

PROVEN BY FIRE "DIAMOND" SERIES BALL VALVES

KUKA

**TRUNNION MOUNTED
BALL VALVES**
Class 150, 300, 600, 900 & 1500



<http://www.kuka.co.kr>

KUM KANG VALVE MFG. CO., LTD.

Standard Features

"TRUNNION LOWER-STEM DESIGN"

KUKA TRUNNION-MOUNTED, DOUBLE BLOCK & BLEED ball valves are designed, constructed and tested according to API-6D standards.

Figure 1

1. Body & (2) Cap are manufactured within our own "in-house" foundry and are supplied in carbon steel and austenitic stainless steel materials.
These materials are in compliance with NACE standard MR 0175. Special materials can be supplied upon request.
3. Ball - Precision machined with authentic smoothness provides superior quality with low torque and no leakage operation.
4. Heavy Duty Stem / Trunnion Lower-Stem
5. Seat (RTFE, S-NYLON, S-PE, PEEK & ETC.)
6. Seat Retainer O-Ring
7. Seat Retainer Seal
8. Seat Retainer (Double Block & Bleed design)
9. Seat Follower (Double Block & Bleed design)
10. Seat Retainer Spring (INCONEL X-750)
11. Gland Packing set (HIGH & LOW DENSITY GRAPHITE RINGS)
12. Spiral - Wound Body Gasket (316SS & GRAPHITE)
13. Bottom Cover
14. ISO 5211 Mounting Pad
15. Stem Seal Retainer
16. Bottom Cover O-Ring
17. Stem Bearing
18. Lower Stem Thrust Bearing
19. Body & Cap Joint Bolt
20. Body & Cap Joint Nut
21. Drain Plug
22. Manual Worm Gear Operator
23. Anti-Static Design (BS 5351)
24. Emergency Sealant Injection

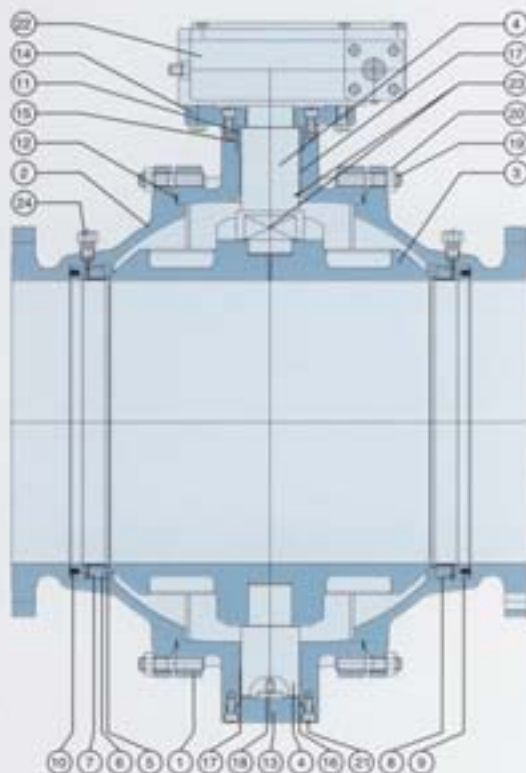


Figure1 TRUNNION LOWER-STEM DESIGN

"TRUNNION PLATE DESIGN"

The **KUKA** "compact" trunnion plate design locates the trunnion assembly within the cast body and cap. In so doing, both the line pressure and media act upon all valve cavity components equally. The advantages of such a design include:

Figure 2

- (a) the pressure & media does not concentrate in one location only; instead force is dispersed equally throughout the pressurized area;
- (b) ball movement and side-loading of trunnion plate are minimized thereby decreasing operational torque values and improving stem seal life; and
- (c) risk of external leak path through lower bottom cover parts is eliminated.

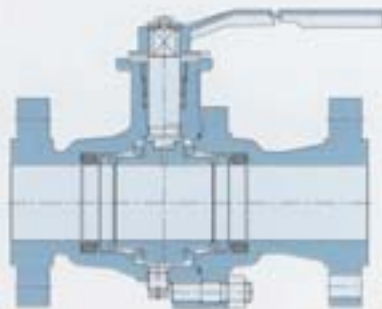


Figure2 TRUNNION PLATE DESIGN

TRUNNION - MOUNT DESIGN

Double Block and Bleed

Model #CF and #CG type ball valves employ a sealing principle that facilitates all services requiring double block and bleed integrity.

Sealing Principle (Figure 3)

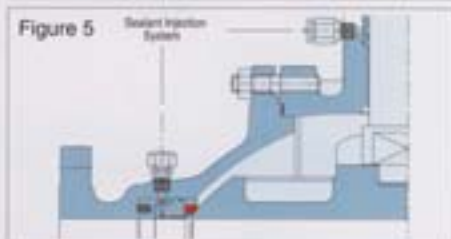
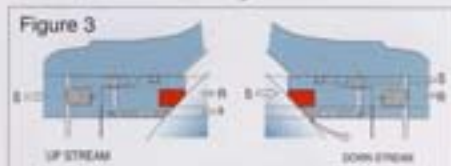
All Model #CF and #CG type ball valves are supplied with spring-loaded seats to ensure that the seats are always in contact with the ball. This design provides a very efficient seal even at low line pressure. As the line pressure increases, the seat is forced into tighter contact with the ball providing a positive shut-off.

Fire Safe Construction (Figure 4)

The secondary metal seat is provided to maintain contact between the seat and ball in the event the primary non-metallic seat is destroyed by fire. All #CF and #CG model valves are fire-safe designed. The double body and cap seals provide maximum security. **KUKA** valves are fitted with special graphite seals so as to effectively preclude leakage in the event of fire. All **KUKA** Trunnion-Mounted ball valves have been tested to API-607.

Secondary Seat and Stem Sealing Option (Figure 5)

Model #CF and #CG type ball valves are designed to provide high integrity shut-off. Upon request, sealant lubrication fittings are installed. In the event of seat insert or stem seal damage, external or internal leakage can occur. Emergency sealant injection can save the integrity of the valve by incorporating a sealant seal around the stem or between the seat and the ball until such time the valve may be properly serviced.



MOUNTING AND STEM SEAL DESIGN

Figure 6

LIVE-LOAD STEM SEAL

This **option** provides premier valve stem sealing characteristics for adverse conditions of extreme pressure/temperature variation. It Designed to meet the most stringent fugitive emission regulations, the **KUKA** "live-load" design is comprised of an extra deep stuffing box/packing/stem seal retainer & conical disc spring(s). The disc spring(s) provide continuous compression of the packing assembly and compensate for wear. (U.S. PATENT PENDING SERIAL NO. 081967, 620)

A. ACTUATOR MOUNTING (ISO5211)

All **KUKA** flanged end products shall have an integral cast (ISO) actuator mounting pad. This feature provides for direct mount of gear operators or electric actuators. The additional cost for separate mounting bracket is eliminated.

B. STATIC SEALED STEM SEAL RETAINER

The stem seal retainer, with its (2) static viton O-Ring seals; accepts the force provided by the combination ISO Mounting Pad/Packing Gland & transmits this force as packing/disc spring factory pre-load. A variety of O-Ring seals is available for those exceptionally demanding applications. Field maintenance & costly repairs are virtually eliminated.

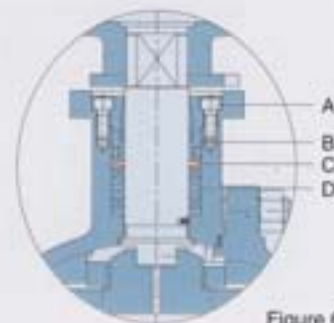


Figure 6

C. SPRING FORCE

Optional conical disc springs insure adequate loading of packing at all times. Excessive stem torque and packing deformation due to over-tightening of conventional packing glands is eliminated. The constant "load" provided by the disc springs compensates for normal wear - repair and maintenance costs are virtually eliminated.

D. PACKING

The high pressure/high temperature packing set is comprised of self-cleaning, die-formed, High-density and Low-density Graphite molded packing materials. This unique design eliminates stem galling, lowers required valve stem torque and increases product performance.

Full Port



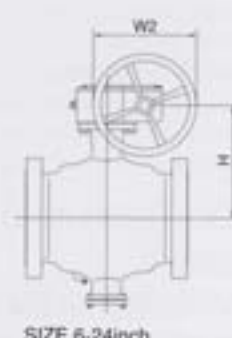
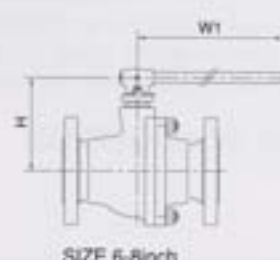
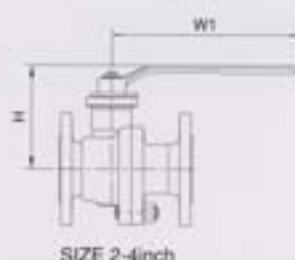
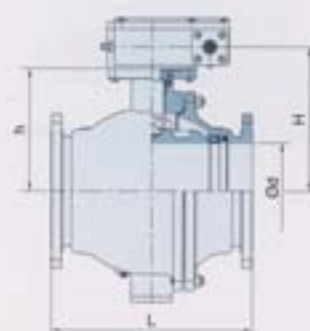
Construction:

Split body, full port, trunnion mounted ball, blow-out proof stem, double seal design, double block and bleed, anti-static design, "fire-safe" designed to API-607, pressure relieving seats, pressure balance hole in ball, locking device. Designed according to API-6D, ASME B16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175.
* API-607 "fire-safe" certified for all sizes.

Dimensions

Face to Face	ASME B 16.10 & API 6D Long Pattern
End Flange	ASME B 16.5, MSS SP-44 (ASME B 16.47 Series A)
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34



Class 150/300

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	34"	36"
	50mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	650mm	700mm	750mm	800mm	900mm
O.D.	inch	2.00	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	23.25	25.00	27.00	29.00	30.75
	mm	50	76	100	152	203	254.0	305	337	387	438	489	591	635	686	737	781
L	inch	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	45.00	49.00	51.00	54.00
	mm	178	203	229	394	457	533	610	688	762	864	914	1067	1143	1245	1295	1372
	inch	8.50	11.12	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00
	mm	216	283	305	403	502	568	648	762	836	914	991	1143	1245	1346	1397	1524
h	inch	3.94	5.71	6.34	8.88	10.94	12.72	15.16	16.73	19.09	21.06	22.32	25.59	26.00	29.75	31.25	32.75
	mm	100	145	161	223	273	323	389	425	484	520	565	670	710	756	794	832
H1	inch	5.67	7.64	8.27	11.26	13.31	15.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	mm	144	194	210	286	338	387	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H2	inch	N/A	N/A	N/A	10.83	13.03	14.88	17.72	19.61	22.05	24.21	25.47	29.57	31.98	33.73	35.23	36.73
	mm	N/A	N/A	N/A	275	331	378	450	498	560	615	647	751	812	857	895	933
W1	inch	9.84	13.78	16.11	31.50	39.37	39.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	mm	250	460	460	800	1000	1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W2	inch	N/A	N/A	N/A	15.75	19.69	19.69	23.62	27.56	27.56	31.50	31.50	35.43	35.43	35.43	35.43	35.43
	mm	N/A	N/A	N/A	400	500	500	600	700	700	800	800	900	900	900	900	900
Approx. Weight	150	Lb	40	71	123	275	430	595	1036	1256	1927	20.60	3348	4736	7823	8973	10673
		kg	18	32	56	125	195	270	470	570	875	935	1520	2150	3552	4074	4846
	300	Lb	57	99	165	335	520	667	1106	1325	2205	2544	3998	5617	8598	10123	12348
		kg	26	45	75	152	236	303	502	602	1001	1155	1815	2550	3903	4596	5606

Gear operators are available for most sizes.

Reduced Port



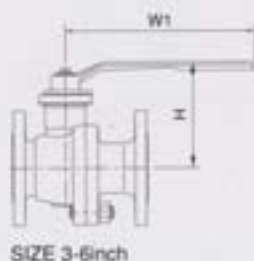
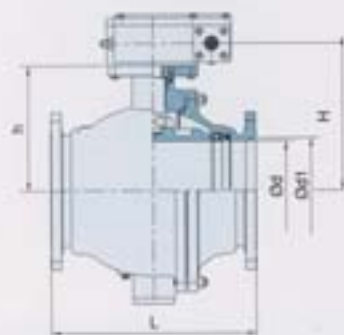
Construction:

Split body, reduced port, trunnion mounted ball, blow-out proof stem, double seal design, double block and bleed, anti-static design, "fire-safe" designed to API-607, pressure relieving seats, pressure balance hole in ball, locking device. Designed according to API-6D, ASME B16.34 and BS5351 specifications.

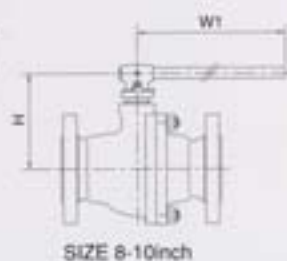
Note: Manufactured and conforms to NACE standard MR 0175.
* API-607 "fire-safe" certified for all sizes.

Dimensions

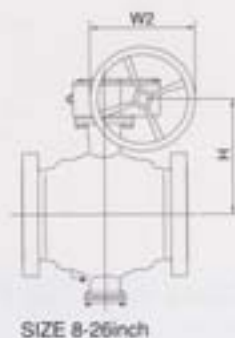
Face to Face	ASME B 16.10 & API 6D Long Pattern
End Flange	ASME B 16.5, MSS SP-44 (ASME B 16.47 Series A)
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34



SIZE 3-6inch



SIZE 8-10inch



SIZE 8-26inch

Class 150/300

SIZE	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	34"	36"
	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	600mm	650mm	700mm	750mm	800mm	850mm	900mm
OD	in: 2.6/3.0 mm: 66/76	in: 3.6/4.0 mm: 91/100	in: 4.6/5.0 mm: 117/127	in: 6.6/7.0 mm: 168/178	in: 8.6/9.0 mm: 219/229	in: 10.6/11.0 mm: 270/280	in: 12.6/13.0 mm: 321/331	in: 14.6/15.0 mm: 372/382	in: 16.6/17.0 mm: 423/433	in: 18.6/19.0 mm: 474/484	in: 21.3/21.7 mm: 541/551	in: 23.3/23.7 mm: 592/602	in: 25.3/25.7 mm: 643/653	in: 27.3/27.7 mm: 694/704	in: 29.3/29.7 mm: 745/755	in: 31.3/31.7 mm: 796/806	in: 33.3/33.7 mm: 847/857
L	in: 8.00 mm: 203	in: 9.00 mm: 229	in: 15.50 mm: 394	in: 18.00 mm: 457	in: 21.00 mm: 533	in: 24.00 mm: 610	in: 27.00 mm: 686	in: 30.00 mm: 762	in: 34.00 mm: 864	in: 36.00 mm: 914	in: 42.00 mm: 1067	in: 45.00 mm: 1143	in: 49.00 mm: 1245	in: 51.00 mm: 1295	in: 54.00 mm: 1372	in: 58.00 mm: 1473	in: 60.00 mm: 1524
	in: 11.12 mm: 283	in: 12.00 mm: 305	in: 15.88 mm: 403	in: 19.75 mm: 502	in: 22.38 mm: 568	in: 25.50 mm: 648	in: 30.00 mm: 762	in: 33.00 mm: 836	in: 36.00 mm: 914	in: 39.00 mm: 991	in: 45.00 mm: 1143	in: 49.00 mm: 1245	in: 53.00 mm: 1346	in: 55.00 mm: 1397	in: 60.00 mm: 1524	in: 64.00 mm: 1628	in: 68.00 mm: 1727
H	in: 3.94 mm: 100.1	in: 5.71 mm: 145.0	in: 6.34 mm: 161.0	in: 8.88 mm: 225.6	in: 10.94 mm: 277.9	in: 12.72 mm: 323.1	in: 15.16 mm: 385.1	in: 16.73 mm: 424.9	in: 19.09 mm: 484.9	in: 21.06 mm: 534.9	in: 22.32 mm: 568.9	in: 25.59 mm: 650.0	in: 28.00 mm: 711.2	in: 29.75 mm: 755.7	in: 31.25 mm: 793.8	in: 32.75 mm: 831.9	in: 34.50 mm: 876.3
	in: 5.67 mm: 144.0	in: 7.64 mm: 194.1	in: 8.27 mm: 210.1	in: 11.26 mm: 286.0	in: 13.31 mm: 338.1	in: 15.24 mm: 387.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H2	in: N/A mm: N/A	in: N/A mm: N/A	in: N/A mm: N/A	in: 13.03 mm: 331.0	in: 13.03 mm: 331.0	in: 14.86 mm: 378.0	in: 17.72 mm: 450.1	in: 19.61 mm: 498.1	in: 22.05 mm: 560.1	in: 24.21 mm: 614.9	in: 25.47 mm: 646.9	in: 29.57 mm: 751.1	in: 31.98 mm: 812.3	in: 33.73 mm: 858.7	in: 35.23 mm: 894.8	in: 36.73 mm: 932.9	in: 38.48 mm: 977.4
	in: 9.84 mm: 250	in: 13.78 mm: 350	in: 18.11 mm: 460	in: 31.50 mm: 800	in: 39.37 mm: 1000	in: 39.37 mm: 1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W1	in: 9.84 mm: 250	in: 13.78 mm: 350	in: 18.11 mm: 460	in: 31.50 mm: 800	in: 39.37 mm: 1000	in: 39.37 mm: 1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	in: 9.84 mm: 250	in: 13.78 mm: 350	in: 18.11 mm: 460	in: 31.50 mm: 800	in: 39.37 mm: 1000	in: 39.37 mm: 1000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W2	in: N/A mm: N/A	in: N/A mm: N/A	in: N/A mm: N/A	in: 15.75 mm: 400	in: 19.89 mm: 500	in: 19.89 mm: 500	in: 23.82 mm: 600	in: 27.56 mm: 700	in: 27.56 mm: 700	in: 31.60 mm: 800	in: 31.60 mm: 800	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900
	in: N/A mm: N/A	in: N/A mm: N/A	in: N/A mm: N/A	in: 15.75 mm: 400	in: 19.89 mm: 500	in: 19.89 mm: 500	in: 23.82 mm: 600	in: 27.56 mm: 700	in: 27.56 mm: 700	in: 31.60 mm: 800	in: 31.60 mm: 800	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900	in: 35.43 mm: 900
Approx. Weight	150	Lb: 57 kg: 26	Lb: 110 kg: 50	Lb: 260 kg: 118	Lb: 330 kg: 150	Lb: 507 kg: 230	Lb: 612 kg: 278	Lb: 1057 kg: 480	Lb: 1289 kg: 585	Lb: 1960 kg: 890	Lb: 2104 kg: 955	Lb: 3634 kg: 1650	Lb: 5066 kg: 2300	Lb: 8820 kg: 4000	Lb: 9982 kg: 4527	Lb: 11874 kg: 5385	Lb: 13517 kg: 6130
	300	Lb: 77 kg: 35	Lb: 143 kg: 65	Lb: 297 kg: 135	Lb: 441 kg: 200	Lb: 617 kg: 280	Lb: 683 kg: 310	Lb: 1145 kg: 520	Lb: 1366 kg: 620	Lb: 2258 kg: 1025	Lb: 2599 kg: 1180	Lb: 4295 kg: 1950	Lb: 5837 kg: 2650	Lb: 9592 kg: 4350	Lb: 13452 kg: 6100	Lb: 15347 kg: 6960	Lb: 18081 kg: 8200
	150	Lb: 57 kg: 26	Lb: 110 kg: 50	Lb: 260 kg: 118	Lb: 330 kg: 150	Lb: 507 kg: 230	Lb: 612 kg: 278	Lb: 1057 kg: 480	Lb: 1289 kg: 585	Lb: 1960 kg: 890	Lb: 2104 kg: 955	Lb: 3634 kg: 1650	Lb: 5066 kg: 2300	Lb: 8820 kg: 4000	Lb: 9982 kg: 4527	Lb: 11874 kg: 5385	Lb: 13517 kg: 6130
	300	Lb: 77 kg: 35	Lb: 143 kg: 65	Lb: 297 kg: 135	Lb: 441 kg: 200	Lb: 617 kg: 280	Lb: 683 kg: 310	Lb: 1145 kg: 520	Lb: 1366 kg: 620	Lb: 2258 kg: 1025	Lb: 2599 kg: 1180	Lb: 4295 kg: 1950	Lb: 5837 kg: 2650	Lb: 9592 kg: 4350	Lb: 13452 kg: 6100	Lb: 15347 kg: 6960	Lb: 18081 kg: 8200

Gear operators are available for most sizes.

Full Port/Reduced Port



Construction:

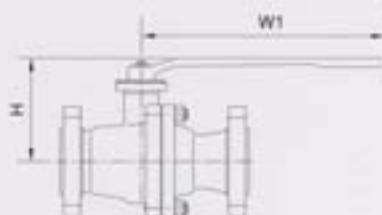
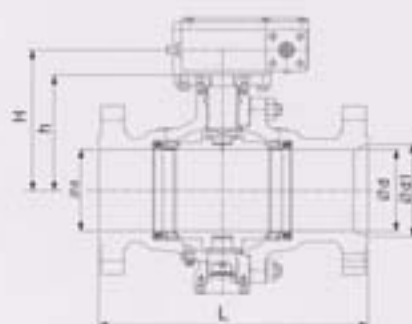
Split body, trunnion mounted ball, double seal design, double block and bleed, anti-static design, "fire-safe" designed to API-607, pressure relieving seats, pressure balance hole in ball, locking device. Designed according to API-6D, ASME B16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175.

* API-607 "fire-safe" certified for all sizes.

Dimensions

Face to Face	ASME B 16.10
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34



SIZE 1-6inch



SIZE 4-20inch

Class 600 Full Port

SIZE	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"
	25mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	550mm	600mm
DN	inch	1.00	1.50	2.00	2.50	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	21.25
	mm	25	38	50	65	76.2	100	152	203	254	305	337	387	438	489	540
L	inch	8.50	9.50	11.50	13.00	14.00	17.00	22.00	28.00	31.00	33.00	35.00	39.00	43.00	47.00	51.00
	mm	216	241	292	330	356	432	559	660	787	838	889	991	1092	1194	1295
h	inch	2.56	3.62	3.94	4.96	5.71	7.68	9.57	12.01	13.98	15.55	18.50	21.10	24.53	24.02	25.00
	mm	65	92	100	126	145	195	243	305	355	395	470	536	623	610	635
W1	inch	4.3	5.2	5.7	6.9	7.6	10.64	12.8/11.3	14.2	16.9	18.4	21.7	24.3	28.5	28.0	29.0
	mm	108	132	144	175	194	269/283	327/288	360	430	468	550	616	724	711	736
W2	inch	6.09	9.84	9.84	14.00	18.11	31.50	31.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	mm	170	250	250	356	460	800	800	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W2	inch	N/A	N/A	N/A	N/A	N/A	15.75	19.69	23.62	27.56	27.56	31.50	35.43	35.43	35.43	35.43
	mm	N/A	N/A	N/A	N/A	N/A	400	500	600	700	700	800	900	900	900	900
Approx. Weight	Lb	16	28	60	88	117	205	441	749	1216	1729	1872	3484	4785	5799	7473
	Kg	7	13	27	40	53	93	200	340	552	785	850	1580	2170	2630	3393

Class 600 Reduced Port

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"	26"
	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm	500mm	550mm	600mm	650mm
DN	inch	1.50	2.50	3.00	4.00	6.00	8.00	10.00	12.00	13.25	15.25	17.25	19.25	21.25	23.25
	mm	38	65	76	100	152	203	254	305	337	387	438	489	540	591
L	inch	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	51.00	55.00
	mm	292	330	355.5	431.8	558.8	660.4	787	838	889	990.6	1092	1193	1295	1397
h	inch	3.62	3.94	4.96	5.71	7.68	9.57	12.01	13.98	15.55	18.50	21.10	24.53	24.02	25.00
	mm	91.9	100.1	126	145	195	243	305	355	395	470	536	623	610	635
W1	inch	5.20	5.67	6.89	7.64	10.64/10.35	12.8/11.3	14.2	16.9	18.4	21.7	24.3	28.5	28.0	29.0
	mm	132.1	144.0	175.0	194.1	269/283	327/288	360	430	468	550	616	724	711	736
W2	inch	9.84	9.84	14.00	18.11	31.50	31.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	mm	250	250	356	460	800	800	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
W2	inch	N/A	N/A	N/A	N/A	15.75	19.69	23.62	27.56	27.56	31.50	35.43	35.43	35.43	35.43
	mm	N/A	N/A	N/A	N/A	400	500	600	700	700	800	900	900	900	900
Approx. Weight	Lb	33	66	95	126	246	452	771	1333	1806	2159	3980	5468	6637	8379
	Kg	15	30	43	57	98	205	350	605	820	990	1805	2480	3010	3800

Gear operators are available for most sizes.

Full Port



Construction:

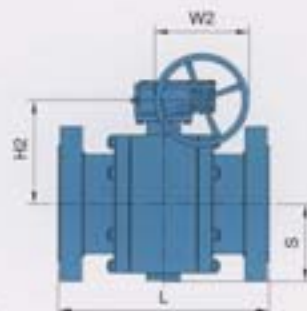
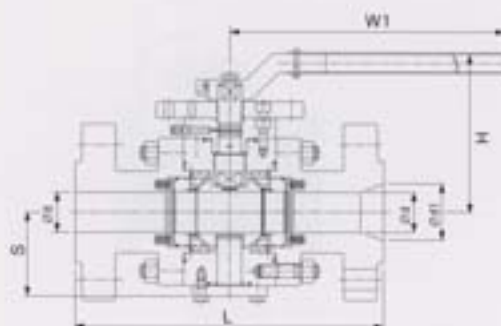
Split body, full port, trunnion mounted ball, blow-out proof stem, double seal design, double block and bleed, anti-static design, "fire-safe" designed to API-607, pressure relieving seats, pressure balance hole in ball, locking device. Designed according to API-6D, ASME B16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175.

* API-607 "fire-safe" certified for all sizes.

Dimensions

Face to Face	ASME B16.10 & API 6D Long Pattern
End Flange	ASME B16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B16.34



SIZE 4-14 inch

Class 900 Full Port

Class 900 Reduced Port

SIZE		2"	3"	4"	6"	8"	10"	12"	14"	3"	4"	6"	8"	10"	12"	14"	16"
		50mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm
L	RF	inch mm	2.0 51	3.0 76	4.0 102	6.0 152	8.0 203	10.0 254	12.0 305	12.8 324	2.0/3.0 51/76	3.0/4.0 76/102	4.0/6.0 102/152	6.0/8.0 152/203	8.0/10.0 203/254	10.0/12.0 254/305	12.0/14.0 305/324
	RTJ	inch mm	14.5 368	15.0 381	18.0 457	24.0 610	29.0 737	33.0 838	38.0 965	40.5 1029	15.0 381	18.0 457	24.0 610	29.0 737	33.0 838	38.0 965	44.5 1130
	BW	inch mm	14.5 368	15.0 381	18.0 457	24.0 610	29.0 737	33.0 838	38.0 965	40.5 1029	15.0 381	18.0 457	24.0 610	29.0 737	33.0 838	38.0 965	40.5 1029
H1		inch mm	8.05 204.5	9.22 234.2	10.61 269.5	N/A	N/A	N/A	N/A	N/A	8.05 204.5	9.22 234.2	10.61 269.5	N/A	N/A	N/A	N/A
H2		inch mm	17.69 449.3	6.94 176.3	20.07 509.8	26.91 683.5	28.29 718.6	29.92 760.0	33.31 846.1	36.71 932.4	17.69 449.3	6.94 176.3	20.07 509.8	26.91 683.5	28.29 718.6	29.92 760.0	33.31 846.1
S		inch mm	4.25 108.0	5.31 137.9	6.33 160.8	8.19 208.0	9.57 243.1	11.42 290.1	14.41 366.0	15.28 388.1	4.25 108.0	5.31 134.9	6.33 160.8	8.19 208.0	9.57 243.1	11.42 290.1	14.41 366.0
W1		inch mm	26.38 670	32.68 830	47.24 1200	N/A	N/A	N/A	N/A	N/A	26.38 670	32.68 830	47.24 1200	N/A	N/A	N/A	N/A
W2		inch mm	19.69 500	19.69 500	19.69 500	27.56 700	27.56 700	27.56 700	27.56 700	31.50 800	19.69 500	19.69 500	19.69 500	27.56 700	27.56 700	27.56 700	31.50 800
Approx. Weight	Lb Kg		110 50	221 100	507 230	926 420	1389 630	2161 980	3528 1600	4476 2030	-	-	728 330	1103 500	1588 720	2646 1200	4079 1850

Gear operators are available for most sizes.

Standard application - all three piece type

Reduced Port



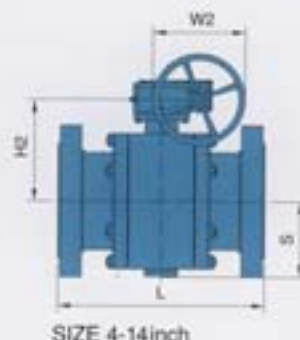
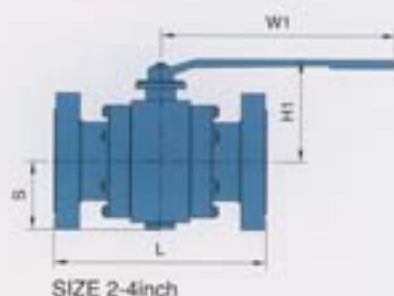
Construction:

Split body, reduced port, trunnion mounted ball, blow-out proof stem, double seal design, double block and bleed, anti-static design, "fire-safe" designed to API-607, pressure relieving seats, pressure balance hole in ball, locking device. Designed according to API-6D, ASME B16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175.
* API-607 "fire-safe" certified for all sizes.

Dimensions

Face to Face	ASME B 16.10 & API 6D Long Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34



Class 1500 Full Port

Class 1500 Reduced Port

SIZE		2"	3"	4"	6"	8"	10"	12"	14"	3"	4"	6"	8"	10"	12"	14"	16"
		50mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	50mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm
d	inch mm	2.0 51	3.0 76	4.0 102	5.8 146	7.6 194	9.5 241	11.4 289	12.5 318	20/30 51/76	23/43 58/102	40/53 102/146	58/76 146/194	76/93 194/241	93/114 241/289	114/123 289/318	125/143 318/362
L	RF	inch mm	14.5 368	18.5 470	21.5 546	27.8 705	32.8 832	39.0 991	44.5 1130	18.5 470	21.5 546	27.8 705	32.8 832	39.0 991	44.5 1130	49.5 1257	54.5 1384
	RTJ	inch mm	14.6 371	18.6 473	21.6 546	28.0 711	33.1 842	39.4 1001	45.1 1146	18.6 473	21.6 549	28.0 711	33.1 842	39.4 1001	45.1 1146	50.3 1276	55.4 1407
	BW	inch mm	14.5 368	18.5 470	21.5 546	27.8 705	32.8 840	39.0 991	44.5 1130	18.5 470	21.5 546	27.8 705	32.8 832	39.0 991	44.5 1131	49.5 1257	54.5 1384
H1	inch mm	8.05 204.5	9.22 234.2	10.61 269.5	N/A	N/A	N/A	N/A	N/A	8.05 204.5	9.22 234.2	10.61 269.5	N/A	N/A	N/A	N/A	N/A
H2	inch mm	17.69 449.3	6.94 176.3	20.07 509.8	28.48 723.4	30.14 765.6	34.66 880.4	27.63 701.8	42.20 1071.9	17.69 449.3	6.94 176.3	20.07 509.8	28.48 723.4	30.14 765.6	34.66 880.4	27.63 701.8	40.20 1021.1
S	inch mm	4.25 108.0	5.31 134.9	6.33 160.8	9.57 243.1	11.34 288.0	13.58 344.9	22.50 571.5	17.78 451.6	4.25 108.0	5.31 134.9	6.33 160.8	9.57 243.1	11.34 288.0	13.58 344.9	22.50 571.5	17.78 451.6
W1	inch mm	26.38 670	32.68 830	47.24 1200	N/A	N/A	N/A	N/A	N/A	26.38 670	32.68 830	47.24 1200	N/A	N/A	N/A	N/A	N/A
W2	inch mm	19.69 500	19.69 500	19.69 500	27.56 700	27.56 700	31.50 800	31.50 800	35.43 900	19.69 500	19.69 500	19.69 500	27.56 700	27.56 700	31.50 800	31.50 800	35.43 900
Approx. Weight	Lb Kg	125 50	376 150	752 300	1553 620	2330 930	3632 1450	4384 1750	7214 2880	143 85	419 190	838 380	1709 775	2536 1150	3528 1600	4631 2100	7607 3450

Gear operators are available for most sizes.
Standard application - all three piece type

STANDARD MATERIAL SPECIFICATIONS (ACC.TO ASTM)

MODEL #CFA15/30 & #CGA15/30

PART NAME		CARBON STEEL		LOW TEMP. CARBON STEEL		STAINLESS STEEL
		NORMAL	SOUR	NORMAL	SOUR	
BODY		A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8M
CAP						
BALL		A351 Gr. CF8M				
STEM		A276 Type 316				
SEAT PARTS	SEAT	RTFE				
	O - RING	VITON				
	RETAINER SEAL	GRAPHITE				
	SEAT RETAINER	A351 Gr. CF8M				
	SEAT FOLLOWER					
SPRING		INCONEL X-750				
PACKING		GRAPHITE				
GASKET		SPIRAL-WOUND (316SS WITH GRAPHITE)				
TRUNNION		A276 Type 316 / A240 Type 316				
ISO PAD		A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8
STEM SEAL RETAINER		A276 Type 316				
O - RING		VITON				
TRUNNION/STEM BEARING		DU - BUSH				
BEARING		RTFE				
STUD BOLT		A193 Gr. B7	A193 Gr. B7M	A320 Gr. L7	A320 Gr. L7M	A193 Gr. B8
NUT		A194 Gr. 2H	A194 Gr. 2HM	A194 Gr. 4	A194 Gr. 7M	A194 Gr. 8
DRAIN, SEALANT, CAVITY PLUGS		AISI 1020 WITH Zn PLAT.		A350 Gr. U2 WITH Zn PLAT.		A276 Type 316
GEAR OPERATOR		CAST IRON CASE, DUCTILE IRON GEAR, HIGH CARBON STEEL WORM				

MODEL #CFA60/#CGA60

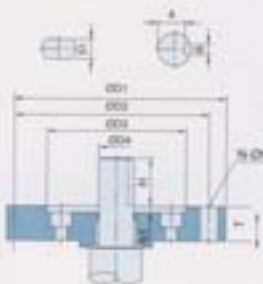
PART NAME		CARBON STEEL		LOW TEMP. CARBON STEEL		STAINLESS STEEL
		NORMAL	SOUR	NORMAL	SOUR	
BODY		A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8M
CAP						
BALL		A351 Gr. CF8M				
STEM		A276 Type 316				
SEAT PARTS	SEAT	S - NYLON		S - PE / PCTFE		S - NYLON
	O - RING	VITON				
	RETAINER SEAL	GRAPHITE				
	SEAT RETAINER	A351 Gr. CF8M				
	SEAT FOLLOWER					
SPRING	INCONEL X-750					
PACKING		GRAPHITE				
GASKET		SPIRAL-WOUND (316SS WITH GRAPHITE)				
TRUNNION		A276 Type 316 / A240 Type 316				
ISO PAD		A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8
STEM SEAL RETAINER		A276 Type 316				
O - RING		VITON				
TRUNNION/STEM BEARING		DU - BUSH				
BEARING		NYLON		S - PE		NYLON
STUD BOLT		A193 Gr. B7	A193 Gr. B7M	A320 Gr. L7	A320 Gr. L7M	A193 Gr. B8
NUT		A194 Gr. 2H	A194 Gr. 2HM	A194 Gr. 4	A194 Gr. 7M	A194 Gr. 8
DRAIN, SEALANT, CAVITY PLUGS		AISI 1020 WITH Zn PLAT.		A350 Gr. U2 WITH Zn PLAT.		A276 Type 316
GEAR OPERATOR		CAST IRON CASE, DUCTILE IRON GEAR, HIGH CARBON STEEL WORM				

ISO 5211 MOUNT PAD FOR ACTUATOR SELECTION

(UNIT : mm , N-m)

LEVER/SOCKET TYPE →

GEAR/BARE TYPE



ISO 5211 MOUNTING PAD NO.	TORQUE Max.	D1	D2	D3 +0.2 +0.1	N-eh	h1	T	D4	H	S1	A	B	APPLICABLE VALVES	
													CF(CH)	CO(CI)
													150	300
F05	125	85	90	35										
F07	250	90	70	55										
F10	500	125	100	70										
F12	1,000	150	125	85										
F14	2,000	175	140	100										
F16	2,000	210	165	130										
F18	2,000	175	140	100										
F19	2,000	210	165	130										
F20	4,000	210	165	130										
F25	8,000	300	254	200	8-18	5.5	30.5	50	85	—	19.5	14	10"	12"
							40.5	60	85	—	23	—	12"	14"
F30	16,000	390	298	230	8-22	5.5	40	75	100	—	67.5	20	18"	20"
							35	85	115	—	76	25	20"	24"
							45.5	75	120	—	28.5	22	14"	16"
							35	95	115	—	30.5	18	18"	20"
F35	32,000	415	356	260	8-33	5.5	40	95	115	—	85	28	24"	24"
							50.5	90	120	—	36	25	18", 20"	20"

See attached sheet on this disc for the updated mounting pad information.

API 6D TEST

CLASS	150# Hydrostatic						300# Hydrostatic						600# Hydrostatic						900# Hydrostatic						1500# Hydrostatic						SEAT (SAI) Type 1	TEST Duration(minutes)			
	W/P		SHELL		SEAT		W/P		SHELL		SEAT		W/P		SHELL		SEAT		W/P		SHELL		SEAT		W/P		SHELL		SEAT			SIZE	SHELL	SEAT	SEAT
	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa					
MATERIAL	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	PSIG	MPa	
A105/WCB /LF2	285	450	31.7	325	22.9	740	1125	79.2	825	58.1	1480	2225	157	1650	116	2220	3350	236	2450	172	3705	5575	392	4100	289							1/2" -4"	2	2	2
LCC	290	450	31.7	325	22.9	750	1125	79.2	825	58.1	1500	2225	158	1650	116	2250	3375	238	2475	174	3750	5625	396	4125	290							6" - 10"	5		
LCC	285	400	28.1	300	21.1	695	1050	73.9	775	54.5	1380	2100	148	1550	109	2085	3150	222	2300	162	3470	5225	368	3825	269							12" - 16"	15	5	5
F316/CF3/ CF8/CF8M	275	425	29.9	325	22.9	720	1100	77.4	800	56.3	1440	2175	153	1600	113	2160	3250	229	2400	169	3600	5400	380	3975	280							≥ 20"	30		

STANDARD MATERIAL SPECIFICATIONS (ACC.TO ASTM)

MODEL # CHA / # CIA90,51

PART NAME		CARBON STEEL	LOW-TEMP. CARBON STEEL	STAINLESS STEEL
BODY		A105N	A350 Gr. LF2	A182 Gr. F316
CAP		A105N/ A216 Gr. WCB	A350 Gr. LF2/A352 Gr. LCC	A182 Gr. F316/A351 Gr. CF8M
BALL		A351-CF8M/A105N+ENP	A351-CF8M/A350 Gr. LF2+ENP	A351 Gr. CF8M
STEM		A564 Type 630/AISI 1020+ENP		
SEAT PARTS	SEAT	DEVLOX V(API)		
	O - RING	VITON		
	RETAINER SEAL	GRAPHITE		
	SEAT RETAINER	A351 Gr. CF8M/A105N+ENP/A350 Gr. LF2+ENP		
	SEAT FOLLOWER			
	SPRING	INCONEL X-750		
BODY & STEM SEAL		PRIMARY SEALS : VITON FIRE SEALS : GRAPHITE		
TRUNNION		A564 Type 630/AISI 1020+ENP		
ISO PAD		AISI 1020		A351 Gr. CF8M
STEM SEAL RETAINER		A276 Type 316		
O - RING		VITON		
TRUNNION/STEM BEARING		DU - BUSH		
BEARING		RTFE		
STUD BOLT		A193 Gr. B7M	A320 Gr. L7M	A193 Gr. B8
NUT		A194 Gr. 2HM	A194 Gr. 7M	A194 Gr. 8
DRAIN, SEALANT CAVITY PLUGS		AISI 1020 WITH Zn PLAT.	A276 Type 316	
GEAR OPERATOR		CAST IRON CASE, DUCTILE IRON GEAR, HIGH CARBON STEEL WORM		

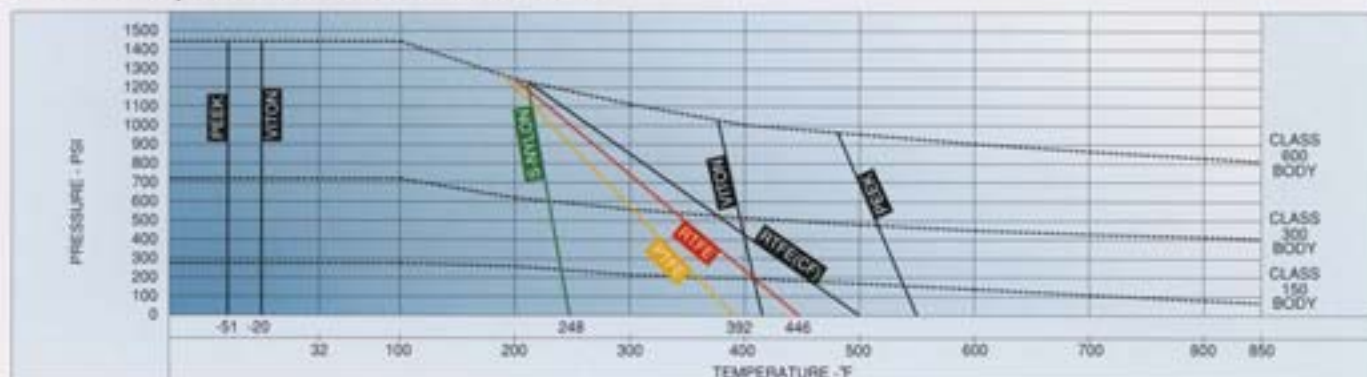
FLOW COEFFICIENT (C_v)

CLASS	SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
CLASS 150	FB	525	1308	2387	5387	9874	16345	24494	29687	37638	55275	72916	115132
	FB	122	203	558	811	2013	4102	7238	13164	14931	20773	26497	28524
CLASS 300	FB	483	1096	2166	5307	9365	15785	23680	27956	35503	52432	69950	107218
	FB	177	198	534	785	2006	4085	7206	13105	14518	20465	26283	28510
CLASS 600	FB	418	1072	1834	4671	8772	14367	21059	25440	32311	46860	63230	-
	FB	103	182	521	759	1992	4063	7194	12862	14364	20127	25016	-

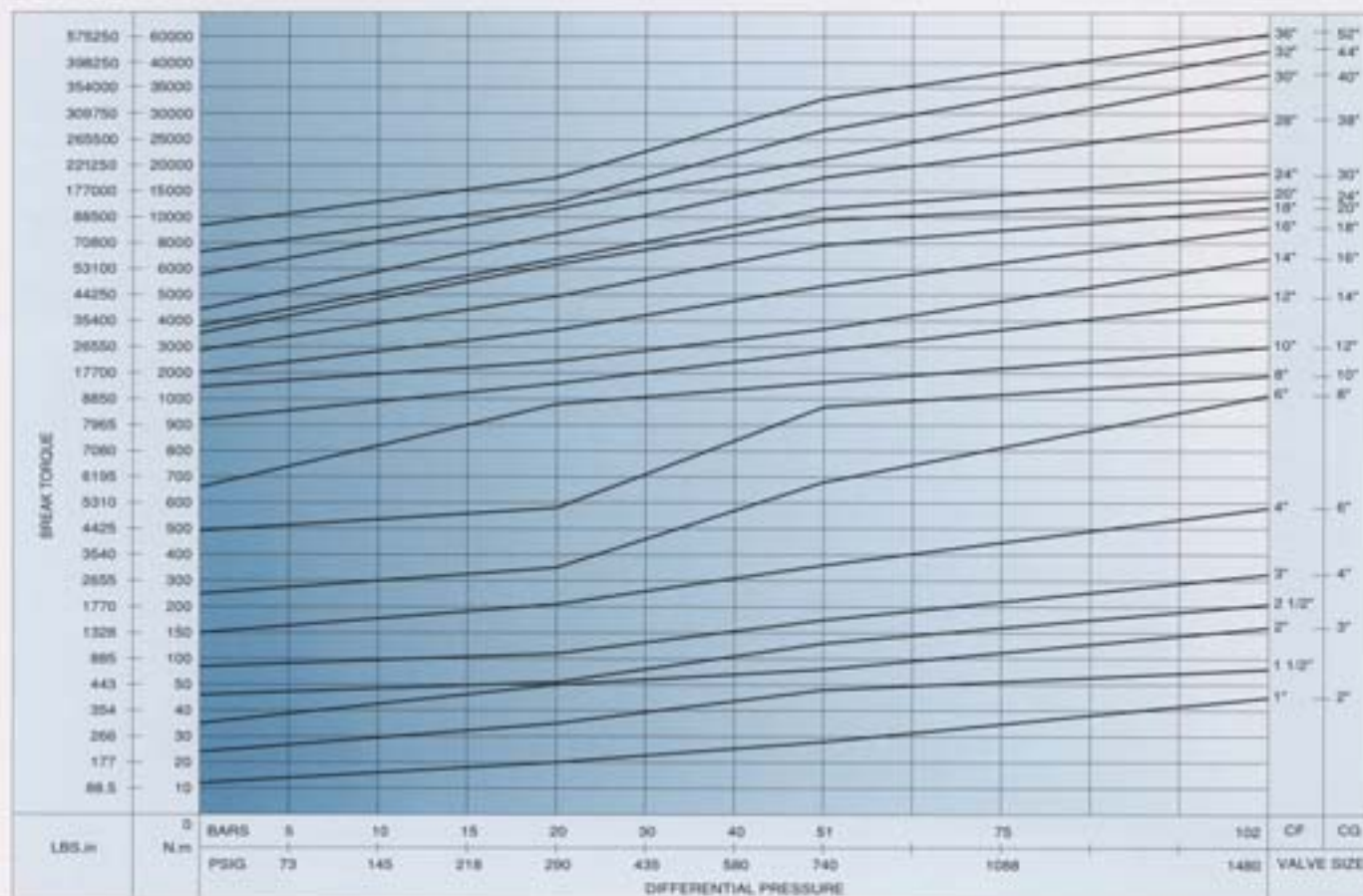
C_v = FLOW IN U.S. GALLONS/MINUTE OF 60°F WATER AT 1 PSI PRESSURE DROP.

THE DOTTED LINES INDICATE WORKING PRESSURES FOR CAST STAINLESS STEEL BODIES.(ASTM A351-CF8M) THE OPERATING TEMPERATURE OF THE VALVES IS LIMITED BY THE MATERIAL OF SEAT AND SEAL

PRESSURE/TEMPERATURE RATINGS



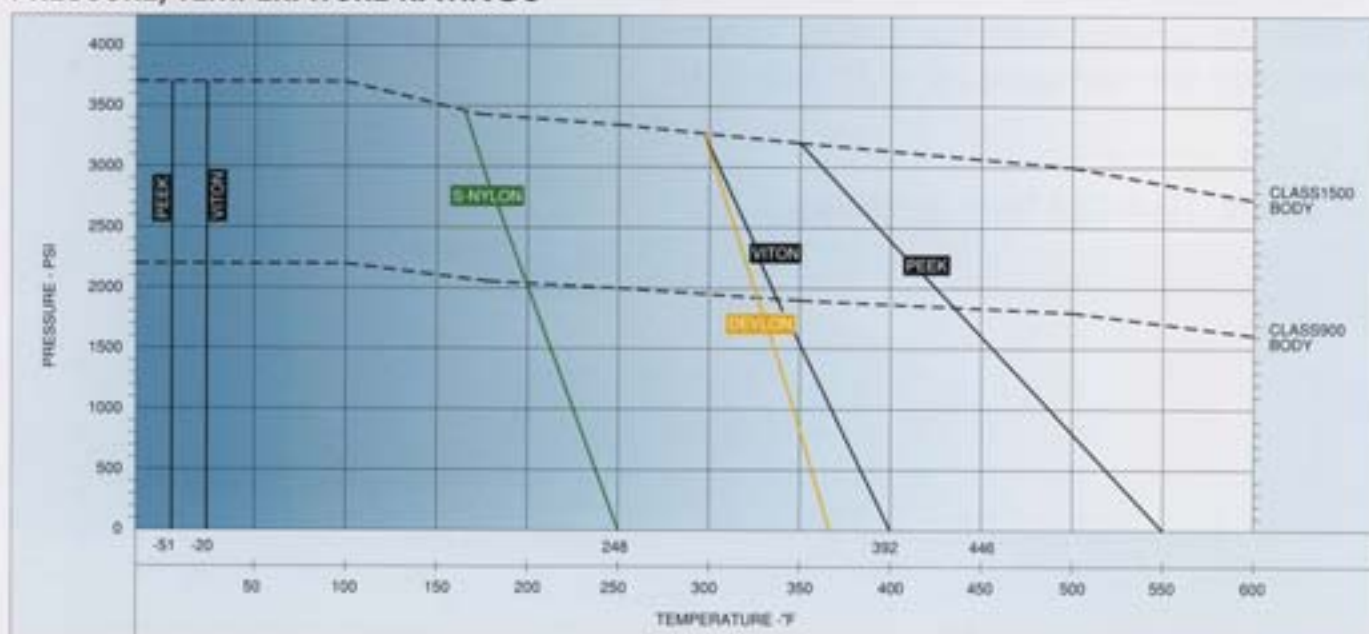
TORQUE DATA



SEAT MATERIAL ; REINFORCED P.T.F.E

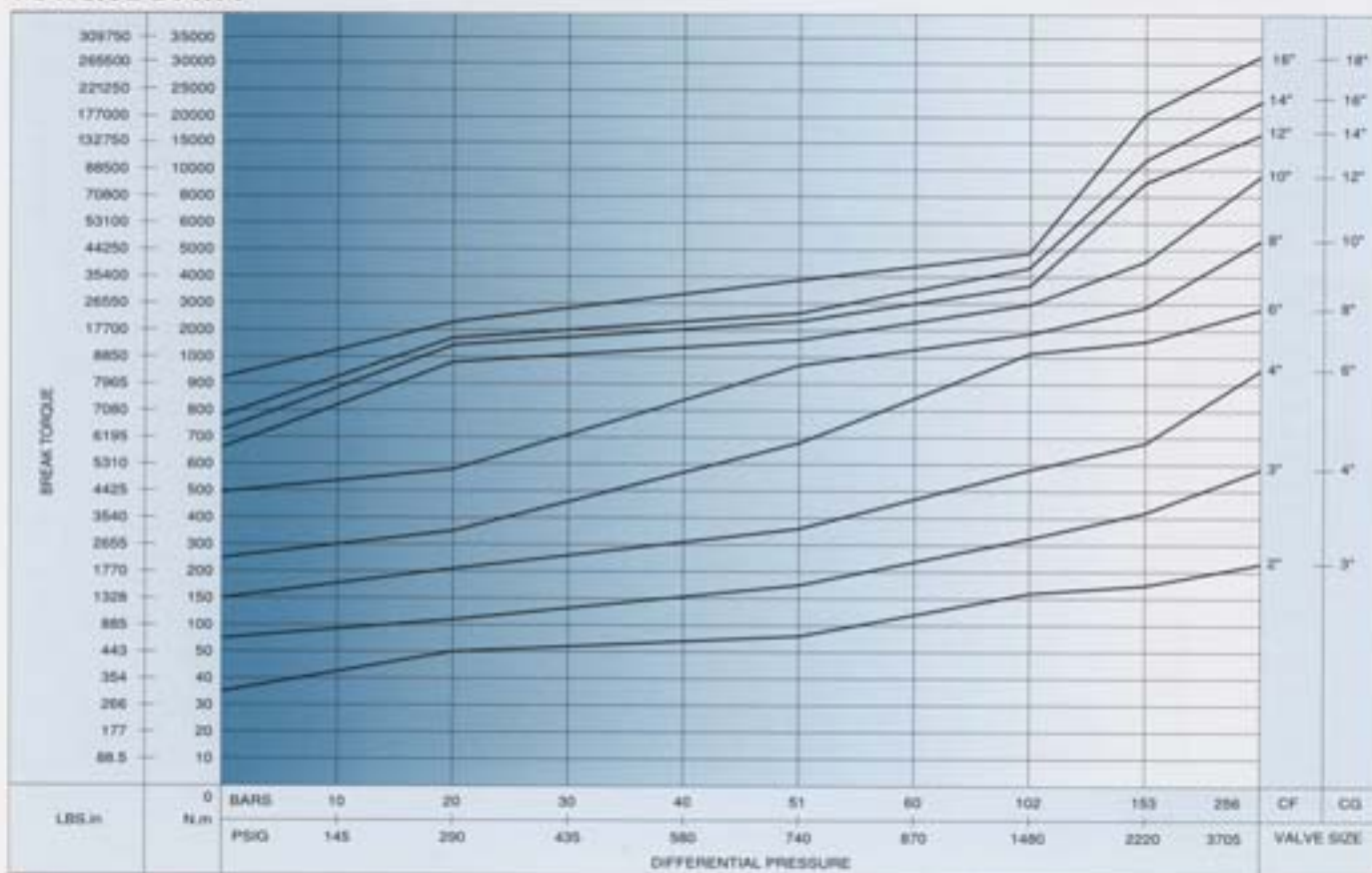
TO SELECT THE ACTUATOR, ADDING 25% SAFETY FACTOR TO THE REQUIRED TORQUE SHOULD BE CONSIDERED.

PRESSURE/TEMPERATURE RATINGS



THE DOTTED LINES INDICATE WORKING PRESSURES FOR CAST STAINLESS STEEL BODIES. (ASTM A351-CF8M)
THE OPERATING TEMPERATURE OF THE VALVES IS LIMITED BY THE MATERIAL OF SEAT AND SEAL.

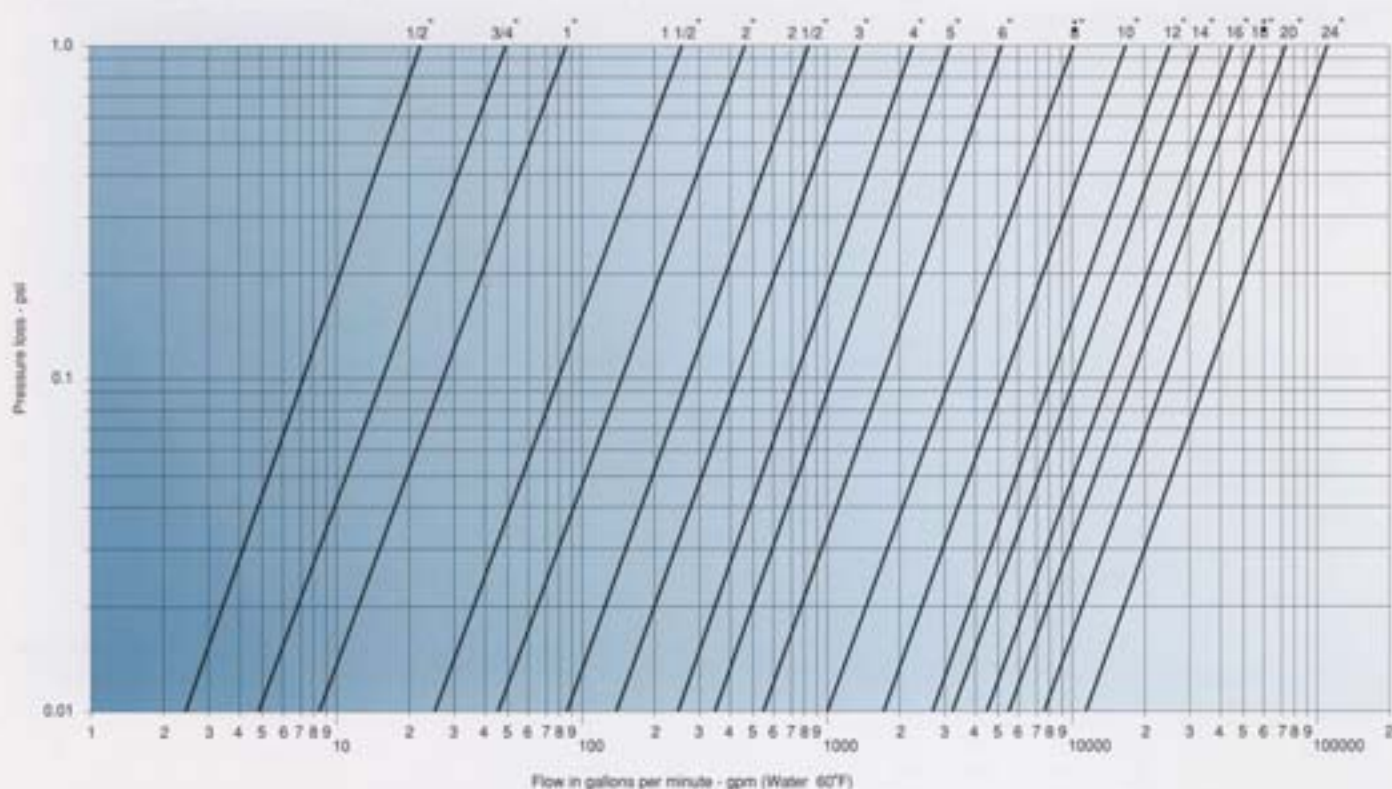
TORQUE DATA



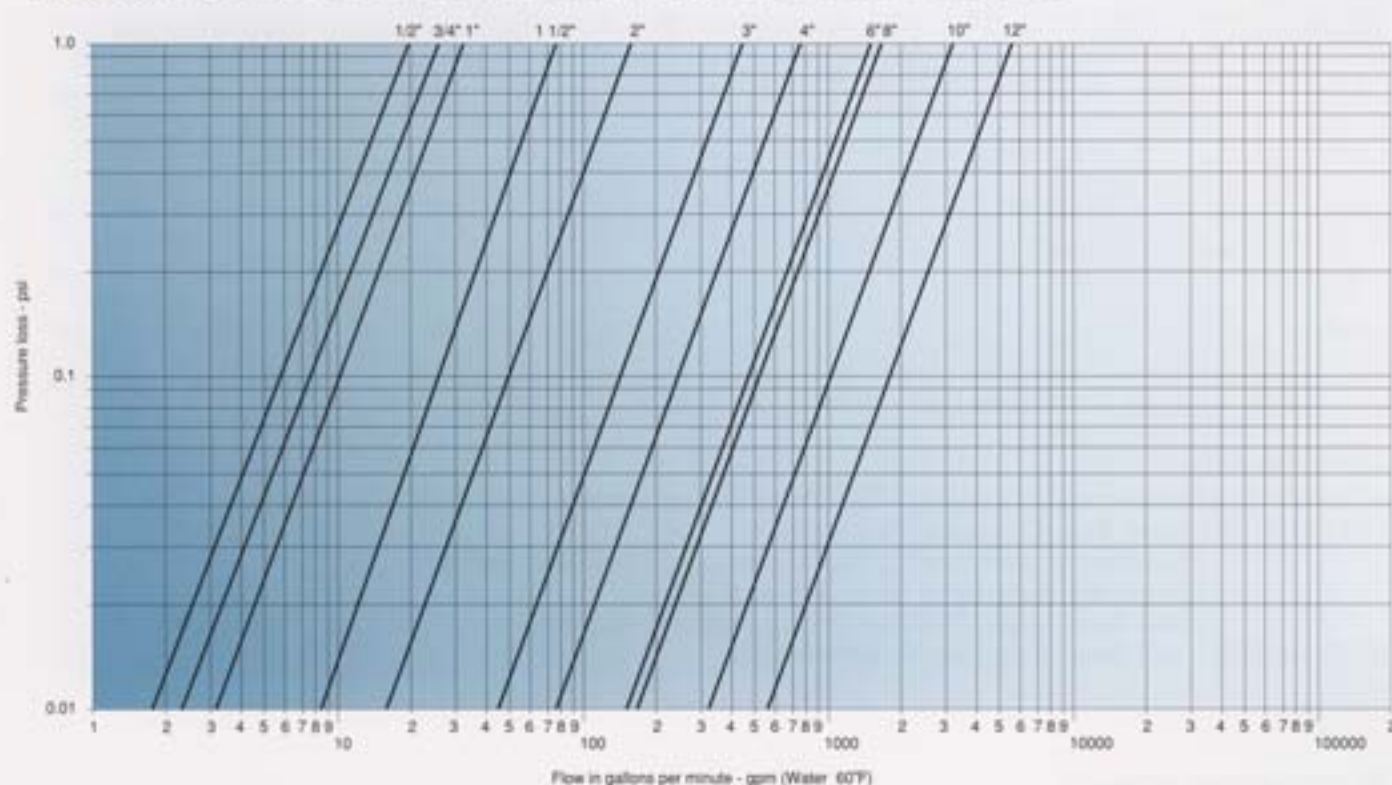
SAET MATERIAL : DEVCON "V" API Grade

TO SELECT THE ACTUATOR, ADDING 25% SAFETY FACTOR TO THE REQUIRED TORQUE SHOULD BE CONSIDERED.

PRESSURE LOSS Vs. FLOW RATE FOR FULL PORT BALL VALVES

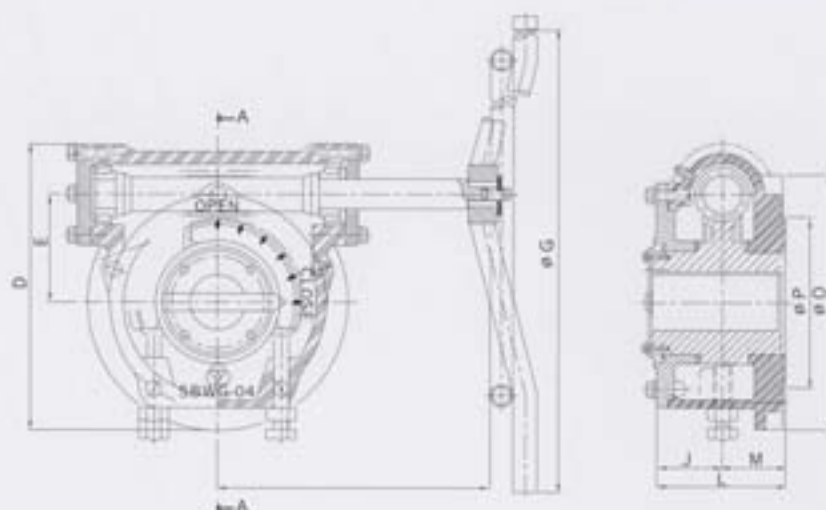


PRESSURE LOSS Vs. FLOW RATE FOR REDUCED PORT BALL VALVES



ENCLOSED WORM GEAR OPERATORS

- Heavy duty castings
- Weather proof design
- Factory Sealed and lubricated
- Handwheel included
- Basic material
 - Cast iron case
 - Ductile iron gear
 - High carbon steel worm gear



Unit : Lbs, inch

Model No.	Dimension	D	E	øG	I	J	M	L	øO	øP	Flange Size	Gear Ratio	Max. Torque		Weight	
													lb inch	N - m	lb	kg
SBWG-03	inch	6.26	2.32	11.81	5.63	1.54	1.58	3.11	5.32	2.76	F10	34:1	11948	1350	13.23	6
	mm	159	59	300	143	39	40	79	135	70						
SBWG-01	inch	7.64	2.72	15.75	6.58	1.81	1.97	3.78	7.09	3.94	F14	42:1	19674	2223	24.25	11
	mm	194	69	400	167	46	50	96	180	100						
SBWG-02	inch	8.94	3.27	19.69	10.59	2.17	2.09	4.25	8.27	5.12	F16	42:1	24585	2778	41.89	19
	mm	227	83	500	269	55	53	108	210	130						
SBWG-03	inch	10.59	3.90	23.62	12.72	2.52	2.56	5.08	9.45	5.12	F16	43:1	30205	3413	74.96	34
	mm	269	99	600	323	64	65	129	240	130						
SBWG-04	inch	13.19	5.00	27.56	15.63	3.03	2.87	5.91	11.81	7.87	F25	50:1	40976	4630	119.05	54
	mm	335	127	700	397	77	73	150	300	200						
SBWG-04-15	inch	13.19	5.00	27.56	15.63	3.03	2.87	5.91	11.81	7.87	F25	153:1	111466	12595	158.73	72
	mm	335	127	700	397	77	73	150	300	200						
SBWG-05	inch	15.75	6.30	31.50	17.72	3.03	3.15	6.18	13.78	9.06	F30	50:1	46834	5292	163.14	74
	mm	400	160	800	450	77	80	157	350	230						
SBWG-05-15	inch	15.75	6.30	31.50	20.47	3.03	3.15	6.18	13.78	9.06	F30	153:1	130042	14694	202.82	92
	mm	400	160	800	520	77	80	157	350	230						
SBWG-06	inch	19.80	8.00	35.43	21.65	3.62	3.98	7.60	17.72	10.24	F35	55:1	57932	6546	302.03	137
	mm	503	203	900	550	92	101	193	450	260						
SBWG-06-15	inch	19.80	8.00	35.43	23.62	3.62	3.98	7.60	17.72	10.24	F35	213:1	199514	22544	392.42	178
	mm	503	203	900	600	92	101	193	450	260						

SERVICE KITS

All standard components are available as SERVICE KITS for all **KUKA** "DIAMOND" series ball valves.

SOFT GOODS : Seats, Body Gasket and Packing Set

Pad Bearing, Stem Bearing, Trunnion Bearing, Thrust Bearing(Top),

Thrust Bearing(Bottom), Retainer Seal

Stem Seal O-Ring, Seat Seal O-Ring, Bottom O-Ring and etc.

HARD GOODS : Ball, Stem, Stem Seal Retainer and etc.

- **Scope** : These terms and conditions apply to all **KUKA** valve products and supersede all previously published terms and conditions. Hereafter, all references to **KumKang Valve Mfg.Co.,Ltd.** or **KUKA Valve Company, Inc.** shall be referred to as "**KUKA**".
- **Approval** : All quotations, contracts, orders, or agreements are subject to approval and/or acceptance by the main office of **KUKA**. We reserve the right to correct clerical or stenographic errors in quotations, orders, invoices and other contracts, agreements, or documents.
- **Prices** : Possession of price lists will not be construed by **KUKA** as an obligation or offer to sell the goods listed therein to anyone. All prices contained therein are subject to change without notice and will supersede all previous lists. All orders will be invoiced at prices in effect at the time of shipment unless quoted in writing.
- **Change Orders** : Orders cannot be cancelled or specifications changed without the consent of **KUKA**, and then, only in terms indemnifying **KUKA** against loss.
- **Quotations** : Goods quoted F.O.B. our service center(s) are subject to prior sale. Prices quoted are valid only for the duration indicated in the quotation. Quoted prices supersede all previous prices, quotations or contracts, and are subject to change without notice.
- **Cancellations** : Orders placed with **KUKA** cannot be cancelled without our prior written consent. A cancellation charge may be applicable as outlined in our quotation.
- **Shipments** : All materials shipped will be carefully examined, counted and packed. The cost of any special packing or special handling as required by the buyer shall be added to the amount of the order.
- **Claims** : All claims for shortages, corrections, or deductions must be made within 10 days after receipt of goods. Responsibility for goods lost or damaged in transit rests with carrier; claims should be filed with the carrier by the consignee. Delivery of material to a common carrier shall be considered delivery to the buyer and shall be at the buyer's risk thereafter.
- **Delivery Delays** : We assume no responsibility for delays in delivery or defaults resulting from strikes, work stoppages, fires, floods, accidents, war, inability to obtain materials or any other cause unavoidable and beyond our control.
- **Taxes** : **KUKA** quotations and/or contracts do not include any municipal, state, or federal sales, excise, use occupational or other taxes; and any such tax, if paid by us, will be charged to the purchaser.
- **Catalog Illustrations** : Catalog illustrations are actual representations of our products, but do not necessarily represent all sizes and/or all details. In keeping with our policy of continuing product improvement, we reserve the right to institute changes in materials, designs and specifications without notice.
- **Catalog Weights** : Catalog weights represent average weight of our products.
- **Returns** : See Return Goods Policy statement.
- **Special Orders** : Orders for special goods must be in writing and accompanied with detailed prints and/or sets of specifications. Orders will not be entered with the factory otherwise. Special orders may not be cancelled.
- **Special Terms & Conditions** : Special terms and conditions printed on a buyer's order will only apply insofar as they conform to the terms and conditions detailed herein. Terms and conditions of an order that change or modify those on this document shall not be binding on **KUKA**.
- **Terms** : Standard terms are net 30 days. In the event a cash discount is offered beyond our standard terms, the allowed percent discount shall be based upon days from date of invoice. Allowable cash discounts do not include sales tax, transportation or labor charges.
- **Time Price Difference** : After the expiration of standard terms, a time price difference of 2% per month on the unpaid balance will be charged until paid in full.
- **Attorney Fees & Costs** : In the event our invoice is referred to our attorney for the purpose of enforcing its terms and collection of money, reasonable attorney fees and costs will be added to the unpaid balance.
- **Freight Terms** : All shipments are F.O.B. our service center(s) unless otherwise stated in writing.
- **Warranty** : See Warranty statement.

This policy supersedes any and all previous policies for return goods.

I . Goods returned at customers request :

A. Material must be :

1. Of our manufacture.
2. In clean,new and saleable condition. All material must have been stored indoors.
3. Shipped from one of our service centers within 12 calendar months preceding the request for return. The return will not cause inventory to exceed our maximum allowable levels.
4. Personally inspected by a **KUKA** representative prior to its return.
5. Special or non-standard items are **non-returnable**.

B. Return shipments must be **prepaid**.

C. Credit will be allowed at invoice price,less 25% handling cost and less any freight paid by **KUKA**.

D. Return Goods Authorization (RGA) form must be furnished by a **KUKA** representative after inspection of the material and must accompany the shipment.

E. Shipments received without a Return Goods Authorization (RGA) form will be refused. Customer will be responsible for any storage and /or return freight.

F. Material returned which is not of **KUKA** manufacture,not in clean and salable condition or not authorized for return,will be returned to the customer-freight collect.

II . Goods returned because of an error by **KUKA** .

A. Material must be in a clean,new,salable condition.

B. Return shipment should be made-freight collect.

C. Full Credit will be allowed.

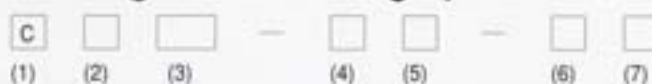
D. Customer must receive Return Goods Authorization form prior to the return of the material.

E. Return Goods Authorization (RGA) form must accompany the shipment. Shipments received without the Return Goods Authorization (RGA) form will be refused.

All requests to return material to **KUKA** must be submitted to our office in writing for authorization.
This policy will be strictly enforced.

HOW TO ORDER ☐ SELECTION GUIDE

Figure Numbering System



(1) MODEL #C : "Diamond" Series Ball Valve, superior quality, optimum performance, fire - safe designed, NACE standard MR 0175 compliant, cavity relieving Seats, anti - static devices, pressure balanced hole in ball, extra deep stuffing box, ISO5211 mounting pad, padlockable position stops, flanged ends.

(2) CONFIGURATION:

A	Floating ball, one piece body, reduced port
B	Floating ball, split body, full port
C	Floating ball, split body, reduced port
G	Trunnion Mounted, split body, reduced port
F	Trunnion Mounted, split body, full port

(3) PRESSURE CLASS

A15	ANSI Class 150	J10	JIS10K	D16	PN 10/16
A30	ANSI Class 300	J20	JIS20K	D40	PN 25/40
A60	ANSI Class 600	J40	JIS40K		
A90	ANSI Class 900	J63	JIS63K		
A51	ANSI Class 1500				
A52	ANSI Class 2500				

(4) MATERIALS OF CONSTRUCTION : BODY/TRIM

A	WCB + 304	G	CN7M + ALLOY20
B	WCB + 316	H	DUPLEX + F51
C	CF8 + 304	J	LCB + 304
D	CF8M + 316	K	LCB + 316
E	CF3 + 304L	L	LCC + 316
F	CF3M + 316L	S	SPECIAL MATERIALS

(5) MATERIALS OF CONSTRUCTION : SEAT

	SEAT	REMARKER
E	RTFE	
G	PTFE	
N	S-NYLON	
V	DEVLOX	"V" API Grade
U	S-PE	UHMW-PE
K	PEEK	
S	SPECIAL APPLICATIONS	

(6) OPERATORS

L	MANUAL LEVER OR SOCKET HANDLE
G	ENCLOSED WORM GEAR WITH HANDWHEEL
B	BARE STEM FOR ACTUATOR
P	ENCLOSED PNEUMATIC ACTUATOR
M	ENCLOSED MOTOR ACTUATOR

(7) OPTIONS

N	NOT APPLICABLE
B	EXTENDED BONNET (Cryogenic Service)
E	EXTENDED STEM
F	FLANGED END OF SPECIAL FACINGS
L	LIVE-LOAD PACKING ASSEMBLY
S	SEALANT INJECTION SYSTEM (Models #CB,CC,CF,CG)
R	RING TYPE JOINT

KUKA

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4324 EASTPARK DRIVE Houston, TX 77028

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KUKA PTE. LTD.

8 Pandan Crescent, #01-03, UE Tech Park,

Singapore 128466

Tel:65-6227-2024 Fax:65-6227-2544



BULLETIN, April 2003

KUKA Warranty - All **KUKA** Valves are guaranteed against defects in material and workmanship for a period of one year from shipping date. All metals and resilient synthetics are guaranteed to be of the material specified. This warranty is limited to the furnishing of replacements found defective by **KUKA** and does not extend to claims for any labor, consequential damages, downtime or any other loss, damage or expense of any kind arising out of the defect. We do not allow claims for unauthorized repairs, labor or material. Purchasers are expected to make their own judgement to determine the suitability of these products for their purposes. This warranty does not apply to products manufactured by others. The foregoing is the only warranty and no other is expressed or implied. **CHANGE of DESIGN** : We reserve the right to discontinue the manufacture of, or change or modify, the design and construction of any **KUKA** product, in due course of our manufacturing procedure, without incurring any obligation to accept for credit, to replace or furnish or install such changes or modifications on products previously or subsequently sold.