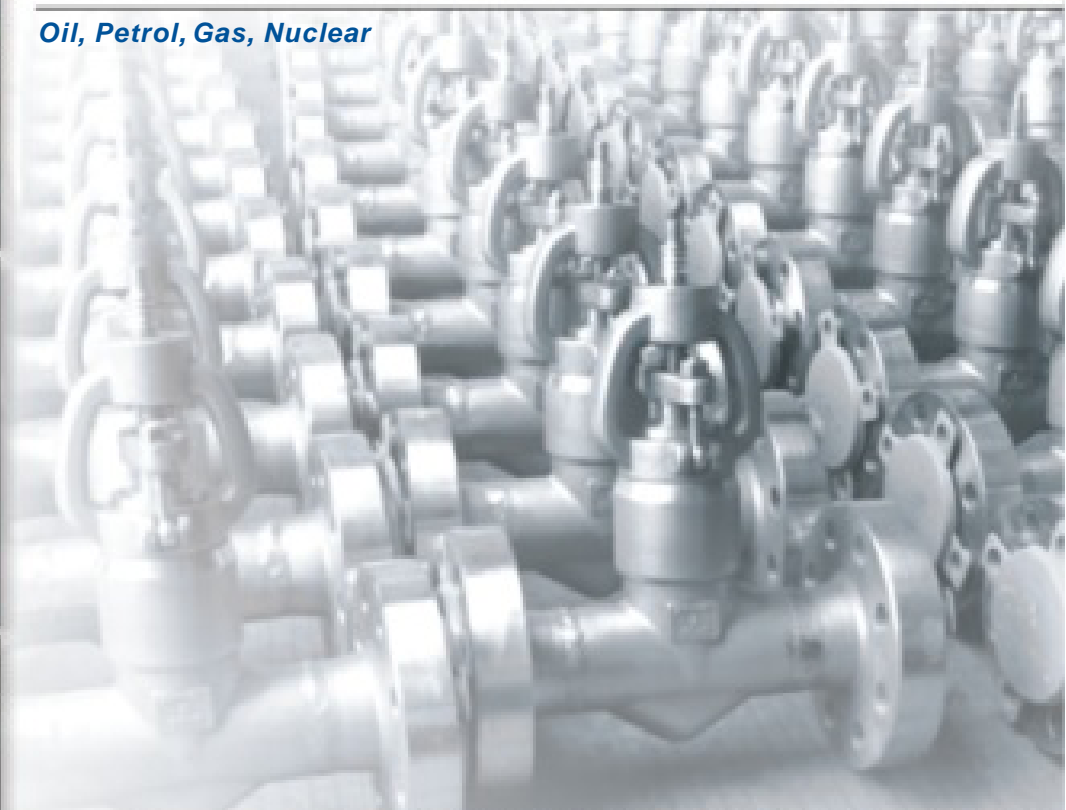


VATAAC

World Quality, The World Valves

Oil, Petrol, Gas, Nuclear



● *Diaphragm*

VATAAC INC. USA
VANGO VALVES CHINA

INDEX

● P01~P11: Diaphragm Valves

COMPANY

Vatac is a leading manufacturer and supplier of industrial valves in the world. As an USA Based international trademark which has been well registered in many famous industrial countries like USA, Germany, Italy and China, our primary goal is to provide a unique solution for the services of Oil, Gas, Nuclear, Refinery, Chemical, Marine, Potable Water, Waste Water, Sewage, Power Station and Pipeline Industries.

We have established several joint ventures specialized in valves manufacturing, including ball valve, gate valve, globe valve, butterfly valve, conduit gate valve, knife gate valve, bellow valve and strainer etc. A broad line of materials are offered and fabricated, Steel ranges from conventional cast or forged steel to special alloy materials like Monel, Inconel, Hastelloy or Duplex steel. Cast Iron Materials in GG20, GG25 or ASTM A126 Gr. B, Ductile Iron of GGG40, GGG50 or A536. Designing and Manufacturing standards strictly conform to API, ASTM, ANSI, AWWA, JIS, DIN, BS and ISO.

After over 3 decades of development and innovation, Vatac has acquired API 6D and CE certification as well as the quality management system ISO9001:2000. Vatac today has over 700,000 square feet manufacturing facilities and over 450 employees, through its conviction to provide only the sound quality products and perfect services to all of customers, Vatac has established itself as one of the leading active player in the valves industry.

Vatac always places the product quality and customers' needs on the utmost position and strives to better serve our valued customers. We conform to the latest standards and emphasize on managerial, technical and technological innovation. With an extensive network of sales, service and distribution, Vatac can respond to customers' requests faster and more efficiently, offers an in-time delivery of various requirements for our customers, can become one of your best partners.

Adhering to the tenet "World Quality, The World Valves", Vatac is stepping towards to the first class manufacturer and supplier of industrial valves and fittings in the world.



6D-0844



0575



TS 2710



ISO9001:2000



World Quality, The World Valves



Vatac Aims To Find Any Reliable Solution With Its Best Service System. All Of Vatac Solutions Are With Qualified Materials Which Are Well-Considered On Its Application Areas and Personnel Securities.

Adopting The Updated Equipments, All Of Products From Vatac Can Be Endured A Continuous And Precise Inspection . Well-know The Valves System From All of Aspects Is The Best Present For All Of Vatac's Valued Customers .

Choose Vatac Means That You Have Selected A Right Area Leading Supplier.



We Are Aiming At Supplying Quality Products , As An Organization Which Is Grouped By Experts Spaced In Every Where and Every Minute. Vatac Experts Give All Timely Technical Supports And Consultations No Matter On The Assembling , Inspection or Operation .

Only The Inspected And Well-Controlled Products Can be Valued As Quality Products.









TEST LAB

CRYOGENIC TEST

The cryogenic tests are used to characterize and qualify phenomena and materials in fields of physics dealing with low temperatures, magnets and accelerators which is applied to those items are subjected to the low temperature applications



FIRE TESTING

Installation area for valves subject to fire testing under API requirements. The test exposes the valve to a flame temperature of 1400° F to 1800° F (761°C to 980°C) for 30 minutes with controlled limits on leakage.



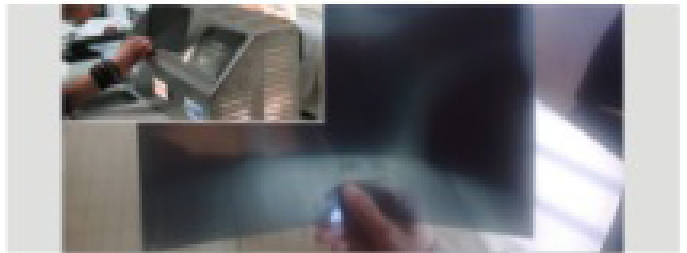
ULTRASONIC FLAW DETECTORS

Ultrasonic flaw detection is basically a comparative technique for non-destructive tests. A trained operator identifies specific corresponding to the response from good parts and from representative flaws.



RADIOGRAPHIC TEST

RT involves gamma- or X-radiation to examine internal features of a test subject. To ensure quality materials are used onto all of fabrications, R.T tests are frequently performed onto vatac manufacturing procedures.



POSITIVE MATERIAL IDENTIFICATION (PMI)

The raw materials are verified by sampling with the Qualified Material Analyzer before being released for the machining process to make sure that they comply with the specified chemical properties.



CONTROL AND RECORDING

In addition to a routine inspection of Dimensional Control, Hydra-static and Leakage Tests. A computerized system is used to control the test and to record the results. This provides accurate and permanent documentation.



STANDARD FEATURES OF VATAC CAST STEEL VALVES

LOW FUGITIVE EMISSION SERVICE

Vatrac standard Cast Steel Gate, Globe and Check Valves are designed and manufactured to ensure leakage of less than 100 ppm (parts per million) of volatile organic compounds. Extensive base line laboratory testing (static and cycle testing) has been performed establishing critical design parameters necessary to achieve low emission sealing in the Vatrac stem packing

seal area for Gate and Globe Valves and in the bonnet gasket sealing area (cover gasket for Check Valves).

In-house testing procedure has been developed and is periodically performed to ensure that standard product design and manufacturing criteria consistently result in the Vatrac Gate, Globe and Check Valve meeting a maximum of 100 ppm VOC leakage prior to shipment.

CRITICAL DESIGN AND MANUFACTURING CONTROLS APPLIED TO PRODUCE LOW EMISSION SERVICE VALVES IN VATAC STANDARD PRODUCTS.

Stem Straightness and Roundness
Stem Surface Finish To Max. 32 Ra
Stuffing Box Surface Finish To Max. 125 Ra
Stuffing Box and Gland Cylindricity
Self Centering Gland Design
Gland Packing: Die-formed Graphite Rings with Braided Graphite Top and Bottom Rings.
Bonnet Gaskets:
Class 150 Gate: 316 SS Tanged Clad Graphite
Class 150 Globe & Check: 316 SS Spiral Wound Grafoil
Class 300 Valves: 316 SS Spiral Wound
Class 600 & Higher: Ring Type Joint

LOW EMISSION DESIGN OPTIONS LIVE LOAD PACKING

In services requiring frequent cycling or with high pressure/temperature variations, live loading extends the service life between maintenance periods by requiring less frequent packing gland adjustments. Belleville springs are employed to provide constant packing gland stress.

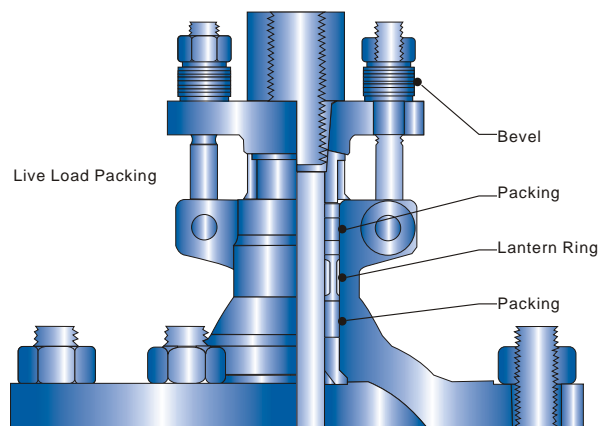
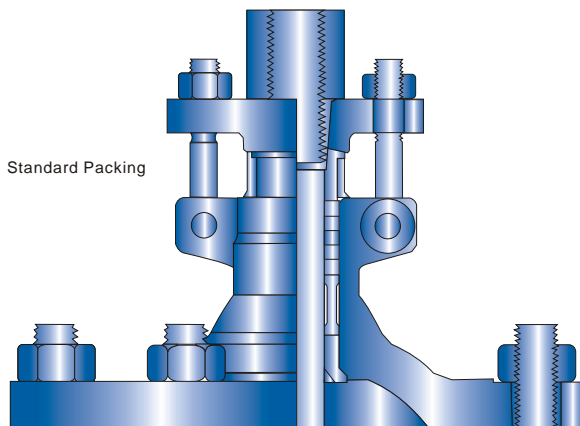
Lantern Ring and Double Packing Set

Lantern ring with leak-off fitting connection and double packing stack is optionally available for critical services.

PACKING SYSTEM

Vatrac Cast Steel Gate and Globe valves use a combination of die formed flexible graphite and interbraided graphite in a predetermined arrangement to ensure an effective seal. Graphite packing achieves its maximum ability to isolate the atmosphere when it is contained within a chamber that is precise in finish

and dimension. Vatrac Gate and Globe valves are manufactured with stem finishes better than 32 Ra and stuffing box wall finishes for 125 Ra. In addition, stem straightness and taper are closely controlled.



AVAILABLE MODIFICATIONS FOR VATAC CAST STEEL VALVES

Packing and Gasket Changes	Weld End Bore Changes
End Connection Modifications	Customer Specified Coatings
Gear Operator Mounting	Outside Lever and Weight for Check Valves
Trim Changes	Slam Retarders for Check Valves
Actuation	Chain Wheel Operator
Cryogenic Gas Columns	Block and Bleed
Hand Wheel Extensions	
Teflon Disc Inserts	NDE Testing Available
Drilled & Tapped Body/Bonnet Connections	Dye Penetrant Test
By-Pass	Magnetic Particle Test
Pressure Equalizing	Radiography
Acid Shields	PMI (Positive Material Identification)
Oxygen & Chlorine Cleaning & Packaging	API Performance Testing

BODY/BONNET MATERIALS

Vatrac cast steel valves are available in a wide range of body/bonnet materials and optional trim materials. Listed below are some of the more popular materials. Additional materials are available. Please contact Vatrac or your local distributor for details.

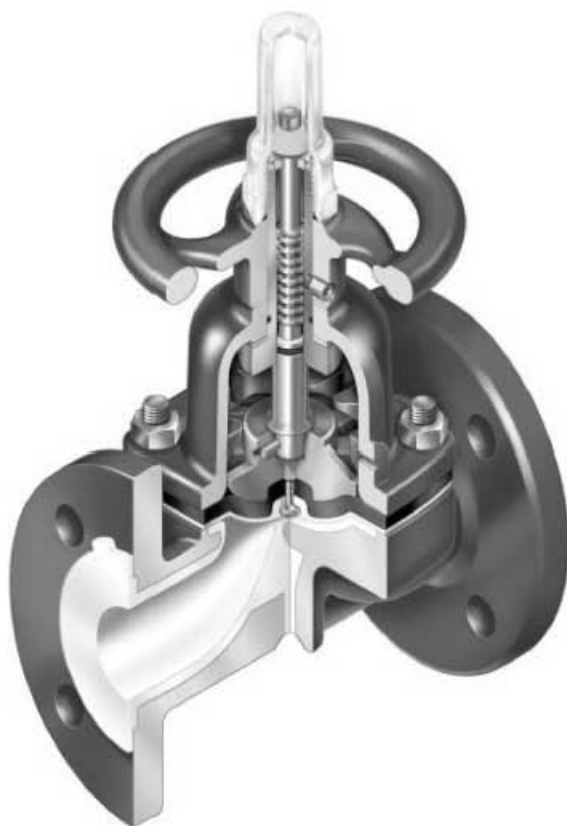
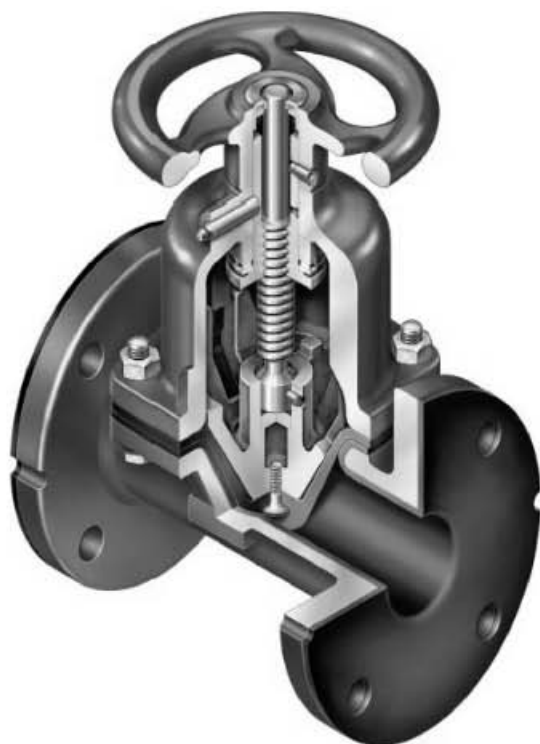
Vatrac Material Designation	Common Description	ASTM Specs.	Body/Bonnet Material Service Limitations
WCB	Carbon Steel	A216	Non-corrosive service water, oil, & gases at temperatures between -20° F & +800° F
LCC	Low Temp Carbon	A352	Low temperature service between -50° F & +650° F
WC6	1.25% Chrome & .5% Moly	A217	Non-corrosive service water, oil, & gases at temperatures between -20° F & +1100° F
WC9	2.25% Chrome & 1% Moly	A217	Non-corrosive service water, oil, & gases at temperatures between -20° F & +1100° F
C5	5% Chrome & .5% Moly	A217	Corrosive, non-corrosive, or erosive service at temperatures between -20° F & +1200° F
C12	9% Chrome & 1% Moly	A217	Corrosive, non-corrosive, or erosive service at temperatures between -20° F & +1200° F
C12A	9% Chrome, 1% Moly, & V	A217	Corrosive, non-corrosive, or erosive service at temperatures between -20° F & +1200° F
C8M	Cast 316	A351	Corrosive, cryogenic or high temperature service between -450° F & +1200° F
A20	Alloy 20	A351	Corrosive service at temperatures between -20° F & +300° F

TRIM MATERIALS THE FOLLOWING ARE VATAC STANDARD TRIM DESIGNATIONS.

VATAC Trim Number	Common Name	API 600 Trim No.	Seat Ring Facing (1)	Wedge or Disc Facing (1)	Stem	Other Trim Parts (2)	Service Limitations
1	13 Chrome	1	CR 13	CR 13	CR 13	CR 13	Non-corrosive applications. Steam, gas, & general service to 700° F. Oil & oil vapor to 900° F
2	Half Stellite	8	HF	CR 13	CR 13	CR 13	Steam, gas, & general service to 1000° F. Standard trim for gate valves
3	Full Stellite	5	HF	HF	CR 13	CR 13	Premium trim service to 1200° F. Excellent for high pressure water and steam service
4	316	10	316	316	316	316	Corrosive services to 850° F. Low temperature service standard for 316 SS valves
4/3	316/Half Stellite	12	HF	316	316	316	
5	316/Full Stellite	16	HF	HF	316	316	
5/2	Monel	9	NiCu	NiCu	NiCu	NiCu	Corrosive services to 750° F
5/3	Monel/Half Stellite	11	HF	NiCu	NiCu	NiCu	
6	Monel/Full Stellite	-	HF	HF	NiCu	NiCu	
7	Alloy 20	13	A20	A20	A20	A20	Corrosive services to 300° F
7	Bronze	-	BRZ	BRZ	BRZ	BRZ	Water, gas, or low pressure steam to 450° F
A7	Aluminum Bronze	-	AL BRZ	AL BRZ	AL BRZ	AL BRZ	
8	Iron	-	Iron	Iron	STL	Iron or STL	
X	Special	Special	Special	Special	Special	Special	Customer to specify

(1) Facing is defined as the seating surface of a seat ring and wedge/disc

(2) Other trim parts are defined as small internal parts that are normally in contact with the service fluid. This includes the stem, backseat bushing in gate and globe valves and the swing check disc nut



FEATURES AND BENEFITS

The Vatac Diaphragm Valve is typically one of the most economical valve solutions in chemical applications due to the wide choice of wetted materials.

BROAD MATERIAL AVAILABILITY

Given the various body and diaphragm materials, the Vatac Diaphragm Valve often provides the most economical solution for your process system.

SLURRY APPLICATIONS

Due to the streamlined flow path and virtual absence of cavities, the diaphragm valve is ideal for slurry applications. Cavities within valves tend to entrap solids, either increasing the valve's operational torque or inhibiting operation. The Vatac Weir Diaphragm Valve is recommended for slurries containing 15% or less solids. For slurries exceeding 15% solids, the Vatac Straightway Diaphragm Valve is recommended.

HIGH PURITY APPLICATIONS

The Vatac Diaphragm Valve is the proven selection to minimize particle generation and product entrapment inherent to other valve types.

CORROSIVE APPLICATIONS

A broad selection of plastic linings and PTFE diaphragms, coupled with our corrosion resistant coatings, provide an excellent barrier to chemical attack and corrosion.

BUBBLE TIGHT SHUT-OFF

Vatac Weir Diaphragm Valves provide bubble tight shut-off from 0.1 micron to 200 psi line in accordance with MSS SP-88 (Manufacturers Standardization Society of the Valves and Fittings Industry, Inc. Standard Practice - Diaphragm Type Valves).

BONNET ISOLATION

Working parts are isolated from the process fluid.

SECONDARY CONTAINMENT

The optional sealed bonnet provides a secondary containment boundary in the case of diaphragm failure; preventing the process media from entering the atmosphere.

UNIQUE FEATURES

Unique features which optimize the valve performance and life, varying by valve size are: adjustable travel stop, protective stem cap, o-ring sealed stem, bronze bushing, position indicator, molded closed diaphragms, and PVDF corrosion resistant coating.

VACUUM APPLICATIONS

The diaphragm valve is capable of bubble tight shut-off down to 0.1 micron. Elastomer or Teflon PTFE diaphragms may be used. The in-leakage rate is less than 1×10^{-6} cc-atm/sec for elastomer diaphragms and can be less upon request.

AVAILABILITY

Body Pattern
Weir Body
Straight Body

Standards Compliance
DIN 3202
BS 5156
MSS SP-88

Ends Connections
Flanged Ends
Welded Ends
Threaded Ends
Other Options Upon Request

SEAT & SHELL TEST CRITERIA AS STATED IN MSS SP-88

TEST DURATIONS AND TEST PRESSURES BASED ON DIAPHRAGM MAXIMUM SERVICE PRESSURE RATINGS

SIZE (in.)	Maximum Pressure Rating psi (bar)	Shell Test Pressure psi (bar)	Minimum Duration of Shell Test Minutes (1)	Seat Test Pressure psi (bar)	Minimum Duration of Seal Test Minutes (1)
1/2-1	200 (13.8)	240 (16.5)	1/4	200 (13.8)	1/4
1-1/2-2	175 (12.1)	210 (14.5)	1/4	175 (12.1)	1/4
2-1/2-4	150 (10.3)	180 (12.4)	1	150 (10.3)	1/2
5-6	125 (8.6)	150 (10.3)	1	125 (8.6)	1/2
8	100 (6.9)	120 (8.3)	1	100 (6.9)	1/2
10-12	65 (4.5)	80 (5.5)	3	65 (4.5)	1/2

(1) The minimum duration is the period of inspection after the valve is fully prepared and under full test pressure.

BODY MATERIALS AVAILABLE

WEIR BODIES

Body Type	Material	Identification*	Maximum Temperature**	
			°F	°C
Metal	Iron	CI or GXXX	350	107
	Ductile Iron	DI or DXXX	350	177
	Carbon Steel	WCB or LCB	350	177
	Bronze	B61 or B62	350	177
	Stainless Steel 316	CF8M	350	177
	CN7M	CN7M	350	177
	Monel	M35	350	177
Plastic Lined	Hastelloy	CWXM	350	177
	PP	Blue	200	93
	PVC	Grey	140	60
	Saran	Black	175	80
	PVDF	White with tab	285	140
	PTFE	White	300	149
	Rubber Lined			
Rubber Lined	Soft Natural	#5	180	82
	Neoprene	#7	200	93
	Hypalon CSM	#9	200	93
	Hard Natural	#10	200	93
	Soft Gum	#11	140	60
	Rubber			
	Graphite Loaded Natural	#12	200	93
Glass Lined	Butyl	#16	200	93
	Borosilicate Glass	Blue glass	350	177

STRAIGHTWAY BODIES

Body Type	Material	Identification*	Maximum Temperature**	
			°F	°C
Metal	Iron	CI or GXXX	225	107
	Carbon Steel	WCB	225	107
	Stainless Steel 316	CF8M	225	107
	Plastic lined			
Plastic lined	PP	Blue	200	93
	Tefzel ETFE	White	225	107
Rubber lined	Soft Natural	#5	180	82
	Neoprene	#7	200	93
	Hypalon CSM	#9	200	93
	Hard Natural	#10	200	93
	Butyl	#16	200	93
Glass lined	Borosilicate Glass	Blue glass	225	107

*X designates a numerical value

**Temperature may decrease dependent on media, pressure and valve size.

RECOMMENDED GUIDELINES

WEIR VALVES

Maximum Velocity ≤ 25 fps for media with no suspended solids

Maximum Velocity ≤ 10 fps for media with 1-15% solids

Maximum Valve ΔP ≤ 25% Pinlet for throttling

Maximum Solids ≤ 15%

These guidelines are recommended to optimize performance and may vary dependent on exact media and conditions. The intent is to help prevent cavitation, choke flow and premature lining and diaphragm wear.

STRAIGHTWAY VALVES

Maximum Velocity ≤ 25 fps for media with no suspended solids

Maximum Velocity ≤ 15 fps for media 1-15% solids

Maximum Velocity ≤ 10 fps for media with solids > 15%

Maximum Solids ≤ 50%

These guidelines are recommended to optimize performance and may vary dependent on exact media and conditions. The intent is to help prevent cavitation, choke flow and premature lining and diaphragm wear.

BODY LINING MATERIALS INSTRUCTION

Material	Code	Suitable temperature	Applicable medium
*Fluorinated ethylene propylene	FEP、F46	≤150℃	Different density hydrochloric acid, sulfuric acid, hydrofluoric acid, aqua regia, nitric acid, all kinds of organic acid, alkali, acid, aqua regia, nitric acid and weak acid, alternation of acid and alkali many kinds of organic solvent and other strong corrosive media except for melt alkali metals, element fluorin and aromatic hydrocarbon.
Poly chlorotrifluoroethylene	PCTFE、F3	≤120℃	
Polyvinylidene fluoride	PVDF、F2	≤120℃	
Ethylene tetrafluoroethylene	TFE/E、F40	≤120℃	
Tefzel			
Perfluoroalkoxy	PFA	≤180℃	
Acid-resistant enamel			General corrosive media except for hydrofluoric acid, strong phosphoric acid and strong alkali
Reinforced polypropylene	RPP	≤100℃ ≤100℃	Most of organic acids, mineral acids and inorganic solvents except for strong nitric acid, oleum, chloride sulfonic acid and strong oxidant.
Polyolefin	PO	≤100℃	The product adapts to transport current medium, for example corrosive gas, liquid as well as solid and liquid slurry. It has good corrosion acid, alkali and salt solution. It has the features of static resistance, innocuity.
Cast iron unlined		≤100℃	Noncorrosive medium
Stainless steel, unlined		≤150℃	Usual corrosive medium

BODY LINING MATERIALS INSTRUCTION

Material	Code	Suitable temperature	Applicable medium
Fluorinated ethylene propylene	FEP	≤120℃	Different density sulfuric acid, hydrofluoric acid, aqua regia, high-temperature strong nitric acid, all kinds of organic acid, strong oxidant, alternation of strong acid and weak acid, alternation of acid and alkali, many kinds of organic solvent ect
Perfluoroalkoxy	PFA	≤150℃	
Teflon	PTFE	≤180℃	Also have the good features of corrosion resistance, heat and electric resistance, viscosity resistance, viscosity resistance and low frictional coefficient.

Note: *Marked is Vatac standard construction

Temperature shown in above table is only for reference, while the temperature maybe depends on different work conditions. Consult factory for any further details.



MATERIALS INSTRUCTION

Material	Code	Suitable temperature	Applicable medium
Isobutylene-isoprene rubber	IIR	≤120℃	Except for >75% sulfuric acid, >20% hydrochloric acid, <60% hydrofluoric acid, >85% phosphoric acid, corrosive alkali and ester.
Natural rubber	NR	≤85℃	Purified water, mineral salt and diluent mineral acid ect
Ethylene-propylene-dinen meyhylene Vistalon	EPDM	≤120℃	Have the acid resistance and alkali resistance like the natural rubber and be suitable for application in the low-pressure steam, hot water and cold water.
Chloroprene rubber	CR	≤85℃	Acid-resistant and alkali-resistant and the non-polar solvent and the abrasion resistance are better than the natural rubber.
Nitrile, Buna-N	NBR	≤85℃	Oil-resistant and abrasion resistant and the acid resistance is the same as the natural rubber.
Hypalon	CSPE	≤120℃	The product has the features of ozone resists, atmospheric aging resistance, acid and alkali resistance, oxidant and many kinds of chemical medicine resistance, and burning resistance, heat resistance but no resistance to petroleum and arene.
Fluoroelastomer Viton	FKM	≤150℃	Have the corrosive resistance like the flouroplastic. Bevery stable in the strong acid and strong oxidant and be stable in the organic solvent and alkali splvent
Silicone rubber	SI	≤200℃	Be heatproof, excellent electricity insulation capability and wear-able; may resist corrosion of dilute acid, dilute alkali, salt and water, can't resist corrosion of petrolic products such as gasoline coal oil etc.

Note: *Marked is Vatac standard construction

Temperature shown in above table is only for reference, while the temperature maybe depends on different work conditions. Consult factory for any further details.

Cv VALUES STRAIGHTWAY VALVE CV RATINGS (100% OPEN)

ITEM	1/2	1	1-1/2	2	2-1/2	3	4	6	8	10	12
Flanged Unlined	11	60	115	275	450	525	700	2250	4250	5000	5000
Flanged Plastic Lined		24	80	209		370	569	1400	2644**		
Flanged Hard Rubber Lined		55	130	260	365	460	700	1800	3500	4850	4850
Flanged Soft Rubber Lined		42	79	220	365	460	700	1800	3500	4850	4850
Flanged Glass Lined		48	100	270	425	475	700	1950	4400		
Screwed End	15	39	120	265							

Note: Flanged Soft Rubber = soft natural rubber, Neoprene, Hypalon and Butyl linings.

Flanged Hard Rubber = hard natural rubber lining.

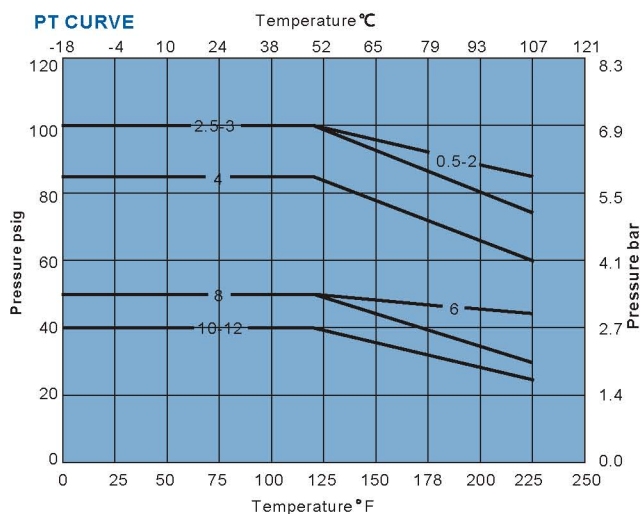
Note: Data is based on estimates.

Cv VALUES WEIR VALVE CV RATINGS (100% OPEN)

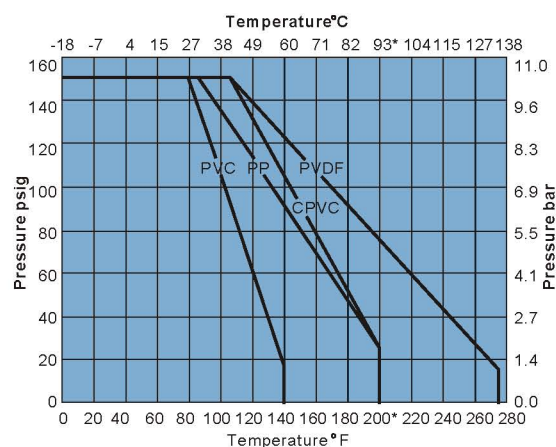
ITEM	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	6	8	10	12
Flanged Unlined	5.5	22	22	56	56	70	160	190	310	600	1200	1800	2550
Flanged Plastic Lined	-	10	10	38	38	67	100	175	285	690	1070	-	-
Flanged Hard Rubber Lined	4.0	10	10	31	31	55	115	160	260	625	1150	1750	2350
Flanged soft Rubber Lined	2.0	7.0	7.0	25	25	50	110	155	250	515	1150	1750	2350
Flanged Glass Lined	5.5	22	22	53	53	78	180	250	420	850	1700	-	-
Screwed End	4.4	10	19	48	48	70	95	172	-	-	-	-	-
Butt Weld	3.5	7.5	18.6	-	48	70	95	180	400	600*	1200*	-	-

Note: *Data is based on estimates

PT CURVE

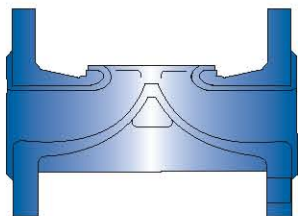


PT Curve

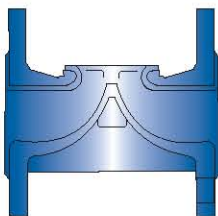


INSTRUCTION OF DIAPHRAGM VALVE FACE TO FACE AVAILABLE

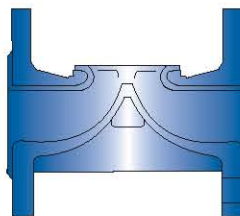
The length of valve body structure and the dimension of flange connection can be manufactured according to the following table or according to the requirements of customers.



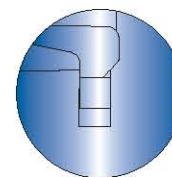
BS LONG PATTERN



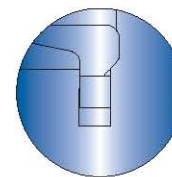
BS SHORT PATTERN



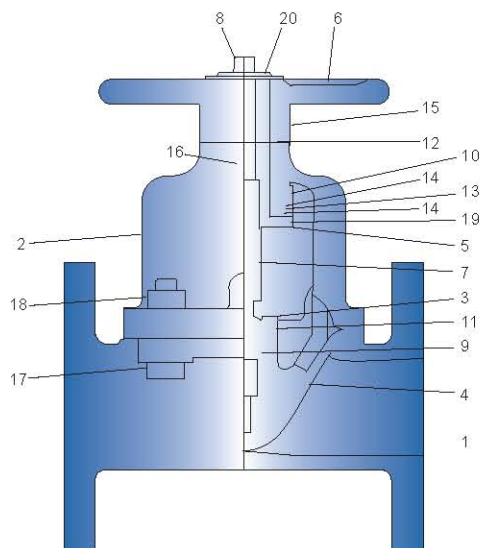
DIN PATTERN



BS UNLINED



DIN UNLINED



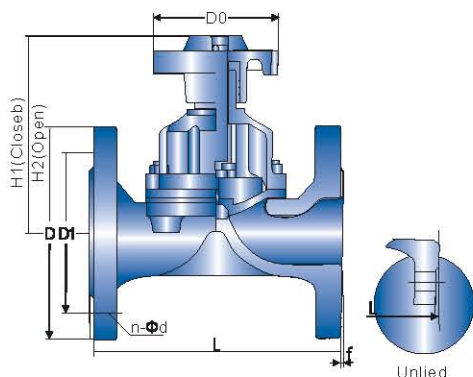
MATERIALS PARTS

Item	Description	Material
1	Body Flanged	Cast Iron
2	Bonnet	Cast Iron
3	Compressor	Cast iron
4	Diaphragm	Elastomer
5	Bushing	Brass
6	Handwheel	Cast Iron
7	Spindle	Steel
8	Spindle, Extension (indicating)	Stainless Steel
9	Insert	Steel
10	Spacer	Steel
11	Pin, Spirol	Stainless Steel
12	Washer, Shim	Polyethylene
13	Bearing, Thrust Needle	Steel
14	Bearing, Thrust Race	Steel
15	Screw, Set Hex. Soc.	Steel
16	Fitting, Tube	Steel
17	Screw, Hex, Ho, Cp	Steel
18	Nut, Hex.	Steel
19	Pin, Spirol	Stainless Steel
20	Capseal	Brass

WEIR PATTERN DIAPHRAGM VALVE

- Weir Pattern, Un-lined or Fully Lined Body
- Elastomer or PTFE Coated Compressor
- Epoxy Coating Inside and Outside
- Bubble-tight Shut-off, Secondary Containment
- Designed to BS5156

Face to Face	BS5156
End Flange	BS4504
Ratings	PN10/16

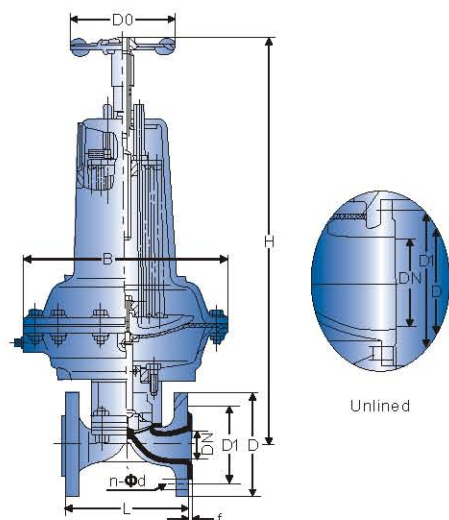


SIZE (DN)	Nominal pressure MPa	Working pressure MPa	L	D	D1	n-Φd	f	H1	H2	D0	W.T (kg)
Unit: mm											
15	1.6	1.6	108	95	65	4-14	2	90	99	66	2
20			117	105	75	4-14	2	93	103	66	3
25			127	115	85	4-14	2	100	112	66	4
32			146	140	100	4-18	2	127	144	96	6.5
40			159	150	110	4-18	2	136	156	96	7.5
50	1.0	1.0	190	165	125	4-18	2	151	177	118	10
65			216	185	145	4-18	2	183	213	165	16
80			254	200	160	8-18	2	198	273	230	23.5
100			305	220	180	8-18	2	266	320	280	34
125			356	250	210	8-18	3	319	386	280	44
150	1.0	0.6	406	285	240	8-22	3	380	453	368	67.5
200			521	340	295	8-22	3	506	626	400	141.5
250			635	395	350	12-22	5	598	734	500	229
300			749	445	400	12-22	5	698	778	560	321
350			787	505	460	16-22	5	723	883	560	360
400	1.0	0.25	914	565	515	16-26	5	868	1078	640	584

PNEUMATIC FAIL CLOSED DIAPHRAGM VALVE

- Weir Pattern, Pneumatic Fail Closed
- Un-lined or Fully Lined Body
- Elastomer or PTFE Coated Compressor
- Epoxy Coating Internally and Externally
- Bubble-tight Shut-off, Secondary Containment
- Designed to BS5156

Face to Face	BS5156
End Flange	BS4504
Ratings	PN10/16



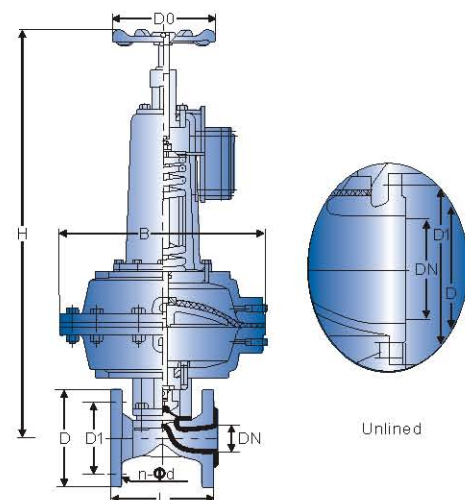
SIZE (DN)	Nominal pressure MPa	Working pressure MPa	L	D	D1	n-Φd	f	H
Unit: mm								
15	1.6	1.6	108	95	65	4-13.5	2	
20			117	105	75	4-13.5	2	
25			127	115	85	4-17.5	2	394
32			146	140	100	4-17.5	2	400
40			159	150	110	4-17.5	2	485
50			190	165	125	4-17.5	2	635
65	1.0	1.0	216	185	145	8-17.5	2	650
80			254	200	160	8-17.5	2	660
100			305	220	180	8-17.5	2	816
125		0.6	356	250	210	8-22	3	825
150			406	285	240	8-22	3	1013
200		0.4	521	340	295		3	1300

SIZE (DN)	D0	B	Code ES	Air pressure Mpa	Air joint in	Air consumption cm³	W.T (kg)
Unit: mm							
15							
20	120	168	61	0.3	1/8	163.89	7.2
25	120	168	61	0.3~0.4	1/8	196.65	8.9
32	120	168	61	0.3~0.4	1/8	229.4	10.6
40	165	260	62	0.3~0.4	1/4	1425.7	19.5
50	165	318	63	0.3~0.4	1/4	2284.1	34.9
65	165	318	63	0.3~0.4	1/4	3048	39.9
80	165	318	63	0.4~0.5	1/4	3244.7	51.9
100	280	425	64	0.4~0.5	3/8	6964.5	93.2
125	280	425	64	0.4~0.5	3/8	7439.7	105.3
150	310	549	65	0.5	3/8	14912	184.5
200	483	749	66	0.6	1/2	49161	407.4

PNEUMATIC FAIL OPENED DIAPHRAGM VALVE

- Weir Pattern, Pneumatic Fail Opened
- Un-lined or Fully Lined Body
- Elastomer or PTFE Coated Compressor
- Epoxy Coating Internally and Externally
- Bubble-tight Shut-off, Secondary Containment
- Designed to BS5156

Face to Face	BS5156
End Flange	BS4504
Ratings	PN10/16



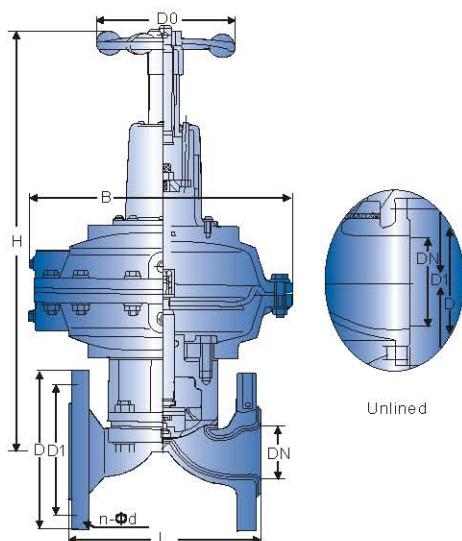
SIZE (DN)	Nominal pressure MPa	Working pressure MPa	L	D	D1	n-Φd	f	H
Unit: mm								
15	1.6	1.6	108	95	65	4-13.5	2	343
20			117	105	75	4-13.5	2	345
25			127	115	85	4-17.5	2	363
32			146	140	100	4-17.5	2	430
40			159	150	110	4-17.5	2	575
50			190	165	125	4-17.5	2	588
65	1.0	1.0	216	185	145	8-17.5	2	769
80			254	200	160	8-17.5	2	816
100			305	220	180	8-17.5	2	820
125	1.0	0.6	356	250	210	8-22	3	920
150			406	285	240	8-22	3	1010
200	1.0	0.4	521	340	295	12-22	3	
250			635	395	350		5	

SIZE (IN)	D0	B	Code ES	Air pressure Mpa	Air joint in	Air consumption cm³	W.T (kg)
Unit: mm							
15							
20	140	168	68	0.3	1/8	163.87	6.3
25	140	168	68	0.3~0.4	1/8	196.65	7.3
32	140	260	68	0.3~0.4	1/8	229.4	8.3
40	140	260	69	0.3~0.4	1/4	1458.7	14.3
50	140	260	70	0.3~0.4	1/4	3162.7	26
65	140	260	70	0.3~0.4	1/4	3243	30.8
80	165	425	71	0.4~0.5	3/8	6636.8	64.9
100	280	425	71	0.4~0.5	3/8	6948	70.3
125	280	425	71	0.4~0.5	3/8	7374.2	80.7
150	280	549	72	0.5	3/8	10652	131.2
200	280	549	72	0.6	3/8	16715	212
250							

PNEUMATIC RECIPROCAL DIAPHRAGM VALVE WITH MANUAL

- Weir Pattern, Pneumatic Reciprocal Type
- Un-lined or Fully Lined Body
- Elastomer or PTFE Coated Compressor
- Epoxy Coating Internally and Externally
- Bubble-tight Shut-off, Secondary Containment
- Designed to BS5156

Face to Face	BS5156
End Flange	BS4504
Ratings	PN10/16



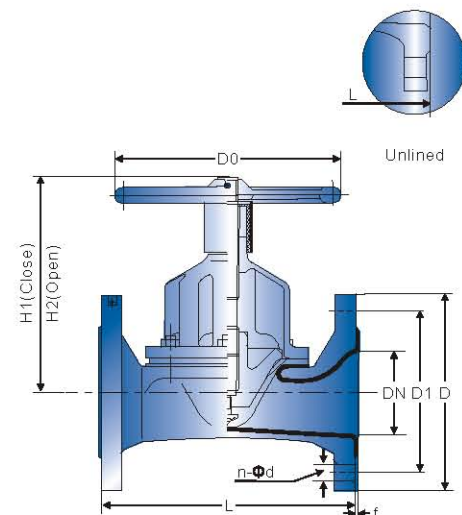
SIZE (DN)	Nominal pressure MPa	Working pressure MPa	L	D	D1	n-Φd	f	H
Unit: mm								
15	1.6	1.6	108	95	65		2	
20			117	105	75	4-13.5	2	343
25			127	115	85	4-13.5	2	345
32			146	140	100	4-17.5	2	363
40			159	150	110	4-17.5	2	430
50			190	165	125	4-17.5	2	575
65	1.0	1.0	216	185	145	4-17.5	2	588
80			254	200	160	8-17.5	2	769
100			305	220	180	8-17.5	2	816
125			356	250	210	8-17.5	3	820
150			406	285	240	8-22	3	920
200	1.0	0.6	521	340	295	8-22	3	1010
250			635	395	350		5	

SIZE (DN)	D0	B	Code ES	Air pressure Mpa	Air joint in	Air consumption cm ³	W.T (kg)
Unit: mm							
15							
20	140	168	54	0.3	1/8	163.87	5.6
25	140	168	54	0.3~0.4	1/8	196.65	6.8
32	140	260	55	0.3~0.4	1/8	229.4	7.7
40	140	260	55	0.3~0.4	1/4	1458.7	13.9
50	140	260	55	0.3~0.4	1/4	3162.7	24.5
65	140	260	55	0.3~0.4	1/4	3243	29
80	165	425	56	0.4~0.5	3/8	6636.8	63
100	280	425	57	0.4~0.5	3/8	6948	66
125	280	425	57	0.4~0.5	3/8	7374.2	75
150	280	549	58	0.5	3/8	10652	125
200	280	549	58	0.6	3/8	16715	206
250							

STRAIGHT THROUGH DIAPHRAGM VALVE

- Straight Through
- Un-lined or Fully Lined Body
- Elastomer or PTFE Coated Compressor
- Epoxy Coating Internally and Externally
- Bubble-tight Shut-off, Secondary Containment
- Designed to BS5156

Face to Face	BS5156
End Flange	BS4504
Ratings	PN10/16



SIZE (DN)	Nominal pressure MPa	Working pressure MPa	L	D	D1	n-Φd	f	H1	H2	D0	W.T (kg)
Unit: mm											
20	1.0	1.0	117	105	75	4-14	2	150	162		
25			127	115	85	4-14	2	150	162	120	3.5
32			146	140	100	4-18	2	152	180	120	5
40			159	150	110	4-18	2	152	180	120	6
50			190	165	125	4-18	2	163	198	120	8.5
65	1.0	0.6	216	185	145	4-18	2	205	227	230	16
80			254	200	160	8-18	2	220	252	230	22
100			305	220	180	8-18	2	262	300	280	32
125			356	250	210	8-18	3	290	335	280	43.5
150			406	285	240	8-22	3	368	427	368	65
200	1.0	0.4	521	340	295	8-22	3	410	470	483	112.5
250			635	395	350	12-22	5	479	569	483	192.5
300			749	445	400	12-22	5	550	650	560	296
350			787	505	460	16-22	5	550	650	560	
400			914	565	515	16-26	5			640	

VACUUM DIAPHRAGM VALVE

- Straight Through
- Threaded or Weld Ends
- Bubble-tight Shut-off
- Designed to BS5156

Face to Face	VATAC Standard
Flanged Ends	BS4504
Lap Joints Ends	VATAC Standard
Ratings	PN10

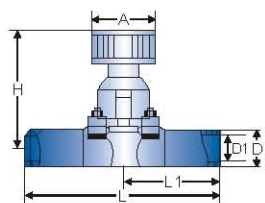


Figure 1

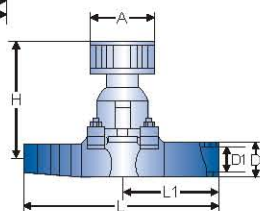


Figure 2

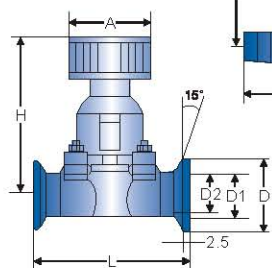


Figure 3

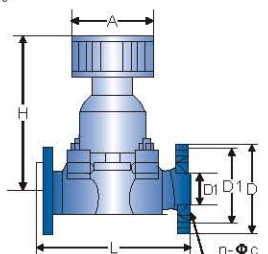


Figure 4

CONNECTING PIPE WELDED END FIGURE 1

Model	DN	D	H	A	L	L1
Unit: mm						
GM-10C-H(I)	10	19	80	55	240	120
GM-25C-H(I)	25	32	105	80	240	120
GM-40C-H	40	45	133	100	240	120
GM-50C-H	50	57	157	100	240	120
GM-10D-H(I)	10	19	77.5	50	150	150
GM-25D-H(I)	25	32	105	60	75	75

CONNECTING PIPE WELDED END FIGURE 2

Model	DN	D	H	A	L	L1
Unit: mm						
GM-10C-H(II)	10	19	80	55	195	120
GM-25C-H(II)	25	32	105	80	236	120
GM-10D-H(II)	10	19	77.5	50	150	75
GM-25D-H(II)	25	32	105	66	175	75

QUICK UNLOAD FLANGED END FIGURE 3

Model	DN	D	D1	H	A	L
Unit: mm						
GM-10C-KF	10	30	12.2	80	55	75
GM-25C-KF	25	40	26.2	105	80	120
GM-10C-KF	40	50	41.2	133	100	120

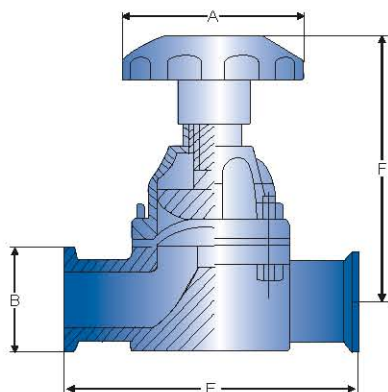
LAP JOINT FLANGED END FIGURE 4

Model	DN	D	D1	H	A	L	n-Φc
Unit: mm							
GM-10C	10	46	36	80	55	75	4-Φ6
GM-25C	25	70	55	105	80	120	4-Φ7
GM-40C	40	100	80	133	100	150	4-Φ9
GM-50C	50	110	90	157	100	180	4-Φ9

SANITARY DIAPHRAGM VALVE

- Straight Through
- Threaded or Weld Ends
- Bubble-tight Shut-off
- Designed to BS5156

Face to Face	VATAC Standard
End Flange	BS4504
Ratings	PN10

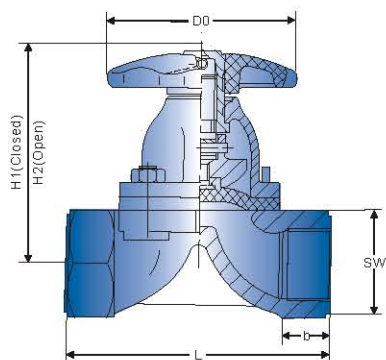


SIZE (DN)	A	B	E	F
Unit: mm				
15	108	34	80	89/99
20	118	50.5	80	91/102
25	127	50.5	80	110/123
32	146	50.5	80	129/138
40	159	50.5	120	139/159
50	191	64	120	159/186

THREADED DIAPHRAGM VALVE

- Weir Pattern
- Female Threaded Ends
- Bubble-tight Shut-off
- Designed to BS5156

Face to Face	VATAC Standard
End Flange	BS4504
Threaded Ends	BS EN10241
Ratings	PN10/16

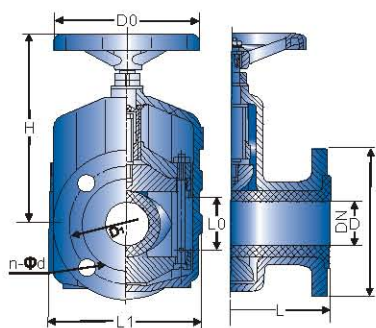


SIZE (DN)	Nominal pressure	Working pressure MPa	L	SW	b	H1	H2	D0	W.T (kg)
Unit: mm									
8	1.6	1.6	50	20		60	66	45	0.6
10			50	24				45	0.7
15			65	38	8	84	92	50	0.8
20			85	40	12	93	103	50	1.1
25			110	48	18	106	120	66	1.9
32			120	58	18	137	156	96	3.3
40			140	69	18	142	163	96	4.2
50			165	82	20	167	192	96	5.8
65	1.6	1.0	203	90	30	190	225	165	9.5
80			254	105	32	206	246	230	16.2

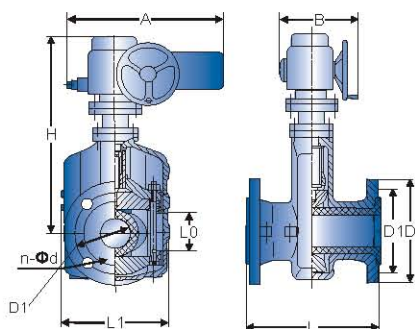
PINCH VALVE

- Straight Through Flow
- Bolted Cover, Flanged Ends
- Fully Body Elastomer Rubber Lined
- Designed to ISO Standard

Face to Face	VATAC Standard
End Flange	EN Standard
Ratings	PN6/10/16



MANUAL



ELECTRIC

MANUAL

DN	Nominal pressure MPa	Working pressure MPa	L	L1	L0	D	D1	n-Φd	D0	H	W.T (kg)
Unit: mm											
25	0.6	0.6	160	124	31	115	85	4-14	120	137	3
32			165	145	40	140	100	4-18	140	174	4.5
40			190	157	50	150	110	4-18	140	186	5.5
50			210	160	60	160	125	4-18	160	205	7.5
65			270	199	74	180	145	4-18	160	238	10.5
80			300	222	88	195	160	4-18	200	241	15.5
100			350	250	106	215	180	8-18	240	301	20
125			430	318	134	245	210	8-18	280	360	32.5
150			500	350	158	280	240	8-23	320	348	48
200	0.6	0.4	650	446	206	335	295	8-23	560	430	85
250			800	516	256	395	350	12-23	560	540	
300			950	562	304	445	400	12-23	620	741	
350			1100			500	460	16-23			

ELECTRIC

DN	H	A	B	D0	Kw	W.T (kg)
Unit: mm						
25		443	133		0.12	3
32						4.5
40						5.5
50		552	425	305	0.25	7.5
65		552	425	305	0.37	10.5
80		552	425	305	0.75	15.5
100		552	425	305	0.75	20
125						32.5
150						48
200	1000	766	390	305	1.1	102
250						
300						
350						