S	1-1/8	1-1/8	3/4	6-1/2	11	6-1/2	11	6-1/2	12	9-7/8	3	9-7/8	3	9-7/8	3
	L	1-3/4	1-3/4	1-1/4	8-1/2	13	8-1/2	13	8-1/2	14	11-3/4	4	11-3/4	4	11-3/4	4
2-1/2"	S	1	1	3/4	7	14	7	14	7	16	9-7/8	3	9-7/8	3	9-7/8	3
	L	1-3/4	1-3/4	1-1/4	8-7/8	16	8-7/8	16	8-7/8	17	11-3/4	4	11-3/4	4	11-3/4	4
3"	S	1	1	3/4	7-3/8	17	7-3/8	20	7-3/8	21	10-1/2	5	10-1/2	5	10-1/2	5
	L	2	2	1-3/8	9	18	9	21	9	22	12	6	12	6	12	7
4"	S	1-1/4	1-1/4	7/8	7-1/2	27	7-1/2	35	7-1/2	37	10-5/8	8	10-5/8	8	10-5/8	9
	L	2-1/2	2-1/2	1-3/4	10-3/4	28	10-3/4	38	10-3/4	40	13-3/4	9	13-3/4	9	13-3/4	10
5"	S	1-1/4	1-1/4	3/4	7-5/8	33	7-5/8	45	7-5/8	47	10-5/8	13	10-5/8	13	10-5/8	14
	L	2-1/2	2-1/2	1-3/4	11-1/4	34	11-1/4	49	11-1/4	51	14-1/4	15	14-1/4	15	14-1/4	17
6"	S	1-1/4	1-1/4	3/4	8	43	8	85	8	89	11	18	11	18	11	20
	L	2-1/2	2-1/2	1-3/4	11-1/2	47	11-1/2	90	11-1/2	94	14-1/2	20	14-1/2	20	14-1/2	22
8"	S	1-1/2	1-1/2	1	9-1/4	64	9-1/4	120	9-1/4	126	12-1/8	22	12-1/8	22	12-1/8	24
	L	3	3	2	13-1/4	71	13-1/4	125	13-1/4	131	16-1/8	26	16-1/8	26	16-1/8	29
10"	S	1-1/2	1-1/2	1	9-3/8	45	9-3/8	160	9-3/8	168	12-1/8	25	12-1/8	25	12-1/8	27
	L	3-3/8	3-1/4	2-1/2	14-3/8	52	14-3/8	170	14-3/8	179	17-1/4	32	17-1/4	32	17-1/4	35
12"	S	1-1/2	1-1/2	1	9-3/4	70	9-3/4	200	9-3/4	210	12-1/2	35	12-1/2	35	12-1/2	39
	L	3-1/4	3-1/8	2-1/4	13-1/2	85	13-1/2	220	13-1/2	231	16-1/4	42	16-1/4	42	16-1/4	46
14"	S	1-3/4	1-1/2	1	10-3/8	98	10-3/8	220	10-3/8	386	14-1/8	56	14-1/8	68	14-1/8	132
	L	3-1/2	3	2	15	112	15	240	15	414	18-3/4	70	18-3/4	88	18-3/4	160
16"	S	1-3/4	1-1/2	1-1/2	11-1/4	112	11-1/4	232	11-1/4	440	15	62	15	68	15	92
	L	3-1/2	3	3	16-3/4	127	16-3/4	250	16-3/4	470	20-1/2	77	20-1/2	86	20-1/2	122
18"	S	1-3/4	1-1/2	1-1/2	11-1/2	112	11-1/2	296	11-1/2	564	15	57	15	71	15	99
	L	3-1/2	3	3	17	123	17	314	17	598	20-1/2	68	20-1/2	89	20-1/2	131
20"	S	1-3/4	1-1/2	1-1/2	13-3/8	130	13-3/8	378	13-3/8	710	15	72	15	88	15	113
	L	3-1/2	3	3	18-7/8	146	18-7/8	402	18-7/8	750	20-1/2	88	20-1/2	112	20-1/2	173
22"	S	1-3/4	1-1/2	1-1/2	14	140	14	426	14	830	15	78	15	100	15	152
	L	3-1/2	3	3	19-1/2	157	19-1/2	454	19-1/2	875	20-1/2	95	20-1/2	128	20-1/2	202
24"	S	1-3/4	1-1/2	1-1/2	14-1/4	220	14-1/4	495	14-1/4	1030	15	88	15	116	15	180
	L	3-1/2	3	3	19-3/4	240	19-3/4	520	19-3/4	1070	20-1/2	108	20-1/2	150	20-1/2	220
30"	S	1-3/4	1-1/2	-	9	370	9	**	-	-	11-1/2	128	11-1/2	196	-	-
	L	3-1/2	3	-	14-1/2	405	14-1/2	**	-	-	17	162	17	264	-	-
36"	S	1-3/4	1-1/2	-	9	575	9	**	-	-	11-1/2	180	11-1/2	235	-	-
	L	3-1/2	3	-	14-1/2	625	14-1/2	**	-	-	17	230	17	315	-	-
42"	S	1-3/4	1-1/2	-	9	770	9	**	-	-	11-1/2	205	11-1/2	265	-	-
	L	3-1/2	3	-	14-1/2	830	14-1/2	**	-	-	17	355	17	355	-	-
48"	S	1-3/4	1-1/2	-	10-1/2	970	10-1/2	**	-	-	11-1/2	320	11-1/2	320	-	-
	L	3-1/2	3	-	16	1030	16	**	-	-	17	420	17	420	-	-

Specification is subject to change without prior notice

Tube End Type - BM - 250 Series (One ply bellows for medium pressure)
BM - 400 Series (Multyply bellows for high pressure)

Feature

Stainless steel bellows welded with tube end or threaded tube end. Internal sleeve is optional. Designed to accommodate axial movement of pipeline in medium (JF-250series) and high (JF-400series) working pressure and high working temperature.

CONSTRUCTION

Item	Parts	250SP	250P	250ST	400SP	400P
1	Bellows	◎	◎	◎	◎	◎
2	Internal Sleeve	◎		◎	◎	
3	Tube End	◎	◎	◎	◎	◎
4	Threaded Tube End			◎		

Installation
Heating no need elongation to getting compression 50 mm. or 75 mm.
Cooling need compression 50 mm. or 75 mm. to getting expansion 50 mm. or 75 mm.

Specification

Nominal Bore		Total Length		Bellows				Axial Movement		Working Pressure		Axial Spring Rate	Effective Area	
				O.D.		CORR.	PLY							
mm	inch	mm	inch	mm	inch	No.	No.	mm	inch	bar	psi	N/mm	cm²	inch²
40	1 1/2	360 515	14.17 20.28	58.0	2.28	32 48	2	-50 -75	2 3	25	363	29.00 19.34	20.2	3.1
50	2	360 515	14.17 20.28	73.0	2.85	24 36	2	-50 -75	2 3	25	363	44.25 29.50	32.1	5.0
65	2 1/2	360 515	14.17 20.28	90.0	3.54	20 30	2	-50 -75	2 3	25	363	89.82 59.88	49.1	7.6
80	3	360 515	14.17 20.28	104.5	4.11	20 30	2	-50 -75	2 3	25	363	81.54 54.36	67.4	10.5
100	4	360 515	14.17 20.28	132.0	5.20	16 24	2	-50 -75	2 3	25	363	146.06 97.37	108.9	16.9
125	5	360 515	14.17 20.28	161.0	6.34	15 23	2	-50 -75	2 3	25	363	161.14 105.33	167.1	25.9
150	6	360 515	14.17 20.28	190.0	7.48	14 21	2	-50 -75	2 3	25	363	192.81 128.54	239.2	37.1
200	8	360 515	14.17 20.28	250.0	9.84	13 19	2	-50 -75	2 3	16	232	264.16 179.99	420.9	65.2
250	10	360 515	14.17 20.28	312.0	12.28	12 18	2	-50 -75	2 3	16	232	428.99 285.99	644.6	103.0
300	12	360 515	14.17 20.28	364.5	14.35	12 18	2	-50 -75	2 3	16	232	499.81 333.21	925.4	143.4

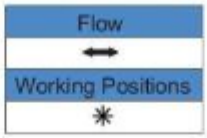
Other movements, sizes, and pressure expansion joint available on request

Pressure Temperature rating with ISO - 15348						
Bar	Temperature in degree C					
	-120 °C	150 °C	200 °C	250 °C	300 °C	350 °C
PN25	25	22.85	20.89	19.58	18.61	17.62
PN16	16	14.62	13.37	12.53	11.91	11.28

MODEL : RFJ-201 [Rubber Flexible Joint Single Bellow]

Connection : Flange JIS 10K

VALVE



VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Water
2. General Industrial Plants
3. Pump lines
4. Turbine lines
5. Shipbuilding yards

◆ **Suitable for :** 1. Water
2. Oil
3. Non-abrasive media

Max. Pressure :10 Bar
Max. Temp : 80°C

◆ **DIMENSIONS (mm)**

DN		L (mm)	Axial Displacement (mm)		Horizontal Displacement (mm)	Angular Deflection (a1+a2)°	Weight (Kg)
mm	Inch		Extension	Compression			
50	2	105	7	10	10	15°	4.8
65	2-1/2	115	7	13	11	15°	5.5
80	3	135	8	15	12	15°	6.4
100	4	150	10	19	13	15°	9.2
125	5	165	12	19	13	15°	11
150	6	180	12	20	14	15°	13
200	8	210	16	25	22	15°	18.5
250	10	230	16	25	22	15°	27
300	12	245	16	25	22	15°	40
350	14	255	16	25	22	15°	57
400	16	255	16	25	22	15°	74
450	18	255	16	25	22	15°	79
500	20	255	16	25	22	15°	86

MODEL : RFJ-202 [Rubber Flexible Joint Double Bellows]

Connection : Flange JIS 10K

Flow
⟷
Working Positions
✳

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical
3. Power Plant
4. Oil Industries
5. Pulp and Papper Mill
6. Heating
7. Cooling System

◆ **Suitable for :** 1. Water
2. Steam
3. Oil
4. Non-abrasive media

Max. Pressure :10 Bar
Max. Temp : 80°C

◆ **DIMENSIONS (mm)**

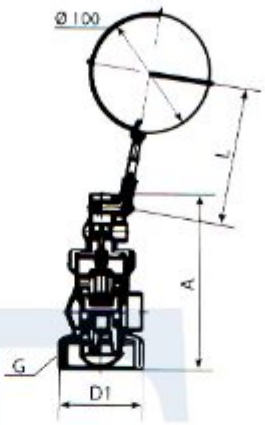
DN		L (mm)	Axial Displacement (mm)		Horizontal Displacement (mm)	Angular Deflection (a1+a2)°	Weight (Kg)
mm	Inch		Extension	Compression			
50	2	150	10	20	20	30°	5
65	2-1/2	150	10	20	20	30°	6
80	3	150	10	20	20	30°	7
100	4	200	15	25	25	30°	10
125	5	200	15	25	25	30°	12
150	6	200	15	25	25	30°	14
200	8	200	20	30	30	30°	20
250	10	200	20	30	30	30°	29
300	12	200	20	30	30	30°	43
350	14	220	20	30	30	30°	61
400	16	220	20	30	30	30°	79
450	18	220	25	30	30	30°	85
500	20	240	25	30	30	30°	94

MODEL : Floating Ball Valve 901/902

Connection : Flange JIS 10K, BSPT Thread

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Plumbing Sanitary
3. Chilled Water and Hot Water piping system

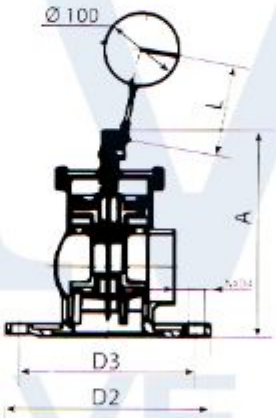
Flow
⌜
Working Positions
↑



◆ Suitable for :
1. Water
2. Non-abrasive media

◆ DESCRIPTION
1. Flange drilled to EN1092-2
2. Type : Angle type
3. Size : DN15-DN200

◆ SPECIFICATION
1. Nominal Pressure: 0.04MPa≤P≤0.06MPa
2. Working Medium: Water
3. Working Temperature: 0°C ≤ t ≤ 60°C
4. Material - Body: Brass
5. Material - Ball: Stainless Steel
6. End connection:
   901 : JIS 10K Flange
   902 : BSPT Thread



◆ DIMENSIONS (mm)

DN		DIMENSION						
mm	inch	A	L	D1	D2	D3	D4	N
15	1/2"	73	260	25	-	-	-	-
20	3/4"	118.5	260	30	-	-	-	-
25	1"	120	260	38	-	-	-	-
40	1 1/2"	148	260	57	-	-	-	-
50	2"	151	260	70	-	-	-	-
65	2 1/2"	195	260	86	-	-	-	-
80	3"	246	260	70	185	150	19	8
100	4"	269	260	86	210	175	19	8
150	6"	289	260	70	280	240	23	8
200	8"	347	260	86	330	290	23	12

Specification is subject to change without prior notice

MODEL : FV-301 Cast Iron [Flange Foot Valve]

Connection : Flange JIS 10K

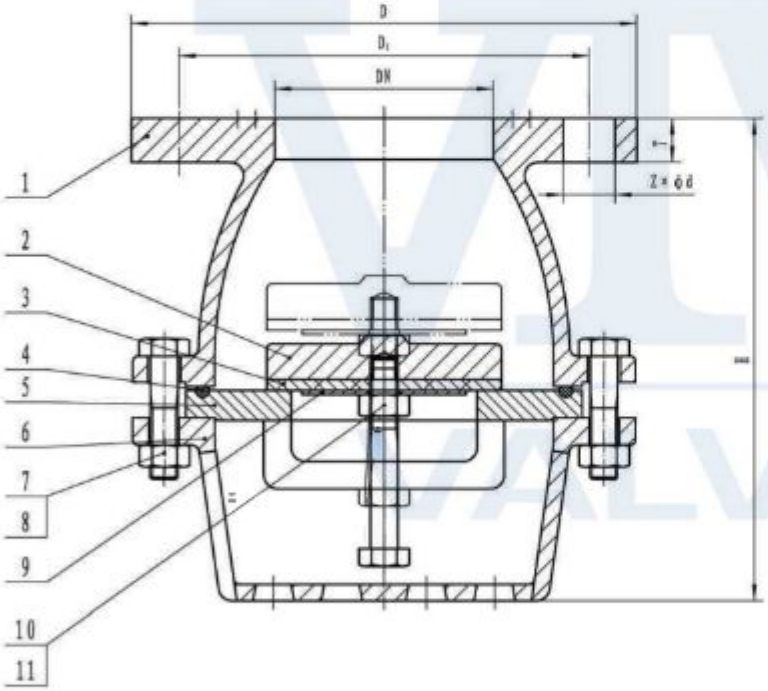
VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical
3. Water Treatment Plant
4. Cooling System

Flow
↑

◆ **Suitable for :** 1. Water
2. Oil
3. Non-abrasive media

◆ **DESCRIPTION**

-Working Temperature : ≤150°C
-Flange Dimensions : DIN 2532/2533
other flange standard available.
available for the without valve seal
plate type also.



◆ **MATERIAL LIST**

No	NAME OF PARTS	MATERIAL
1	BODY	FC200
2	DISC	FC200
3	SEAL GASKET	NBR
4	O-RING	NBR
5	SEAT	FC200
6	COVER	FC200
7	BOLT	UNC
8	NUT	UNC
9	GASKET	Q235
10	NUT	UNC
11	BOLT	UNC

◆ **DIMENSIONS (mm)**

DN	DN	D1	Z—Φd	H	T	KG
50	155	230	4—Φ19	162	14	5.13
65	175	140	4—Φ19	167	14	6.07
80	185	150	8—Φ19	177	16	7.5
100	210	175	8—Φ19	206	18	10.6
125	250	210	8—Φ23	256	20	18.4
150	280	240	8—Φ23	302	20	26.17

Specification is subject to change without prior notice

MODEL : FV-301 Stainless Steel [Flange Foot Valve]

Connection : Flange JIS 10K

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical
3. Water Treatment Plant
4. Cooling System

◆ **Suitable for :** 1. Water
2. Sewage
3. Oil

◆ **Description**

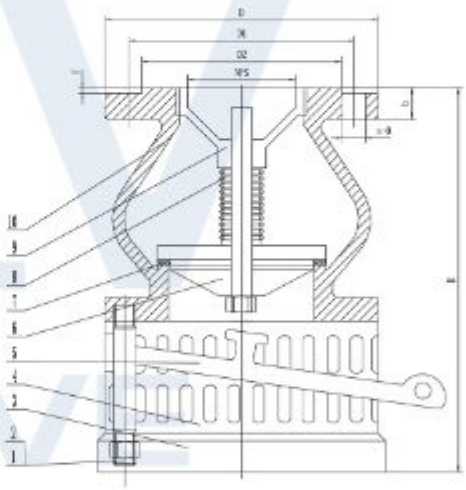
Test Pressure : Shell 0.98 Mpa
Seat 0-0.98 Mpa

Work Temperature : ≤ 175°C

The foot valve is a kind of valve wich save sources, usually be assembled at the bottom of pump underwater sucker, it obstruct the liquid that in the tube of pump go back to waterhead, the function is entry but no out.

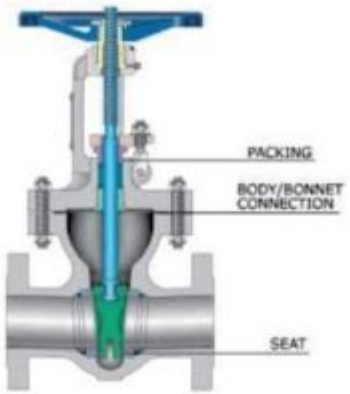
◆ **MATERIAL LIST**

No.	Parts	Material
1	Bolt	A193 B8
2	Nut	A194 8
3	Chassis	A351 CF8
4	Strainer	SS304
5	Wash the rod	A351 CF8
6	Disc	A351 CF8
7	Seat	EPDM
8	Spring	SS304
9	Guide Frame	A351 CF8
10	Body	A351 CF8



◆ **DIMENSIONS (mm)**

NPS	D	D1	D2	b-f	n—Φ	H	Kg
2"	155	120	96	16-2	4-19	210	6.5
2 1/2"	175	140	116	18-2	4-19	210	7.4
3"	185	150	126	18-2	8-19	215	9.5
4"	210	175	151	18-2	8-19	235	13.5
5"	250	210	182	20-2	8-23	260	18.5
6"	280	240	212	22-2	8-23	277	28
8"	330	290	262	22-2	12-23	350	38.5



◆ MAIN CHARACTER AND PURPOSE:

1. The valve had tight construction, reasonable design, excellent rigidness. It can be full bore. The flow is smooth, and abstruction of the liquid is low.

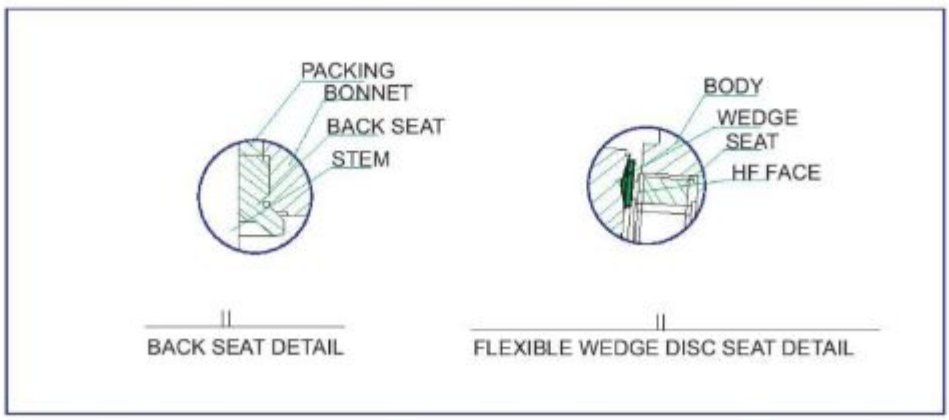
2. We use the flexible wedge for the seal construction. the stainless steel or co-r-w hard sealing face is overlaying on the seal face. The seal face is reliable, wear-resisting, and endure the washout. its using time is long.

3. We use the graphite packing. The seal is reliable and operation is nimble.

4. The operation has hand operated, gear operated, electrictity operated, and pneumatic operated, etc.

5. To change the packing during working, we had the design for back seat. This can raise the effeciency of pipeline.

6. This valve is applicable to connect or interrupt the pipeline for medium like potroleum, steam, and etc.



MODEL : GV-202 | Rising Stem Gate Valve]

Connection : PN16 | JIS 10K

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including:
1. Palm Oil and Refinery Plant
2. Food Industries
3. Building Services
4. Water Treatment
5. Petrochemical
6. Fire Protection System
7. Power Plant

Flow
⟷
Working Positions
✳

◆ SPECIFICATION

Face to Face	: JIS B2002 | DIN 3202-F1
Flange Connection	: JIS B2002 | DIN 2501 - PN16
Testing	: JIS B2212 | DIN 2401
Rating P-T	: JIS B2003 | DIN EN1092

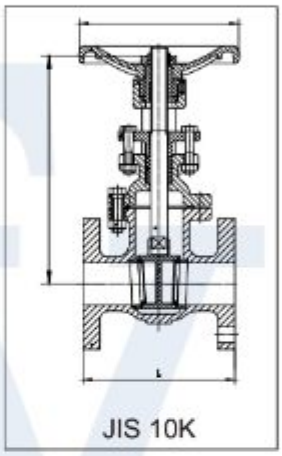
◆ Suitable for :

1. Water
2. Oil

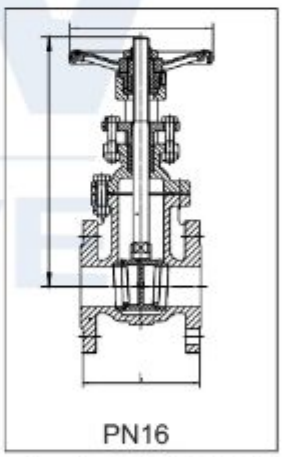
◆ SPECIAL FEATURE

1. VTV screw in and fully tight shut off - 100% tested
2. VTV sealing with die form graphite for high temperature
3. VTV with back up seat - 100% gland tight shut off when opening position
4. VTV design with bb, os&y with swivel disc
5. VTV stem nut is mounted with ball bearings to reduce operating torque for ease of manual operation in larger sizes and higher classes.

**Optional : with gear or chain gear operated*



JIS 10K



PN16

*Optional : SS304 | SS316

◆ MATERIAL LIST

Fig	GV202-CI-JIS 10K	GV202-CI-PN16
Body	FC200 - Cast Iron	GG-25 Cast Iron
Seal Ring	Brass	Brass
Wedge / Disc	FC200 + SS304	FC200 + SS304
Bonnet Gasket	Graphite + SS316 spiral	Graphite + SS316 spiral
Packing	Die Form Flexible Graphite	Die Form Flexible Graphite
Gland	FC200 - Cast Iron	GG-25 Cast Iron
Bonnet	FC200 - Cast Iron	GG-25 Cast Iron
Stem	2Cr13	2Cr13
Handwheel	FC200 - Cast Iron	GG-25 Cast Iron

◆ DIMENSIONS AND WEIGHTS JIS 10K

NPS	in	2	2-1/2	3	4	5	6	8	10	12
DN	mm	50	65	80	100	125	150	200	250	300
L (RF)	mm	180	190	200	230	250	270	290	330	350
WT (Kg)	RF	14.7	18.5	23.2	33.4	45.5	62.1	101.3	166	220

◆ DIMENSIONS AND WEIGHTS PN 16

NPS	in	2	2-1/2	3	4	5	6	8	10	12
DN	mm	50	65	80	100	125	150	200	250	300
L (RF)	mm	150	170	180	190	200	210	230	250	270
WT (Kg)	RF	15.6	18	23.8	32.6	41.7	57.1	82.7	127.5	190.5

Specification is subject to change without prior notice

MODEL : GV-202 | Rising Stem Gate Valve, Outside Screw and Yoke |

Connection : ANSI 150, 300, 600

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including:
1. Palm Oil and Refinery Plant
2. Food Industries
3. Building Services
4. Cooling System
5. Petrochemical
6. Fire Protection System
7. Power Plant

Flow
⟷
Working Positions
✳

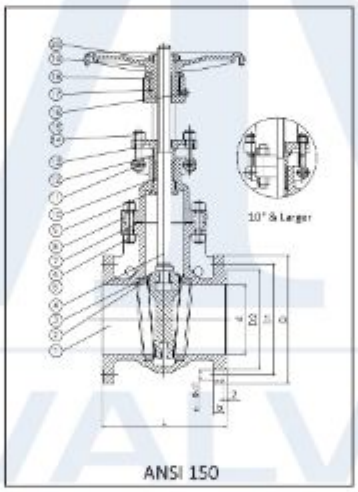
◆ SPECIFICATION

Valve Design	: API 600 Trims
Face to face	: ASME 16.10
Flange Connection	: ASME B16.5
Testing	: API 598
Rating P-T	: ASME B16.34

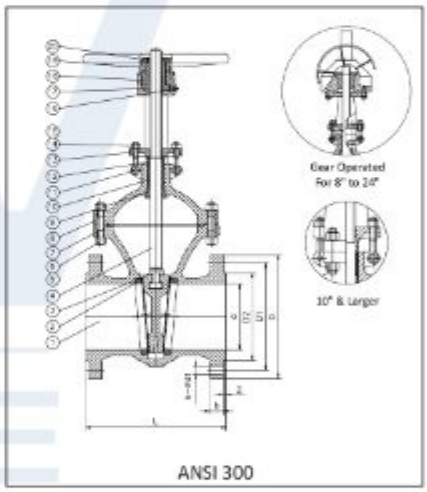
◆ Suitable for :
1. Water
2. Oil
3. Gases

◆ MATERIAL LIST

No.	Parts	Material
1	*Body	ASTM A216 WCB
2	*Seat ring	ASTM A105+13Cr
3	*Wedge	ASTM A216 WCB+13Cr
4	*Stem	ASTM A182 F6a
5	Bonnet nut	ASTM A194 2H
6	Bonnet bolt	ASTM A193 B7
7	Gasket	SS304+Graphite
8	*Bonnet	ASTM A216 WCB
9	Backseat	ASTM A276 410
10	Packing	GRAPHITE
11	Pin	ANSI1035
12	*Gland	ASTM A276 410
13	Gland flange	ASTM A276 WCB
14	Gland nut	ASTM A194 2H
15	Gland eyebolt	ASTM A193 B7
16	Grease nipple	ASTM A570 Gr.A
17	Stem nut	Bronze alloy
18	Retaining nut	ANSI 1035
19	Handwheel	Ductile iron
20	locking nut	ANSI 1025



ANSI 150

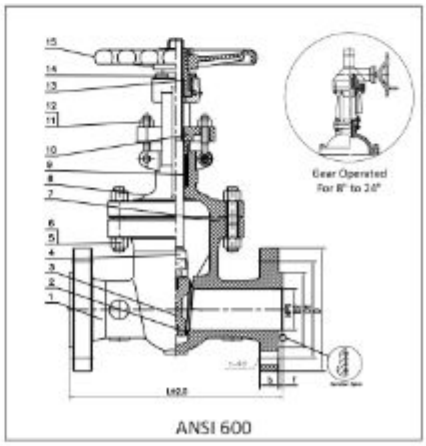


ANSI 300

*Optional : SS304 | SS316

◆ DIMENSIONS AND WEIGHTS ANSI 150, ANSI 300, ANSI 600

NPS	DN (mm)	L (RF)			D			b			Weight (Kg)		
		150#	300#	600#	150#	300#	600#	150#	300#	600#	150#	300#	600#
2"	50	178	216	292	150	165	165	14.3	20.7	25	18	22	34
2.5"	65	190	241	330	180	190	190	15.9	23.9	29	23	34	54
3"	80	203	283	356	190	210	210	17.5	27	32	28	46	61
4"	100	229	305	432	230	255	275	22.3	30.2	38	42	70	111
5"	125	254	381	508	255	280	330	22.3	33.4	45	50	100	174
6"	150	267	403	559	280	320	355	23.9	35	48	70	120	220
8"	200	292	419	660	345	380	420	27	39.7	56	110	205	480
10"	250	330	457	787	405	445	510	28.6	46.1	64	170	320	740
12"	300	356	502	838	485	520	560	30.2	49.3	67	260	440	990
14"	350	381	762	889	535	585	605	33.4	52.4	70	380	688	1230
16"	400	406	838	991	595	600	685	35	55.6	76	480	996	1610
18"	450	432	914	1092	635	710	745	38.1	58.8	83	600	1430	2100
20"	500	457	991	1194	700	775	815	41.3	62	89	780	1925	2890
24"	600	508	1143	1397	815	915	940	46.1	68.3	102	1265	2585	3320



ANSI 600

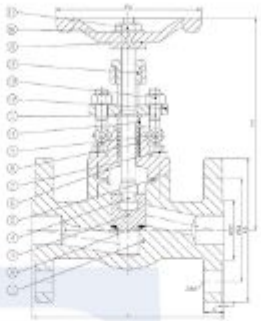
Specification is subject to change without prior notice

MODEL : GV-301 [Forged Steel Gate Valve]

Connection : Socked Weld, Screw Class 800, 1500, Flange ANSI 150, 300

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including:
1. Palm Oil and Refinery Plant
2. Petrochemical
3. Power Plant
4. Oil & Gas Industires
5. Pulp and Papper Mill
6. Heating
7. Cooling System

Flow
⟷
Working Positions
✳



Class150

◆ DESIGN STRUCTURE AND FEATURE

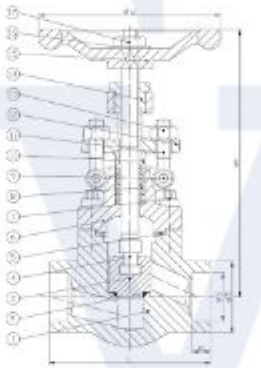
1. Design and manufacture: ANSI B16.34;API 602;BS5352
2. Ends connection
   - SW dimension;ANSI B16.11;JIS B2306
   - Screwed dimension;ANSI B1.20.1 BS21; ISO7/1;JIS B0203
3. Valve inspection and test:API 598
4. Material according to AISI/ASTM
5. Body Material: A105;F5;F11;F22;304L;316;316L;LF2
6. Mark: MSS-SP-25

◆ STRUCTURE AND FEATURE

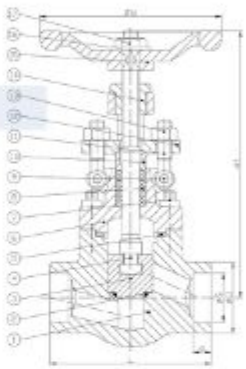
1. Full Bore or Reduced Bore
2. Outside screwed and yoke
3. Bushing type
4. Bolted, fully welded and pressure-in bonnet
5. Integral backseat

◆ APPLIED NORM

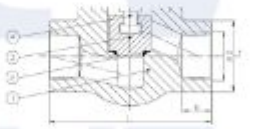
1. Design and manufacture: API 602;
2. Ends Connection
   - SW Dimension: ASME B16.11; JB/T1751
   - Screwed Dimension: ANSI B1.20.1; JBFF73.8
   - BW dimension; ANSI B16.28; JB/T 12224
   - Flange dimension; ANSI B16; JB79
3. Structural feature: B.B or W.B; OS&Y, or Welded Bonnet (W.B) and Outside OS&Y
4. Body material; A105; LF2; F11; F22; F304; F316; F321; F51; Monel; 20#alloy
5. Valve inspection and test according to API 598 ; GBFF 13927; JBFF 9092



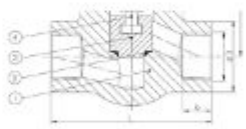
Class800 SW



Class1500 SW



Class800 NPT



Class1500 NPT

◆ MATERIAL LIST

No	Parts	Material
1	Body	ASTM A105N
2	Wedge	ASTM A182 F6a
3	Seat Rings	ASTM A276 410
4	Stem	ASTM A182 F6a
5	Gasket	SS304 Spiral with Graphite Filler
6	Bonnet	ASTM A105N
7	Bonnet Bolt	ASTM A193 B7
8	Gland Packing	Graphite + Fiber
9	Pin	Carbon steel
10	Gland	ASTM A276 410
11	Gland eyebolt	ASTM A193 B7
12	Gland Flange	ASTM A105
13	Gland Nut	ASTM A194 SH
14	Stem nut	ASTM A276 410
15	Handwheel	Ductile Iron
16	H.W. Lock Nut	Carbon Steel
17	Nameplate	SS304
18	Lubricated Gasket	ASTM A276 410

◆ DIMENSIONS (mm)

SIZE	Dimension (mm) 150Lb								
	L	D	D1	D2	b-f	H	w	Z x ⌀ d	Weight
1/2"	108	90	60.5	35	11.5 - 2.0	164	100	4 x ⌀ 16	3.3
3/4"	117	100	70	43	13 - 2.0	164	100	4 x ⌀ 16	3.9
1"	127	110	79.5	51	14.5 - 2.0	209	125	4 x ⌀ 16	6
1-1/4"	140	115	89	65.5	16 - 2.0	228	160	4 x ⌀ 16	7.7
1-1/2"	165	125	98.5	73	17.5 - 2.0	253	160	4 x ⌀ 16	10.2
2"	178	150	120.5	92	19.5 - 2.0	286	180	4 x ⌀ 19	13.8

Class	NPS	L	b (SW)	b (NPT)	D	S (SW)	T (NPT)	H	W	Weight (Kg)
800	1/2	79	10	16	34	21.8	1/2	164	100	2
	3/4	92	13	18	38	27.2	3/4	164	100	2.1
	1	111	13	20	50	33.9	1	209	125	3.5
	1 - 1/4	120	13	22	58	42.6	1 - 1/4	228	160	5.3
	1 - 1/2	120	13	22	64	48.8	1 - 1/2	253	160	5.5
	2	140	16	24	78	61.2	2	286	180	8.7

Class	NPS	L	b (SW)	b (NPT)	D	S (SW)	T (NPT)	H	W	Weight (Kg)
1500	1/2	111	10	16	49	21.8	1/2	202	125	3.7
	3/4	111	13	18	49	27.2	3/4	202	125	3.9
	1	120	13	20	58	33.9	1	228	160	5.3
	1 - 1/4	120	13	22	64	42.6	1 - 1/4	253	160	5.5
	1 - 1/2	140	13	22	78	48.8	1 - 1/2	286	180	8.7
	2	178	16	24	82	61.2	2	330	200	16.9

Specification is subject to change without prior notice

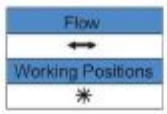
MODEL : GV -302 | Screw Stainless Steel Gate Valve

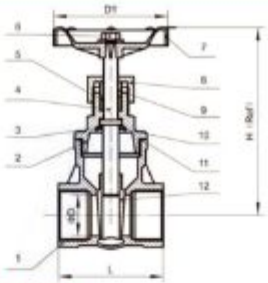
Connection: Screw Class 200

VALVE

◆ FEATURES

1. 200PSI/PN16
2. Investment Casting
3. PED97/23/EC(CE0035)Approved
4. Casting Approved AD2000-WO
5. Non-rising stem
6. Thread: ASME B1.20.1
   BS21.DIN2999/259
   ISO228-1,JS B 0203, ISO7/1
7. Inspection Testing: API598, EN12266





◆ MATERIAL LIST

ITEM	DESIGNATION	MATERIAL
1	BODY	CF8 / CF8M
2	BONNET	CF8 / CF8M
3	STOP RING	304
4	STEM	304
5	PACKING	PTFE
6	HANDWHEEL NUT	304
7	HAND WHEEL	ALUMINUM ALLOY
8	PACKING NUT	304
9	RING	304
10	LOCK NUT	304
11	GASKET	PTFE
12	DISC	CF8 / CF8M

◆ DIMENSIONS (mm)

DN	SIZE	L (mm)	B (mm)	D (mm)	H (mm)
15	1/2	46	11	60	59
20	4/3	52	14	60	66
25	1	65	19	60	70
32	1 1/4	74	25	70	80
40	1 1/2	80	30.5	80	90
50	2	100	38	105	110

◆ TECHNICAL SPECIFICATION

1. Nominal Pressure : 1.6 Mpa
2. Working Medium :
   Water, Non-corrosive Liquid, Saturated steam
3. Working Temperature : -20°C < t ≤ 150°C
4. Pipe thread conform to ISO 228 (GB/T7307)

MODEL : GV - THREADED | Union Bonnet Brass Gate Valve

Ends Type: Female NPT, BSP

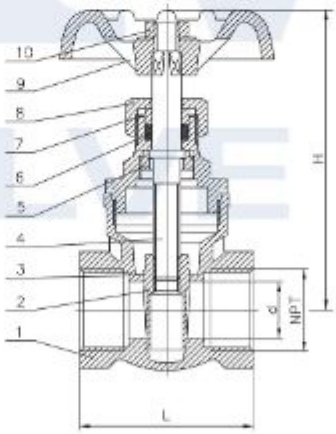
◆ DESIGN STANDARD

ASME B16.34, ISO 9001, CE

◆ DIMENSION

SIZE	NPT	d	H	L	H
DN15	1/2"	14	42	42	63
DN20	3/4"	17	46	46	68
DN25	1"	22	49	49	75
DN32	11/4"	27	53	53	88
DN40	11/2"	31	56	56	98
DN50	2"	40	65	65	107

◆ STRUCTURE



◆ TECHNICAL PARAMETERS

Nominal Diameter: 1/2"~4"(DN15~DN100)
Operating Temperature: -10 Deg. C~220 Deg. C
Main Materials: Brass
Pressure Rating: 200WOG, CL150, PN16
Ends Standard: ASME B1.20.1, BS21, ISO 7/1
Application: Sea water, Water, Steam, Oil and Gas

ITEM	DESIGNATION	MATERIAL
1	BODY	BRASS
2	GATE	
3	SEAT	
4	STEM	
5	WASHER	
6	PACKING	PTFE
7	PACKING GLAND	BRASS
8	GLAND NUT	
9	HANDWHEEL	STEEL
10	LOCKING NUT	SS304

◆ APPLICABLE MEDIA :

Water, non-corrosive liquid, saturated steam, etc.

◆ APPLICATION FIELDS :

The opening or closing stroke of the valve stem of the stop valve is relatively short, and it has a reliable cut-off function. At the same time, the change of the valve seat opening is in direct proportion to the stroke of the valve disc, which is suitable for flow adjustment. Therefore, this type of valve is very suitable for cutting off or regulating as well as throttling.

◆ MAIN CHARACTER AND PURPOSE:

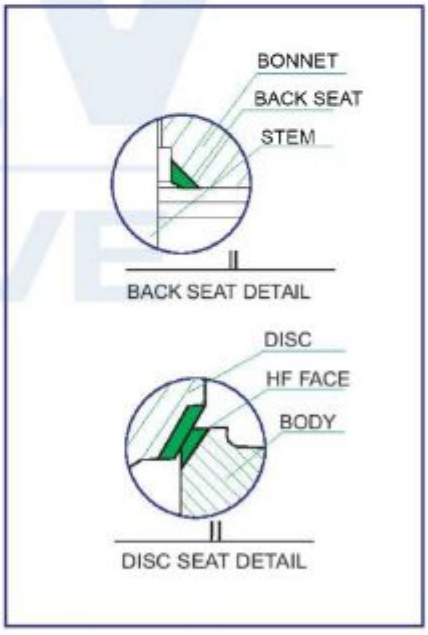
1. The product is design acc. to BS 1873 standart and strictly comply with API 589 standard. The construction is tight, seal is realible, and operation is nimble. This valve is applicable to connect or interrupt the pipeline for medium oil chemical, electricity, petroleum, steam, etc.

2. The sealing face use the taper seal. The stainless steel or co-r-w hard sealing face is overlaying the diffrence of material hardness on the hard sealing face overlay is HB50. This is to guarantee the sealed and extent the using time.

3. The spiral wound graphite packing can ensure the seal and nible operation.

4. Face to face dimension acc. to ASME B16.1 end flange dimension is acc. to ASME B16.5.

5. To change the packing during working, we had the design for back seat. this can raise the efficiency of pipeline.



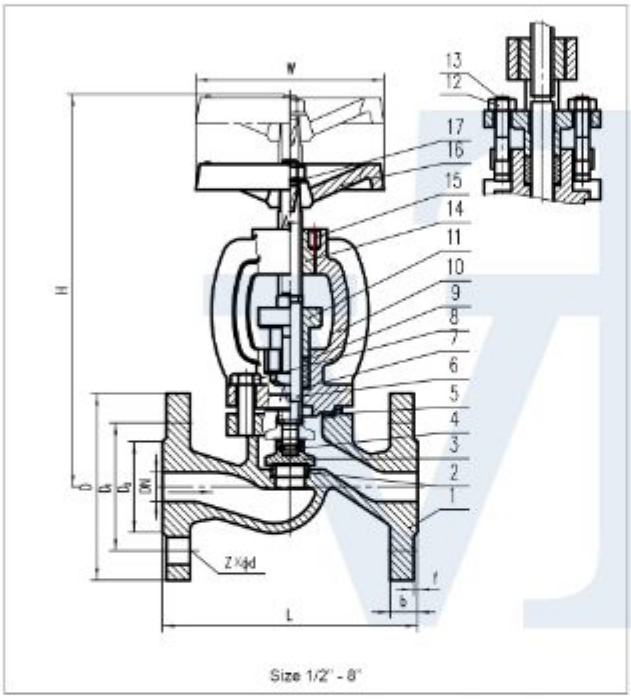
MODEL : GBV-201 [DIN Globe Valve]

Connection : Flange PN 16

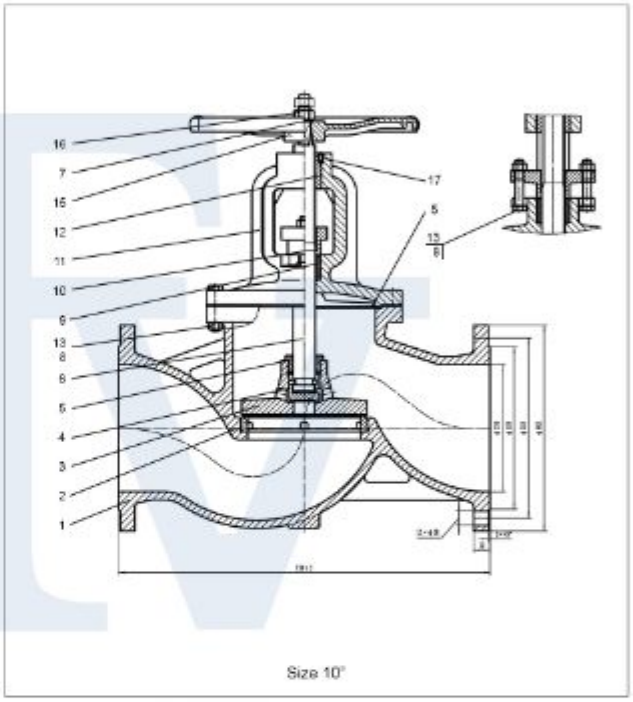
◆ DESCRIPTION

Design	: DIN 3356
Face to face	: DIN 3202
Flanges	: DIN 2501 DIN 2547 DIN 2526 FORM E BW TO DIN 3239
Testing	: DIN 3352 DIN 3230
Rating P - T	: DIN 2401
Suitable Medium	: W.O.G

Flow
⟷
Working Positions
✳



Size 1/2" - 8"



Size 10"

◆ MATERIAL LIST

No.	Parts	material	
		Size 1/2" - 8"	Size 10"
1	Body	CI GJL-250	GG25
2	Body/Seat Ring	SS 2Cr13	2Cr13
3	Disc/Disc Ring	DN15-DN65 SS2Cr13 DN15 DN65 STEEL A105+SS2CR13	A105
4	Little Disc	-	2Cr13
4	Ring	SS 304	-
5	Disc Cover	-	Q235
5	Gasket	STEEL#8 + GRAPHITE	08+Flexible Graphite
6	Stem	SS 2Cr13	2Cr13
7	Washer	STEEL	Q235
8	Bolt	STEEL	35
9	Packing	GRAPHITE	FLEXIBLE GRAPHITE
10	Bonnet	CI GJL-250	GG25
11	Gland	CI GJL-250	QT450
12	T Bolt	STEEL	-
12	York Nut	-	Brass
13	Bolt	STEEL	35
13	Nut	BRONZE	25
14	Pin	STEEL	-
15	Handwheel	DUCTILE IRON	QT450-10
16	Hexagonal Nut	-	25
17	Slotted flat end set screws	-	35

◆ DIMENSIONS (mm)

DN	L	D	D1	D2	b—f	Kg
15	130	95	65	46	14-2	3.1
20	150	105	75	56	16-2	3.87
25	160	115	85	65	16-2	4.95
32	180	140	100	76	18-2	7.9
40	200	150	110	84	18-2	9.32
50	230	165	125	99	20-2	14.13
65	290	185	145	120	20-2	19.42
80	310	200	160	132	22-2	28.77
100	350	220	180	156	24-2	38.27
125	400	250	210	184	26-2	60.2
150	480	285	240	211	26-2	78.7
200	600	340	295	266	30-2	122.27
250	730	405	355	319	32-2	208

*Optional : SS304 | SS316

Specification is subject to change without prior notice

MODEL : GBV-201 [DIN Globe Valve]

Connection : Flange PN 40

VALVE

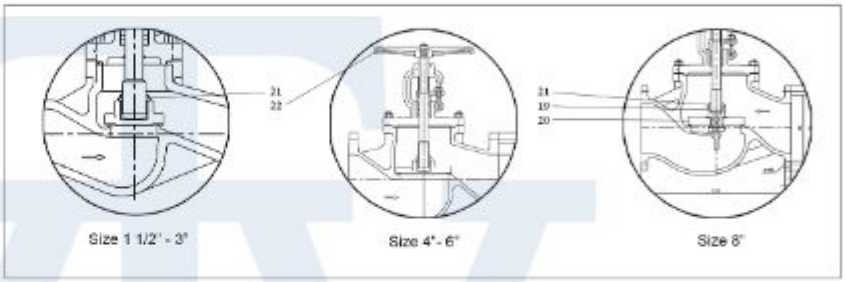
◆ DESCRIPTION

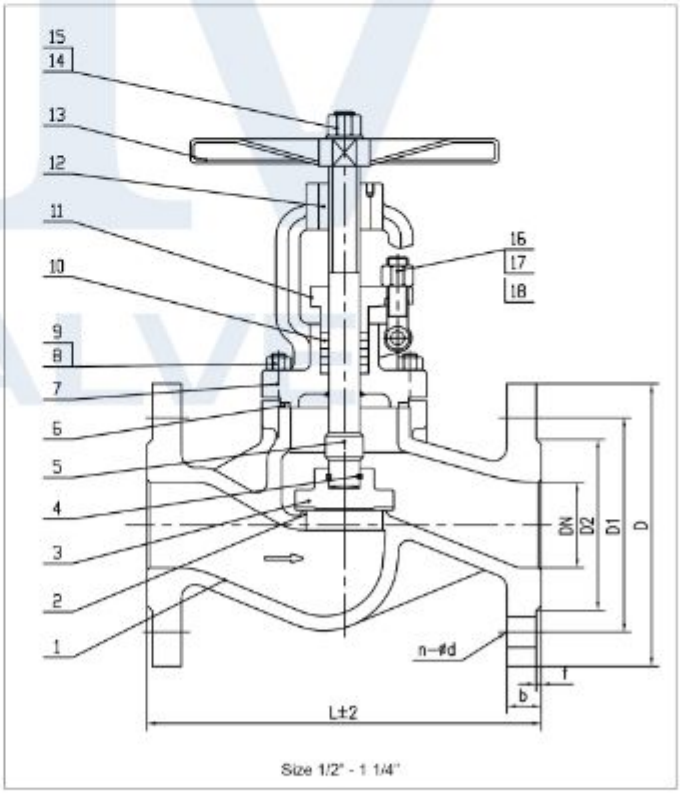
Design	: DIN 3356
Face to face	: DIN 3202
Flanges	: DIN 2501 DIN 2547 DIN 2526 FORM E BW TO DIN 3239
Testing	: DIN 3352 DIN 3230
Rating P - T	: DIN 2401
Suitable Medium	: W.O.G

Flow
⟷
Working Positions
✳

◆ MATERIAL LIST

No.	Parts	material
1	Body	GS-C25
2	Seat	GS-C25+13Cr
3	Disc	2cr13/A105+13Cr
4	Ball	SS304
5	Stem	2Cr13
6	Gasket	SS304+GRAPHITE
7	Bonnet	GS-C25
8	Bolt	A193 B7
9	Nut	A194 2H
10	Packing	GRAPHITE
11	Gland Flange	GS-C25
12	Stem Nut	COPPER
13	Handwheel	1025
14	Washer	13CR
15	Nut	A194 2H
16	Eye bolt	A193 B7
17	Nut	A194 2H
18	Pin	1035
19	Inner Disc	A105+13CR
20	Outer Disc	A105+13CR
21	Cap	1035
22	Handwheel	KTH330





◆ DIMENSIONS (mm)

DN	L	D	D1	D2	b—f	Kg
15	130	95	65	45	16-2	4.3
20	150	105	75	58	18-2	4.83
25	160	115	85	68	18-2	6.06
32	180	140	100	78	18-2	7.8
40	200	150	110	84	18-2	10.71
50	230	165	125	88	18-3	13.52
65	290	185	145	122	20-3	20.45
80	310	200	160	138	22-3	26.49
100	350	235	190	162	24-3	44.53
125	400	270	220	188	26-3	67.21
150	480	300	250	218	28-3	91
200	600	375	320	285	34-3	136

Specification is subject to change without prior notice

MODEL : GBV-202 [Bellow Seal Globe Valve]

Connection : Flange PN 16, PN 40

VALVE

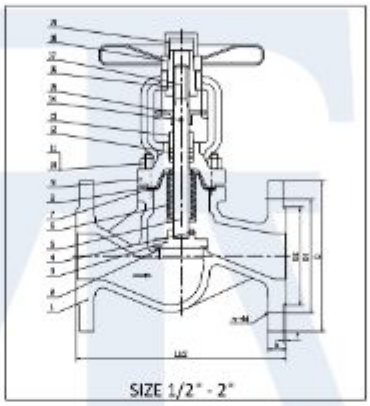
◆ DESCRIPTION

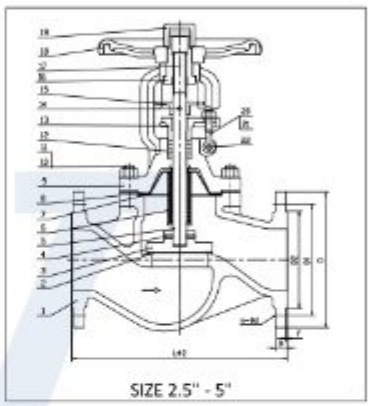
Design : DIN 3356
Face to face : DIN 3202
Flanges : DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
Testing : DIN 3352
DIN 3230
Rating P - T : DIN 2401
Suitable Medium : W.O.G

Flow
⟷
Working Positions
✳

◆ MATERIAL LIST

No.	Parts	Material			
		1/2" - 2"	2.5" - 5"	6"	8" - 12"
1	Body	GS-C25			
2	Seat	GS-C25+13Cr			
3	Disc	13Cr	A105+13Cr		-
4	Pin	SS304			
5	Stem	2Cr13			
6	Bellows	SS316L			
7	Sealing Member	SS304			1045
8	Gasket	SS304+GRAPHITE			
9	Bonnet	GS-C25			
10	Bolt	A193 B7			
11	Nut	A194 2H			
12	Packing	GRAPHITE			
13	Gland	A105	WCB		
14	Pin	65 MN			
15	Locator	1025			A216WCB
16	Stem Nut	1045			
17	Oil cup	COPPER			
18	Handwheel	1025	KTTH330		
19	Cap	A105			
20	Eye Bolt	-	A193 B7		
21	Nut	-	A194 2H		
22	Pin	-	1035		
23	Outer disc	-	-	-	A105+13Cr
24	Inner disc	-	-	-	A105+13Cr
25	Weld piece	-	-	-	SS304
26	Bearing	-	-	-	Unite
27	Cap	-	-	-	1035


SIZE 1/2" - 2"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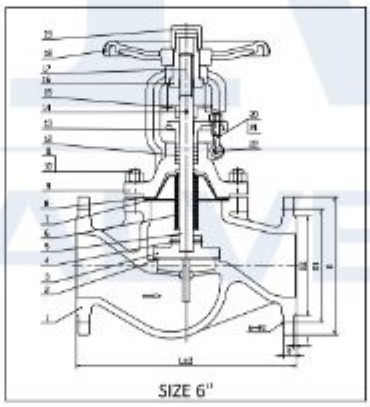
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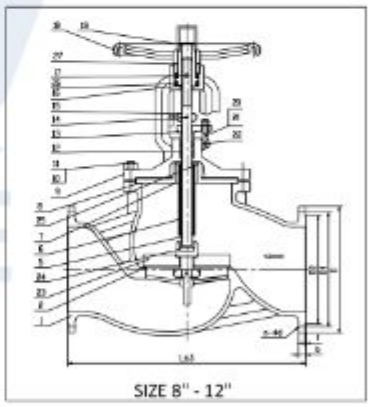

SIZE 8" - 12"

◆ DIMENSIONS (mm)

DN	D		D1		D2		b—f		L	Kg	
	PN16	PN40	PN16	PN40	PN16	PN40	PN16	PN40	PN16 PN40	PN16	PN40
15	95		65		45		16-2		130	3.8	4.3
20	105		75		58		18-2		150	4.35	4.9
25	115		85		68		18-2		160	5.75	6.3
32	140		100		78		18-2		180	7.2	8
40	150		110		88		18-3		200	9.4	10.2
50	165		125		102		18-3	20-3	230	12	13.2
65	185		145		122		18-3	22-3	290	18.4	22.8
80	200		160		138		20-3	24-3	310	23.3	28
100	220	235	180	190	158	162	20-2	24-3	350	36	43
125	250	270	210	220	188	188	22-2	26-3	400	54.1	62.3
150	285	300	240	250	212	218	22-3	28-3	480	72	96
200	340	375	295	320	268	285	24-3	34-3	600	118	181
250	405	450	355	385	320	345	26-3	38-3	730	260	288
300	460	515	410	450	378	410	28-4	42-4	850	400	420

Specification is subject to change without prior notice

MODEL : GBV-203 [Angle Globe Valve]

Connection : Flange PN 16 | PN 40

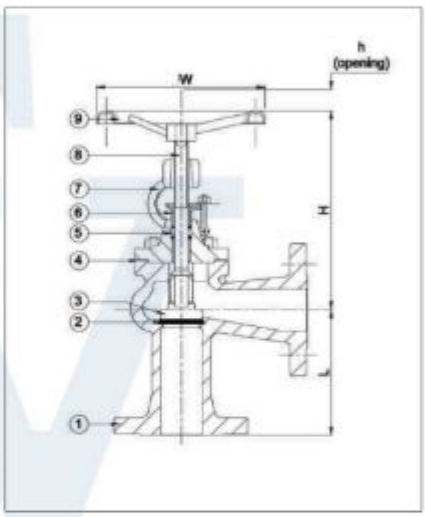
VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical
3. Food Industries
4. Heating
5. Cooling System

Flow
⌜
Working Positions
✳

◆ DESCRIPTION

Design	: DIN 3356
Face to face	: DIN 3202
Flanges	: DIN 2501 DIN 2547 DIN 2526 FORM E BW TO DIN 3239
Testing	: DIN 3352 DIN 3230
Rating	: DIN 2401
Suitable Medium	: W.O.G



◆ MATERIAL LIST

No.	Parts	PN 16 Rating	PN 40 Rating
1	*Body	Cast Iron EN-GJL-250	Cast Steel GP240GH
2	*Seat Ring	Stainless Steel X20Cr13	Stainless Steel X20Cr13
3	Disc	Stainless Steel X20Cr13	Stainless Steel X20Cr13
4	Gasket	Graphite - CrNiSt	Graphite - CrNiSt
5	Gland Packing	Graphite	Graphite
6	*Gland	Cast Iron EN-GJL-250	Forged Steel C 22.8
7	*Bonnet	Cast Iron EN-GLC-250	Cast Steel GP240GH
8	*Stem	Stainless Steel X20Cr13	Stainless Steel X20Cr13
9	Handwheel	Cast Iron EN-GJL-250	Cast Steel GP240GH

*Optional : SS304 | SS316

◆ DIMENSIONS (mm)

DN	L	H		h	W		Weight (Kg)	
		PN16	PN40	(Opening)	PN16	PN40	PN16	PN40
15	90	163	170	5	100	120	3.1	4.1
20	95	160	170	5	100	120	3.5	4.7
25	100	173	170	8	120	120	4.8	4.9
32	105	173	240	9	120	160	6.6	10.6
40	115	214	250	12	160	160	8.7	13.6
50	125	211	265	13	160	160	11.8	16
65	145	236	290	16	180	250	14	28
80	155	250	320	20	200	250	20.5	37
100	175	301	350	25	250	320	32.2	48
125	200	339	390	32	250	320	46	59.2
150	225	383	440	38	320	320	62	75.5
200	275	455	515	50	360	400	106	153

Specification is subject to change without prior notice

MODEL : GBV-201 Class 150 Cast Steel [ASME Globe Valve]

Connection : Flange ANSI 150

VALVE

◆ DESCRIPTION

Design	: BS 1873
Face to face	: ASME B16.10
Flanges	: ASME B16.5 BW ENDS TO ASME B16.25
Testing	: API 598 API 6D BS 6755
Rating P-T	: ASME B16.34
Suitable Medium	: W.O.G

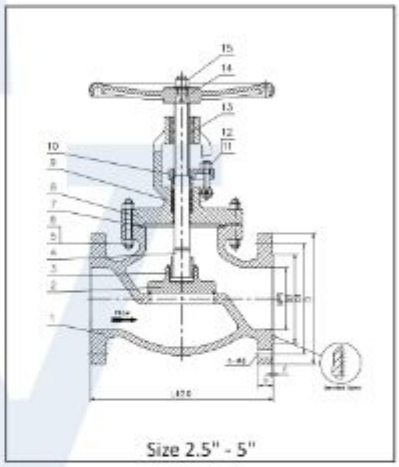
Flow
⟷
Working Positions
✳

◆ MATERIAL LIST

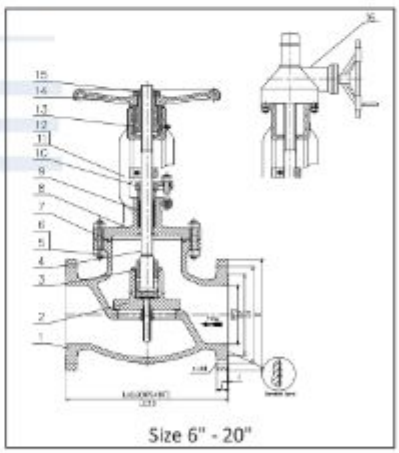
No.	Parts	Material
1	*Body	ASTM A216 WCB+%13Cr
2	Disc	ASTM A105+%13Cr
3	*Disc Cover	CARBON STEEL
4	*Stem	SS%13Cr
5	Bonnet Bolt	ASTM A193 B7
6	Bonnet Nut	ASTM A194 2H
7	Gasket	GRAPHITE+STEEL
8	Bonnet	ASTM A216 WCB
9	Stem Packing	GRAPHITE
10	Gland Flange	ASTM A216 WCB
11	Gland Bolt	ASTM A193 B7
12	Gland Nut	ASTM A194 2H
13	Stem Nut	COPPER ALLOY
14	Hand wheel	DUCTILE IRON
15	Nut	STEEL
16	**Gear + HW	ASSEMBLY

Optional : *SS304/SS316

** Size 6" to 20" with gear operated



Size 2.5" - 5"



Size 6" - 20"

◆ DIMENSIONS (mm)

NPS	DN	D	D1	D2	b—f	L	Weight (Kg)
2 "	50	150	120.7	92	16-2	203	19
2 1/2"	65	180	139.7	105	18-2	216	28
3 "	80	190	152.4	127	19-2	241	33
4 "	100	230	190.5	157	24-2	292	52
5 "	125	255	215.9	186	24-2	356	70
6"	150	280	241.3	216	26-2	406	93
8"	200	345	298.5	270	29-2	495	170
10"	250	405	362	234	31-2	622	265
12"	300	485	431.8	281	32-2	698	370
14"	350	535	476.3	413	35-2	787	460
16"	400	595	539.8	470	37-2	914	700
18"	450	635	577.9	533	40-2	978	850
20"	500	700	635	584	43-2	978	1230

Specification is subject to change without prior notice

MODEL : GBV-201 Class 300/600 Cast Steel [ASME Globe Valve]

Connection : Flange ANSI 300 | 600

VALVE

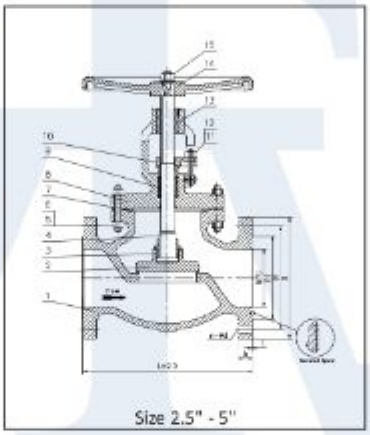
◆ DESCRIPTION

Design	: BS 1873
Face to face	: ASME B16.10
Flanges	: ASME B16.5 BW ENDS TO ASME B16.25
Testing	: API 598 API 6D BS 6755
Rating P-T	: ASME B16.34
Suitable for	: W.O.G

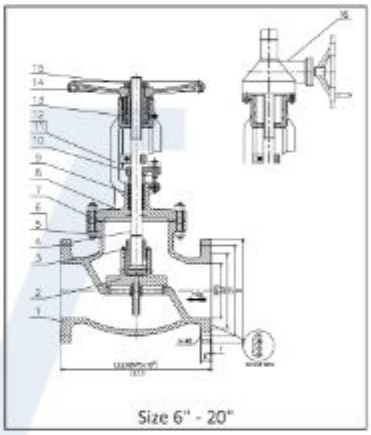
Flow
⟷
Working Positions
✳

◆ MATERIAL LIST

No.	Parts	Material
1	*Body	ASTM A216 WCB+Stellite
2	*Disc	ASTM A105+Stellite
3	Disc Cover	CARBON STEEL
4	*Stem	SS%13Cr
5	Bonnet Bolt	ASTM A193 B7
6	Bonnet Nut	ASTM A194 2H
7	Gasket	GRAPHITE+STEEL
8	Bonnet	ASTM A216 WCB
9	Stem Packing	GRAPHITE
10	Gland Flange	ASTM A216 WCB
11	Gland Bolt	ASTM A193 B7
12	Gland Nut	ASTM A194 2H
13	Stem Nut	COPPER ALLOY
14	Hand wheel	DUCTILE IRON
15	Nut	STEEL
16	**Gear + HW	ASSEMBLY



Size 2.5" - 5"



Size 6" - 20"

Optional : *SS304/SS316

** Size 6" to 20" with gear operated

◆ DIMENSIONS (mm)

NPS	DN	D		D1		D2		b—f		n—Φd		L		Weight (KG)	
		300#	600#	300#	600#	300#	600#	300#	600#	300#	600#	300#	600#	300#	600#
2"	50	165		127		92		22-2	25-7	8—Φ19		267	292	27	39
2 1/2"	65	190		149.2		105		26-2	29-7	8—Φ22		292	330	39	45
3"	80	210		168.3		127		29-2	32-7	8—Φ22		318	356	55	65
4"	100	255	275	200	215.9	157		32-2	38-7	8—Φ22	8—Φ25	356	432	82	140
5"	125	280	330	235	266.7	186		35-2	45-7	8—Φ22	8—Φ29	400	508	100	170
6"	150	320	355	269.9	292.1	216		37-2	48-7	12—Φ22	12—Φ29	444	559	160	250
8"	200	380	420	330.2	349.2	270		41-2	56-7	12—Φ25	12—Φ32	559	660	270	470
10"	250	445	510	387.4	431.8	324		48-2	64-7	16—Φ29	16—Φ35	622	787	450	720
12"	300	520	560	450.8	489	381		51-2	67-7	16—Φ32	20—Φ35	711	838	600	990
14"	350	585	605	514.4	527	413		54-2	70-7	20—Φ32	20—Φ38	838	889	860	1300
16"	400	650	685	571.5	603.2	470		57-2	76-7	20—Φ35	20—Φ41	864	991	1080	1950
18"	450	710	745	628.6	654	533		60-2	83-7	24—Φ35	20—Φ44	978	1092	1360	2400
20"	500	775	-	685.8	-	584	-	64-2	-	24—Φ35	20—Φ32	1016	-	1530	-

Specification is subject to change without prior notice

MODEL : GBV-301 [Forged Steel Globe Valve]

Connection : Socked Weld, Screw Class 800, 1500, Flange ANSI 150, 300

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including:

1. Palm Oil and Refinery Plant
2. Petrochemical
3. Power Plant
4. Oil & Gas Industries
5. Pulp and Papper Mill
6. Heating
7. Cooling System

Flow
⟷
Working Positions
✳

◆ DESIGN STRUCTURE AND FEATURE

1. Design and manufacture: ANSI B16.34; API 602; BS5352
2. Ends connection
- SW dimension:ANSI B16.11;JIS B2306
- Screwed dimension:ANSI B1.20.1 BS21 ;ISO7/1;JIS B0203
3. Valve inspection and test: API 598
4. Material according to AISI/ASTM
5. Body Material: A105;F5;F11;F22;304L;316;316L;LF2
6. Mark: MSS-SP-25

◆ STRUCTURE AND FEATURE

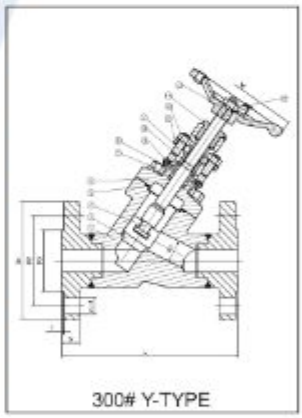
1. Full Bore or Reduced Bore
2. Outside screwed and yoke
3. Bushing type
4. Bolted, fully welded and pressure-in bonnet
5. Integral backseat
6. Disc changeable for choke type, needle type, ball type and check valve

◆ APPLIED NORM

1. Design and manufacture:
- ASME/ANSI B16.34;API 602; GB/T 12224; GB/F12228; GB/F12225
2. Ends Connection:
- SW Dimension: ASME/ANSI B16.11; JB/T1761
- Screwed Dimension : ASME/ANSI B1.201(NPT); GB/T7306-87(RC)
3. Structural feature: B.B or W.B; OS&Y
4. Sealing accessory material: according to "ordering guide"
5. Body material: A105; LF2; F5; F11; F22; F304; F316; F304L; F316L
6. Valve inspection and test according to API 598 or GB/T 13927

◆ MATERIAL LIST

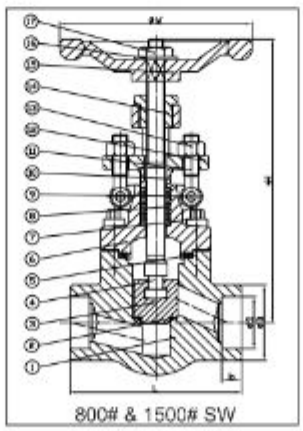
No.	Parts	Material				
		150#	300#	300# Y-type	800#	1500#
1	Body	ASTM A105N		ASTM A105N + STL	ASTM A105N	
2	Seat Rings	ASTM A105N + 13Cr	ASTM A105N + STELLITE 6	-	ASTM A105N + 13Cr	
3	Disc	ASTM A182 F6a	ASTM A182 F6a + STELLITE 6	ASTM A105N + STL	ASTM A182 F6a	
4	Stem	ASTM A182 F6a			ASTM A182 F6a	
5	Gasket	SS304 Spiral with graphite filler		SS304 Spiral with Flexible graphite	SS304 Spiral with graphite filler	
6	Bonnet	ASTM A105N				
7	Bonnet Bolt	ASTM A193 B7				
8	Gland Packing	GRAPHITE+FIBER		Flexible Graphite	GRAPHITE+FIBER	
9	Pin	CARBON STEEL		ANSI 1025	CARBON STEEL	
10	Gland	ASTM A276 410			ASTM A276 410	
11	Gland Eyebolt	ASTM A193 B7			ASTM A193 B7	
12	Gland Flange	ASTM A105N			ASTM A105N	
13	Gland Nut	ASTM A194 2H			ASTM A194 2H	
14	Stem nut	ASTM A276 410			ASTM A276 410	
15	Handwheel	DUCTILE IRON		ASTM A197	DUCTILE IRON	
16	Nameplate	SS304		-	-	
17	H.W. Lock Nut	CARBON STEEL		AISI 1025	CARBON STEEL	



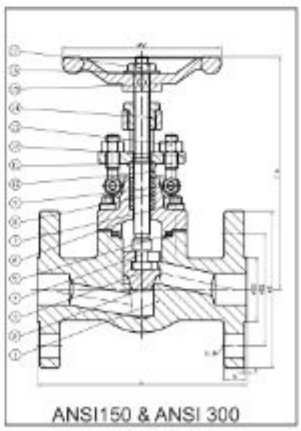
300# Y-TYPE

◆ DIMENSIONS (mm)

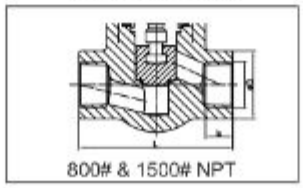
DN		1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
L	150#	152	178	203	216	229	267
	300#	108	117	127	140	165	203
	300#Y-type	152	178	203	216	229	267
	800#	79	92	111	120	152	172
	1500#	111	111	120	152	172	220
b	150#	11.5	13	14.5	16	17.5	19.5
	300#	14.5	16	17.5	19.5	21	22.5
	300#Y-type	14.5	16.3	18	19.5	21	22.5
	800#NPT	16	18	20	22	22	24
	1500#NPT	16	18	20	22	22	24
	800#SW	10	13	13	13	13	16
	1500#SW	10	13	13	13	13	16
h	150#	171	173	203	236	250	301
	300#						
	800#						
	1500#	203	203	236	250	301	345
W	150#	100	100	125	160	160	180
	300#						
	300#Y-type						
	800#						
	1500#	125	125	160	160	180	200
Weight (Kg)	150#	3.4	3.9	6	7.8	10.5	14.7
	300#	3.8	5	7.4	10.3	13.4	20.2
	300#Y-type	3.8	5	7.5	10.2	13.4	20.2
	800#	2.1	2.2	3.6	5.6	6.6	10.4
	1500#	3.7	3.9	5.6	6.6	10.4	19.8



800# & 1500# SW



ANSI150 & ANSI 300



800# & 1500# NPT

Specification is subject to change without prior notice

MODEL : GBV - 302 | Screw Stainless Steel Globe Valve

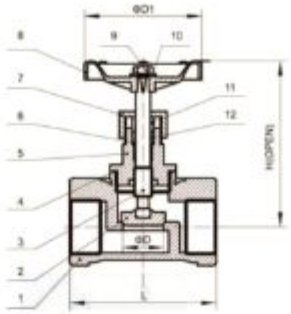
Connection : Screw Class 200

VALVE

FEATURES

1. 200PSI/PN16
2. Investment Casting
3. PED97/23/EC(CE0035)Approved
4. Casting Approved AD2000-WO
5. Rising Stem
6. Thread: ASME B1.20.1
   BS21.DIN2999/259
   ISO228-1,JS B 0203, ISO7/1
7. Inspection Testing: API598,EN12266

Flow
⟷
Working Positions
✳



MATERIAL LIST

ITEM	DESIGNATION	MATERIAL
1	BODY	CF8 / CF8M
2	PETAL	CF8 / CF8M
3	STEM	304
4	GASKET	PTFE
5	CAP	CF8 / CF8M
6	WASHER	304
7	BONNET	CF8 / CF8M
8	HAND WHEEL	ALUMINUM ALLOY
9	NUT	304
10	WASHER	304
11	RING	304
12	STEM PACKING	PTFE

DIMENSIONS (mm)

SIZE / ITEM	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
D	12	15	20	25	32	40
H	87	90	99	118	140	155
D1	70	70	80	80	100	100
L	52	60	71	82	90	101

MODEL : GLV - THREADED | Threaded Brass Globe Valve

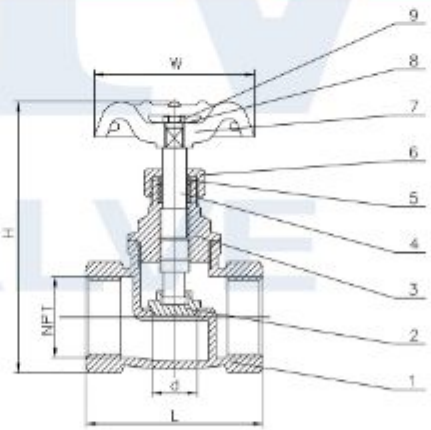
Ends Type: Female NPT, BSP

DESIGN STANDARD

ASME B16.34, ISO 9001, CE

DIMENSION

SIZE	NPTF	d	H	L	W
1/2"	1/2"	14	84	48	55
3/4"	3/4"	15	88	52	55
1"	1"	18	95	62	63
11/4"	11/4"	24	112	70	63
11/2"	11/2"	28	135	80	75
1/2"	1/2"	38	150	90	85



TECHNICAL PARAMETERS

Nominal Diameter: 1/2"~2"(DN15~DN50)
Operating Temperature: -10 Deg. C~220 Deg. C
Main Materials: Brass
Pressure Rating: 200WOG; CL150, PN16/20
Ends Standard: ASME B1.20.1, BS21, ISO 7/1
Application: Sea water, Water, Steam, Oil and Gas

ITEM	DESIGNATION	MATERIAL
1	BODY	BRASS(HPb57-3)
2	DISC	
3	BONNET	
4	STEM	
5	PACKING	PTFE
6	PACKING NUT	BRASS(HPb57-3)
7	HANDWHEEL	A35
8	OPEN/CLOSED PLATE	ALUMINIUM
9	LOCKING NUT	SS304

APPLICABLE MEDIA:

Water, non-corrosive liquid, saturated steam, etc.

APPLICATION FIELDS:

The opening or closing stroke of the valve stem of the stop valve is relatively short, and it has a reliable cut-off function. At the same time, the change of the valve seat opening is in direct proportion to the stroke of the valve disc, which is suitable for flow adjustment. Therefore, this type of valve is very suitable for cutting off or regulating as well as throttling.

KNIFE GATE VALVE


Válvulas Zubi S.L has been manufacturing valves since 1979, focusing its activities at first on the exclusive manufacture of diaphragm valves, a field in which the company has gained a prestigious reputation. Later, it expanded its production range and began to manufacture disk check and ball check valves also. It currently offers an even wider range of products which also includes knife gate valves and square knife gate valves.

Thanks to its more than 25 years' experience and its ongoing commitment to improvement, Zubi offers its customers a wide range of products that enables all kinds of solutions for every conceivable need. The main characteristics of These valves are their high quality, their perfect watertightness and their ease of handling. This of course would not be possible without the collaboration of all their staff and the use of equipment and procedures that enable Zubi to ensure both continuity and improvement, as well as the optimisation of costs.
This enterprise supplies a long list of customers including water treatment plants, the chemical industry, thermal and nuclear power stations, paper mills, conversion companies and the food industry, among others.
Their products are sold on both the domestic market and to various countries in Europe, Asia, Australia and America. It is currently in the process of setting up a world-wide network of sales reps.


The Zubi S200, 300 and 400 Knife Gate Valves can be a comparatively low cost alternative to traditional Gate valves.
Lugged and wafer pattern, their physical footprint is much smaller and the nature of their closure allows use on a wider variety of media.
Having a full circular bore which allows a high flow capacity with a very low pressure drop, the advantages are clear.
The sealing of the valve is made by the gate being deflected by the lugs in the body on closing, reducing wear and extending the life of the seal ring.
The Through Going valves have seal rings on both sides giving bi-directional sealing.
Seal rings and packings on the valves are specified to suit the application - media, concentration and temperature and there are many different options available.

- Cast/Ductile Iron, or 316 Stainless Steel
- Wafer PN10/16 as standard, other flanges by request
- Manual or actuated
- Soft or Metal seated
- Air Purge and fail close Systems by request.
- Rising Stem as standard, non rising by request.
- High Temp versions availible


The ZUBi S200 is our standard stock Valve, we keep sizes 50-400mm in Cast Iron and stainless Steel, PN10/16 Flanges, Handwheel and Cylinder operated.

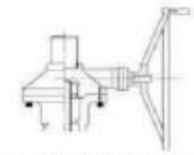
Size
DN 50-1200

Manual or Actuated Operation
Handwheel, Pneumatic cylinder or Multi-turn ISO top Electric Actuation.

Body materials
GG25 Cast Iron, GGG40 Ductile Iron, CF8M Stainless Steel.

MODEL : 200 EA [Manual Type Knife Gate Valve]

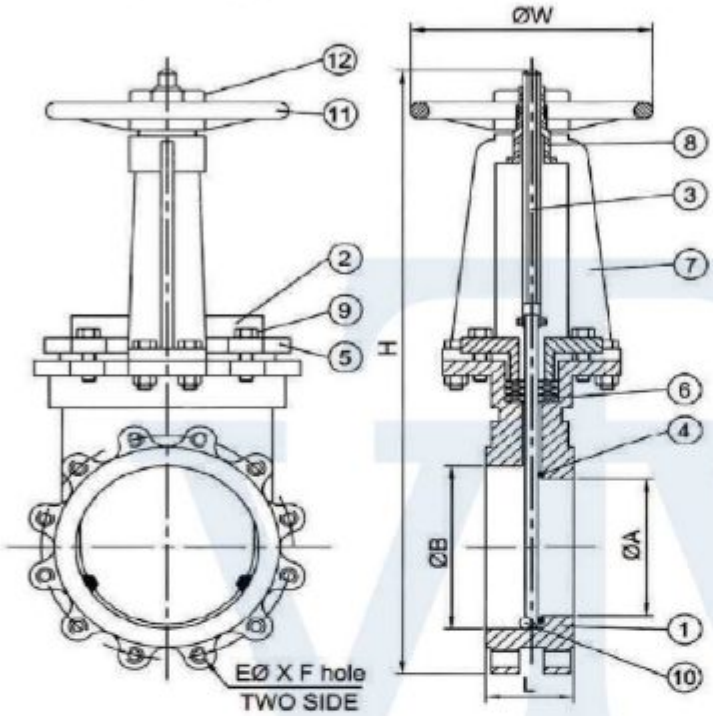
Connection : Wafer PN 10, ANSI 150



Available With Gear Operator

Flow
→

CONNECTION RATING:
JIS 5K JIS 10K JIS7.5K
ANSI 150#
DIN PN10 PN16



MSS-SP81 TEST STANDARD:
BODY TEST: 11kg/cm² (WATER)
SEAT TEST:2.8kg/cm² (WATER)
LEAKAGE:4 cc/per in.min.

NO.	SUBJECT	MATERIAL
12	NUT	CAST IRON
11	HAND WHEEL	CAST IRON
10	PAWLS	SUS304
9	BOLT NUT	SUS304
8	YOKE SLEEVE	CAST BRONZE. FCD
7	YOKE	DUCTILE IRON
6	GLAND PACKING	ASB NON-ASB
5	GLAND	SUS304
4	SEAT	TEFLON
3	STEM	SUS410.304.316.316L
2	PLATE	SUS304.316.316L
1	BODY	CF8.CF8M.CF3M

(FOR REFERENCE ONLY.)

DIMENSION TABLE : MM

SIZE	L	ØA	ØB	W	H
2"	48	42	64	190	420
2-1/2"	51	57	80	190	430
3"	51	72	95	190	430
4"	51	95	120	220	520
5"	57	125	148	290	600
6"	57	150	175	290	660
8"	70	195	222	350	810
10"	70	250	275	350	990
12"	76	300	325	400	1150
14"	76	350	375	400	1230
16"	89	400	430	500	1420
18"	89	435	475	500	1600
20"	114	480	515	500	1700
24"	114	580	620	500	1970

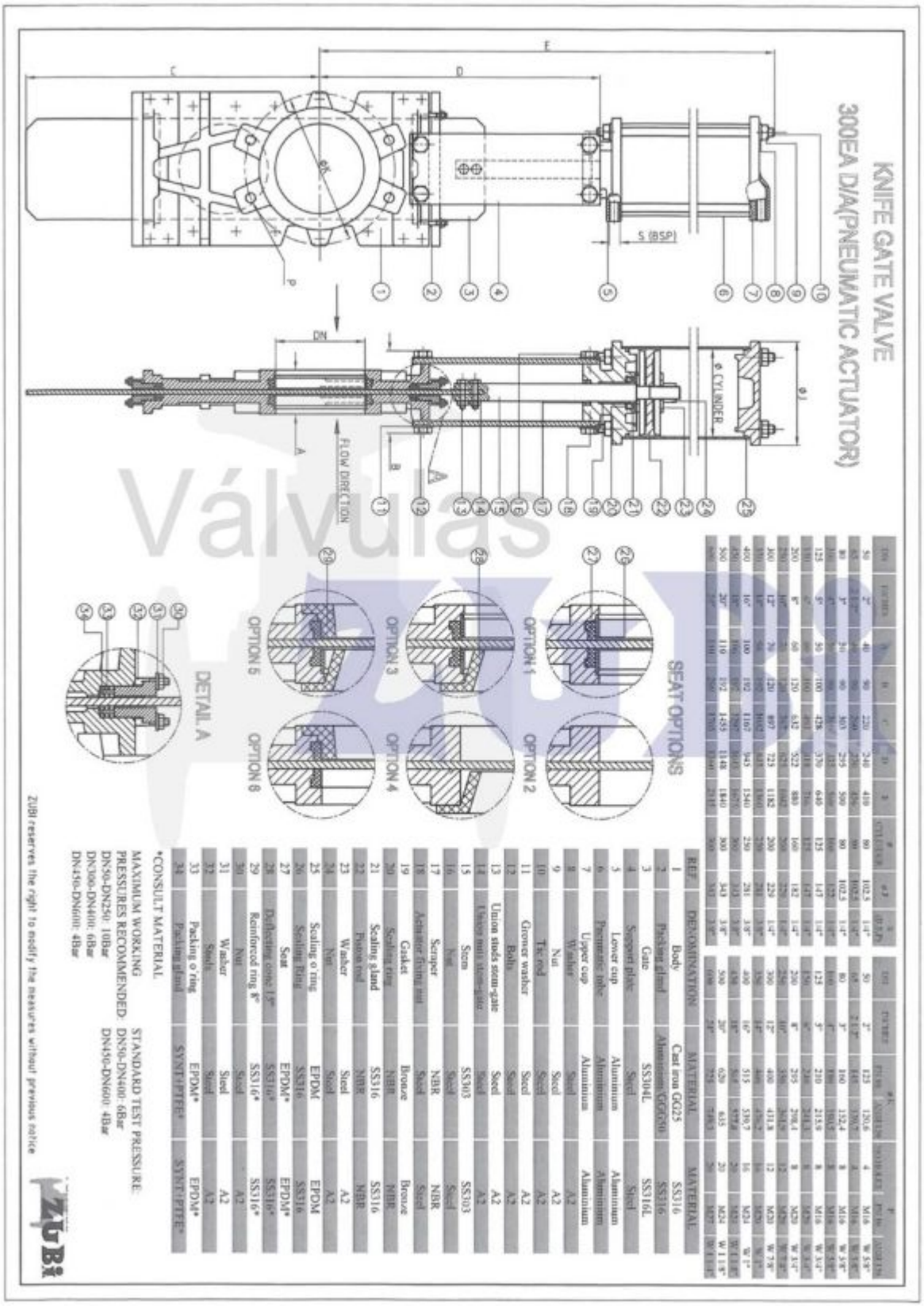
(FOR REFERENCE ONLY.)

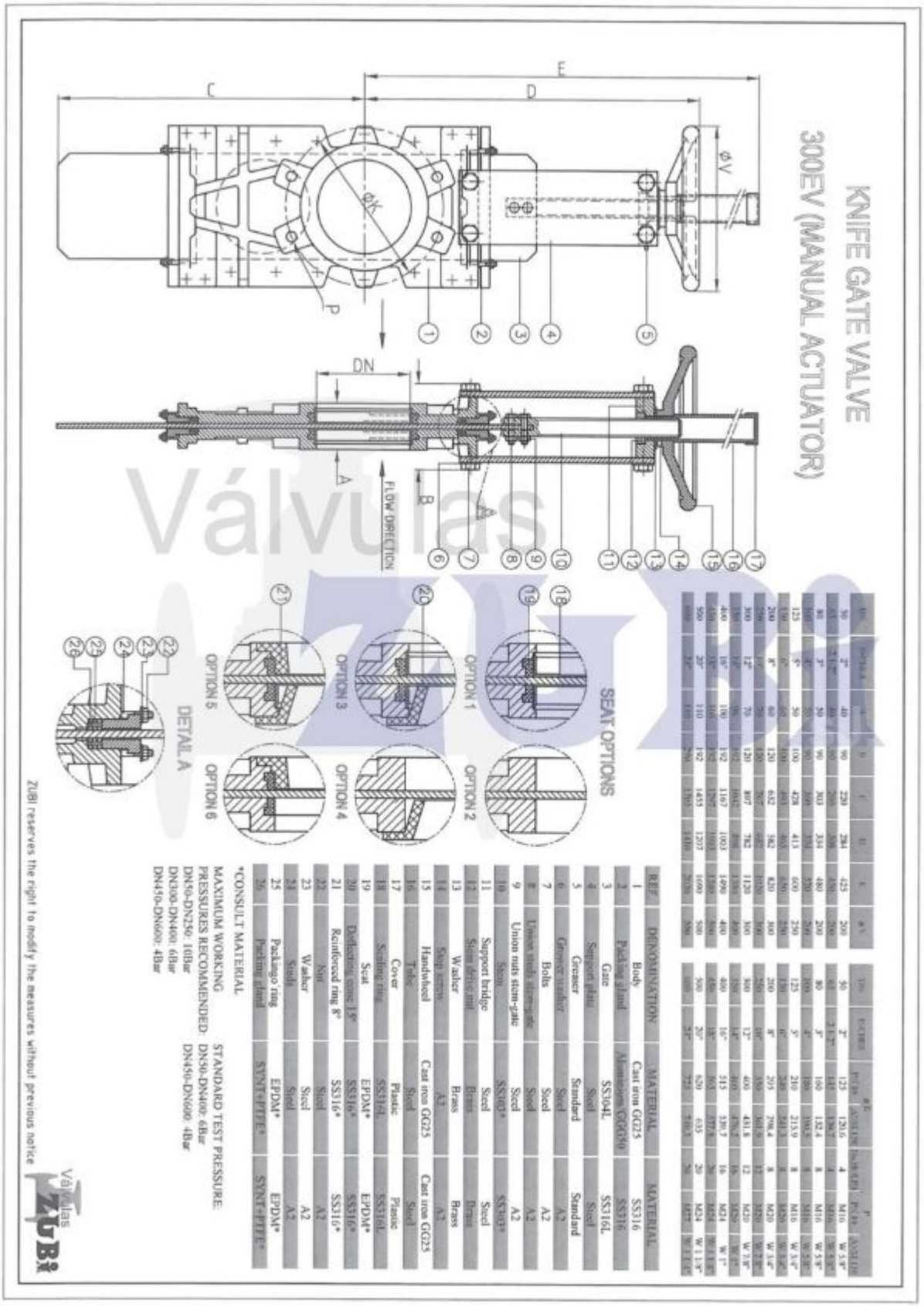
MATERIAL:

	BODY	PLATE	SEAT	GLAND PACKING
MATERIAL	CF8	SUS304	TEFLON	NON-ASB+PTFE
	CF8M	SUS316	METAL	ASB
	CF3M	SUS304L	VITON	ASB+PTFE
		SUS316L	EPDM	TEFLON
				NON ASBESTOS

TEMPERATURE:

MATERIAL	TEM. RANGE
ASBESTOS+PTFE	-50°~ 550°C
SILICON	-20° ~ 150°C
VITON	-20° ~ 250°C
TEFLON	-30° ~ 150°C
NON ASBESTOS	-50° ~ 550°C


KNIFE GATE VALVE
300EA D/A(PNEUMATIC ACTUATOR)
SEAT OPTIONS
OPTION 1
OPTION 2
OPTION 3
OPTION 4
OPTION 5
OPTION 6
DETAIL A
FLOW DIRECTION
ϕ CYLINDER
S (BSP)
REF
DENOMINATION
MATERIAL
Body
Cast iron GG25
SS316
Packing gland
Aluminium GG6061
SS316
Gate
SS304L
SS316L
Support plate
Steel
Steel
Lower cup
Aluminium
Aluminium
Pneumatic inlet
Aluminium
Aluminium
Upper cup
Aluminium
Aluminium
Washer
Steel
A2
Nut
Steel
A2
Tie rod
Steel
A2
Grower washer
Steel
A2
Bolts
Steel
A2
Union studs stem-gate
Steel
A2
Union nuts stem-gate
Steel
A2
Stem
SS303
SS303
Nut
Steel
Steel
Scraper
NBR
NBR
Actuator fixing nut
Steel
Steel
Gasket
Bronze
Bronze
Sealing ring
NBR
NBR
Sealing gland
SS316
SS316
Piston rod
NBR
NBR
Washer
Steel
A2
Nut
Steel
A2
Scaling o'ring
EPDM
EPDM
Sealing Ring
SS316
SS316
Seat
EPDM*
EPDM*
Deflecting cone 15°
SS316*
SS316*
Reinforced ring 8°
SS316*
SS316*
Nut
Steel
A2
Washer
Steel
A2
Studs
Steel
A2
Packing o'ring
EPDM*
EPDM*
Packing gland
SYNT-PTFE*
SYNT-PTFE*
*CONSULT MATERIAL
MAXIMUM WORKING PRESSURES RECOMMENDED:
DN50-DN250: 10Bar
DN300-DN4600: 6Bar
DN450-DN6600: 4Bar
STANDARD TEST PRESSURE:
DN50-DN400: 6Bar
DN450-DN600: 4Bar
ZUBI reserves the right to modify the measures without previous notice



DN	INCH	A	B	C	D	E	ØV
50	2"	40	90	220	284	423	200
65	2 1/2"	40	90	220	284	423	200
80	3"	50	90	303	334	480	260
100	4"	50	90	303	334	480	260
125	5"	50	100	428	413	600	250
150	6"	50	100	493	465	650	250
200	8"	60	130	632	582	830	300
250	10"	70	130	765	695	1030	360
300	12"	70	130	897	782	1120	360
350	14"	70	132	1032	895	1300	400
400	16"	100	132	1167	1003	1490	400
450	18"	100	132	1297	1093	1590	500
500	20"	110	132	1435	1207	1690	500
600	24"	110	256	1703	1430	2030	500

REF	DENOMINATION	MATERIAL	MATERIAL
1	Body	Cast iron GG25	SS316
2	Packing gland	Aluminium GGK50	SS316
3	Gate	SS304L	SS316L
4	Support plate	Steel	Steel
5	Greaser	Standard	Standard
6	Grease washer	Steel	A2
7	Bolts	Steel	A2
8	Union nuts stem-gate	Steel	A2
9	Union nuts stem-gate	Steel	A2
10	Stem	SS303*	SS303*
11	Support bridge	Steel	Steel
12	Stem drive nut	Brass	Brass
13	Washer	Brass	Brass
14	Stop screw	A2	A2
15	Handwheel	Cast iron GG25	Cast iron GG25
16	Tube	Steel	Steel
17	Cover	Plastic	Plastic
18	Sealing ring	SS316L	SS316L
19	Seat	EPDM*	EPDM*
20	Deflecting cone 15°	SS316*	SS316*
21	Reinforced ring 8°	SS316*	SS316*
22	Nut	Steel	A2
23	Washer	Steel	A2
24	Studs	Steel	A2
25	Packing o ring	EPDM*	EPDM*
26	Packing gland	SYNT+PTFE*	SYNT+PTFE*

*CONSULT MATERIAL

MAXIMUM WORKING PRESSURES RECOMMENDED:
DN50-DN250: 16Bar
DN300-DN400: 6Bar
DN450-DN600: 4Bar

STANDARD TEST PRESSURE:
DN50-DN400: 6Bar
DN450-DN600: 4Bar

ZUBI reserves the right to modify the measures without previous notice

Válvulas ZUBI

MODEL : NV-210 [Needle Valve]

Connection : Screw BSPT, NPT

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical
3. Food Industries
4. General Industries

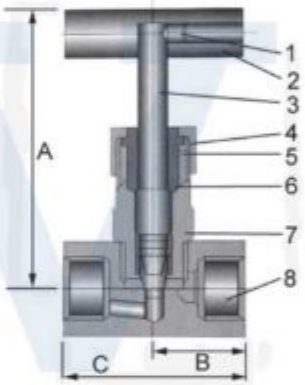
◆ **Suitable for :** 1. Water
2. Oil
3. Gases
4. Non-abrasive media

◆ SPECIFICATIONS

- End Connections: NPT threaded, ASME B1.20.1
- DIN 2999 & BS21; ISO 228/1 & ISO 7/1
- Operating Temperature Range: -60 to 450°F
- Fire Safe design

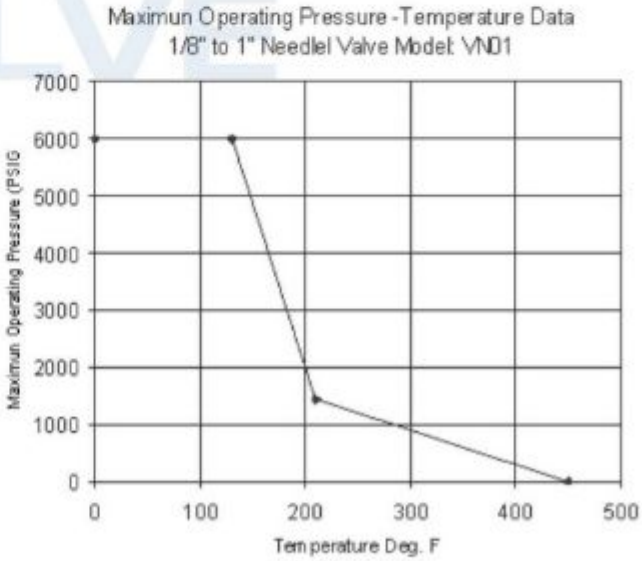
◆ MATERIAL LIST

NO	PART NAME	MATERIAL
1	SET SCREW	SS304
2	HANDLE	SS304
3	STEM	SS316
4	GLAND NUT	SS304
5	GLAND NUT	SS304
6	PACKING	TEFLON
7	BONNET	SS316
8	BODY	SS316



◆ DIMENSIONS (mm)

SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1"
A	75	75	75	87	90	103
B	25	25	25	30	32.5	40
C	50	50	50	60	65	80
Cv	0.43	0.43	0.74	1.36	2.64	3.6



Pig Launcher / Receiver Package

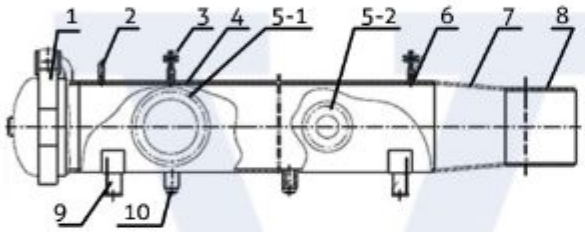
Design: ASME B31.3, B31.4, B31.8

BJMS has particular expertise in the design and fabrication of Pig traps, especially those required to meet more complex specifications and design codes. SHC was responsible for all aspects of design, testing and fabrication.

Pig launcher receiver

These pig traps were complex and included a range of ancillary components and pipework. As part of this design and build, SHC also carried out all testing to meet the necessary industry standards, including Pressure Testing, HIC (Hydrogen Induced Cracking) and SSCC (Sulphide Stress Corrosion Cracking) Testing. Also fitted to each Pig Launcher and Pig Receiver is our Intrusive Pig Signaller which confirms the launch or receipt of a Pig from or into the Pig trap.
Launchers and receivers, off-shore and onshore are available. All units are designed and manufactured to pipeline and vessel design codes including:

- **ASME VIII**
- **ASME B31.3, B31.4, B31.8**



❶ Quick opening blind plate
❷ Pressure gauge take over
❸ Safety valve take over
❹ Barrel
❺ Air inlet and outlet
❻ Bleed valve take over
❼ Air inlet and outlet
❽ Bleed valve take over
❾ Post bracket
❿ Pump valve take over

◆ TECHNICAL PARAMETERS

1. **Design Pressure:** Techical up to 35Mpa
2. **Test pressure:**
   Hydrotest pressure is 1.3-1.5 times of the design pressure and air-tight test pressure is the same as the design pressure
3. **Corrosion allowable:**
   2mm-3mm or based on customer's requirements
4. **Seismic intensity:** 8 degree
5. **Applicable medium:**
   Crude oil, finished petroleum oil (gasoline, diesel), gas, water
6. Size range from 3" to 56"
7. Class Rating from 150 – 2500
8. **Materials :**
   Carbon Steel, Stainless Steel, Monel
9. Option of Pig Signallers available
10. Quick Opening Closures with Safety Interlocks
11. Third party classification society approved
12. **Design codes include**
    ASME VIII DIV. I & ASME B31.3, B31.4, B31.8
13. **Full material traceability available**
    in accordance with EN 10204 3.1.B or 3.2 Certificate
14. **Applicable medium:**
    crude oil, finished petroleum oil (gasoline, diesel), natural gas, coal gas, water

◆ ACCESSORIES

Pig detector pipeline

Quick opening closure manufacturer

Quick actuating closure

Specification is subject to change without prior notice

MODEL : RP 45 [Pressure Reducing Valve For Steam]

ADCA STEAM EQUIPMENT

DESCRIPTION
The ADCA RP45 series pressure reducing valves are single seat bellows sealed controllers, operating without auxiliary energy, designed for use on steam, compressed air, industrial inert gases and liquids compatible with the construction.
They are particularly suitable for reducing steam pressure in all energy and process systems where pressures should be kept constant.

OPERATION
Pressure reduction is achieved by means of variable throttling of the inlet flow at the valve seat by variation of the flow area between seat and disc. The outlet pressure which is transmitted through the feed-back line to the diaphragm or piston chamber counteracts the spring force acting on the valve spindle and controls the valve aperture corresponding to the spring setting and thus to the required outlet pressure.

MAIN FEATURES
Specially designed high durability bellows, providing pressure balancing and friction less plug stem.
Robust construction (fit-and-forget).
Suitable for use with high pressure turndowns.
Interchangeable actuators

OPTIONS:	Soft sealing for steam Nitrile rubber soft seated version for air and gas applications where tight shut-off is required. Low-noise flow divider
USE:	Steam, compressed air and other gases and liquids compatible with the construction.
AVAILABLE MODELS:	RP45G and RP45GT or N – PN16 SG iron RP45S and RP45ST or N – PN16 Cast steel RP45S and RP45ST or N – PN40 Cast steel RP45I and RP45IT or N – Stainless Steel (All wetted parts free of ferrous metal or in St.Steel.). Suffix T : Soft seated with PTFE/GR Suffix N : soft seated with nitrile rubber
SIZES:	DN 15 to DN 150
CONNECTIONS	RP45G Flanged EN 1092-2 PN16 RP45S or I Flanged EN 1092-1 PN16 - PN40
INSTALLATION:	Horizontal installation. An "Y" strainer, steam separator and steam trap should be provided upstream the valve. See IMI, installation and maintenance instructions.

CE MARKING (PED - European Directive 97/23/EC)		
PN 16	**PN 40**	**Category**
DN15 to DN50	DN15 to DN32	SEP - art. 3, paragraph3
DN65 to DN150	DN40 to DN100	1 (CE Marked)
/	DN125 to DN150	2 (CE Marked)

RP45
DN 15 – DN100

RP45
DN 125 – DN150

RP45 I
DN 15 – DN100

Specification is subject to change without prior notice

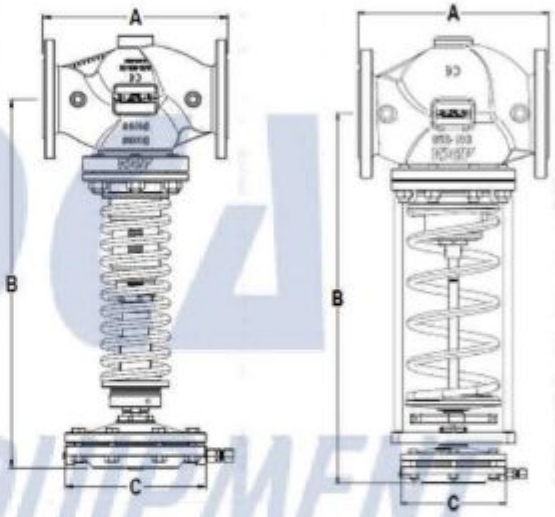
MODEL : RP 45 [Pressure Reducing Valve For Steam]

ADCA STEAM EQUIPMENT

LIMITING CONDITIONS									
	RP45G RP45S	RP45S	RP45I	RP45GT RP45ST	RP45ST	RP45IT	RP45GN* RP45SN*	RP45SN *	RP45IN *
Body design conditions	PN16	PN40	PN40	PN16	PN40	PN40	PN16	PN40	PN40
Max.upstream pressure	13 bar	25 bar	25 bar	13 bar	25 bar	25 bar	13 bar	25 bar	25 bar
Max.downstream DN15/100	13 bar	18 bar	18 bar	13 bar	18 bar	13 bar	13 bar	18 bar	18 bar
Max.downstream DN125/150	12 bar	16,5 bar	16,5 bar	12 bar	16,5 bar	16,5 bar	12 bar	16,5 bar	16,5 bar
Min.downstream pressure	0,15 bar	0,15 bar	0,15 bar	0,15 bar	0,15 bar	0,15 bar	0,15 bar	0,15 bar	0,15 bar
Max.operating temperature	200°C	250°C	250°C	200 °C	220 °C	220 °C	90 °C	90 °C	90 °C
Max.reducing ratio	25:1	25:1	25:1	25:1	25:1	25:1	10:1	10:1	10:1
Rangeability	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
Max.cold hydraulic test	24 bar	25 bar	25 bar	24 bar	25 bar	25 bar	24 bar	25 bar	25 bar
Max.hyd. factory valve body test	24 bar	60 bar	60 bar	24 bar	60 bar	60 bar	24 bar	60 bar	60 bar

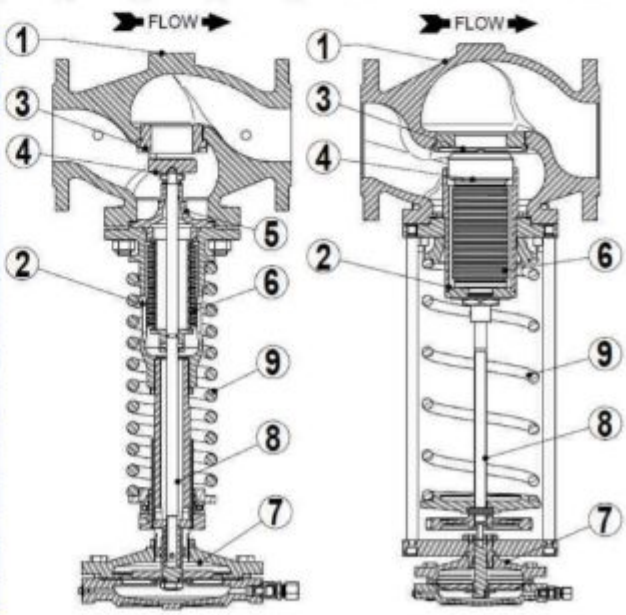
*Suffix N : - a maximum turndown ratio 10:1 should be observed. Other soft materials on request.

DIMENSIONS (mm)						
VALVE				ACTUATOR		
SIZE DN	A	B	WGT. Kgs	TYPE	C	WGT. Kgs
15	130	440	12,7	A1	172	4,3
20	150	440	12,7	A1S	172	4,3
25	**160**	**440**	**13,7**	A10S	172	4,3
32	180	445	15,7	A11	172	4,3
40	**200**	**445**	**17,7**	A12S	172	4,3
50	230	540	25,7	A2	220	7,3
65	**290**	**540**	**29,7**	A21	220	7,3
80	310	610	36,7	A3	282	11,3
100	**350**	**650**	**53,7**	A4	340	16,3
125	400	780	101,4	B1	172	4,4
150	**480**	**790**	**134,5**	B2	220	7,4
				B21	220	7,4
				B3	283	11,6
				B4	340	18,6
				C11S	145	2,3



MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve body RP45G	GJS-400-15 / 0.7040
1	Valve body RP45S	A216WCB / 1.0619
1	Valve body RP45I	CF8M / 1.4408
2	Piston body RP45G and S	GJS-400-15 / 0.7040
2	Piston body RP45I	GJS-400-15 / 0.7040 Nickel plated
3	Valve seat	HARDENED ST.STEEL
4	* Valve disc	HARDENED ST.STEEL
4	* Soft valve disc	AISI304/1.4301 ;NBR (PTFE/GR,etc)
5	Guide	Bronze B62 / ASTM B148-97
6	* Bellows	AISI 316 Ti / 1.4571
7	* Diaph.chamber RP45G	GJL-250 / 0.6025
7	* Diaph.chamber RP45S	A216WCB / 1.0619
7	* Diaph. Chamber RP45I	CF8M / 1.4408
8	* Spindle	AISI 304 / 1.4301
9	* Regulating spring	SPRING STEEL

* Available spare parts.



Specification is subject to change without prior notice

SATURATED STEAM CAPACITY TABLE (Kg/h)
(P2 < 0,58 P1)

INLET barg	VALVE SIZE										
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
0,5	51	68	90	118	186	300	460	800	1250	1500	1800
0,75	63	84	112	146	230	360	580	1000	1550	1750	2350
1	75	100	133	175	280	430	700	1200	1850	2250	3200
1,5	100	133	175	240	360	590	910	1600	2500	3000	4000
2	126	170	230	290	450	730	1160	2000	3050	3500	4700
2,5	150	200	260	350	550	880	1390	2400	3600	4500	6500
3	175	240	310	400	640	1010	1600	2700	4300	5500	8500
4	220	290	390	510	800	1300	2000	3400	5400	7000	10000
5	260	350	480	620	1000	1600	2500	4200	6500	8000	12000
6	330	440	580	760	1220	1930	3000	5100	8000	9500	14000
7	400	520	700	910	1430	2300	3600	6100	9500	11500	16000
8	450	600	800	1040	1670	2700	4100	7100	11000	13000	18000
9	500	670	880	1180	1800	2900	4600	7800	12000	15000	20000
10	560	750	980	1300	2000	3200	5100	8500	13500	17000	22000
12	680	900	1180	1540	2500	4000	6100	10500	16300	20000	25000
14	800	1050	1400	1850	2900	4700	7200	12600	19000	23000	29000
16	920	1230	1630	2150	3400	5500	8300	14600	22000	26000	33000
18	1040	1400	1860	2450	3800	6200	9500	16600	25000	30000	38000
20	1170	1540	2100	2700	4200	7000	10800	18600	28000	33000	42000
22	1330	1780	2350	3050	4900	7800	12200	21000	32000	36000	45000
24	1500	2000	2600	3400	5400	8700	13700	23500	36000	40000	48000
25	1600	2150	2800	3600	5700	9200	14500	25500	38000	42000	50000

ACTUATOR AND SPRING SELECTION TABLE

DN	Kvs m3/h		ACTUATOR															
			A - 4	A - 4	A - 3	A - 2	A - 21	A - 1	A1S	A - 11	A12S	A-10S	B - 4	B - 3	B - 2	B - 21	B -1	C-11S
15	4,8	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,6	1,7 - 3,8	3,9 - 5,5	5,6 - 8,2	/	8,3-13	10 - 18	/	/	/	/	/	/	/
		Spring N°.	66	60	60	60	60	60	/	60	60.1	/	/	/	/	/	/	/
20	6,9	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,6	1,7 - 3,8	3,9 - 5,5	5,6 - 8,2	/	8,3-13	10 - 18	/	/	/	/	/	/	/
		Spring N°.	66	60	60	60	60	60	/	60	60.1	/	/	/	/	/	/	/
25	9,1	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,6	1,7 - 3,8	3,9 - 5,5	5,6 - 8,2	/	8,3-13	10 - 18	/	/	/	/	/	/	/
		Spring N°.	66	60	60	60	60	60	/	60	60.1	/	/	/	/	/	/	/
32	11,8	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,6	1,7 - 3,8	3,9 - 5,5	5,6 - 8,2	/	8,3-13	10 - 18	/	/	/	/	/	/	/
		Spring N°.	66	60	60	60	60	60	/	60	60.1	/	/	/	/	/	/	/
40	14,4	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,6	1,7 - 3,8	3,9 - 5,5	5,6 - 8,2	/	8,3-13	10 - 18	/	/	/	/	/	/	/
		Spring N°.	66	60	60	60	60	60	/	60	60.1	/	/	/	/	/	/	/
50	26,5	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,9	2 - 4,2	4,3 - 6,9	7 - 8,5	/	8,6-13	/	10 - 18	/	/	/	/	/	/
		Spring N°.	67	61	61	61	61	64	/	64	/	61	/	/	/	/	/	/
65	51,5	Outlet (bar)	0,15 - 0,49	0,5 - 0,99	1,0 - 1,9	2 - 4,2	4,3 - 6,9	7 - 8,5	/	8,6-13	/	10 - 18	/	/	/	/	/	/
		Spring N°.	67	61	61	61	61	64	/	64	/	61	/	/	/	/	/	/
80	79,5	Outlet (bar)	0,15 - 0,45	0,46 - 0,99	1,0 - 1,9	2 - 5	5,1 - 8,9	9 - 13	11 - 18	/	/	/	/	/	/	/	/	/
		Spring N°.	68	62	62	62	62	65	62	/	/	/	/	/	/	/	/	/
100	129,5	Outlet (bar)	0,15 - 0,45	0,46 - 0,99	1,0 - 1,9	2 - 6,0	6,1 - 13	/	11 - 18	/	/	/	/	/	/	/	/	/
		Spring N°.	69	63	63	63	63	/	63	/	/	/	/	/	/	/	/	/
125	150	Outlet (bar)	/	/	/	/	/	/	/	/	/	/	0,5-1,5	1,1-2,5	1,5-5,5	4 - 8,5	6 - 12	8 - 16,5
		Spring N°.	/	/	/	/	/	/	/	/	/	/	70	70	70	70	70	70
150	204	Outlet (bar)	/	/	/	/	/	/	/	/	/	/	0,5-1,5	1,1-2,5	1,5-5,5	4 - 8,5	6 - 12	8 - 16,5
		Spring N°.	/	/	/	/	/	/	/	/	/	/	70	70	70	70	70	70

Actuator reference without suffix in cast iron, suffix S in cast steel, suffix SS in stain.steel.

STEAM EQUIPMENT

Correction factors:

The given capacities apply to the pressure reducing valves at **critical pressure drop** (downstream pressure in barg about 58% of the upstream pressure barg or lower). In case of **non-critical pressure drop** a correction factor must be used as follows:

No correction factor should be used for smaller pressure ratios than 0.7.

PRESSURE RATIO * P2 / P1	CORRECTION FACTOR *f*
≥ 0,7	1,25
≥ 0,8	1,6
≥ 0,9	2,25

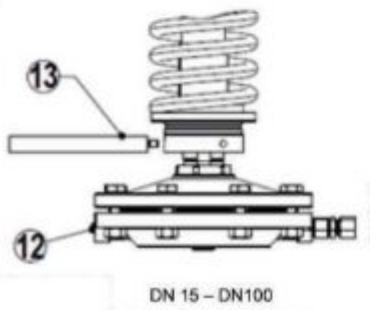
*** Pressure ratio in bar abs (barg + 1)**

Superheated steam:
If superheated steam is to be reduced instead of saturated steam a correction factor has to be applied as well, the required mass flow must be multiplied by the following factor:
$\frac{Vh}{Vs}$, where Vh = specific volume of superheated steam and Vs = specific volume of saturated steam .

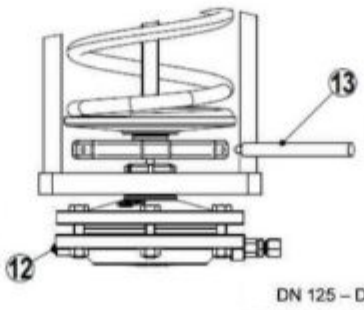
HOW TO SIZE (using table for steam)
Example (valve selection) : Saturated steam capacity: 300Kg/h; Upstream pressure: 3 bar; Downstream pressure required: 2bar.
Solution: First determine correction factor for pressure ratio: $\frac{2+1}{3+1} = 0.75 \rightarrow f = 1.25$,
Then multiply the given capacity: $300 \times 1.25 = 375\,Kg/h$
Go to 3 bar in the column "bar" of the capacity table. By following the horizontal line you can find out the values for selection of pressure reducing valve. Looking for an equal or higher value than 375 Kg/h. In this case it will be 400 Kg/h. Now, go to the top of the table and read off the nominal size: DN32
On the actuator and spring selection table, for downstream pressure of 2 bar we may see that the recommended actuator is type A-2, considering the valve supplied with spring Nr.60.
How to order: RP45G DN32 PN16 valve complete with spring Nr.60, type A-2 actuator, condensate vessel and copper tube impulse line.
HOW TO SIZE (using Kvs): please consult formulas on IS PV10.00 E or consult factory.

INSTALLATION RECOMMENDATIONS
RP45 is designed primarily for steam, compressed air and non inflammable gases. It has limited use for neutral liquids since the plug close in the same direction of the fluid flow, which can produce vibrations and water hammer when used at less than 20% of capacity. To avoid this, valve can be installed with the fluid direction against the plug under certain conditions. Please consult the factory.
At service conditions where the temperature is more than 100°C it is necessary to protect the diaphragm against overheating by using a seal pot.
Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow .Pipe sizing must also respect the maximum recommended flow velocities according to the medium.

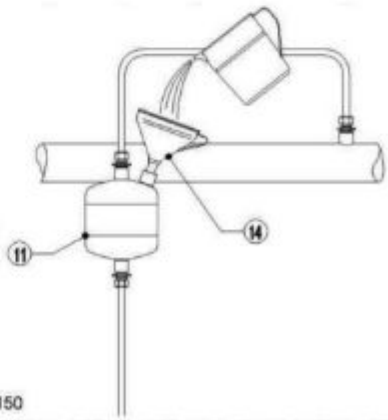
INSTALLATION
Service conditions less than 100°C: with gases the valve is ready to work. In case of liquids the actuator must be filled completely with liquid, so, the vent screw (12) should be open till the water flow without bubbles.
The valve can be installed with the diaphragm pointing upwards or downwards.
Service conditions more than 100°C: Fill the seal pot (11) using a funnel (14) until the water emerges from the actuator vent (12) without bubbles .Close the actuator vent screw (12) and proceed filling the pot until the water reaches the top and close it with the plug. The valve is now ready to work.
The valve must be installed with the diaphragm pointing downwards.
Downstream pressure should be adjusted with the key (13). Compressing the spring, spring force increase and downstream pressure increase. Relaxing the spring, spring force decrease and downstream pressure decrease.
The valve closes when the downstream pressure rises.



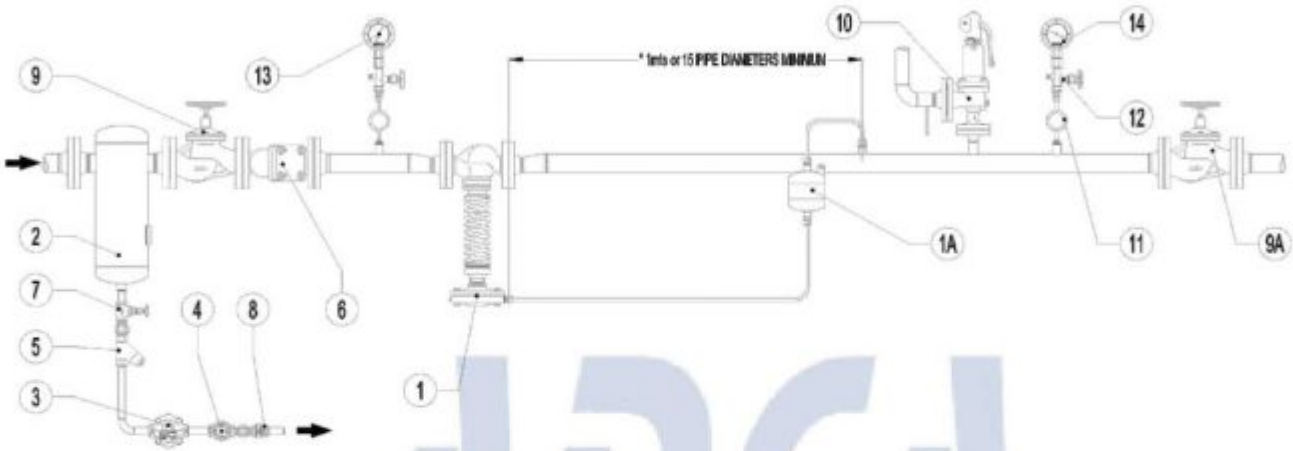
DN 15 – DN100

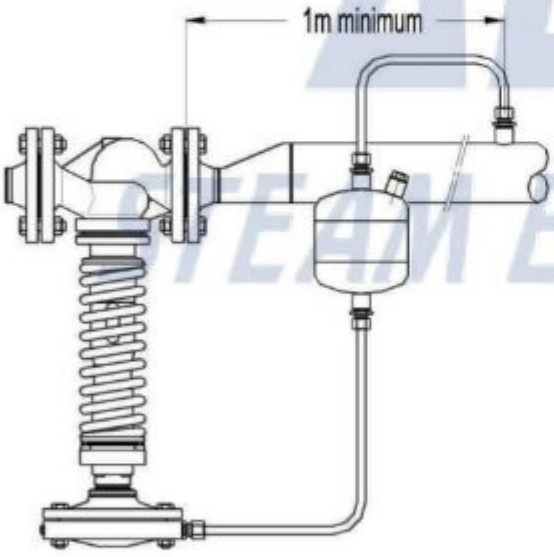


DN 125 – DN150



Typical Installation





MATERIALS		
POS.	*DESIGNATION*	*MODEL*
1	Pressure reducing valve	ADCA RP45
* 1A	Water seal pot	POT
2	Humidity separator	ADCA S 25
3	Steam trap	ADCA FLT series
4	Sight glass	ADCA SW 12
5	Y Strainer	ADCA IS 140
6	Y Strainer	ADCA IS16F
7	Stop valve	ADCA GV32B
8	Check valve	ADCA RT
9	Stop valve	ADCA VF20
9A	Stop valve	ADCA VF20
10	Safety valve	-
11	Coil	ADCA GSC-40
12	Gauge cock	ADCA GC-400
13	Upsteam pressure gauge	ADCA MAN-100
14	Downstream pressure gauge	ADCA MAN-100

* Not necessary when in operation with low temperature compressed air or water.

POT detailed information: see IS POT.10 E 07.13

Remarks:

By-pass: if overpressure can not be accepted the use of by-pass is not recommended. In alternative, for critical process, two pressure reducing stations should be installed in parallel.

PN ratings and materials according to the operating pressures.

* The balance pipe connection is recommended to enter downstream pipe at a minimum of 1 meter from valve.

Installation instructions are available (IMI-RP45) and typical assembling drawing.

Special assembling designs may be produced on request.

MODEL : 6301 [Steam Safety Valve]

Connection : Flange PN 16

VMEX Safety-Valve

APPLICATION AND KINDS OF EXECUTION

Si 6301 - for air, steam and other neutral gases and vapours.
Working temperature: from -10°C up to + 300°C[1].

Si 6301C - valves with reduction of disc leap to the value 0,12 of seat diameter „d_o", applied to water and other neutral liquids.
Working temperature: from -10°C up to + 300°C [1].

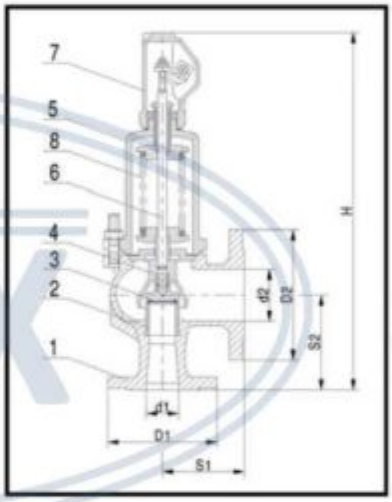
Valves are produced in the following executions:
Si 6301 - in execution **P** – normal; **G** – gas-tight; **WM** – for marine conditions
Si 6301C - in execution **P** – normal; **G** – gas-tight

LIST OF APPLIED MATERIALS

Position No	Name of detail	Material
1	Body	EN-GJL-250
2	Seat	X39CrMo17-1
3	Disc	X39CrMo17-1
4	Bell	EN-GJS-400-15
5	Cap	EN-GJL-250
6	Stem	X20Cr13 [1)]
7	Hood	EN-GJS-400-15
8	Spring	51CrV4 [2)]

[1)] For marine execution (WM) stem made of: X17CrNi16-2

[2)] Springs with wire diameter up to Φ 6 of patent wire BI,
Max. working temperature is 250°C.



OVERALL DIMENSIONS

Size DN	Seat		Inlet flange	Outlet flange	Length of construction		Height of construction	Dehydration	Opening pressure		Mass ca.
	Passage	Section	PN 16	PN 10							
$d_1 \times d_2$	d_o	A	D_1	D_2	S_1	S_2	H	E	min	max.[1]	A
	mm	mm^2	mm					cal	bar		
20 x 32	16	201	105	140	85	95	345	G¼	0,45	16	7,5
25 x 40	20	314	115	150	95	105	395	G¼	0,45	16	9,0
32 x 50	25	491	140	165	100	110	420	G¼	0,45	16	13,0
40 x 65	32	804	150	185	115	130	495	G¼	0,45	16	19,0
50 x 80	40	1257	165	200	125	145	550	G¼	0,45	16	25,0
65 x 100	50	1964	185	220	140	150	660	G¾	0,45	16	37,0
80 x 125	63	3117	200	250	155	170	710	G¾	0,45	16	52,0
100 x 150	77	4657	220	285	175	180	810	G¾	0,45	16	77,0
125 x 200	93	6793	250	340	215	220	860	G¾	0,45	12,5	90,0
150 x 250	110	9503	285	395	225	245	1000	G¾	0,45	10	140,0

[1] For steam boilers valid are restrictions according to WUDT-UC-WO-M - it is 10 bar and 200°C.

VMEX

TECHNICAL DATA

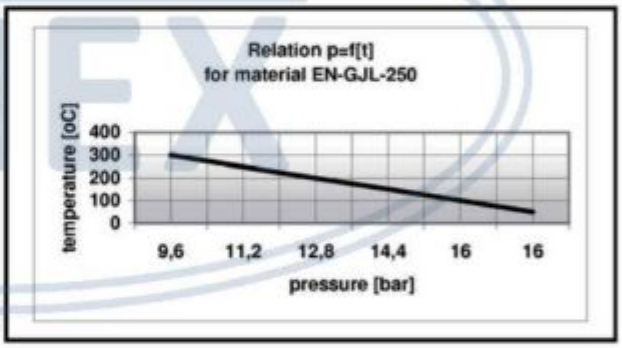
Discharge coefficients

Type of valve	DN	Valves in execution					
		For vapours and gases α		with reduction of leap (Si 6301C)			
				For liquids α_c			For vapours and gases α
		b_1 = 0,1bar (p ≤ 1bar) or b_1= 10% 1 < p ≤ 1,4 bar	b_1 = 10% p > 1,4 bar	b_1 = 10%		b_1= 25%	b_1=10%
				p ≤ 6 bar	p > 6 bar		
Si 6301 Si 6301C	20 x 32 to 150 x 250	0,72	0,78	0,01	0,28	0,28	0,36

Pressure ranges.

DN	Pressure ranges [bar]
20 x 32	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
25 x 40	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
32 x 50	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
40 x 65	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
50 x 80	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
65 x 100	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
80 x 125	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
100 x 150	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5; 12...16
125 x 200	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10; 9,5...12,5;
150 x 250	0,45...0,68; 0,66...1; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5; 4,8...6,3; 6...8; 7,5...10;

If the required opening pressure appears in two neighbouring pressure ranges, one should to apply valve with spring of higher pressure range.



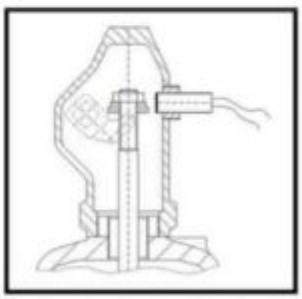
NOTES!

1. If condensate accumulates, in the lowest point of blow-out installation should be foreseen dehydration. The dehydration in valve's body is made only on special request of the client. In case of liquids, the blow-out installation should be inclined
2. **The valve should be assembled in vertical position.**

ORDERING

The order should specify: name and catalogue number of the valve, DN, opening pressure or range of pressures, working temperature and kind of medium. **Because of variety of objective norms, it is advisable to give the norms according to which should be executed the connected flanges of valve.**
Onto client's wish we can deliver counter flanges together with connection elements and gaskets.

For special order are produced valves with inductive proximity detector which signals moment of operation.



Basic data of detector:

Working range [mm]	**3 (M8); 6 (M12); 10 (M18)**
Supply tension [V]	**10 ÷ 30 DC**
Protection grade	**IP67 (M8); IP68 (M12 and M18)**
Working temperature	**-25 ÷ +70°C**
Standard length of cable [mm]	**2000**

The other executions of detector for special order after co-ordination with manufacturer.
Onto client's wish are used detectors working in range of temperature: **-25 ÷ +230°C.**

MODEL : 6302 [Steam Safety Valve]

Connection : Flange PN 40

VMEX Safety-Valve

APPLICATION AND KINDS OF EXECUTION

Si 6302 - for air, steam and other neutral gases and vapours.
Working temperature: from -40°C up to + 400°C.

Si 6302C - Application of valves for liquids and others neutral factors– after limitation of constructional disc leap to the value 0,12 of seat diameter "d_o".
Working temperature: from -40°C do + 400°C.

For temperatures above 350°C the execution with insert **Si 6302 W** is recommended.
Applications for temperature under -10°C – valid are restrictions according to AD-2000 Merkblatt W10.

Valves are produced in the following executions :

Si 6302 - in execution **P** – normal, **G** – gas-tight and **WM** – for marine conditions.

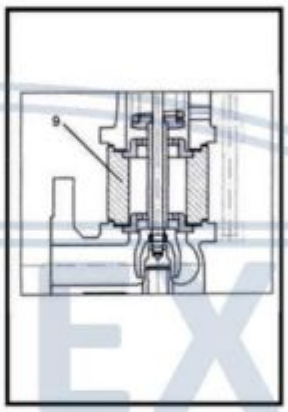
Si 6302C - in execution **P** – normal; **G** – gas-tight

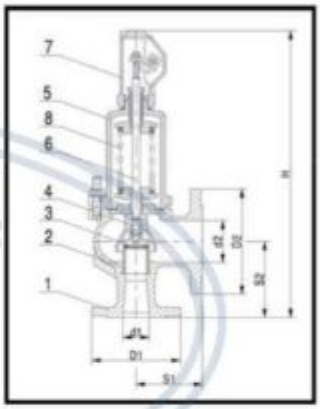
Valves have approval of Petroleum and Gas Institute for application to liquid gas fuels hydrocarbons (propane-butane) and oil products.

LIST OF APPLIED MATERIALS

Position No	Name of detail	Material
1	Body	GP240GH
2	Seat	X39CrMo17-1
3	Disc	X39CrMo17-1
4	Bell	EN-GJS-400-15
5	Cap	EN-GJS-400-15 / GP240GH
6	Stem	X20Cr13[1)]
7	Hood	EN-GJS-400-15
8	Spring	51CrV4[2)]
9	Insert	C22

[1)] For marine execution (WM) stem made of: X17CrNi16-2
[2)] Springs with wire diameter up to Φ 6 of patent wire BI, Max. working temperature is 250°C.





OVERALL DIMENSIONS

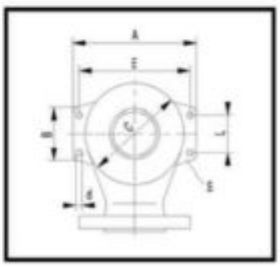
Size DN	Seat		Inlet flange	Outlet flange	Length of construction		Height of construction		Dehydration	Opening pressure		Mass ca.
	Passage	Section	PN 40	PN 10			Without insert	With insert				
$d_1 \times d_2$	d_2	A	D_1	D_2	S_1	S_2	H		E	min	max.	kg
	mm	mm^2	mm						cal	bar		
20 x 32	16	201	105	140	85	95	345	410	G¼	0,45	40	8
25 x 40	20	314	115	150	95	105	395	470	G¼	0,45	40	10
32 x 50	25	491	140	165	100	110	420	500	G¼	0,45	40	14
40 x 65	32	804	150	185	115	130	495	585	G¼	0,45	32	20
50 x 80	40	1257	165	200	125	145	550	660	G¼	0,45	32	27
65 x 100	50	1964	185	220	140	150	660	775	G¾	0,45	32	39
80 x 125	63	3117	200	250	155	170	710	845	G¾	0,45	25	55
100 x 150	77	4657	239	285	175	180	810	960	G¾	0,45	20	82
125 x 200	93	6793	270	340	215	220	860	965	G½	0,45	12,5	100
150 x 250	110	9503	300	395	225	245	1000	-[1)]	G½	0,45	10	155

[1)] After co-ordination with manufacturer.

DIMENSIONS OF SUPPORTED ARMS

DN	A	B	C	L	E	d	s
	mm						
40 x 65	180	84	134	65	155	14	10
50 x 80	210	93	160	70	180	14	12
65 x 100	245	94	196	70	215	14	12
80 x 125	300	100	240	90	270	18	15
100 x 150	320	160	280	130	285	18	15
125 x 200	365	120	300	90	330	18	15
150 x 250	415	150	360	120	380	18	15

NOTE! Drill of supported arms only onto client's wish.



Specification is subject to change without prior notice

TECHNICAL DATA

Discharge coefficients

Type of valve	DN	Valves in execution					
		For vapours and gases α		with reduction of leap (Si 6302C)			
				For liquids α_c			For vapours and gases α
		b_1 = 0,1bar (p ≤ 1bar) or b_1= 10% 1 < p ≤ 1,4 bar	b_1 = 10% p > 1,4 bar	b_1 = 10%		b_1= 25%	b_1=10%
				p ≤ 6 bar	p > 6 bar		
Si 6302 Si 6302W Si 6302C	20 x 32 to 150 x 250	0,72	0,78	0,01	0,28	0,28	0,36

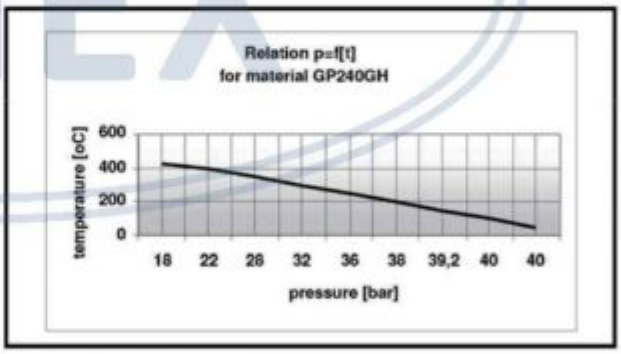
Pressure ranges.

DN	Pressure ranges [bar]
20 x 32	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32; 30...40
25 x 40	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32; 30...40
32 x 50	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32; 30...40
40 x 65	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32;
50 x 80	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32
65 x 100	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25; 23...32;
80 x 125	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20; 18...25
100 x 150	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5; 12...16; 15...20
125 x 200	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10; 9,5...12,5;
150 x 250	0,45...0,68; 0,66...1,0; 0,95...1,4; 1,3...1,9; 1,8...2,6; 2,5...3,6; 3,5...5,0; 4,8...6,3; 6,0...8,0; 7,5...10;

If the required opening pressure appears in two neighbouring pressure ranges, one should to apply valve with spring of higher pressure range.

NOTES!

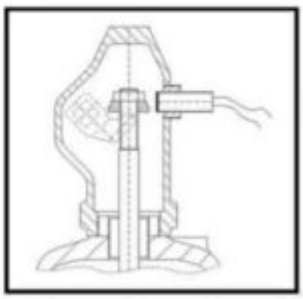
1. If condensate accumulates, in the lowest point of blow-out installation should be foreseen dehydration. The dehydration in valve's body is made only on special request of the client. In case of liquids, the blow-out installation should be inclined
2. **The valve should be assembled in vertical position.**



ORDERING

The order should specify: name and catalogue number of the valve, DN, opening pressure or range of pressures, working temperature and kind of medium. **Because of variety of objective norms, it is advisable to give the norms according to which should be executed the connected flanges of valve.**
Onto client's wish we can deliver counter flanges together with connection elements and gaskets.

For special order are produced valves with inductive proximity detector which signals moment of operation.



Basic data of detector:

Working range [mm]	**3 (M8); 6 (M12); 10 (M18)**
Supply tension [V]	**10 ÷ 30 DC**
Protection grade	**IP67 (M8); IP68 (M12 and M18)**
Working temperature	**-25 ÷ +70°C**
Standard length of cable [mm]	**2000**

The other executions of detector for special order after co-ordination with manufacturer.
Onto client's wish are used detectors working in range of temperature: **-25 ÷ +230°C.**

MODEL : 7-SG [Flange Sight Glass]

Connection : Flange PN 16, PN 40, ANSI 150, ANSI 300

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Palm Oil and Refinery Plant
2. Petrochemical Plant
3. Food Industries
4. Oil & Gas Industries
5. Heating
6. Cooling System

Flow
→

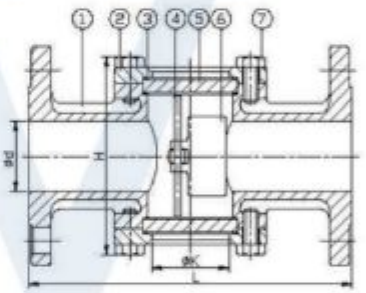
◆ **Suitable for :** 1. Water
2. Steam
3. Oil
4. Condensate
5. Non-abrasive media

◆ **FEATURES**

- 1/2"~6" (DN15~DN150)
- W.T. : -20°C~200°C (-4°F~392°F)
- Investment Casting
- Face to face : DIN 3202 Part1-F1

◆ **MATERIAL LIST**

ITEM	PARTS	MATERIAL		
1	BODY	ASTM A351-CF8M	ASTM A351-CF8	ASTM A216-WCB
2	CAP			
3	GASKET	PTFE		
4	STEM	AISI 316	AISI 304	
5	GLASS	GLASS		
6	INDICATOR	ASTM A351-CF8M	ASTM A351-CF8	ASTM A216-WCB
7	BOLT	AISI 304		CARBON STEEL



◆ **DIMENSIONS (mm)**

DN	d	L	CLASS 150/ JIS 10K		PN16		Weight
			H	K	H	K	(Kg)
15	15	130	115	35	100	40	3.4
20	20	150	115	35	100	40	3.5
25	25	160	115	35	100	40	4.5
32	32	180	143	55	125	50	5.7
40	40	200	143	55	125	50	6.5
50	50	230	143	55	125	50	8.5
65	65	290	185	85	167	85	11
80	80	310	196	85	180	85	16
100	100	350	228	110	210	110	20
150	150	480	310	160	280	150	54

◆ **DIMENSIONS (inch)**

NPS	d	L	CLASS 150 / JIS 10K		PN 16	
			H	K	H	K
1/2"	0.59	5.12	4.53	1.38	3.94	1.57
3/4"	0.79	5.91	4.53	1.38	3.94	1.57
1"	0.98	6.3	4.53	1.38	3.94	1.57
1-1/4"	1.26	7.09	5.63	2.17	4.92	1.97
1-1/2"	1.57	7.87	5.63	2.17	4.92	1.97
2"	1.97	9.06	5.63	2.17	4.92	1.97
2-1/2"	2.56	11.42	7.28	3.35	6.57	3.35
3"	3.15	12.2	7.72	3.35	7.09	3.35
4"	3.94	13.78	8.98	4.33	8.27	4.33
6"	5.91	18.9	12.2	6.3	11.02	5.91

Specification is subject to change without prior notice

MODEL : DW-40S [Screw end Double Window Sight Glass]

Connection : Screw BSPT, NPT

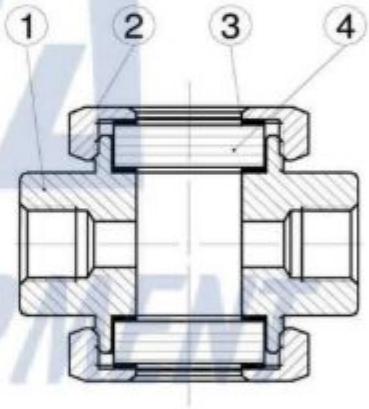
ADCA STEAM EQUIPMENT

Flow →

(DN15 – DN25)

DESCRIPTION
For monitoring the right operation of a steam trap to avoid leakage of live steam and consequently big energy losses, a sight glass is recommended to be installed downstream of the steam trap.
Double window DW sight glass, has been designed for this particular application.
Connections are female screwed or flanged.

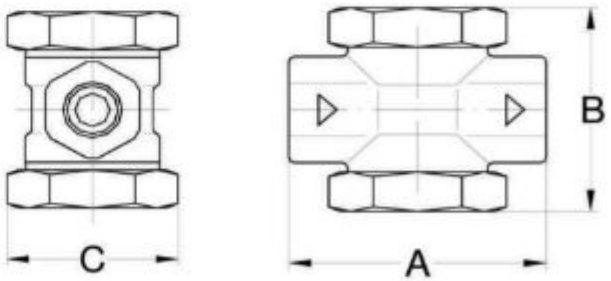
USE:	Condensate pipes downstream steam traps.
AVAILABLE MODELS:	DW 40 S
SIZES:	DN ½" to DN 1"; DN 15 to DN 25
CONNECTIONS:	Female screwed ISO 7/1Rp(BS21). NPT (ANSI B1.20.1) Flanged EN 1092-1 or ANSI
INSTALLATION:	Horizontal or vertical installation. See IMI, installation and maintenance instructions.



PMO – Max. operating pressure 40 bar
TMO – Max. operating temperature 280 °C
How to order: i.e. DW40 DN ½" BSP.

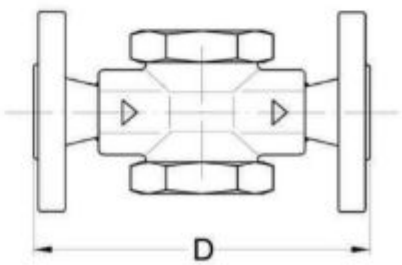
ADCA STEAM EQUIPMENT

DIMENSIONS (mm)-Screwed					EN 1092-1 Flanges	
SIZE DN	A	B	C	WGT. Kgs	E	WGT. Kgs
15	90	80	60	1,25	130	2,8
20	90	80	60	1,25	150	3,4
25	100	87	65	2,1	160	4,7



MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	P250GH / 1.0460
2	Glass nut	P250GH / 1.0460
3	* Gasket	St.Steel / Graphite
4	* Window glass	Borosilicate

*Available spare parts.

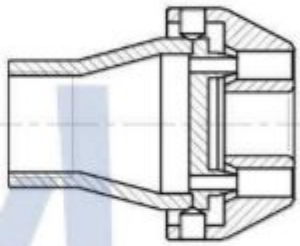


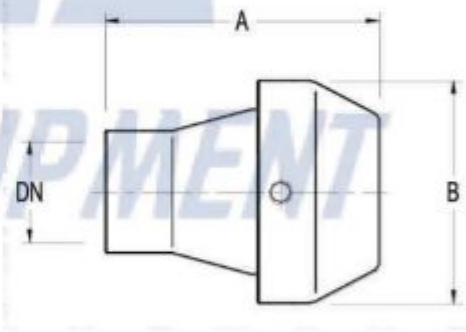
DESCRIPTION

The SI series steam injectors from ADCA are injection condensers. They ensure low noise and vibration and rapid heating of still or flowing fluids in basins and vessels due to direct steam injection.
Steam enters through the inlet housing, passes along the centre of the heater, mixing with the cool water which drawn in through radial holes.
Connections are female screwed.

MAIN FEATURES

Quiet operation.
Corrosion-resistant.
No moving parts.





OPTIONS:	Complete system including vacuum breaker and self operated controller. Different capacities and design available under request.
USE:	Direct steam injection heating systems. See IMI installation and maintenance instructions.
AVAILABLE MODELS:	SI-125, SI-140.
SIZES:	DN 1" and DN 11/2"
CONNECTIONS:	Female screwed ISO 7/1 Rp (BS21)
INSTALLATION:	Horizontal installation.
LIMITING CONDITIONS:	Body design conditions : PN 25 Max. operating pressure : 17 bar Max. recommended water temp: 95 °C
MATERIALS:	Austenitic stainless steel throughout. AISI316 / 1.4401
	How to order: i.e. SI-140 DN 11/2" BSP

DIMENSIONS (mm)			
SIZE DN	A	B	WEIGHT Kg
1"	90	73	0,92
11/2"	114	88	1,8

FLOW RATE CAPACITY IN Kg/h *																		
MODEL	SIZE	INLET STEAM PRESSURE (bar)																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
SI 125	1"	130	170	270	352	415	500	575	660	695	795	880	940	980	1040	1090	1150	1220
SI 140	11/2"	395	570	800	970	1120	1290	1440	1625	1810	1940	2240	2360	2590	2700	2800	3050	3200

* With the vessel at atmospheric pressure.

Example: We require the injection of 3500Kg/hr of steam with a pressure of 8bar. From the injector capacity table we see that at 8bar the injector SI140 will pass 1625Kg/hr and 3500 divided by 1625=2,15.
Two injectors will barely cope, so, we recommend installing three injectors, which will meet the demand.

Specification is subject to change without prior notice

MODEL : KB - Steam Separator

VALVE

Description
Centrifugal separators remove moisture from steam and compressed air pipelines. Steam and compressed air passing through the separator and as a result of centrifugal forces, impact and swirling effects, separate the particles with a heavier specific gravity, such as water and oil droplets, moisture in suspension, dirt and scale.
The condensate collected at the bottom of separator, must be automatically drained by a suitable steam or compressed air trap. Connections are flanged.

Main Features
Several possibilities of installation.
No moving parts.

Use : Steam, compressed air and other gases
Materials : Carbon Steel body
Sizes : 150 to 300
Connections : DIN PN 40 / ANSI CL.300
Installation : Always with the condensate discharge pointing downwards.
Select : To fit a separator of the same size of the pipeline. Pressure drop is normally negligible. For approximate pressure drop calculation please consult.
How to order i.e. : DN 150/ANSI 300

Limiting Conditions

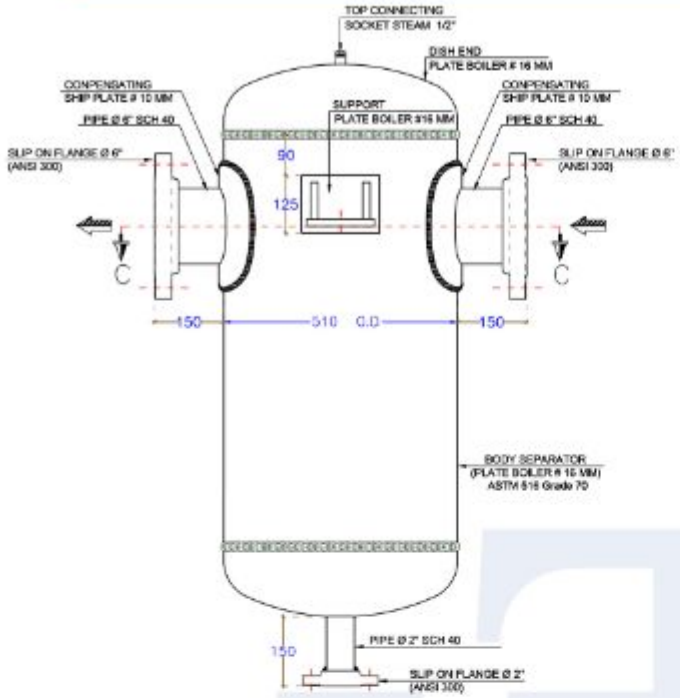
	Press. Bar	Temp. °C
DIN PN 40	40	120
ANSI CL.300	32	239
	28	300

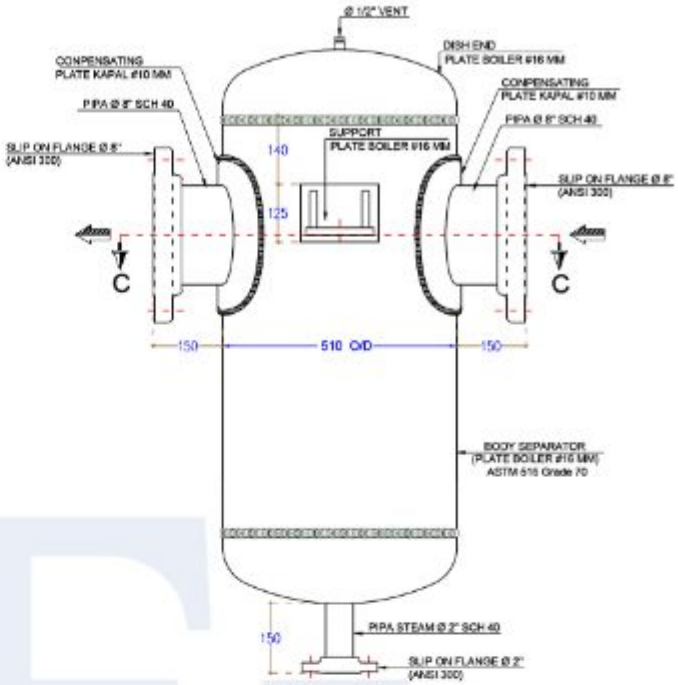
INSTALLATION
1. Prior to install check that the product is suitable for the intended application : materials and pressure/ temperature ratings.
2. Before to install remove plastic covers placed on flanges or connection ends. The equipment has an arrow or inlet/ outlet designations. Be sure that be installed on the appropriate flow direction.
3. External stresses that may be induced by the system doing to pipe expansion, etc, can effect this product. The necessary precautions are recommended during the system design and equipment assembly.
4. The separator mus be installed on horizontal position always with the condensate discharge pointing downwards. A steam or compressed air trap is recommended to automatically discharge the condensate. A balancing pipe is recommended to be fitted with the compressed air trap.

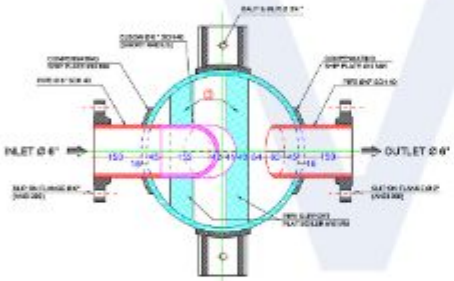
GENERAL
Water present in all steam and compressed air distribution pipelines systems. For maximum efficiency, steam must be saturated and dry. Careful draining and trapping will remove much of condensate but not all. The use of separators and appropriate condensate traps can solve the problem.

MAINTENANCE
The separator don't need any specific type of maintenance. Regular inspection may be recommended by local authorities according to specific or general pipe and/or vessels assembly procedures.
Estimated lifetime under satisfactory working conditions: 5 years ; after this period we recommended the wall thickness examination using appropriated inspection equipment. Pour quality water or corrosive fluids will reduce this period.

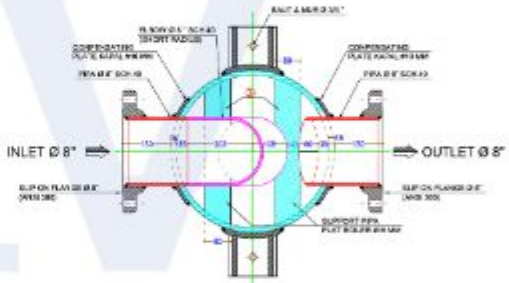
MODEL : KB - Steam Separator







Steam Separator
6" model elbow



Steam Separator
8" model elbow

DN 150 (6")			
MATERIAL LIST			
ITEM	DESCRIPTION	MATERIAL QTY	QTY
1	DISH END	ASTM 516 Grade 70	2
2	SUPPORT 12 THK. SHELL PLATE		1
3	BODY SEPARATOR 125 X 65 X 14.914 KG/M RSC		2

NOZZLE SCHEDULE			
MK'D	SIZE	FLANGE RATING	SERVICE
N1	3/4"	B.S.P.T SOCKET	SAFETY VALVE
N2	150	ANSI 300# S.O.R.F	INLET
N3	150	ANSI 300# S.O.R.F	OUTLET
N4	3/4"	B.S.P.T SOCKET	DRAIN

DIMENSION
510 NM N.B X 900 MM S. H.
VERTICAL M. S. COMPRESSED AIR / WATER SEPARATOR

DN 200 (8")			
MATERIAL LIST			
ITEM	DESCRIPTION	MATERIAL QTY	QTY
1	12 THK. TORISPHERICAL DISH	JIS G3101 SS400	2
2	12 THK. SHELL PLATE	JIS G3101 SS400	1
3	152 X 76 X 17.896 KG/M RSC	JIS G3101 SS400	2

NOZZLE SCHEDULE			
MK'D	SIZE	FLANGE RATING	SERVICE
N1	2"	B.S.P.T SOCKET	SAFETY VALVE
N2	200	ANSI 300# S.O.R.F	INLET
N3	200	ANSI 300# S.O.R.F	OUTLET
N4	2"	B.S.P.T SOCKET	DRAIN

DIMENSION
510 NM N.B X 900 MM S. H.
VERTICAL M. S. COMPRESSED AIR / WATER SEPARATOR

Specification is subject to change without prior notice

MODEL : DT-42S [Thermodynamic Steam Traps]

ADCA STEAM EQUIPMENT

◆ DESCRIPTION

Flow
⇙
Working Positions
✳

Thermodynamic DT42S disc steam traps are compact and lightweight-easy to install traps, excellent for high pressure systems, including steam tracing applications.
These traps have only one moving part and offer a wide operating range, without adjustment.
Connections are female screwed or flanged.

◆ MAIN FEATURE

Intermittent discharge.
Operates on superheated steam.
The seat and disc can be easily replaced in field without removing the trap from the line.
Unaffected by water hammer and vibrations
Built-in easy-to-clean strainer.

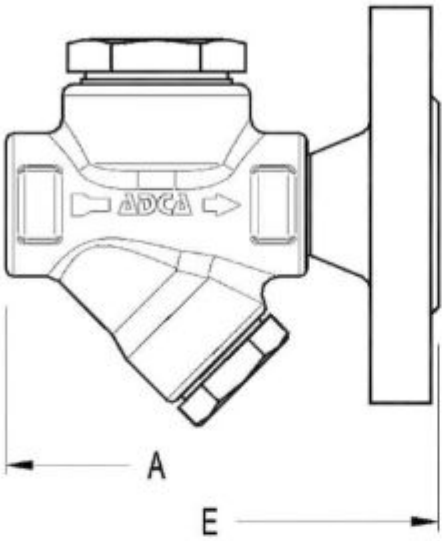
OPTIONS:	Insulation cap Blow-off valve
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	DT 42S
SIZES:	DN ½" to DN 1" – DN15 to DN25
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN1092-1 PN40-PN63 or ANSI
INSTALLATION:	Horizontal installation remommended. Can be installed in any position.
APPLICATION LIMITS:	Min-working pressure – 0,25 bar Max.working back pressure – 80%

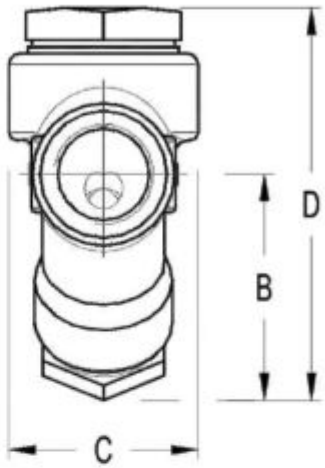
BODY LIMITING CONDITIONS			
FLANGED PN63 *	FLANGED PN40 / ANSI 300 *	FLANGED ANSI 150 **	RELATED TEMP.
ALLOW. PRES.	ALLOW. PRES.	ALLOW. PRES.	
63 bar	40 bar	19,3 bar	50 °C
55,5 bar	35 bar	15,8 bar	150 °C
48 bar	30,4 bar	12,1 bar	250 °C
43,5 bar	27,6 bar	10,2 bar	300 °C

PMO - Max. operating pressure 42 bar
TMO - Max. operating temperature 300 °C
* Rating according to EN1092-1:2007 ** Rating according to EN1759-1:2004
Note: Body limiting conditions PN63 or below, depending on the type of connection adopted. Rating PN63 for thread, SW and BW.

FLOW RATE CAPACITY IN Kgs/h														
MODEL	SIZE DN	DIFFERENTIAL PRESSURE (bar)												
		0,5	1	3	6	9	12	15	18	21	24	30	35	42
DT 42S	1/2"-15	200	210	350	480	580	660	740	800	850	910	1020	1100	1200
DT 42S	3/4"-20	310	320	520	720	860	980	1050	1175	1220	1350	1500	1600	1750
DT 42S	1"-25	470	485	800	1100	1310	1500	1750	1800	1950	2100	2300	2480	2720

Specification is subject to change without prior notice

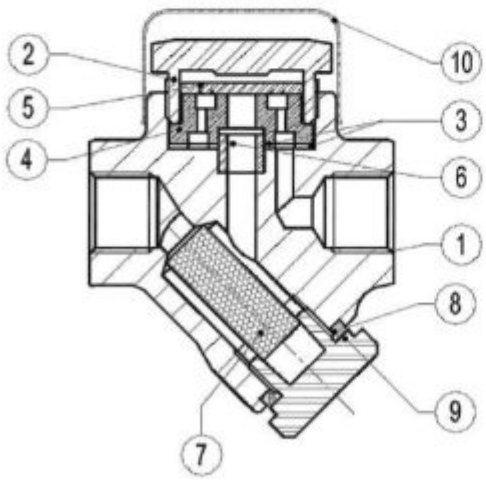




DIMENSIONS (mm)													
Screwed and SW *						EN PN16/PN40		EN PN63		ANSI 150		ANSI 300	
SIZE DN	A	B	C	D	WGT. Kgs	E	WGT. Kgs	E	WGT. Kgs	E	WGT. Kgs	E	WGT. Kgs
15-1/2"	80	56	46	96	1	150	2,5	150	3,4	150	2	150	2,8
20-3/4"	80	56	52	105	2	150	3,3	150	4,3	150	2,6	150	3,9
25-1"	98	56	62	115	1,8	160	4,4	160	7,2	160	4	160	5,4

* BW (butt weld) on request.

ADCA STEAM EQUIPMENT



MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	P250GH / 1.0460
2	Cover	AISI 304 / 1.4301
3	*Gasket	Graphite
4	*Seat	Hardened St.Steel
5	*Valve disc	Hardened St.Steel
6	*Tube	AISI 304 / 1.4301
7	*Strainer screen	AISI 304 / 1.4301
8	*Gasket	StainlessSt./Graphite
9	Plug	A105 / 1.0432
10	Insulating Cap	AISI 304 / 1.4301

*Available spare parts.

(DN 1/2" to 1"; DN15 to DN25)

DESCRIPTION

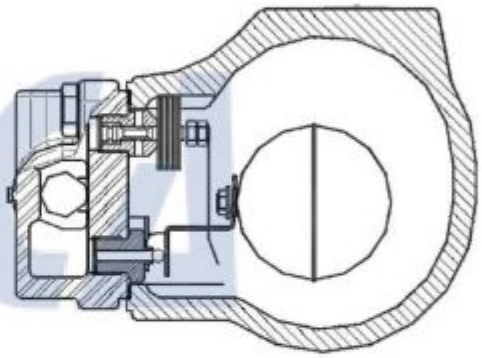
FLT17 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.

Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.

Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES

Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).



OPTIONS:	SLR – steam lock release Equalizing plug or vent connection Internal strainer
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT17-4,5 , 10 and 14
SIZES:	DN ½" to DN1" – DN15 to DN25
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-1/-2 PN16 or ANSI
INSTALLATION:	Standard horizontal installation – From right to left FLT17 (R-L)

Upon request:
-horizontal installation with the flow from left to right (L-R)
-vertical installation with the flow from top to bottom (V)

MAX. DIFFERENTIAL PRESSURE

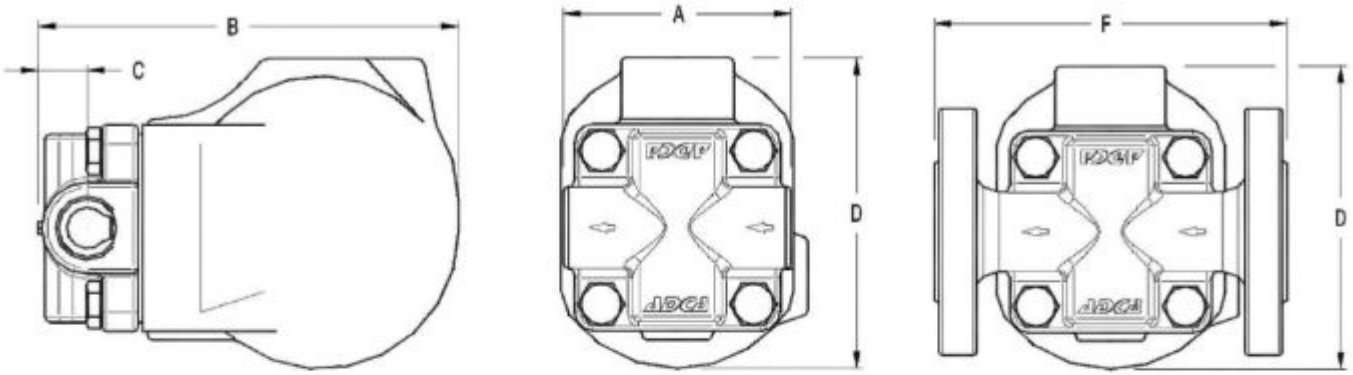
FLT17-4,5 : 4,5 bar
FLT17-10 : 10 bar
FLT17-14: 14 bar

BODY LIMITING CONDITIONS		
FLANGED PN16* ALLOW. PRES.	FLANGED ANSI 150 ** ALLOW. PRES.	RELATED TEMP.
16 bar	15,4 bar	100 °C
15,5 bar	14,6 bar	150 °C
14,7 bar	13,8 bar	200 °C
13,9 bar	12,1 bar	250 °C

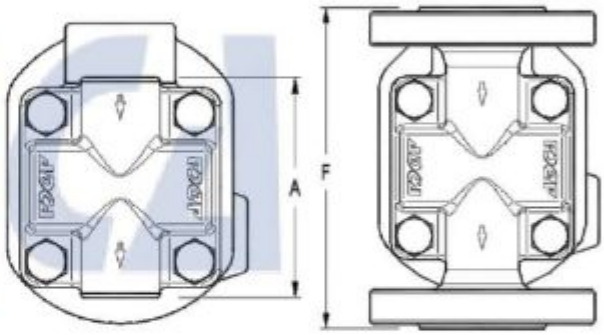
PMO - Max. operating pressure 14 bar
TMO - Max. operating temperature 198 °C
* According to EN1092-2:2000 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN16 or below, depending on the type of connection adopted. Rating PN16 for thread.

FLOW RATE CAPACITY IN Kgs/h														
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)												
		0,5	1	1,5	2	3	4,5	6	7	8	9	10	12	14
FLT17-4,5	15 - 25	230	330	400	440	535	630							
FLT17-10	15 - 25	150	200	250	280	340	400	460	495	520	550	595		
FLT17-14	15 - 25	120	150	190	220	260	320	380	400	425	440	480	510	550

Specification is subject to change without prior notice



DIMENSIONS (mm)									
Screwed						EN PN16		ANSI 150	
SIZE DN	A	B	C	D	WGT. Kgs	F	WGT. Kgs	F	WGT. Kgs
15-1/2"	95	178	23	128	5,2	150	6,7	150	6,2
20-3/4"	95	178	23	128	5,2	150	7,2	150	6,4
25-1"	95	178	23	128	5,2	160	7,7	160	7,3

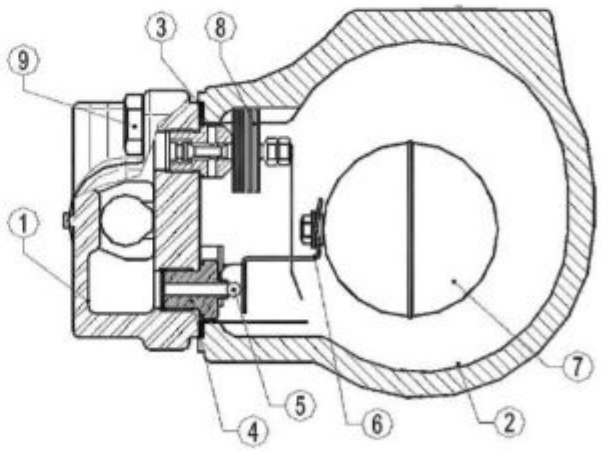


Vertical Installation (V)

STEAM EQUIPMENT

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GJS-400-15 / 0.7040
2	Cover	GJS-400-15 / 0.7040
3	*Gasket	Stainless st. / Graphite
4	*Seat	AISI 410 / 1.4006
5	*Valve	AISI 440C / 1.4125
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8

*Available spare parts.



(DN 1"HC – DN 25HC)

DESCRIPTION
FLT17 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.
Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.
Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES
Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).

OPTIONS:	SLR – steam lock release Equalizing plug or vent connection Internal strainer
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT17-4,5 , 10 and 14
SIZES:	DN 1"HC – DN25HC
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-2 PN16 or ANSI
INSTALLATION:	Standard horizontal installation – From left to right FLT17 (L-R)

Upon request:
-horizontal installation with the flow from right to left (R-L)
-vertical installation with the flow from top to bottom (V)

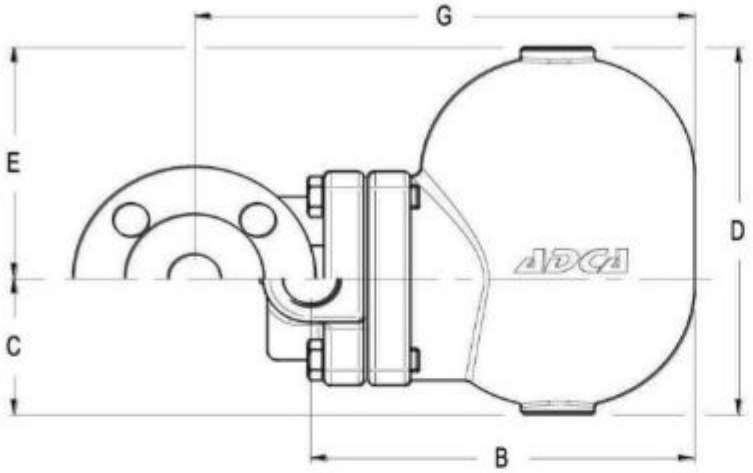
MAX. DIFFERENTIAL PRESSURE
FLT17HC-4,5 : 4,5 bar
FLT17HC-10 : 10 bar
FLT17HC-14: 14 bar

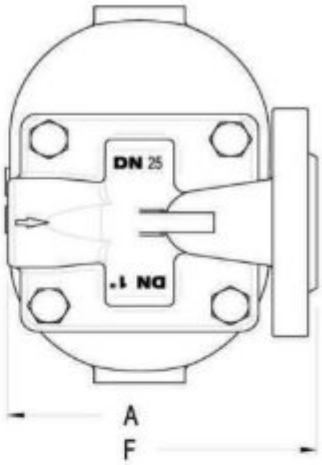
BODY LIMITING CONDITIONS		
FLANGED PN16*	FLANGED ANSI 150 **	RELATED TEMP.
ALLOW. PRES.	ALLOW. PRES.	
16 bar	15,4 bar	100 °C
15,5 bar	14,6 bar	150 °C
14,7 bar	13,8 bar	200 °C
13,9 bar	12,1 bar	250 °C

PMO - Max. operating pressure 14 bar
TMO - Max. operating temperature 198 °C
* According to EN1092-2:2000 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN16 or below, depending on the type of connection adopted. Rating PN16 for thread.

FLOW RATE CAPACITY IN Kgs/h														
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)												
		0,5	1	1,5	2	3	4,5	6	7	8	9	10	12	14
FLT17-4,5	1"-25HC	900	1250	1450	1700	2010	2400							
FLT17-10	1"-25HC	450	620	790	880	1100	1250	1500	1600	1700	1750	1800		
FLT17-14	1"-25HC	340	435	530	600	610	850	990	1100	1190	1240	1300	1350	1380

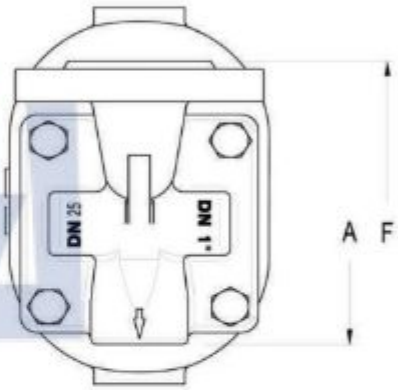
Specification is subject to change without prior notice





DIMENSIONS (mm)												
Screwed							EN PN16			ANSI 150		
SIZE DN	A	B	C	D	E	WGT. Kgs	F	G	WGT. Kgs	F	G	WGT. Kgs
25-1"	120	195	80	190	110	9	160	248	11,3	160	248	10,9

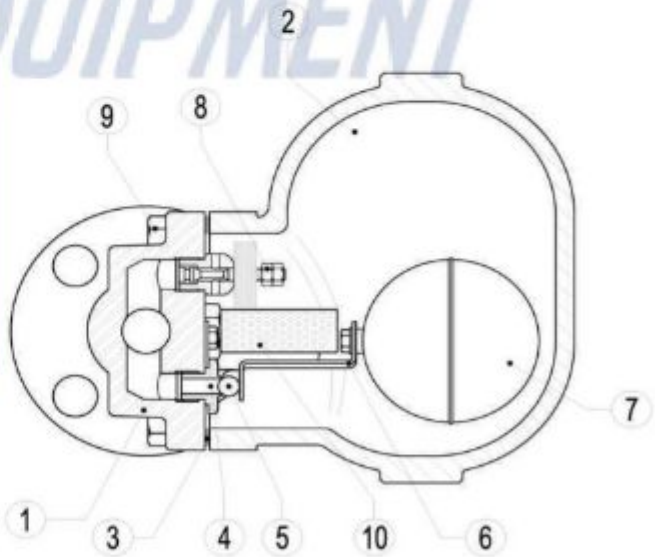
On request can be supplied an alternative version DN 32 - 11/4" with different lengths: A = 190 and F = 230 mm



Vertical Installation (V)

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GJS-400-15 / 0.7040
2	Cover	GJS-400-15 / 0.7040
3	*Gasket	Stainless st. / Graphite
4	*Seat	AISI 410 / 1.4006
5	*Valve	AISI 440C / 1.4125
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8
10	**Strainer	AISI 304 / 1.4301

*Available spare parts ; ** Optional



ADCA STEAM EQUIPMENT

(DN 11/2" – 2"; DN 40 – 50)

DESCRIPTION

FLT17 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.
Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.
Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES

Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).

OPTIONS:	SLR – steam lock release Equalizing plug or vent connection
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT17-4,5 , 10 and 14
SIZES:	DN11/2" - DN2" ; DN40 – DN50
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-2 PN16 or ANSI
INSTALLATION:	Standard horizontal installation – From right to left FLT17 (R-L)

Upon request:
-horizontal installation with the flow from left to right (L-R)
-vertical installation with the flow from top to bottom (V)

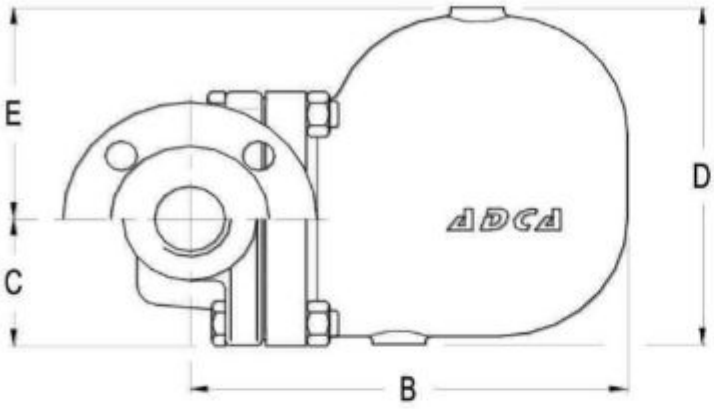
MAX. DIFFERENTIAL PRESSURE

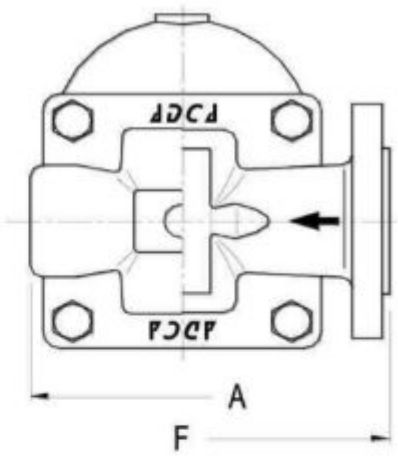
FLT17-4,5 : 4,5 bar
FLT17-10 : 10 bar
FLT17-14: 14 bar

BODY LIMITING CONDITIONS		
FLANGED PN16*	FLANGED ANSI 150 **	RELATED TEMP.
ALLOW. PRES.	ALLOW. PRES.	
16 bar	15,4 bar	100 °C
15,5 bar	14,6 bar	150 °C
14,7 bar	13,8 bar	200 °C
13,9 bar	12,1 bar	250 °C

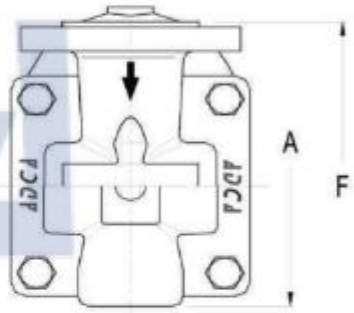
PMO - Max. operating pressure 14 bar
TMO - Max. operating temperature 198 °C
* According to EN1092-2:2000 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN16 or below, depending on the type of connection adopted. Rating PN16 for thread.

FLOW RATE CAPACITY IN Kgs/h										
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)								
		0,5	1	1,5	2	4,5	7	10	12	14
FLT17-4,5	40-50	2400	3400	3900	4500	7300				
FLT17-10	40-50	1500	2000	2600	3000	4000	5400	6200		
FLT17-14	40-50	950	1300	1600	1800	2600	3250	3900	4210	4950





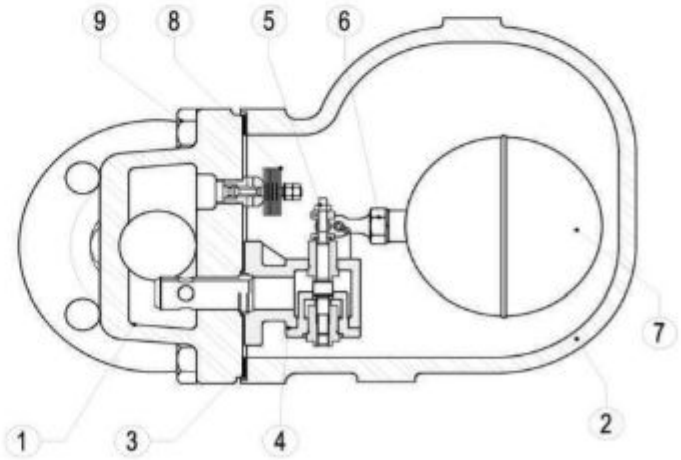
DIMENSIONS (mm)												
Screwed							EN PN16			ANSI 150		
SIZE DN	A	B	C	D	E	WGT. Kgs	F	B	WGT. Kgs	F	B	WGT. Kgs
40-11/2"	210	248	79	208	131	16,9	230	248	20,3	230	248	19,1
50-2"	210	248	79	208	131	17,5	230	248	20,7	230	248	20,5



Vertical Installation (V)

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GJS-400-15 / 0.7040
2	Cover	GJS-400-15 / 0.7040
3	*Gasket	Stainless st. / Graphite
4	*Seat	CF8 / 1.4308
5	*Valve	AISI 420 / 1.4021
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8

*Available spare parts.



STEAM EQUIPMENT

(DN 2" HC; DN 50 HC)

DESCRIPTION
FLT17 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.
Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.
Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES
Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).

OPTIONS:	SLR – steam lock release Equalizing plug or vent connection
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT17-4,5 , 10 and 14
SIZES:	DN2" HC ; DN50 HC
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-2 PN16 or ANSI
INSTALLATION:	Standard horizontal installation – From right to left FLT17 (R-L)

Upon request:
-horizontal installation with the flow from left to right (L-R)
-vertical installation with the flow from top to bottom (V)

MAX. DIFFERENTIAL PRESSURE
FLT17HC-4,5 : 4,5 bar
FLT17HC-10 : 10 bar
FLT17HC-14: 14 bar

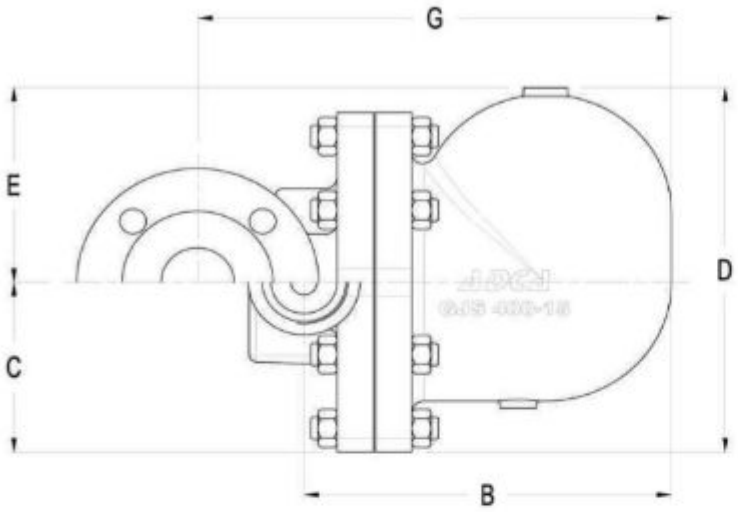
CE MARKING (PED - European Directive 97/23/EC)	
PN 16	Category
DN 50 HC	1 (CE Marked)

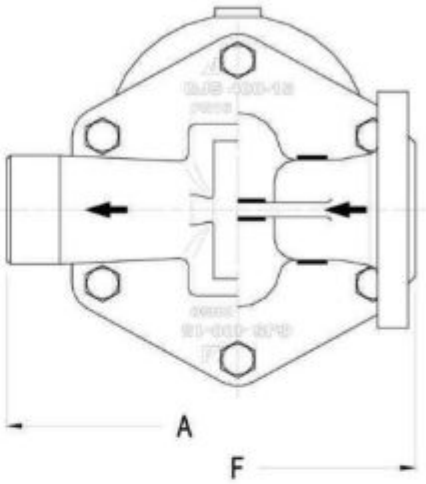
BODY LIMITING CONDITIONS		
FLANGED PN16* ALLOW. PRES.	FLANGED ANSI 150 ** ALLOW. PRES.	RELATED TEMP.
16 bar	15,4 bar	100 °C
15,5 bar	14,6 bar	150 °C
14,7 bar	13,8 bar	200 °C
13,9 bar	12,1 bar	250 °C

PMO - Max. operating pressure 14 bar
TMO - Max. operating temperature 198 °C
* According to EN1092-2:2000 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN16 or below, depending on the type of connection adopted. Rating PN16 for thread.

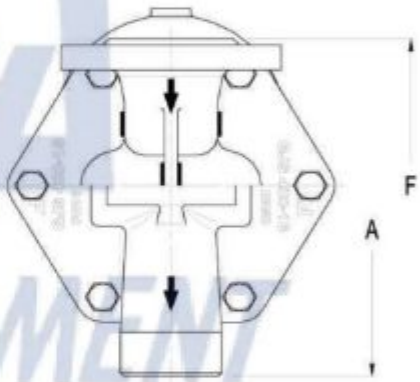
FLOW RATE CAPACITY IN Kgs/h													
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)											
		0,1	0,3	0,5	0,7	1	1,5	2	4,5	7	10	12	14
FLT17-4,5	50HC	2400	5900	7550	9050	11000	14000	15500	22500				
FLT17-10	50HC	1800	3000	3900	4450	5000	6100	7100	10000	13750	16000		
FLT17-14	50HC	900	1500	1900	2300	2700	3100	3600	5000	6900	8100	9000	9800

Specification is subject to change without prior notice





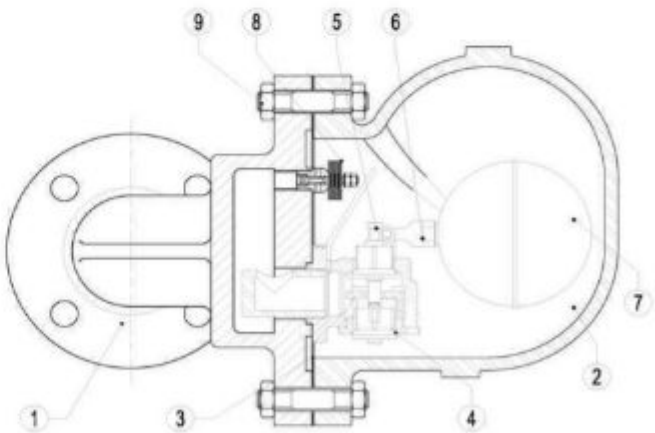
DIMENSIONS (mm)												
Screwed							EN PN16			ANSI 150		
SIZE DN	A	B	C	D	E	WGT. Kgs	F	G	WGT. Kgs	F	G	WGT. Kgs
50-2"	300	250	126	266	140	21,6	230	325	27,8	230	325	27,6



Vertical Installation (V)

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GJS-400-15 / 0.7040
2	Cover	GJS-400-15 / 0.7040
3	*Gasket	Stainless st. / Graphite
4	*Seat	CF8 / 1.4308
5	*Valve	AISI 420 / 1.4021
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8

*Available spare parts.



ADCA STEAM EQUIPMENT

(Cast steel DN1/2" - 1"; DN15 - 25)

DESCRIPTION

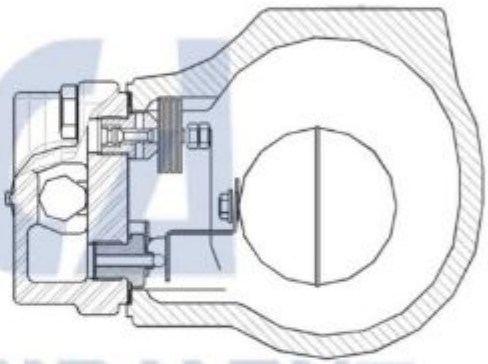
FLT32 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.

Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.

Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES

Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).



OPTIONS:	SLR – steam lock release Equalizing plug or vent connection Internal strainer
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT32-4,5, 10, 14 and 21.
SIZES:	DN ½" - 1" – DN15 - 25
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-1 PN40 or ANSI
INSTALLATION:	Standard horizontal installation – From right to left FLT32 (R-L)

Upon request:
-horizontal installation with the flow from left to right (L-R)
-vertical installation with the flow from top to bottom (V)

MAX. DIFFERENTIAL PRESSURE

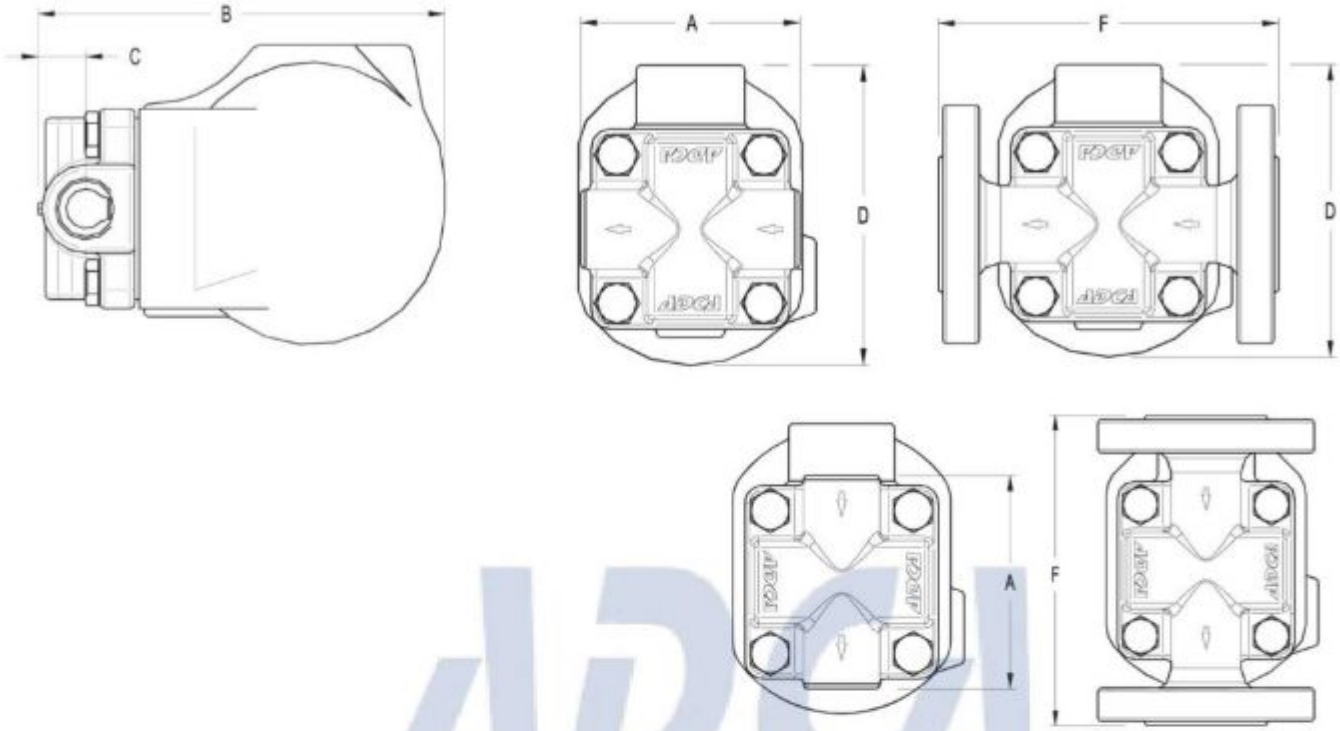
FLT32-4,5 : 4,5 bar
FLT32-10 : 10 bar
FLT32-14: 14 bar
FLT32-21: 21 bar

BODY LIMITING CONDITIONS		
FLANGED PN40 / ANSI 300*	FLANGED ANSI 150 **	RELATED TEMP.
ALLOW. PRES.	ALLOW. PRES.	
37,1 bar	15,4 bar	100 ºC
33,3 bar	13,8 bar	200 ºC
30,4 bar	12,1 bar	250 ºC
27,6 bar	10,2 bar	300 ºC

PMO - Max. operating pressure 32 bar
TMO - Max. operating temperature 250 ºC
* According to EN1092-1:2007 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN40 or below, depending on the type of connection adopted. Rating PN40 for thread,SW and BW.

FLOW RATE CAPACITY IN Kgs/h																
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)														
		0,5	1	1,5	2	3	4,5	6	7	8	9	10	12	14	16	21
FLT32-4,5	15- 25	230	330	400	440	535	630									
FLT32-10	15- 25	150	200	250	280	340	400	460	495	520	550	595				
FLT32-14	15- 25	120	150	190	220	260	320	380	400	425	440	480	510	550		
FLT32-21	15- 25	60	80	90	115	135	160	190	200	220	230	240	260	270	290	300

Specification is subject to change without prior notice

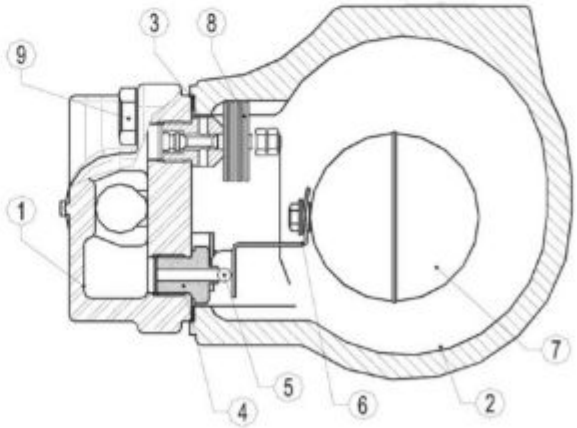


Vertical Installation (V)

DIMENSIONS (mm)											
Screwed						EN PN16/40		ANSI 150		ANSI 300	
SIZE DN	A	B	C	D	WGT. Kgs	F	WGT. Kgs	F	WGT. Kgs	F	WGT. Kgs
15-1/2"	95	178	23	128	5,2	150	6,7	150	6,2	150	7
20-3/4"	95	178	23	128	5,2	150	7,4	150	6,6	150	8,2
25-1"	95	178	23	128	5,2	160	7,8	160	7,4	160	9

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GP240GH / 1.0619
2	Cover	GP240GH / 1.0619
3	*Gasket	Stainless st. / Graphite
4	*Seat	AISI 410 / 1.4006
5	*Valve	AISI 410 / 1.4006
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8

*Available spare parts.



(Cast steel DN40-50)

DESCRIPTION

FLT32 float and thermostatic (integral air vent) steam traps series are designed for all types of low and high pressure steam heating and process equipment.

Typical applications include unit heaters, heat exchangers, driers, jacketed vessels and all the applications where continuous drainage is essential.

Connections are female screwed or flanged for horizontal or vertical installation.

MAIN FEATURES

Modulating discharge.
Discharges condensate at steam temperature.
Unaffected by sudden or wide load and pressure changes.
Excellent air discharge (by thermostatic air vent).

OPTIONS:	SLR – steam lock release Equalizing plug or vent connection
USE:	Saturated and superheated steam.
AVAILABLE MODELS:	FLT32-4,5 , 10 , 14 and 21
SIZES:	DN11/2" - DN2" ; DN40 – DN50
CONNECTIONS:	Female screwed ISO7/1 Rp (BS21) Flanged EN 1092-1 PN40 or ANSI
INSTALLATION:	Standard horizontal installation – From right to left FLT32 (R-L)

Upon request:
-horizontal installation with the flow from left to right (L-R)
-vertical installation with the flow from top to bottom (V)

MAX. DIFFERENTIAL PRESSURE

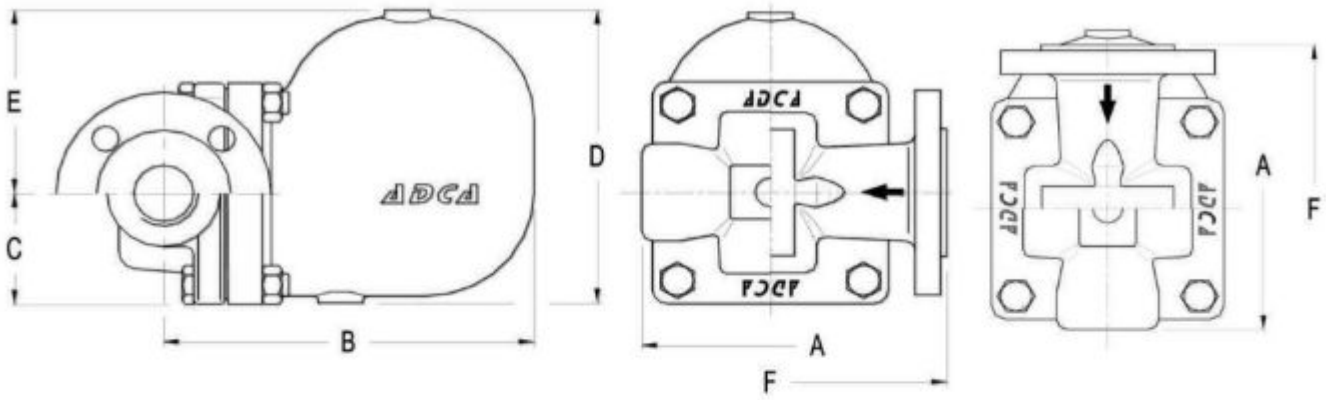
FLT32-4,5 : 4,5 bar
FLT32-10 : 10 bar
FLT32-14: 14 bar
FLT32-21: 21 bar

CE MARKING (PED - European Directive 97/23/EC)	
PN 40	Category
DN40 - DN50	1 (CE Marked)

BODY LIMITING CONDITIONS		
FLANGED PN40 / ANSI 300*	FLANGED ANSI 150 **	RELATED TEMP.
ALLOW. PRES.	ALLOW. PRES.	
37,1 bar	15,4 bar	100 °C
33,3 bar	13,8 bar	200 °C
30,4 bar	12,1 bar	250 °C
27,6 bar	10,2 bar	300 °C

PMO - Max. operating pressure 32 bar
TMO - Max. operating temperature 250 °C
* According to EN1092-1:2007 ; ** Acc. to EN1759-1:2004
Body limiting conditions PN40 or below, depending on the type of connection adopted. Rating PN40 for thread,SW and BW.

FLOW RATE CAPACITY IN Kgs/h												
MODEL	SIZE	DIFFERENTIAL PRESSURE (bar)										
		0,5	1	1,5	2	4,5	7	10	12	14	16	21
FLT32-4,5	40-50	2400	3400	3900	4500	7300						
FLT32-10	40-50	1500	2000	2600	3000	4000	5400	6200				
FLT32-14	40-50	950	1300	1600	1800	2600	3250	3900	4210	4950		
FLT32-21	40-50	950	1300	1600	1800	2600	3250	3900	4210	4950	5000	5600

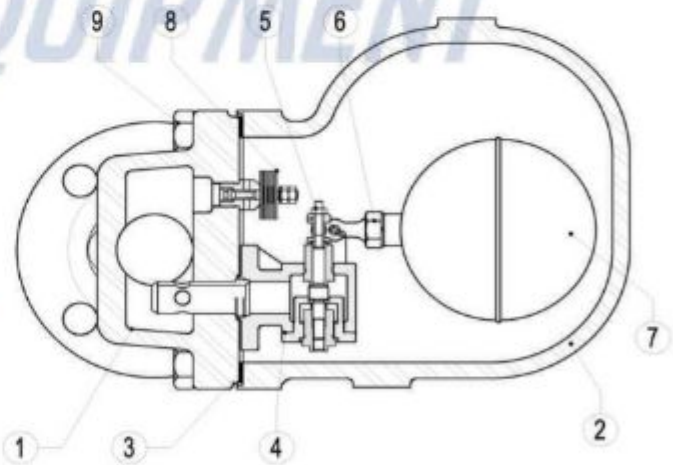


Vertical Installation (V)

DIMENSIONS (mm)															
Screwed							EN PN16 / 40			ANSI 150			ANSI 300		
SIZE DN	A	B	C	D	E	WGT. Kgs	F	B	WGT. Kgs	F	B	WGT. Kgs	F	B	WGT. Kgs
40-11/2"	210	248	79	208	131	16,9	230	248	20,3	230	248	19,1	230	248	22,1
50-2"	210	248	79	208	131	17,5	230	248	20,7	230	248	20,5	230	248	22,3

MATERIALS		
POS.Nr.	DESIGNATION	MATERIAL
1	Body	GP240GH / 1.0619
2	Cover	GP240GH / 1.0619
3	*Gasket	Stainless st. / Graphite
4	*Seat	CF8 / 1.4308
5	*Valve	AISI 420 / 1.4021
6	*Lever	AISI 304 / 1.4301
7	*Float	AISI 304 / 1.4301
8	*Air vent	Stainless st. (Bimetallic)
9	Bolts	Steel 8.8

*Available spare parts.



Specification is subject to change without prior notice

MODEL : STV-203F [Y Strainer]

Connection : Flange PN 16, PN 40, ANSI 150, ANSI 300

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including:
1. Palm Oil and Refinery Plant
2. Petrochemical
3. Power Plant
4. Oil & Gas Industires
5. Pulp and Papper Mill
6. Heating
7. Cooling System

Flow
→
Working Positions
✳

◆ SUITABLE FOR :
1. Water
2. Steam
3. Oil
4. Gases
5. Non-abrasive media

◆ SPECIFICATION
Standard PN 16~40, DN 15~300
ANSI 150, ANSI 300, ANSI 600
Design and manufacture : ANSI 16.34 / DIN 2401
End flange Dimensions: According to DIN PN16/PN40|ANSI B16.5
Mesh Size : #20 ~ #40

◆ PRESSURE / TEMPERATURE RATING
According to DIN EN 1092-1 | ANSI B16.34

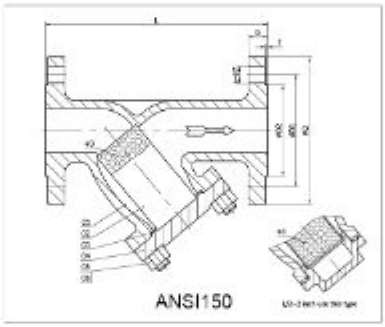
◆ MATERIAL LIST

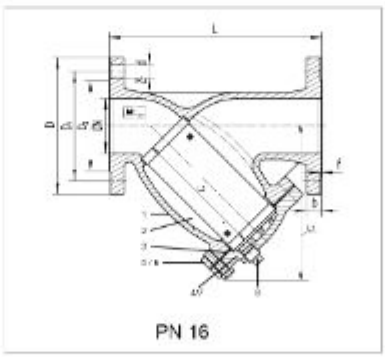
ITEM	DESIGNATION	MATERIAL
		300#
1	BONNET BOLT	ASTM A193 B7
2	BONNET NUT	ASTM A194 2H
3	BONNET	ASTM A216 WCB
4	GASKET	GRAPHITE+STEEL
5	PLUG	CARBON STEEL
6	MESH	SS 40#
7	BODY	ASTM A216 WCB

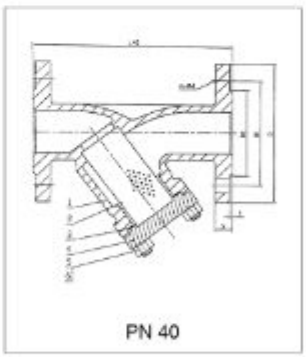
ITEM	DESIGNATION	MATERIAL	
		150#	
1	BODY	WCB	CF8
2	SCREEN	304	
3	GASKET	SS304 + GRPAHITE	
4	BOLTS	WCB	CF8
5	COVER	B7	B8
6	PLUG	2H	8

Screen: SS316L is optional

ITEM	DESIGNATION	MATERIAL	
		PN16	PN40
1	BODY	GS-C25	
2	SCREEN	SS304	SS304 (hole 3mm)
3	GASKET	Soft Graphite	Graphite+304
4	BONNET	-	GS-C25
5	BOLT	CI GG25	-
6	NUT	Steel	A193-B7
7	COVER	STEEL	-
8	PLUG	A194-2H	







◆ DIMENSIONS (mm)

DN	NPS	D		D1		D2		L		KG	
		150#	300#	150#	300#	150#	300#	150#	300#	150#	300#
15	1/2"	90	-	60.3	-	34.9	-	136	-	1.5	-
20	3/4"	100	-	69.9	-	42.9	-	150	-	2	-
25	1"	110	-	79.4	-	50.8	-	155	-	2.4	-
32	1-1/4"	115	-	88.9	-	63.5	-	168	-	3.2	-
40	1-1/2"	125	-	98.4	-	73	-	206	-	4.3	-
50	2"	150	165	120.7	127	92.1	92	216	267	6.5	11
65	2 1/2"	180	190	139.7	149.2	104.8	105	250	292	9.5	15
80	3"	190	210	152.4	168.3	127	127	280	318	13.5	20
100	4"	230	255	190.5	200	157.2	157	305	356	21	35
125	5"	255	280	215.9	235	185.7	186	343	400	28	44
150	6"	280	320	241.3	269.9	215.9	216	388	444	34.6	57
200	8"	345	380	298.5	330.2	269.9	27	345	559	61	90
250	10"	405	445	362	387.4	323.8	324	545	622	86	165
300	12"	485	520	431.8	450.8	381	381	610	711	130	240

DN	NPS	D		D1		D2		L		KG	
		PN16	PN40	PN16	PN40	PN16	PN40	PN16	PN40	PN16	PN40
15	1/2"	95	-	65	-	46	-	130	-	1.88	-
20	3/4"	105	-	75	-	56	-	150	-	2.56	-
25	1"	115		85		65	68	160		3.28	4.82
32	1 1/4"	140		100		76	78	180		5.05	6.55
40	1 1/2"	150		110		84	88	200		5.87	8.74
50	2"	163		125		99	102	230		8.97	10.9
65	2 1/2"	185		145		118	122	290		13	18
80	3"	200		160		132	138	310		16.7	21
100	4"	220	235	180	190	156	162	350		24.9	37
125	5"	250	270	210	220	184	188	400		39.2	53
150	6"	285	300	240	250	211	218	480		54.9	70
200	8"	340	375	295	320	266	285	600		92	115
250	10"	405	450	355	385	319	345	730		144	202

Specification is subject to change without prior notice

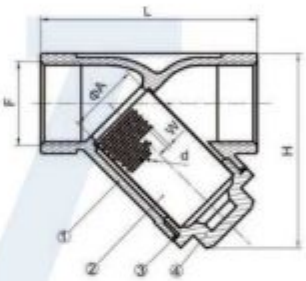
MODEL : STV-203S [Screw end Strainer]

Connection : Screw BSPT, NPT

VTV VALVE

VTV VALVE, serving Multi-National end users in a wide range of applications in many industries including: 1. Air-Conditioning System
2. Hot Water Application
3. General Industries.

Flow
→
Working Positions
✳



◆ SUITABLE FOR :

1. Water
2. Steam
3. Oil
4. Gases
5. Non-abrasive media

◆ FEATURES

1. 800PSI(PN40)
2. Investment Casting
3. PED97/23/PE (CE0035) Approved
4. Casting Approved AD2000-W0
5. Thread: ASME B1.20.1, BS21.DIN2999/259, ISO228-1, JIS B 0203, ISO7/1
6. Inspection Testing: DIN3230/3, EN12266

◆ MATERIAL LIST

ITEM	DESIGNATION	QTY	MATERIAL
1	BODY	1	CF8/CF8M
2	GASKET	1	PTFE
3	SCREEN	1	304/316
4	CAP	1	CF8/CF8M

◆ DIMENSIONS (mm)

SIZE	A	B	H	L	W	d
1/4"	15	26	58	65	2	1
3/8"	15	26	58	65	2	1
1/2"	15	26	58	65	2	1
3/4"	20	33	68	78.5	2	1
1"	25	41	88	89	2	1
1-1/4"	32	49	100	105	2	1
1-1/2"	40	56	108	120	2	1
2"	50	69	130	140	2	1

Specification is subject to change without prior notice

Portable pressure generation

Simple manual pressure generation

Test pumps serve as pressure generators for the testing, adjustment and calibration of mechanical and electronic pressure measuring instruments through comparative measurements.
These pressure tests can take place in the laboratory or workshop, or on site at the measuring point.

CPP7

Pneumatic hand test pump

Measuring range:	-850 mbar ... +7 bar
Medium:	Ambient air
Special feature:	■ Pressure and vacuum generation switchable ■ Low weight ■ Compact dimensions
Data sheet:	CT 91.04

CPP30

Pneumatic hand test pump

Measuring range:	-950 mbar ... +35 bar
Medium:	Ambient air
Special feature:	■ Pressure and vacuum generation switchable ■ Compact dimensions
Data sheet:	CT 91.06

CPP120-X

Pneumatic comparison test pump

Measuring range:	0 ... 120 bar
Medium:	Clean, dry, non-corrosive gases
Special feature:	■ Accurate pressure setting ■ Robust industrial series
Data sheet:	CT 91.03

CPP700-H, CPP1000-H

Hydraulic hand test pump

Measuring range:	0 ... 700 or 0 ... 1,000 bar
Medium:	Oil or water
Special feature:	■ Integrated medium reservoir ■ Ergonomic handling
Data sheet:	CT 91.07

CPP1000-M, CPP1000-L

Hydraulic hand spindle pump

Measuring range:	0 ...1,000 bar
Medium:	Oil or water
Special feature:	■ Smooth-running internal precision spindle ■ Compact dimensions
Data sheet:	CT 91.05

CPPxx00-X

Hydraulic comparison test pump

Measuring range:	0 ... 1,000 to 0 ... 7,000 bar
Medium:	Oil or water
Special feature:	■ Integrated tank ■ Robust laboratory version with priming pump ■ Compact industrial series with dual-area spindle pump
Data sheet:	CT 91.05, CT 91.08 and CT 91.09

Hand-helds, calibrators

Portable calibration instruments for mobile use for the accurate measurement and recording of pressure profiles

For these portable hand-held measuring instruments, exchangeable pressure sensors are available with measuring ranges up to 8,000 bar.

Thus they are particularly suitable as test instruments for process technology, machine building, etc. Data recorded in the instrument can be evaluated via PC software.

CPT2500

USB pressure transmitter

Measuring range:	0 ... 0.025 to 0 ... 1,000 bar
Accuracy:	0.2 %, 0.1 % (optional)
Special feature:	■ Recording interval adjustable from 1 ms ... 10 s ■ No external voltage supply required ■ Data storage and evaluation directly via PC
Data sheet:	CT 05.01

CPH6200

Hand-held pressure indicator

Measuring range:	0 ... 0.025 to 0 ... 1,000 bar
Accuracy:	0.2 %, 0.1 % (optional)
Special feature:	■ Integrated data logger ■ Differential pressure measurement (optional)
Data sheet:	CT 11.01

CPH6300

Hand-held pressure indicator

Measuring range:	0 ... 0.025 to 0 ... 1,000 bar
Accuracy:	0.2 %, 0.1 % (optional)
Special feature:	■ Robust and waterproof case with IP 65, IP 67 ■ Integrated data logger ■ Differential pressure measurement (optional)
Data sheet:	CT 12.01

CPH6400

Precision hand-held pressure indicator

Measuring range:	0 ... 0.25 to 0 ... 6,000 bar
Accuracy:	0.025 %
Special feature:	■ Integrated data logger ■ Temperature measurement (optional)
Data sheet:	CT 14.01

Complete test and service cases

These cases can be assembled exactly to your requirements.
Thus you will be fully equipped on site!

Hand-helds, calibrators

Calibrations can be documented directly in the calibrator and later read on a PC. Optionally, a calibration certificate can be generated through software.

CPH65I0

Hand-held pressure calibrator, intrinsically safe

Measuring range:	0 ... 0.025 to 0 ... 700 bar
Accuracy:	Up to 0.025 %
Special feature:	■ Temperature measurement (optional) ■ Differential pressure measurement (optional)
Data sheet:	CT 14.51

CPH6000

ProcessCalibrator

Measuring range:	0 ... 0.25 to 0 ... 8,000 bar
Accuracy:	0.025 %
Special feature:	■ Calibration function ■ Pressure switch test
Data sheet:	CT 15.01

CPH6600

Hand-held pressure calibrator with integrated pump

Measuring range:	0 ... 2 to 0 ... 20 bar
Accuracy:	0.025 %
Medium:	Clean, dry, non-corrosive gases
Special feature:	■ Integrated electrical pressure generation ■ Temperature measurement (optional) ■ Pressure switch test
Data sheet:	CT 16.01

CPH7600

Wally Box III

Measuring range:	-0.8 ... +20 bar
Accuracy:	0.025 %
Medium:	Clean, dry, non-corrosive gases
Special feature:	■ Integrated electrical pressure generation ■ Pressure supply via external compressed air line ■ Robust case design, IP 67
Data sheet:	CT 17.01

Pascal100

Hand-held multi-function calibrator

Measuring range:	0 ... 1,000 bar
Accuracy:	0.025 %
Medium:	Clean, dry, non-corrosive gases
Special feature:	■ Integrated pressure generation ■ Large display with touchscreen ■ Measurement and simulation of pressure, temperature, current, voltage, resistance, frequency
Data sheet:	CT 16.01

WIKA

Specification is subject to change without prior notice

Precision pressure measuring instruments

Electrical measuring systems which convert pressure into an electrical signal and optionally visualise it

Due to the low, DKD/DAkkS-certified measurement uncertainty of down to 0.008 % of the entire measuring chain, these instruments find their primary application as a factory/working standard for testing and/or calibrating a variety of pressure measuring instruments.

CPG500

Digital pressure gauge

Measuring range:	-1 ... +16 to 0 ... 1,000 bar
Accuracy:	0.25 %
Special feature:	■ Simple operation using 4 buttons ■ Robust case with protective rubber cap, IP 67
Data sheet:	CT 09.01

CPG1000

Precision digital pressure gauge

Measuring range:	0 ... 0.07 to 0 ... 700 bar
Accuracy:	0.05 %
Special feature:	■ Integrated data logger ■ Robust case with protective rubber cap, IP 65
Data sheet:	CT 10.01

CPT61x0

Precision pressure sensor

Measuring range:	0 ... 0.025 to 0 ... 400 bar
Accuracy:	0.01 %
Special feature:	■ RS-232 or RS-485 connection ■ Analogue output (optional)
Data sheet:	CT 25.10

CPG2500

Precision pressure indicator

Measuring range:	0 ... 0.025 to 0 ... 2,890 bar
Accuracy:	0.01 %
Medium:	Non-corrosive gases, > 1 bar liquids
Special feature:	■ Up to 2 internal and 1 external sensor ■ Barometric reference (optional)
Data sheet:	CT 25.02

Further information at www.wika.com

Specification is subject to change without prior notice

Pressure balances, laboratory version

High-performance primary standards with excellent running characteristics for use in calibration laboratories

The direct measurement of the pressure (p = F/A), as well as the use of high-quality materials enable this small measurement uncertainty, in conjunction with an excellent long-term stability (recommended recalibration interval of five years in accordance with the German Calibration Service DKD/DAkkS).

Through modern instrument design with excellent equipment features, the highest demands of operator convenience and performance are fulfilled. The selection of dual-range piston-cylinder systems with automatic measuring range switching can ensure this measurement uncertainty over a large pressure range, even with a single measuring system.

CPB5000

Pneumatic version

Measuring range:	-0.03 ... -1 to 0.4 ... 100 bar
Accuracy:	0.015 ... 0.008 %
Medium:	Non-corrosive gases
Special feature:	Patented system for fast piston-cylinder exchange
Data sheet:	CT 31.01

CPB5800

Hydraulic version with dual-range piston-cylinder systems

Measuring range:	1 ... 120 to 1 ... 1,400 bar
Accuracy:	0.015 ... 0.006 %
Medium:	Special oil or others on request
Special feature:	■ Dual-range piston-cylinder systems with fully automated changing between ranges ■ Instrument base can now also be combined with the CPS5000 piston-cylinder systems
Data sheet:	CT 31.11

CPS5000

Hydraulic single-range piston-cylinder systems

Special feature:	■ For the highest demands on accuracy and performance ■ Can be combined with the CPB5800 instrument base
Data sheet:	CT 31.01

CPB5600DP

Differential pressure version

Measuring range:	0.03 ... 2 to 25 ... 1,600 bar
Accuracy:	0.015 ... 0.008 %
Medium:	Non-corrosive gases or special oil
Special feature:	Two complete pressure balances within one case for real differential pressure measurements under static pressure
Data sheet:	CT 31.56

CPB5000HP

High-pressure version

Measuring range:	25 ... 2,500 to 25 ... 5,000 bar
Accuracy:	0.025 ... 0.02 %
Medium:	Special oil
Special feature:	Robust instrument base with integrated high-pressure generation
Data sheet:	CT 31.51

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Hand-helds

Portable measuring and calibration instruments for mobile use

For these portable measuring instruments there are various designs of thermometers available. They are therefore particularly suitable as test instruments for a wide variety of fields such as sterile process technology, machine building, etc.

Furthermore, depending on the version, functions such as a data logger and a serial interface are available, so that immediate on-site measurements can be made and documented, and with this, the data can also be simultaneously archived.

CTR1000

Infrared hand-held thermometer

Measuring range:	-60 ... +1,000 °C
Accuracy:	2 K or 2 % of reading
Special feature:	Thermocouple connection (optional)
Data sheet:	CT 55.21

CTH6200

Hand-held thermometer

Measuring range:	-50 ... +250 °C
Accuracy:	< 0,2 (complete measuring chain)
Sensor type:	Pt100
Special feature:	Integrated data logger
Data sheet:	CT 51.01

CTH6300

Hand-held thermometer

Measuring range:	-200 ... +1,500 °C
Accuracy:	0.1 ... 1 K
Sensor type:	Pt100, TC
Special feature:	2 channels (optional), Ex version (optional)
Data sheet:	CT 51.05

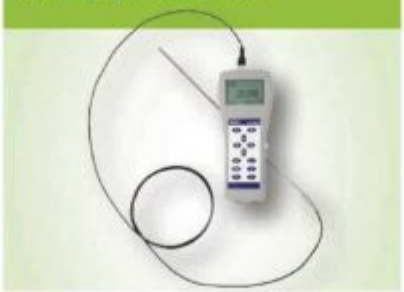
CTH6500

Hand-held thermometer

Measuring range:	-200 ... +1,500 °C
Accuracy:	0.03 ... 0.2 K
Sensor type:	Pt100, TC
Special feature:	Ex version (optional)
Data sheet:	CT 55.10

CTH7000

Hand-held thermometer



Measuring range:	-200 ... +962 °C
Accuracy:	0.015 K
Sensor type:	Pt100, Pt25 and NTC
Special feature:	Integrated data logger
Data sheet:	CT 55.50

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Portable temperature calibrators

Electronic controllers which automatically, quickly and dryly supply a temperature

Due to the high reliability, accuracy and simple operation, this type of instrument is particularly suitable as a factory/working standard for the automatic testing and/or calibration of temperature measuring instruments of all types.

A major advantage is offered by the large sleeve diameters and the fast, stable temperature control, since, as a result of these characteristics, the time for calibration can be used very effectively.

CTI5000

Infrared calibrator

Measuring range:	50 ... 500 °C
Stability:	0.1 ... 0.4 K
Special feature:	Large diameter of measuring surface
Data sheet:	CT 41.42

CTD9100-375

Compact temperature dry-well calibrator

Measuring range:	t_{amb} ... 375 °C
Accuracy:	0.5 ... 0.8 K
Stability:	0.05 K
Immersion depth:	100 mm
Data sheet:	CT 41.32

CTD9100

Temperature dry-well calibrator

Measuring range:	-55 ... +650 °C
Accuracy:	0.15 ... 0.8 K
Stability:	0.01 ... 0.05 K
Immersion depth:	150 mm
Data sheet:	CT 41.28

CTM9100-150

Multi-function calibrator

Measuring range:	-35 ... +165 °C depending on the application
Accuracy:	0.3 ... 1 K depending on the application
Immersion depth:	150 mm
Special feature:	Application as dry-well calibrator, micro calibration bath, infrared calibrator and surface calibrator
Data sheet:	CT 41.40

CTD9300

Temperature dry-well calibrator

Measuring range:	-35 ... +650 °C
Accuracy:	0.1 ... 0.65 K
Stability:	0.01 ... 0.1 K
Immersion depth:	150 mm
Data sheet:	CT 41.38

CTD9100-1100

High-temperature dry-well calibrator

Measuring range:	200 ... 1,100 °C
Accuracy:	3 K
Stability:	0.3 K
Immersion depth:	220 mm, bore depth 155 mm
Data sheet:	CT 41.29

Specification is subject to change without prior notice

Calibration baths

Electronic controllers which automatically, quickly and with the help of a liquid supply a temperature

Due to the high reliability, accuracy and exceptional homogeneity in the measuring chamber, this type of instrument is particularly suitable as a factory/working standard for the automatic testing and/or calibration of the widest range of temperature sensors - independent of diameter. A special micro calibration bath design enables on-site applications.

CTB9100

Micro calibration bath

Measuring range:	-35 ... +255 °C
Accuracy:	0.2 ... 0.3 K
Stability:	±0.05 K
Special feature:	■ Short heating and cooling times ■ Easy to use
Data sheet:	CT 46.30

CTB9400

Calibration bath, medium measuring range

Measuring range:	28 ... 300 °C
Stability:	0.02 K
Immersion depth:	200 mm
Medium:	Water, oil or similar media
Data sheet:	CT 46.20

CTB9500

Calibration bath, low measuring range

Measuring range:	-45 ... +200 °C
Stability:	0.02 K
Immersion depth:	200 mm
Medium:	Water, oil or similar media
Data sheet:	CT 46.20

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

WP-Dynamic

Flowsensor

for hot water up to 130 °C
DN 40 ... DN 300

Special Features

Patented hydrodynamically balanced rotor

Patented symmetrical calibration adjustment

Hermetically sealed register (IP 68)

Register may be rotated through 360°

High overload capability

Pattern approved removable measuring element

Up to 3 pulsers (1 x OD, 2 x RD) may be fitted without breaking the approval seal

Powder coating ensures maximum corrosion protection

Flowsensors Pressure rate PN 40 please see separate leaflet

Application

Measurement of high, relativley constant flow rates

Pattern Approval

22.16	Nominal Diameter DN 50 ... 150
96.01	Marking: Metrological class B

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www.sensus.com

Specification is subject to change without prior notice

PT. BUDIJAYA MAKMURSENTOSA
www.bjmsgroup.com

Installation

Pipe	horizontal vertical inclined	
Meter head	upwards sideways	

Installation Requirements

- Unrestricted straight pipe in front of the meter 3 x DN
- No abrupt restrictions directly behind the meter

Technical Data

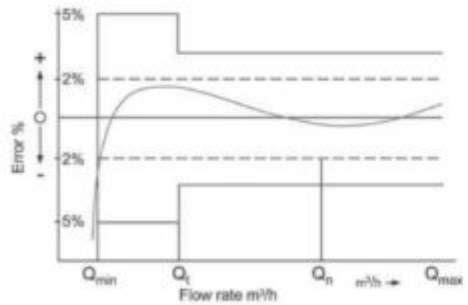
Performance data WP-Dynamic 130 °C

Nominal Diameter			DN	40	50	65	80	100	125	150	200	250	300
Size of meter (acc. to PTB-A22)			Q_n	10	15	25	40	60	100	150	250	400	600
Q_{max}	maximum peak flow once lifetime 24 h Q_{max} or 5 min. 1.2 x Q_{max}		m^3/h	20	30	60	90	140	200	300	500	1000	1200
Q_n	continuous flow	(±2%)	m^3/h	10	15	25	45	70	100	150	250	500	600
Q_t	transitional flow	(±2%)	m^3/h	1.8	1.8	2.0	3.2	4.8	8.0	12	20	45	50
Q_{min}	minimum flow	(±5%)	m^3/h	0.6	0.6	1.0	1.4	2.0	3.5	4.5	8	20	25
	starting flow		m^3/h	0.25	0.25	0.3	0.35	0.6	1.1	1.7	2.0	10	15

Performance data table according to PTB-A22 specification class B

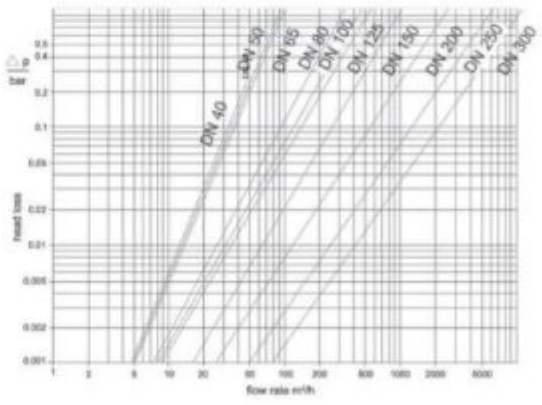
Nominal Diameter			DN		50	65	80	100	125	150	200	250	300
Size of meter (acc. to PTB-A22)			Q_n		15	25	40	60	100	150	250	400	600
Q_{max}	maximum peak flow short time		m^3/h		30	50	80	120	200	300	500	800	1200
Q_n	continuous flow	(±3%)	m^3/h		15	25	40	60	100	150	250	400	600
Q_t	transitional flow	(±3%)	m^3/h		2.25	3.75	6.0	9.0	15.0	22.5	37.5	60	90
Q_{min}	minimum flow	(±5%)	m^3/h		0.6	1.0	1.6	2.4	4.0	6.0	10.0	16.0	24.0

Typical Accuracy Curve



Q_{max} = maximum peak flow
Q_n = continuous flow ±2%
Q_t = transitional flow ±2%
Q_{min} = minimum flow ±5%

Typical Head Loss Curve



WP-Dynamic for hot water

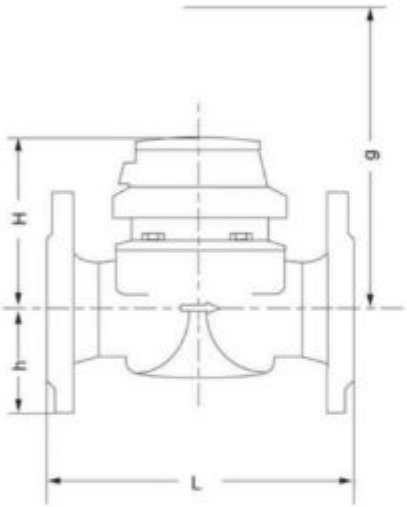
Specification is subject to change without prior notice

Dimensions and Weights

Nominal Diameter			DN	40	50	65	80	80	100	125	150	200	250	300
Size of meter (acc. to PTB-A22)			Q_n	10	15	25	40	40	60	100	150	250	400	600
Dimensions	overall length	L *)	mm	220	200	200	200	225	250	250	300	350	450	500
	height	H	mm	120	120	120	150	150	150	160	177	206	231	256
		h	mm	69	73	85	95	95	105	118	135	162	194	226
		g	mm	200	200	200	270	270	270	280	356	441	466	491
Weights	meter		kg	7.4	7.7	10.0	13.6	14.0	18.0	20.5	35.5	50.5	72.3	99.3
	measuring element		kg	1.4	1.4	1.4	3.0	3.0	3.0	3.0	5.5	7.5	7.5	7.5
	body		kg	6.0	6.3	8.6	10.6	11.0	15.0	17.5	30.0	43.0	71.3	91.8

*) Other overall lengths on request

Dimension Picture



Materials

Body	cast iron
Measuring element	plastic
Rotor	plastic
We also use the following materials	brass stainless steel

Dials

DN 40 ... DN 125

DN 150 ... DN 300

Nominal Diameter DN	Smallest reading m^3	Max. reading m^3
40 ... 125	0.0005	1 000 000
150 ... 300	0.005	10 000 000

WP-Dynamic for hot water

Specification is subject to change without prior notice

WP-Dynamic

Turbine Water Meter
for cold water up to 50 °C / PN 16

DN 40 … DN 400

Special Features

Hermetically sealed register (IP 68)

Patented hydrodynamically balanced rotor (≤DN 300)

Patented symmetrical calibration adjustment (≤DN 300)

Register may be rotated through 360°

High overload capability

Pattern approved removable measuring element

Powder coating affords max. corrosion protection

Not affected by external magnetic fields

Application

Measurement of high, relatively constant flow rates, e.g. behind pumps

Options

Up to 3 pulsers (1 x OD, 2 x RD) may be fitted without breaking the approval seal

1/4" connection port for pressure sensors

May be equipped with 3 different electronic registers


HYBRID


ELECTRONIC


ENCODER

Cold water meters pressure rate PN 40 please see special leaflet

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Specification is subject to change without prior notice

Pattern Approval Sign

D95
6.132.36

Nominal Diameter DN 40 ... DN 300

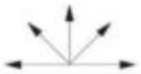
Marking:
Metrological class B
30 °C

D80
6.132.01

Nominal Diameter DN 400

Marking:
Metrological class B
30 °C

Installation

Pipe	horizontal vertical inclined	
Meter head	upwards sideways	

Installation Requirements

Unrestricted straight pipe in front of the meter 3 x DN (DN400 5 x DN)

No abrupt restrictions directly behind the meter

Performance Table

Performance data WP-Dynamic 50 ºC

Nominal Diameter			DN	40	50	65	80	100	125	150	200	250	300	400
Size of meter (acc. to EEC)			Q_n	10	15	25	40	60	100	150	250	400	600	1000
Q_{max}	maximum peak flow once in life time 24 h Q_{max} or 5 min. 1,2 x Q_{max}	(±2%)	m^3/h	60	90	120	200	300	350	600	1200	1600	2000	3000
Q_n	continuous flow	(±2%)	m^3/h	40	50	70	120	230	250	450	800	1250	1400	2000
Q_t	transitional flow	(±2%)	m^3/h	0.8	0.7	0.8	0.8	1.8	2.0	4.0	6.0	11.0	15.0	50
Q_{min}	minimum flow	(±5%)	m^3/h	0.30	0.30	0.40	0.50	0.80	1.00	1.8	4.0	6.0	12.0	25
	starting flow		m^3/h	0.15	0.15	0.20	0.25	0.25	0.5	1.0	1.5	3.0	8.0	15

Performance data according to EEC-specification 30 ºC class B

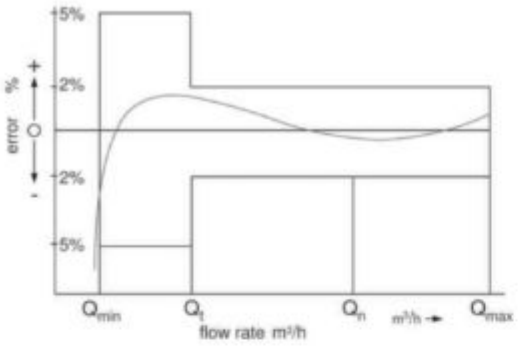
Nominal Diameter		DN	40	50	65	80	100	125	150	200	250	300	400
Size of meter (acc. to EEC)		Q_n	10	15	25	40	60	100	150	250	400	600	1000
Q_{max}	maximum peak flow short time	m^3/h	30	30	50	80	120	200	300	500	800	1200	2000
Q_n	continuous flow	m^3/h	15	15	25	40	60	100	150	250	400	600	1000
Q_t	transitional flow	m^3/h	3.0	3.0	5.0	8.0	12.0	20.0	30	50	80	120	200
Q_{min}	minimum flow	m^3/h	0.45	0.45	0.75	1.20	1.80	3.00	4.5	7.5	12.0	18.0	30

WP-Dynamic for cold water

Specification is subject to change without prior notice

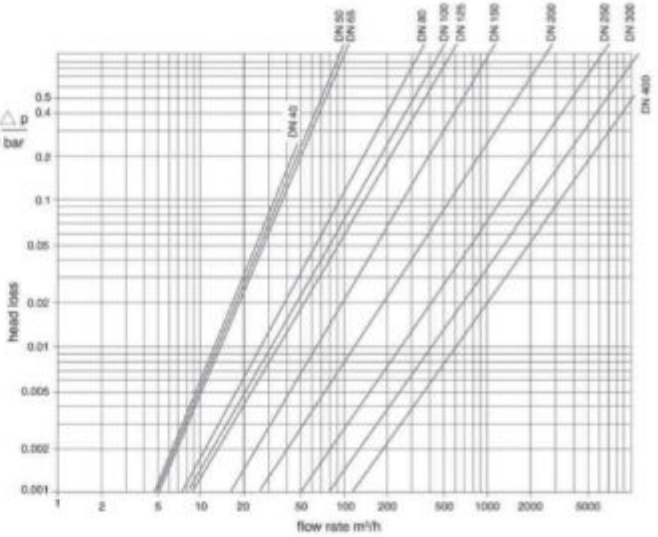
For Evaluation Only.

Typical Accuracy Curve



Q_{max} = maximum peak flow
Q_n = continuous flow
Q_t = transitional flow ±2%
Q_{min} = minimum flow ±5%

Typical Head Loss Curve

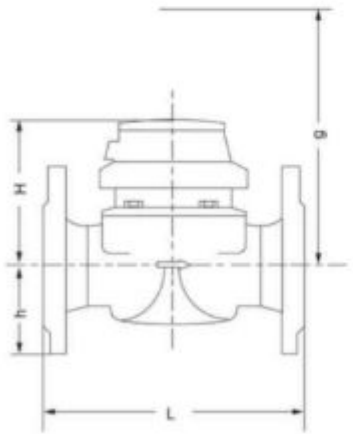


Dimensions and Weights

Nominal Diameter			DN	40	50	65	80	80	100	125	150	200	250	300	400
Size of meter (acc. to EEC)			Q_n	10	15	25	40	40	60	100	150	250	400	600	1000
Dimensions	overall length	L *)	mm	220	200	200	200	225	250	250	300	350	450	500	500
	height	H	mm	120	120	120	150	150	150	160	177	206	231	256	380
		h	mm	69	73	85	95	95	105	118	135	162	194	226	295
		g	mm	200	200	200	270	270	270	280	356	441	466	491	785
Weights	meter		kg	7.4	7.7	10.0	13.6	14.0	18.0	20.5	35.5	50.5	72.3	99.3	187
	measuring element		kg	1.4	1.4	1.4	3.0	3.0	3.0	3.0	5.5	7.5	7.5	7.5	25
	body		kg	6.0	6.3	8.6	10.6	11.0	15.0	17.5	30.0	43.0	63.8	91.8	162

*) Other overall lengths on request

Dimension Picture



Materials

Body	PN16	cast iron
Measuring element		plastic
Rotor		plastic
We also use the following materials		brass stainless steel

WP-Dynamic for cold water

SENSUS

Specification is subject to change without prior notice

Dials

DN 40 ... DN 125

DN 150 ...DN 300

DN 400

Diameter Nominal DN	Smallest reading m³	Max. reading m³
50 ... 125	0.0005	1 000 000
150 ... 300	0.005	10 000 000
400	0.05	100 000 000

Pulse Values

Pulser		DN 40 ... DN 125	pulse value DN 150 ... DN 300	DN 400
RD 01		0.1 and 1 m³ alternatively 0.01 and 1 m³	1 and 10 m³ alternatively 0.1 and 10 m³	10 and 100 m³
OD 01		0.001 m³	0.01 m³	0.1 m³
OD 03		0.01 m³	0.1 m³	1 m³

L B 1100 INT / 003-0804 • Subject to change without notice

WP-Dynamic for cold water

SENSUS

Specification is subject to change without prior notice

WP-QF

Turbine Water Meter
for cold water up to 40 °C
for hot water up to 130 °C
PN25/40, DN 50 ... DN 300

For cold water up to 40 °C

Special Features

Sealed register water proof (IP 67)

Sealed register may be rotated through 360°

Up to 3 pulsers can be fitted without breaking the meter seal

Maximum corrosion protection by powder coating

Not affected by external magnetic fields

Interchangeable measuring element

Performance data better than class B

Application

Measuring of cold water up to 40 °C (overloadable up to 50 °C) in water supply pipelines with pressure up to 25/40 bar

For hot water up to 130 °C

Special Features

Sealed register water proof (IP 67)

Sealed register may be rotated through 360°

Up to 3 pulsers can be fitted without breaking the meter seal

Maximum corrosion protection by powder coating

Not affected by external magnetic fields

Interchangeable measuring element

Application

Flow sensor for heat meters

Measuring of hot water up to 130 °C (overloadable up to 150 °C) in heating systems with pressure up to 25/40 bar

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Specification is subject to change without prior notice

Pattern Approval Sign

D 79
6.132.02

Cold Water Meter
Nominal Diameter
DN 50 ... 100

Marking:
Metrological class B
30 °C

D 80
6.132.01

Cold Water Meter
Nominal Diameter
DN 150 ... 300

Marking:
Metrological class B
30 °C

22.16
82.04

Hot Water Meter
Nominal Diameter
DN 50 ... 200

Marking:
Metrological class A

Installation

Pipe	horizontal vertical inclined	
Meter head	upwards sideways	

Installation Requirements

- Unrestricted straight pipe in front of the meter 3 x DN
- No abrupt restrictions directly behind the meter

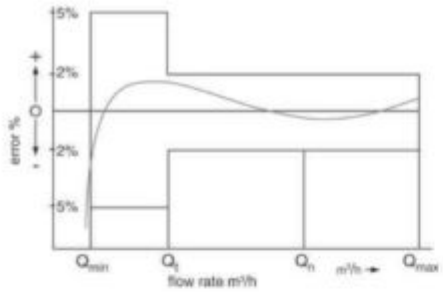
Performance Table 40 °C

Nominal Diameter		DN	50	80	100	150	200	250	300
Size of meter (acc. to EEC)		Q_n	15	40	60	150	250	400	600
Q_{max}	Maximum peak flow (few minutes)	m^3/h	80	200	250	600	800	1200	2000
Q_n	continuous flow ± 2%	m^3/h	40	120	180	400	550	750	1000
Q_t	transitional flow ± 2%	m^3/h	1.0	1.0	2.5	4.0	6.0	12	15
Q_{min}	minimum flow ± 5%	m^3/h	0.5	0.6	1.2	2.75	4.0	6.0	12
	starting flow	m^3/h	0.2	0.25	0.3	1.7	1.8	3.0	9.0

Performance Table 130 °C

Nominal Diameter		DN	50	80	100	150	200	250	300
Size of meter (acc. to EEC)		Q_n	15	40	60	150	250	400	600
Q_{max}	Maximum peak flow (few minutes)	m^3/h	30	90	140	300	500	1000	1200
Q_n	continuous flow ± 3%	m^3/h	15	45	70	150	250	500	600
Q_t	transitional flow ± 3%	m^3/h	1.8	3.2	4.8	12	20	45	50
Q_{min}	minimum flow ± 5%	m^3/h	1.0	1.4	2.0	4.5	8	25	30
	starting flow	m^3/h	0.25	0.35	0.6	1.7	2.0	10	15

Typical Accuracy Curve



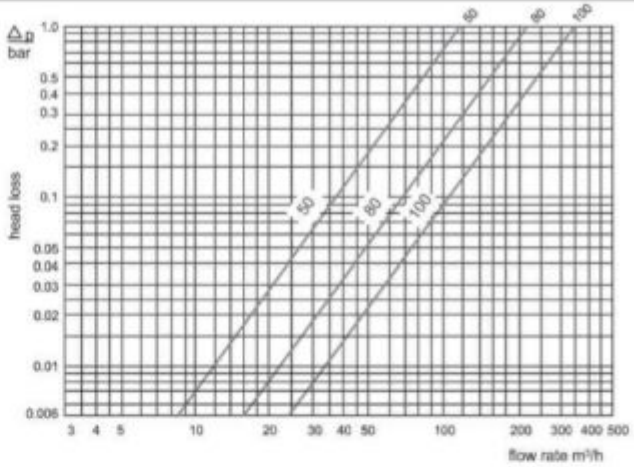
Q_{max} = maximum peak flow

Q_n = continuous flow

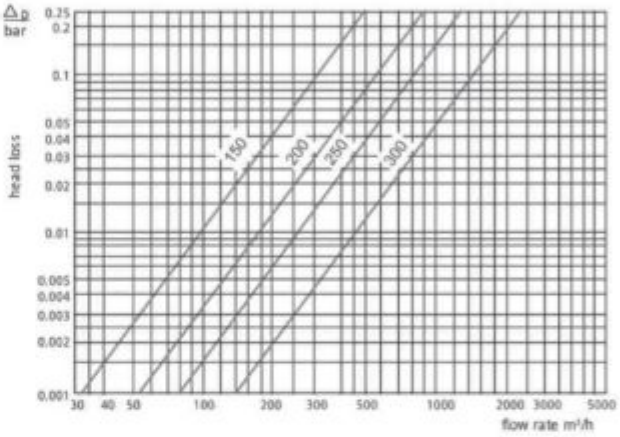
Q_t = transitional flow ± 2%

Q_{min} = minimum flow ± 5%

Typical Head Loss Curve

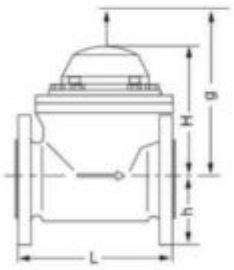


DN 50 ... 125

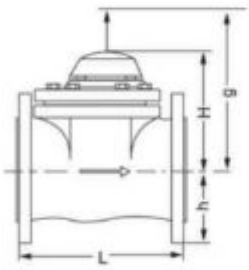


DN 150 ... 300

Dimension Pictures



DN 50 ... DN 100



DN 150 ... DN 300

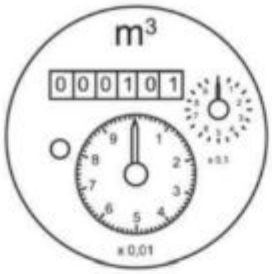
Dimensions and Weights

Nominal Diameter		DN	50	80	100	150	200	250	300
Size of meter (EEC)		**Q_n**	**15**	**40**	**60**	**150**	**250**	**400**	**600**
Working pressure	PN	bar	40	40	40	40	40	25	25
Overall length	L	mm	200	225	250	300	350	450	500
Height	H	mm	175	175	175	233	233	321	321
	h	mm	82	100	110	135	162	194	219
	g	mm	360	360	360	470	470	680	680
Weight	meter	kg	15	18	24	43	57	118	154
	meas. unit	kg	3	3	3	9	9	22	22
	body	kg	12	15	21	34	48	96	132

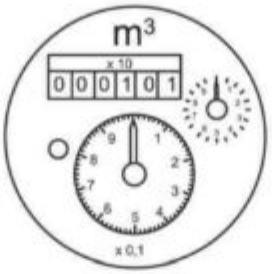
WP QF

Specification is subject to change without prior notice

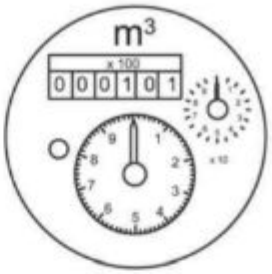
Dials



DN 50 ... DN 100



DN 150 ... DN 250



DN 300

Pulse Values

Nominal Diameter	DN		50 ... 125 1 pulse ≙ ...	150 ... 250 1 pulse ≙	300 1 pulse ≙ ...
Cold water meter	Standard	R 01	1 m³ 0.1 m³	10 m³ 1m³	100 m³ 10 m³
Hot water meter	Standard	R 02	0.25 m³ 0.1 m³	2.5 m³ 1 m³	25 m³ 10 m³
	with special register	R 02	0.25 m³ 0.025 m³	2.5m³ 0.25 m³	25 m³ 2.5 m³
Cold water meter		OP 01 OP 03	0.001 m³ 0.01 m³	0.01 m³ 0.1 m³	0.1 m³ 1.0 m³
Hot water meter		OP 02 OP 04	0.001 m³ 0.01 m³	0.01 m³ 0.1 m³	0.1 m³ 1.0 m³

Order Text

Quantity:	.....
Specification:	WP-QF
Nominal Diameter:	DN .....
Size of meter:	Q_n .....
Working temperature:	40 °C / 130 °C
Working pressure:	PN 25 / 40
Metrological class:	A / B
Overall length L:	..... mm
Pulse values:	..... / ..... m³
Flange drilling:	acc. to DIN 2501, PN ....
Certification:	with / without

Order Example

Quantity:	2
Specification:	WP-QF
Nominal Diameter:	DN 50
Size of meter:	Q_n 15
Working temperature:	40 °C
Working pressure:	PN 25
Metrological class:	B
Overall length L:	200 mm
Pulse values:	0.1 / 1 m³
Flange drilling:	acc. to DIN 2501, PN 25
Certification:	with

L B 5200 INT / 002-0904 • Subject to change without notice

WP QF

SENSUS

Specification is subject to change without prior notice

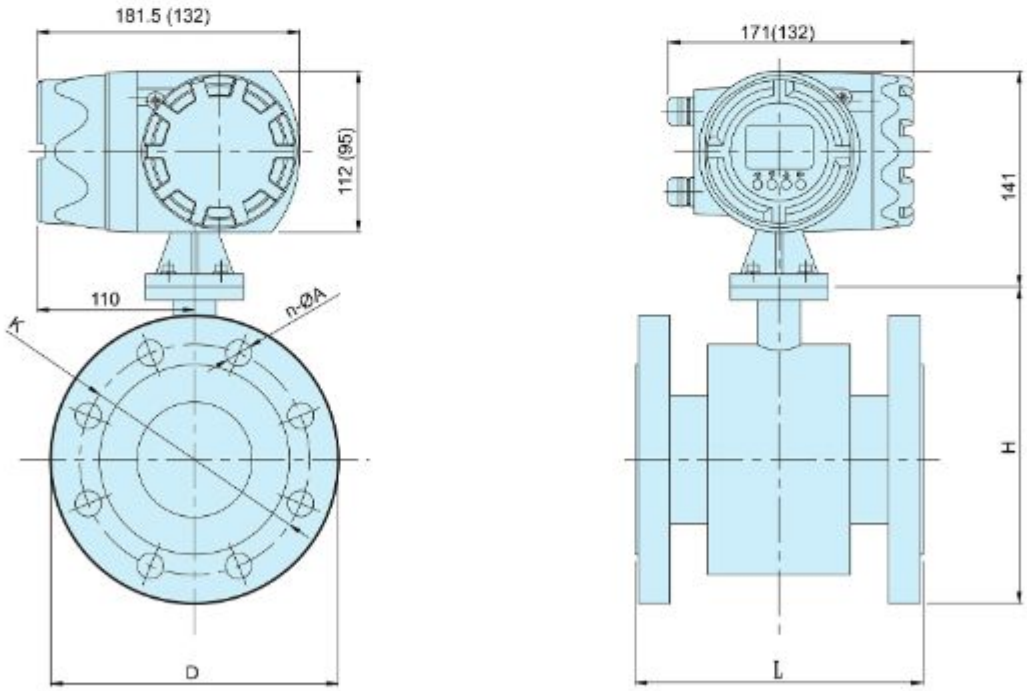
A

Performance Feature

Diameter: DN10-DN2000
Electrode: 316L,Hc,Ti,Ta,Pt
Liner:Rubber, polyurethane,PTFE,PFA,F46
Medium: conductivity liquids
Medium conductivity :≥5μ s/cm
Accuracy: ±0.5%RS- ±1.0%RS
Velocity of flow： 0.1m/s -10m/s
Working temperature:compact≤100°C,remote≤150°C(rubber≤65°C)
Working pressure:0.6MPa-4.0MPa(base on diameter)
Protection class:IP65,IP67
Related converter type: KF710/KF20/KF730
Output:4-20mA/ frequency/pulse output signal
Power supply 85~265VAC (50HZ or 60HZ) 50/60Hz /24VDC,battery
Installation type: compact,remote

KF external dimensions

Unit (mm)



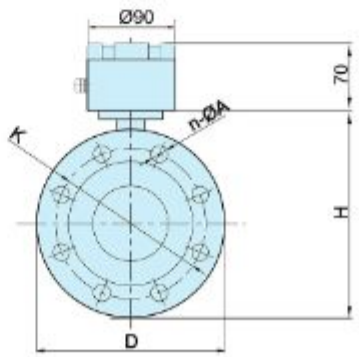
KF compact external dimensions

External dimensions for compact and remote type

Unit (mm)

DN mm	Working pressure MPa	L	D	K	n-øA	H	Compact Weight (KG)	Remote Weight (KG)
10	4.0	150	90	60	4-ø14	130	6	4
15		150	95	65	4-ø14	132.5	6	4
20		150	105	75	4-ø14	137.5	8	6
25		150	115	85	4-ø14	145	9	7
32		150	140	100	4-ø18	162.5	11	12
40		150	150	110	4-ø18	172.5	13	14
50		200	165	125	4-ø18	187.5	15	15
65		200	185	145	8-ø18	202.5	16	18
80		200	200	160	8-ø18	220	19	20
100	1.6	250	220	180	8-ø18	230	23	25
125		250	250	210	8-ø18	270	27	29
150		300	285	240	8-ø22	302.5	33	36
200	1.0	350	340	295	8-ø22	352.5	51	49
250		400	395	350	12-ø22	407.5	70	70
300		500	445	400	12-ø22	460	102	100
350		500	505	460	16-ø22	517.5	123	121
400		600	565	515	16-ø26	572.5	147	145
450		600	615	565	20-ø26	622.5	212	207
500		600	670	620	20-ø26	675	229	210
600		600	780	725	20-ø30	745	252	250
700		700	895	840	24-ø30	892	352	350
800		800	1015	950	24-ø33	1002.5	462	460
900		900	1115	1050	28-ø33	1102.5	558	550
1000	0.6	1000	1175	1120	28-ø30	1182.5	690	680
1200		1200	1405	1340	32-ø33	1397.5	785	780
1400		1400	1630	1560	36-ø36	1610	1258	1250
1600		1600	1830	1760	40xø36	1810		1550
1800		1800	2045	1970	44xø39	2017.5		2080
2000		2000	2265	2180	48xø42	2227.5		2600

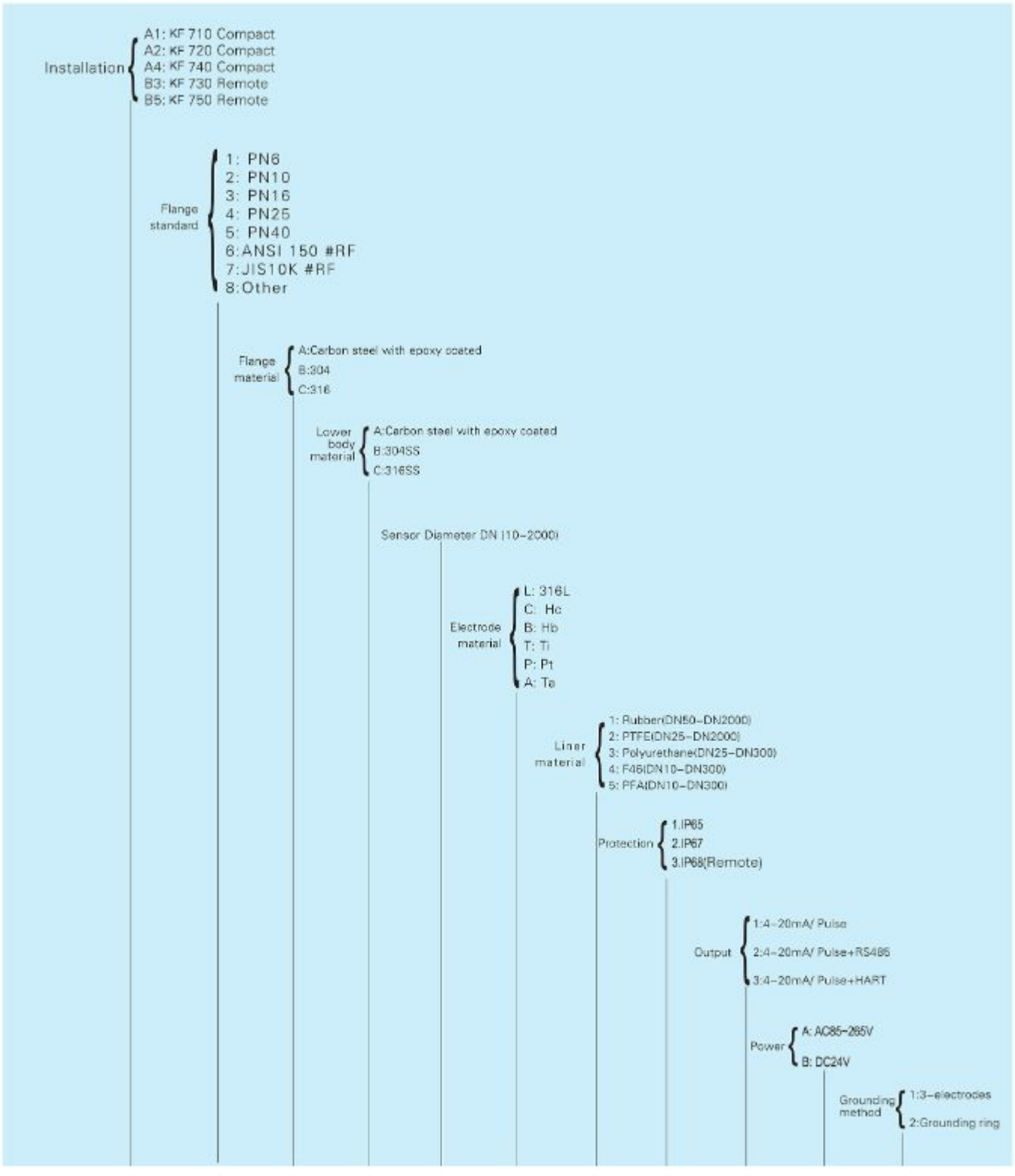
KF remote external dimensions



Specification is subject to change without prior notice

A

KF700–KF How to order



Illustrative example

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
KF700-KF	A1	2	A	A	25	L	3	2	1	A	1

* Note: MF720. M730 is optional of RS485 or HART protocol
MF730, MF750 protection class is optional of IP68, normal standard is IP65 or IP67
* Remark: For remote type, please specify the cable length.

Specification is subject to change without prior notice

Flow Range Chart by Pipe Size

DN (mm)	MIN m^3/h	Flow Range Selection (m^3/h)
10	0.08	0.16, 0.2, 0.25, 0.3, 0.4,0.5,0.6,0.8,1.0,1.2,1.6,2.0,2.5
15	0.2	0.4,0.5,0.6,0.8,1.0,1.2,1.6,2.0,2.5,3.0,4.0,5.0,6.0
20	0.3	0.6,0.8,1.0,1.2,1.6,2.0,2.5,3.0,4.0,5.0,6.0,8.0,10.0
25	0.5	1.0,1.2,1.6,2.0,2.5,3.0,4.0,5.0,6.0,8.0,10.0,12.0,14.0,16.0
32	0.8	1.6,2.0,2.5,3.0,4.0,5.0,6.0,8.0,10.0,12.16,20,25
40	1.2	2.5, 3.0, 4.0, 5.0, 6.0, 8.0,10.0,12,16,20,25,30,40
50	2	4.0, 5.0, 6.0, 8.0, 10, 12,16,20,25,30,40,50,60,70
65	3.5	6.0,8.0,10,12,16,20,25,30,40,50,60,80,100,120
80	5	10,12,16,20,25,30,40,50,60,80,100,120,160
100	8	16,20,25,30,40,50,60,80,100,120,160,200,250
125	12	25,30,40,50,60,80,100,120,160,200,250,300,400
150	18	40,50,60,80,100,120,160,200,250,300,400,500,600
200	30	60,80,100,120,160,200,250,300,400,500,600,800,1000
250	50	100,120,160,200,250,300,400,500,600,800,1000,1200,1600
300	70	160,200,250,300,400,500,600,800,1000,1200,1600,2000,2500
350	100	200,250,300,400,500,600,800,1000,1200,1600,2000,2500,3000
400	120	250,300,400,500,600,800,1000,1200,1600,2000,2500,3000,4000
450	160	300,400,500,600,800,1000,1200,1600,2000,2500,3000,4000,5000
500	200	400,500,600,800,1000,1200,1600,2000,2500,3000,4000,5000,6000
600	300	600,800,1000,1200,1600,2000,2500,3000,4000,5000,6000,10000
700	400	800,1000,1200,1600,2000,2500,3000,4000,5000,6000,10000,12000
800	500	1000,1200,1600,2000,2500,3000,4000,5000,6000,10000,12000,16000
900	650	1200,1600,2000,2500,3000,4000,5000,6000,8000,10000,12000,16000, 18000
1000	800	1600,2000,2500,3000,4000,5000,6000,10000,12000,16000,20000
1200	1200	2500,3000,4000,5000,6000,8000,10000,12000,16000,20000,25000,30000
1400	1500	3000,4000,5000,6000,8000,10000,12000,16000,20000,25000,30000,40000
1600	2000	4000,5000,6000,800,10000,12000,16000,20000,25000,30000,40000,50000,60000
1800	2500	5000,6000,800,10000,12000,16000,20000,25000,30000,40000,50000,60000
2000	3000	6000,800,10000,12000,16000,20000,25000,30000,40000,50000,60000,80000,100000

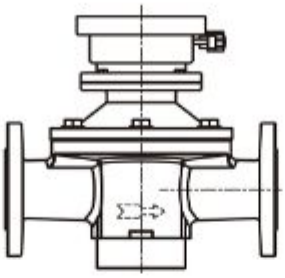
Note: The blue color show the best accuracy can be obtain in specity flowrate

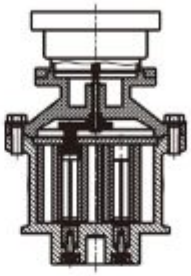
SUPERFLOW

Oil Flow Meter

Type : YPUM

CAST IRON METER





Specification:

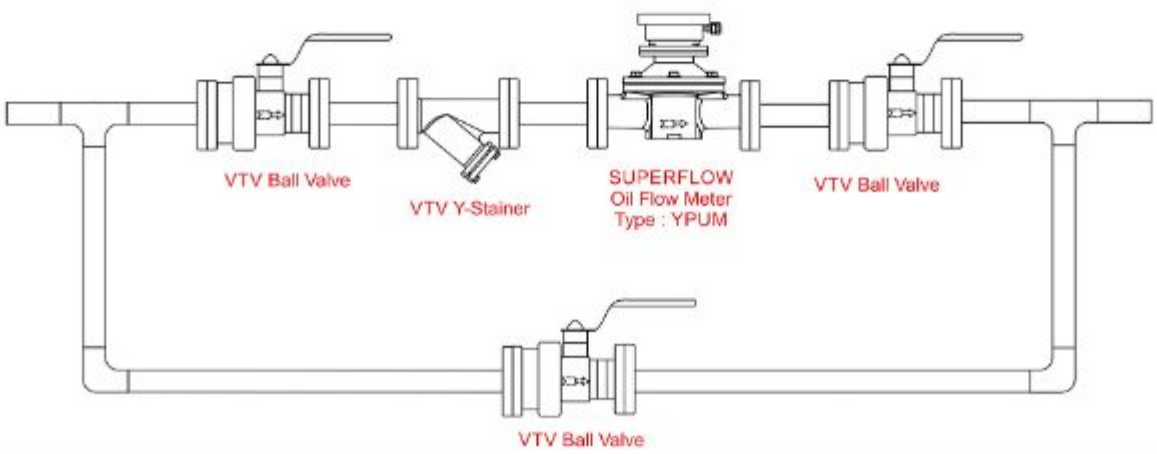
- Media : Light Oil
- Max Temp : 80°C
- Connection : Flange PN16

Advantage:

- Compact size, easy maintenance
- Easy to read and operate mechanical display
- Horizontally and vertically flexibility of installation options
- Low pressure drop

TECHNICAL DATA			
Model	YPUMP-OGM-1-50	YPUMP-OGM-1-80	YPUMP-OGM-1-100
Size	2"	3"	4"
Min Flow Rate	60 L/min	140 L/min	160 L/min
Max Flow Rate	300 L/min	700 L/min	1600 L/min
Accuracy	±0.2% or ±0.5%	±0.2% or ±0.5%	±0.2% or ±0.5%
Repeatability	≤0.03%	≤0.03%	≤0.03%
Max. Operating Pressure	1.8 Mpa	1.8 Mpa	1.8 Mpa

PIPING INSTALLATION



Specification is subject to change without prior notice

Bypass level indicator with magnetic roller display Model BNA

Applications

- Continuous level measurement with visual display of the filling level, without power supply.
- Volume- or depth-proportional display of the filling level
- Individual design and corrosion resistant materials enable a wide spectrum of application
- Chemical industry, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power stations
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

Special features

- Process- and system-specific solutions possible
- Operating limits:
  - Operating temperature: T = -160 ... +450 °C
  - Working pressure: P = Vacuum to 420 bar
  - Limit S. G.: $\rho \geq 400$ kg/m³
- Wide variety of different process connections and materials
- Level sensor or magnetic switch mounted externally (option)
- Explosion-protected version (optional)

Bypass level indicator, model BNA with option level sensor and magnetic switch

Description

The WIKA model BNA bypass level indicator consists of a bypass chamber, which, as a communicating interface, is connected laterally to a vessel via 2 process connections (flanged, threaded or welded). Through this type of arrangement, the level in the bypass chamber corresponds to the level in the vessel. The cylindrical float (with a permanent magnet system, mounted within the bypass chamber) transmits the liquid level, contact free, to the outside via the magnetic roller display mounted on the bypass chamber. In this are fitted, at 10 mm intervals, red/white plastic or ceramic rollers with bar magnets.

Through the directional magnetic field of the permanent magnet system in the cylindrical float, the magnetic rollers, through the wall of the bypass chamber, are turned through 180°. For an increasing level from white to red; for a falling level from red to white.
Thus the bypass level indicator displays the level of a vessel **without a power supply** - visible as a red column.

WIKA
Part of your business

Specification is subject to change without prior notice

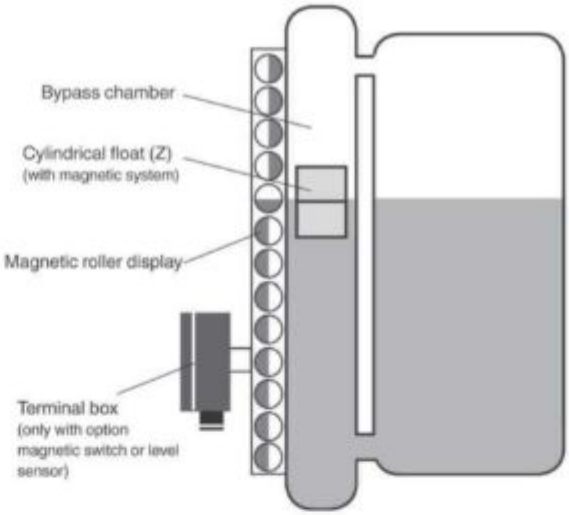
Further special features

- Simple, robust and solid design, long service life
- Bypass chamber made of stainless steel 1.4571
- Pressure- and gas-tight separation between measuring and display chamber
- Measuring and indicating of the level of aggressive, combustible, toxic, hot, agitated and contaminated media
- Without power supply the functioning of the magnetic roller display is guaranteed even in the case of power failures
- Available for applications in all areas of industry through use of highly corrosion-resistant materials
- Continuous measurement of the liquid levels irrespective of physical or chemical changes of state of the measured media, such as: foaming, conductivity, dielectric constant, pressure, vacuum, temperature, vapour, condensation, blistering, effects of boiling
- Volume-proportional or depth-proportional display of the filling level
- Interface layer measurement and overall level from Δ-density of more than 50 kg/m³

Options

- Explosion-protected versions
- Customer-specific solutions
- Bypass chamber and float made of different materials
- Magnetic switch or level sensor mounted externally
- Bypass chamber end

Illustration of the principle



Design and operating principle

- In a communicating bypass chamber mounted to the side of a vessel a float moves with the liquid level of the medium to be measured.
- The radial-symmetric magnetic system, which is positioned to immersion height inside the float, simultaneously activates the magnetic roller display, which is fixed to the outside of the bypass chamber, and the switching and measuring elements through its magnetic field.

Example

Mounted bypass level indicator, model BNA

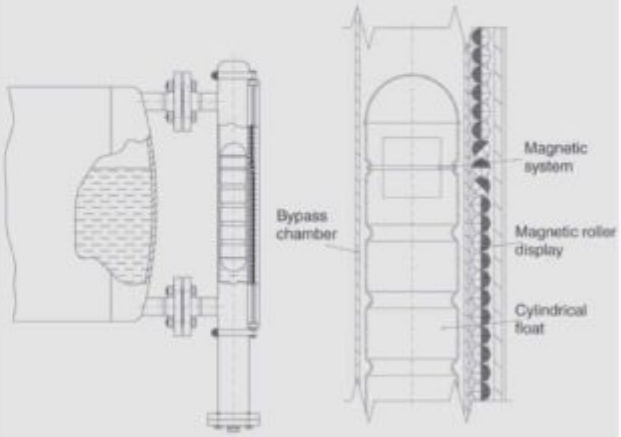
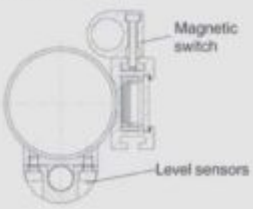


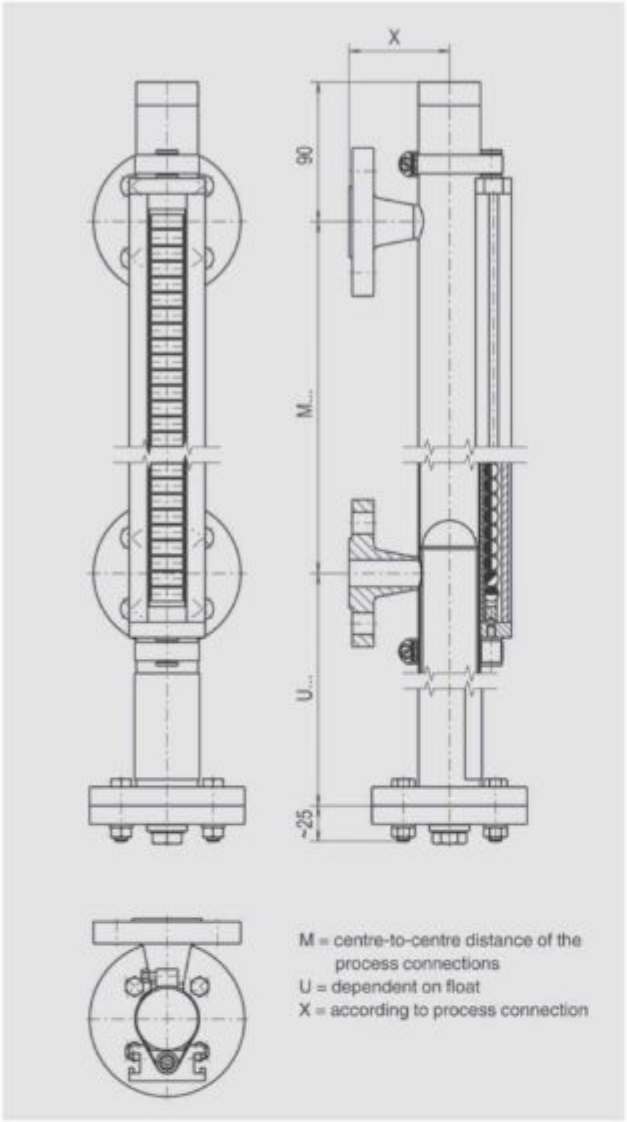
Illustration with option magnetic switch and level sensor



Specification is subject to change without prior notice

Mini bypass level indicator

Bypass chamber made of stainless steel 1.4571

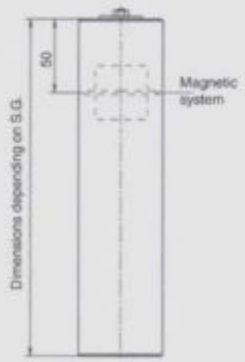


M = centre-to-centre distance of the process connections
U = dependent on float
X = according to process connection

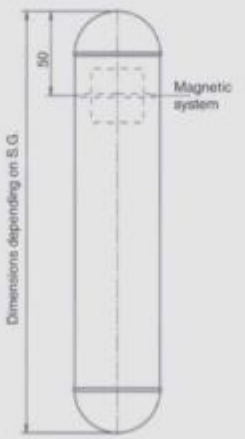
Specifications	
Bypass chamber	Ø 42 x 2 mm
Chamber end top	Flat top Options: (see page 24) ■ Vent plug G 1/2" ■ Vent valve ■ Vent flange
Chamber end bottom	Flange connection with drain plug G 1/2" Options: (see page 24) - Drain valve - Drain flange
Process connections	Side-side (options see page 23) Flanges DN 10 - DN 25, PN 6, DIN 2631 DN 10 - DN 25, PN 16, DIN 2633 DN 10 - DN 25, PN 40, DIN 2635 DN 32 - DN 100, DIN 2527 1/2" - 4", ANSI B 16.5 class 150 or class 300 Thread or weld stubs GM /... = female thread / size GN /... = male thread / size S /... = weld stubs / Ø
Centre-to-centre distance	Min. 150 mm to max. 2000 mm
Nominal pressure	Max. 16 bar (according to float design)
Temperature range	Max. 150 °C (according to float design)
Float	Model ZTS - Material titanium 3.7035 - S.G. min. 800 kg/m³ - Pressure max. 16 bar - Temperature max. 150 °C Model ZBS - Material Buna - S.G. min. 800 kg/m³ - Pressure max. 6 bar - Temperature max. 80 °C
Magnetic roller display	Model MRA For specifications and further designs and options see page 16
Further options: Magnetic switch Level sensor	 See page 17 ... 20 See page 21 and 22

Float

Model ZBS (material Buna)



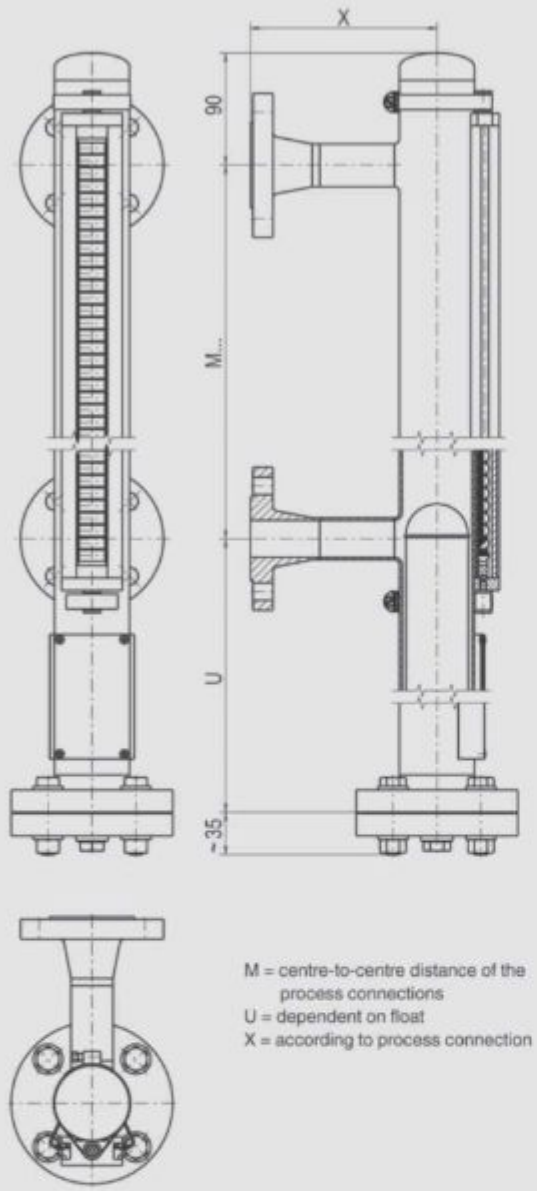
Model ZTS (material titanium)



Specification is subject to change without prior notice

Version PN 6 - PN 40

Bypass chamber made of stainless steel 1.4571
Option: Explosion-protected version



M = centre-to-centre distance of the process connections
U = dependent on float
X = according to process connection

Specifications	
Bypass chamber	Ø 60.3 x 2 mm or Ø 64 x 2 mm
Chamber end top	Flat top, welding cap or flange connection Options: (see page 24) ■ Vent plug G 1/2" ■ Vent valve ■ Vent flange
Chamber end bottom	Flange connection with drain plug G 1/2" Options: (see page 24) - Drain valve - Drain flange
Process connections	Side-side (options see page 23) Flanges DN 10 - DN 25, PN 6, DIN 2631 DN 10 - DN 25, PN 16, DIN 2633 DN 10 - DN 25, PN 40, DIN 2635 DN 32 - DN 100, DIN 2527 1/2" - 4", ANSI B 16.5 class 150 or class 300 Thread or weld stubs GM /... = female thread / size GN /... = male thread / size S /... = weld stubs / Ø
Centre-to-centre distance	Min. 150 mm to max. 6000 mm (larger distances on request)
Nominal pressure	Max. 40 bar (according to flange design)
Temperature range	-196 °C ... +450 °C

Temperature class	T1	T2	T3	T4	T5	T6
Max. process temperature	320 °C	240 °C	160 °C	108 °C	80 °C	68 °C

Float	Model ZTSS / ZVSS - P ≤ 25 bar (titanium 3.7035, stainless steel 1.4571) - Float length depending on S.G. - Specifications (see page 14) Model ZTS / ZVS - Float design according to process parameters S.G., pressure and temperature (see page 15)
Magnetic roller display	Model MRA: < 200 °C Model MRK: > 200 °C For specifications and further designs and options see page 16
Further options:	
Magnetic switch	See page 17 ... 20
Level sensor	See page 21 and 22
Electrical trace heating	On request
Bypass chamber insulation	On request

Specification is subject to change without prior notice

Sight Glass Level Gauges
Type - LGG

Description

Level Gauges for direct reading of liquid levels in vessels and tanks.

Applications

- Refineries
- Off-shore
- Oil and gas
- Power stations
- Chemical plants
- Thermofluid oil installations
- Refrigerating plants
- Cyrogenic services

Rating

- Pressure rating PN 6 – 250
- Operating temperatures from – 200 up to + 400 °C

Product groups

- Reflex type
- Transparent type with glass or mica
- Refraction type
- Tubular type

Chambers

- fixed, flanged, pivoted, screwed or weldable
- interrupted or continuous visible length

Materials

- Forged steel, stainless steel, suitable for pressure equipment according to EN or ASME
- Particularly corrosion resistant materials as Duplex, Monel, Inconel, Hastelloy, Titanium, etc.

Shut-off valves

- handwheel or quick closing lever
- with ball check
- flanged or union connection

Accessories

- Drain and vent
- Illumination
- Heating
- Scale
- Frost protection
- Ultraviolet protection
- Corrosion protection
- Lining/coating PTFE/Halar, rubber

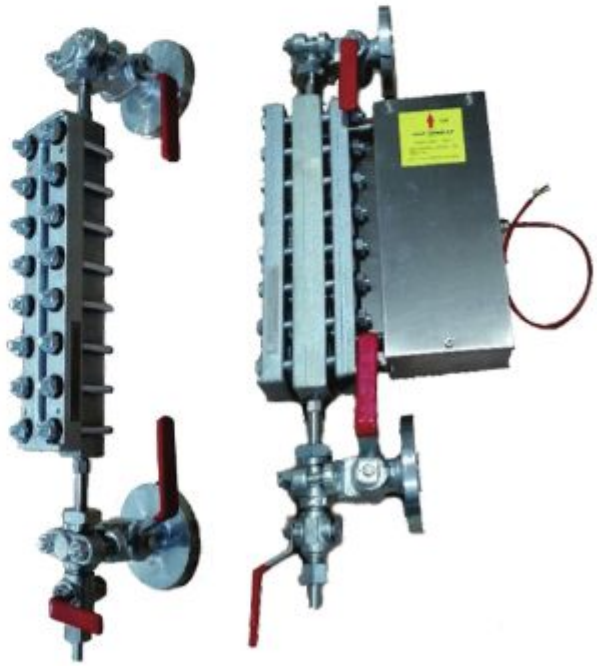
Certificates

- Test certificates according to DIN EN 10204
- Sour gas regulation NACE
- Tests to customers requirements

Neccessary data

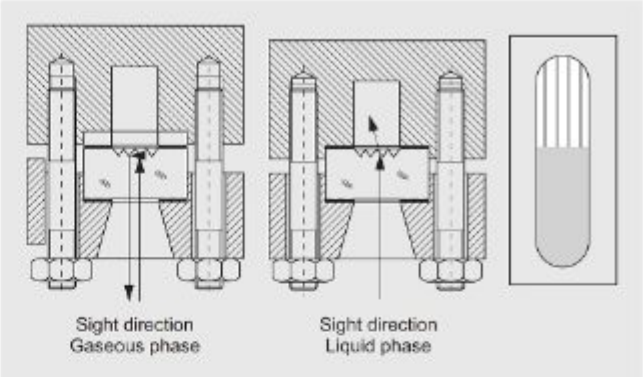
Glass type, Design pressure (p), Design temperature (T), center to center distance (ME), visible length (SL), materials, process connection, ex classification, quantity

Special constructions available upon request.
For further details please use our datasheets.

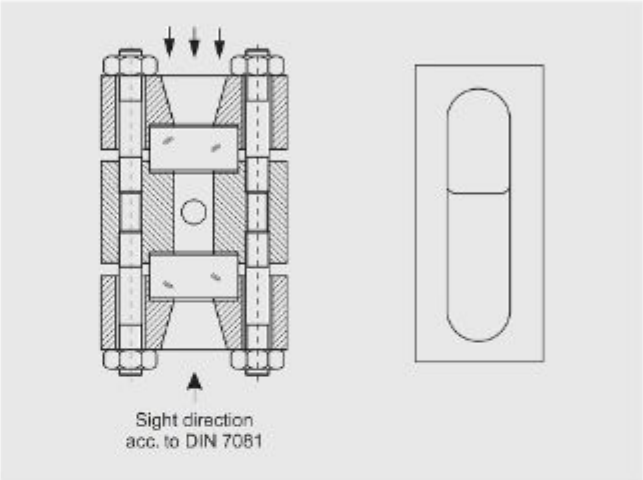


Functional Description Sight Glass Level Gauges

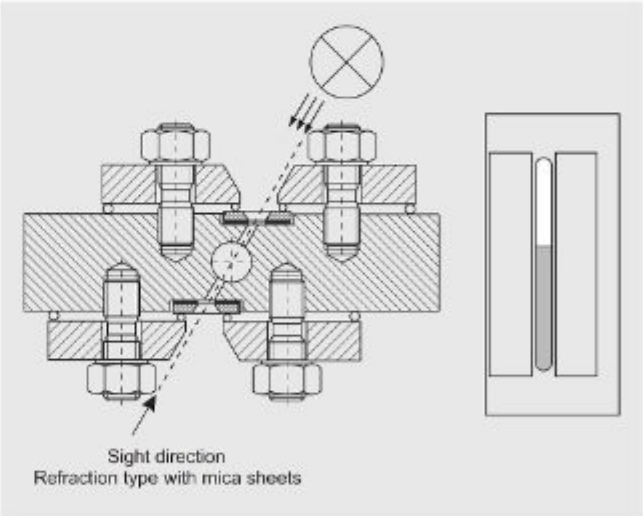
Reflex glass type acc. to DIN 7081
Incident light is reflected at the reflex grooves of the sight glass plate covered by gas and is broken into the liquid in the part covered by medium. The liquid level is visible as a dark bar, the gaseous space as a silvery bar.



Transparent glass type acc. to DIN 7081
Incident light is reflected at the reflex grooves of the sight glass plate covered by gas and is broken into the liquid in the part covered by medium. The liquid level is visible as a dark bar, the gaseous space as a silvery bar.



Refraction type with mica sheets
The incident light of a lamp is guided through the two mica sheet packages in an angle and passes the medium between them. In gaseous phase the light is guided straight forward and passes both mica packets, in liquid the light is refracted away. The liquid level is visible as a black bar and the gas as a bright bar.



Design Sight Glass Level Gauges

The main part of the sight glass level gauge is the chamber. A duct for the medium (or heating agent) is machined into the gauge body as well as the support surfaces for the gaskets and glasses or micas. Glass plates and/or micas are mounted with gasket and cushion and are fixed with the cover plate or pressure frames and bolts. The glass plates used for sight glass level gauges correspond to DIN 7081 and are suitable for temperatures up to 243 °C (280 °C when protected with mica) for steam, up to 300 °C for other liquids, and in special cases up to 400 °C. Borosilicate glass is standard quality. For conditions above the natural mineral mica is used. The process connection normally is equipped with gauge valves. Drain valves are used for draining the gauge and are generally mounted on the lower end of the gauge body. In Special cases a vent valve can be installed on the upper end.

Gauge body
Contains the liquid duct, the level corresponds with the level in the vessel.

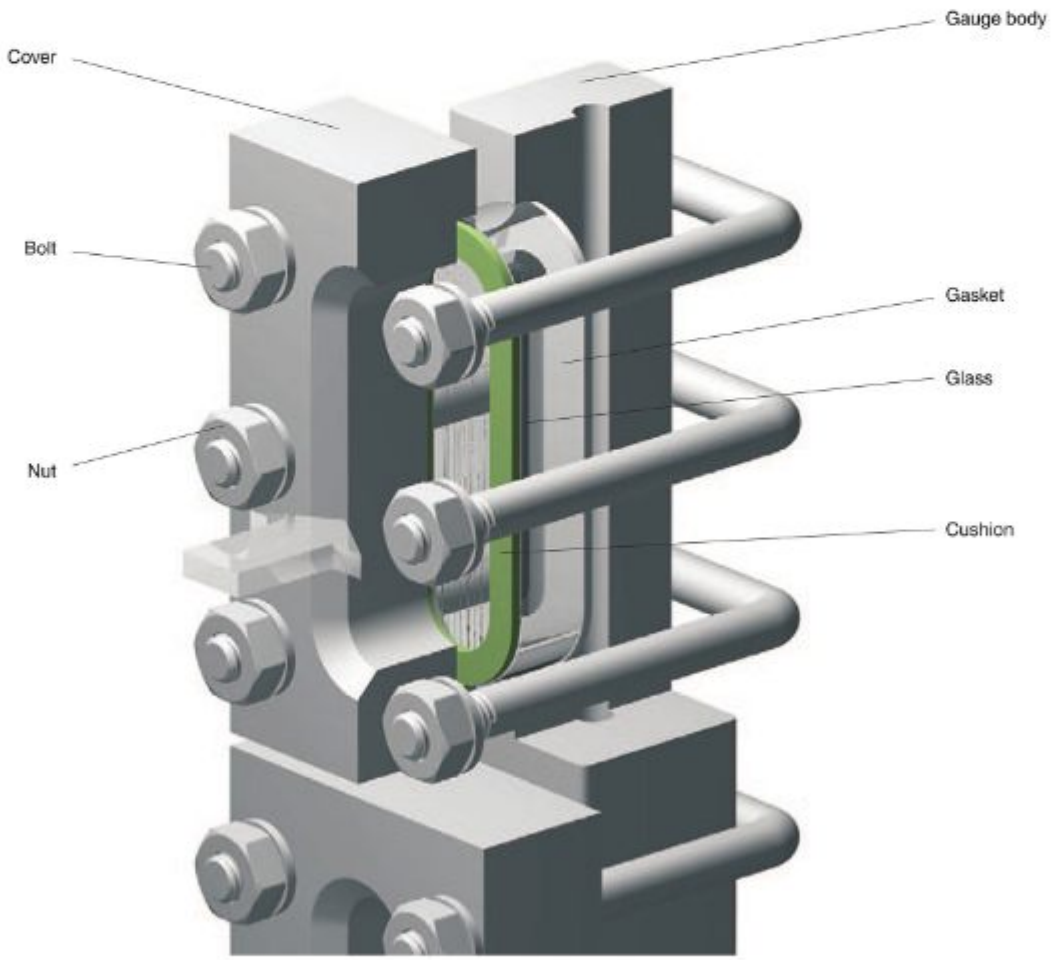
Cover
Clamping for Glass plate.

Gasket
Recessed sealing between liquid duct and ambient

Glass
Glass plates according to DIN 7081, made of Borosilicate-Glass, quartz, Aluminum silicate

Cushion
Mechanical protection between cover and glass

Bolt / Nut
Take up the forces of the pressure inside.



Sight Glass Level Gauge CL 300
Type LGG - TP

Applications

Direct reading liquid level indicator for general applications up to CL 300 (depends on glass type).
Increased safety with ball check valves.

Special Features

- Light execution
- Reflex, Transparent
- Connection top-bottom pivoted
- Connection gauge valve to gauge chamber: union
- Offset, handwheel

General Data

Visible length SL	< ME – 180 mm
Connection gauge valve-body	union
Gauge valve types	see datasheet 760.53
Actuation	handwheel
Material glass plates acc. to DIN7081	Borosilicate
Material media wetted parts	CS, SS

Depending on delivery situation material can vary.
Types with special materials e.g. Hastelloy, Monel etc. are available.

Design Data

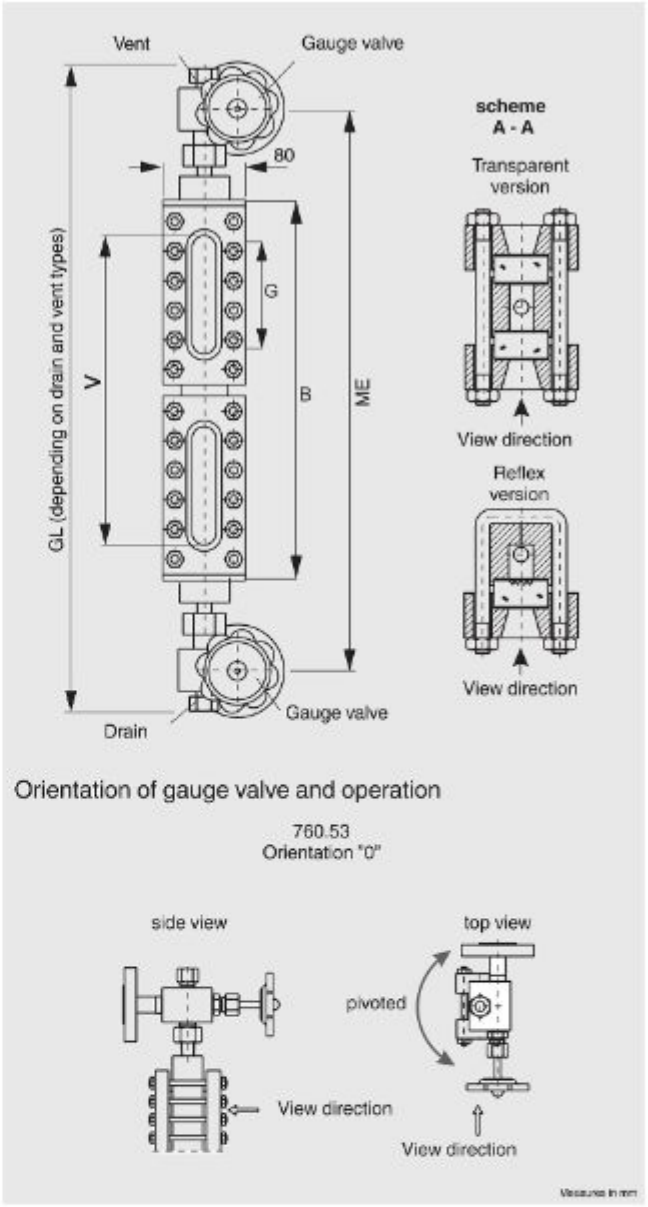
Derating depends on temperature and window size.

Further Data

Process connection	see Connections
Vent	see Connections
Drain	see Connections

Accessories

Glass protection etc.	see Accessories
Frosts protection	see Accessories
Illumination	see Accessories
Scale	see Accessories
Heating	see Accessories



Orientation of gauge valve and operation

CS (= carbonsteel) and SS (= stainless steel type 316SS) are materials suitable for Pressure Vessels according to EN or ASME.

Size	1	2	3	4	5	6	7	8	9	2x4	2x5	2x6	2x7	2x8	2x9	3x6	3x7	3x8	3x9	4x7	4x8	4x9	5x7	5x8	5x9	6x8	6x9	7x9
Length of glass G	115	140	165	190	220	250	280	320	340	190	220	250	280	320	340	250	280	320	340	280	320	340	280	320	340	320	340	340
Length of body B	165	190	215	240	270	300	330	370	390	450	510	570	630	710	750	840	930	1050	1110	1230	1390	1470	1530	1730	1830	2070	2190	2550
Visible length V	95	120	145	170	200	230	260	300	320	380	440	500	560	640	680	770	860	980	1040	1160	1320	1400	1460	1660	1760	2000	2120	2480
CC (ME)	278	303	328	353	383	413	443	483	503	563	623	683	743	823	863	953	1043	1163	1223	1343	1503	1583	1643	1843	1943	2183	2303	2663

Reflection Water Level Gauge CL 300
Type LGG - RP

Applications

The liquid water level gauge type LGG-RP is a reflection gauge for direct reading water level in steam boilers. They are equipped with sight glasses with grooves for a clear contrast in the display.

Special Features

- Reflection
- Connection side-side fixed
- Gauge heads integrated
- Glass holder: side plates, hinged
- Handwheeld

General Data

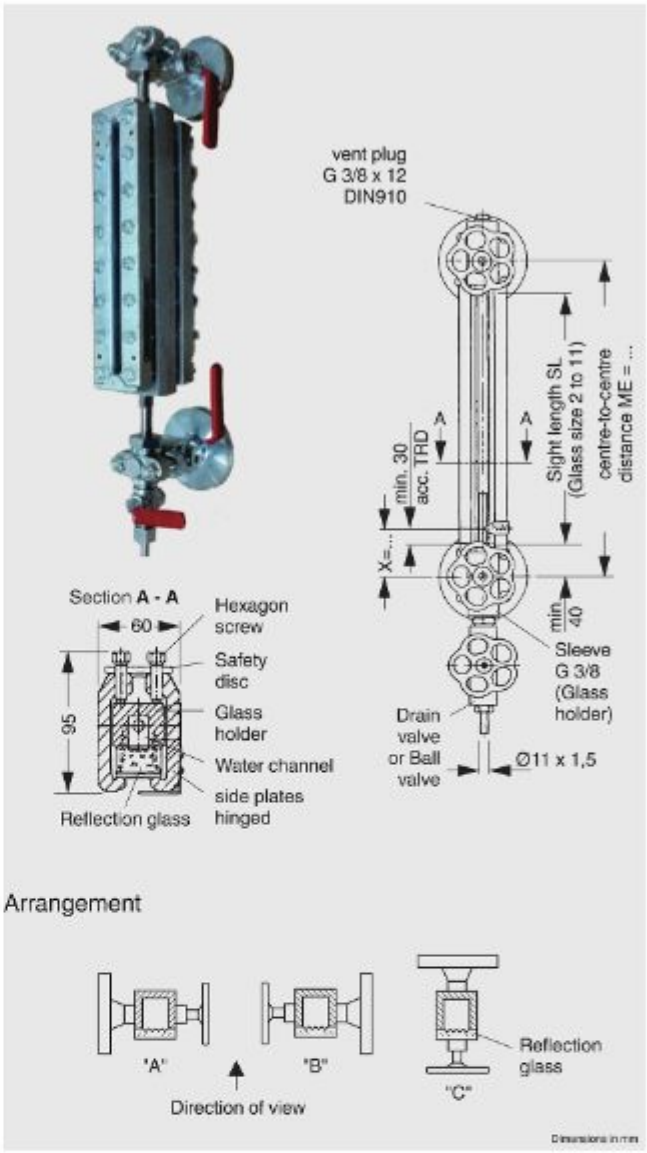
Sight length SL*)	<ME
Glass size**)	2 – 11 (34 x 17 mm)
Actuation	handwheel
Connection gauge head-body	valves integrated
Valve passage	8 mm
Process connection	flange DIN, EN or ANSI
Materials	
- Sight glasses DIN 7081	Borosilikate
- Glass holder	CS
- Connection flanges	CS
- Shut off parts	SS
- Gaskets	Graphite

Design Data

Design temperature / Design pressure	–10...100°C / 40 bar
	up to 200°C / 32 bar
	up to 243°C / 30 bar

Accessories

Pointer	NW-mark acc. to TRD
For shut off valves	automatically closing ball (safety device) (at least 1 bar pressure tanks required for the function)
Glass protection	Mica exterior protection



*) Sight length „SL" = min. center-center-distance ME – 80 mm
Interruption between 2 sight glasses: min. 50 mm
**) Other glass sizes available on request.
CS (= carbonsteel) and SS (= stainless steel type 316SS) are materials suitable for Pressure Vessels according to EN or ASME.

Glass size / range of centre-to-centre distance

Size	1	2	3	4	5	6	7	8	9	3x4	2x5	2x6	2x7	2x8	2x9	3x6	3x7	3x8	3x9	4x7	4x8	4x9	5x7	5x8	5x9	6x8	6x9	7x9
Length of glass G	115	140	165	190	220	250	280	320	340	390	220	250	280	320	340	250	280	320	340	280	320	340	280	320	340	320	340	340
Length of body B	128	153	178	208	238	268	298	338	368	418	478	538	598	678	758	838	898	1078	1078	1198	1358	1438	1498	1658	1798	2038	2158	2518
Visible length V	95	120	145	170	200	230	260	300	320	380	440	500	560	640	680	770	860	940	1040	1160	1320	1400	1460	1660	1760	2000	2120	2480
CC min With GP11	241	266	291	316	346	376	406	446	466	526	586	646	706	786	826	906	1006	1126	1186	1306	1466	1546	1606	1806	1906	2146	2266	2626
CC min With GP12	269	294	319	344	374	404	434	474	494	554	614	674	734	794	834	934	974	1094	1154	1274	1434	1514	1574	1774	1874	2114	2234	2594
CC min With GP11	229	254	279	304	334	364	394	434	454	514	574	634	694	774	814	904	994	1114	1174	1294	1454	1534	1594	1794	1894	2134	2254	2614
CC min With GP12	182	207	232	257	287	317	347	387	407	467	527	587	647	727	767	857	947	1067	1127	1247	1407	1487	1547	1747	1847	2087	2207	2567
Weight kg	11,7	12,1	12,9	13,5	14,1	15	15,5	16,5	17,2	18,2	19,8	21,7	22,6	24,6	26	26,4	29,8	32,8	34,0	36,9	40,9	43,7	44,3	49,1	52,6	57,2	61,4	70,3

Specification is subject to change without prior notice

Glass size / range of centre-to-centre distance

Glass size*	2	3	4	5	6	7	8	9
Glass length / mm	140	165	190	220	250	280	320	340
SL per segment	120	145	170	200	230	260	300	320
				min. center-to-center-distance / mm				
1 x glass size	200	225	250	280	310	340	380	400
2 x glass size				525	590	650	730	770
3 x glass size				770	870	960	1080	1140
4 x glass size				1015	1135	1255	1415	1495
5 x glass size				1280	1410	1560	1760	1860

* Reflection glasses DIN 7081, width 34 mm, thickness 17 mm

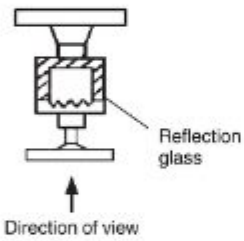
Sight length SL = min. center-to-center-distance ME – 80 mm
Interruption between 2 sight glasses min. 45 mm

Design Data

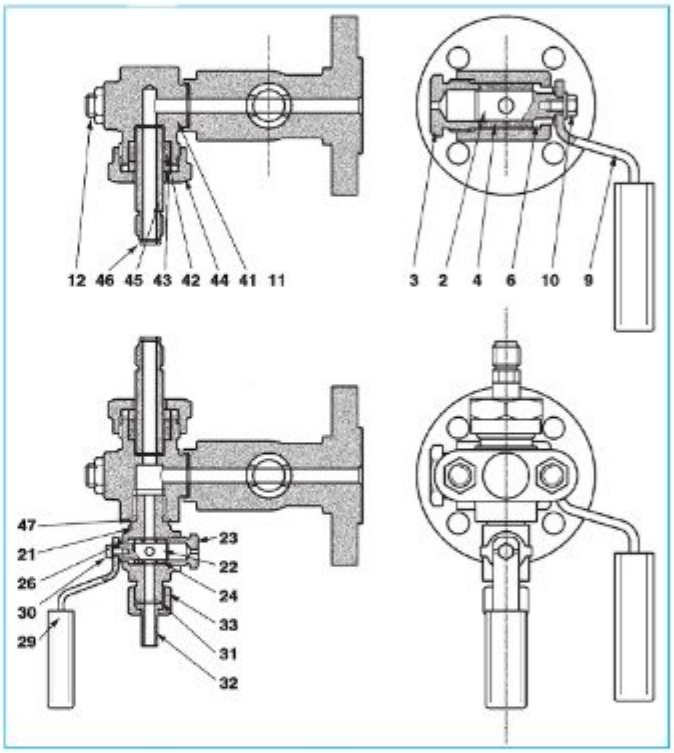
Design pressure PN 40 (with shut-off valve)	
Design temperature*	Design pressure
– 10 ... 120 °C	40 bar
– 10 ... 200 °C	35 bar
– 10 ... 243 °C	32 bar
max. temperature for reflection glass acc. to DIN 7081 = 243 °C	

*Design – 60°C available on request

Anordnung C



Valve Drawing Type BM-11



Illumination Transparent Sight Glass Level Gauges
Type LGG-TP-IL

Applications

The illuminations are designed for illuminating sight windows according to DIN 7081 and mica sight windows. By variation segment length and number of segments as well as the optical power illumination can be adapted to most applications.
Can be operated in hazardous area.

Special Features

- Even bright illumination
- Bulb, highlight-performance and long lifetime

General Data

Material housing lamp	Alu
Material reflector	Glass, Acryl-Glass, mirror sheet
Dimensions	
- A	ca. 160 mm
- B	up to glass size12 ca. 200 mm from glass size 12 ca. 300 mm
Weight	1,8kg

Design Data

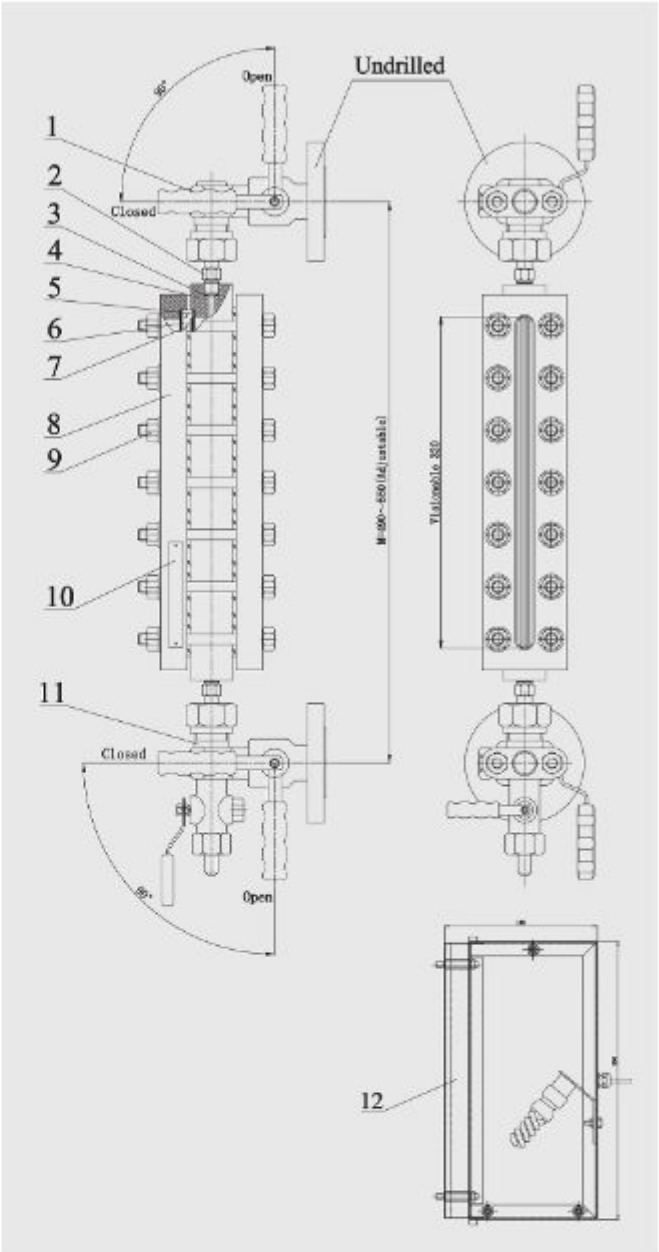
Ex-classification	II 2 GD Ex d(Ex de) IIC T2...T6
Surface temperature	depends on temperature class and lamp power
Ambienttemperature	– 50...+ 55°C

Electrical Data

Power supply	120 / 230 VAC
Lamp power	max. 100 W
Illustration	Halogen bulb
Lampholder	E 27
Ingress protection	IP 66

Certificates

EC-Type Examination Certificate	CESI 01 ATEX 028



Temperature (℃)	Pressure (MPa)	Process Standard
≤250	≤4.0	ASME B16.5

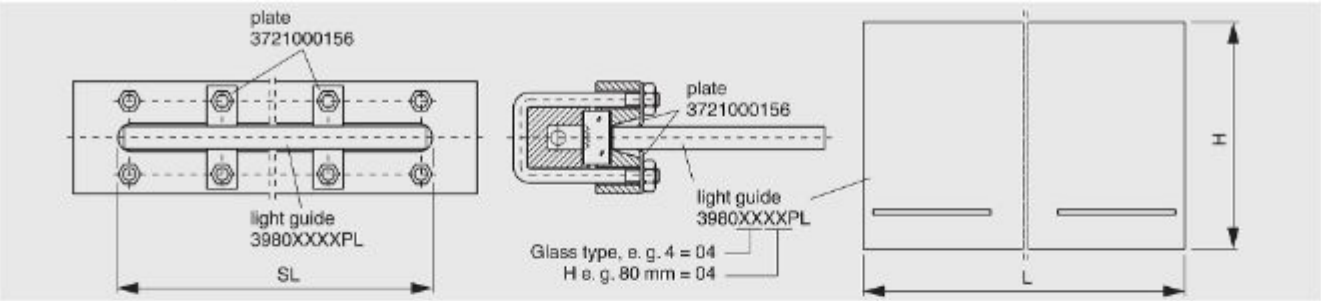
No.	Quantity	Name	Code	Material	Remark
12	1	Illuminator	AC 230V 15W	/	Ambient T:50℃
11	1	Needle valve with drain valve	3/4"/300LB/RF	ASTM A105	
10	1	Nameplate	English	SS 304	
9	16	Fastener	M10×130	35CrMo 8.8	
8	2	Size 9 cover	80×25×360	ASTM A105	
7	2	Size 9 gasket	340×34×1.0	Reinforced graphite	
6	2	Size 9 glass	340×34×17	Tempered borosilicate glass	
5	2	Size 9 gasket	340×34×1.0	Reinforced graphite	
4	1	Body	40×40×380	ASTM A105	
3	2	Sealed	Ø14.8×Ø8×2	Red copper	
2	2	Branch pipe	Ø16	ASTM A105	
1	1	Needle valve	3/4"/300LB/RF	ASTM A105	

Specification is subject to change without prior notice

Sight Glass Level Gauges Accessories

Frost protection

Material: PMMA (Plexiglas)

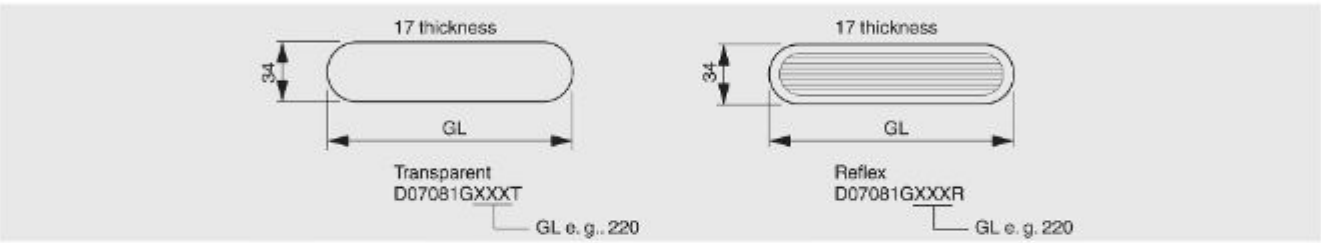


Glass type	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	72	92	117	142	167	197	227	257	297	317	347	377	407	437	477	507	537	577	607	637	677

H in mm covers temperature in °C below zero, standard heights: 80, 120, 180 und 200 mm ▭ recommended types

Flat glasses

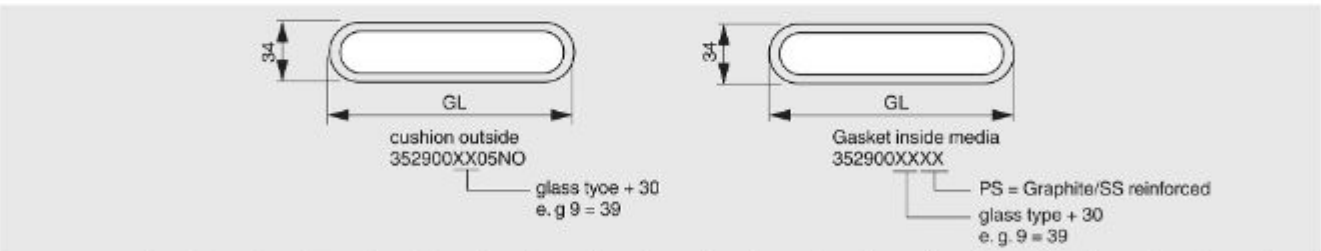
acc. to DIN 7081



Glass type	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GL	95	115	140	165	190	220	250	280	320	340	370	400	430	460	500	530	560	600	630	660	700

▭ recommended types

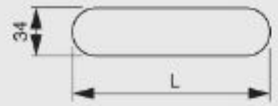
Gaskets



Glass type	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
GL	95	115	140	165	190	220	250	280	320	340	370	400	430	460	500	530	560	600	630	660	700

▭ recommended types

Mica and gasket



mica round
34 mm wide, 0,2 – 0,3 thick
corrosion protection

mica round
24 mm wide
0,13 thick

gasket graphite with
SS-inlay for mica round,
24 mm wide

mica size	L	mica round 34 mm wide 0,2 – 0,3 mm	mica round 24 mm wide 0,13 mm	gasket graphite-SS 24 mm wide	mica package round, 24 mm wide		
					0,9 – 1,0 mm thick	1,2 mm thick	1,7 mm thick
0	95	39890800GL	39897700GL	418D10200VG	39893700GL	39894700GL	39896700GL
1	115	39890801GL	39897701GL	418D10201VG	39893701GL	39894701GL	39896701GL
2	140	39890802GL	39897702GL	418D10202VG	39893702GL	39894702GL	39896702GL
3	165	39890803GL	39897703GL	418D10203VG	39893703GL	39894703GL	39896703GL
4	190	39890804GL	39897704GL	418D10204VG	39893704GL	39894704GL	39896704GL
5	220	39890805GL	39897705GL	418D10205VG	39893705GL	39894705GL	39896705GL
6	250	39890806GL	39897706GL	418D10206VG	39893706GL	39894706GL	39896706GL
7	280	39890807GL	39897707GL	418D10207VG	39893707GL	39894707GL	39896707GL
8	320	39890808GL	39897708GL	418D10208VG	39893708GL	39894708GL	39896708GL
9	340	39890809GL	39897709GL	418D10209VG	39893709GL	39894709GL	39896709GL
10	370	39890810GL	39897710GL	418D10210VG	39893710GL	39894710GL	39896710GL
11	400	39890811GL	39897711GL	418D10211VG	39893711GL	39894711GL	39896711GL
12	430	39890812GL	39897712GL	418D10212VG	39893712GL	39894712GL	39896712GL
13	460	39890813GL	39897713GL	418D10213VG	39893713GL	39894713GL	39896713GL
14	500	39890814GL	39897714GL	418D10214VG	39893714GL	39894714GL	39896714GL
15	530	39890815GL	39897715GL	418D10215VG	39893715GL	39894715GL	39896715GL

Mica packages P_{Design}

For each mica window a mica package up to 1,7 mm thickness and a gasket for each package is needed.

package thickness	P_{Design} [bar]		
	80	120	150
0,9 – 1,0	X		
1,2		X	
1,7			X

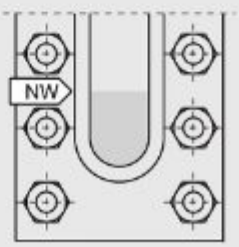
Dimensions in mm

Corrosion protection

Corrosion protection for sight glasses from water side acc.to DIN 7081 above 243 °C 1 mica sheet is needed.

Pointer low water

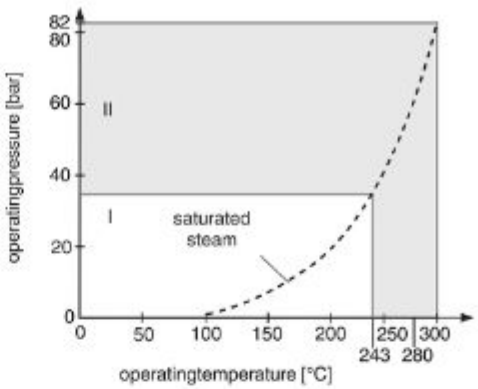
Form, size and inscription vary depending up on execution of the boiler level gauge.



Corrosion protection with mica

for transparent glasses acc. to DIN 7081

As corrosion protection you shall use 1 mica sheet with 0,2 to 0,3 mm thickness fitted to the inner side of a transparent glass acc. to DIN 7081 (marking 'waterside' inward).



I	saturated steam, glass without protection
II	saturated steam, glass with mica protection

Corrosion protection and anti-adhesive

FEP-foil thickness 0,1 mm for transparent glasses acc. to DIN 7081 up to + 200 °C, as corrosion protection or as anti-blocking means for media which are adherent to glass

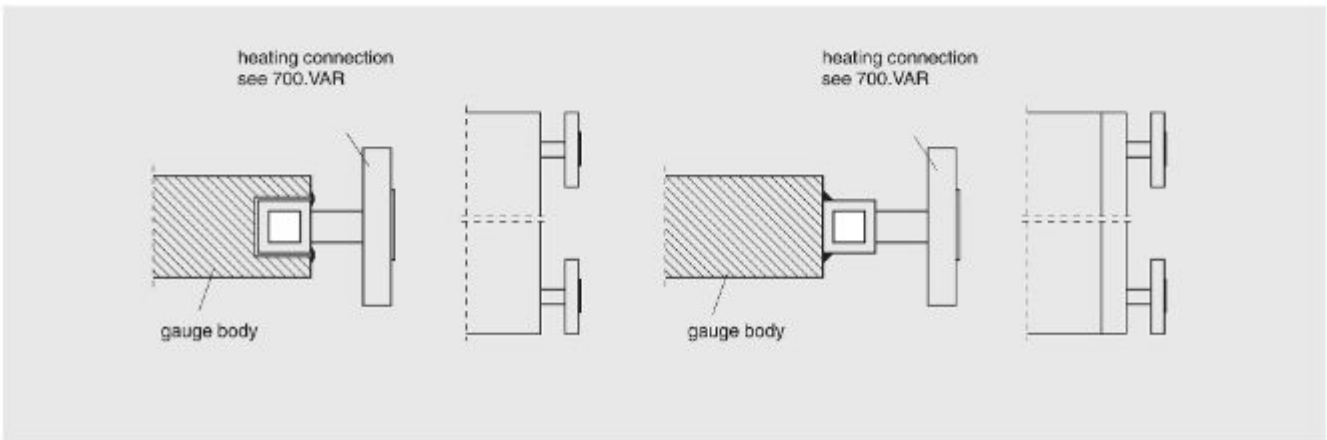
Glass type	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	72	92	117	142	167	197	227	257	297	317	347	377	407	437	477	507	537	577	607	637	677

Scale

- Foil on Aluminum graduated in cm (up to 100 °C)
- Foil on SS graduated in cm (up to 100 °C)
- SS engraving graduated in cm
- Pointer fo rwater low indication, material Aluminum

Heating

- Steam heating



Orientation of the heating connection by customers specification. Electrical heating also possible.

Level sensors

For liquid media, utilising reed measuring chains

Benefits

- The reliable and proven operation principle is suitable for a very wide range of applications
- Continuous measurement of levels, independent of physical and chemical changes of the liquid such as foaming, conductivity, dielectric, pressure, vacuum, temperature, vapours, condensation, bubble formation, boiling effects, density change
- Signal transmission over long distances
- Simple installation and commissioning, onetime calibration only, no recalibration necessary
- Interface measurement and overall level from Δ density ≥ 50 kg/m³
- Explosion-protected versions
- Output signal 4 … 20 mA, HART®, PROFIBUS® PA, FOUNDATION™ Fieldbus
- Resolution ≥ 5 mm
- Level displayed proportional to volume or height
- In combination with limit switches, stepless setting of the limit values possible over the entire measuring range
- High repeatability accuracy of the set points
- Cable and plug versions

FLR-S

Stainless steel version

Process connection:	■ Mounting thread ■ Flange: DIN, ANSI, EN
Guide tube length:	Max. 6,000 mm
Pressure:	0 … 100 bar
Temperature:	-80 … +200 °C
Density:	≥ 400 kg/m³
Data sheet:	LM 20.02

FLR-P

Plastic version, PP, PVDF, PP

Process connection:	■ Mounting thread ■ Flange: DIN, ANSI, EN
Guide tube length:	Max. 5,000 mm
Pressure:	0 … 3 bar
Temperature:	-10 … +100 °C
Density:	≥ 800 kg/m³
Data sheet:	LM 20.02

FLR-H

Hygienic version

Process connection:	All common process connections with hygienic design
Guide tube length:	Max. 6,000 mm
Pressure:	0 … 10 bar
Temperature:	-40 … +200 °C
Density:	≥ 400 kg/m³
Data sheet:	LM 20.02

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Magnetic float switches

Sturdy switches for liquid media

FLS-S

Stainless steel version, for vertical installation

Switch points:	Max. 8 switch points
Process connection:	■ Mounting thread ■ Flange: DIN, ANSI, EN
Guide tube length:	Max. 6,000 mm
Pressure:	0 ... 100 bar
Temperature:	-196 ... +300 °C
Density:	≥ 390 kg/m³
Data sheet:	LM 30.01

FLS-P

Plastic version, for vertical installation

Switch points:	Max. 8 switch points
Process connection:	■ Mounting thread ■ Flange: DIN, ANSI, EN
Guide tube length:	Max. 5,000 mm
Pressure:	0 ... 3 bar
Temperature:	-10 ... +100 °C
Density:	≥ 400 kg/m³
Data sheet:	LM 30.01

ELS

For lateral mounting

Reference chamber:	Aluminium, red bronze, stainless steel
Process connection:	Threaded pipe connection GE10-LR galvanised steel
Pressure:	Up to 6 bar
Temperature:	-30 ... +300 °C
Data sheet:	LM 30.03

FLS-H

Hygienic version

Process connection:	All common process connections with hygienic design
Guide tube length:	Max. 6,000 mm
Pressure:	0 ... 6 bar
Temperature:	-40 ... +200 °C
Density:	≥ 300 kg/m³
Data sheet:	LM 30.01

Specification is subject to change without prior notice

Pressure gauges for relative pressure

Bourdon tube pressure gauges with increased corrosion resistance

The application areas for these gauges, manufactured entirely in stainless steel, are gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive ambience. They are suitable for scale ranges from 0 … 0.6 to 0 … 7,000 bar.

Dependant upon the pressure range and the instrument type, overpressure safety of up to a maximum of 5 x full scale value is possible. To this point, the measuring accuracy is maintained. Liquid filling the case ensures a precise instrument display, even with high dynamic pressure loads and vibrations.

131.11

Stainless steel version, standard

Nominal size:	40, 50, 63 mm
Scale range:	■ NS 40: 0 … 1 to 0… 600 bar ■ NS 63: 0 … 1 to 0 … 1,000 bar
Accuracy class:	2.5
Data sheet:	PM 01.05

222.30, 223.20

Safety version, stainless steel, high pressure

Nominal size:	160 mm
Scale range:	0 … 2,000 to 0 … 7,000 bar
Accuracy class:	1.0
Data sheet:	PM 02.09

232.36, 233.36

Safety version, stainless steel, high overpressure safety

Nominal size:	100, 160 mm
Scale range:	0 … 0.6 bis 0 … 40 bar
Accuracy class:	1.0
Data sheet:	PM 02.15

232.30, 233.30

Safety version, stainless steel

Nominal size:	63, 100, 160 mm
Scale range:	■ NS 63: 0 … 1 to 0… 1,000 bar ■ NS 100: 0 … 0.6 to 0 … 1,000 bar ■ NS 160: 0 … 0.6 to 0 … 1,600 bar
Accuracy class:	1.0 (NS 100, 160), 1.6 (NS 63)
Ingress protection:	IP 65
Data sheet:	PM 02.04

232.50, 233.50

Stainless steel version

Nominal size:	63, 100, 160 mm
Scale range:	■ NS 63: 0 … 1 to 0 … 1,000 bar ■ NS 100: 0 … 0.6 to 0 … 1,000 bar ■ NS 160: 0 … 0.6 to 0 … 1,600 bar
Accuracy class:	1.0/1.6 (NS 63)
Ingress protection:	IP 65
Data sheet:	PM 02.02

113.53

Standard version, with liquid filling

Nominal size:	40, 80, 100 mm
Scale range:	-1 ... 0 to 0 ... 400 bar
Accuracy class:	1.6 (NS 80, 100), 2.5 (NS 40)
Ingress protection:	IP 65
Data sheet:	PM 01.08

212.20

Industrial series

Nominal size:	100, 160 mm
Scale range:	0 ... 0.6 to 0 ... 600 bar
Accuracy class:	1.0
Data sheet:	PM 02.01

213.40

Forged brass case, with liquid filling

Nominal size:	63, 80, 100 mm
Scale range:	-1 ... 0 to 0 ... 1,000 bar
Accuracy class:	1.0 (NS 100), 1.6 (NS 63 and 80)
Ingress protection:	IP 65
Data sheet:	PM 02.06

213.53

Stainless steel case, with liquid filling

Nominal size:	50, 63, 100 mm
Scale range:	■ NS 50: -1 ... 0 to 0 ... 400 bar ■ NS 63, 100: -1 ... 0 to 0 ... 1,000 bar
Accuracy class:	1.0 (NS 100), 1.6 (NS 50, 63)
Ingress protection:	IP 65
Data sheet:	PM 02.12

214.11

Edgewise panel design, for panel mounting

Nominal size:	144 x 72, 144 x 144, 96 x 96, 72 x 72
Scale range:	■ NS 144 x 72, 144 x 144, 96 x 96: 0 ... 0.6 to 0 ... 1,000 bar ■ NS 72 x 72: 0 ... 0.6 to 0 ... 400 bar
Accuracy class:	1.6, 1.0
Ingress protection:	IP 42
Data sheet:	PM 02.07

100.02

Thermomanometer for pressure and temperature measurement

Nominal size:	63, 80 mm
Scale range:	■ Pressure: 0 ... 1 to 0 ... 16 bar ■ Temperature: 0 ... 100 to 0 ... 150 °C
Accuracy class:	■ Pressure: 2.5 (EN837-1) ■ Temperature: 2.5 °C
Data sheet:	PM 01.23

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Pressure gauges for relative pressure

Diaphragm pressure gauges for high overpressure safety

The application areas for these gauges with diaphragm pressure element are gaseous and liquid aggressive media. Instruments with open connecting flanges are even suitable for highly viscous and contaminated media, also in aggressive ambience.
Typical scale ranges are from 0 … 16 mbar to 0 … 40 bar.

Dependant upon the pressure range and the instrument model, overpressure safety of 3 x or 5 x full scale value is possible as standard.
For special designs, an overpressure safety of 10, 40, 100 or 400 bar is possible, with the measuring accuracy maintained.
Liquid filling the case ensures a precise instrument display, even with high dynamic pressure loads and vibrations.
Special wetted-parts materials are available as options.

422.12, 423.12

Industrial series, grey cast iron case

Nominal size:	100, 160 mm
Scale range:	0 … 16 mbar to 0 … 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 04.02

432.50, 433.50

Stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 … 16 mbar to 0 … 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 04.03

432.36, 432.56

Stainless steel version, high overpressure safety up to max. 400 bar

Nominal size:	100, 160 mm
Scale range:	0 … 16 mbar to 0 … 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 04.07

Capsule pressure gauges for very low pressures

These gauges are particularly suited to gaseous media. The scale ranges are between 0 … 2.5 mbar and 0 … 1,000 mbar in accuracy classes from 0.1 to 2.5.
Capsule pressure gauges consist of two circular, corrugated diaphragms, joined together around the edge with a pressure-tight seal. Overpressure protection is possible in certain cases.

These pressure measuring instruments are used mainly within medical, vacuum, environmental and laboratory technology for contents measurement and filter monitoring.

611.10

Standard version

Nominal size:	50, 63 mm
Scale range:	0 … 25 to 0 … 600 mbar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 06.01

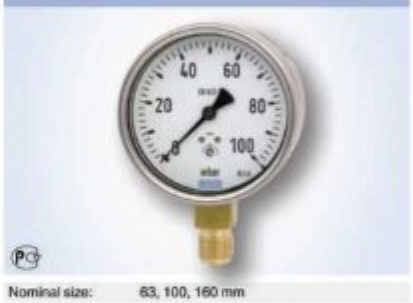
611.13

swikap, plastic version

Nominal size:	50, 63 mm
Scale range:	0 … 60 to 0 … 600 mbar
Accuracy class:	2.5
Ingress protection:	IP 53
Data sheet:	PM 06.12

612.20

Industrial series



Nominal size:	63, 100, 160 mm
Scale range:	0 … 6 to 0 … 600 mbar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 06.02

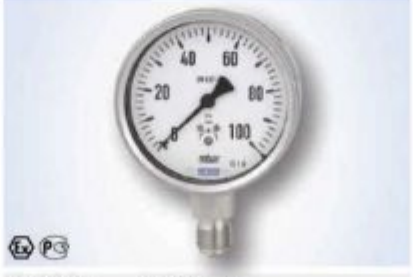
614.11

Edgewise panel design, for panel mounting

Nominal size:	72 x 72, 96 x 96, 144 x 144, 144 x 72 mm
Scale range:	■ NS 72 x 72: 0 … 25 to 0 … 600 mbar ■ NS 96 x 96: 0 … 10 to 0 … 600 mbar ■ NS 144 x 144: 0 … 6 to 0 … 600 mbar ■ NS 144 x 72: 0 … 4 to 0 … 600 mbar
Accuracy class:	1.6
Data sheet:	PM 06.05

632.50

Stainless steel version



Nominal size:	63, 100, 160 mm
Scale range:	■ NS 63: 0 … 40 to 0 … 600 mbar ■ NS 100: 0 … 16 to 0 … 600 mbar ■ NS 160: 0 … 2.5 to 0 … 600 mbar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 06.03

Further information at www.wika.com

Specification is subject to change without prior notice

Pressure gauges for differential pressure

Differential pressure gauges work with a wide range of pressure elements. With this variety, measuring ranges from 0 ... 0.5 mbar to 0 ... 1,000 bar and static overlay pressures up to 400 bar are possible.

These differential pressure gauges are used to monitor

- the pollution degree in filter systems
- the level in closed tanks
- the overpressure in clean rooms
- the flow of gaseous and liquid media
- and they control pumping plants

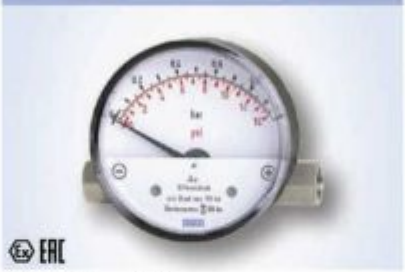
A2G-10

For low pressures in ventilation applications

Nominal size:	110 mm
Scale range:	0 ... 50 to 0 ... 12,500 Pa
Accuracy class:	±3 %
Ingress protection:	IP 54
Data sheet:	PM 07.40

700.01

Compact design, magnetic piston and compression spring



Nominal size:	80 mm
Scale range:	0 ... 400 mbar to 0 ... 10 bar
Accuracy class:	±3 % with increasing differential pressure
Ingress protection:	IP 54
Data sheet:	PM 07.14

700.02

Magnetic piston and compression spring with separating diaphragm

Nominal size:	80 mm
Scale range:	0 ... 160 mbar to 0 ... 2.5 bar
Accuracy class:	±5 % with increasing differential pressure
Ingress protection:	IP 54
Data sheet:	PM 07.14

711.12

Bourdon tube, with parallel entry

Nominal size:	100, 160 mm
Scale range:	0 ... 0.6 to 0 ... 1,000 bar
Accuracy class:	1.6
Ingress protection:	IP 33
Data sheet:	PM 07.02

716.11

Capsule, with parallel entry, for low pressures

Nominal size:	63, 100, 160 mm
Scale range:	■ NS 63: 0 ... 16 to 0 ... 400 mbar ■ NS 100: 0 ... 6 to 0 ... 250 mbar ■ NS 160: 0 ... 4 to 0 ... 250 mbar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 07.07

DPG40

DELTA-plus, with integrated working pressure indication

Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Accuracy class:	2.5
Ingress protection:	IP 65
Data sheet:	PM 07.20

Specification is subject to change without prior notice

732.14

Stainless steel version, high over-pressure safety up to max. 400 bar

Nominal size:	100, 160 mm
Scale range:	■ 0 ... 60 to 0 ... 250 mbar (measuring cell DN 140) ■ 0 ... 0.25 to 0 ... 40 bar (measuring cell DN 82)
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 07.13

732.51

Stainless steel version, all-metal media chamber

Nominal size:	100, 160 mm
Scale range:	0 ... 16 mbar to 0 ... 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PM 07.05

732.15

Cryo gauge, stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 40 to 0 ... 4,000 mbar
Accuracy class:	1.0 ... 2.5
Ingress protection:	IP 65
Data sheet:	PM 07.29, PM 07.30

712.15

Cryo gauge, Cu-alloy

Nominal size:	100, 160 mm
Scale range:	0 ... 40 to 0 ... 4,000 mbar
Accuracy class:	1 ... 2.5
Ingress protection:	IP 65
Data sheet:	PM 07.29, PM 07.30

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Pressure gauges for absolute pressure

Absolute pressure gauges are used when measured pressures are independent of the natural fluctuations in atmospheric pressure. The pressure of the measured media is determined against a reference pressure, which corresponds to the absolute pressure zero point. For this, the reference chamber is completely evacuated, so that there is a near-perfect vacuum in it.

The scale ranges are between 0 ... 25 mbar and 0 ... 25 bar absolute, with accuracy classes of 0.6 to 2.5. Applications for these high-precision measuring instruments are, for example, monitoring of vacuum pumps and vacuum packing machines. They are also used in laboratories, in order to monitor condensation pressures or to determine the vapour pressure of liquids.

532.51, 532.52, 532.53, 532.54

Stainless steel version for gases and liquids

Nominal size:	100, 160 mm
Scale range:	0 ... 25 mbar to 0 ... 25 bar abs high overpressure safety
Accuracy class:	0.6 ... 2.5
Ingress protection:	IP 54
Data sheet:	PM 05.02

Specification is subject to change without prior notice

Accessories

910.80

Monoflange

Application:	For pressure gauge isolation
Data sheet:	AC 09.17

910.10, 910.11, 910.81

Stopcocks and shut-off valves

Application:	For pressure gauge isolation
Data sheet:	AC 09.01, AC 09.02, AC 09.18

910.25

Pressure compensating valve for differential pressure gauges

Application:	For isolating, pressure compensating as well as purging and venting differential pressure gauges
Data sheet:	AC 09.11

910.15

Syphon

Application:	For the protection of pressure gauges from excessive pulsation and heat
Data sheet:	AC 09.06

910.12, 910.13

Snubbers and overpressure protectors

Application:	For the protection of pressure gauges from pressure surges and pulsations or overpressures
Data sheet:	AC 09.03, AC 09.04

910.14, 910.17

Adapters and sealings

Application:	For mounting pressure gauges and for sealing the connections
Data sheet:	AC 09.05, AC 09.08

910.16

Instrument mounting bracket

Application:	For mounting pressure gauges
Data sheet:	AC 09.07

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Pressure gauges with switch contacts

PGS23.100, PGS23.160

Bourdon tube, stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 0.6 to 0 ... 1,600 bar
Accuracy class:	1.0
Ingress protection:	IP 65
Data sheet:	PV 22.02

PGS23.063

Bourdon tube, stainless steel, safety version

Nominal size:	63 mm
Scale range:	0 ... 4 to 0 ... 400 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PV 22.03

PGS43.100, PGS43.160

Diaphragm, stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 25 mbar to 0 ... 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PV 24.03

432.36, 432.56 with 8xx

Diaphragm, stainless steel version, high overpressure safety

Nominal size:	100, 160 mm
Scale range:	0 ... 25 mbar to 0 ... 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PV 24.07

Pressure gauges with electrical output signal

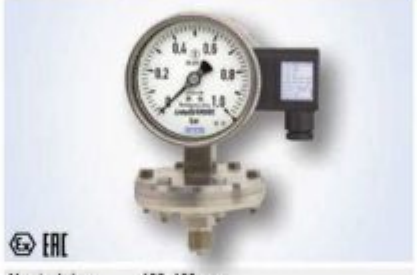
PGT43

Diaphragm, stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 16 mbar to 0 ... 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 14.03

PGT43HP

Diaphragm, stainless steel version, high overpressure safety



Nominal size:	100, 160 mm
Scale range:	0 ... 16 mbar to 0 ... 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 14.07

DPGT43

Differential pressure, stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 16 mbar to 0 ... 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 17.05

DPGT43HP

Differential pressure, stainless steel version, high overpressure safety

Nominal size:	100, 160 mm
Scale range:	0 ... 60 mbar to 0 ... 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 17.13

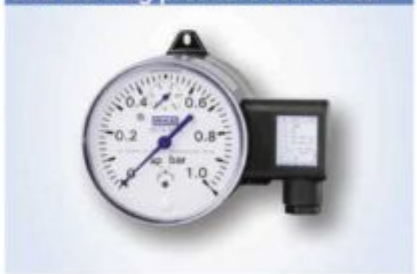
PGT63HP

Capsule, stainless steel version

Nominal size:	100, 160 mm
Scale range:	2.5 ... 100 mbar
Accuracy class:	1.6
Ingress protection:	IP 54
Data sheet:	PV 16.06

DPGT40

DELTA-trans with integrated differential pressure and working pressure indication



Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Accuracy class:	2.5 (optional 1.6)
Ingress protection:	IP 65
Data sheet:	PV 17.19

Specification is subject to change without prior notice

Digital pressure gauges

DG-10

Digital pressure gauge for general industrial applications

Accuracy: (% of span): ≤ 0.5 ± 1 digit	
Measuring range:	■ 0 ... 2 to 0 ... 600 bar ■ -1 ... +2 to -1 ... +10 bar
Special feature:	■ Robust stainless steel case, nominal size 80 mm ■ Multi-functional display ■ Efficient energy management
Data sheet:	PE 81.66

CPG500

Digital pressure gauge

Accuracy (% of span): 0.25 +-1 digit	
Measuring range:	■ 0 ... 60 to 0 ... 1,000 bar ■ -1 ... +20 to -1 ... + 40 bar
Special feature:	■ Robust case with protective rubber cap ■ Simple operation using four buttons
Data sheet:	CT 09.01

CPG1000

Digital pressure gauge for precision measurements

Accuracy (± % of span): 0.05	
Measuring range:	■ 0 ... 0.07 to 0 ... 700 bar ■ 0 ... 1 to 0 ... 20 bar abs.
Special feature:	■ Robust stainless steel case with protection cap ■ Integrated data logger
Data sheet:	CT 10.01

WIKA

Process transmitters

UPT-20

Universal process transmitter with standard connection, Ex intrinsically safe

Non-linearity (% of span): ≤ 0,1	
Output signal:	4 ... 20 mA, HART®
Measuring range:	■ 0 ... 0.4 to 0 ... 1,000 bar ■ 0 ... 1.6 to 0 ... 40 abs. ■ -0.2 ... +0.2 to -1 ... +40 bar
Special feature:	■ Multi-functional display ■ Freely scalable measuring ranges ■ Simple menu navigation ■ Conductive plastic case or stainless steel case ■ Large LC display, rotatable
Data sheet:	PE 86.05

UPT-21

Universal process transmitter with flush diaphragm

Non-linearity (% of span): ≤ 0,1	
Output signal:	4 ... 20 mA, HART®
Measuring range:	■ 0 ... 0.4 to 0 ... 600 bar ■ 0 ... 1.6 to 0 ... 40abs. ■ -0.2 ... +0.2 to -1 ... +40 bar
Special feature:	■ Multi-functional display (optional) ■ Freely scalable measuring ranges ■ Simple menu navigation ■ Conductive plastic case or stainless steel case in Hygienic Design ■ Large LC display, rotatable
Data sheet:	PE 86.05

IPT-10, IPT-11

Process pressure transmitter, intrinsically safe or with flameproof enclosure

Non-linearity (% of span): ≤ 0.075 ... 0.1	
Output signal:	4 ... 20 mA, HART® protocol (optional), PROFIBUS® PA, FOUNDATION™ fieldbus
Measuring range:	■ 0 ... 0.1 to 0 ... 4,000 bar ■ 0 ... 0.1 to 0 ... 60 bar abs. ■ -1 ... 0 to -1 ... +60 bar
Special feature:	■ Freely scaleable measuring ranges (turndown to 30 : 1) ■ Case from plastic, aluminium or stainless steel ■ Flush process connection (optional) ■ With integrated display and mounting bracket for wall/pipe mounting (optional)
Data sheet:	PE 86.11

DPT-10

Differential pressure transmitter, intrinsically safe or with flameproof enclosure

Non-linearity (% of span): ≤ 0.075 ... 0.15	
Output signal:	4 ... 20 mA, HART® protocol (optional), PROFIBUS® PA
Measuring range:	0 ... 10 mbar to 0 ... 40 bar
Special feature:	■ Freely scaleable measuring ranges (turndown to 30 : 1) ■ Static load 160 bar, optionally 420 bar ■ Case from plastic, aluminium or stainless steel ■ With integrated display and mounting bracket for wall/pipe mounting (optional)
Data sheet:	PE 86.21

Further information at www.wika.com

Specification is subject to change without prior notice

Mechanical pressure switches

Mechanical pressure switches open or close a circuit, depending on whether the pressure is rising or dropping. Due to the use of high-quality micro switches, the mechanical pressure switches are notable for their high precision and long-term stability. Furthermore the direct switching of electrical loads up to AC 250 V / 20 A is enabled, while simultaneously ensuring a high switch point reproducibility.

Many mechanical pressure switches come with a SIL certificate and are thus particularly suited for safety-critical applications. In addition, with their 'intrinsically safe' and 'flameproof enclosure' types of protection the pressure switches are ideally suited for permanent use in hazardous environments.

for gauge pressure

MW, MA

Diaphragm element

Setting range:	0 ... 16 mbar to 30 ... 600 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 or 2 x SPDT or 1 x DPDT
Switching power:	AC 250 V / 20 A DC 24 V / 2 A
Data sheet:	PV 31.10, PV 31.11

BWX, BA

Bourdon tube

Setting range:	0 ... 2.5 to 0 ... 1,000 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 or 2 x SPDT or 1 x DPDT
Switching power:	AC 250 V / 20 A DC 24 V / 2 A
Data sheet:	PV 32.20, PV 32.22

PCS, PCA

Compact pressure switch

Setting range:	-0.2 ... 1.2 to 100 ... 600 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 x SPDT or DPDT
Switching power:	AC 250 V / 15 A DC 24 V / 2 A
Data sheet:	PV 33.30, PV 33.31

PXS, PXA

Mini pressure switch

Setting range:	1 ... 2.5 to 50 ... 400 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 x SPDT
Switching power:	AC 250 V / 5 A DC 24 V / 5 A
Data sheet:	PV 34.36, PV 34.38 (Ex)

for differential pressure and absolute pressure

DW, DA

Differential pressure switch

Setting range:	0 ... 16 mbar to 0 ... 40 bar static pressure to 160 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 or 2 x SPDT or 1 x DPDT
Switching power:	AC 250 V / 20 A DC 24 V / 2 A
Data sheet:	PV 35.42, PV 35.43

DC, DE

Differential pressure switch, compact version

Setting range:	0 ... 160 mbar to 0 ... 40 bar static pressure to 250 bar
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 x SPDT or DPDT
Switching power:	AC 250 V / 15 A DC 24 V / 2 A
Data sheet:	PV 35.40, PV 35.41 (Ex)

APW, APA

Absolute pressure switch

Setting range:	0 ... 25 mbar to 0 ... 1.5 bar abs.
Overpressure safety:	11 bar abs.
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 or 2 x SPDT or 1 x DPDT
Data sheet:	SP 08.50, SP 08.51 (Ex) SP 08.52, SP 08.53 (Ex)

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Differential pressure gauges with switch contacts

DPGS43

Stainless steel version

Nominal size:	100, 160 mm
Scale range:	0 ... 16 mbar to 0 ... 25 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 27.05

DPGS43HP

Stainless steel version, high overpressure safety

Nominal size:	100, 160 mm
Scale range:	0 ... 60 mbar to 0 ... 40 bar
Accuracy class:	1.6
Ingress protection:	IP 54, filled IP 65
Data sheet:	PV 27.13

DPGS40

DELTA-comb, with integrated working pressure indication and micro switch

Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Accuracy class:	2.5 (optional 1.6)
Ingress protection:	IP 65
Data sheet:	PV 27.20

DPS40

DELTA-switch, differential pressure switch

Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Switch point reproducibility:	1.6 %
Ingress protection:	IP 65
Data sheet:	PV 27.21

WIKA

Diaphragm seals with flange connection

For WIKA diaphragm seals with flange connection the corrosion resistant stainless steel 316L is used as standard diaphragm material. Special materials are available on request.

Nominal sizes:	DN 15 ... 125/DN ½" ... DN 5"
Standards:	EN, ASME (former ANSI)
Options:	API, JIS, customer-specific versions on request

990.27

Flush diaphragm

Application:	Process and petrochemical industries with high measuring requirements
PN:	10 ... 250 (400) bar (class 150 ... 2,500)
Data sheet:	DS 99.27

990.28

Cell-type

Application:	Process and petrochemical industries with high measuring requirements
PN:	10 ... 100 (400) bar (class 150 ... 2,500)
Data sheet:	DS 99.28

990.29

Flange-type with extended diaphragm

Application:	Process and petrochemical industries, particularly for thick or insulated tank walls
PN:	10 ... 100 (400) bar (class 150 ... 2,500)
Data sheet:	DS 99.29

990.35

Cell-type with extended diaphragm

Application:	Process and petrochemical industries, particularly for thick or insulated tank walls
PN:	10 ... 40 (100) bar (class 150 ... 600)
Data sheet:	DS 99.30

990.15

Block flange or saddle flange

Application:	In connection with block flange or saddle flange in the chemical engineering and petrochemical industries
PN:	100 or 250 bar
Data sheet:	DS 99.35

990.23

Pulp and paper industry

Application:	For use in the pulp and paper industry
PN:	40 bar
Data sheet:	DS 99.34

WIKA

Diaphragm seal
With its connection dimensions, the flange-type diaphragm seal is suitable for all currently used standard flanges and is mounted in lieu of a blind flange. The cell-type design is a sub-category, which is used with a blind flange at the tapping flange. Another modification of this model is the diaphragm seal with extended diaphragm, which, among other things, is used at thick and/or insulated product pipelines or tank walls.

In-line diaphragm seal
The in-line diaphragm seal also belongs to the family of flange-type diaphragm seals. With the seal being integrated into the process line, measurements are not affected by any turbulences, corners, dead spaces or other obstructions. This application makes the designing of special measuring point connections unnecessary.

990.26

Internal diaphragm

Application:	Process industry; for small flange connections (≤ DN 25/1")
PN:	10 ... 40 bar (class 150 ... 300)
Data sheet:	DS 99.26

990.12

Internal diaphragm, threaded design

Application:	General applications in the process industry; for small flange connections (≤ DN 25/1") and pressures ≥ 40 bar
PN:	10 ... 250 bar (class 150 ... 2,500)
Data sheet:	DS 99.31

990.41

Large working volume, threaded design

Application:	To combine with capsule or diaphragm pressure gauges and transmitters for low pressures
PN:	10 ... 40 bar (class 150 ... 300)
Data sheet:	DS 99.32

981.10

In-line diaphragm seal, cell-type

Application:	For direct, permanent installation in pipelines; for flowing media; for measuring points free of dead space
PN max:	400 bar
Data sheet:	DS 98.28

981.27

In-line diaphragm seal, flange-type

Application:	For direct, permanent installation in pipelines; for flowing media; for measuring points free of dead space
PN max:	16 or 40 bar
Data sheet:	DS 98.27

Specification is subject to change without prior notice

Diaphragm seals with threaded connection

Diaphragm seals with threaded connection are available with female or male thread in their basic design. Due to the wide variety of available process connections they can be mounted to many different fittings without any problems. Usually the fittings are T-pieces which are integrated into a pipeline, or welding sockets which are welded to a pipeline.

Nominal sizes: G ¼ … 1 ½, ¼ … 1 ½ NPT male or female
Options: Customer-specific versions on request

990.10

Threaded design

Application:	General applications in the process industry
PN:	25, 100 or 250 bar
Data sheet:	DS 99.01

990.31

Plastic body, threaded design

Application:	Chemical engineering with plastic pipework, electroplating; particularly for wastewater and agricultural fertilisers
PN max:	10 bar
Data sheet:	DS 99.02

990.36

Small diaphragm seal with flush diaphragm

Application:	Particularly for highly viscous and crystallising media
PN max:	600 bar
Data sheet:	DS 99.03

990.34

Welded design

Application:	Machine-building, plant-construction and process-industry applications with high requirements
PN:	160, 400, 600 or 1,000 bar
Data sheet:	DS 99.04

990.38

Welded design, economic design

Application:	Standard applications in the process industry; for aggressive, contaminated or heterogeneous media
PN max:	90 bar
Data sheet:	DS 99.05

990.40

Large working volume, threaded design

Application:	To combine with capsule or diaphragm pressure gauges and transmitters for low pressures
PN max:	40 bar
Data sheet:	DS 99.06

970.1x

Diaphragm probe seal

Application:	Particularly for flowing, heterogeneous media; at pressures from 100 bar
PN max:	600 bar
Data sheet:	DS 97.01

WIKA

Diaphragm seals with sterile connection

990.22

Tri-clamp

Process connection:	Tri-clamp, DIN 32676 or BS4825
PN max:	■ 40 bar (DN 20 ... 50) ■ 25 bar (from DN 65)
Data sheet:	DS 99.41

990.52

Clamp per DIN 32676

Process connection:	Clamp
PN max:	■ 40 bar (DN 20 ... 50) ■ 25 bar (from DN 65)
Data sheet:	DS 99.41

990.53

Clamp per ISO 2852

Process connection:	Clamp
PN max:	■ 40 bar (DN 20 ... 50) ■ 25 bar (from DN 65)
Data sheet:	DS 99.41

990.50

NEUMO BioConnect® connection

Process connection:	NEUMO BioConnect® thread or flange
PN max:	■ 16 bar (thread) ■ 70 bar (flange)
Data sheet:	DS 99.50

990.51

Aseptic connection per DIN 11864

Process connection:	■ DIN 11864-1 threaded connection ■ DIN 11864-2 flange ■ DIN 11864-3 clamp connection
PN:	16 ... 40 bar
Data sheet:	DS 99.51

990.60

NEUMO BioControl®

Process connection:	For installation into the NEUMO BioControl® system
PN max:	■ 16 bar (size 50 ... 80) ■ 70 bar (size 25)
Data sheet:	DS 99.55

990.30

For homogenisers

Application:	For homogeniser machines
PN max:	■ 600 bar ■ 1,000 bar ■ 1,600 bar
Data sheet:	DS 99.60

BioControl® and BioConnect® are registered trademarks of the company NEUMO

Specification is subject to change without prior notice

HYDRA-line diaphragm seal systems

Our pressure measuring instruments of the HYDRA-line product family have been developed in co-operation with well-known customers in the semiconductor industry.
The complete product concept has been adapted to the special requirements of the process equipment and UHP chemicals distribution system sectors.
The patented HYDRA double diaphragm system enables a safe and reliable separation of the pressure sensor from the process medium.

Simultaneously diffusing process media such as HF or HCl vapours are given off to the environment to avoid any falsification of the measuring result or the destruction of the sensor element.
All wetted parts are made of PFA or PTFE UHP grade.

HYDRA-gauge

Process connection:	■ Dead-end or in-line ■ ⅜" ... 1 ¼"-flare ■ ¼ NPT ■ ½ NPT
Measuring range:	0 ... 2.5 to 0 ... 6 bar
Data sheet:	SP 99.20

HYDRA-sensor

Process connection:	■ Dead-end or in-line ■ ⅜" ... 1 ¼"-flare ■ ¼ NPT ■ ½ NPT
Measuring range:	0 ... 2.5 to 0 ... 6 bar
Data sheet:	SP 99.21

HYDRA-dry

Process connection:	■ Dead-end or in-line ■ ⅜" ... 1 ¼"-flare ■ ¼ NPT ■ ½ NPT
Measuring range:	0 ... 1 to 0 ... 6 bar
Data sheet:	SP 99.22

WIKA

Bimetal thermometers

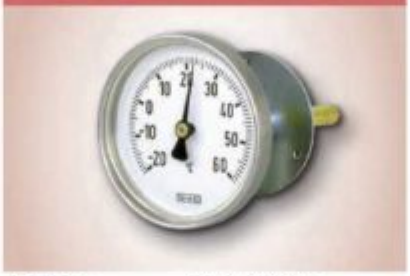
46

Industrial heating

Nominal size:	50, 63, 80, 100 mm
Scale range:	0 ... 120 °C
Permissible operating pressure at thermowell/stem:	Max. 6 bar
Wetted parts:	Copper alloy
Data sheet:	TM 46.02

48

Refrigeration and air conditioning



Nominal size:	63, 80, 100, 160 mm
Scale range:	-30 ... +120 °C
Wetted parts:	Copper alloy
Data sheet:	TM 48.01

50

Standard version

Nominal size:	63, 80, 100, 160 mm
Scale range:	-30 ... +200 °C
Permissible operating pressure at thermowell/stem:	Max. 6 bar
Wetted parts:	Copper alloy
Data sheet:	TM 50.03

52

Industrial series, axial and radial

Nominal size:	25, 33, 40, 50, 63, 80, 100, 160 mm
Scale range:	-30 ... +50 to 0 ... +500 °C
Permissible operating pressure at thermowell/stem:	Max. 25 bar
Wetted parts:	Stainless steel
Data sheet:	TM 52.01

WIKA

53

Industrial series, axial, adjustable stem dial

Nominal size:	3", 5"
Scale range:	-70 ... +70 to 0 ... +600 °C
Wetted parts:	Stainless steel
Option:	Liquid damping to max. 250 °C (case and sensor)
Data sheet:	TM 53.01

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Heavy duty series, axial and radial, adjustable stem and dial

Nominal size:	63, 80, 100, 160 mm
Scale range:	-70 ... +70 to 0 ... +600 °C
Wetted parts:	Stainless steel
Option:	Liquid damping to max. 250 °C (case and sensor)
Data sheet:	TM 54.01

55

Stainless steel series, axial and radial, adjustable stem and dial

Nominal size:	63, 100, 160 mm
Scale range:	-70 ... +70 to 0 ... +600 °C
Wetted parts:	Stainless steel
Option:	Liquid damping to max. 250 °C (case and sensor)
Data sheet:	TM 55.01

Further information at www.wika.com

WIKA

Gas-actuated thermometers

R73, S73, A73

Axial and radial, adjustable stem and dial

Nominal size:	100, 160 mm
Scale range:	-200 ... +50 to 0 ... +700 °C
Wetted parts:	Stainless steel
Option:	■ Liquid damping (case) ■ Contact bulb
Data sheet:	TM 73.01

Q73, F73

With capillary

Nominal size:	100, 160, 144 x 144 mm
Scale range:	-200 ... +50 to 0 ... +700 °C
Wetted parts:	Stainless steel
Option:	■ Armoured or coated capillary (PVC coating) ■ Liquid damping (case) ■ Contact bulb
Data sheet:	TM 73.01

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For sanitary applications

Nominal size:	100 mm
Scale range:	■ 0 ... 120 or 0 ... 160 °C ■ -20 ... +100 and -30 ... +50 °C
Wetted parts:	Stainless steel 1.4435
Option:	■ Liquid damping (case) ■ Wetted parts with electropolished surface
Data sheet:	TM 74.01

75

Highly vibration resistant

Nominal size:	100 mm
Scale range:	0 ... +700 or -50 ... +650 °C
Wetted parts:	Stainless steel
Option:	Various neck-tube and insertion lengths
Data sheet:	TM 75.01

WIKA

Mechanical temperature switches

Mechanical temperature switches open or close a circuit, depending on whether the temperature is rising or dropping. Due to the use of high-quality micro switches, the mechanical temperature switches from WIKA are notable for their high precision and long-term stability. Furthermore the direct switching of electrical loads up to AC 250 V / 20 A is enabled, while simultaneously ensuring a high switch point reproducibility.
The switches offer IP 66 ingress protection as standard.

The instruments are available with a direct connection or a capillary with a length of up to 10 metres.
Particularly for use in safety-critical applications some mechanical temperature switches come with a SIL certificate. In addition, with their 'intrinsically safe' and 'flameproof enclosure' types of protection the switches are ideally suited for permanent use in hazardous environments. On customer request the use of high-quality and corrosion-resistant wetted materials is confirmed by a 3.1 certificate per EN 10204.

TWG, TAG

Heavy-duty version

Setting range:	-30 ... +70 to 0 ... 600 °C
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 or 2 SPDT or 1x DPDT
Switching power:	AC 250 V / 20 A DC 24 V / 2 A
Data sheet:	TV 31.60, TV 31.61

TCS, TCA

Compact temperature switches

Setting range:	-30 ... +10 to +160 ... +250 °C
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 x SPDT or 1 x DPDT
Switching power:	AC 250 V / 15 A DC 24 V / 2 A
Data sheet:	TV 31.64, TV 31.65 (Ex)

TXS, TXA

Mini temperature switches

Setting range:	-15 ... +20 to +180 ... +250 °C
Ignition protection type:	Ex-ia or Ex-d
Switch:	1 x SPDT
Switching power:	AC 220 V / 5 A DC 24 V / 5 A
Data sheet:	TV 31.70, TV 31.72 (Ex)

TFS35

Bimetal temperature switch

Switching temperature:	50 ... 200 °C, fixed
Special features:	■ Compact design ■ Automatic reset ■ No capillary necessary
Data sheet:	TV 35.01

Specification is subject to change without prior notice

Resistance thermometers

Resistance thermometers are equipped with platinum sensor elements which change their electrical resistance as a function of temperature. In our range of products you will find resistance thermometers with connected cable as well as versions with connection head. A temperature transmitter can be installed directly in the connection head.

Resistance thermometers are suitable for applications between -200 ... +600 °C (dependent on instrument model, sensor element and materials coming into contact with the medium).

Accuracy classes AA, A and B apply to all resistance thermometers. They are available with a sensor limiting error to DIN EN 60751.

TR10-A

Measuring insert

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.01

TR10-B

For additional thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.02

TR10-C

Threaded, with fabricated thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Mounting thread
Data sheet:	TE 60.03

TR10-D

Threaded, miniature design

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Mounting thread
Data sheet:	TE 60.04

TR10-F

Flanged resistance thermometer, with fabricated thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Flange
Data sheet:	TE 60.06

TR10-H

Without thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Mounting thread
Data sheet:	TE 60.08

TR10-J

Threaded, with perforated thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Mounting thread
Data sheet:	TE 60.10

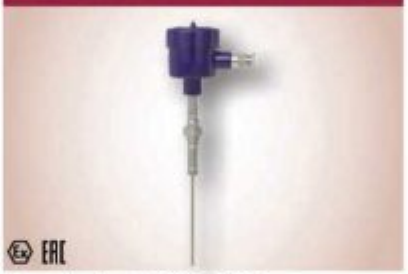
TR10-K

Measuring insert, for installation in TR10-L

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.11

TR10-L

Flameproof enclosure, for additional thermowell



Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.12

TR12-A

Measuring insert for process-resistance thermometer

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.16

TR12-B

Process resistance thermometer, for additional thermowell

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Option:	Ex i, Ex d
Data sheet:	TE 60.17

TR12-M

Process resistance thermometer, basic module

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Option:	Ex i, Ex d
Data sheet:	TE 60.17

TR30

Compact version

Sensor element:	1 x Pt100
Measuring range:	-50 ... +250 °C
Output:	Pt100, 4 ... 20 mA, 0 ... 10 V
Data sheet:	TE 60.30

Further information at www.wika.com

Specification is subject to change without prior notice

Resistance thermometers

TR31

OEM miniature design

Sensor element:	1 x Pt100
Measuring range:	-50 ... +250 °C
Output:	Pt100, 20 mA
Data sheet:	TE 60.31

TR33

Miniature design

Sensor element:	1 x Pt100, 1 x Pt1000
Measuring range:	-50 ... +250 °C
Output:	Pt100, Pt1000, 4 ... 20 mA
Data sheet:	TE 60.33

TR34

Miniature design, explosion-protected

Sensor element:	1 x Pt100, 1 x Pt1000
Measuring range:	-50 ... +250 °C
Output:	Pt100, Pt1000, 4 ... 20 mA
Data sheet:	TE 60.34

TR40

Cable resistance thermometer

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Cable:	PVC, silicone, PTFE
Data sheet:	TE 60.40

TR50

Surface resistance thermometer

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-50 ... +250 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Surface mounting
Data sheet:	TE 60.50

TR53

Bayonet resistance thermometer

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-50 ... +400 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Bayonet
Data sheet:	TE 60.53

TR55

With spring-loaded tip

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-50 ... +450 °C
Connection method:	2-, 3- and 4-wire
Process connection:	Compression fitting
Data sheet:	TE 60.55

WIKA

Specification is subject to change without prior notice

Resistance thermometers for sanitary applications

TR20

Flush

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Connection method:	2-, 3- and 4-wire
Data sheet:	TE 60.20

TR21-A

Miniature design with flange connection

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Output:	Pt100, 4 ... 20 mA
Connection to thermowell:	Removable G ¼"
Data sheet:	TE 60.26

TR21-B

Miniature design for orbital welding

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Output:	Pt100, 4 ... 20 mA
Connection to thermowell:	Removable G ⅜"
Data sheet:	TE 60.27

TR21-C

Miniature design with welded flange connection

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Output:	Pt100, 4 ... 20 mA
Connection to thermowell:	Welded
Data sheet:	TE 60.28

TR22-A

With flange connection

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Connection to thermowell:	Removable M24
Data sheet:	TE 60.22

TR22-B

For orbital welding

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Connection to thermowell:	Removable M24
Data sheet:	TE 60.23

TR25

In-line resistance thermometer

Sensor element:	Pt100
Measuring range:	-50 ... +250 °C
Connection method:	3- or 4-wire
Data sheet:	TE 60.25

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Thermocouples

Thermocouples generate a voltage directly dependent on temperature. They are particularly suitable for high temperatures up to 1,600 °C and at very high oscillating stresses. Accuracy classes 1 and 2 apply to all thermocouples.

They are available with a sensor limiting error to DIN EN 60584.
In our range of products you will find all market-standard instrument versions. If required, a temperature transmitter can be installed in the connection head.

TC10-A

Measuring insert

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +1,200 °C
Measuring point:	Ungrounded or grounded
Data sheet:	TE 65.01

TC10-B

For additional thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +1,200 °C
Measuring point:	Ungrounded or grounded
Data sheet:	TE 65.02

TC10-C

Threaded, with fabricated thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +600 °C
Measuring point:	Ungrounded or grounded
Process connection:	Mounting thread
Data sheet:	TE 65.03

TC10-D

Threaded, miniature design

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +600 °C
Measuring point:	Ungrounded or grounded
Process connection:	Mounting thread
Data sheet:	TE 65.04

TC10-F

Flanged thermocouple, with fabricated thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +600 °C
Measuring point:	Ungrounded or grounded
Process connection:	Flange
Data sheet:	TE 65.06

TC10-H

Without thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +1,200 °C
Measuring point:	Ungrounded or grounded
Process connection:	Mounting thread
Data sheet:	TE 65.08

TC10-K

Measuring insert, for installation in TC10-L

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 … +1,200 °C
Measuring point:	Ungrounded or grounded
Data sheet:	TE 65.11

TC10-L

Flameproof enclosure, for additional thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 … +1,200 °C
Measuring point:	Ungrounded or grounded
Data sheet:	TE 65.12

TC12-A

Measuring insert for process thermocouple

Sensor element:	Type K, J, N or T
Measuring range:	-200 … +1,200 °C
Measuring point:	Ungrounded or grounded
Data sheet:	TE 65.18

TC12-B

Process thermocouple, for additional thermowell

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 … +1,200 °C
Measuring point:	Ungrounded or grounded
Option:	Ex i, Ex d
Data sheet:	TE 65.17

TC12-M

Process thermocouple, basic module

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 … +1,200 °C
Measuring point:	Ungrounded or grounded
Option:	Ex i, Ex d
Data sheet:	TE 65.17

TC40

Cable thermocouple

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 … +1,260 °C
Measuring point:	Ungrounded or grounded
Cable:	PVC, silicone, PTFE, glass fibre
Data sheet:	TE 65.40

TC46

Hot runner thermocouple

Sensor element:	Type J or K
Measuring range:	-25 … +400 °C
Measuring point:	Ungrounded or grounded
Special feature:	▪ Sensor diameter 0.5 … 3.0 mm ▪ Plastic-moulded transition
Data sheet:	TE 65.46

Further information at www.wika.com

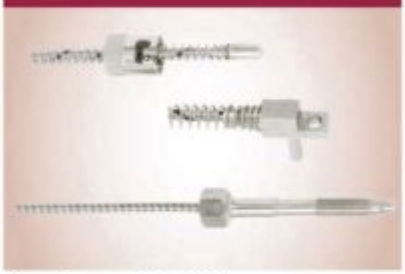
WIKA

Specification is subject to change without prior notice

Thermocouples

TC47

Plastics machinery thermocouple



Measuring range:	-25 ... +400 °C
Measuring element:	Type J or K
Measuring point:	Ungrounded or grounded
Special feature:	■ Various process connections ■ Connection cable glass fibre, Kapton
Data sheet:	TE 67.20

TC50

Surface thermocouple

Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +400 °C
Measuring point:	Ungrounded or grounded
Process connection:	Surface mounting
Data sheet:	TE 65.50

TC53

Bayonet thermocouple

Measuring element:	Type J or K
Measuring range:	-200 ... +1,200 °C
Measuring point:	Ungrounded or grounded
Special feature:	■ Single and dual thermocouples ■ Explosion-protected versions

TC59

Tubeskin thermocouple

Sensor element:	Type K or N
Measuring range:	0 ... +1,200 °C
Measuring point:	Welded or removable
Process connection:	Surface mounting
Data sheet:	TE 65.59

TC80

High-temperature thermocouple

Sensor element:	Type S, R, B, K, N or J
Measuring range:	-200 ... +1,600 °C
Measuring point:	Ungrounded
Process connection:	Stop flange, threaded bushing
Data sheet:	TE 65.80

TC81

For flue gas temperature measurements

Sensor element:	Type K, N or J
Measuring range:	-200 ... +1,200 °C
Measuring point:	Ungrounded or grounded
Process connection:	Stop flange, threaded bushing
Data sheet:	TE 65.81

WIKA

Specification is subject to change without prior notice

Temperature measuring instruments with switch contacts

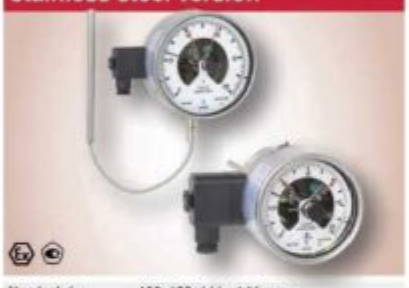
55 with 8xx

Bimetal thermometer, stainless steel version

Nominal size:	100, 160 mm
Scale range:	-70 ... +30 to 0 ... 600 °C
Wetted parts:	Stainless steel
Option:	Liquid damping to max. 250 °C (case and sensor)
Data sheet:	TV 25.01

73 with 8xx

Gas-actuated thermometer, stainless steel version



Nominal size:	100, 160, 144 x 144 mm
Scale range:	-80 ... +60 to 0 ... 700 °C
Wetted parts:	Stainless steel
Option:	■ Capillary ■ Liquid damping (case)
Data sheet:	TV 27.01

74 with 8xx

Gas-actuated thermometer, for sanitary applications

Nominal size:	100 mm
Scale range:	-30 ... +50 to 0 ... 160 °C
Wetted parts:	Stainless steel 1.4435
Option:	■ Wetted parts with electropolished surface ■ Liquid damping (case)
Data sheet:	TV 27.02

70 with 8xx

Expansion thermometer with micro switch

Nominal size:	100 mm
Scale range:	-60 ... +40 to 0 ... 250 °C
Wetted parts:	Stainless steel
Option:	Various contact versions
Data sheet:	TV 28.01

SC15

Expansion thermometer with micro switch, mechanical temperature regulator

Nominal size:	60, 80, 100 mm
Scale range:	-100 ... +400 °C
Wetted parts:	Copper alloy
Option:	■ Square case version ■ Sheet steel version, various contact versions
Data sheet:	TV 28.02

SW15

Expansion thermometer with micro switch, safety temperature alerter

Nominal size:	60, 80 mm
Scale range:	0 ... 400 °C
Wetted parts:	Copper alloy
Option:	■ Square case version ■ Sheet steel version
Data sheet:	TV 28.04

SB15

Expansion thermometer with micro switch, safety temperature limiter

Nominal size:	60, 80 mm
Scale range:	0 ... 400 °C
Wetted parts:	Copper alloy
Option:	■ Square case version ■ Sheet steel version
Data sheet:	TV 28.03

Further information at www.wika.com

Specification is subject to change without prior notice

Digital indicators

DI32-1

For panel mounting, 48 x 24 mm

Input:	Multi-function input for resistance thermometers, thermocouples and standard signals
Alarm output:	2 electronic contacts
Power supply:	DC 9 ... 28 V
Data sheet:	AC 80.13

DI25

For panel mounting, 96 x 48 mm

Input:	Multi-function input for resistance thermometers, thermocouples and standard signals
Alarm output:	■ 3 relays ■ 2 relays for instruments with integrated transmitter power supply DC 24 V
Power supply:	■ AC 100 ... 240 V ■ AC/DC 24 V
Special feature:	Analogue output signal
Data sheet:	AC 08.02

DI35

For panel mounting, 96 x 48 mm

Input:	■ Multi-function input for resistance thermometers, thermocouples and standard signals ■ Alternatively double input for standard signals with calculation function (+ - x /) for two transmitters
Alarm output (optional):	■ 2 relays ■ 4 relays
Power supply:	■ AC 230 V ■ AC 115 V or DC 24 V
Data sheet:	AC 80.03

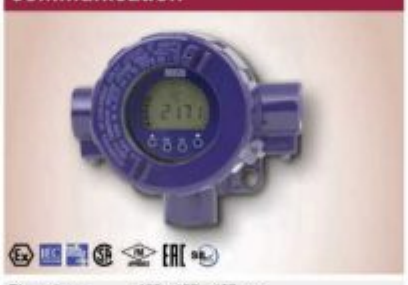
DIH10

Connection head with digital indicator

Input:	4 ... 20 mA
Power supply:	From the 4 ... 20 mA current loop
Data sheet:	AC 80.11

DIH50, DIH52

For current loops with HART® communication



Dimensions:	150 x 127 x 127 mm
Case:	Aluminium, stainless steel
Special feature:	■ Adjustment of indication range and unit via HART® communication ■ Additionally, model DIH52 is suitable for multidrop operation and with local master function
Approval:	■ Intrinsically safe per ATEX ■ Flameproof enclosure
Data sheet:	AC 80.10

Specification is subject to change without prior notice

Temperature transmitters

T32

HART® transmitter

Input:	Resistance thermometers, thermocouples, potentiometers
Accuracy:	< 0.1 %
Output:	4 ... 20 mA, HART® protocol
Special feature:	TÜV certified SIL version (full Assessment)
Data sheet:	TE 32.04

T19

Analogue transmitter 2-wire, 4 ... 20 mA

Input:	Pt100
Accuracy:	< 0.5 %
Output:	4 ... 20 mA
Special feature:	Fast signal processing
Data sheet:	TE 19.03

T24

Programmable analogue transmitter

Input:	Pt100
Accuracy:	< 0.2 %
Output:	4 ... 20 mA
Special feature:	PC configurable
Data sheet:	TE 24.01

T12

Universally programmable digital transmitter

Input:	Resistance thermometers, thermocouples
Accuracy:	< 0.2 %
Output:	4 ... 20 mA
Special feature:	PC configurable
Data sheet:	TE 12.03

T53

FOUNDATION™ Fieldbus and PROFIBUS® PA transmitter

Input:	Resistance thermometers, thermocouples, potentiometers
Accuracy:	< 0.1 %
Special feature:	PC configurable
Data sheet:	TE 53.01

T91

Analogue transmitter 3-wire, 0 ... 10 V

Input:	Resistance thermometers, thermocouples
Accuracy:	< 0.5 or < 1 %
Output:	0 ... 10 V, 0 ... 5 V
Special feature:	Fixed measuring range
Data sheet:	TE 91.01, TE 91.02

TIF50, TIF52

HART® field temperature transmitter

Input:	Resistance thermometers, thermocouples, potentiometers
Accuracy:	< 0.1 %
Output:	4 ... 20 mA, HART® protocol
Special feature:	PC configurable
Data sheet:	TE 62.01

Further information at www.wika.com

WIKA

Specification is subject to change without prior notice

Thermowells

Whether in aggressive or abrasive process media, whether in high- or low-temperature ranges: For electrical or mechanical thermometers, to prevent direct exposure of their temperature sensors to the medium, thermowells that suit each application are available. Thermowells can be machined from solid barstock or assembled from tube sections and can either be screw-, weld- or flange-fitted. They are offered in standard and special materials such as stainless steel 1.4571, 316L, Hastelloy® or titanium. Each version, depending on its construction type and its mounting to the process, has certain advantages and drawbacks with respect to its load limits and the special materials that can be used.

In order to manufacture thermowells for flange mounting at low cost from special materials, the designs used differ from standard thermowells in accordance with DIN 43772. Thus, only the wetted parts of the thermowell are manufactured from special materials, whereas the non-wetted flange is made of stainless steel and is welded to the special material.

This design is used both for fabricated and solid-machined thermowells. With tantalum as special material a removable jacket is used, which is slid over the supporting thermowell from stainless steel.

TW10

Flanged (solid machined)

Thermowell form:	Tapered, straight or stepped
Nominal width:	ASME 1 ... 4 inch DIN/EN DN 25 ... 100
Pressure rating:	ASME to 2,500 lbs (DIN/EN to PN 100)
Data sheet:	TW 95.10, TW 95.11, TW 95.12

TW15

Threaded (solid machined)

Thermowell form:	Tapered, straight or stepped
Head version:	Hexagon, round with hexagon, or round with spanner flats
Process connection:	½, ¾ or 1 NPT
Data sheet:	TW 95.15

TW20

Socket weld (solid-machined)

Thermowell form:	Tapered, straight or stepped
Welding diameter:	1.050, 1.315 or 1.900 inch (26.7, 33.4 or 48.3 mm)
Pressure rating:	3,000 or 6,000 psi
Data sheet:	TW 95.20

TW22

Fabricated with flange connection for sanitary applications

Aseptic connection:	■ DIN 11851 ■ DIN 32676 ■ Tri-clamp ■ VARIVENT® ■ BioControl®
Thermowell material:	Stainless steel 1.4435
Data sheet:	TW 95.22

TW25

Weld–in (solid-machined)

Thermowell form:	Tapered, straight or stepped
Head diameter:	Up to 2 inch (50.8 mm)
Data sheet:	TW 95.25

TW30

Vanstone (solid-machined) for lap flanges

Thermowell form:	Tapered, straight or stepped
Nominal width:	ASME 1, 1½ or 2 inch
Pressure rating:	ASME up to 2,500 lbs
Data sheet:	TW 95.30

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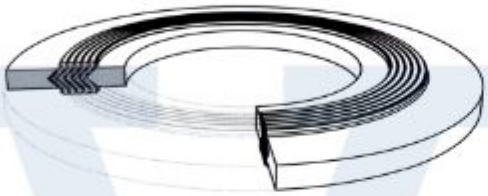
BioControl® is a registered trademark of the company NEUMO

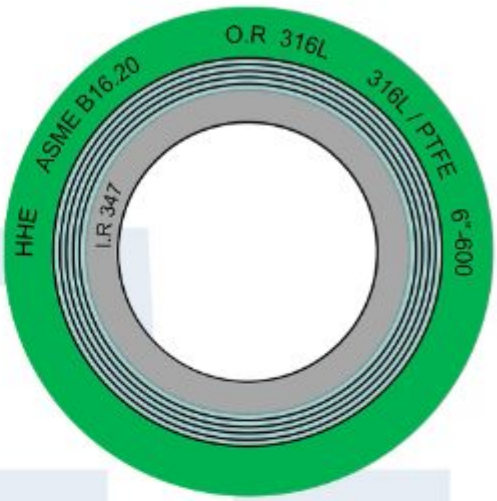
Specification is subject to change without prior notice

Formen as per DIN EN 1514-2

Form C/O, gasket with centering ring



Form C/I, gasket with centering ring and inner ring



Material identification for spiral and inner ring for circumference of outer ring:

Spiral, Inner ring:

material	colour code
1.4301 (304)	yellow
1.4404 (316L)	dark green
1.4571 (316Ti)	light green
1.4541 (321)	turquoise
1.0033	silver
2.4360 (Monel 400)	orange
2.4816 (Inconel 600)	gold
3.7025 (Titan)	purple
Hastelloy C	fawn

Sealing part

Graphite	grey
PTFE	white

Outer ring

C-steel zinc coated or powder coated, 1.4571; 1.4541 or similar.

Style as per IDT company standard:

SD01:
without inner and centring ring

SD10:
with inner and centring ring (corresponds to Form C/I)

SD20:
without inner ring (corresponds Form C/O)

SD30:
with inner ring

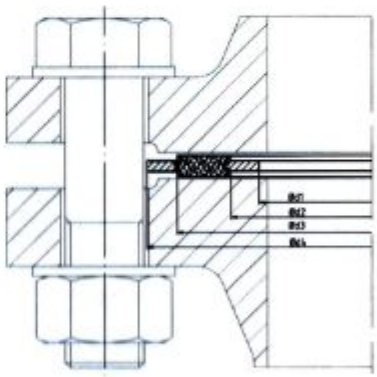
Spiral-wound gaskets dimensions in steel flange as per company standard WN 41-17 according to DIN EN 12560-2 for flanges as per ASME B16.5

Nominal width		d1 (mm)					d2 (mm)					d3 (mm)		d4 (mm)					
		Class					Class					Class		Class					
DN	NPS (inch)	150-300	600	900	1500	2500	150-300	600	900	1500	2500	150-600	900-2500	150	300	600	900	1500	2500
15	1/2			14.3					19.1			31.8		47.8	54.1		63.5		69.9
20	3/4			20.7					25.4			39.6		57.2	66.6		69.9		76.2
25	1			27.0					31.8			47.8		66.8	73.2		79.5		85.9
32	1 1/4	38.1		33.4			47.8		39.6			60.6		76.2	82.6		88.9		104.9
40	1 1/2	44.5		41.3			54.1		47.8			69.9		85.9	95.3		98.6		117.6
50	2	55.6		52.4			69.9		58.7			85.9		104.9	111.3		143.0		146.1
65	2 1/2	66.7		63.5			82.6		69.9			98.6		124.0	130.3		165.1		168.4
80	3	81.0		81.0			101.6		95.3	92.2		120.7		136.7	149.4		168.4	174.8	196.9
100	4			106.4			127.0		120.7	117.6		149.4		174.8	181.1	193.6	206.5	209.6	235.0
125	5			131.8			155.7		147.6	143.0		177.8		196.9	215.9	241.3	247.7	254.0	279.4
150	6			157.2			182.6		174.8	171.5		209.6		222.3	251.0	266.7	289.1	282.7	317.5
200	8	215.9	209.6	196.9			233.4	225.6	222.3	215.9		263.7	257.3	279.4	308.1	320.8	358.9	352.6	387.5
250	10	268.3	260.4	246.1			287.3	274.6	276.4	266.7	270.0	317.5	311.2	339.9	362.0	400.1	435.1	435.1	476.3
300	12	317.5		292.1			339.9	327.2	323.9	323.9	317.5	374.7	368.3	409.7	422.4	457.2	498.6	520.7	549.4
350	14	349.3		320.8		-	371.6	362.0	355.6	362.0	-	406.4	400.1	450.9	485.9	492.3	520.7	577.9	-
400	16	400.0		374.7		-	422.4	412.8		406.4	-	463.6	457.2	514.4	539.8	565.2	574.8	641.4	-
450	18	449.3		425.5		-	474.7	469.9	463.6		-	527.1	520.2	549.4	596.9	612.9	638.3	704.9	-
500	20	500.0		482.6	476.3	-	525.5	520.7		514.4	-	577.9	571.5	606.6	654.1	682.8	698.5	755.7	-
600	24	603.3		590.6	577.9	-	628.7			616.0	-	685.8	679.5	717.6	774.7	790.7	838.2	901.7	-

[1] tolerances as per WN 41-17

Spiral-wound gaskets dimensions SD10/SD20 as per company standard 41-14 according to DIN EN 1514-2

DN	d1 (mm)	d2 (mm)	d3 (mm)		d4 (mm)								
	PN 10-320	PN 10-320	PN 10-40	PN 63-320	PN 10	PN 16	PN 25	PN 40	PN 63	PN 100	PN 160	PN 250	PN 320
10	18	24	34		46					56		67	
15	23	29	39		51					61		72	
20	28	34	46	-	61					-		77	-
25	35	41	53		71					82		83	92
32	43	49	61	-	82					-		100	-
40	50	56	68		92					103		109	119
50	61	70	86		107				113	119		124	134
65	77	86	102	106	127				137	143		153	170
80	90	99	115	119	142				148	154		170	190
100	115	127	143	147	162		168		174	180		202	229
125	140	152	172	176	192		194		210	217		242	274
150	167	179	199	203	217		224		247	257		284	311
200	216	228	248	252	272		284	290	309	324		358	398
250	267	279	303	307	327	328	340	352	364	391	388	442	488
300	318	330	354	358	377	383	400	417	424	458		538	-
350	360	376	400	404	437	443	457	474	486	512	-	-	-
400	410	422	450	456	488	495	514	546	543	572	-	-	-
500	510	522	550	556	593	617	624	628	657	704	-	-	-
600	610	622	650	656	695	734	731	747	764	813	-	-	-
700	710	722	756	762	810	804	833	852	879	950	-	-	-
800	810	830	864	870	917	911	942	974	988	-	-	-	-
900	910	930	964	970	1017	1011	1042	1084	1108	-	-	-	-
1000	1010	1030	1074	1080	1124	1128	1154	1194	1220	-	-	-	-
1200	1210	1230	1280	-	1324	1342	1364	1398	1452	-	-	-	-
1400	1420	1450	1510	-	1548	1542	1578	1618	-	-	-	-	-
1600	1630	1660	1720	-	1772	1764	1798	1830	-	-	-	-	-
1800	1830	1860	1920	-	1972	1964	2000	-	-	-	-	-	-
2000	2020	2050	2120	-	2182	2168	2230	-	-	-	-	-	-
2200	2230	2260	2330	-	2384	2378	-	-	-	-	-	-	-
2400	2430	2460	2530	-	2594	-	-	-	-	-	-	-	-
2600	2630	2660	2730	-	2794	-	-	-	-	-	-	-	-
2800	2830	2860	2930	-	3014	-	-	-	-	-	-	-	-
3000	3030	3060	3130	-	3228	-	-	-	-	-	-	-	-



Ø d1 inner diameter of inner ring (only SD10)
Ø d2 inner diameter of sealing element
Ø d3 inner diameter of outer ring
Ø d4 outer diameter of outer ring

Specification is subject to change without prior notice

The Sealing Product STAR SEAL

MECHANICAL SEAL

A1527

A33X

A21

A31

A37

A1005

A 1/1A

A 108U

A1005

A1002

A502

A377

A58

A2

A2100

AB2

ASB3U

AYT

A87-XX

A10

Material Of Seal

Silicon Carbide

Tungsten Carbide

SECONDARY SEAL
* Viton Rubber
* PTFE Cover Viton Rubber
* Silicon Rubber
* EPDM Rubber
* Pure Graphite
* Glass Filled PTFE

SEAL FACE
* Carbon, Resin Impregnated
* Tungsten Carbide
* Silicon Carbide
* Glass Filled PTFE
* Stellite

chemical resistance list

A = recommended under normal conditions
B = conditional resistance
C = not recommended
na = not available

	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (Hypalon)	FKM (Viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Acetaldehyde	A	A	C	C	C	A	B	B	A	C	A
Acetic Acid	A	B	C	C	C	C	C	C	C	C	A
Acetone	A	A	C	C	C	C	A	A	A	A	A
Acetylene (gas 100%)	A	A	A	B	A	B	A	A	A	C	A
Acrylonitrile	A	C	C	B	C	C	A	A	A	A	A
Adipic Acid	A	A	A	B	A	na	C	C	B	na	B
Aluminum Chloride [Sat'd]	A	A	B	B	A	B	C	C	C	C	A
Aluminum Sulfate	A	A	A	A	A	A	C	C	C	C	B
Ammonia, liquid	A	A	B	C	C	na	A	A	A	C	A
Amyl Acetate	A	B	C	C	C	C	C	B	B	B	A
Amyl Alcohol	A	A	B	A	A	C	B	B	B	A	A
Amyl Chloride	A	C	C	C	B	C	A	A	A	A	A
Aniline	A	B	C	C	A	B	C	B	C	C	B
Antimony Trichloride	A	B	B	na	A	na	na	C	C	C	C
Aqua Regia (80% HCl, 20% HNO3)	A	C	C	C	B	C	C	C	C	C	B
Arsenic Acid	A	A	A	A	A	A	C	C	C	C	A
Asphalt	A	C	B	C	A	C	A	A	A	A	A
Barium Hydroxide	A	A	A	A	A	A	B	B	C	C	A
Barium Nitrate	A	A	A	A	A	B	A	A	A	C	A
Barium Sulfate	A	A	A	A	A	A	B	B	A	B	A
Beer	A	A	B	A	A	A	C	C	C	A	A
Benzaldehyde	A	A	C	C	C	C	A	C	C	A	A
Benzene	A	C	C	C	A	C	A	A	A	A	A
Benzoic Acid	A	C	A	B	A	B	C	C	C	C	A
Benzol / Benzene	A	C	na	C	A	C	A	na	na	na	A
Borax (Sodium Borate)	A	A	A	A	A	B	A	A	B	A	A
Boric Acid	A	A	A	A	A	A	C	C	B	B	A
Brine	A	A	A	A	A	B	C	C	C	A	A
Bromine	A	C	C	C	B	C	C	C	C	C	C
Butadiene	A	C	C	B	B	C	A	A	A	A	A
Butane	A	C	B	B	A	C	A	A	A	A	A
Butanol (Butyl Alcohol)	A	A	B	A	B	B	B	na	A	B	A
Butyric Acid	A	B	na	C	B	C	C	C	C	A	A
Calcium Bisulfate	A	na	B	C	A	C	C	C	C	na	A
Calcium Carbonate	A	A	B	B	A	A	B	B	B	C	A
Calcium Chlorate	A	A	B	B	A	na	B	B	B	B	A
Calcium Chloride	A	A	A	A	A	A	C	A	C	B	A
Calcium Hydroxide	A	A	A	A	A	A	C	C	C	C	A
Calcium Hypochlorite	A	B	C	A	A	B	C	C	C	C	B
Calcium Nitrate	A	A	A	A	A	B	B	B	na	B	A
Calcium Sulfate	A	A	A	A	A	na	A	A	B	B	A
Carbon Dioxide (dry)	A	B	A	A	A	B	A	A	A	A	A
Carbon Dioxide (wet)	A	B	A	B	B	B	B	B	B	A	A
Carbon Tetrachloride	A	C	C	C	A	C	C	A	A	A	B
Carbonic Acid	A	B	A	C	A	A	C	B	B	C	A
Chloric Acid	A	na	na	na	na	na	C	C	C	C	C
Chlorinated Water (<3500ppm)	A	B	C	B	A	na	C	C	C	C	A
Chlorinated Water (>3500ppm)	A	C	C	B	A	C	C	C	C	C	A
Chlorosulfonic Acid	A	C	C	C	C	C	C	B	C	C	B
Chromic Acid 10%	A	C	C	C	B	C	C	C	C	C	B
Chromic Acid 30%	A	C	C	B	B	C	C	C	C	C	B
Chromic Acid 50%	A	B	C	C	B	C	C	C	C	C	B
Citric Acid	A	A	B	C	A	A	C	C	C	C	A
Copper Chloride	A	A	A	B	A	A	C	C	C	C	A
Copper Nitrate	A	A	B	A	A	na	C	C	C	C	A
Copper Sulfate (sat'd)	A	A	A	C	A	A	C	C	C	C	A
Cresylic Acid	A	C	C	C	A	C	A	A	B	A	A
Cyclohexane	A	C	C	C	A	C	B	B	A	A	A
Cyclohexanol	A	C	C	C	C	C	A	A	na	na	A
Detergents	A	A	A	A	A	B	A	A	A	A	A
Diacetone Alcohol	A	B	C	C	C	C	A	A	A	A	A
Dichlorobenzene	A	C	C	C	C	C	na	A	A	na	A
Dichloroethane	A	C	C	C	C	C	A	A	na	B	A
Diesel Fuel	A	C	A	C	A	C	A	A	A	A	A
Diethylamine	A	B	B	C	C	B	A	A	C	C	A
Ethanol	A	A	A	A	A	B	A	A	A	A	A
Ether	A	C	C	C	C	C	C	B	B	na	A
Ethyl Acetate	A	B	C	C	C	B	A	A	A	na	A
Ethyl Chloride	A	B	C	C	A	C	A	A	A	B	A
Ethylene Bromide	A	C	C	C	B	C	na	A	A	na	A
Ethylene Chloride (dry)	A	C	C	C	B	C	na	na	na	B	A
Ethylene Glycol	A	A	A	A	A	A	A	A	A	A	A
Ethylene Oxide	A	C	C	C	C	C	B	A	A	na	A
Ferric Sulfate	A	A	A	A	A	B	C	C	C	na	A

	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (Hypalon)	FKM (Viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Ferrous Chloride	A	A	A	na	A	na	C	C	C	C	C
Ferrous Sulfate	A	A	A	B	A	na	C	C	C	B	A
Fluorine Gas (dry)	B	C	C	B	C	C	C	C	A	na	A
Formaldehyde (50%)	A	A	C	C	C	B	C	na	B	B	A
Formic Acid	A	A	C	B	C	B	C	C	C	B	A
Freon 11	A	C	B	B	B	C	B	B	B	A	A
Freon 12	A	C	na	B	C	C	B	B	B	A	A
Freon 22	C	C	C	B	C	C	B	B	B	A	A
Furfural	A	B	C	B	C	C	A	A	A	A	A
Gallic Acid	A	B	C	B	A	C	C	C	C	C	A
Gasoline, leaded	A	C	B	B	B	C	A	A	A	A	A
Gasoline, unleaded	A	C	B	B	B	C	A	A	A	A	A
Glucose	A	A	A	B	A	A	A	A	A	A	A
Glue	A	B	A	A	B	A	A	A	A	A	A
Glycerin	A	A	B	A	A	A	A	A	A	A	A
Glycolic Acid	A	A	C	C	C	B	C	C	C	na	A
Grease	A	C	A	C	A	C	A	A	A	C	A
Heptane	A	C	B	B	A	C	A	A	A	A	A
Hexane	A	C	B	B	B	C	A	A	A	A	A
Hydraulic Oil (Petro)	A	C	A	B	A	B	A	A	A	B	A
Hydrobromic Acid 50%	A	A	C	B	A	C	C	C	C	C	C
Hydrochloric Acid 37%	A	B	C	C	C	C	C	C	C	C	B
Hydrocyanic Acid 10%	A	A	B	A	A	C	C	C	C	C	A
Hydrofluoric Acid 50%	A	C	C	B	B	C	C	C	C	C	B
Hydrogen Gas	A	A	A	A	A	C	A	A	A	A	A
Hydrogen Peroxide 50%	A	A	C	A	A	A	C	C	B	C	A
Hydrogen Sul de (aqua)	A	B	C	B	B	C	C	C	C	C	A
Hydrogen Sul de (dry)	A	B	C	B	B	C	C	B	B	na	A
Ink	A	na	B	na	A	na	C	C	C	A	A
Iodine 10%	A	B	B	B	C	na	C	C	C	C	C
Isooctane	A	C	B	A	A	C	A	A	A	A	A
Isopropyl Acetate	A	B	C	C	C	C	A	A	A	na	A
Isopropyl Ether	A	C	B	C	C	C	A	A	A	na	A
Jet Fuel (JP3, JP4, JP5)	A	C	B	C	A	C	A	A	A	A	A
Kerosene	A	C	A	C	A	C	A	A	A	A	A
Ketones	A	C	C	C	C	na	A	A	A	A	A
Lactic Acid	A	B	C	A	B	A	C	B	C	C	A
Lard Oil	A	C	A	C	A	B	B	B	B	C	A
Latex	A	B	B	na	B	A	na	A	na	na	A
Lead Acetate	A	A	B	B	C	A	C	C	C	na	A
Lead Nitrate	A	A	A	na	A	B	na	na	A	na	A
Lead Sulfate	A	A	na	A	A	B	C	C	C	na	B
Lime	A	B	B	B	A	na	A	A	A	na	A
Linoleic Acid	A	C	B	C	B	B	C	C	C	C	B
Lithium Chloride	A	A	B	na	A	A	A	A	B	B	A
Lithium Hydroxide	A	B	B	na	na	na	A	A	na	C	A
Lubricating oil (ASTM #1/2/3)	A	C	A	C	A	C	A	A	A	A	A
Magnesium Carbonate	A	A	A	A	A	na	B	B	B	na	A
Magnesium Chloride	A	A	A	A	A	A	C	C	C	B	C
Magnesium Oxide	A	A	A	na	na	na	A	A	na	na	A
Magnesium Sulfate (Epsom Salts)	A	A	A	A	A	A	A	A	A	A	A
Maleic Acid	A	B	C	na	A	na	C	C	C	B	A
Manganese Sulfate	A	A	A	A	A	A	C	C	B	A	A
Mercuric Chloride (dilute)	A	A	A	A	A	na	C	C	C	C	C
Mercuric Cyanide	A	B	B	na	B	A	C	C	C	C	A
Mercurous Nitrate	A	B	C	na	A	na	na	C	C	C	A
Mercury	A	A	A	A	A	na	A	A	A	na	C
Methane	A	C	C	B	A	C	A	A	A	A	A
Methanol (Methyl Alcohol)	A	A	A	A	C	A	A	A	A	A	A
Methyl Acetate	A	B	C	C	C	C	A	A	B	na	B
Methyl Acetone	A	B	na	na	C	na	A	A	A	A	A
Methyl Acrylate	A	B	C	C	C	C	na	na	na	na	A
Methyl Bromide	A	C	B	C	A	na	C	C	B	B	A
Methyl Cellosolve	A	B	C	C	C	C	C	B	B	B	B
Methyl Chloride	A	C	C	C	B	C	A	A	A	C	A
Methyl Ethyl Ketone	A	B	C	C	C	C	A	A	A	A	A
Methyl Isobutyl Ketone	A	B	C	C	C	C	A	na	na	na	B
Methyl Isopropyl Ketone	A	C	C	C	C	C	C	na	na	na	na
Methyl Methacrylate	A	C	C	B	C	C	C	na	na	na	B
Methylene Chloride	A	C	C	C	B	na	B	B	B	B	A
Milk	A	A	A	A	A	A	C	C	C	B	A
Molasses	A	A	A	A	A	na	A	A	A	A	A
Monochloroacetic acid	A	C	B	C	C	na	C	C	C	C	C
Monoethanolamine	A	B	B	C	C	A	B	B	B	C	A

Specification is subject to change without prior notice

chemical resistance list

A = recommended under normal conditions
B = conditional resistance
C = not recommended
na = not available

	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Motor oil	A	C	A	na	A	na	A	A	A	A	A
Naphtha	A	C	A	C	A	C	A	A	A	B	A
Naphthalene	A	C	C	C	A	C	A	A	A	B	A
Natural Gas	A	C	A	A	A	A	A	A	A	A	A
Nickel Chloride	A	A	A	A	A	A	C	C	C	B	A
Nickel Nitrate	A	A	A	C	A	na	C	C	C	na	A
Nickel Sulfate	A	A	na	A	A	A	C	C	C	B	B
Nitric Acid <10%	A	B	C	B	A	na	C	C	C	na	A
Nitric Acid 70%	A	C	C	C	B	C	C	C	C	C	A
Nitrobenzene	A	C	na	C	B	C	A	A	A	na	A
Nitromethane	A	B	C	na	na	ba	na	na	na	na	A
Nitrous Acid 10%	A	na	C	na	B	na	C	C	C	C	B
Nitrous Oxide	A	na	B	C	B	na	C	B	B	na	A
Oleic Acid	A	B	B	B	A	C	B	B	C	A	A
Oxalic Acid (cold)	A	A	C	na	B	B	C	C	C	C	A
Ozone	A	A	C	A	A	A	A	A	A	A	A
Palmitic Acid	A	B	B	C	A	C	B	B	B	B	A
Parafin	A	C	B	na	A	na	B	A	A	A	A
Pentane	A	C	B	na	B	C	A	A	A	A	A
Perchloric Acid	A	B	C	C	A	C	C	na	na	na	B
Perchloroethylene	A	C	C	C	A	C	B	B	B	na	A
Phenol	A	B	C	C	A	C	C	C	C	C	A
Phosphoric Acid (>40%)	A	B	C	B	A	C	C	C	C	C	A
Phosphorus	A	na	na	na	na	na	na	na	na	na	A
Phosphorus Trichloride	A	na	C	C	na	na	na	na	na	na	A
Photographic Solutions	A	A	na	B	A	A	na	C	na	na	A
Phthalic Acid	A	A	C	B	B	B	B	B	C	na	A
Picric Acid	A	B	C	B	B	C	C	C	C	C	A
Potassium Bicarbonate (Sat'd)	A	A	B	na	A	A	A	A	A	na	A
Potassium Bromide	A	A	A	na	A	A	C	C	C	B	A
Potassium Carbonate	A	A	A	na	A	na	A	A	A	B	A
Potassium Chlorate (aqueous)	A	A	B	na	A	B	A	A	A	na	A
Potassium Chloride	A	A	A	A	A	A	B	B	B	A	A
Potassium Chromate	A	A	A	na	A	na	A	A	A	B	A
Potassium Cyanide	A	A	A	A	A	A	B	B	B	C	A
Potassium Dichromate	A	A	A	A	A	A	B	B	C	C	A
Potassium Ferricyanide	A	A	B	A	A	na	B	B	C	na	A
Potassium Ferrocyanide	A	A	B	A	A	na	C	C	C	C	A
Potassium Hydroxide	A	A	B	A	C	C	B	B	B	C	A
Potassium Hypochlorite	A	C	C	B	na	B	na	na	C	na	A
Potassium Iodide	A	A	A	A	A	na	na	na	B	na	A
Potassium Nitrate	A	A	A	A	A	A	B	B	B	B	A
Potassium Permanganate 10%	A	A	C	B	A	na	A	A	A	na	A
Potassium Sulfate	A	A	A	A	A	A	A	A	A	B	A
Potassium Sulfide	A	A	A	B	A	A	C	C	C	C	B
Propane	A	C	B	B	B	C	A	A	A	A	A
Propylene Glycol	A	B	A	A	A	A	na	na	B	na	A
Pyridine	A	B	C	C	C	C	B	B	B	na	A
Pyrogallic Acid	A	na	B	na	A	na	A	A	A	na	A
Rosins	A	na	B	B	A	A	C	C	C	na	A
Salicylic Acid	A	A	C	A	A	A	C	C	C	na	A
Silver Nitrate	A	A	A	A	A	A	C	C	C	C	A
Soap Solutions	A	A	A	A	A	A	A	A	A	A	A
Sodium Acetate	A	A	C	B	C	C	B	B	C	B	A
Sodium Aluminate (Sat'd)	A	A	A	A	A	na	B	B	A	na	A
Sodium Bicarbonate	A	A	A	A	A	A	A	A	C	B	A
Sodium Bisulfate	A	A	A	A	A	A	C	C	C	C	A
Sodium Bisulte	A	A	A	A	A	A	C	C	C	na	A
Sodium Bromide	A	A	B	B	A	na	C	C	C	na	A
Sodium Carbonate	A	A	A	A	A	A	A	A	A	B	A
Sodium Chlorate	A	B	B	na	A	C	B	B	B	C	A
Sodium Chloride	A	A	A	A	A	A	B	B	B	A	B
Sodium Chromate	A	B	B	C	A	na	B	B	B	na	A
Sodium Cyanide	A	A	A	A	A	A	C	A	A	C	A
Sodium Ferrocyanide	A	A	A	B	A	na	na	na	na	na	A
Sodium Fluoride	A	A	B	B	A	na	C	C	C	B	A
Sodium Hydroxide (<10%)	A	A	A	A	C	A	A	A	A	A	A
Sodium Hydroxide (30%)	A	A	A	A	C	A	B	B	B	B	A
Sodium Hydroxide (50%)	A	A	C	A	C	A	B	B	B	C	A
Sodium Hydroxide (70%)	A	B	C	B	C	B	B	B	B	C	A
Sodium Hypochlorite (5%)	A	B	C	A	A	B	C	C	C	C	A
Sodium Hypochlorite (sat'd)	A	C	C	A	A	B	C	C	C	C	A
Sodium Metaphosphate	A	B	B	B	A	A	C	C	C	C	A
Sodium Nitrate	A	A	A	A	A	C	A	A	A	B	A

	Seat materials						Metals				
	PTFE / TFM	EPDM	NBR (Buna N)	CSM (hypalon)	FKM (viton)	VMQ (silicon)	Cast iron	Ductile iron	Carbon steel	Alu bronze	SS 316
Sodium Perborate	A	B	B	B	B	B	B	B	B	na	A
Sodium Peroxide	A	A	B	A	A	C	C	C	C	C	A
Sodium Polyphosphate	A	A	A	A	A	C	B	B	B	B	A
Sodium Silicate	A	A	A	A	A	A	A	A	A	B	A
Sodium Sulfate	A	A	A	A	A	A	A	A	A	B	A
Sodium Sul de	A	A	A	A	A	A	B	B	C	C	A
Sodium Sulte	A	A	A	A	A	A	B	B	B	C	A
Soybean Oil	A	C	A	A	A	na	A	A	B	B	A
Stannic Chloride	A	A	A	C	A	B	C	C	C	C	C
Stannous Chloride	A	C	A	A	A	B	C	C	C	C	A
Starch	A	A	A	A	A	na	B	B	B	B	A
Stearic Acid	A	C	A	C	A	B	C	C	C	C	A
Stoddard Solvent	A	C	A	C	A	C	A	A	A	na	A
Styrene	A	C	C	C	B	C	B	B	B	B	A
Sugar (Liquids)	A	A	A	A	A	A	na	B	C	na	A
Sulfate (Liquors)	A	B	B	B	B	B	B	A	na	C	B
Sulfur Chloride	A	C	C	na	A	C	C	C	C	C	C
Sulfur Dioxide (wet)	A	A	C	A	A	B	A	A	A	A	A
Sulfur Dioxide (dry)	A	B	C	A	B	B	na	na	na	B	A
Sulfur Trioxide	A	B	C	C	A	B	B	na	na	na	B
Sulfuric Acid (<30%)	A	A	C	A	A	C	C	C	C	C	A
Sulfuric Acid (30-75%)	A	C	C	B	A	C	C	C	C	C	B
Sulfuric Acid (75-100%)	A	C	C	C	B	C	C	C	C	C	C
Sulfuric Acid (fuming)	A	C	C	C	C	C	C	C	C	C	C
Sulfurous Acid	A	B	n	A	A	C	C	C	C	C	A
Tannic Acid	A	B	A	A	A	B	B	B	C	na	A
Tanning Liquors	A	na	B	B	A	B	B	na	na	na	A
Tartaric Acid	A	C	B	A	A	B	C	C	C	C	A
Tetrachloroethane	A	C	C	C	B	C	na	na	na	na	A
Tetrachloroethylene	A	C	C	C	B	C	na	na	na	na	na
Tetrahydrofuran	A	C	C	C	C	C	na	na	na	na	na
Toluene (Toluol)	A	C	na	C	C	C	A	A	A	A	A
Tomato Juice	A	A	C	C	A	na	C	C	B	na	A
Trichloroacetic Acid	A	B	B	na	C	C	C	C	C	na	C
Trichloroethylene	A	C	C	C	A	C	B	B	B	A	A
Triethylamine	A	na	B	na	B	na	na	na	na	A	A
Trisodium Phosphate	A	B	B	A	A	A	B	B	na	na	A
Turpentine	A	C	B	C	A	C	A	A	A	A	A
Urea	A	A	A	A	A	B	na	C	C	B	na
Urine	A	A	A	na	A	na	C	C	C	na	A
Varnish	A	C	B	C	B	C	C	C	C	B	A
Vegetable Oil	A	C	B	B	B	B	na	A	A	na	A
Vinegar	A	A	C	A	C	A	C	C	C	C	A
Vinyl Acetate	A	B	B	C	C	C	B	B	na	B	na
Water, Acid Mine	A	A	A	A	A	B	C	C	C	C	A
Water, Deionized	A	A	B	na	A	na	C	C	C	C	A
Water, Distilled	A	A	A	A	A	C	C	C	C	B	A
Water, Hot	A	A	A	A	C	na	B	B	B	A	A
Water, Potable	A	A	A	A	A	B	B	B	B	A	A
Water, Salt	A	A	A	A	A	B	C	C	C	B	A
Water, Sea	A	A	A	A	A	A	C	C	C	A	B
Whiskey & Wines	A	A	A	A	A	A	C	C	C	C	A
White Liquor (Pulp Mill)	A	na	A	B	A	A	C	C	C	C	A
Xylene	A	C	C	C	B	C	A	A	A	A	A
Zinc Chloride	A	A	B	A	A	B	C	C	C	C	B
Zinc Hydrosulte	A	A	na	na	na	na	C	na	na	na	A
Zinc Sulfate	A	A	A	A	A	A	C	C	C	B	A

ATTTENTION

This chemical resistance guide has been compiled to assist the piping system designer in selecting chemical resistant materials. The information given is intended as a guide only, consequently it can not be used as guarantee as many conditions can affect the material choice. Careful consideration must be given to temperature, pressure and chemical concentrations before a nal material can be selected. It is the responsibility of the user to check the compatibility of our products within the specic process parameters.

Specification is subject to change without prior notice

ASME B16.34 PRESSURE / TEMPERATURE RATINGS VALVE BODY MATERIALS

MAXIMUM NON-SHOCK WORKING PRESSURES (Standard Class) BAR

	150LB Series					300LB Series					600LB Series					900LB Series					1500LB Series					2500LB Series				
TEMPERATURE °C	ASTM A216 WCB (3)	A105 (3/7) A350 LF2 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)	ASTM A216 WCB (3)	A105 (3/7) A350 LF2 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)	ASTM A216 WCB (3)	A105 (3/7) A350 LF2 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)	ASTM A216 WCB (3)	A105 (3/7) A350 LF2 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)	ASTM A216 WCB (3)	A105 (3/7) A350 LF3 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)	ASTM A216 WCB (3)	A105 (3/7) A350 LF3 (1)	ASTM A350 LF2 (3)	ASTM A217 WC6 (6/8)	A182 F11 (6/8)
Material Group	1.1	1.1	1.1	1.9	1.9	1.1	1.1	1.1	1.9	1.9	1.1	1.1	1.1	1.9	1.9	1.1	1.1	1.1	1.9	1.9	1.1	1.1	1.1	1.9	1.9	1.1	1.1	1.1	1.9	1.9
-29 TO 38	19.6	19.6	19.6	19.6	19.6	51.1	51.1	51.1	51.7	51.7	102.1	102.1	102.1	103.4	103.4	153.2	153.2	153.2	155.1	155.1	255.3	255.3	255.3	258.6	258.6	425.5	425.5	425.5	430.9	430.9
50	19.2	19.2	19.2	19.5	19.5	50.1	50.1	50.1	51.7	51.7	100.2	100.2	100.2	103.4	103.4	150.4	150.4	150.4	155.1	155.1	250.6	250.6	250.6	258.6	258.6	417.7	417.7	417.7	430.9	430.9
100	17.7	17.7	17.7	17.7	17.7	46.6	46.6	46.6	51.5	51.5	93.2	93.2	93.2	103.0	103.0	139.8	139.8	139.8	154.4	154.4	233.0	233.0	233.0	257.4	257.4	388.3	388.3	388.3	429.0	429.0
150	15.8	15.8	15.8	15.8	15.8	46.1	46.1	46.1	49.7	49.7	90.2	90.2	90.2	99.5	99.5	135.2	135.2	135.2	149.2	149.2	225.4	225.4	225.4	248.7	248.7	320.8	320.8	320.8	414.2	414.2
200	13.8	13.8	13.8	13.8	13.8	43.8	43.8	43.8	49.0	49.0	87.6	87.6	87.6	96.9	96.9	131.4	131.4	131.4	143.9	143.9	219.0	219.0	219.0	239.9	239.9	365.0	365.0	365.0	399.6	399.6
250	12.1	12.1	12.1	12.1	12.1	41.9	41.9	41.9	46.3	46.3	83.9	83.9	83.9	92.7	92.7	125.8	125.8	125.8	139.0	139.0	209.7	209.7	209.7	231.8	231.8	349.5	349.5	349.5	386.2	386.2
300	10.2	10.2	10.2	10.2	10.2	39.8	39.8	39.8	42.9	42.9	79.6	79.6	79.6	85.7	85.7	119.5	119.5	119.5	128.6	128.6	199.1	199.1	199.1	214.4	214.4	331.8	331.8	331.8	357.1	357.1
350	8.4	8.4	8.4	8.4	8.4	37.6	37.6	37.6	40.3	40.3	75.1	75.1	75.1	80.4	80.4	112.7	112.7	112.7	120.7	120.7	187.8	187.8	187.8	201.1	201.1	313.0	313.0	313.0	335.3	335.3
400	6.5	6.5	6.5	6.5	6.5	34.7	34.7	34.7	38.5	38.5	69.4	69.4	69.4	73.3	73.3	104.2	104.2	104.2	109.8	109.8	173.6	173.6	173.6	183.1	183.1	289.3	289.3	289.3	304.9	304.9
450	4.6	4.6	4.6	4.6	4.6	23.0	23.0	23.0	33.7	33.7	46.0	46.0	46.0	67.7	67.7	69.0	69.0	69.0	101.4	101.4	115.0	115.0	115.0	169.0	169.0	191.7	191.7	191.7	281.8	281.8
500	2.8	2.8	2.8	2.8	2.8	11.8	11.8	11.8	25.7	25.7	23.5	23.5	23.5	51.5	51.5	35.3	35.3	35.3	77.2	77.2	58.8	58.8	58.8	128.6	128.6	97.9	97.9	97.9	214.4	214.4
538	1.4	1.4	1.4	1.4	1.4	5.9	5.9	5.9	14.9	14.9	11.8	11.8	11.8	29.8	29.8	17.7	17.7	17.7	44.7	44.7	29.5	29.5	29.5	74.5	74.5	49.2	49.2	49.2	124.1	124.1
550	-	-	-	1.4 (a)	1.4 (a)	-	-	-	12.7	12.7	-	-	-	25.4	25.4	-	-	-	38.1	38.1	-	-	-	63.5	63.5	-	-	-	105.9	105.9
575	-	-	-	1.4 (a)	1.4 (a)	-	-	-	8.8	8.8	-	-	-	17.6	17.6	-	-	-	26.4	26.4	-	-	-	44.0	44.0	-	-	-	73.4	73.4
600	-	-	-	1.4 (a)	1.4 (a)	-	-	-	6.1	6.1	-	-	-	12.2	12.2	-	-	-	18.3	18.3	-	-	-	30.5	30.5	-	-	-	50.9	50.9
650	-	-	-	1.1 (a)	1.1 (a)	-	-	-	2.8	2.8	-	-	-	5.7	5.7	-	-	-	8.5	8.5	-	-	-	14.2	14.2	-	-	-	23.6	23.6

MAXIMUM NON-SHOCK WORKING PRESSURES (Standard Class) BAR

	150LB Series					300LB Series					600LB Series					900LB Series					1500LB Series					2500LB Series				
TEMPERATURE °C	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (5)	A995 GR5A S32750 (5) A995 GR1B CD3MWCuN	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (5) S31254	A995 GR5A S32750 (5) A995 GR1B CD3MWCuN	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (5) S31254	A995 GR5A S32750 (5) A995 GR1B CD3MWCuN	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (5) S31254	A995 GR5A S32750 (5) A995 GR1B CD3MWCuN	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (5) S31254	A995 GR5A S32750 (5) A995 GR1B CD3MWCuN	A351 CF8M (2) /CF3A (1) A182 F316 (2)	ASTM A351 CF8C (4) A182 F347 (4)	A182 F44 F51 (5) F53 (5) F55 S31803 (5)	A351 CE8MN (5) CK3MCuN S32760 (6) S31254	A995 GR5A S32750 (6) A995 GR1B CD3MWCuN
Material Group	2.2	2.5	2.8	2.8	2.8	2.2	2.5	2.8	2.8	2.8	2.2	2.5	2.8	2.8	2.8	2.2	2.5	2.8	2.8	2.8	2.2	2.5	2.8	2.8	2.8	2.2	2.5	2.8	2.8	2.8
-29 TO 38	19.0	19.0	20.0	20.0	20.0	49.6	49.6	51.7	51.7	51.7	99.3	99.3	103.4	103.4	103.4	148.9	148.9	155.1	155.1	155.1	248.2	248.2	258.6	258.6	258.6	413.7	413.7	430.9	430.9	430.9
50	18.4	18.7	19.5	19.5	19.5	48.1	48.8	51.7	51.7	51.7	96.2	97.5	103.4	103.4	103.4	144.3	146.3	155.1	155.1	155.1	240.6	243.8	258.6	258.6	258.6	400.9	406.4	430.9	430.9	430.9
100	16.2	17.4	17.7	17.7	17.7	42.2	45.3	50.7	50.7	50.7	84.4	90.6	101.3	101.3	101.3	126.6	135.9	152.0	152.0	152.0	211.0	226.5	253.3	253.3	253.3	351.6	377.4	422.2	422.2	422.2
150	14.8	15.8	15.8	15.8	15.8	38.5	42.5	45.9	45.9	45.9	77.0	84.9	91.9	91.9	91.9	115.5	127.4	137.8	137.8	137.8	192.5	212.4	229.6	229.6	229.6	320.8	353.9	382.7	382.7	382.7
200	13.7	13.8	13.8	13.8	13.8	35.7	39.9	42.7	42.7	42.7	71.3	79.9	85.3	85.3	85.3	107.0	119.8	128.0	128.0	128.0	178.3	199.7	213.3	213.3	213.3	297.2	332.8	355.4	355.4	355.4
250	12.1	12.1	12.1	12.1	12.1	33.4	37.8	40.5	40.5	40.5	66.8	75.6	80.9	80.9	80.9	100.1	113.4	121.4	121.4	121.4	166.9	189.1	202.3	202.3	202.3	278.1	315.1	337.2	337.2	337.2
300	10.2	10.2	10.2	10.2	10.2	31.6	36.1	38.9	38.9	38.9	63.2	72.2	77.7	77.7	77.7	94.9	108.3	116.6	116.6	116.6	158.1	180.4	194.3	194.3	194.3	263.5	300.7	323.8	323.8	323.8
350	8.4	8.4	8.4	8.4	8.4	30.3	34.8	37.6	37.6	37.6	60.7	69.5	75.3	75.3	75.3	91.0	104.3	112.9	112.9	112.9	151.6	173.8	188.2	188.2	188.2	252.7	289.6	313.7	313.7	313.7
400	6.5	6.5	6.5	6.5	6.5	29.4	33.9	36.5	36.5	36.5	58.9	67.8	73.3	73.3	73.3	88.3	101.7	109.8	109.8	109.8	147.2	169.5	183.1	183.1	183.1	245.3	282.6	304.9	304.9	304.9
450	4.6	4.6	-	-	-	28.8	33.5	-	-	-	57.7	66.9	-	-	-	86.5	100.4	-	-	-	144.2	167.3	-	-	-	240.4	278.8	-	-	-
500	2.8	2.8	-	-	-	28.2	28.2	-	-	-	56.5	56.5	-	-	-	84.7	84.7	-	-	-	140.9	140.9	-	-	-	235.0	235.0	-	-	-
538	1.4	1.4	-	-	-	25.2	25.2	-	-	-	50.0	50.0	-	-	-	75.2	75.2	-	-	-	125.5	125.5	-	-	-	208.9	208.9	-	-	-
550	1.4 (a)	1.4 (a)	-	-	-	25.0	25.0	-	-	-	49.8	49.8	-	-	-	74.6	74.6	-	-	-	124.9	124.9	-	-	-	208.0	208.0	-	-	-
575	1.4 (a)	1.4 (a)	-	-	-	24.0	24.0	-	-	-	47.9	47.9	-	-	-	71.8	71.8	-	-	-	119.7	119.7	-	-	-	199.5	199.5	-	-	-
600	1.4 (a)	1.4 (a)	-	-	-	19.9	21.8	-	-	-	39.8	42.9	-	-	-	59.7	64.2	-	-	-	99.5	107.0	-	-	-	165.8	178.5	-	-	-
650	1.4 (a)	1.4 (a)	-	-	-	12.7	14.1	-	-	-	25.3	28.1	-	-	-	38.0	42.6	-	-	-	63.3	70.7	-	-	-	105.6	117.7	-	-	-

Refer to actual ASME chart for valve selection, this chart (updated as of 2012) is a general guide only. For PN ratings under ISO 75001-1 (AS4331) the pressure/temperature ratings are proportionately extrapolated, refer to ISO 75001-1.

a) Flanged-ends terminate at 538°C in 150 class.
b) Not to be used over 345°C.
c) At temperatures above 538°C only use when the carbon content is 0.04% or higher.
d) Permissable but not recommended for prolonged use above 425°C.
e) Not to be used over 538°C.
(5) Not to be used above 315°C becomes brittle.
(6) Not to be used over 595°C.
(7) Only killed steel to be used above 455°C.
(8) Use normalised and tempered materials only.

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ASME B16.34 PRESSURE / TEMPERATURE RATINGS VALVE BODY MATERIALS

MAXIMUM NON-SHOCK WORKING PRESSURES (Standard Class) BAR

	150LB Series					300LB Series					600LB Series					900LB Series					1500LB Series					2500LB Series				
TEMPERATURE °C	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)	A352 LC3 (1) A352 LC2 (1)	A216 WCC (6) A352 LCC (1)	A352 LCB (1)	A217 WC1 (2/7) A352 LC1 (1)	A217 WC9 (5/7) A182 F22 (5)
Material Group	1.2	1.2	1.3	1.3	1.10	1.2	1.2	1.3	1.3	1.10	1.2	1.2	1.3	1.3	1.10	1.2	1.2	1.3	1.3	1.10	1.2	1.2	1.3	1.3	1.10	1.2	1.2	1.3	1.3	1.10
-29 TO 38	19.8	19.8	18.4	18.4	19.8	51.7	51.7	48.0	48.0	51.7	103.4	103.4	96.0	96.0	103.4	155.1	155.1	144.1	144.1	155.1	258.6	258.6	240.1	240.1	258.6	430.9	430.9	400.1	400.1	430.9
50	19.5	19.5	18.2	18.2	19.5	51.7	51.7	47.5	47.5	51.7	103.4	103.4	94.9	94.9	103.4	155.1	155.1	142.4	142.4	155.1	258.6	258.6	237.3	237.3	258.6	430.9	430.9	395.6	395.6	430.9
100	17.7	17.7	17.4	17.4	17.7	51.5	51.5	45.3	45.3	51.5	103.0	103.0	90.7	90.7	103.0	154.6	154.6	136.0	136.0	154.6	257.6	257.6	226.7	226.7	257.6	429.4	429.4	377.8	377.8	429.4
150	15.8	15.8	15.8	15.8	15.8	50.2	50.2	43.9	43.9	50.3	100.3	100.3	87.9	87.9	100.3	150.5	150.5	131.8	131.8	150.6	250.8	250.8	219.7	219.7	250.8	418.1	418.1	366.1	366.1	418.2
200	13.8	13.8	13.8	13.8	13.8	48.6	48.6	42.5	42.5	48.6	97.2	97.2	85.1	85.1	97.2	145.8	145.8	127.6	127.6	145.8	243.2	243.2	212.7	212.7	243.4	405.4	405.4	354.4	354.4	405.4
250	12.1	12.1	12.1	12.1	12.1	46.3	46.3	40.6	40.6	46.3	92.7	92.7	81.6	81.6	92.7	139.0	139.0	122.3	122.3	139.0	231.8	231.8	203.9	203.9	231.8	386.2	386.2	339.8	339.8	386.2
300	10.2	10.2	10.2	10.2	10.2	42.9	42.9	38.7	38.7	42.9	85.7	85.7	77.4	77.4	85.7	128.6	128.6	116.1	116.1	128.6	214.4	214.4	193.4	193.4	214.4	357.1	357.1	322.4	322.4	357.1
350	8.4	8.4	8.4	8.4	8.4	40.0	40.0	36.4	36.4	40.3	80.0	80.0	72.8	72.8	80.4	120.1	120.1	109.2	109.2	120.7	200.1	200.1	182.0	182.0	201.1	333.5	333.5	303.3	303.3	335.3
400	6.5	6.5	6.5	6.5	6.5	34.7	34.7	32.6	32.6	36.5	69.4	69.4	65.2	65.2	73.3	104.2	104.2	97.9	97.9	109.8	173.6	173.6	163.1	163.1	183.1	289.3	289.3	271.9	271.9	304.9
450	4.6	4.6	4.6	4.6	4.6	23.0	23.0	21.6	21.6	33.7	46.0	46.0	43.2	43.2	67.7	69.0	69.0	64.8	64.8	101.4	115.0	115.0	107.9	107.9	169.0	191.7	191.7	179.9	179.9	281.8
500	2.8	2.8	2.8	2.8	2.8	11.6	11.6	11.1	11.1	28.2	23.2	23.2	22.1	22.1	56.5	34.7	34.7	33.2	33.2	84.7	57.9	57.9	55.4	55.4	140.9	96.5	96.5	92.3	92.3	235.0
538	1.4	1.4	1.4	1.4	1.4	5.9	5.9	5.9	5.9	18.4	11.8	11.8	11.8	11.8	36.9	17.7	17.7	17.7	17.7	55.3	29.5	29.5	29.5	29.5	92.2	49.2	49.2	49.2	49.2	153.7
550	-	-	-	-	1.4 (a)	-	-	-	-	15.6	-	-	-	-	31.3	-	-	-	-	46.9	-	-	-	-	78.2	-	-	-	-	130.3
575	-	-	-	-	1.4 (a)	-	-	-	-	10.5	-	-	-	-	21.1	-	-	-	-	31.6	-	-	-	-	52.6	-	-	-	-	87.7
600	-	-	-	-	1.4 (a)	-	-	-	-	6.9	-	-	-	-	13.8	-	-	-	-	20.7	-	-	-	-	34.4	-	-	-	-	57.4
650	-	-	-	-	1.1 (a)	-	-	-	-	2.8	-	-	-	-	5.7	-	-	-	-	8.5	-	-	-	-	14.2	-	-	-	-	23.6

MAXIMUM NON-SHOCK WORKING PRESSURES (Standard Class) BAR

	150LB Series					300LB Series					600LB Series					900LB Series					1500LB Series					2500LB Series				
TEMPERATURE °C	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20	A217 C5 (7) A182 F5a	A351 CF8 (3) A182 F304 (3)	A351 CF10 A182 F304H	A182 304L (5) A182 316L	A351 CN7M (4) ALLOY 20
Material Group	1.13	2.1	2.1	2.3	3.17	1.13	2.1	2.1	2.3	3.17	1.13	2.1	2.1	2.3	3.17	1.13	2.1	2.1	2.3	3.17	1.13	2.1	2.1	2.3	3.17	1.13	2.1	2.1	2.3	3.17
-29 TO 38	20.0	19.0	19.0	15.9	15.9	51.7	49.6	49.6	41.4	41.4	103.4	99.3	99.3	82.7	82.7	155.1	148.9	148.9	124.1	124.1	258.6	248.2	248.2	206.8	206.8	430.9	413.7	413.7	344.7	344.7
50	19.5	18.3	18.3	15.3	15.4	51.7	47.8	47.8	40.0	40.1	103.4	95.6	95.6	80.0	80.3	155.1	143.5	143.5	120.1	120.4	258.6	239.1	239.1	200.1	200.7	430.9	398.5	398.5	333.5	334.4
100	17.7	15.7	15.7	13.3	13.5	51.5	40.9	40.9	34.8	35.3	103.0	81.7	81.7	69.6	70.6	154.6	122.6	122.6	104.4	105.9	257.6	204.3	204.3	173.9	176.5	429.4	340.4	340.4	289.9	294.2
150	15.8	14.2	14.2	12.0	12.3	50.3	37.0	37.0	31.4	32.0	100.3	74.0	74.0	62.8	64.1	150.6	111.0	111.0	94.2	96.1	250.8	185.0	185.0	157.0	160.2	418.2	308.4	308.4	261.6	267.0
200	13.8	13.2	13.2	11.2	11.3	48.6	34.5	34.5	29.2	29.4	97.2	69.0	69.0	58.3	58.7	145.8	103.4	103.4	87.5	88.1	243.4	172.4	172.4	145.8	146.8	405.4	287.3	287.3	243.0	244.7
250	12.1	12.1	12.1	10.5	10.4	46.3	32.5	32.5	27.5	27.2	92.7	65.0	65.0	54.9	54.4	139.0	97.5	97.5	82.4	81.7	231.8	162.4	162.4	137.3	136.1	386.2	270.7	270.7	228.9	226.9
300	10.2	10.2	10.2	10.0	9.7	42.9	30.9	30.9	26.1	25.4	85.7	61.8	61.8	52.1	50.6	128.6	92.7	92.7	78.2	76.1	214.4	154.6	154.6	130.3	126.9	357.1	257.6	257.6	217.2	211.5
325	9.3	9.3	9.3	9.3	9.3	41.4	30.2	30.2	25.5	24.4	82.6	60.4	60.4	51.1	48.8	124.0	90.7	90.7	76.4	73.3	206.6	151.1	151.1	127.4	122.1	344.3	251.9	251.9	212.3	203.5
350	8.4	8.4	8.4	8.4	-	40.3	29.6	29.6	25.1	-	80.4	59.3	59.3	50.1	-	120.7	88.9	88.9	75.2	-	201.1	148.1	148.1	125.4	-	335.3	246.9	246.9	208.9	-
400	6.5	6.5	6.5	6.5	-	36.5	28.4	28.4	24.3	-	73.3	56.9	56.9	48.8	-	109.8	85.3	85.3	72.9	-	183.1	142.2	142.2	121.5	-	304.9	237.0	237.0	202.5	-
450	4.6	4.6	4.6	4.6	-	33.7	27.4	27.4	-	-	67.7	54.8	54.8	-	-	101.4	82.2	82.2	-	-	169.0	137.0	137.0	-	-	281.8	228.4	228.4	-	-
500	2.8	2.8	2.8	-	-	21.4	26.5	26.5	-	-	42.8	53.0	53.0	-	-	84.1	79.5	79.5	-	-	106.9	132.4	132.4	-	-	178.2	220.7	220.7	-	-
538	1.4	1.4	1.4	-	-	13.7	24.4	24.4	-	-	27.4	48.9	48.9	-	-	41.1	73.3	73.3	-	-	68.6	122.1	122.1	-	-	114.3	203.6	203.6	-	-
550	1.4 (a)	1.4 (a)	1.4 (a)	-	-	12.0	23.6	23.6	-	-	24.1	47.1	47.1	-	-	36.1	70.7	70.7	-	-	60.6	117.8	117.8	-	-	100.4	196.3	196.3	-	-
575	1.4 (a)	1.4 (a)	1.4 (a)	-	-	8.9	20.8	20.8	-	-	17.8	41.7	41.7	-	-	26.7	62.5	62.5	-	-	44.4	104.2	104.2	-	-	74.0	173.7	173.7	-	-
600	1.4 (a)	1.4 (a)	1.4 (a)	-	-	6.2	16.9	16.9	-	-	12.5	33.8	33.8	-	-	18.7	50.6	50.6	-	-	31.2	84.4	84.4	-	-	51.9	140.7	140.7	-	-
650	0.9 (a)	1.4 (a)	1.4 (a)	-	-	2.4	11.3	11.3	-	-	4.7	22.5	22.5	-	-	7.1	33.8	33.8	-	-	11.8	56.3	56.3	-	-	19.7	93.8	93.8	-	-

Flanged end valve ratings terminate at 538°C.
Not to be used over 345°C.
Upon prolonged exposure to temperatures above about 875°F (470°C), the carbide phase of carbon-molybdenum steel may be converted to graphite.
At temperature over 1000°F (538°C), use only when the carbon is 0.04% or higher.
Must be solution annealed. To be superceded by CN3MCu which will do a higher temperature range, with heat resistance near to wrought/forged grades. Not yet been established by ASME B16.34 - 2009.
Following grades permissible but not recommended for prolonged use: F22 and WC9 over 595°C, F304L over 425°C.
Permissible, but not recommended for prolonged usage above about 425°C.
Use normalised & tempered material only.

DISCLAIMER:- This is a general overview. Information provided should not be used to make your operational or design decision. We accept no liability or responsibility for the information and do not guarantee correctness. Factors such as trim materials, bolting, gaskets, seals, carbon content, heat treatment, etc., can vary temperature rating. Refer to actual ASTM P/T charts as only short term use at high temperatures is allowed in some cases. Ratings shown may vary dependant upon different combinations of materials, sizes and service applications where different safety factors may apply. These tables shown are standard class-A, special class-B (higher ratings) refer ANSI B16.34-2009.

Specification is subject to change without prior notice

Pressure - Temperature Classification (DIN Standard)

MATERIAL	PN	TEMPERATURE								
		-60°C	-10°C	120°C	200°C	250°C	300°C	350°C	400°C	450°C
Cast Iron GG-25	16	-	16 bar	16 bar	13 bar	11 bar	10 bar	-	-	-
Ductile Iron GGG-40.3	25	-	26 bar	25 bar	20 bar	18 bar	16 bar	15 bar	-	-
Cast Steel 1.0619 + n/ 1C22TN	40	20 bar	40 bar	40 bar	35 bar	32 bar	28 bar	24 bar	21 bar	18 bar
MATERIAL	PN	-60°C	-10°C	120°C	200°C	250°C	300°C	350°C	400°C	450°C
Stainless Steel 1.4408	16	8 bar	16 bar	13 bar	11.5 bar	10.5 bar	9.5 bar	9 bar	8.3 bar	8 bar
Stainless Steel 1.4408	40	20 bar	40 bar	32 bar	29 bar	26 bar	24 bar	22 bar	21 bar	20 bar

Physical Properties Of Saturated Steam

Pm (bar)	Pa (bar)	T (C)	V (m^3/Kg)	he (Kcal/Kg)	he (K /Kg)	r (Kcal/Kg)	r (K /Kg)	hg (Kcal/Kg)	hg (K /Kg)
0,00	1,013	100,0	1,673	100,1	419,1	539,4	2258,4	639,5	2677,5
0,05	1,063	101,4	1,601	101,5	425,0	538,4	2254,2	639,9	2679,1
0,10	1,113	102,6	1,533	102,8	430,4	537,7	2251,2	640,5	2681,6
0,15	1,163	105,1	1,471	104,1	435,8	536,9	2247,9	641,0	2683,7
0,20	1,213	106,2	1,414	105,3	440,9	536,2	2245,0	641,5	2685,8
0,30	1,313	107,4	1,312	107,6	450,5	534,7	2238,7	642,3	2689,2
0,40	1,413	109,5	1,225	109,8	459,7	533,3	2232,8	643,1	2692,5
0,50	1,513	111,6	1,149	111,9	468,5	531,9	2227,0	643,8	2695,5
0,60	1,613	113,5	1,038	113,8	476,5	530,6	2221,5	644,4	2698,0
0,70	1,713	115,4	1,024	115,7	484,4	529,5	2216,9	645,2	2701,3
0,80	1,813	117,1	0,971	117,5	491,9	528,3	2211,9	645,8	2703,8
0,90	1,913	118,8	0,923	119,2	499,1	527,1	2206,9	646,3	2705,9
1,00	2,013	120,4	0,881	120,8	505,8	526,0	2202,3	646,8	2708,0
1,10	2,113	121,9	0,841	122,4	512,5	525,1	2198,5	647,5	2711,0
1,20	2,213	123,4	0,806	124,0	519,2	524,1	2194,3	648,1	2713,5
1,30	2,313	124,9	0,773	125,4	525,0	523,1	2190,1	648,5	2715,1
1,40	2,413	126,3	0,743	126,8	530,9	522,2	2186,3	649,0	2717,2
1,50	2,513	127,6	0,714	128,1	536,3	521,1	2181,7	649,2	2718,1
1,60	2,613	128,9	0,689	129,5	542,2	520,4	2178,8	649,9	2721,0
1,70	2,713	130,1	0,665	130,7	547,2	519,5	2175,0	650,2	2722,3
1,80	2,813	131,4	0,643	132,0	552,7	518,6	2171,3	650,6	2723,9
1,90	2,913	132,5	0,622	133,2	557,7	517,8	2167,9	651,0	2725,6
2,00	3,013	133,7	0,603	134,4	562,7	517,0	2164,6	651,4	2727,3
2,20	3,213	135,9	0,568	136,6	571,9	515,5	2158,3	652,1	2730,2
2,40	3,413	138,0	0,536	138,8	581,1	514,0	2152,0	652,8	2733,1
2,60	3,613	140,0	0,509	140,8	589,5	512,6	2146,2	653,4	2735,7
2,80	3,813	141,9	0,483	142,8	597,9	511,2	2140,3	654,0	2738,2
3,00	4,013	143,7	0,461	144,7	605,8	509,9	2134,8	654,6	2740,7
3,20	4,213	145,4	0,440	146,4	612,9	508,6	2129,4	655,0	2742,4
3,40	4,413	147,2	0,422	148,2	620,5	507,4	2124,4	655,6	2744,9
3,60	4,613	148,8	0,405	149,9	627,6	506,1	2118,9	656,0	2746,5
3,80	4,813	150,4	0,389	151,5	634,3	505,0	2114,3	656,5	2748,6
4,00	5,013	152,0	0,374	153,1	641,0	503,8	2109,3	656,9	2750,3
4,20	5,213	153,4	0,361	154,6	647,3	502,7	2104,7	657,3	2752,0
4,40	5,413	154,8	0,348	156,1	653,6	501,6	2100,1	657,7	2753,7
4,60	5,613	156,2	0,336	157,6	659,8	500,6	2095,9	658,2	2755,8
4,80	5,813	157,6	0,325	159,0	665,7	499,5	2091,3	658,5	2757,0
5,00	6,013	158,9	0,315	160,3	671,1	498,5	2087,1	658,8	2758,3
5,50	6,513	162,1	0,292	163,6	685,0	496,1	2077,1	659,7	2762,0
6,00	7,013	165,0	0,272	166,7	697,9	493,8	2067,4	660,5	2765,4
6,50	7,513	167,8	0,255	169,6	710,1	491,6	2058,2	661,2	2768,3
7,00	8,013	170,5	0,240	172,4	721,8	489,4	2049,0	661,8	2770,8
7,50	8,513	173,0	0,227	175,1	733,1	487,4	2040,6	662,5	2773,8
8,00	9,013	175,4	0,215	177,8	743,6	485,4	2032,3	663,0	2775,8
8,50	9,513	177,7	0,204	180,0	753,6	483,5	2024,3	663,5	2777,9
9,00	10,013	180,0	0,194	182,3	763,3	481,6	2016,4	663,9	2779,6
9,50	10,513	182,1	0,185	184,6	772,9	479,8	2008,8	664,4	2781,7
10,00	11,013	184,1	0,177	186,8	782,1	478,0	2001,3	664,8	2783,4
11,00	12,013	188,0	0,163	190,9	799,3	474,6	1987,1	665,5	2786,3
12,00	13,013	191,7	0,151	194,8	815,6	471,4	1973,7	666,2	2789,2
13,00	14,013	195,1	0,141	198,5	831,1	468,3	1960,7	666,8	2791,8
14,00	15,013	198,3	0,132	202,0	845,7	465,3	1948,1	667,3	2793,9
15,00	16,013	201,4	0,124	205,3	859,6	462,5	1936,4	667,8	2795,9
16,00	17,013	204,4	0,117	208,5	872,9	459,7	1924,7	668,2	2797,6
17,00	18,013	207,2	0,110	211,5	885,5	457,0	1913,4	668,5	2798,9
18,00	19,013	209,9	0,105	214,4	897,8	454,4	1902,5	668,8	2800,1
19,00	20,013	212,5	0,100	217,2	909,4	451,8	1891,6	669,0	2801,0
20,00	21,013	215,0	0,095	220,0	921,1	449,4	1881,5	669,4	2802,6
21,00	22,013	217,3	0,090	222,6	932,0	447,0	1871,5	669,6	2803,5
22,00	23,013	219,6	0,087	225,1	942,4	444,6	1861,5	669,7	2803,9
23,00	24,013	221,8	0,083	227,6	952,9	442,2	1851,4	669,8	2804,3
24,00	25,013	224,0	0,080	230,0	963,0	440,0	1842,2	670,0	2805,2
25,00	26,013	226,1	0,077	232,3	972,6	437,7	1832,6	670,0	2805,2

Pm-gauge pressure; Pa-absolute; T-Temperature; V-Specific volume; he-specific enthalpy of liquid; r-specific enthalpy of vaporization; Hg-specific enthalpy of saturated steam

COMPANY PROFILE
PT. BUDIJAYA MAKMURSENTOSA

Established in 2005, PT. Budijaya Makmursentosa strives to be a leading engineering supplier to offer the most complete selection of instruments and mechanicals for Palm Oil Mills, Refineries, Oil & Gas, Pulp & Papers, Mining Pharmaceutic Petrochemical, Bio-Diesel and General Industries.

The company is committed to provide solution and exceed the expectation of our customers through high quality products, competitive-price, warranty, and servive after sales. Since its establishment, PT.Budijaya Makmursentosa has proven outstanding reputation and gained trust from its principals and customers in establishing excellent business relationship. Supported with professional sales team and qualified project engineers, PT.Budijaya Makmursentosa is dedicated to accomplish all requirements to achieve highest level of customer satisfaction.

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