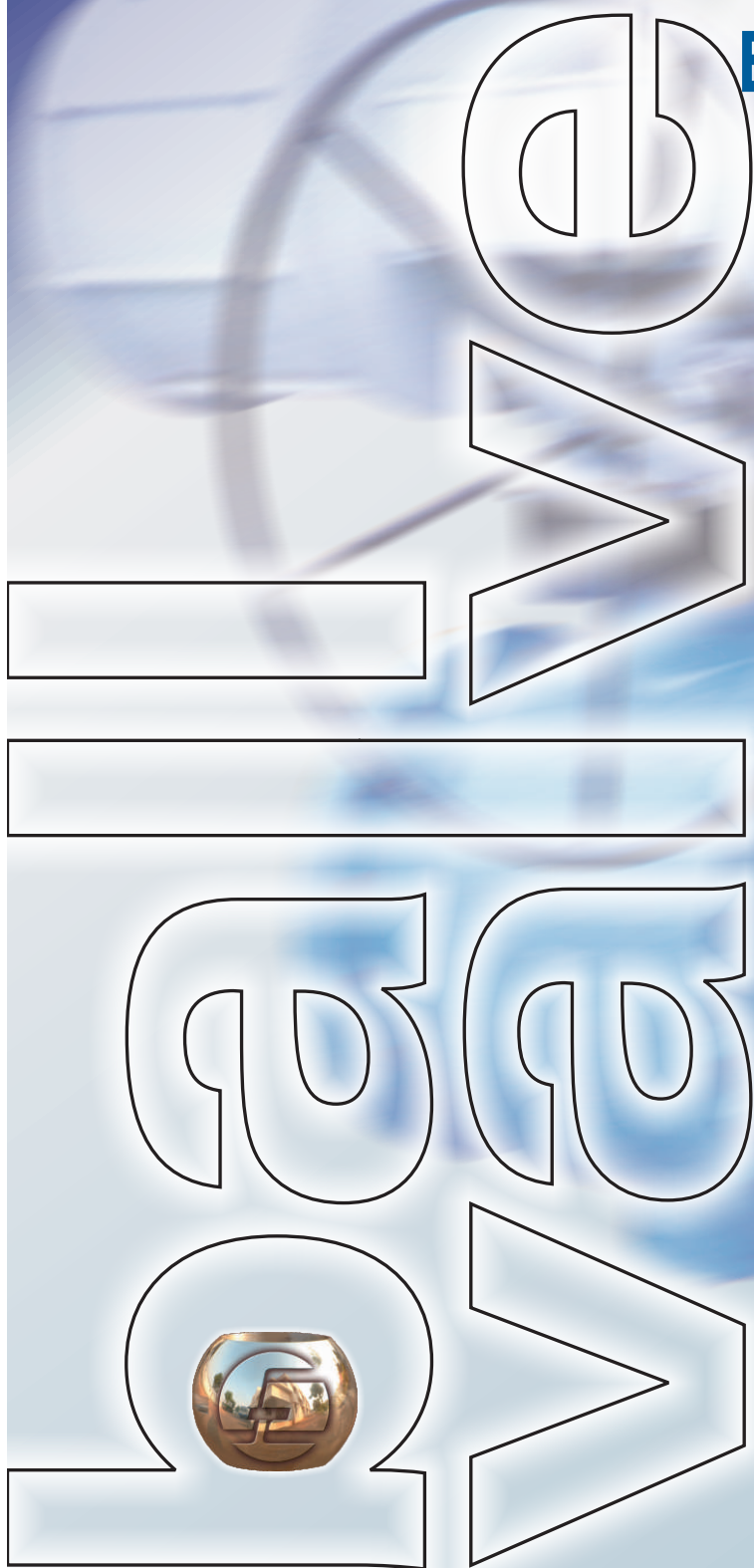


Side Entry Pipeline Ball Valves



THAT NEVER HAS TO
LEAVE THE LINE



SIL



**Flowchem
Industries**



INTRODUCTION

Flowchem industries is one of the leading manufacturer of valves like Ball valve, Gate valve, Globe valve, Check valve, Butterfly valve and Strainer, Flowchem has been servicing the oil industries, Petro Chem industries, Pharmaceuticals units, Refineries Since 1981 with product range in size 006 mm. to 750 mm. and pressure rating up to 2500 class.

Flowchem Industries is authorized to use API monogram on their products; under API license number 6D-0412 for API 6D, 600-0030 for API- 600, 608-0008 for API- 608 & 6A-0766 for API 6A.

Flowchem Industries is approved with CE PED under Approval No CE-0062-PED-H-FCL001-16-IND by BV

Flowchem Industries quality management system has been certified to ISO 9001:2008 by BVQI.

We have conducted Fire safe test for Ball valves as per API 607, 2010 / API6FA 1999 and B.S. 6755 Part II witnessed by EIL/LLOYDS/BVIS.

Flowchem head office is located at Ahmedabad and 2 plants are located at Rakanpur, Gandhinagar in total 133200 square feet area facilities on the each premises include machine shop, assembly & test bench and warehouse.

- Flowchem Workshop Having Total 32400 Square Feet Floor Area
- Sanctioned Load: 40 K.W. Power Connection
- Own Generation: 30 K.W.
- CNC Machineries
- Fire Safe Testing Bench
- CV Testing Bench
- Helium Leak Test Machine
- Automatic & Manual Hydro Pneumatic Testing Facilities



The staff at Flowchem pride themselves in their ability to respond to specific customer's requirements. Flowchem has repeatedly constructed equipment for extraordinary applications, whether it be valves for cryogenic service, high temperature, high pressure, corrosive media or a combination of these service requirements. Flowchem Industries' experience Includes specialized Material selection for the successful control of corrosive and erosive flow media.

Whatever your requirements, Flowchem provides the experience, flexibility and knowledge to supply the equipment for your application.

Modern custom designed machineries, equipments and methods throughout the plant combine to produce valves to high standards of quality. During manufacturing all parts are subject to a routine quality control. After assembly every valves are subjected to a shell and seat test.



REMOTE OPERATED VALVE

FLOWCHEM ball valves are suitable for power assisted operation. When the valve operation needs assisted, FLOWCHEM will provide any kind of valve actuator. e.g. Pneumatic, Hydraulic, Electric. FLOWCHEM will take full responsibility in selection of actuator of the most suitable size for operating condition.



FLOWCHEM offer Remote Operated Ball valve fitted with Pneumatic Actuator.

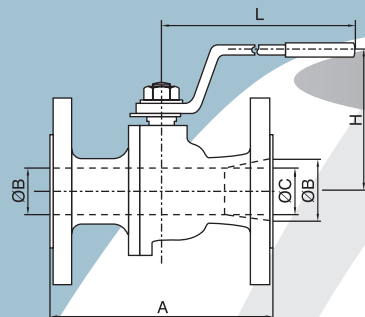
In Pneumatic Actuator
We have three options,
1. DOUBLE ACTING
2. SPRING RETURN
3. DOUBLE ACTING FAIL-SAFE

The Pneumatically operated Ball valves are provided with Accessories like (1) Manual over-ride (2) Solenoid valve (3) Limit switches, Torque switches, ON-OFF local and remote indication.



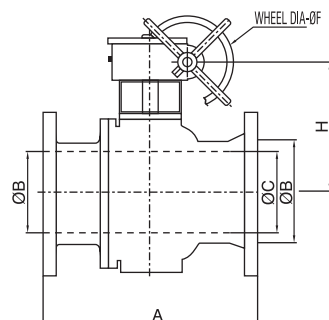


CLASS 150



SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	108	140	12.5	12.5	65	-	65	-	165	165	-	-	1.7	1.7	1.2	1.2
20	118	152	18	12.5	70	-	65	-	165	165	-	-	2.5	2.1	1.9	1.7
25	127	165	25	18	75	-	70	-	165	165	-	-	3.2	3	2.3	2
32	140	178	32	25	85	-	75	-	165	165	-	-	4.7	4	3.6	3.2
40	165	190	38	32	90	-	85	-	230	200	-	-	6.7	6	4	3.6
50	178	216	50	38	105	135	95	-	280	230	-	-	10	8.5	6.5	5.5
65	190	241	65	50	115	150	105	135	280	230	-	-	13.5	12	8.4	7.5
80	203	283	76	65	125	160	130	150	350	350	-	-	18	12	8.4	7.5
100	229	305	102	76	160	190	150	160	400	350	-	-	29.5	25	19.3	15
125	254	-	127	102	185	240	160	190	450	400	-	-	37	31	23	19.5
150	267	403	152	102	208	-	174	250	450	400	-	-	54	44	42.5	34
150	394	457	152	102	290	280	-	-	-	-	300	300	104	77	91	68
200	457	521	203	152	325	325	-	280	-	-	400	300	156	116	137	102
250	533	559	254	203	-	370	-	325	-	-	500	400	220	179	195	159
300	610	635	305	254	-	412	-	370	-	-	600	500	385	290	338	255
350	686	762	340	305	-	510	-	412	-	-	600	600	632	505	577	461
400	762	838	390	340	-	560	-	510	-	-	600	600	825	745	845	680
450	864	914	438	340	-	590	-	510	-	-	600	600	1000	942	1000	900
500	914	991	490	390	-	650	-	560	-	-	600	600	1234	1150	1225	1105
550	1067	1067	540	438	-	680	-	590	-	-	600	600	1490	1290	1460	1200
600	1067	1143	590	490	-	725	-	650	-	-	600	600	1700	1550	1680	1500
650	1143	1245	635	490	-	800	-	650	-	-	600	600	1980	1763	1848	1750
700	1245	1346	685	540	-	850	-	680	-	-	600	600	2277	2096	2230	2035
750	1295	1397	736	590	-	925	-	725	-	-	600	600	2600	2405	2533	2200

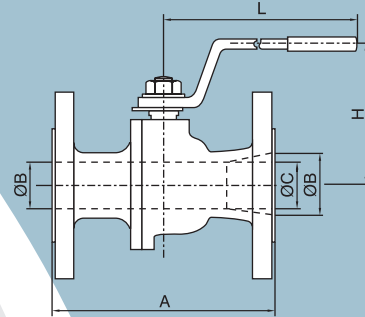
CLASS 300



SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	140	140	12.5	12.5	80	-	80	-	200	200	-	-	2.6	2.6	1.2	1.2
20	152	152	18	12.5	85	-	80	-	200	200	-	-	4.2	3.7	1.9	1.7
25	165	165	25	18	95	-	85	-	200	200	-	-	5	4.3	2.3	2
32	178	178	35	25	95	-	95	-	200	200	-	-	7.2	6.3	3.6	3.2
40	190	190	38	32	90	-	95	-	280	230	-	-	9.8	9	4.7	4.3
50	216	216	50	38	105	135	90	-	350	280	-	-	13.7	11.6	8.1	6.9
65	241	241	65	50	130	150	105	135	350	350	-	-	20.1	16.7	12.5	10.5
80	283	283	76	65	140	160	130	150	400	350	-	-	28.3	22.5	17.1	13.6
100	305	305	102	76	170	190	140	160	450	400	-	-	59	39	41	32
150	403	457	152	102	220	280	190	250	450	450	450	350	132	100	107	81
200	502	521	203	152	-	353	-	280	-	-	450	450	217	170	180	141
250	568	559	254	203	-	415	-	353	-	-	530	450	332	265	282	225
300	648	635	305	254	-	485	-	415	-	-	650	530	506	381	440	331
350	762	762	340	305	-	527	-	485	-	-	650	650	710	570	612	441
400	838	838	390	340	-	560	-	527	-	-	650	650	1070	860	920	740
450	914	914	438	340	-	625	-	527	-	-	600	600	1337	1075	1150	925
500	991	991	490	390	-	650	-	560	-	-	600	600	1644	1320	1400	1130
550	1092	1092	540	438	-	680	-	625	-	-	600	600	1990	1600	1694	1367
600	1143	1143	590	490	-	725	-	650	-	-	600	600	2368	1904	2010	1626
650	1245	1245	635	490	-	800	-	650	-	-	600	600	2770	2027	2351	1700
700	1346	1346	685	540	-	850	-	680	-	-	600	600	3185	2225	2725	1870
750	1397	1397	736	590	-	925	-	725	-	-	600	600	3662	2450	3135	2050

- RF:-Raise Face Flanged End
- BW:-Butt weld
- FO:-Floating Ball
- TR:-Trunion Mounted Ball
- FB:-Full Bore
- RB:-Reduce Bore
- * Approximate Weight

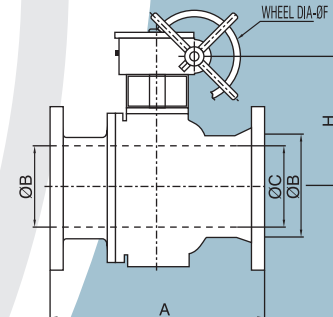
CLASS 400



SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	165	165	12.5	12.5	75	-	75	-	200	200	-	-	3.9	3.9	3.2	3.2
20	190	190	18	12.5	80	-	75	-	200	200	-	-	6.3	5	5.2	4.2
25	216	216	25	18	90	-	80	-	200	200	-	-	7.5	6	6.2	5
32	229	229	32	25	95	-	90	-	200	200	-	-	11	8.8	9	7.2
40	241	241	38	32	95	-	95	-	280	230	-	-	15	12	12.4	10
50	292	292	50	38	105	135	95	120	350	280	-	-	20	17	16.5	13
65	330	330	65	50	130	150	105	135	400	350	-	-	30	24	24.8	20
80	356	356	76	65	140	160	130	150	400	400	-	-	45	36	37	30
100	406	406	102	76	170	190	140	160	450	400	-	-	80	64	66	53
150	495	495	152	102	-	280	-	235	-	-	450	350	135	108	111	89
200	597	597	203	152	-	353	-	280	-	-	450	450	235	188	194	155
250	673	673	254	203	-	435	-	353	-	-	530	450	370	296	305	244
300	762	762	305	254	-	495	-	435	-	-	650	530	565	452	466	373
350	825	825	340	305	-	525	-	495	-	-	650	650	810	648	668	353
400	902	902	390	340	-	555	-	525	-	-	650	650	1200	960	990	792



CLASS 600

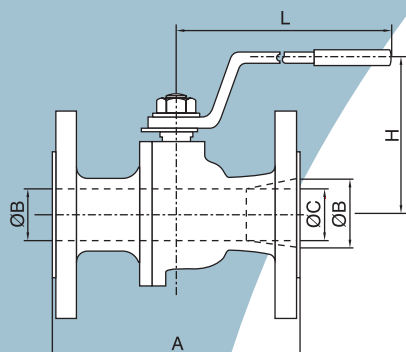


SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	165	165	12.5	12.5	65	-	65	-	-	-	-	-	6	6	4.7	4.7
20	190	190	18	12.5	75	-	65	-	-	-	-	-	9	7.2	7	5.6
25	216	216	25	18	85	-	75	-	-	-	-	-	13.5	11	10.5	8.5
32	229	229	32	25	90	-	85	-	-	-	-	-	20	16	15.5	8.5
40	241	241	38	32	95	-	90	-	-	-	-	-	31	25	24	16
50	292	292	50	38	-	150	-	-	350	280	-	-	45	36	35	28
80	356	356	75	65	-	175	-	150	400	350	-	-	80	64	62	50
100	432	432	102	75	-	265	-	175	-	-	450	450	120	96	93	75
150	559	559	152	102	-	305	-	265	-	-	450	450	180	144	140	112
200	660	660	203	152	-	410	-	305	-	-	450	450	270	216	209	167
250	787	787	254	203	-	450	-	410	-	-	530	450	421	337	326	261
300	838	838	305	254	-	495	-	450	-	-	650	530	630	504	488	390
350	889	889	340	305	-	525	-	495	-	-	650	650	930	744	721	577
400	991	991	390	340	-	605	-	525	-	-	650	650	1300	1040	1007	805
450	978	978	438	340	-	775	-	525	-	-	600	600	1700	1310	1300	1050
500	1054	1054	490	390	-	675	-	555	-	-	600	600	3500	2800	2825	2600
550	1143	1143	540	438	-	750	-	775	-	-	600	600	4235	3388	3400	3120
600	1232	1232	590	490	-	800	-	675	-	-	600	600	5039	4000	4046	3700
650	1308	1308	635	490	-	875	-	675	-	-	600	600	5850	4400	4733	4070
700	1397	1397	685	540	-	940	-	750	-	-	600	600	6727	4840	5442	4477
750	1524	1524	736	590	-	1000	-	800	-	-	600	600	7668	5324	6200	4924

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- TR:-Trunion Mounted Ball
- FB:-Full Bore
- RB:-Reduce Bore
- * Approximate Weight

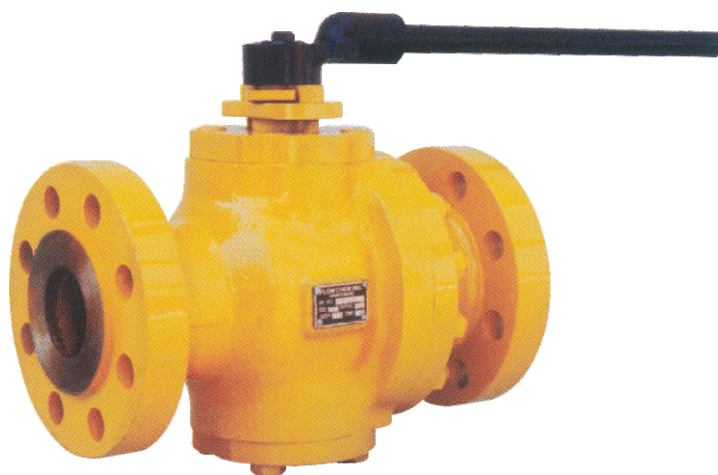
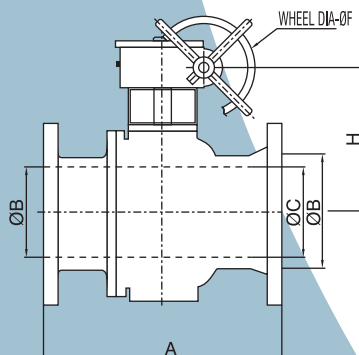


CLASS 900



SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	216	216	12.5	12.5	-	90	-	90	230	230	-	-	12.5	12.5	8.8	8.8
20	229	229	18	12.5	-	105	-	90	280	230	-	-	19	15	13	10.5
25	254	254	25	18	-	127	-	110	280	200	-	-	29	23	20	16
40	305	305	38	32	-	140	-	135	400	350	-	-	43	34	30	24
50	368	368	50	38	-	150	-	143	400	400	-	-	61	49	43	34
80	381	381	76	65	-	190	-	150	450	400	-	-	92	74	64	51
100	457	457	102	76	-	285	-	190	-	-	450	450	138	110	97	78
150	607	607	152	102	-	395	-	285	-	-	450	450	210	168	147	118
200	737	737	203	152	-	430	-	395	-	-	530	450	310	248	217	174
250	838	838	254	203	-	470	-	430	-	-	650	530	465	372	325	260
300	965	965	305	254	-	520	-	470	-	-	650	650	700	560	490	392
350	1029	1029	340	305	-	580	-	520	-	-	650	650	1100	880	770	616

CLASS 1500



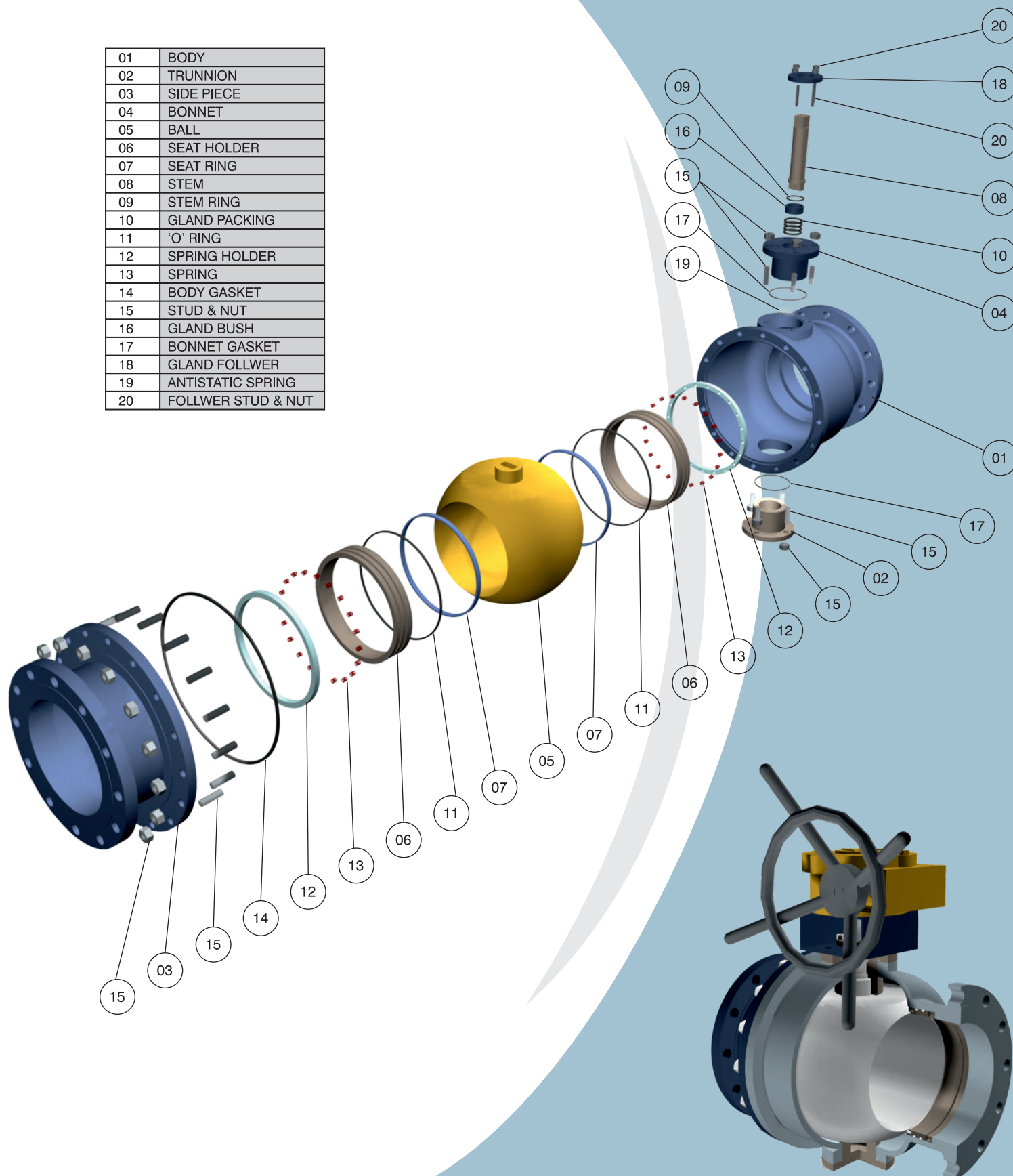
SIZE	A		ØB	ØC	H(FB)		H(RB)		L		ØF		* WT (kg)			
	RF	BW			F0	TR	F0	TR	FB	RB	FB	RB	RF(FB)	RF(RB)	BW(FB)	BW(RB)
15MM	216	216	12.5	12.5	-	90	-	90	230	230	-	-	12.5	12.5	8.8	8.8
20	229	229	18	12.5	-	105	-	90	280	230	-	-	19	15	13	10.5
25	254	254	25	18	-	127	-	105	280	280	-	-	29	23	20	16
40	305	305	38	25	-	142	-	125	350	280	-	-	43	34	30	24
50	368	368	50	38	-	150	-	135	400	350	-	-	61	49	43	34
80	470	470	76	65	-	190	-	150	450	400	450	450	108	85	76	61
100	546	546	102	76	-	285	-	190	-	-	450	450	165	132	115	92
150	705	705	152	102	-	325	-	285	-	-	530	450	250	200	175	140

- RF:-Raise Face Flanged End
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- FO:-Floating Ball
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- * Approximate Weight



ASSEMBLY

01	BODY
02	TRUNNION
03	SIDE PIECE
04	BONNET
05	BALL
06	SEAT HOLDER
07	SEAT RING
08	STEM
09	STEM RING
10	GLAND PACKING
11	'O' RING
12	SPRING HOLDER
13	SPRING
14	BODY GASKET
15	STUD & NUT
16	GLAND BUSH
17	BONNET GASKET
18	GLAND FOLLWER
19	ANTISTATIC SPRING
20	FOLLWER STUD & NUT

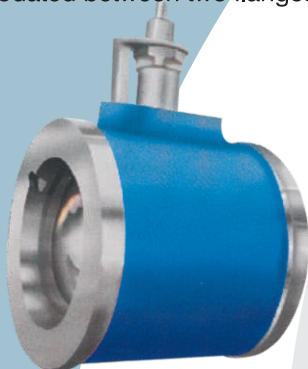




SPECIAL TYPE BALL VALVE

WAFER TYPE BALL VALVE :

Where space is limited this can be accommodated between two flanges.



SEGMENTED BALL VALVE :

Quarter turn ball valve having segment of ball in place of complete sphere ball. Lesser weight, unobstructed flow and economical valve can be successfully used in (1) Powder Handling (2) Slurry Services (3) Abrasive Services



FLUSH BOTTOM BALL VALVE :

DRAINAGE IS FAST : Port diameter of the ball is equal to the pipe bore. When valve is opened the flow is straight through, full and unobstructed.

DRAINAGE IS EASY : The quarter-turn open to close feature, it also requires exceptionally low operating torque.

DRAINAGE IS COMPLETE : The ball is located very near to the tank, minimizes space, this prevents sludge and other trapped sediment from accumulating.



EXTENDED STEM FOR CRYOGENIC SERVICES :

In case of the ball valve installed in the underground pipe/low temperature/cryogenic service or when dealing with extremely high temperature, consideration shall be given to a stem extension in order to protect the valve operator from excessive temperature whether it be lever, gear or power assisted actuator.



JACKETED BALL VALVE :

Steam jacketed valve for heating working fluid prevent solidification.



DESIGN



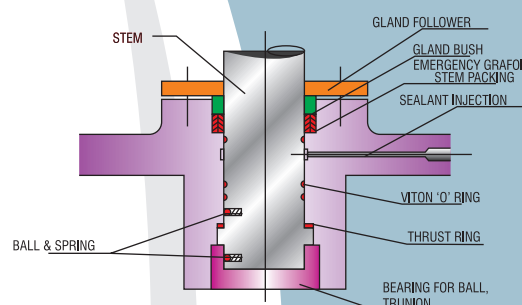
BALL CONSTRUCTION

BALL is a heart of Ball valve. Owing to the accurate manufacturing the ball is extremely spherical. Its mirror finish surface increases the sealing life and low operating torque. precision-machined ball outer surface proves superior quality in low torque and no leakage. Electroless Nickel coated ball are also available on request. Flowchem selects seat support ball or trunnion mounted ball depending on each size and specification.



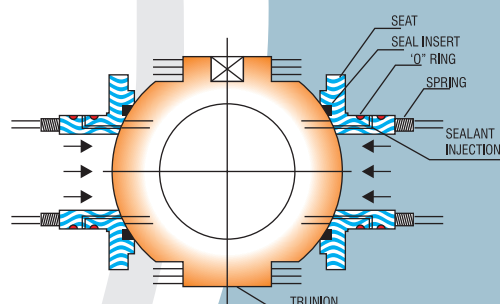
ANTI-STATIC DEVICE AND BLOWOUT PROOF

Anti-static device is formed through metal to metal contact, The stem is grounded against body and ball by separate anti-static spring to avoid from any electric spark. The blow out proof over size stem operate the valve safely even at high differential pressure. A bottom stem seal enabling replacement of gland packing even when valve may under pressure.



DOUBLE BLOCK & BLEED WITH BODY DRAIN

A valve with trunnion supported ball having two floating & spring loaded seats, In closed position they provide blockage of flow from both end when the cavity pressure is vented or drained.



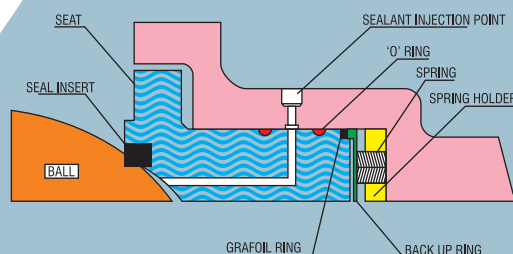
PROTECTED SEATS WITH SECONDARY METALLIC SEATS

PTFE seats are located in grooves, well protected against damage and cold flow of seat under pressure.



SEALANT SYSTEM & LUBRICANT

Ball valve of size 6" & above shall be provided an emergency sealant injection system if required by customer. The lubricant & sealant fittings are located near seat area and at stem neck. The lubricant & sealant enter via inject fitting and pass around the seat ring. The lubricant will lower the torque in valve and sealant will provide sealing for minor damage such as scratches on seal faces, valves are designed to provide the ability for a temporary function.





SPECIFICATIONS

ENGINEERING DATA

DESIGN : BS 5351 / API 6D/ANSI B 16.34
 TESTING : BS 6755 Part-I / API 598
 FLANGE END : ANSI B 16.5
 SW END : ANSI B 16.11
 BW END : ANSI B 16.25
 THREAD END : ANSI B 1.20.1 / ANSI B 2.1
 FACE TO FACE : ANSI B 16.10 / API-6D
 FIRE SAFE : API 607, API 6FA / BS 6755 PART II

MATERIAL OF CONSTRUCTION :

The table shown below provides details of the materials as per the specific conditions of the service, some materials appropriate for the handling of uncommon fluids are not included, but can be supplied upon customer's request.

- Carbon steel for general use.
- Stainless steel for corrosive.
- Alloy Steel for low temp/high temp service
- Alloy 20, Hastelloy, Monel for highly corrosive or abrasive application



PARTS	MATERIAL		
	SS 316	SS 304	CAST STEEL
BODY & SIDE PEACE	ASTM A351 GR CF8M	ASTM A351 GR CF8	ASTM A216 GR WCB
BALL	ASTM A351 GR CF8M	ASTM A351 GR CF8	ASTM A351 GR CF8M
STEM	SS 316	SS 316	SS 316
STUD & NUTS	ASTM A193 B8/ ASTM A194 8	ASTM A193 B8/ ASTM A194 8	ASTM A193 B7/ ASTM A194 2H
SEAT	PTFE / GPTFE	PTFE / GPTFE	PTFE / GPTFE
BODY GASKET	PTFE / GRAFOIL	PTFE / GRAFOIL	PTFE / GRAFOIL
GLAND PACKING	PTFE / GRAFOIL	PTFE / GRAFOIL	PTFE / GRAFOIL
LEVER	SS / CS	SS / CS	CS

WE CAN ALSO PROVIDE 0.003" ELECTROLESS NICKEL PLATING ON BODY, BALL & STEM ON CUSTOMER'S REQUEST.

OPERATING TORQUE

SIZE	FB	15	20	25	32	40	50	65	80	100	150	200	250	300	350
	RB	20	25	32	40	50	65	80	100	150	200	250	300	350	400
Nt.mt.	NM	4	8	14	28	33	55	75	110	245	505	1075	1600	2230	3030

FLOW COEFFICIENT (Cv)

Flow Coefficients by defination is the volume of water in Gallon per minute what will flow through valve at pressure drop of one psi.

SIZE	15	20	25	32	40	50	65	80	100	150	200	250	300	350
FB	28	50	96	200	270	500	1100	1320	2400	5500	10000	13500	18200	22000
RB	28	26	50	95	190	270	500	1100	1300	2400	5500	10000	13500	18200

These torque values and Cv Values have been measured by our Q.C. Department on the average through out the actual test experience. However the values can be fluctuated in accordance with seat material and its design, hence these data can be considered as referential information.



CERTIFICATIONS

FIRE SAFE TEST :

Ball valve : Size 8" x 400 #

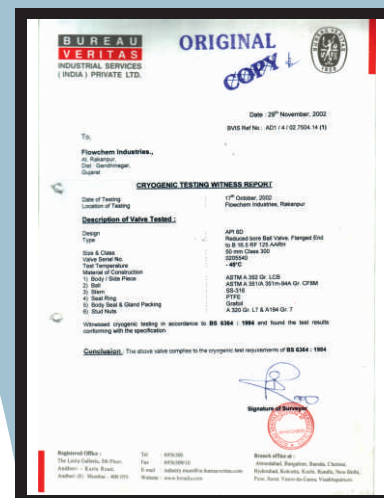


Ball valve : Size 4" x 150 #



CRYOGENIC TEST :

Ball valve : Size 2" x 300 #



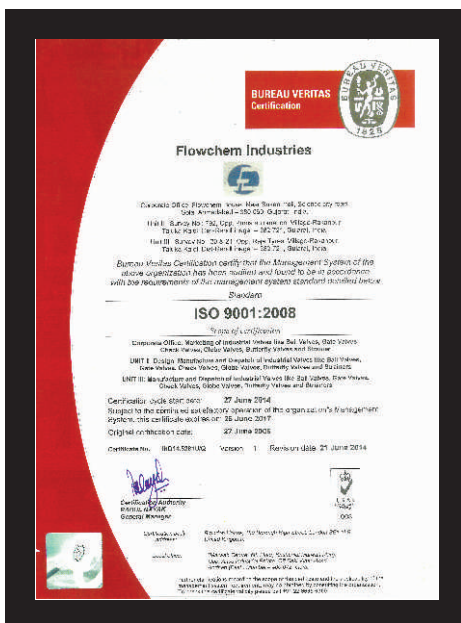
Flowchem Industries Conducts In-House Fire Safe Test, Our valves are certified In compliance with API 6FA, API 607, BS 6755 PART-II Fire Safe Standards witness by reputed Third party Inspection Agencies like, Engineers India Ltd., B.V.I.S., Bax Counsel Lloyd's Register, etc.

Our valves are certified for cryogenic test at -45° temperature accordance to BS 6364 : 1984 by Bureau Veritas Industrial Service.

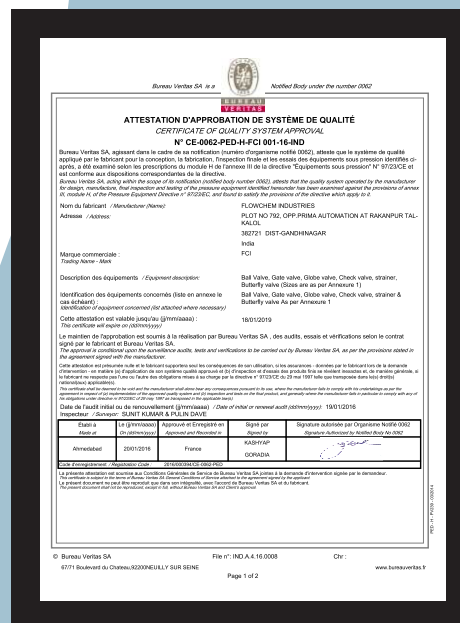
API :



ISO :



CE :



Flowchem Industries is officially Authorized by AMERICAN PETROLEUM INSTITUTE (API) to use their monogram for specification API 6D, API 600, API 1608, API 6A License number : 6D-0412, 600-0030 608-0008, 6A-0766

Flowchem Industries has established quality system to ISO 9001 : 2008, certified by BVQI

Flowchem Industries is approved with CE-PED-H-FCI-001-12-IND-revA



REGD. OFFICE



WORKS



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Works :

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Plant-2: Survey No. 20, 21 & 24
Rakanpur, P. O. Santej, Ta. Kalol,
Dist. Gandhinagar, Gujarat, India.



www.flowchem.com