BELL SEAL VALVES
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SINCE 1991

APPROVED
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Solution For The Chlor-Alkali Industry

CE 0036
THE CHLORINE INSTITUTE MEMBER

ENVIRONMENTAL EFFECTS

- Chlorine's manipulation and use in forming artificial chemical products has had devastating effects on the environment.
- In its various artificial forms, chlorine plays a major role in the most pressing environmental problems which we face today; depletion of the ozone layer, global warming and acid rain.
- The pollution caused by its widespread use has been linked to a variety of serious health effects; poisonings have occurred in the chlorine industry since its inception and chlorine compounds have accumulated in the body fat of animals and humans.
- Chlorine in the form of common salt (sodium chloride) in the process of splitting common salt into caustic soda and chlorine gas makes it become dangerously toxic.
- Organochlorines are contained in many of the familiar products we see in our shops, such as in solvents, pesticides, plastics, disinfectants, forms of packaging and bleached pulp and paper products.
- If a product shows a list of its ingredients, any word containing the letters 'chlor' suggests the presence of an organochlorine. Many of the products which we buy are predominantly made of or encased in, plastics which contain chlorine such as PVC (polyvinylchloride). Some other plastics which do not contain chlorine still involve it at some stage in their production.
- Polychlorinated biphenyls, (PCBs), chlorofluorocarbons (CFCs) and DDT are examples of organochlorine compounds which, although banned or discredited, are still evident in our environment. The manufacture of organochlorines gives rise to many unintentional by- products.
- Major pollution problems also arise when these chlorinated products such as plastics and solvents are burned or incinerated as rubbish.
- The resulting polluted air affects the surrounding area, falling on agricultural land and accumulating in the food chain, putting food such as dairy products at risk from high levels of dioxins.
- Studies in the US have shown that the presence of dioxins and PCBs is linked to nervous system damage in babies, with effects on memory and co-ordination.

APPLICATION: WHERE TO USE THEM...?

- These valves are effectively used in plants like Methane, VCM, EDC, ECH, Pesticides, Insecticides, HFC, Halogenated Plants, Chloro Alkali, TDI, MDI, Isocynates , HF etc.
- Also used for handling liquid and gas Chlorine (Cl_2), Fluorine (F_2), Hydrogen Chloride (A-HCl), Phosgene ($COCl_2$), hydrofluoric acid (A-HF) and chloro-fluorinated compounds

EXPERTISE SOLUTION TO ALL YOUR PROBLEMS

BRINE PREPARATION

Process: Raw salt (NaCl) is used to create an aqueous sodium chloride solution, i.e. brine. Purified brine is sent to the Electrolyser and depleted brine returns to the Brine Handling area for reuse. Raw brine is treated, filtered, and sent through ion exchange.

Common Problems Arise:
Particulate Abrasion
Valves Jamming
Internal Corrosion
Scaling/Downstream Leakage

B

HYDROCHLORIC ACID

Process: Compressed chlorine gas from Chlorine Processing is reacted with Hydrogen from the Electrolyser to form hydrochloric acid.

Common Problems Arise:
Downstream Leakage
External Emissions
Internal Corrosion
High Maintenance Costs

HCL

CAUSTIC SODA

Process: Caustic soda (sodium hydroxide, NaOH) is generated in the Electrolyser. A portion of this stream is recycled to the electrolyser while the rest is further concentrated and sent to storage.

Common Problems Arise
External Leakage
Scaling/Downstream Leakage
High Temperature Corrosion.

C

CHLORINE PROCESSING

Process: Chlorine gas generated in the Electrolyser is cooled, dried, and compressed. It is sent either to the Hydrochloric Acid area or is liquefied and sent to storage for sale or for downstream processes.

Common Problems Arise
External Emissions
Downstream Leakage
Lining Permeation
Maintenance Difficulty
Temperature Cycling.

CL

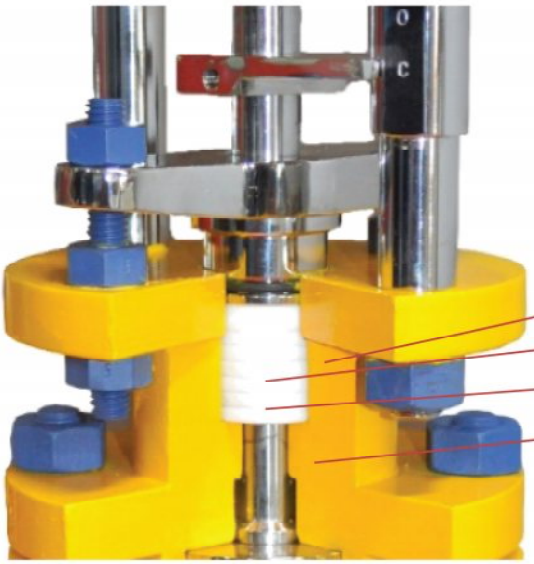
"Backup packing serves as a secondary sealing element in case of bellows failure"

- Rising, non-rotating stem with anti-torque device.
- Surface roughness 0.4µmRa or Smoother.
- Stem out of roundness < 0.01mm.
- Straightness < 0.005% of stem length.
- Prevention of wear and galling.

"The stem properties guarantee a perfect guide and lowest friction"

- Bellows guaranteed minimum life of 10,000 cycles at at the maximum allowable operating pressure of the valve at 20deg C. Welded to bonnet and stem.
- Bellows does not protract into flow path and is therefore protected from direct impingement and abrasion.

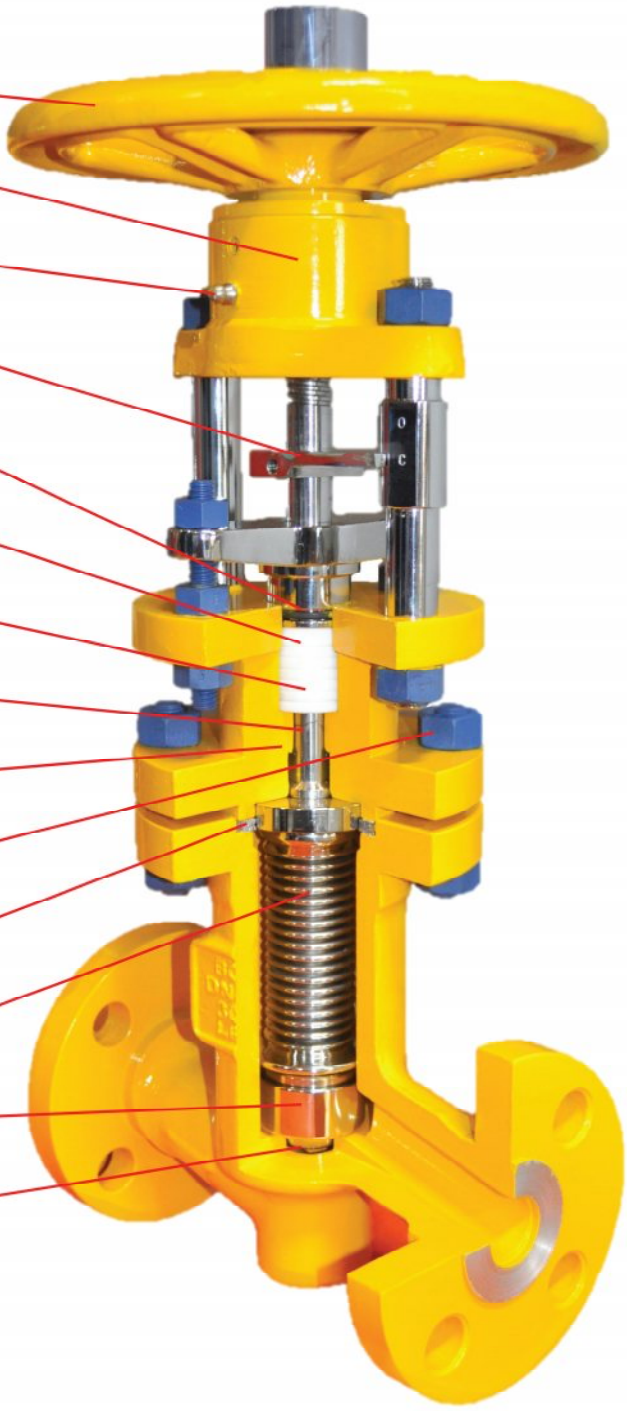
"Bellows welded to bonnet and stem guarantees reliable and long lasting zero emission performance"



One piece bonnet with integral machine packing area.
V type packing rings as secondary sealing system.
Packing area with surface (3.2µmRa).
Larger than required wall thickness.

CHLORINE BELLOW SEALED GLOBE VALVES

DESIGN FEATURES



NON RISING HANDWHEEL
*ideal in restricted spaces

THRUST BEARING INSIDE
*smooth operation & No friction effect

PROVISION FOR LUBRICATION ON YOKE SLEEVE
*ensures smooth operation

WIPER RING
*prevents ingress of water between the gland follower & stem

'O'-RING
*prevents ingress of water between gland follower & stuffing box

DOWNSTREAM SAFETY GLAND PACKING WITH PTFE
*additional reliability against bellow failure

EASE OF OPERATION FOR SECONDARY PACKING
*ease for replacing packing & improves proper sealing

NON ROTATING STEM
*high reliability, twist of bellow avoided, longer packing life

BACK SEAT ARRANGEMENT ON STEM
*additional tertiary safety & anti-blow out under line pressure

BODY BONNET JOINTS WITH STUD NUTS
*additional strength for the joints & ensures joint tightness

BODY BONNET JOINTS
*T&G arrangement, no gasket slip possible, long service life

MULTIPLY BELLOWS
*high service life & protected from media

PLUG & STEM CONNECTED BY STEM NUT
*provides 360° rotation of plug, self aligning & ensures proper sealing

INTERGRAL BODY SEAT WITH HARDFACING OR STELLITING
*avoids leak through seatring & ensures increased service life

ADVANTAGES OF OUR PRODUCT

- No media loss (energy savings) / no air ingress into the pipelines.
- Protects environment.
- High safety. (Protects environment).
- Prevents stem corrosion as leak from the gland area is zero.
- No replacement cost.
- No equipment downtime.
- No maintenance cost (no spares).
- Quick pay back period & long life.
- No vapour cloud and hence fire safety assured.
- Due to zero gland leak feature, human safety is assured.
- Ideal for applications where vacuum tight sealing is required.
- Long life reliability is assured on stem sealing which reduces LDAR (Leak Detection and Repair) costs and lessens burden on penalty.
- Ideal for locations where access to repair is impossible.
- Contribute to go green campaign / initiatives as a part of renewable energy source program.

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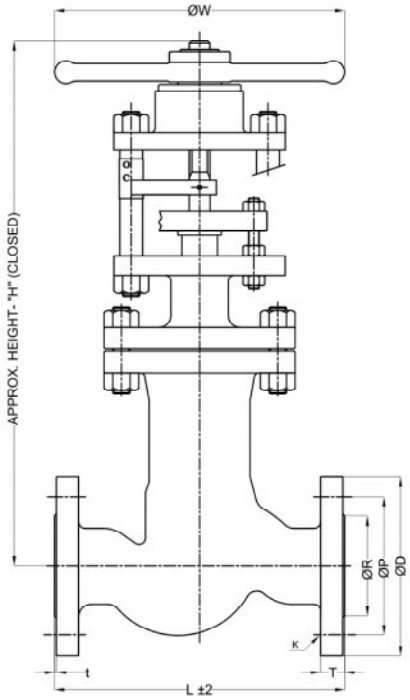
CHLORINE BELLOW SEALED GLOBE VALVES



CONFORMING STANDARDS

1.Design standard 150#/300# EURO CHLOR GEST 06/318
2.Design standard PN40 EURO CHLOR GEST 06/318
3.Face to face 150# to ASME B 16.10(EN 558 BASIC SERIES 10)
4.Face to face 300# to ASME B 16.10(EN 558 BASIC SERIES 21)
5.Face to face PN40 to EN 558 BASIC SERIES 1
6.Flange domensional details 150#/300# as per ASME B 16.5
7.Flange domensional details PN40 as per EN 1092-1
8.Different type of flange facing like large tongue/groove and small tongue/groove available on request
9.Optional other moc available on request/operating condition.

EURO CHLOR BELLOW SEAL GLOBE VALVE MATERIAL OF CONSTRUCTION (UPTO 8"NB)

SN	PARTS	MATERIAL RECOMMENDATION
1	BODY	ASTM - A 352 Gr. LCC / LCB
2	BONNET	ASTM - A 352 Gr. LCC / LCB
3	PLUG	ASTM - A 350 Gr. LF2 / MONEL / HASTELLOY / A 351 Gr. CF3M / A 276 TYPE 316L / DUPLEX S31803 (1.4462) + STELLITED
4	INTEGRAL SEAT	ASTM - A 352 Gr. LCC / LCB + STELLITED
5	BELLOW	HASTELLOY C 276
6	BELLOW COLLAR	HASTELLOY C 276
7	STEM	ASTM - A 276 TYPE 316L / MONEL / DUPLEX S31803 (1.4462) / HASTELLOY
8	STEM NUT	ASTM - A 276 TYPE 316L / MONEL / DUPLEX S31803 (1.4462) / HASTELLOY
9	TOP COLLAR	HASTELLOY C276
10	GASKET	SPW - SS 316L + PTFE / MONEL+PTFE
11	PACKING	PTFE
12	SEALING	VITON "O"-RING
13	GLAND BUSH	ASTM - A 276 TYPE 316L / MONEL
14	GLAND FLANGE	ASTM - A 352 GR LCC/LCB
15	FASTENER	ASTM - A 320 Gr.L7 / L7M / A 194 Gr.7 / 7M
16	GLAND STUD / NUT	ASTM - A 320 Gr.L7 / L7M / A 194 Gr.7 / 7M
17	PILLAR	ASTM - A 276 TYPE 304
18	GUIDE PLATE	ASTM - A 240 TYPE 304 / AISI - 304
19	YOKE	ASTM - A 352 Gr. LCC / LCB
20	YOKE SLEEVE	ASTM - A 439 Gr.D2
21	BEARING	THRUST BEARING
22	PILLAR NUT	ASTM - A 194 Gr.7 / 7M
23	GRUB SCREW	AISI - 304
24	HAND WHEEL	ASTM - A 216 Gr. WCB / SG IRON
25	HAND WHEEL KEY	AISI - 304
26	HAND WHEEL NUT	AISI - 304
27	GREASE NIPPLE	AISI - 304
28	YOKE NUT	ASTM - A 276 TYPE 304

CHLORINE BELLOW SEALED GLOBE VALVES

DIMENSIONS (INCHES)

Vale Size (Inch)	CLASS 150 (ON/OFF GLOBE VALVE)										
	ØD	ØP	K	T	ØR	t	L(Note(1))	H	ØW	WEIGHT -lbs(Kgs)	
										HW	GB
0.5	3.5	2.38	4/ Ø0.625	0.44	1.38	0.06	4.25	13.98	6	28.66(13)	.....
0.75	3.88	2.75	4/ Ø0.625	0.5	1.69	0.06	4.62	14.25	6	29.76(13.5)	.....
1	4.25	3.12	4/ Ø0.625	0.56	2.00	0.06	5.00	14.49	8	35.27(16)	.....
1.5	5.00	3.88	4/ Ø0.625	0.68	2.88	0.06	6.5	17.01	10	58.43(26.5)	.....
2	6.00	4.75	4/Ø0.75	0.75	3.62	0.06	8.00	19.09	10	80.46(36.5)	.....
3	7.50	6.00	4/Ø0.75	0.94	5.00	0.06	9.5	21.26	12	139.77(63.4)	.....
4	9.00	7.50	8/Ø0.75	0.94	6.19	0.06	11.5	25.59	14	217.15(98.5)	.....
6	11.00	9.50	8/Ø0.875	1.00	8.50	0.06	16.00	31.61	18	382.5(173.5)	.....
8	13.50	11.75	8/Ø0.875	1.12	10.62	0.06	19.5	36.65	20	608.47(276)	.....
10	16.00	14.25	12/Ø1	1.18	12.75	0.06	24.5	38.98	24	912.71(414)	.....
12	19.00	17.00	12/Ø1	1.25	15.00	0.06	27.5	52.17	24	1313.96(596)	.....

Vale Size (Inch)	CLASS 300 (ON/OFF GLOBE VALVE)										
	ØD	ØP	K	T	ØR	t	L(Note(1))	H	ØW	WEIGHT -lbs(Kgs)	
										HW	GB
0.5	3.75	2.62	4/ Ø0.625	0.56	1.38	0.06	6.00	13.98	6	31.53(14.3)	.....
0.75	4.62	3.25	4/Ø0.75	0.62	1.69	0.06	7.00	14.25	8	32.52(14.7)	.....
1	4.88	3.50	4/Ø0.75	0.68	2.00	0.06	8.00	14.49	8	37.92(17.2)	.....
1.5	6.12	4.50	4/Ø0.875	0.81	2.88	0.06	9.00	17.01	10	60.18(27.3)	.....
2	6.50	5.00	8/Ø0.75	0.87	3.62	0.06	10.5	19.09	10	88.19(40)	.....
3	8.25	6.62	8/Ø0.875	1.12	5.00	0.06	12.5	21.26	12	163.14(74)	.....
4	10.00	7.88	8/Ø0.875	1.25	6.19	0.06	14.00	25.59	14	242.5(110)	.....
6	12.50	10.62	12/Ø0.875	1.44	8.50	0.06	17.5	31.61	18	478.4(217)	.....
8	15.00	13.00	12/Ø1	1.62	10.62	0.06	22.00	36.65	20	663.59(301)	981.05(445)
10	17.50	15.25	16/Ø1.125	1.87	12.75	0.06	24.5	38.98	24	855.39(388)	1333.8(605)
12	20.50	17.75	16/Ø1.25	2.00	15.00	0.06	28.00	52.17	.....	.....	2200.62(998)

Vale Size (Inch)	PN40 (ON/OFF GLOBE VALVE)										
	ØD	ØP	K	T	ØR	t	L(Note(1))	H	ØW	WEIGHT -lbs(Kgs)	
										HW	GB
0.5	3.74	2.56	4/Ø0.55	0.63	1.77	0.08	5.12	13.98	6	.....	.....
0.75	4.13	2.95	4/Ø0.55	0.71	2.29	0.08	5.90	14.25	8	.....	.....
1	4.52	3.35	4/Ø0.55	0.71	2.68	0.08	6.29	14.49	8	36.81(16.7)	.....
1.5	5.91	4.33	4/Ø0.71	0.71	3.46	0.12	7.87	17.01	10	.....	.....
2	6.49	4.92	4/Ø0.71	0.79	4.02	0.12	9.05	19.09	10	87.3(39.6)	.....
3	7.87	6.30	8/Ø0.71	0.94	5.43	0.12	12.2	21.26	12	154.32(70)	.....
4	9.25	7.48	8/Ø0.87	0.94	6.38	0.12	13.78	25.59	14	231.48(105)	.....
6	11.81	9.84	8/Ø1.02	1.10	8.58	0.12	18.89	31.61	18	474(215)	.....
8	14.76	12.59	12/Ø1.18	1.34	11.22	0.12	23.62	36.65	20	.....	.....

Note-1:

For face to face dimension of 150# and 300# with small tongue, Large tongue , small Groove and Large Groove refer as below

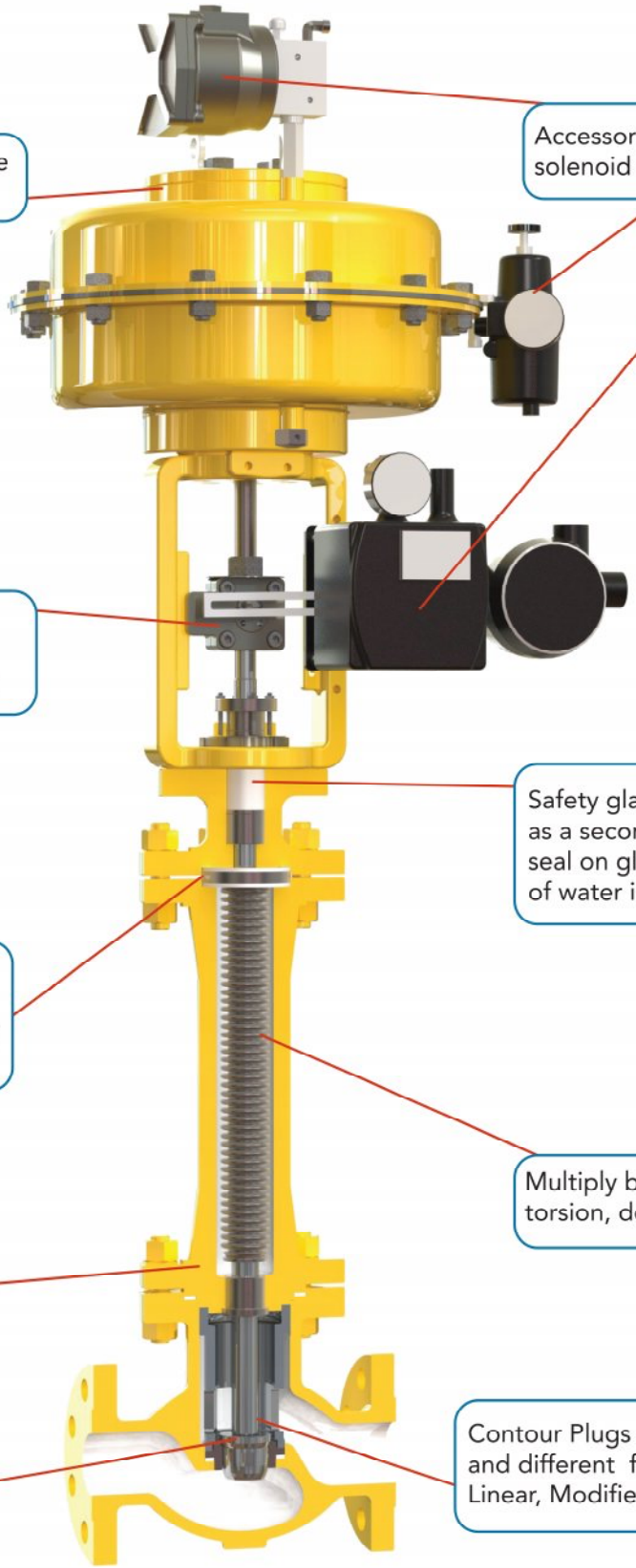
a) For Face to Face dimension of 150# and 300# with small and Large tongue requirment add 0.50 for the existing face to face dimension of raised face.

b) For Face to Face dimension of 150# and 300# with small and Large Groove add 0.38 for the existing face to face dimension of raised face.

EURO CHLOR APPROVAL SIZE RANGE COVERED AS PER* GEST 06/318 FROM DN25 TO DN150

* Updated as per new edition of GEST 17/492

FEATURES OF CONTROL VALVE



Diaphragm Actuators for operating the Valve Assembly

Accessories like Air filter regulator, solenoid valve and positioner

Stem connector, connects the valve and actuator stem, anti-rotation arrangement to prevent bellow twist

Safety gland packing made of PTFE, as a secondary stem seal & "O" ring seal on gland bush to prevent ingress of water into packing chamber.

Cylinder and Bonnet joint tongue and groove with stud and nut arrangement, for stronger and sturdy leak proof joint.

Multiply bellow, protected against torsion, designed for 100,000 cycles.

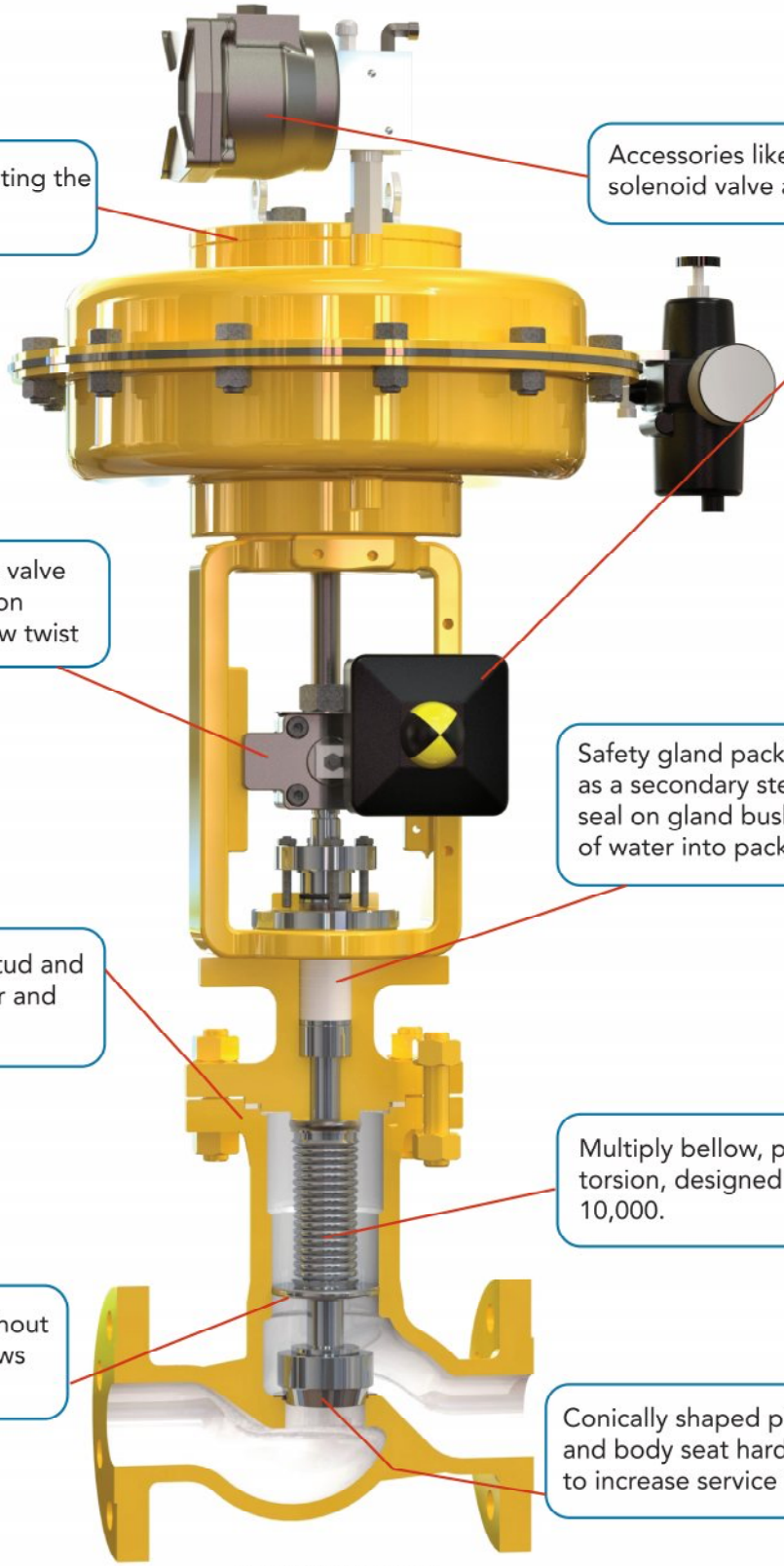
Body and Cylinder joint with stud and nut arrangement, for stronger and sturdy leak proof joint.

Contour Plugs of different flow coefficients and different flow characteristics like EQ%, Linear, Modified

Quick change seat ring of various bore diameters for various CV

CONTROL VALVE

FEATURES OF SHUT-OFF VALVE



Diaphragm Actuators for operating the Valve Assembly

Accessories like Air filter regulator, solenoid valve and limit switches

Stem connector, connects the valve and actuator stem, anti-rotation arrangement to prevent bellow twist

Safety gland packing made of PTFE, as a secondary stem seal & "O" ring seal on gland bush to prevent ingress of water into packing chamber.

Body and Bonnet joint with stud and nut arrangement, for stronger and sturdy leak proof joint.

Multiply bellow, protected against torsion, designed for min cycles of 10,000.

Fully body bore guide throughout entire stroke, protected bellows from contact with media.

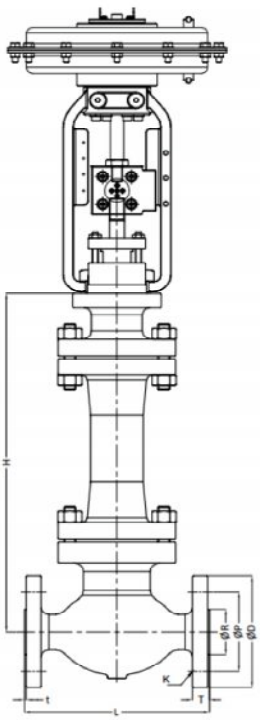
Conically shaped plug both plug seat and body seat hard faced with Stellite to increase service life and tight shut off

SHUT-OFF VALVE

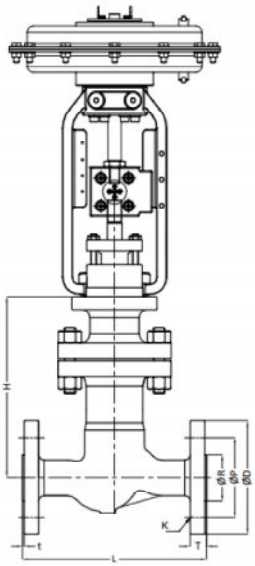
CHLORINE BELLOW SEALED GLOBE CONTROL VALVES & SHUT-OFF VALVES

MATERIAL OF CONSTRUCTIONS & DIMENSIONS (INCHES)

SN	PARTS	MATERIAL RECOMMENDATION
1	BODY	ASTM - A 352 Gr. LCC / LCB
2	CYLINDER	ASTM - A 352 Gr. LCC / LCB
3	BONNET	ASTM - A 352 Gr. LCC / LCB
4	PLUG	ASTM - A 350 Gr.LF2 / A 351 Gr. CF8M / CF3M / HASTELLOY / MONEL / 316L / 316 / ASTM - A 352 Gr. LCC / LCB
5	STEM	ASTM - TYPE 316L / 316 / MONEL / HASTELLOY / DUPLEX S31803
6	SEAT RING	ASTM - 316L / 316 / MONEL / LF2 / HASTELLOY + STELLITED
7	CAGE	ASTM -316L / 316 / MONEL / HASTELLOY
8	GUIDE BUSH	HASTELLOY C 276 / MONEL / 316L
9	BELLOW COLLAR	HASTELLOY C 276
10	BELLOW	HASTELLOY C 276
11	TOP COLLAR	HASTELLOY C 276
12	LOWER GUIDE	HASTELLOY C 276 / MONEL / 316L
13	GLAND RING	HASTELLOY C 276 / MONEL / 316L
14	SPACER	HASTELLOY C 276 / MONEL / 316L
15	GLAND BUSH	ASTM - A 276 TYPE 316L / A 351 Gr.CF3M / 316 / A351 Gr.CF8M / HASTELLOY / MONEL
16	GLAND FLANGE	ASTM - 304 / A 351 Gr.CF8 / A 352 Gr. LCC / A 352 Gr. LCB / A 350 Gr.LF2
17	PACKINGS	PTFE
18	GASKET	SPW - SS 316L / 316 + PTFE / MONEL + PTFE
19	FASTENERS	ASTM - A 320 Gr.L7 / L7M / A 194 Gr.7 / 7M



CONTROL VALVE



SHUT-OFF VALVE

VALVE SIZE (Inch)	CLASS 150												
	ØD	ØP	ØR	T	t	K	CONTROL VALVE				SHUT - OFF VALVE			
							L	H	WEIGHT*		L	H	WEIGHT*	
									Kg	lbs			Kg	lbs
1	4.25	3.12	2	0.56	0.06	4 / Ø0.625	7.25	18	21.5	47.4	5	8	15.5	34.2
1.5	5	3.88	2.88	0.68	0.06	4 / Ø0.625	8.75	27	43.5	95.9	6.5	10	24.5	54
2	6	4.75	3.62	0.75	0.06	4 / Ø0.75	10	27	54	119	8	11.5	31	68.3
3	7.5	6	5	0.94	0.06	4 / Ø0.75	11.75	32	110	242.5	9.5	13.25	57.5	126.8
4	9	7.5	6.19	0.94	0.06	8 / Ø0.75	13.88	39	172	379.2	11.5	16	89.5	197.3
6	11	9.5	8.5	1	0.06	8 / Ø0.875	17.75	51	352	776	16	20.5	168	370.4

VALVE SIZE (Inch)	CLASS 300												
	ØD	ØP	ØR	T	t	K	CONTROL VALVE				SHUT - OFF VALVE			
							L	H	WEIGHT*		L	H	WEIGHT*	
									Kg	lbs			Kg	lbs
1	4.88	3.5	2	0.68	0.06	4 / Ø0.75	7.75	18	23	50.7	8	8	18	39.7
1.5	6.12	4.5	2.88	0.81	0.06	4 / Ø0.875	9.25	27	47	103.6	9	10	25	55.1
2	6.5	5	3.62	0.87	0.06	8 / Ø0.75	10.5	27	56.5	124.6	10.5	11.5	39.5	87.1
3	8.25	6.62	5	1.12	0.06	8 / Ø0.875	12.5	32	115	253.5	12.5	13.25	68.5	151
4	10	7.88	6.19	1.25	0.06	8 / Ø0.875	14.5	39	182	401.2	14	16	105	231.5
6	12.5	10.62	8.5	1.44	0.06	12 / Ø0.875	18.62	51	372	820.1	17.5	20.5	182	401.2

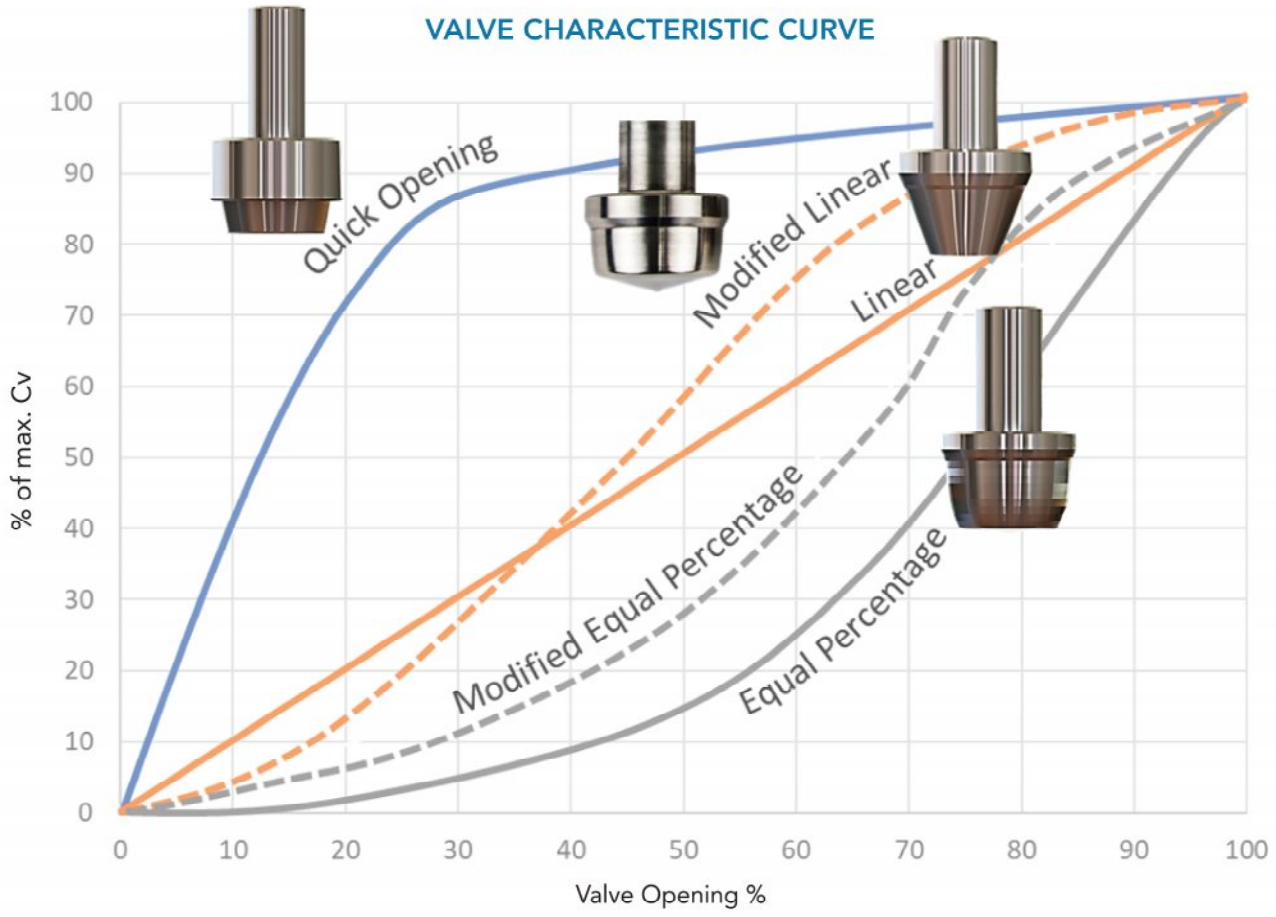
VALVE SIZE (Inch)	CLASS PN40												
	ØD	ØP	ØR	T	t	K	CONTROL VALVE				SHUT - OFF VALVE			
							L	H	WEIGHT*		L	H	WEIGHT*	
									Kg	lbs			Kg	lbs
1	4.53	3.35	2.68	0.71	0.08	4 / Ø0.55	7.76	18	22	48.5	6.3	8	17.5	38.6
1.5	5.91	4.33	3.46	0.71	0.12	4 / Ø0.71	9.25	27	45.5	100.3	7.87	10	24	52.9
2	6.5	4.92	4.02	0.79	0.12	4 / Ø0.71	10.51	27	55	121.3	9.06	11.5	33.5	73.9
3	7.87	6.3	5.43	0.94	0.12	8 / Ø0.71	12.48	32	112	246.9	12.2	13.25	67	147.7
4	9.25	7.48	6.38	0.94	0.12	8 / Ø0.87	14.49	39	173	381.4	13.78	16	103.5	228.2
6	11.81	9.84	8.58	1.1	0.12	8 / Ø1.02	18.62	51	360	793.7	18.9	20.5	172	379.2

Note:

1.Different types of flange facings are available as per requirement

2.*Weights mentioned in the table do not include actuator weight

CHLORINE BELLOW SEALED GLOBE CONTROL VALVES



PERFORATED PLUGS

Valve Sizes	Travel (mm)	Cv's
1	20	3.5
		6
		7.5
		9
		11
		14
1.5"	20	17
		23
		28
2"	20	40
	30	46
		51
3"	30	60
		75
	40	104
4"	30	80
	50	140
		156
6"	40	160
	50	240
		325
		346

CV'S OFFERED WITH DIFFERENT CHARACTERISTICS

- Linear
- Equal Percentage
- Modified
- Quick Opening

* Other CV's are also available on request

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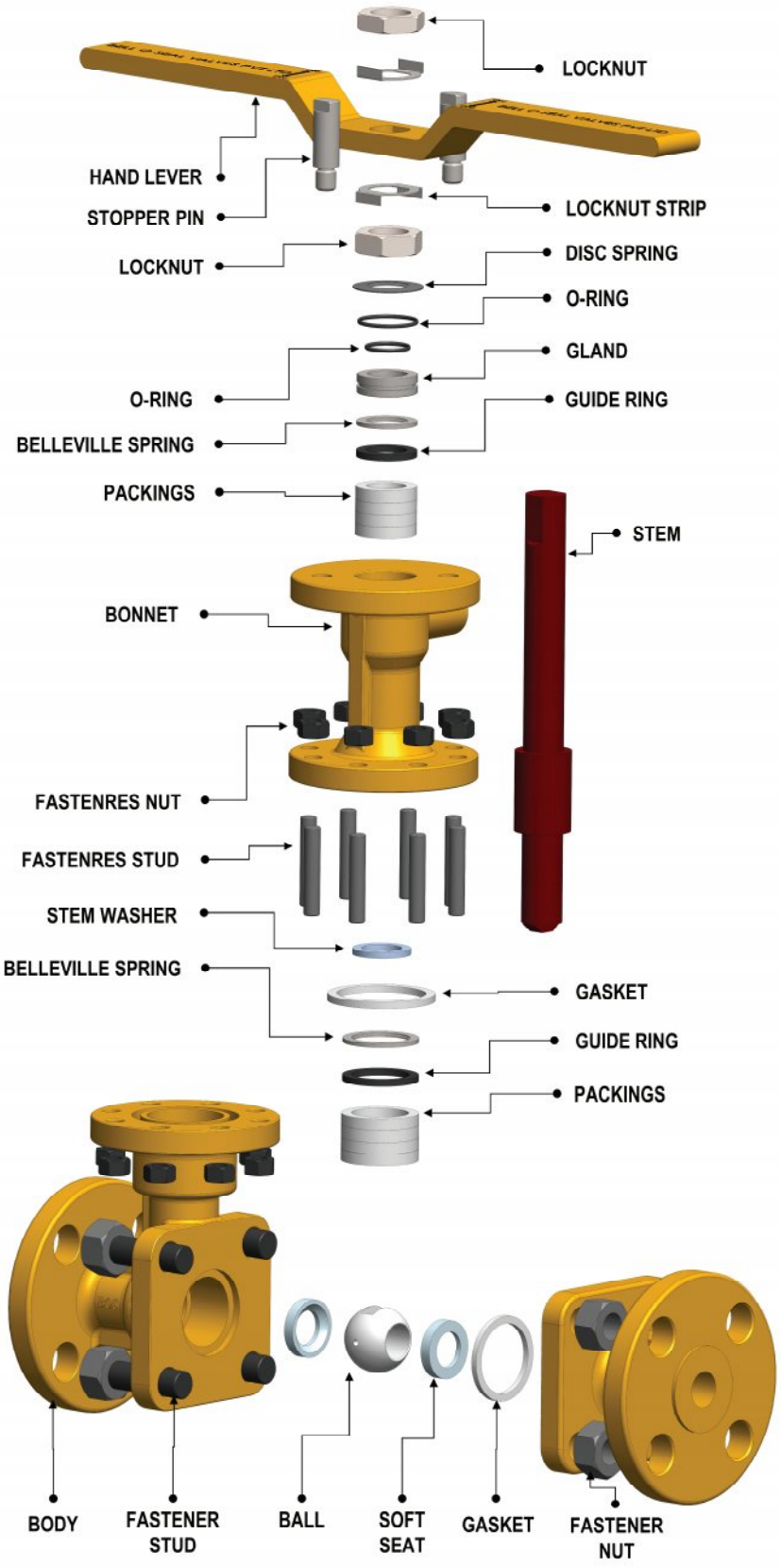
CHLORINE BALL VALVES

STANDESIGN FEATURES

The design deals with high integrity flanged straight through quarter turn ball valves, with packed gland, for use on liquid chlorine.
Over-pressurisation of the body cavity is prevented by relieving the excessive pressure to the upstream side of the valve by a hole/passage provided in the ball at upstream side of the valve.
This ensures hydraulic pressure relief of all internal cavities and of the ball part when the valve is in the closed position and also ensures pressure relief of the cavity, when the valve is in open position.



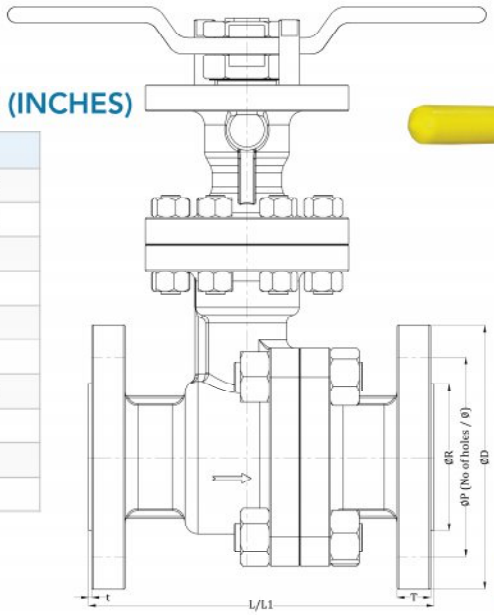
A. INTENSE BODY CONSTRUCTION: Designed to withstand unusual strain with two-piece, cast split design.
B. EXTENDED BONNET: Single piece integral bonnet fastened to body directly isolating the process fluid from atmosphere.
C. ENERGIZED LINE LOADED SEALS: Designed for Innocuous environmental, primary (lower) seals and secondary (upper) seals featuring live loaded Virgin PTFE.
D. HEAVY DUTY HANDLE: Designed to withstand aggressive environment and provides a safe, accurate and reliable means of operating and locking out the valve.
E. ATMOSPHERIC SEALS: Radially loaded Viton / EPDM O-Rings isolates the mechanical shafts seals from external contaminants.
F. MOUNTING FLANGE: allows easy assembly and mounting of actuators and gear operators.
G. MONITORING PORT: Positive position indication by handle and stem tang position, which align with ball port along with stopper arrangements at open and close.
H. BLOWOUT PROOF STEM: self adjust with pressure and temperature fluctuations. blow-out proof helps prevent accidents and injuries.
I. PRESSURE RELIEF HOLE IN SIDE OF THE BALL: upstream vent for excessive valve cavity pressure in closed position.

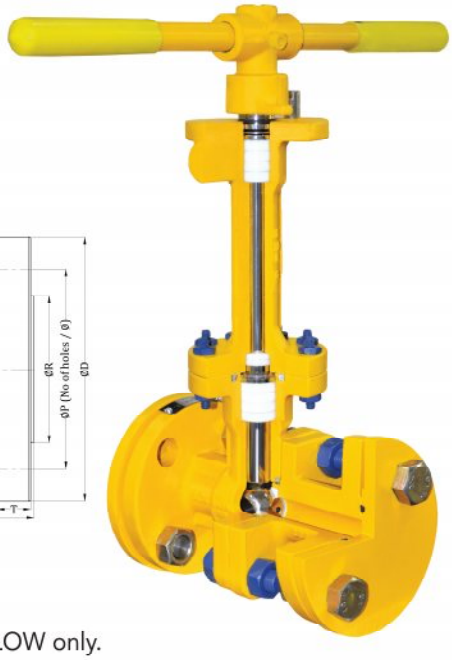
ACTUATED ON-OFF BALL VALVE

CHLORINE BALL VALVES

MATERIAL OF CONSTRUCTIONS & DIMENSIONS (INCHES)

SN	PARTS	MATERIAL RECOMMENDATION
1	BODY	ASTM A352 Gr. LCC (1.1138) / LCB (1.1131)
2	SIDE PIECE	ASTM A352 Gr. LCC (1.1138) / LCB (1.1131)
3	BALL	MONEL / HASTELLOY C276
4	SOF SEAT	PTFE
5	BODY GASKET	HASTELLOY C276 + PTFE
6	PACKING	PTFE
7	BONNET	ASTM A352 Gr. LCC (1.1138) / LCB (1.1131)
8	STEM	MONEL / HASTELLOY C276
9	GLAND BUSH	MONEL / HASTELLOY C276
10	FASTENERS	ASTM A320 Gr. L7 / A194 Gr. 7





CONFORMING STANDARDS:

1. Design standard for PN 40 rating : GEST 17 / 492
2. Design standard for Class 150/300 : GEST 17 / 492
3. Face-to-Face for PN 40 rating : EN 558 - 1
4. Face-to-Face for class 150/300 : ASME B16.10
5. Flange facing details for PN 40 : EN 1092 - 1
6. Flange facing details for Class 150/300 : ASME B16.5

SPECIAL NOTES:

1. Valve is of UNI-DIRECTIONAL FLOW only.
2. Flanged end - Cast. Forged available upon request.
3. Two piece with side entry stem design.
4. Reduced bore design available upon request.

VALVE SIZE (Inch)	CLASS 150 (BALL VALVE)								
	ØD	ØP	ØR	T	t	No. OF HOLE / Ø	L1	APPROX. WEIGHT	
								Kg	lbs
0.5	3.5	2.38	1.38	0.31	0.06	4 / 0.63	4.25	8.5	18.7
0.75	3.88	2.75	1.69	0.34	0.06	4 / 0.63	4.62	9.5	20.9
1	4.25	3.12	2	0.38	0.06	4 / 0.63	5	10.8	23.8
1.5	5	3.88	2.88	0.5	0.06	4 / 0.63	6.5	20	44
2	6	4.75	3.62	0.56	0.06	4 / 0.75	7	22.6	49.8

VALVE SIZE (Inch)	CLASS 300 (BALL VALVE)								
	ØD	ØP	ØR	T	t	No. OF HOLE / Ø	L1	APPROX. WEIGHT	
								Kg	lbs
0.5	3.75	2.62	1.38	0.5	0.06	4 / 0.63	5.5	9	19.8
0.75	4.52	3.25	1.69	0.56	0.06	4 / 0.75	6	10	22
1	4.88	3.5	2	0.62	0.06	4 / 0.75	6.5	13.5	29.8
1.5	6.12	4.5	2.88	0.75	0.06	4 / 0.87	7.5	16.5	36.4
2	6.5	5	3.62	0.81	0.06	8 / 0.75	8.5	26.2	57.3

VALVE SIZE (Inch)	PN40 (BALL VALVE)								
	ØD	ØP	ØR	T	t	No. OF HOLE / Ø	L1	APPROX. WEIGHT	
								Kg	lbs
0.5	3.75	2.55	1.78	0.55	0.06	4 / 0.55	5.12	8	17.6
0.75	4.12	2.95	2.28	0.63	0.06	4 / 0.55	5.9	9	18.8
1	4.52	3.35	2.68	0.63	0.06	4 / 0.55	6.3	12	26.45
1.5	5.9	4.32	3.46	0.59	0.12	4 / 0.71	7.88	14.8	32.6
2	6.5	4.92	4	0.67	0.12	4 / 0.71	9	24	52.9

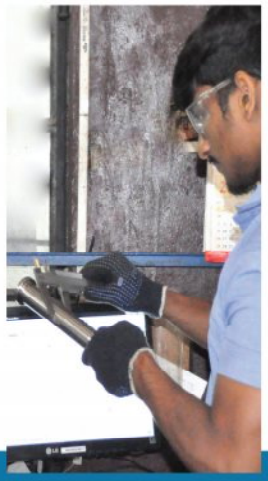
*Specifications may change without prior notice, due to continuous research and development.

QUALITY CONTROL PROCEDURES

BELLOWS PMI

RAW MATERIAL PMI

LEVEL INSPECTION



DIA INSPECTION

STELLITE DP TEST

ULTRASONIC CLEANING

TESTING (P11)

HELIUM LEAK TEST

HEATING IN OVEN

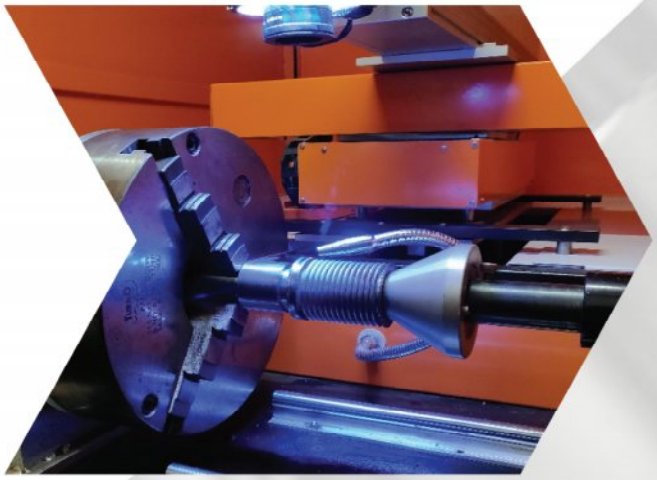
BLANKING

TAGGING

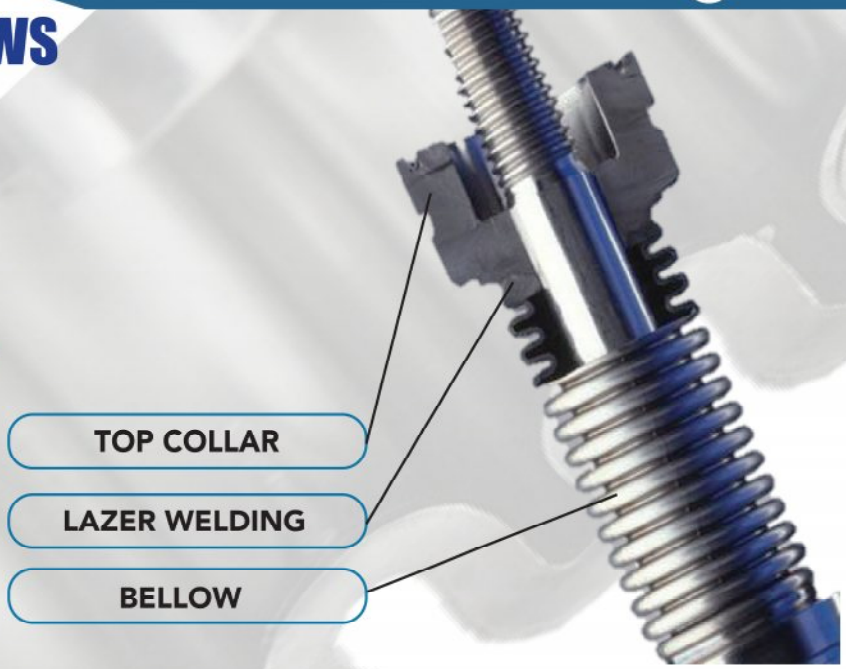
VISUAL INSPECTION

PACKING REVIEW

TECHNICAL DETAILS OF BELLOWS



LASER WELDING MACHINE



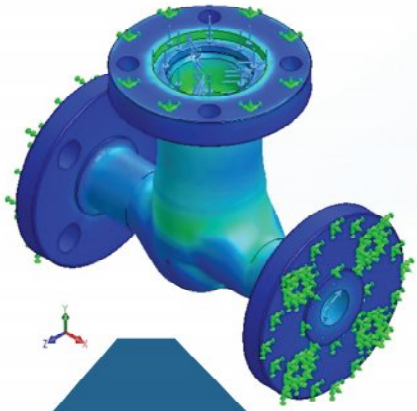
MULTI-PLY BELLOWS

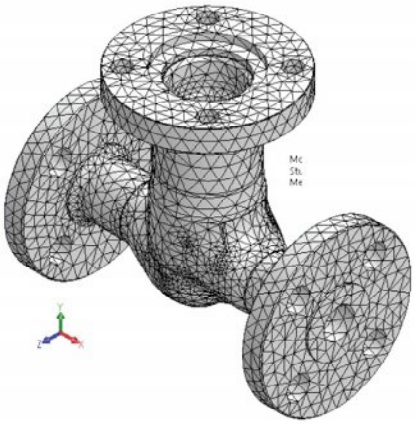
MULTIPLY BELLOWS AS PER APPLICATIONS

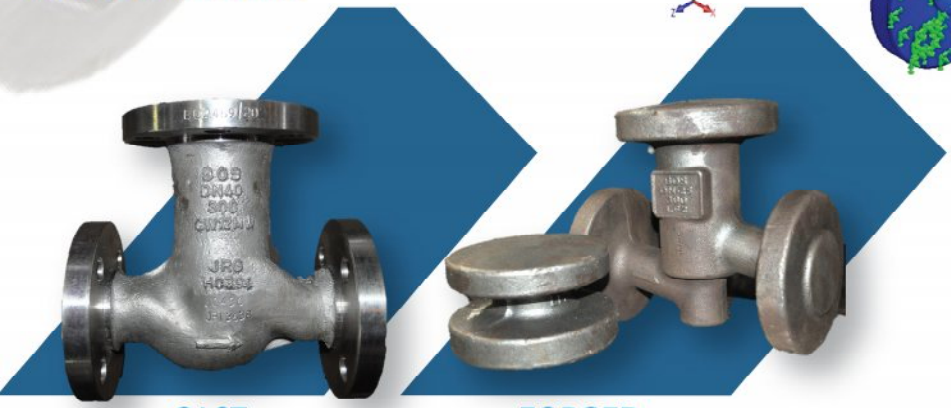
AISI 321 / 316Ti	: Steam, THF, non-corrosive applications
Inconel 625	: High temperature applications
Hastelloy C276	: Highly corrosive applications (Chlorine, Fatty Acids, etc.)

STANDARDISED DESIGNS

- We have well-qualified engineers in our engineering department to develop solutions and continuously works on improvements. Most recent Calculation, FE Analysis offers for permanent improvements of our products.
- Extended valve body neck allows positioning of bellows in the valve body, with guided stem arrangement.







CAST

FORGED

CERTIFICATION

euro chlor 17.

17/01

APPROVAL CERTIFICATE

The Working Group Production, Storage and Transport Safety (GEST) of Euro Chlor, after examination of the documents listed in Appendix 1, declared that the valves manufactured by

Bell-O-Seal Valves Pvt.Ltd.- Subramanyanagar Puttur Village, Santhekatte P.O. - Udupi Dist - 576 105 Karnataka (India)

As described hereafter:

- Are in accordance with the specification GEST 06/318, 2nd edition - June 2012
- And are approved for use with liquid and dry gaseous chlorine.

This Approval Certificate is given for the bellow sealed globe valves model(s) (Bell-O-Seal references):

Manual globe valves CBGL - EC (PN40) according to the drawing BOS-S-13512, rev. 01 /R4/ and CBGL - EC (300#) according to the drawing BOS-S 13403, rev. 03 /R5/.

- Manufactured with dimension DN25 mm, DN 40 mm, DN 50 mm, DN 80 mm, DN 100 mm and DN150 mm,
- According to PN40 and Class 300,
- And in accordance with the documents listed in Appendix 1, an original of which being filed by Euro Chlor.

Euro Chlor keeps the right to cancel this approval certificate in case of infringement of the prescription of the GEST specification 06/318.

Bell-O-Seal Valves	Euro Chlor	Working Group Production, Storage and Transport Safety (GEST)
Mr Ashok Kumar	Mr Dolf van Wijk	Ms Claudia Paarmann
Vice President - Operations	Executive Director	Chairperson
Location: Karnataka/India	Location : Brussels/Belgium	Location : Stade/Germany
Date : 06/02/2018	Date : 15/01/2018	Date : 2/01/2018

euro chlor 17.

18/01

APPROVAL CERTIFICATE

The Working Group Production, Storage and Transport Safety (GEST) of Euro Chlor, after examination of the documents listed in Appendix 1, declared that the valves manufactured by

Bell-O-Seal Valves Pvt.Ltd.- Subramanyanagar Puttur Village, Santhekatte P.O. - Udupi Dist - 576 105 Karnataka (India)

As described hereafter:

- Are in accordance with the specification GEST 06/318, 2nd edition - June 2012
- And are approved for use with dry gaseous chlorine.

This Approval Certificate is given for the bellow sealed globe valves model(s) (Bell-O-Seal references):

Dry Chlorine Gas Manual Bellow Seal Globe Valves CBGL - EC 150# according to the drawing Dry Chlorine Gas Bellow Seal Globe Valve 150#"/R4/. Dated 12-04-2018.

- Manufactured with dimension DN25 mm, DN 40 mm, DN 50 mm, DN 80 mm, DN 100 mm and DN150 mm,
- According to Class 150Lbs, only to be used in dry chlorine gas,
- And in accordance with the documents listed in Appendix 1, an original of which being filed by Euro Chlor.

Euro Chlor keeps the right to cancel this approval certificate in case of infringement of the prescription of the GEST specification 06/318.

Bell-O-Seal Valves	Euro Chlor	Working Group Production, Storage and Transport Safety (GEST)
Mr Rajesh K Salins	Mrs Marleen Pauwels	Mrs Claudia Paarmann
Managing Director	Executive Director	Chairperson
Location: Karnataka/India	Location: Brussels/Belgium	Location: Stade/Germany
Date: 6../2/2019	Date: 10/01/2019	Date: 15/01/2019

"ONLY INDIAN COMPANY APPROVED BY EUROCHLOR AND RUSCHLOR"

«РусХлорСерт»

Система добровольной сертификации в хлорной промышленности

СЕРТИФИКАТ СООТВЕТСТВИЯ

№ IN.M790.B00067

Срок действия с 24.12.2021 по 23.12.2024

RusChlor

№ 00067

ОРГАН ПО СЕРТИФИКАЦИИ НО «Ассоциация предприятий хлорной промышленности «РусХлор». Адрес: 117330, г. Москва, ул. Мосфильмовская, д. 17 б. Тел.+7 (495)742-88-42, факс+7 (495) 742-88-40, e-mail: info@ruschlor.ru ОГРН:1057748352958 Аттестат рег. № РОСС RU.M790.04РХС0 выдан Федеральным агентством по техническому регулированию и метрологии.

ПРОДУКЦИЯ
Сильфонные клапаны моделей CBGL - EC (300#), CBGL- EC (PN 40)
Серийный выпуск

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ
GEST 79/82 – Конструкционные материалы для применения в условиях контакта с хлором
Gest 06/318, изд. 2 – июнь 2012 г. (2nd edition – June 2012)
Код ТН ВЭД 8481 80 739 9

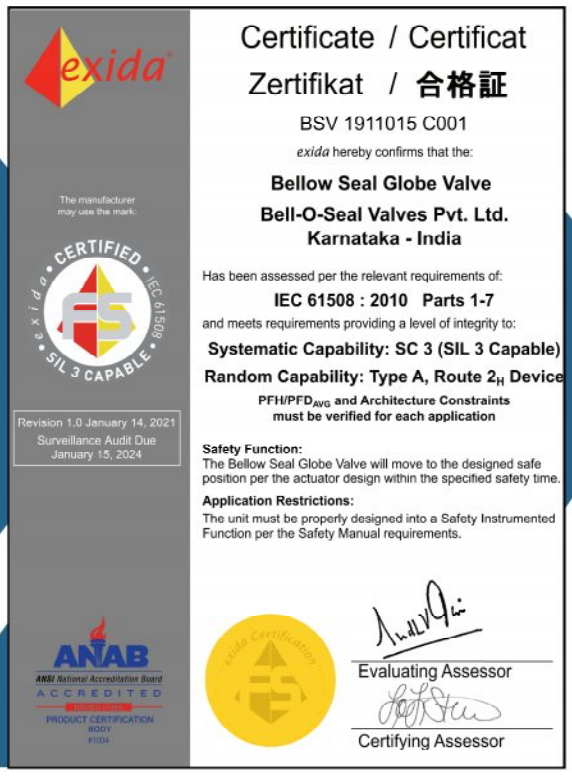
ИЗГОТОВИТЕЛЬ BELL O SEAL VALVES PVT LTD
Subramanyanagar, Puttur Village, Santhekatte P.O, Udupi Dist, 576105 Karnataka, India

СЕРТИФИКАТ ВЫДАН BELL O SEAL VALVES PVT LTD
Subramanyanagar, Puttur Village, Santhekatte P.O, Udupi Dist, 576105 Karnataka, India

НА ОСНОВАНИИ
Экспертного заключения системы добровольной сертификации «РусХлорСерт» № 3742 - 00067 - 2021 г. от 20.12.2021 г.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ
В течение срока действия сертификата разрешена маркировка продукции знаком соответствия «РусХлорСерт».

М.П. Руководитель органа Б.Ю. Ягуд
Эксперт Н.О.Мисливский



exida

The manufacturer may use the mark:

CERTIFIED IEC 61508 SIL 3 CAPABLE

Revision 1.0 January 14, 2021
Surveillance Audit Due January 15, 2024

ANAB ANSI National Accreditation Board ACCREDITED PRODUCT CERTIFICATION BODY #1004

Certificate / Certificat
Zertifikat / 合格証

BSV 1911015 C001

exida hereby confirms that the:

Bellow Seal Globe Valve
Bell-O-Seal Valves Pvt. Ltd.
Karnataka - India

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

and meets requirements providing a level of integrity to:

Systematic Capability: SC 3 (SIL 3 Capable)
Random Capability: Type A, Route 2_H Device
PFH/PFD_{AVG} and Architecture Constraints must be verified for each application

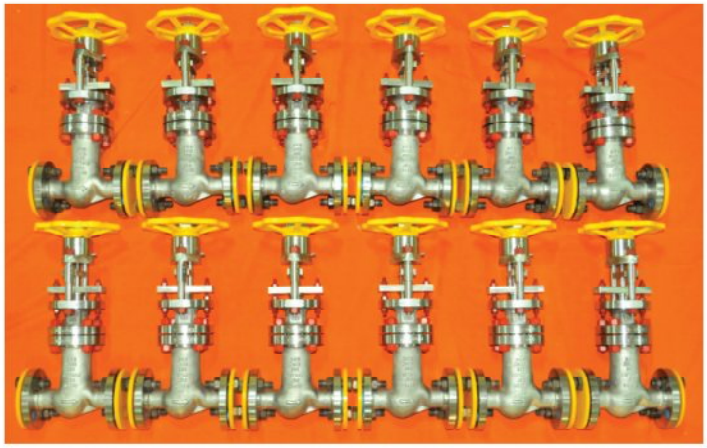
Safety Function:
The Bellow Seal Globe Valve will move to the designed safe position per the actuator design within the specified safety time.

Application Restrictions:
The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.

Evaluating Assessor
Certifying Assessor

euro chlor 17. RusChlor

BOS CHLORINE VALVES PORTFOLIO



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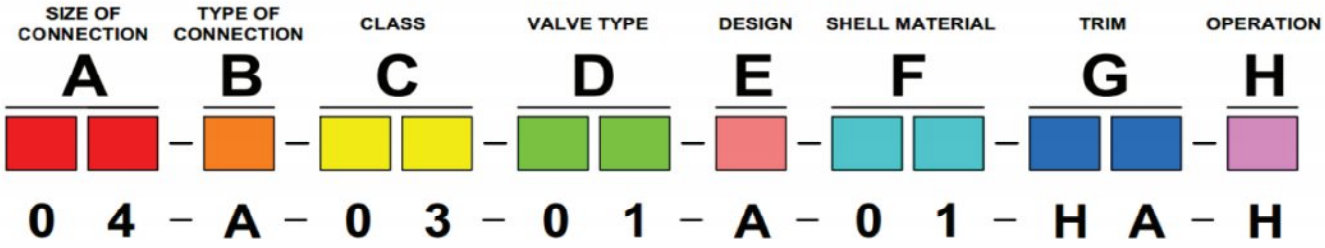
HOW TO ORDER CHLORINE BELLOW SEAL GLOBE VALVES



Example: 1",(DN25) flanged RF end 300 class, euro chlor bellow seal globe valve bolted design, Shell material LCC, with disc seat & body seat of STELLITE GR6, HASTELLOY C 276 Stem & bellow, handwheel operated.

A SIZE OF CONNECTION

02 - DN15 / ½"	10 - DN100 / 4"
03 - DN20 / ¾"	12 - DN150 / 6"
04 - DN25 / 1"	13 - DN200 / 8"
06 - DN40 / 1½"	14 - DN250 / 10"
07 - DN50 / 2"	15 - DN300 / 12"
09 - DN80 / 3"	

B TYPE OF CONNECTION

A - FLANGED RAISED FACE
B - FLANGED LARGE TONGUE
C - FLANGED LARGE GROOVE
D - FLANGED SMALL TONGUE
E - FLANGED SMALL GROOVE
F - FLANGE WITH RING JOINT
Z - SPECIAL

C CLASS

01 - 150	40 - PN40
03 - 300	

D VALVE TYPE

01 - EURO CHLOR BELLOW SEAL GLOBE VALVE

E DESIGN

A - BOLTED BONNET

F SHELL MATERIAL

01 - LCC	06 - CF8M
02 - LCB	07 - CF3M
03 - LC1	08 - CW12MW
04 - LC3	09 - M35-1
05 - LF2*	10 - CY-40

* Available in 1", 1 1 2" & 2" with 300# ratings.

G TRIM

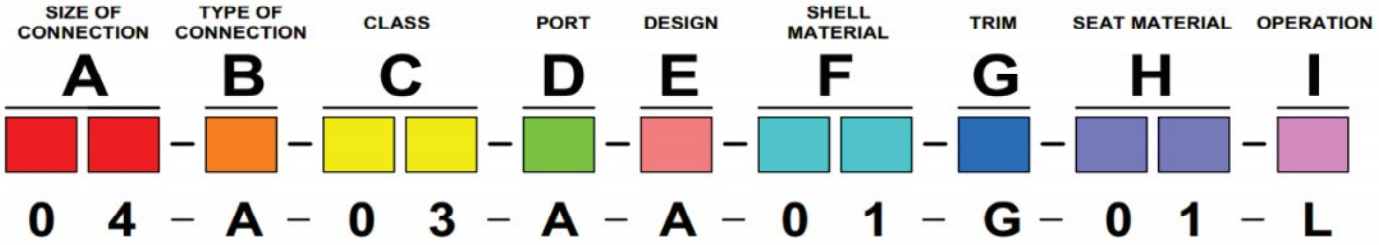
CODE	DISC SEAT	BODY SEAT	STEM	BELLOW
HA	STELLITE GR 6	STELLITE GR 6	HASTELLOY C276	HASTELLOY C276
HB	STELLITE GR 21	STELLITE GR 21	HASTELLOY C276	HASTELLOY C276
HC	STELLITE GR 6	STELLITE GR 21	HASTELLOY C276	HASTELLOY C276
HD	STELLITE GR 6	STELLITE GR 6	MONEL 400	HASTELLOY C276
HE	STELLITE GR 21	STELLITE GR 21	MONEL 400	HASTELLOY C276
HF	STELLITE GR 6	STELLITE GR 21	MONEL 400	HASTELLOY C276
HG	STELLITE GR 6	STELLITE GR 6	316L	HASTELLOY C276
HH	STELLITE GR 21	STELLITE GR 21	316L	HASTELLOY C276
HI	STELLITE GR 6	STELLITE GR 21	316L	HASTELLOY C276

H OPERATION

H - HANDWHEEL OPERATED
G - GEARBOX OPERATED
P - PNEUMATIC ACTUATOR OPERATED
E - ELECTRIC ACTUATOR OPERATED

- The valve coding shown on this catalouge are designed to cover essential features on BOS Chlorine Bellow Seal Globe Valves.
- If any other kind of requirement, it must be clearly specified in the order.
- Follow guidelines for MOC for contact parts with chlorine as per GEST 79/82 11th Edn.

HOW TO ORDER CHLORINE BALL VALVES



Example: 1",(DN25) flanged raised face end, 300 class full port, 2 piece design, shell material of LCC, with HASTELLOY C trim, PTFE seated, lever operated.

A SIZE OF CONNECTION

02 - DN15 / ½"	06 - DN40 / 1½"
03 - DN20 / ¾"	07 - DN50 / 2"
04 - DN25 / 1"	

B TYPE OF CONNECTION

A - FLANGED RAISED FACE
B - FLANGED LARGE TONGUE
C - FLANGED LARGE GROOVE
D - FLANGED SMALL TONGUE
E - FLANGED SMALL GROOVE
Z - SPECIAL

C CLASS

01 - 150	40 - PN40
03 - 300	

D PORT

A - FULL PORT

E DESIGN

A - 2 PIECE

F SHELL MATERIAL

01 - LCC	06 - CF8M
02 - LCB	07 - CF3M
05 - LF2	08 - CW12MW

G TRIM

G - HASTELLOY C
I - MONEL

H SEAT MATERIAL

01 - PTFE

I OPERATION

L - LEVER OPERATED
P - PNEUMATIC OPERATED

- The valve coding shown on this catalouge are designed to cover essential features on BOS Chlorine Ball valves
- If any other kind of requirement, it must be clearly specified in the order.
- Follow guidelines for MOC for contact parts with chlorine as per GEST 79/82 11th Edn.