



# CASTING BALL VALVES



## We Make...

- PLUG VALVE
- FORGED BALL VALVE
- CASTING GATE, GLOBE, CHECK VALVE
- DUAL CHECK VALVE
- DOUBLE BLOCK & BLEED VALVE
- SAFETY VALVE



Your Best Partner of All Valves

# INTRODUCTION

## The Technical Leader of Valve



*President Jong Dug, Ko.*

"As a professional manufacturer and provider of Plug Valve and Ball Valve equipment, We will grow up to a trustable and favorite company."

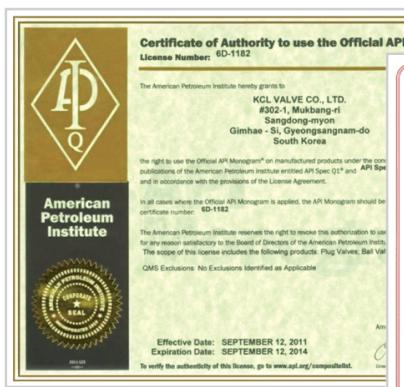
Since 2001, with the motto of "TRUST", We have been growing up to a reliable company with our business partners' deep trusts and our skillful technical abilities, providing our customers with PLUG VALVES and BALL VALVES.

Now we aim high enough to satisfy our customers not only with simple delivery but also with continues providing of more higher level of good maintenance and technical supports in PLUG Valves and BALL Valves.

In Seong Ju Factory, we continuously make valves at competitive price on the basis of high quality with rich infrastructure in here. And please stay tuned with us. Thanks.



## Guaranteed Technics



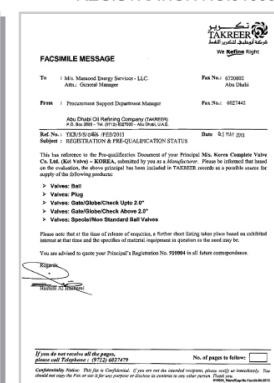
API-6D



ISO9001 by Lloyd

TAKREER  
REGISTRATION NO.910004

UAE MINISTRY OF ECONOMY  
REGISTRATION NO.15831



# PRODUCT INFORMATION



## ITEM

- FLG'D Ball Valve  
(M.O.V or Pneumatic, Manual)
- SCR'D Ball Valve
- Jacketed Ball Valve
- 3-Way Ball Valve (Y,T-Type)
- Metal Seat Ball Valve
- Tank Bottom Ball Valve
- Tank Bottom Flush Valve
- Double Block and Bleed Ball Valve

# API 6D BALL VALVES TECHNICAL DATA

## STRUCTURAL FEATURE

### 1. STANDARDS

- Locking device
- Bi - Directional flow
- Fire safety
- Secondary seat seal
- Trunnion mounted
- Anti – static & Blow out proof stem
- Double block & Bleed (Single piston effect)
- Lever or Gear operators

### 2. OPTIONAL

- Drain and bypass connection
- Sealant injection for stem and seats
- Automatic pressure relief system
- Stem extension
- Automatic operation (Actuators)
- Double piston effect

## MATERIAL SPECIFICATION

- **BODY :** C.S - ASTM A216 Gr. WCB, A106 Gr. B. A105  
A352 Gr. LCB  
S.S - ASTM A351 Gr. CF8 CF8M, A182 F304 F316
- **BALL :** C.S - A105, A216 WCB, A352 LCB+ENP  
S.S - ASTM A351 CF8 CF8M, AISI 304 316.  
A217 CA15
- **STEM :** C.S - A105 AISI 1020 ) + ENP  
AISI 4140
- **SEATS :** METAL SEAT WITH INSERT RING  
C.S - A36/A216+ENP  
S.S - ASTM A351 ) CF8, CF8M / AISI 304, 316  
A743
- **SEALS :** GRAPHITE, PTFE, RTFE, NYLON, PEEK, FPM,  
METAL, etc.

- **SPRING :** ASTM B637 Gr. 688, INCONEL X-750  
AISI 304, 316
- **TRUNNION :** AISI 304, 316 or Equivalent
- **STUD/NUTS :** C.S - A193 B7 A194 2H  
A320 L7M A194 7M  
A193 B7M A194 2HM  
S.S - A193 B8 A194 8  
A193 B8M A194 8M  
ASTM A182 F304 F316
- **PRESSURE RATING**  
ANSI CLASS 150, 300, 600, 900  
1500, 2500



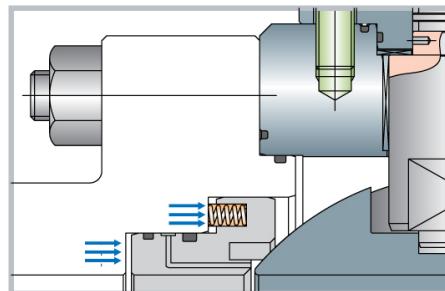
# FEATURES

## **Seat Sealing**

Soft seats are standard. Seat inserts of synthetic material such as Nylon.

PTFE, RTFE or Peek are contained within a one-piece metal seat ring with no or very low line pressure.

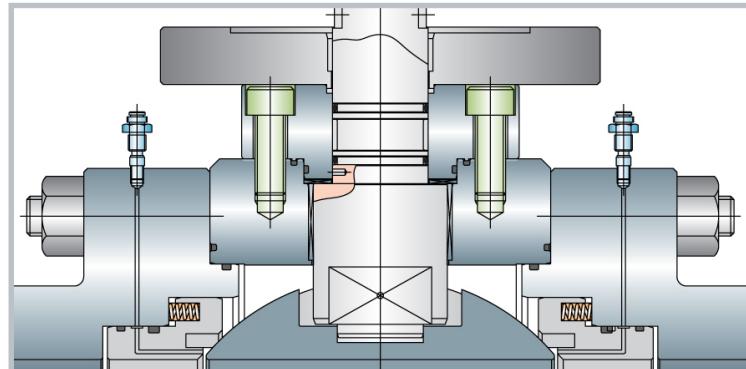
Sealing between the seats and ball is achieved by seat spring with higher line pressure. The line pressure, in conjunction with the spring load, forces the upstream seat ring against the ball, which results in tighter sealing.



## **Self Relieve Seat**

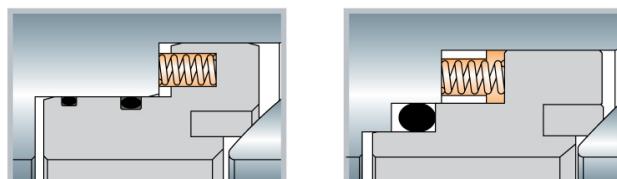
This feature is designed to prevent excessive pressure build up within the valve by automatically relieving pressure when body cavity pressure exceeds the spring load on the seats.

Double Piston Seat is also available as an option.



## **Seat Ring Sealing**

Two o-rings or one each of an o-ring and graphite ring are used for pressure classes 150 through 600. One lip seal with an o-ring or graphite ring is used for the pressure class 900 up to 2500.

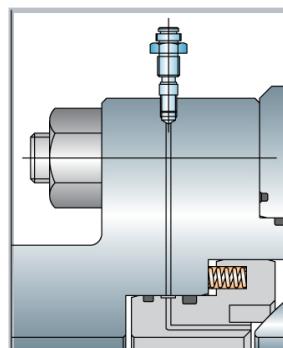


## **Sealant Injection Fitting**

This Feature is standard except in sizes 2" ~ 4" for pressure classes 150, 300 and 600.

In case of seat ring damage, sealant injection provides a fast, reliable way to restore tight sealing.

This injection system can also be used for routine flushing of the seat ring area while in service.



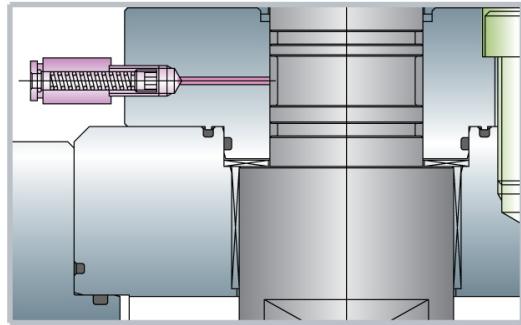
# FEATURES

## ***Stem Seal & Sealant Injection***

Two o-ring and graphite packing are used for pressure classes 150 through 600.

One each of lipseal and o-ring plus graphite packing are used for pressure classes 900 through 2500.

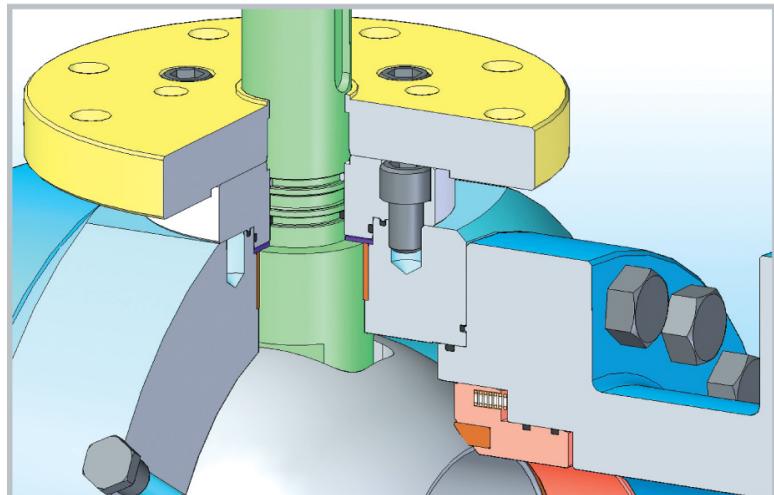
In case of damage to the o-ring lipseat, sealant injection stops leaking and restores tight sealing.



## ***Double Block and Bleed***

Trunnion ball valves provide a positive seal at both upstream and downstream independently.

Since pressure on each side of the ball is blocked from the body cavity, a pressure releasing device can be used by an operator to check the integrity of the upstream and downstream seats.



## ***Double Seals at all Joints***

All connecting parts employ a double sealing design incorporating a spiral wound 316 SS/graphite gasket and o-ring to ensure positive sealing. Delta ring is used optionally for class 1500-2500.

## ***Low Friction Stem / Trunnion Bearings and Thrust Washers***

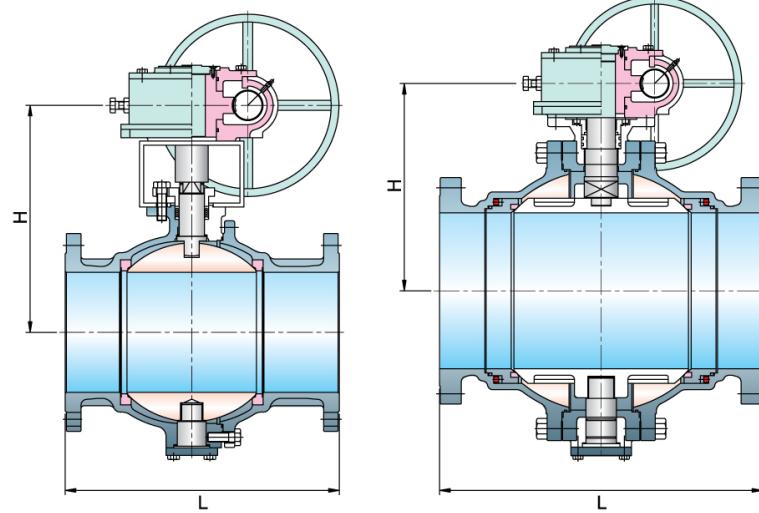
Heavy duty PTFE Lined carbon or stainless steel bearing and thrust washers ensure durable and low torque operation.

## ***Other Features***

- Anti Static Device for Grounding
- Fire safe design per API 6FA and API 607
- Blow-Out Proof Stem
- ISO 5211 Mounting pad and Adaptability for all types of Actuator mounting
- Compliance with NACE MR-01-75 latest edition
- Stem extension pieces or pups

# BALL VALVE, ANSI 150(JIS 10K) / 300(JIS 20K) & JIS 30K

- Applicable Standards : ANSI B16. 34
- Face to Face : JIS B2002
- End Flange Dimensions : JIS B2238



## BALL VALVES (FLOATING & TRUNNION TYPE)

UNIT : mm

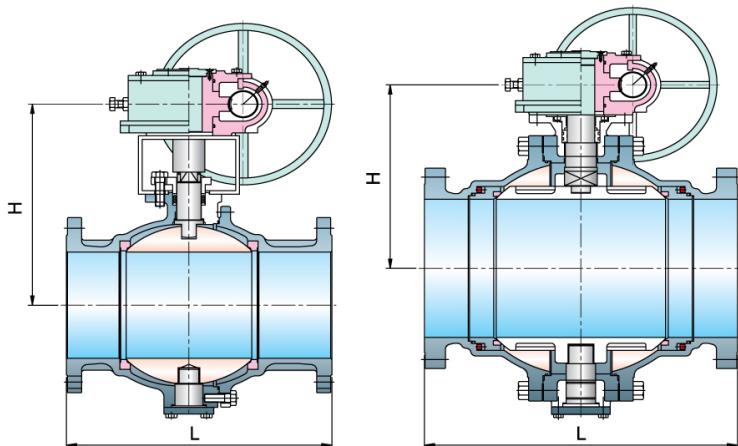
150 LB JIS 10K NPS	L	H	Weight	300 LB JIS 20K NPS	L	H	JIS 30K NPS	L	H
15A	108	77	2.16	15A	140	77	15A	165	77
20A	117	80	2.6	20A	152	80	20A	190	80
25A	127	92	4.3	25A	165	92	25A	216	92
32A	140	95	5.4	32A	178	95	32A	225	102
40A	165	113	7	40A	190	113	40A	241	113
50A	178	121	9	50A	216	121	50A	292	125
65A	190	130	12.1	65A	241	130	65A	330	135
80A	203	166	18	80A	283	166	80A	356	185
100A	229	184	23.9	100A	305	184	100A	406	195
125A	356	248	51.6	125A	381	248	125A	457	270
150A	394	270	65.3	150A	403	288	150A	493	295
200A	457	299	106.5	200A	502	320	200A	567	360
250A	533	351	180	250A	568	410	250A	673	405
300A	610	475	280	300A	648	475	300A	762	460
350A	686	520	347	350A	762	520	350A	826	527
400A	762	534	570	400A	838	534	400A	902	570
450A	864	584	1110	450A	914	584	450A	914	575
500A	914	641	1550	500A	991	641	500A	991	641
600A	1067	680	2860	600A	1143	680	600A	1143	680
650A	1143	720	3400	650A	1245	720	650A	1245	720
750A	1295	730	5000	750A	1397	730	750A	1397	730

# ANSI 150 / ANSI 300 TRUNNION MOUNTED BALL VALVE

*Full Bore : Sizes 4" to 52"*

*Reduced Bore : Sizes 6" to 52"*

- *Applicable Standards : ANSI B16. 34, B5351, API 6D and / or JIS*
- *Face to Face : ANSI B16. 10*
- *End Flange Dimensions : ANSI B16. 5*



ANSI 150		L		H		Weight	
NPS		inch	mm	inch	mm	lb	kg
4 X 4		9.00	228.6	10.63	270	143	65
6 X 4		15.50	393.7	10.63	270	286	130
6 X 6		15.50	393.7	13.0	330	297	135
8 X 6		18.00	457.2	13.0	330	352	160
8 X 8		18.00	457.2	14.96	380	455	207
10 X 8		21.00	533.4	14.96	380	535	243
10 X 10		21.00	533.4	18.0	450	627	285
12 X 10		24.00	609.6	18.1	460	684	310
12 X 12		24.00	609.6	18.7	475	1058	480
14 X 12		27.00	685.8	18.7	475	1080	490
14 X 14		27.00	685.8	20.5	520	1286	583
16 X 14		30.00	762.0	20.5	520	1433	650
16 X 16		30.00	762.0	21.0	534	2337	1060
18 X 16		34.00	863.6	21.0	534	2426	1100
18 X 18		34.00	863.6	23.0	584	3109	1410
20 X 18		36.00	914.4	23.0	584	3308	1500
20 X 20		36.00	914.4	25.2	641	4697	2130
24 X 20		42.00	1066.8	25.2	641	5292	2400
24 X 24		42.00	1066.8	26.8	680	6393	2900
26 X 26		45.00	1143	28.3	720	7716	3500
28 X 28		49.00	1244	28.3	720	9700	4400
30 X 30		51.00	1295	28.7	730	11464	5200

ANSI 300		L		H		Weight	
NPS		inch	mm	inch	mm	lb	kg
4 X 4		12.00	305	10.63	270	143	65
6 X 4		15.875	403	10.63	270	286	130
6 X 6		15.875	403	13.0	330	297	135
8 X 6		19.75	502	13.0	330	352	160
8 X 8		19.75	502	14.96	380	455	207
10 X 8		22.375	568	14.96	380	535	243
10 X 10		22.375	568	18.0	450	627	285
12 X 10		25.50	648	18.1	460	684	310
12 X 12		25.50	648	18.7	475	1058	480
14 X 12		30.00	762	18.7	475	1080	490
14 X 14		30.00	762	20.5	520	1286	583
16 X 14		33.00	838	20.5	520	1433	650
16 X 16		33.00	838	21.0	534	2337	1060
18 X 16		36.00	914	21.0	534	2426	1100
18 X 18		36.00	914	23.0	584	3109	1410
20 X 18		39.00	991	23.0	584	3308	1500
20 X 20		39.00	991	25.2	641	4697	2130
24 X 20		45.00	1143	25.2	641	5292	2400
24 X 24		45.00	1143	26.8	680	6613	3000
26 X 26		49.00	1245	28.3	720	9920	4500
28 X 28		53.00	1346	28.3	720	12345	5600
30 X 30		55.00	1397	28.7	730	14109	6400

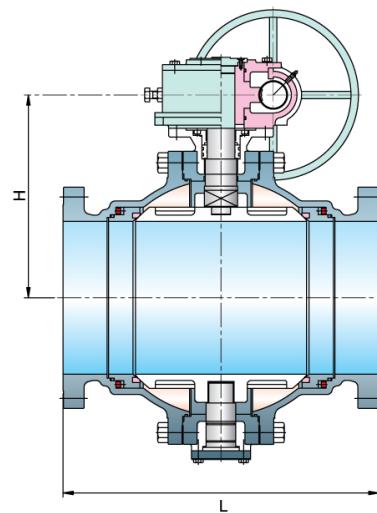
- Other sizes are available upon request.

# ANSI 600 TRUNNION MOUNTED BALL VALVE

*Full Bore & Reduced Bore*

*Sizes 2" to 24"*

- *Applicable Standards*  
ANSI B16.34, BS5351,  
API 6D and / or JIS
- *Face to Face : ANSI B16.10*
- *End Flange Dimensions : ANSI B16.5*

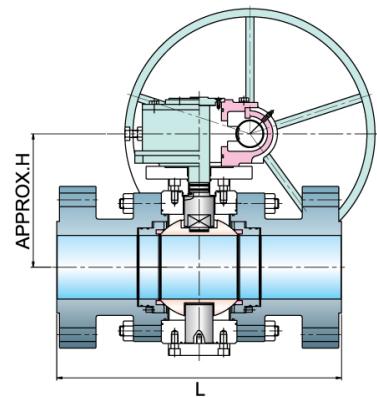


ANSI 600	d(Bore)		L (Face to Face)				H(Height)		Weight	
			RF / BW		RTJ					
NPS	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
2 X 1.5	1.5	39	11.5	292.1	11.6	295	6.9	175	84	38
2 X 2	2.0	50	11.5	292.1	11.6	295	7.1	180	88	40
3 X 2	2.0	50	14.0	355.6	14.1	359	7.1	180	132	60
3 X 3	3.0	76	14.0	355.6	14.1	359	7.9	200	154	70
4 X 3	3.0	76	17.0	431.8	17.1	435	7.9	200	209	95
4 X 4	4.0	102	17.0	431.8	17.1	435	10.0	255	243	110
6 X 4	4.0	102	22.0	558.8	22.1	562	10.0	255	342	155
6 X 6	6.0	153	22.0	558.8	22.1	562	11.6	295	476	216
8 X 6	6.0	153	26.0	660.4	26.1	664	11.6	295	639	290
8 X 8	8.0	203	26.0	660.4	26.1	664	14.2	360	816	370
10 X 8	8.0	203	31.0	787.4	31.1	791	14.2	360	1080	490
10 X 10	10.0	254	31.0	787.4	31.1	791	16.4	417	1359	615
12 X 10	10.0	254	33.0	838.2	33.1	841	16.4	417	2156	980
14 X 10	10.0	254	35.0	889.0	35.1	892	16.4	417	2310	1050
12 X 12	12.0	305	33.0	838.2	33.1	841	18.0	457	2420	1100
16 X 12	12.0	305	39.0	990.6	39.1	994	18.0	457	2860	1300
14 X 14	13.2	336.5	35.0	889.0	35.1	982	18.6	473	2932	1330
16 X 14	13.2	336.5	43.0	1092.2	43.1	1095	18.6	473	3344	1520
16 X 16	15.2	386	39.0	990.8	39.1	994	20.0	506	3858	1750
20 X 16	15.2	386	47.0	1193.8	47.2	1200	20.0	506	4620	2100
18 X 18	17.2	438	43.0	1092.2	43.1	1095	22.6	574	5071	2300
22 X 18	17.2	438	51.0	1296.0	51.4	1305	22.6	574	5940	2700
20 X 20	19.3	489	47.0	1193.8	47.2	1200	24.8	630	5614	3000
24 X 20	19.3	489	55.0	1397.0	55.4	1406	24.8	630	7150	3250
22 X 22	21.1	538	51.0	1296.0	51.4	1305	25.8	655	7370	3350
26 X 22	21.2	538	57.0	1448.0	57.5	1460	25.8	655	7590	3450
24 X 24	23.2	590	55.0	1397.0	55.4	1406	27.0	685	7788	3540

# ANSI 900 / ANSI 1500 TRUNNION MOUNTED BALL VALVE

Full Bore & Reduced Bore Sizes 2" to 24" 2 or 3 pieces

- Applicable Standards : ANSI B16. 34, API 6D and / or JIS
- Face to Face : ANSI B16. 10
- End Flange Dimensions : ANSI B16. 5



ANSI 900	d(Bore)		L (Face to Face)				H(Height)		Weight	
	NPS	inch	mm	inch	mm	inch	mm	inch	mm	lb
2 X 1.5	1.5	39	14.5	368.3	14.6	371	7.1	180	121	55
2 X 2	2.0	50	14.5	368.3	14.6	371	7.3	185	154	70
3 X 2	2.0	50	15.0	381.0	15.1	384	7.3	185	198	90
3 X 3	3.0	78	15.0	381.0	15.1	384	8.9	225	243	110
4 X 3	3.0	78	18.0	457.2	18.1	460	8.9	225	374	170
4 X 4	4.0	102	18.0	457.2	18.1	460	10.3	260	573	260
6 X 4	4.0	102	24.0	609.6	24.1	613	10.3	260	682	310
6 X 6	6.0	153	24.0	609.6	24.1	613	12.4	315	794	350
8 X 6	6.0	153	29.0	736.6	29.1	740	12.4	315	1166	530
8 X 8	8.0	203	29.0	736.6	29.1	740	15.4	390	1367	520
10 X 8	8.0	203	33.0	838.2	33.1	841	15.4	390	1562	710
10 X 10	10.0	254	33.0	838.2	33.1	841	18.1	460	2067	950
12 X 10	10.0	254	38.0	965.2	38.1	968	18.1	460	2244	1020
14 X 10	10.0	254	40.5	1029.0	40.9	1038	18.1	460	2574	1170
12 X 12	12.0	303	38.0	955.2	38.1	968	22.8	580	2868	1300
16 X 12	12.0	303	44.5	1130.0	40.9	1140	22.8	580	3256	1480

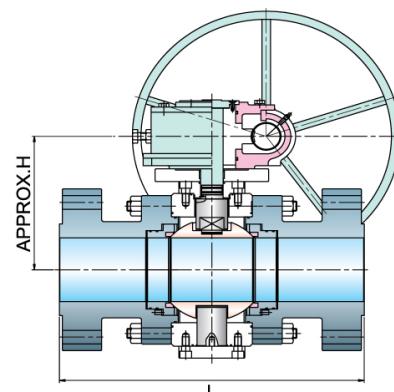
ANSI 1500	d(Bore)		L (Face to Face)				H(Height)		Weight	
	NPS	inch	mm	inch	mm	inch	mm	inch	mm	lb
2 X 1.5	1.5	39	14.5	368.3	14.6	371	7.1	180	121	55
2 X 2	2.0	50	14.5	368.3	14.6	371	7.3	185	154	70
3 X 2	2.0	50	18.5	469.9	18.6	473	7.3	185	242	110
3 X 3	3.0	78	18.5	469.9	18.6	473	9.4	240	287	130
4 X 3	3.0	78	21.5	546.1	21.6	549	9.4	240	418	190
4 X 4	4.0	100	21.5	546.1	21.6	549	10.6	270	617	280
6 X 4	4.0	100	27.75	704.9	28.0	711	10.6	270	748	340
6 X 6	5.67	144	27.75	704.9	28.0	711	13.0	330	1124	510
8 X 6	5.67	144	32.75	831.9	33.1	841	13.0	330	1408	640
8 X 8	7.56	192	32.75	831.9	33.1	841	15.7	400	1543	700
10 X 8	7.56	192	39.0	990.6	39.4	1000	15.7	400	2200	1000
10 X 10	9.45	240	39.0	990.6	39.4	1000	18.9	480	2646	1200
12 X 10	9.45	240	44.5	1030.3	45.1	1146	18.9	480	3190	1450
14 X 10	9.45	240	49.5	1257.0	50.2	1276	18.9	480	3300	1500
12 X 12	11.34	288	44.5	1030.3	45.1	1146	23.6	600	3968	1800
16 X 12	11.34	288	54.5	1354.0	55.4	1406	23.6	600	5500	2500

- Other sizes are available upon request.
- Estimated weights for 4" and larger includes gear operator.

# ANSI 2500 TRUNNION MOUNTED BALL VALVE

*Full Bore & Reduced Bore*

- Applicable Standards  
*ANSI B16. 34, API 6D*
- Face to Face : *ANSI B16. 10*
- End Flange Dimensions : *ANSI B16. 5*



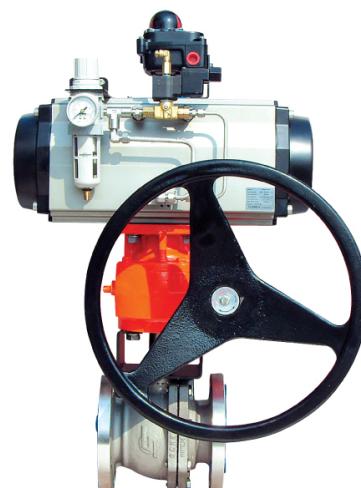
ANSI 2500	d(Bore)		L (Face to Face)				H(Height)		Weight	
	inch	mm	inch	mm	inch	mm	inch	mm	lb	kg
2 X 2	1.75	44	17.75	451	17.88	454	9.25	235	220	100
3 X 2	1.75	44	22.75	578	23.0	584	9.25	235	330	150
3 X 3	2.52	64	22.75	578	23.0	584	11.81	300	550	250
4 X 3	2.52	64	26.5	673	26.88	683	11.81	300	726	330
4 X 4	3.50	89	26.5	673	26.88	683	13.58	345	814	370
6 X 4	3.50	89	36.0	914	36.5	927	13.58	345	1320	600
6 X 6	5.25	133	36.0	914	36.5	927	17.52	445	1870	850
8 X 6	5.25	133	40.25	1022	40.88	1038	17.52	445	2420	1100
8 X 8	7.125	181	40.25	1022	40.88	1038	20.08	510	3960	1800
10 X 8	7.125	181	50.0	1270	50.88	1292	20.08	510	4840	2200
10 X 10	8.8	225	50.0	1270	50.88	1292	30.03	585	5940	2700
12 X 10	8.8	225	56.0	1422	56.88	1445	30.03	585	8360	3800
12 X 12	10.51	257	56.0	1422	56.88	1445	26.97	685	9460	4300

- Weight of Flanged end valve is for bare stem.

## Special Material Valves

We can suggest information for other valves upon request.

- Alloy 20 (A351-CN7M)
- Monel
- Hastelloy B.C
- Duplex stainless steel (F51, F53, 4A, 6A...)
- Al - Bronze
- Titanium
- Other materials



# FLOATING & TRUNNION MOUNTED CRYOGENIC BALL VALVE

## Full Bore

- Applicable Standards :
  - ANSI B16.34, API 6D
- Face to Face : ANSI B16.10
- End Flange Dimensions :
  - ANSI B16.5



## CLASS 150 DIMENSIONS

NPS	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4	6	8	10	12
d(Bore)	0.5	0.75	1	1.5	2	2.5	3	4	6	8	10	12
	13	19	25	38	51	64	76	102	152	203	254	305
L	4.25	4.61	5	5.5	7	7.5	8	9	15.6	18	21	24
	108	117	127	140	178	191	203	229	384	457	533	610
H	13.3	13.5	14	15	15.6	16	16.7	18.1	23.1	26	28.9	31.3
	338	343	358	381	396	406	424	460	587	560	734	795
Cv Value	26	61	113	270	500	800	1,200	2,200	5,300	9,700	16,000	20,000

UNIT : inch / mm

## CLASS 300 DIMENSIONS

NPS	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	3	4	6	8	10
d(Bore)	0.5	0.75	1	1.5	2	3	4	6	8	10
	13	19	25	38	51	76	102	152	203	254
L	5.5	6	6.5	7.5	8.5	11.13	12	15.86	19.75	22.38
	140	152	165	191	216	283	305	403	502	568
H	13.3	13.5	14	15.2	15.8	16.8	18.1	23.1	26	28.9
	338	343	356	386	401	427	460	587	560	734
Cv Value	26	61	113	270	500	1,200	2,200	5,300	9,700	16,000

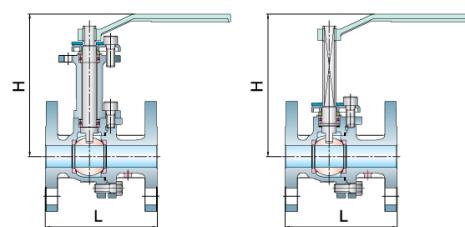
UNIT : inch / mm

## CLASS 600 DIMENSIONS

NPS	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	3	4	6
d(Bore)	0.5	0.75	1	1.5	2	3	4	6
	13	19	25	38	51	76	102	152
L	6.5	7.5	8.5	9.5	11.5	14	17	22
	165	190	210	241	292	356	432	559
H	13.54	13.66	13.94	14.96	15.31	16.8	18.1	23.1
	344	347	354	380	389	427	460	587
Cv Value	26	51	113	270	500	1,200	2,200	5,300

UNIT : inch / mm

## EXTENDED BONNET BALL VALVE



NPS (inches)	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
L	108	117	127	140	165	178	190	203	229	356	394	457	533
H	148	151	163	166	188	196	205	240	258	365	387	416	468
W	130	130	160	160	230	230	230	330	330	450	450	450	500

# METAL SEATED BALL VALVE

## Full Bore & Reduced Bore

- Applicable Standards : ANSI B16. 34, BS5351 & API 6D
- Face to Face : ANSI B16. 10
- End Flange Dimensions : ANSI B16. 5
- ANSI B 16. 104 (FCI 70-2)

## Floating Ball & Trunnion Mounted Ball

Manufacturing Range	Seats	Ball	Applications
* Floating 150# 300# : $\frac{1}{2}$ " - 8" 600# 1500# : $\frac{1}{2}$ " - $1\frac{1}{2}$ "  * Trunnion 150# thru 1500# 2" to 16"	Nitriding Stellite Chrome carbide Tungsten carbide	Nitriding (HV 800)	High - Temperature ON - OFF throttling
		Stellite (HV 850-950)	High - Temperature(500°C) Pulp stock High - Frequency
		Tungsten Carbide (HV 1200)	High - pressure High - Frequency and High - pressure service

## STRONG POINTS OF METAL SEATED BALL VALVES

### 1. Outstanding economy

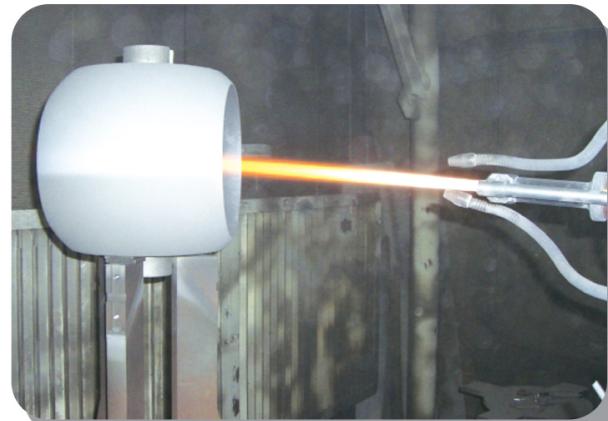
High economical cost saving for assembly metal seat due to use of standard valves.

### 2. Maintenance easy

2-pieces or 3-pieces split body construction valve body provide the convenience of easy maintenance.

### 3. Fire safe

Metal seated ball valve has fire safe construction and material according to specification.



### 4. High performance metal seated valve

KCL's metal seated valves are for high-temperature, high-pressure and high frequency function.



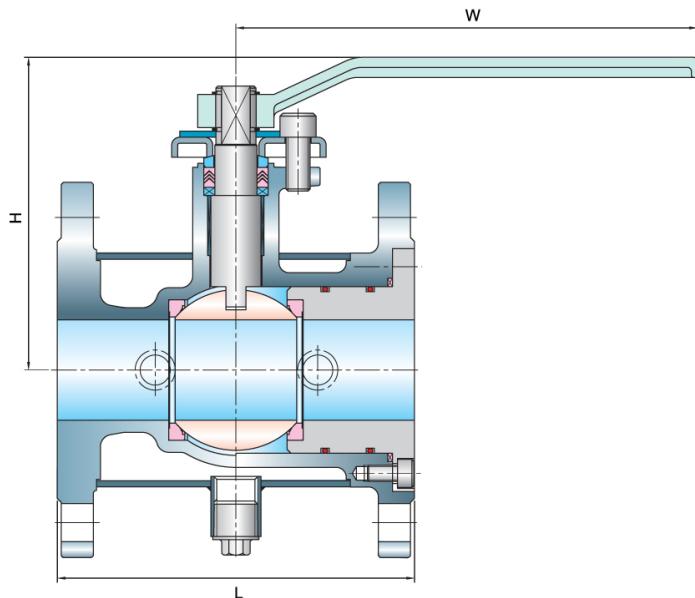
### 5. Valve Automation

Metal Seated Ball Valves can easily be automated same as general Ball valve.

### 6. Bubble Tight

Metal Seated Ball Valve meets ANSI B16. 104 class V and MSS SP-61 Sealing requirements and we can supply the valve with bubble tight

# JACKETED BALL VALVE



## SPECIFICATIONS

- One piece body
- Full bore
- Flanged ends
- Floating ball

## OPERATION

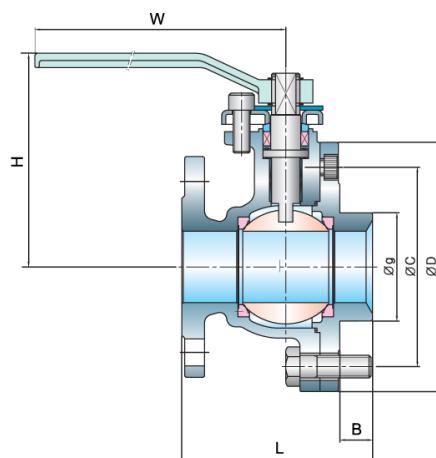
- Hand lever
- Worm gear
- Pneumatic
- Electric



UNIT : mm

CLASS	NPS	$\frac{1}{2}'' \times 1\frac{1}{2}''$	$\frac{3}{4}'' \times 1\frac{1}{2}''$	1" X 2"	$1\frac{1}{2}'' \times 2\frac{1}{2}''$	2" X 3"	$2\frac{1}{2}'' \times 4''$	3" X 5"	4" X 6"	6" X 8"	8" X 10"
10Kgf/cm <sup>2</sup> & 150LBS	L	108	117	127	165	178	190	203	229	394	457
	H	121	122	132	150	156	167	201	218	272	280
	W	130	130	160	230	230	230	330	330	450	450
20Kgf/cm <sup>2</sup> & 300LBS	L	140	152	165	190	216	241	283	305	403	502
	H	121	122	132	150	156	167	201	218	272	280
	W	130	130	160	230	230	230	330	330	450	450

## TANK BOTTOM BALL VALVE

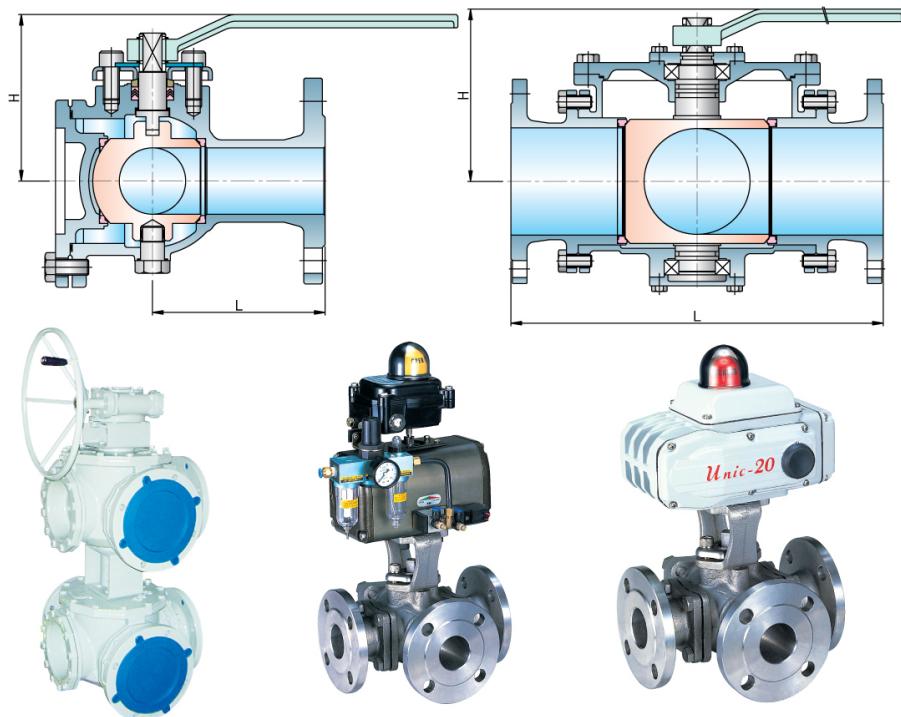


UNIT : mm

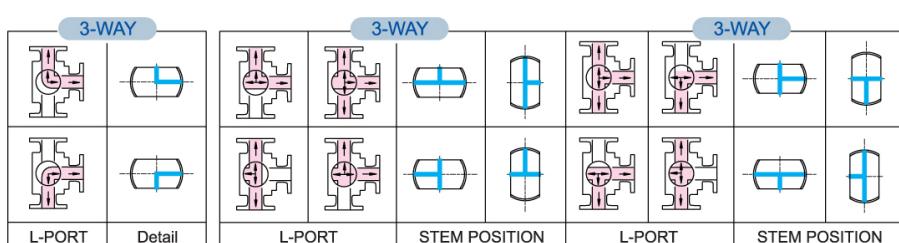
CLASS NPS	in	1"	1 $\frac{1}{2}$ "	2"	2 $\frac{1}{2}$ "	3"	4"	5"	6"	8"
	mm	25A	40A	50A	65A	80A	100A	125A	150A	200A
10Kgf/cm <sup>2</sup> & 150LBS	L	94	125	133	130	179	166	253	273	325
	B	15	21	23	23	18	40	42	42	50
	g	49	60	76	114	110	166	192	243	321
	W	160	230	230	230	330	330	450	450	450
	H	117.5	129.5	136	140	161	190	224	265	302
	D	-	-	-	-	-	305	350	440	
	C	-	-	-	-	-	-	265	310	400

# 3-WAY BALL VALVE

- T Port or L Port
- Side Entry and Top Entry
- 4-Seat Design
- Face to Face :  
Manufacturer Standard
- End Flange Dimensions :  
ANSI B16. 5



## OPERATING FORMS



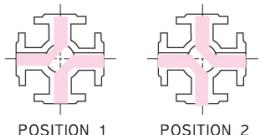
Flow direction is marked on top stem

## CLASS 150 DIMENSIONS

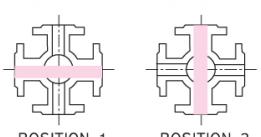
UNIT : inch / mm

NPS (inches)		15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A
10Kgf/cm <sup>2</sup> & 150LBS	L	160	160	200	240	240	260	320	360	430	500	510	610	750
	H	85	85	94.5	117.5	117.5	125.5	125.5	177	192	221	239	277	336
	W	130	130	160	160	230	230	230	330	330	450	450	450	500

FLOW PLAN M-4WAY LL PORT 90° TURN



FLOW PLAN O-4WAY 90° TURN



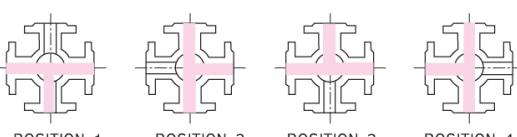
## 4-WAY VALVES

Directional  
Control and  
Shut Off  
Combined  
in One  
Valve

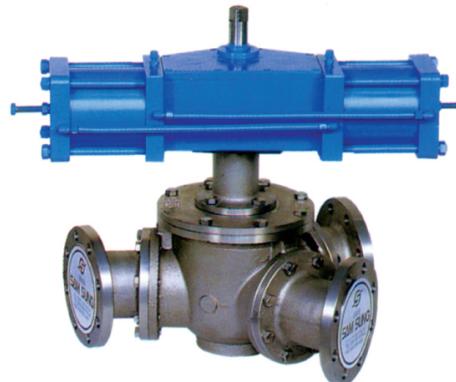
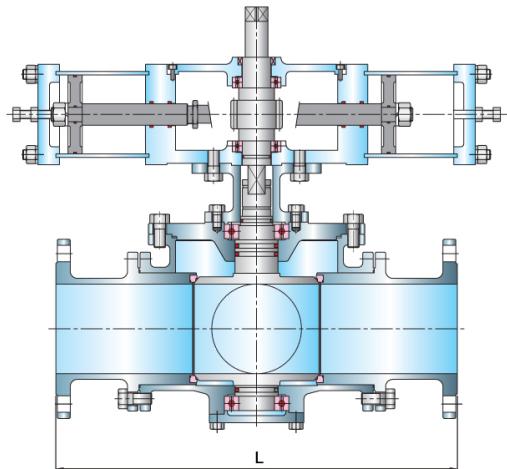
FLOW PLAN N-4WAY L PORT 180° TURN



FLOW PLAN P-4WAY 270° TURN



# 3-WAY Y-TYPE BALL VALVES



## SPECIFICATIONS

- Split body
- Full bore
- Flanged ends
- Floating & trunnion ball

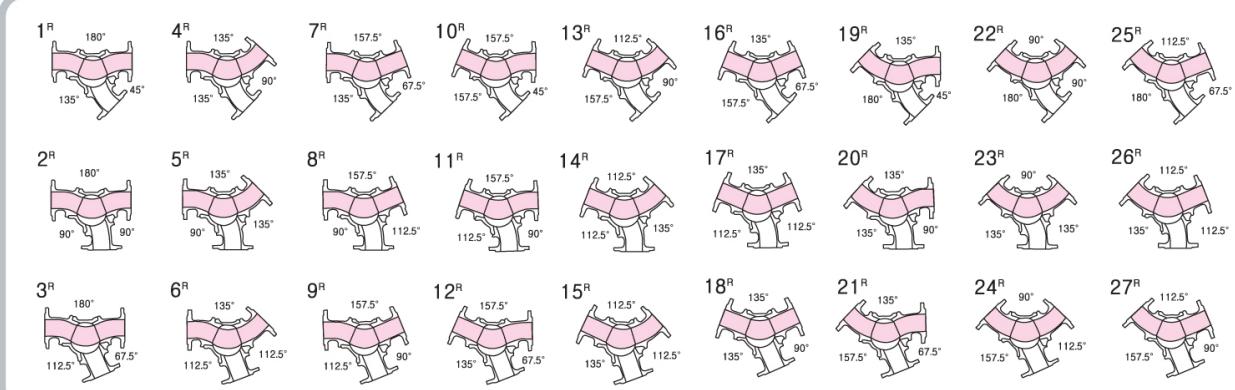
## OPERATION

- Hand lever
- Worm gear
- Pneumatic
- Electric

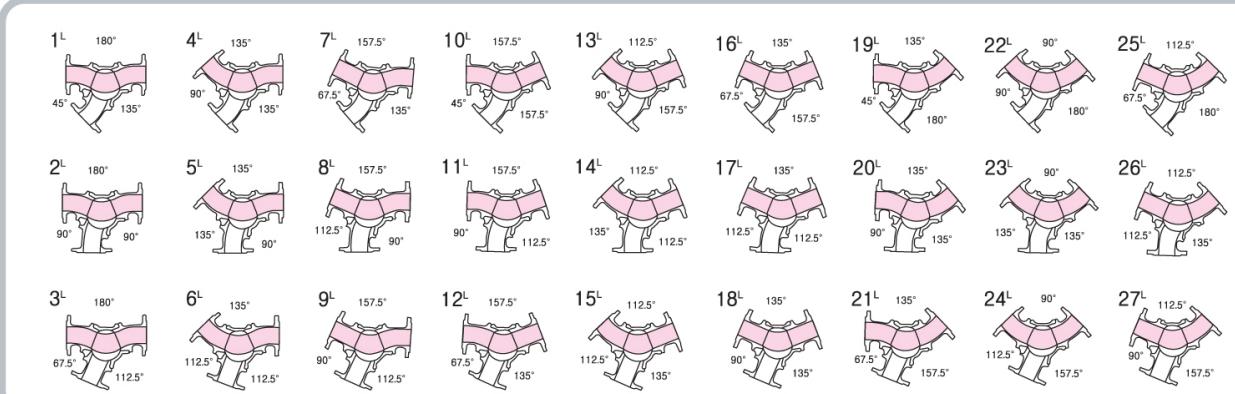
CLASS	NPS	2"	2½"	3"	4"	5"	6"	8"	10"
10Kgf/cm <sup>2</sup> & 150LBS	L	280	340	420	460	560	660	772	884
	L1	224	261	291	384	483	547	677	805
	L2	84	104	111	154	203	217	277	330
	H	150	155	195	211	222	232	240	277
	W	230	230	330	330	450	450	-	-

(HAND LEVER TYPE)

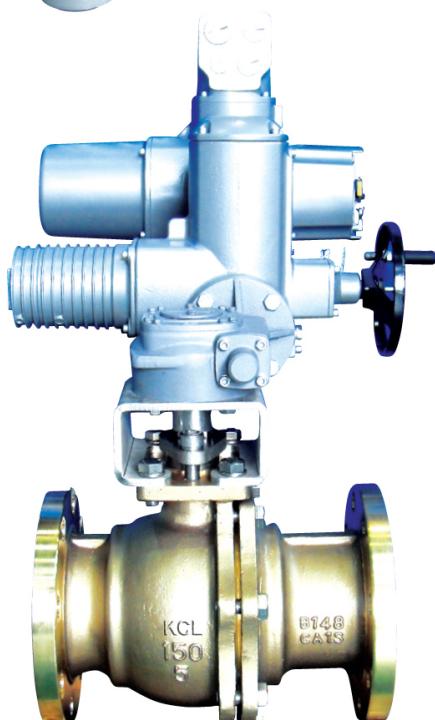
**Left → Right**



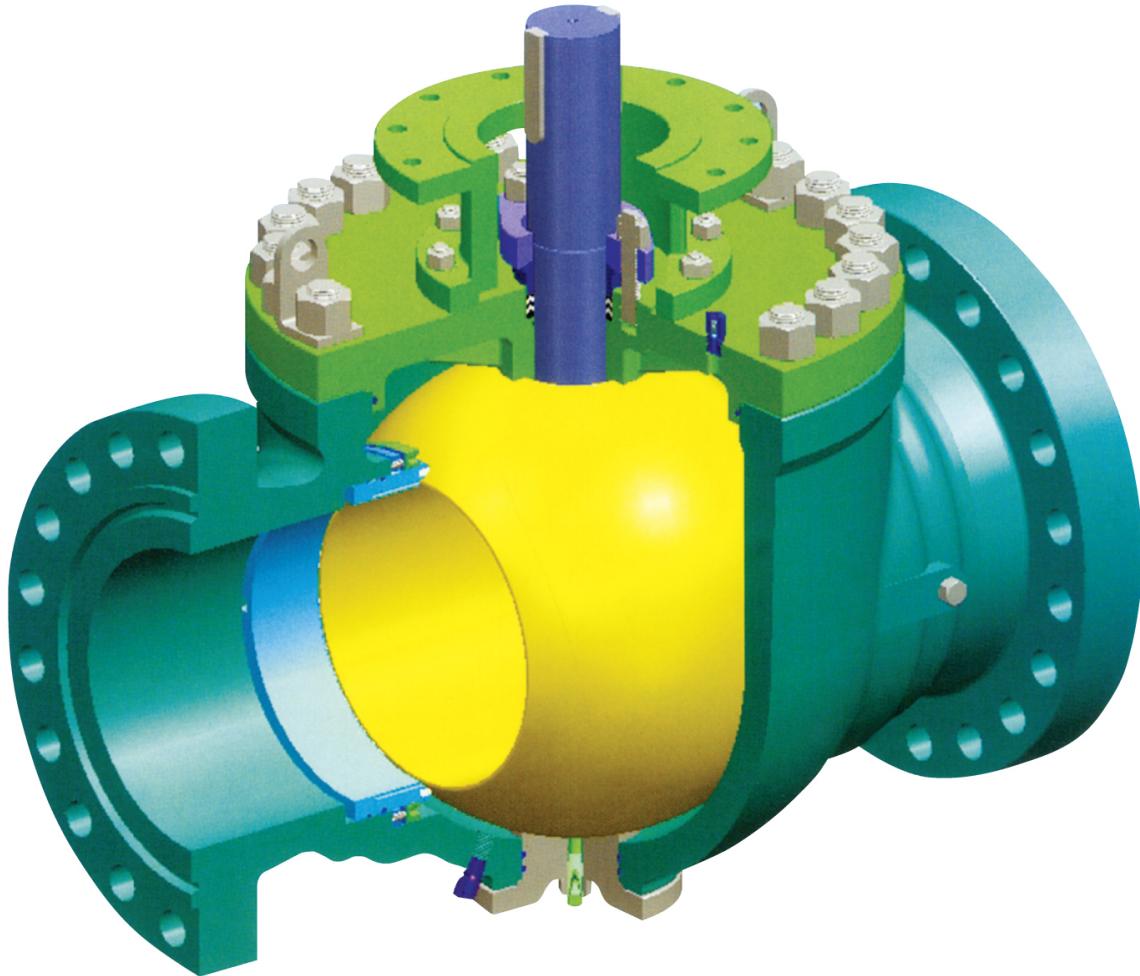
**Right → Left**



## PNEUMATIC (POV) & MOTOR (MOV) OPERATION BALL VALVES



# KCL TOP ENTRY BALL VALVE



## FEATURES

- Size : 2" - 24"
- Class : 150 ~ 1500 Lb
- The Monolithic Cast Steel Body
- Floating & Trunnion Mounted Ball, Full & Reduced Bore
- Anti-static Device
- Blow-out Proof Stem
- Fire Safe Design
- Emergency Sealant injector

## SPECIFICATIONS

**Design** ASME B16.34 / API 6D

**Face to Face** ASME B16.10

**End Flange** ASME B16.5

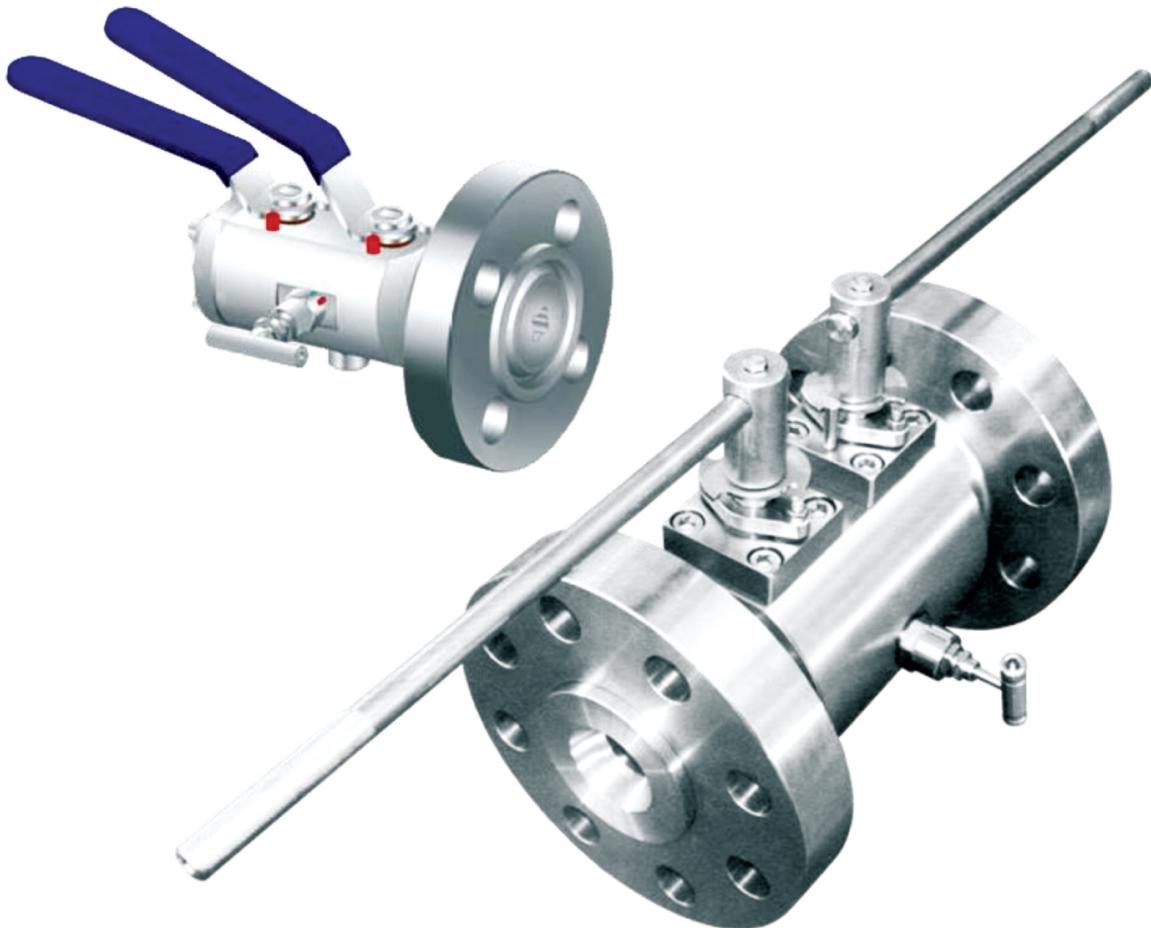
**BW End** ASME B16.25

**Test** API 598

**Fire Safe Test** API 607 / API 6FA

**Special** NACE MR-01-75

# KCL DOUBLE BLOCK & BLEED VALVES



KCL Double block and bleed (DBB) valve is designed and manufactured in conformance with specification of API 6D and ASME B16.34

KCL DBB valve is available in variety of size (1/2" through 12"), working pressure and configurations. KCL DBB valves are available in full range of materials and options to meet the individual user requirements.

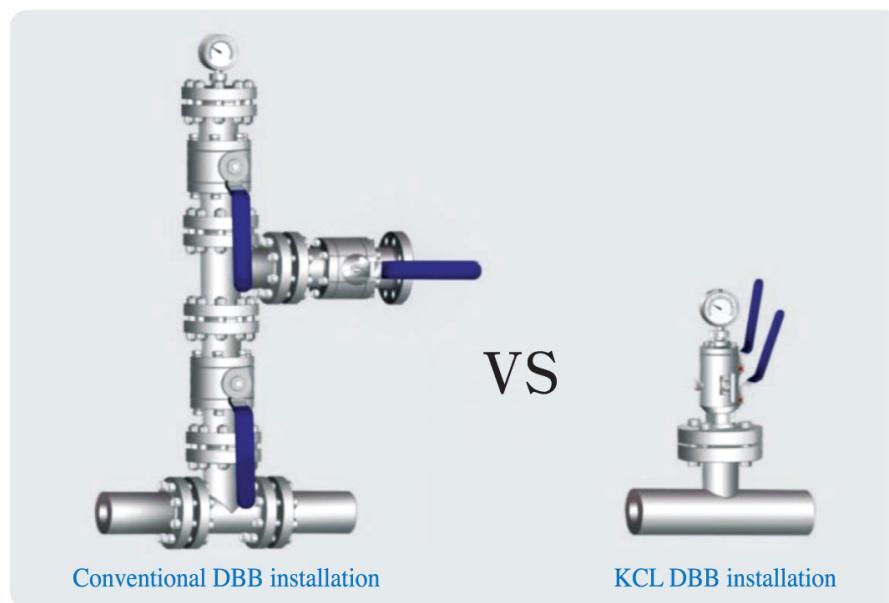
Each and every DBB valve is completely tested before leaving the factory to ensure adherence to customer specifications and proper performance.

# KCL DOUBLE BLOCK & BLEED BALL VALVE

## ***Applications and Installations***

In prior double block and bleed system, 2 blocked (Off) the valves and 1 bleed valve should be assembled with Flange or piping screws to pipe tee. The problem is that installation is costly because it needs too many parts and leakage would increase. And the size of the system is big and it needs huge space for the installation and it is vulnerable to vibration.

KCL Double block and bleed valve has been developed to solve these problems. Compactly designed 1-piece or a 2-piece body with 2 blocked (Off) valve and 1 bleed valve can replace the existing Double block and bleed system with 1 Double block and bleed valve and it can reduce installation space and time.



## ***BENEFITS DURING INSTALLATION OF KCL DOUBLE BLOCK AND BLEED VALVE***

- Compact assembly
- Easy installation and maintenance
- Reduced installation cost
- Space and weight saving
- Reduced leakage points
- Reduced effect of system vibration

## ***BALL VALVE SPECIFICATIONS***

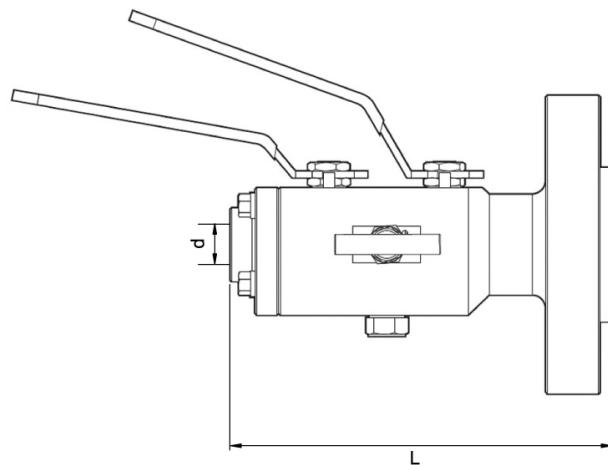
- Floating ball design for improved performance smooth, low torque operation.
- Bubble tight shut off.
- Available to anti static device.
- Anti blowout stem.
- Bi-directional design.
- Fire safety to API 607
- Available to metal seated construction.
- Pressure rating up to 6000 psig [414 bar]

# FLANGE TO SCREW DBB VALVES

## 2 BALL 1 NEEDLE PATTERN

### FEATURES & BENEFITS

- Integral flange
- 2 ball 1 needle pattern
- 1/2" PT or NPT threaded female outlet
- ANSI B 16.5 flanged inlet connections
- 1/2" NPT threaded bleed connection
- 14mm ball valve bore
- Floating ball design
- Pressure ratings : class 150 to class 2500
- Available to Fire safe to API 607
- Available to NACE MR-01-75
- Flanged connections according to ASME B 16.5 RF and RTJ

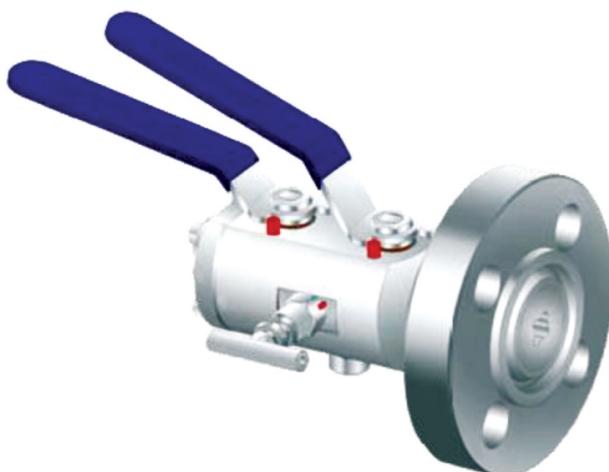


### MATERIALS

316, 316L, 304, 304L, A105, LF2.

Titanium, monel, inconel625, C95800

and other special materials are available  
to customer spec



### TYPICAL APPLICATIONS

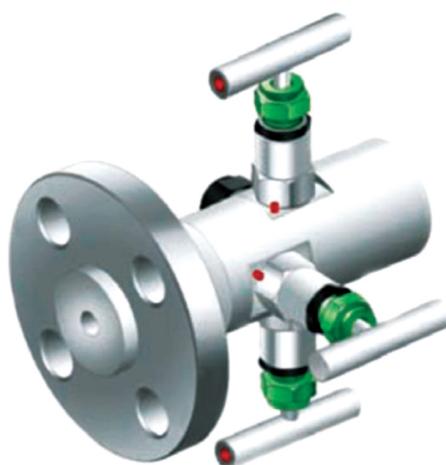
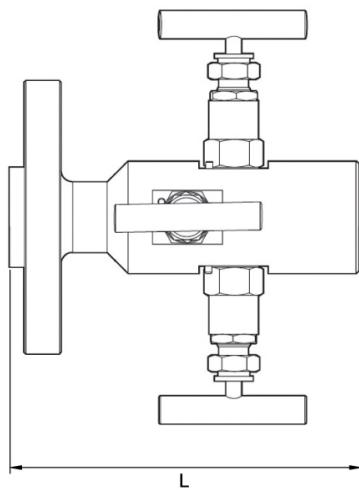
- Double block and bleed applications
- Primary isolation
- Chemical injection
- Sampling
- Flow measurement

TABLE 1 - FLANGE TO SCREW DBB VALVE

Rating Flange size	150				300				600				900 / 1500				2500			
	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)
1/2"	156	-	14	3.5	164	163	14	3.9	164	163	14	3.9	212	212	14	8.8	220	220	12	11.0
3/4"	160	-	14	3.9	166	171	14	4.3	166	171	14	4.3	212	212	14	9.1	222	222	12	13.5
1"	164	169	14	4.3	175	180	14	4.9	175	180	14	5.1	221	221	14	10.5	228	228	12	21.0
1-1/4"	168	173	14	5.1	178	183	14	5.7	178	183	14	5.9	224	224	14	11.5	231	231	12	23.0
1-1/2"	173	178	14	6.2	185	190	14	6.9	185	190	14	7.1	227	227	14	12.3	240	240	12	27.5
2"	175	183	14	7.3	187	195	14	8.0	187	195	14	8.2	230	232	14	18.0	242	242	12	42.3

# FLANGE TO SCREW DBB VALVES

## 3 NEEDLE PATTERN



### FEATURES & BENEFITS

- Integral flange
- 3 needle pattern
- 1/2" PT or NPT threaded female outlet
- ANSI B 16.5 flanged inlet connections
- 1/2" NPT threaded bleed connection
- Pressure ratings : class 150 to class 2500
- Available to Fire safe to API 607
- Available to NACE MR-01-75
- Flanged connections according to ASME B 16.5 RF and RTJ

### MATERIALS

316, 316L, 304, 304L, A105, LF2.  
Titanium, monel, inconel625, C95800  
and other special materials are available  
to customer spec

### TYPICAL APPLICATIONS

- Double block and bleed applications
- Primary isolation
- Chemical injection
- Sampling
- Flow measurement

TABLE 2 - FLANGE TO SCREW (3 NEEDLE PATTERN) DBB VALVE

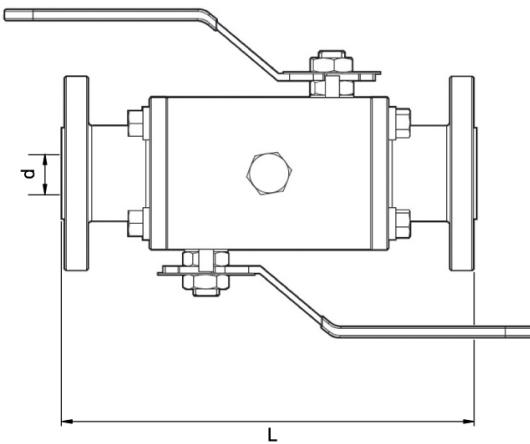
Rating Flange size	150			300			600			900 / 1500			2500		
	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)
1/2"	135	-	2.5	135	140	2.6	145	145	3.3	160	160	5.2	170	170	6.3
3/4"	135	-	3.2	135	140	3.4	150	150	3.9	165	160	6.0	180	180	7.0
1"	135	140	3.8	135	140	3.9	153	153	4.5	168	160	7.3	183	183	9.5
1-1/4"	155	160	4.3	155	160	4.5	160	160	5.4	175	175	9.2	188	188	13.8
1-1/2"	160	165	4.8	160	165	5.0	170	170	7.0	185	185	10.2	190	190	15.5
2"	160	168	7.0	160	168	7.2	174	177	8.3	185	187	12.3	193	195	21.3

# FLANGE TO FLANGE DBB VALVES

## 2 BALL 1 NEEDLE PATTERN

### FEATURES & BENEFITS

- 3-piece construction
- 2 ball 1 needle pattern
- ANSI B 16.5 flanged connections
- 1/2" NPT threaded bleed connection
- Floating or trunnion ball design
- 10mm to 50mm ball valve bore
- Pressure ratings : class 150 to class 2500
- Available to Fire safe to API 607
- Available to NACE MR-01-75
- Flanged connections according to ASME B 16.5 RF and RTJ



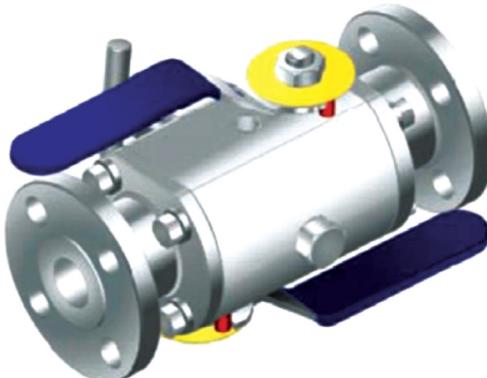
### MATERIALS

316, 316L, 304, 304L, A105, LF2.

Titanium, monel, inconel625, C95800

and other special materials are available

to customer spec



### TYPICAL APPLICATIONS

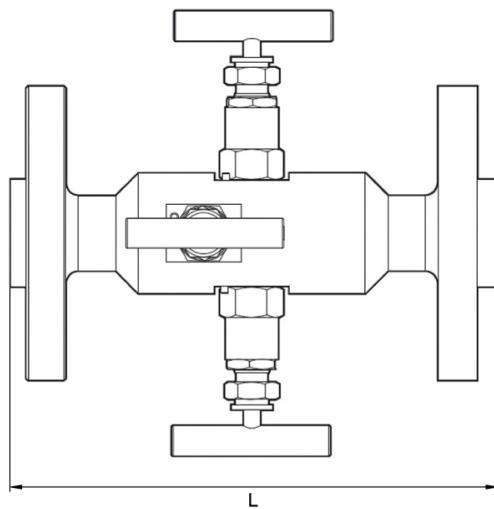
- Double block and bleed applications
- Primary isolation
- Sampling
- Venting

TABLE 3 - FLANGE TO FLANGE DBB VALVE

Rating	150				300				600				900 / 1500				2500			
	Flange size	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d	Approx Weight(kg)	L(RF)	L(RTJ)	d
$\frac{1}{2}"$	174	-	11	4.4	186	194	11	4.7	211	209	11	7.5	240	240	11	9.0	340	340	9	19.6
	175	-	14	5.2	190	198	14	5.6	215	215	14	8.0	245	245	14	12.2	346	346	12	24.9
$\frac{3}{4}"$	183	-	14	5.8	197	206	14	6.3	234	234	14	8.9	267	267	14	13.7	355	355	12	27.2
	205	-	20	9.2	215	224	20	10.2	252	252	20	12.9	288	288	20	17.3	363	363	16	30.8
1"	211	220	20	9.8	215	224	20	11.5	278	278	20	13.5	312	312	20	20.6	398	398	16	36.2
	234	243	25	13.7	236	245	25	14.7	286	286	25	17.0	324	324	25	24.6	408	408	22	47.0
$1\frac{1}{4}"$	241	250	25	15.3	248	247	25	16.0	293	293	25	19.3	349	349	25	27.0	449	449	22	55.0
	245	254	32	17.8	256	265	32	18.3	308	308	32	25.0	356	356	32	32.0	516	516	26	82.3
$1\frac{1}{2}"$	254	267	32	18.3	269	278	32	21.0	320	320	32	28.5	384	384	32	45.2	554	554	26	88.6
	290	300	38	24.5	294	303	38	26.1	328	328	38	33.0	477	477	38	78.0	563	563	32	105.2
2"	296	309	38	26.3	303	316	38	27.5	379	379	38	38.6	540	543	38	96.8	630	630	32	125.0
	319	331	50	38.7	330	343	50	42.3	395	395	50	52.3	553	556	48	112.0	683	683	42	145.6

# FLANGE TO FLANGE DBB VALVES

## 3 NEEDLE PATTERN



### FEATURES & BENEFITS

- 1-piece construction
- 3 needle pattern
- ANSI B 16.5 flanged inlet connections
- 1/2" NPT threaded bleed connection
- Pressure ratings : class 150 to class 2500
- Available to Fire safe to API 607
- Available to NACE MR-01-75
- Flanged connections according to ASME B 16.5 RF and RTJ

### MATERIALS

316, 316L, 304, 304L, A105, LF2.  
Titanium, monel, inconel625, C95800  
and other special materials are available  
to customer spec

### TYPICAL APPLICATIONS

- Double block and bleed applications
- Primary isolation
- Sampling
- Venting

TABLE 4 - FLANGE TO FLANGE (3 NEEDLE PATTERN) DBB VALVE

Rating Flange size	150			300			600			900 / 1500			2500		
	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)	L(RF)	L(RTJ)	Approx Weight(kg)
1/2"	168	-	3.5	173	173	3.8	173	173	4.5	203	203	5.5	210	210	7.1
3/4"	168	-	3.9	173	173	4.0	173	173	4.7	210	210	7.0	233	233	8.3
1"	175	185	4.5	180	180	5.3	180	180	5.8	261	261	15.3	272	272	18.0
1-1/4"	185	195	6.4	205	205	7.0	205	205	6.5	275	275	18.0	308	308	35.3
1-1/2"	225	225	7.5	252	252	8.9	252	252	12.5	293	293	22.3	330	330	44.2
2"	233	233	11.3	260	260	13.3	260	260	18.3	305	305	33.5	350	350	56.5

# LARGE BORE DBB VALVES

## FEATURES & BENEFITS

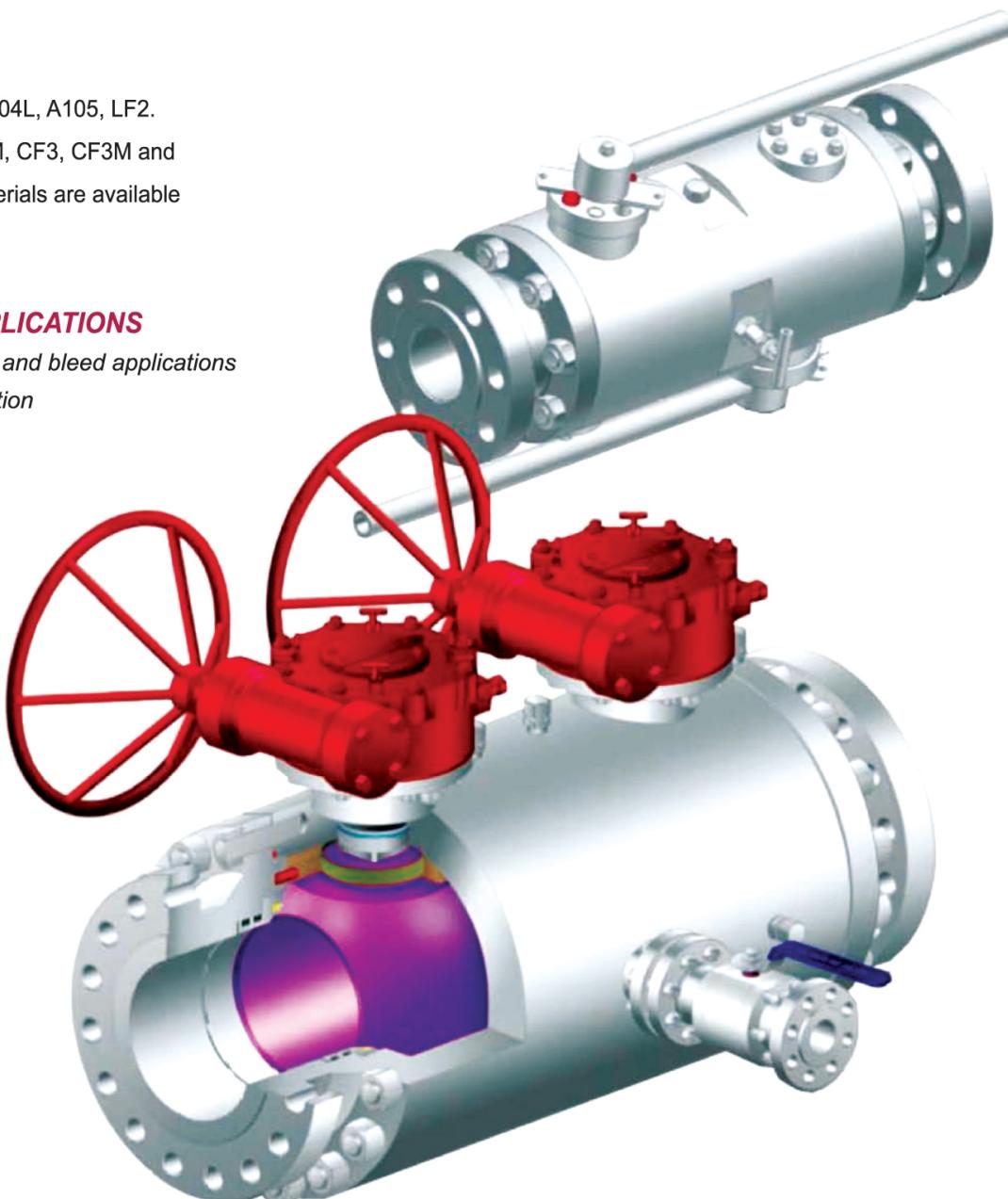
- 2 isolate ball valve pattern
- ANSI B 16.5 flanged connections
- Floating or trunnion ball design
- Pressure ratings : class 150 to class 2500
- Available to Fire safe to API 607
- Available to NACE MR-01-75
- Size range 2" ~ 12"

## MATERIALS

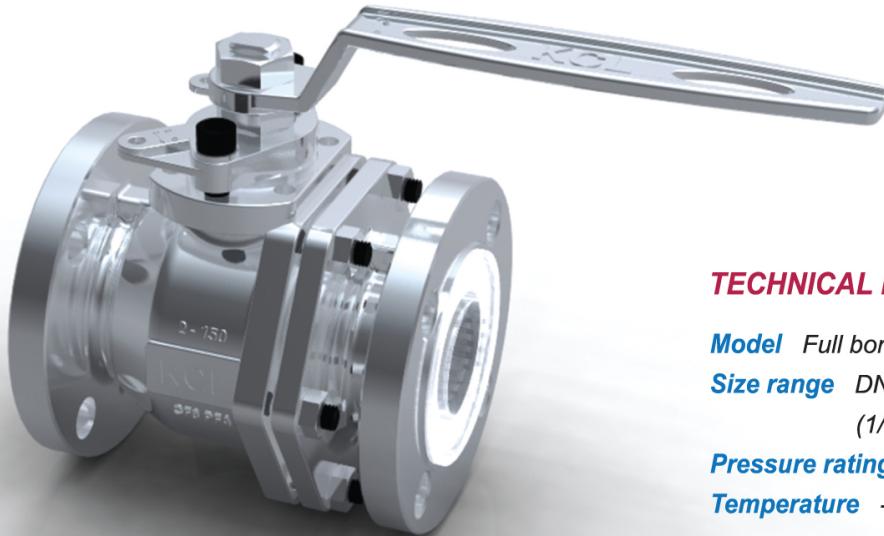
316, 316L, 304, 304L, A105, LF2.  
WCB, CF8, CF8M, CF3, CF3M and  
other special materials are available  
to customer spec

## TYPICAL APPLICATIONS

- Double block and bleed applications
- Primary isolation
- Sampling
- Venting



# KCL PFA LINED BALL VALVE



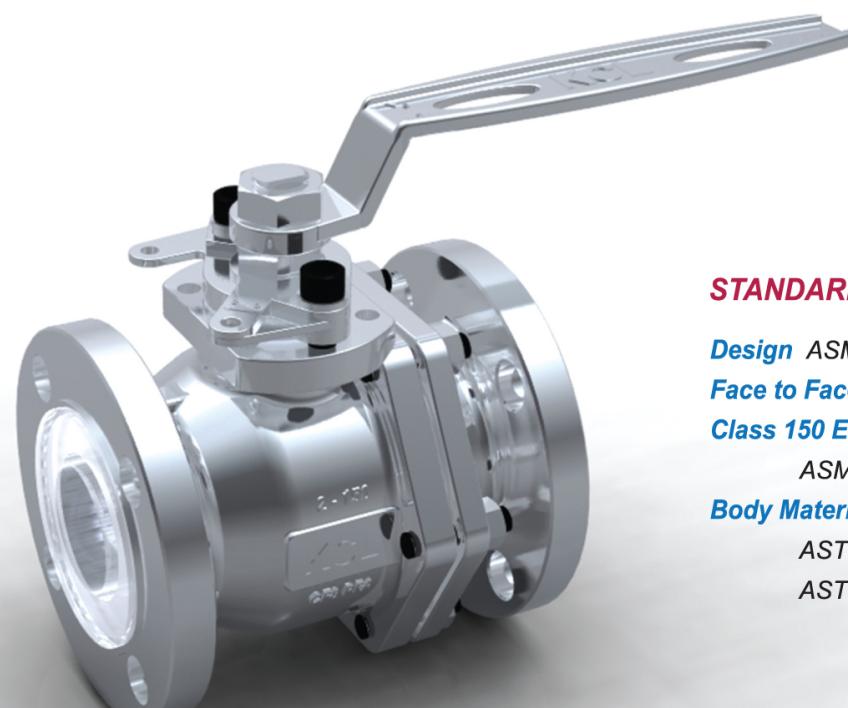
## TECHNICAL DATA

**Model** Full bore

**Size range** DN15 to DN150  
(1/2" to 6")

**Pressure rating** ASME Class 150

**Temperature** -40 to 250 °C



## STANDARDS

**Design** ASME B16.34

**Face to Face** ASME B16.10

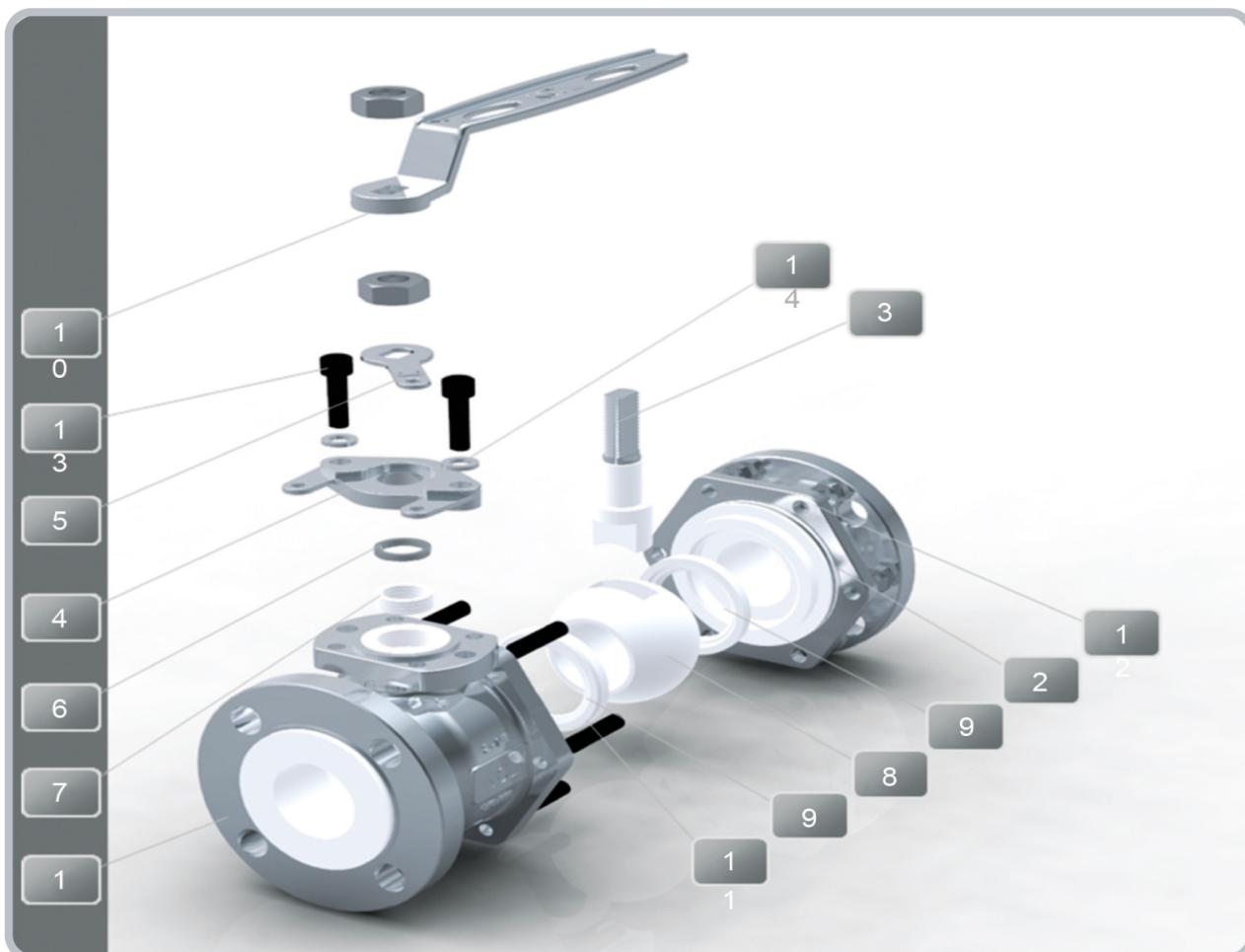
**Class 150 End connection**

ASME B16.5 Class 150

**Body Material**

ASTM A351 CF8

ASTM A351 / PFA or ASTM A216 / PFA



NO.	Parts Name	Q'ty	Material			
			JIS Code	ASTM Code	JIS Code	ASTM Code
1	BODY	1	SCPH2, PFA Lined	A 216 (G) WCB	SCS13A, PFA Lined	A 351 (G) CF8
2	BODY CAP	1	SCPH2, PFA Lined	A 216 (G) WCB	SCS13A, PFA Lined	A 351 (G) CF8
3	STEM	1	SCPH2, PFA Lined	A 351 (G) CF8	SCS13A, PFA Lined	A 351 (G) CF8
4	GLAND FLANGE	1	SCPH2	A216(G) WCB	SCS13A	A 351 (G) CF8
5	STOPPER	1	SCPH2	A 216 (G) WCB	SCS13A	A 351 (G) CF8
6	PACKING WASHER	1	SUS304	A 276 (TP) 304	SUS304	A 276 (TP) 304
7	GLAND PACKING	1set	PTFE	PTFE	PTFE	PTFE
8	BALL	1	SCS13A, PFA Lined	A 351 (G) CF8	SCS13A, PFA Lined	A 351 (G) CF8
9	SEAT	2	PTFE	PTFE	PTFE	PTFE
10	HANDLE	1	SCPH2	A 216 (G) WCB	SUS304	A 276 (G) 304
11	STUD BOLT	4-8	SNB7	A 193 (G) B7	SUS304	A 193 (G) B8
12	NUT	4-8	S45C	A 194 (G) 2H	A 194 (G) 8	A 194 (G) 8
13	GLAND BOLT	2	SUS304	A 193 (G) B8	SUS304	A 193 (G) B8
14	SPRING WASTER	2	SUS304	340SS	SUS304	340SS

# BALL VALVE'S BODY & TRIM MATERIAL

## CARBON STEEL

A105N      A216 WCB      A216 WCC

## LOW TEMPERATURE CARBON STEEL

A350 LF2      A216 WCB      A216 WCC

## LOW ALLOY STEEL

AISI 4140      A694 F65      A694 F52

A694 F60      A350 LF3

API 6A 60K (A694 F60 Mod)

## MARTENSITIC STAINLESS STEEL

A182 F6A      A182 F6NM

A217 CA15      A487 CA6NM

## AUSTENITIC STAINLESS STEEL

A182 F316      A182 F316L

A182 F316LN-Mod.      A182 F347

A182 F44 (8% Mo)  
(UNS S31254)      A182 FXM-19  
(Nitronic 50)

A351 CF8M      A351 CF3

A351 CF3M

## PRECIPITATION HARDENING STAINLESS STEEL

A564 Gr 630 H 1150M (UNS S 17400)

## DUPLEX STAINLESS STEEL

A181 F51 (UNS S31803)

A182 F53 (UNS S32750)

A182 F55 (UNS S32760)

A890-4A (UNS S31803)

A890-6A (UNS S32760)

## NICKEL ALLOYS

Incoloy 825 (UNS N08825) Incoloy 925 (UNS N09925)

Incoloy 625 (UNS N06625) Incoloy 718 (UNS N07718)

Incoloy 750 (UNS N07750) Incoloy 718 (UNS N07718)

Monel 400

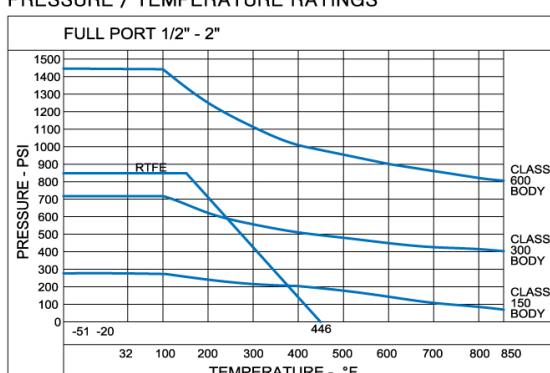
Monel K500

## SEAT INSERT & SEALS MATERIALS OPERATION (DYNAMIC) LIMITS'

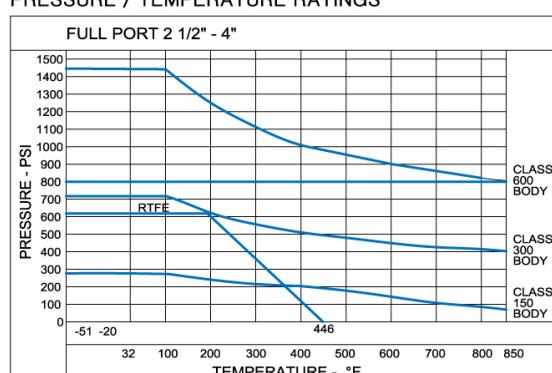
MATERIAL	TEMP		PRESSURE CLASS		SIZE	
	MIN.	MAX.	SEAT	INSERT	SEAT	INSERT
Nylon SMX	-40	120	2500	N/A	64"	N/A
Lauramid (Nylon 12G)	-60	100	2500	N/A	64"	N/A
Devion	-60	140	2500	N/A	64"	N/A
Peek	-80	220	2500	N/A	30"	N/A
PTFE Glass Filled (25%)	-100	200	500	N/A	24"	N/A
PTFE Carbon Filled (25%)	-100	180	300	N/A	24"	N/A
PCTFE	-186	150	2500	N/A	36"	N/A
HNBR – Therban	-40	150	600	2500	64"	64"
FKM A (Viton A)	-29	180	500	2500	64"	64"
FXM GLT (VitonGLT)	-40	180	600	2500	64"	64"
FKM AED	-29	180	600	2500	64"	64"
PTFE+Figilloy Sorings	-196	200	N/A	2500	N/A	36"

## PRESSURE / TEMPERATURE RATING

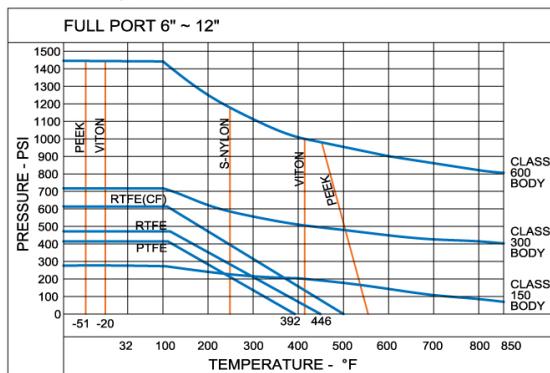
### PRESSURE / TEMPERATURE RATINGS



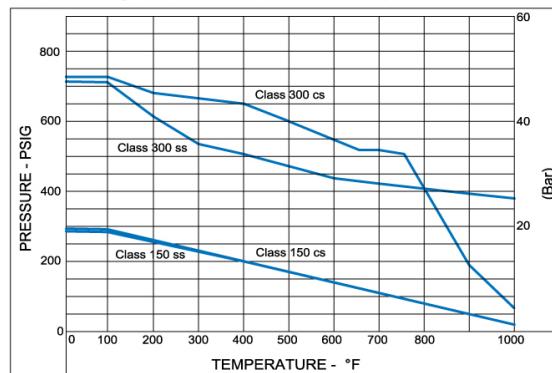
### PRESSURE / TEMPERATURE RATINGS



### PRESSURE / TEMPERATURE RATINGS



### PRESSURE / TEMPERATURE RATINGS(CARBON-GRAPHITE)



# BALL VALVE'S DESIGN FEATURES

## BODY JOINT CONSTRUCTION

The one piece unibody end entry design, graphite ring or o-ring viton (on request) seals ensure absolute seal integrity. The two piece bolted body designs include a tight toleranced overlapping metal fit between the body and the adapter to minimize any possibility of movement due to pipeline stress. A special high temperature spiral wound stainless steel / grafoil filled gasket is utilized for absolute seal. This gasket is encapsulated by body and adapted on all four sides. Body and adapters are dimensioned for metal contact to ensure correct gasket crush.

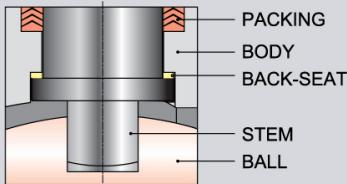


Fig.1

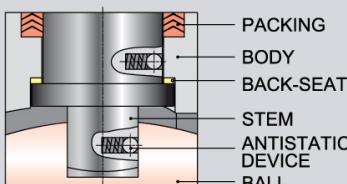


Fig.2

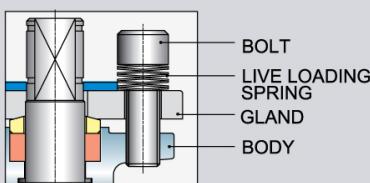


Fig.3

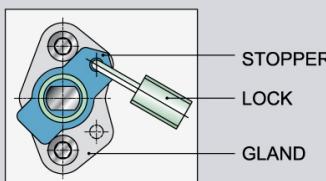


Fig.4

## BLOW-OUT PROOF STEM

Stem is made separately from the ball, anti blow-up design with suitable PTFE and graphite rings and antistatic device. The lower end of the stem is designed with an Integral collar to be blow-out proof. It also functions as the backseat for assured stem sealing. (Flg. 1)

## ANTI-STATIC DEVICE

All Flow Control floating flange ball valves include dual grounding systems from stem to ball and stem to body. Valve testing to ISO17292(BS5351) was performed for all sizes. and witnessed by a third party inspection company. An antistatic feature is provided to ensure electrical continuity for assured stem sealing. (Flg. 2)

## LIVE LOADED GLAND FLANGE

Live loading is designed to provide gland load retention, compensating for expected in-service consolidation of the packing. A set of Belleville-Spring Washers are used on each gland stud to help exert a continuous compressive force on the gland follower flange and therefore reduce fugitive emissions from the stem packing standard Belleville-Spring Washers are protected by a weather-proof cap to keep them free from environmental contamination, resulting in a long stable life. (Flg. 3)

## TOP WORKS

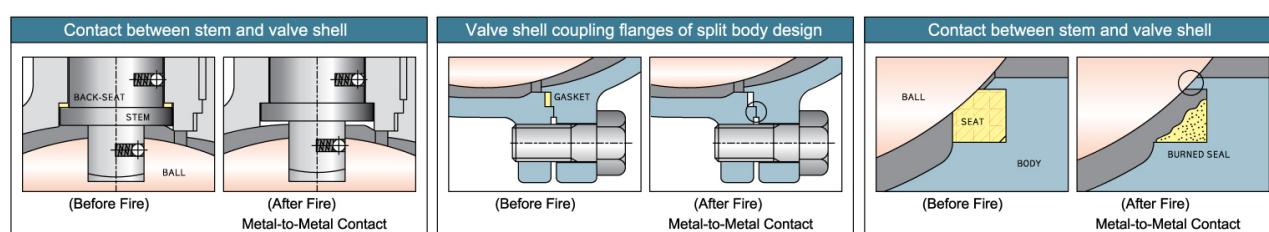
Stem head design provides mounting of the lever handle always in parallel to the flow passage. Facility for mounting a locking device for prevention of accidental valve operation is provided. (Flg. 4)

## FIRE SAFETY

All fire-safe valves conform to API 607 and API 6FA standards. When fire accident occurs at valve operation jobsite, and components such as seat ring, stem back seat, stem packing and mid-flange gasket which made of non-metallic material such as PTFE were broken or destroyed. However, KCL particularly metal to metal added seal seated designed ball valves can effectively control external or internal leakage. KCL soft seated fire safety designed as follows:

## LONGEVITY OF LIFE

Special consideration was devoted to the attainment of enhanced life and operation of our valve throughout design, development, testing and manufacturing stages. Valve designs combined with the selection of advanced materials are such that long periods of inactivity should not affect the operations of efficiency.



# BALL VALVES DESIGN FEATURES

## MATERIAL FOR SEALING AND SEAT

Material	General Temperature Range	USE / Characteristic	Not Recommended for	Properties
FM (Viton A)	-13° F -400° F (-25°C-240°C)	aliphatic hydrocarbons (petroleum Oil, mineral oil / grease, fuel oils, butane, propane, natural gas), aromatic hydrocarbons (benzene, toluene), chlorinated hydrocarbons, high vacuum, most acids / chemicals	brake fluid with glycol base, ammonia gas amines, alkalis, acetone, skydrol, ethyl acetate, superheated steam, polar solvents (ketone, acetone, acetic acid, etc.). low molecular esters and ethers.	excellent resistance for wear, ozone, weather, aging, compression set, permeation
FK M (Viton GLT)	-50° F -400° F (-45°C-204°C)	extended low temperature service over Viton A, Excellent for water, steam and mineral acids in addition to use of Viton A	same as those of Viton A	similar to those of Viton A except a little interior compression set and permeability
NBR (Buna-N, Nitrile)	-35° F -212° F (-37°C-100°C)	aliphatic hydrocarbons (petroleum oil, mineral oil / grease, fuel oils, butane, propane, natural gas) dilute acids, alkali, and salt solutions at low temperature, water	fuels of high aromatic content aromatic hydrocarbon(benzene), chlorinated hydrocarbons, polar solvents(ketone, acetone, acetic acid, ethylene-ester), strong acid, glycol based brake fluid, ozone, weather and atmospheric aging	good resistance for wear, compression set, permeation
PTFE	-400° F -450° F (-240°C-232°C)	almost all chemicals and solvents including strong acid and alkali, high and very low temperature service	high mechanical loading	weather resistance, thermal stability, low friction
Nylon 6 + MOS2	-65° F -250° F (-54°C-121°C)	aliphatic and aromatic hydrocarbons, ketones, acetone, ethers, weak alkalies, and acids, inorganic salt solutions	strong acids and alkali, strong ammonia, sodium hydroxide	excellent load bearing, strength and rigidity, self lubricating, good abrasion resistance
PEEK (polyetheretherketone)	-40° F -500° F (-40°C-260°C)	superb chemical resistance including alcohol, acids, ammonia, esters, halogenated organics, hydrocarbons and inorganics	some strong acids - nitrile, chromic, sulfuric, benzene sulfonic acids and aqua regia, etc, some inorganic bromine, chlorine orine and fluorine, etc.	good high temperature performance, wear resistance, very low smoke and toxic gas emission, good hydrolysis resistance
Polymite	-65° F -275° F 185° F, water based fluids (-54°C-135°C)	petroleum and water based fluids, phosphate ester fluids, some chlorinated fluids and solvents, ketones, ethylene base glycols	strong acid, alcohols, brake fluids, dry chlorine, water over 185° F	very high sealability tear strength, abrasion and extrusion resistance.

## TEMPERATURE LIMITS OF METAL PARTS

Forging	Casting	Low Temperature	High Temperature
A105	A216 WCB	-20° F (-29°C)	800° F (426°C)
A350 LF2	A352 LCB, LCC	-50° F (-46°C)	650° F (343°C)
A182 F316	A351 CF8M	-425° F (-254°C)	1500° F (815°C)

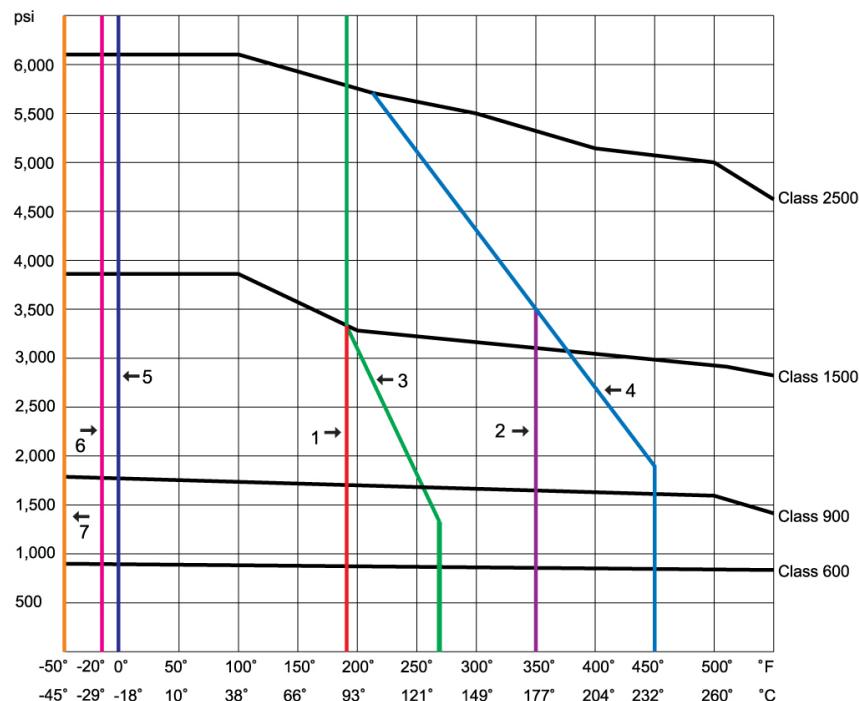
## TYPICAL GASKET SPECIFICATIONS

Type	Material	Low Temperature	High Temperature	Max. Pressure
Spiral wound	316 SS + Graphite	-420° F (-250°C)	1500° F (815°C)	6,250 psi (430bar)
Spiral wound	316 SS + PTFE	-200° F (-129°C)	450° F (232°C)	6,000 psi (415bar)

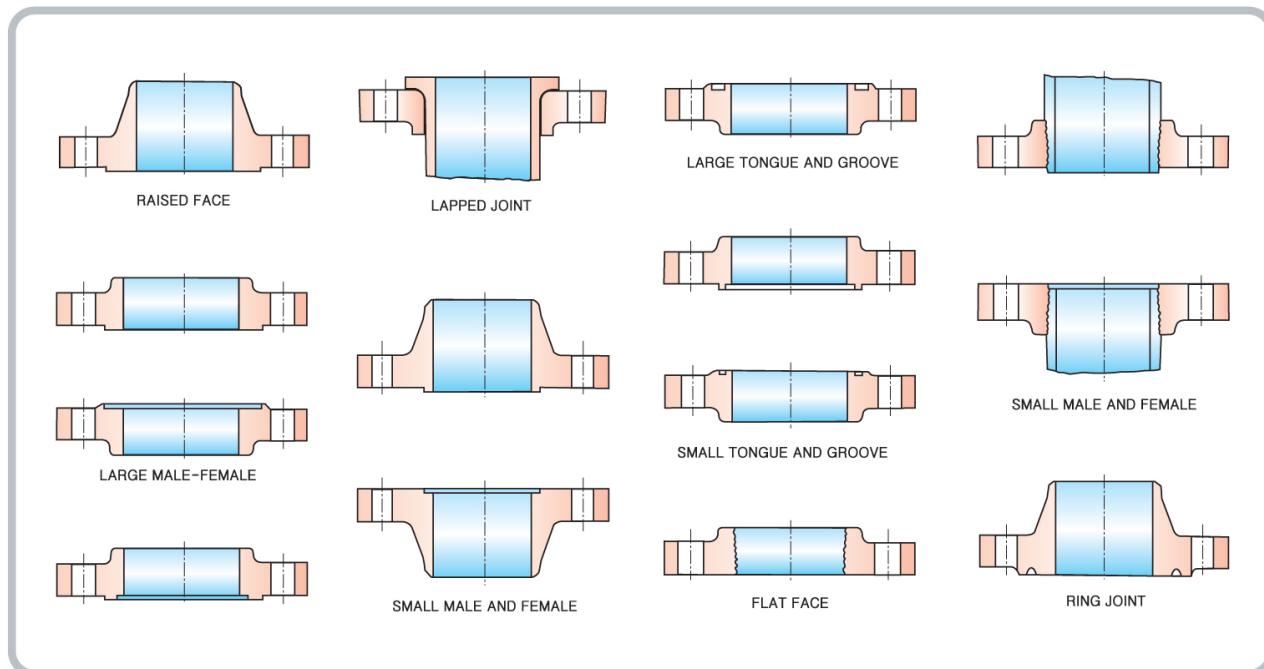
# BALL VALVE'S DESIGN FEATURES

## PRESSURE / TEMPERATURE RATING

- 1 — NBR
- 2 — Viton Viton GLT
- 3 — Nylon+MoS2
- 4 — PEEK
- 5 — Low Temperature Limit of Viton
- 6 — Low Temperature Limit of NBR
- 7 — Low Temperature Limit of LT NBR Viton GLT



## FLANGED CONNECTION TYPE / DIMENSIONS OF FLANGE FACINGS



# KCL VALVE PRODUCTS

CASTING BALL VALVE  
GATE VALVE  
CHECK VALVE  
SAFETY VALVE

FORGED BALL VALVE  
GLOBE VALVE  
DOUBLE BLOCK & BLEED VALVE  
PLUG VALVE



ISO9001 by Lloyd

تکریر  
TAKREER  
شركة أبوظبي تكرير النفط  
REGISTRATION NO.910004



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