

PROVEN BY FIRE "DIAMOND" SERIES BALL VALVES

KUKA

FLOATING BALL VALVES
Class 150, 300, 600, 900, 1500 & 2500



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

KUM KANG VALVE MFG. CO., LTD.

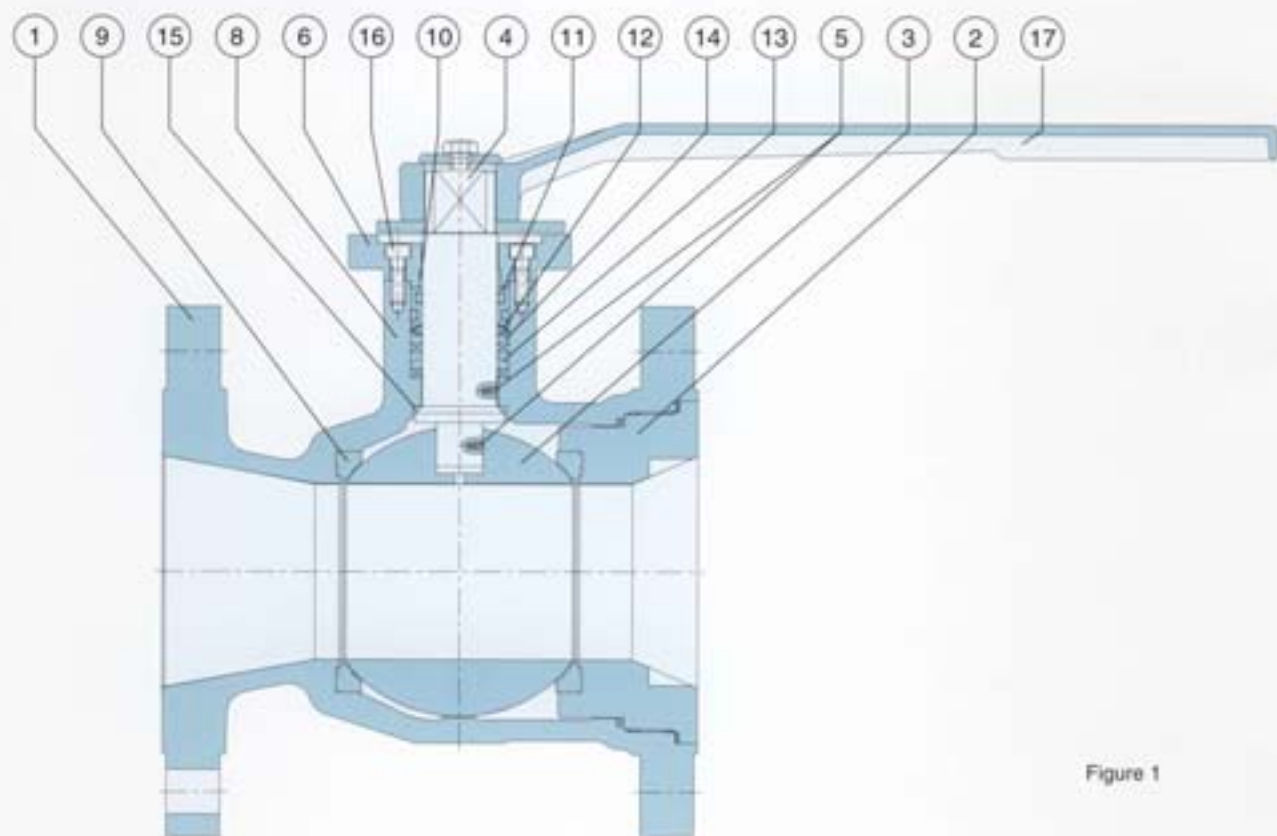


Figure 1

Standard Features:

All **KUKA** UNIBODY (Reduced Port) ball valves are designed, constructed and tested strictly in accordance with the latest international standards of API, ASME, BS and DIN.

Figure 1

1. Body (1) & Retainer (2) are casted and manufactured "in-house"; supplied in carbon steel and austenitic stainless steel. These materials are in compliance with NACE standard MR 0175 specifications. Special materials are available upon request.
3. Precision machined balls to 4RMS finish provide superior quality with low torque and zero leakage.
4. Blow-out Proof Stem - Parallel flat stem drive.
5. Anti-Static Design (BS5351).
6. Mounting Pad - Integral "ISO" mounting pad with stop positions that can be padlocked.
7. Packing Gland - Heavy cast gland / mounting pad provides factory pre-load of packing.
8. Stuffing Box Cavity - Extra deep, machined-finished stuffing box.
9. Cavity Relieving Seat - The seat design allows excessive cavity pressure to be relieved with no seat deflection.
10. Pad Bearing
11. Stem Seal Retainer - Double (internal/external) Viton O-Ring sealed.
12. Conical Disc Spring(s) - Optional "live-load" packing design.
13. Packing - Die-formed, flexible, graphite rings assure integrity of seal at elevated temperatures.
14. Thrust Washer
15. Thrust Bearing
16. Gland/Stopper Bolt
17. Lever

MOUNTING AND STEM SEAL DESIGN (Figure 2)

Actuator Mounting (ISO-5211)

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

Live-Load Stem Seal

This option provides premier valve stem sealing characteristics for adverse conditions of extreme pressure/Temperature variations. Designed to meet the most stringent fugitive emissions regulations, the **KUKA** "live-load" design is comprised of an extra deep stuffing box / packing / stem seal retainer and conical disc spring(s). The disc spring(s) provide continuous compression of the packing assembly and compensate for wear, the static sealed retainer, with two(2) tertiary O-Ring seals, eliminates stem galling. This unique design lowers required valve stem torque and increases product performance under all operating conditions.
(U.S. PATENT PENDING SERIAL NO. 081967, 620)

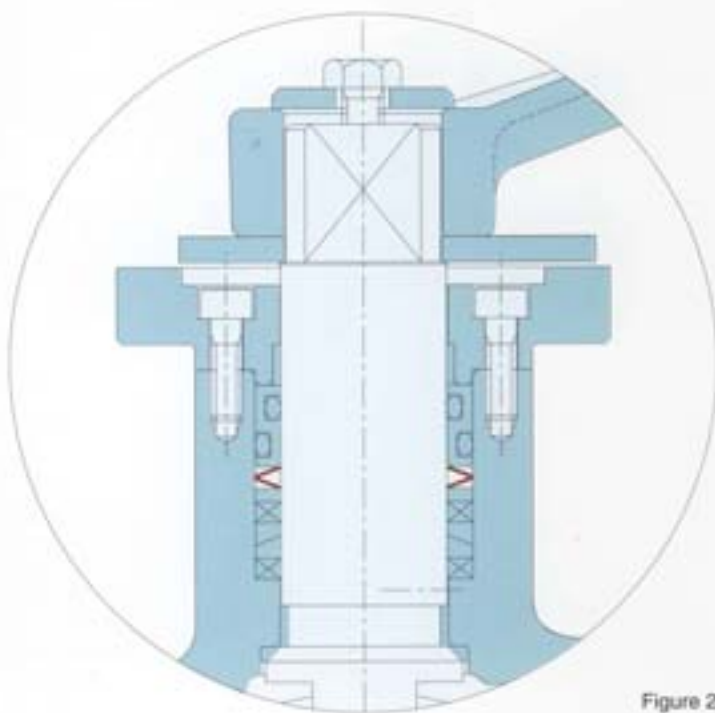


Figure 2

KUKA'S UNIQUE DOUBLE SEALING DESIGN AND METAL TO METAL CONTACT (Figure 3)

The PTFE Gasket acts as the primary seal for **KUKA** Unibody ball valves. The secondary seal is made of flexible graphite; a material with extremely good resistance to fire conditions.

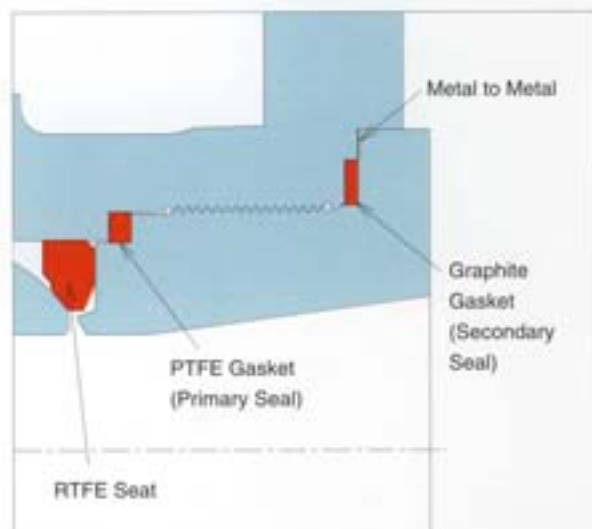


Figure 3

Reduced Port



Construction:

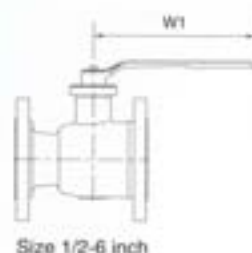
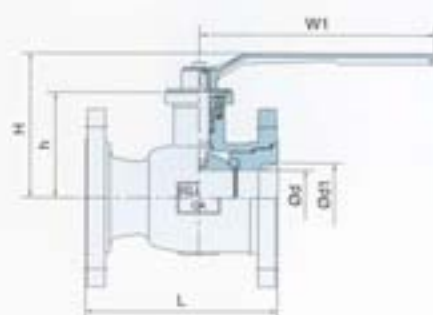
Unibody, reduced port, free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed according to API-6D, ASME B 16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175

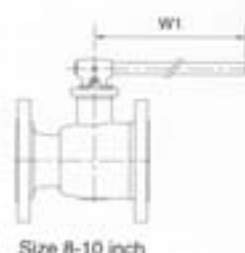
* API-607 "fire-safe" tested and certified, 1/2" thru 10" size.

Dimensions

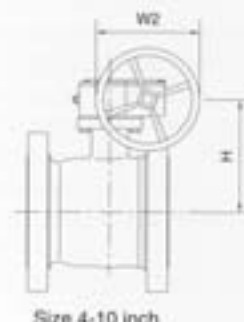
Face to Face	ASME B 16.10 & API 6D Short Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34 & BS 5351



Size 1/2-6 inch



Size 8-10 inch



Size 4-10 inch

Class 150/300

Valve Size		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"
		15mm	20mm	25mm	40mm	50mm	80mm	100mm	150mm	200mm	250mm
od/od1	inch	0.39 / 0.59	0.55 / 0.79	0.79 / 0.98	1.18 / 1.50	1.50 / 2.01	2.36 / 2.99	2.99 / 3.94	3.94 / 5.98	5.71 / 7.99	7.36 / 10.00
	mm	10 / 15	14 / 20	20 / 25	30 / 38	38 / 51	60 / 76	76 / 100	100 / 152	145 / 203	187 / 254
L (RF)	150	inch	4.25	4.61	5.00	6.50	7.01	7.99	9.02	10.51	12.99
		mm	108	117	127	165	178	203	229	267	330
	300	inch	5.51	5.98	6.50	7.52	8.50	11.14	12.01	15.87	17.99
		mm	140	152	165	191	216	283	305	403	457
h	inch										

STANDARD MATERIAL SPECIFICATIONS FOR MODEL #CAA15/#CAA30

(ACC. TO ASTM)

PART NAME	CARBON STEEL		LOW-TEMP. CARBON STEEL		STAINLESS STEEL		
	NORMAL	SOUR	NORMAL	SOUR			
BODY	A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8M		
RETAINER							
BALL	A351 Gr. CF8M						
STEM	A276 TYPE 316						
SEAT	RTFE						
PACKING	GRAPHITE						
GASKET	PTFE / GRAPHITE / SW(316+GRAPHITE)						
ISO PAD	A216 Gr. WCB		A352 Gr. LCC		A351 Gr. CF8		
STEM SEAL RETAINER	A276 TYPE 316						
O - RING	VITON						
STOPPER	A283 Gr. D				A240 TYPE 304		
BEARING	PTFE						
BOLT	A193 Gr. B7	A193 Gr. B7M	A320 Gr. L7	A320 Gr. L7M	A193 Gr. B8		
LEVER	DUCTILE CAST IRON						
GEAR OPERATOR	CAST IRON CASE, DUCTILE IRON GEAR, HIGH CARBON STEEL WORM						

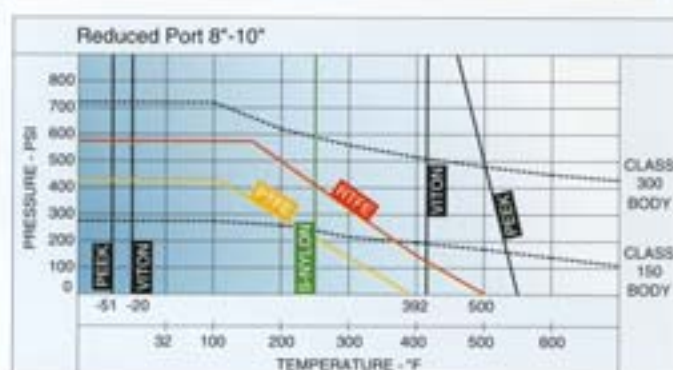
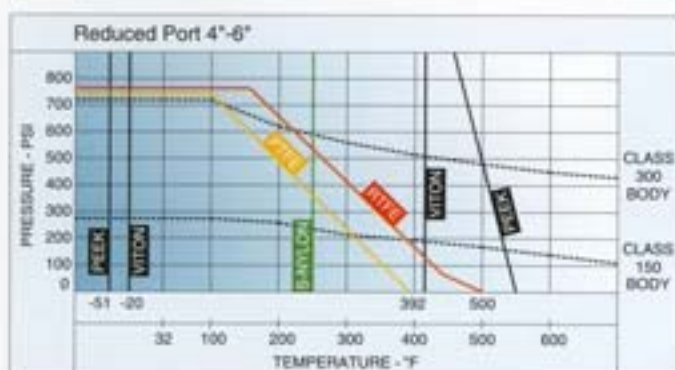
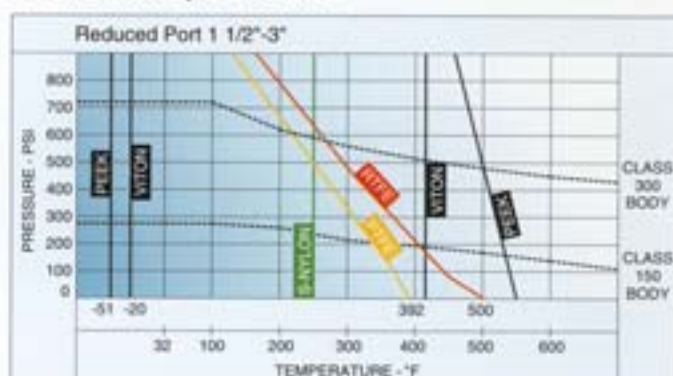
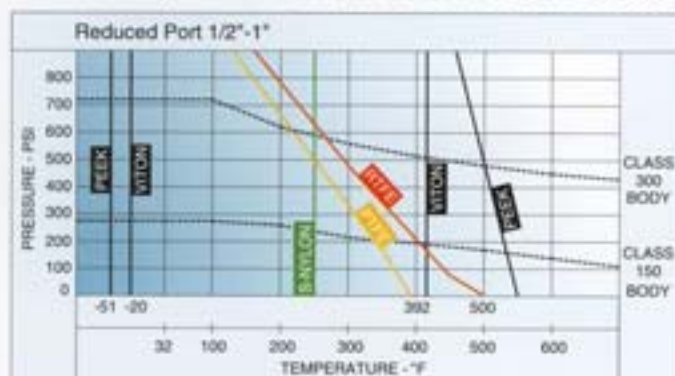
ISO 5211 MOUNTING PAD FOR ACTUATOR SELECTION (UNIT : mm , N-m)

ISO 5211 MOUNTING	NO. NO.	TORQUE Wt.	CA									
			150	300	450	600	750	900	1050	1200	1350	1500
F05	125	125	2°	2°								
F07	250	250	3°	3°								
F10	500	500	4°, 6°	4°, 6°								
F12	1,000	1,000	8°, 10°	8°								
F14	2,000	175	10°									

VOID

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

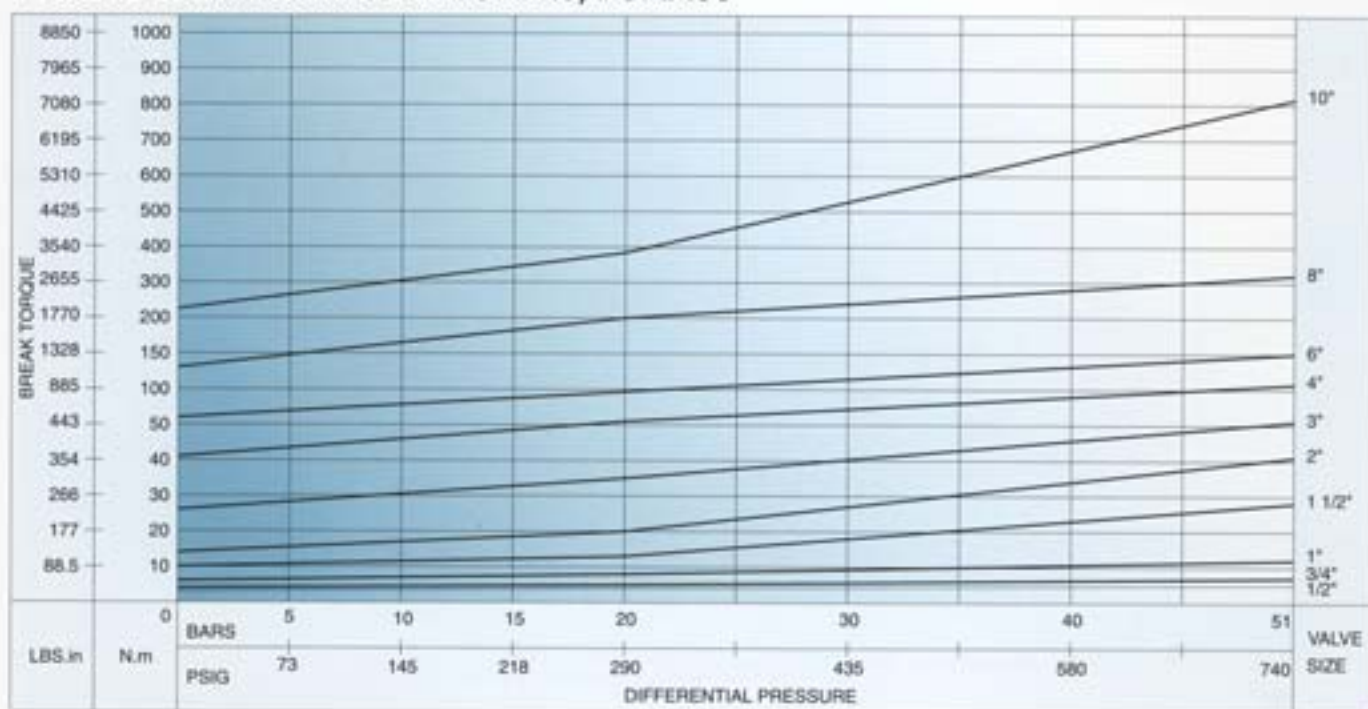
PRESSURE/TEMPERATURE RATINGS FOR MODEL #CAA15/#CAA30



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 FOR MODEL #CAA15/#CAA30



SEAT MATERIAL : REINFORCED P.T.F.E

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

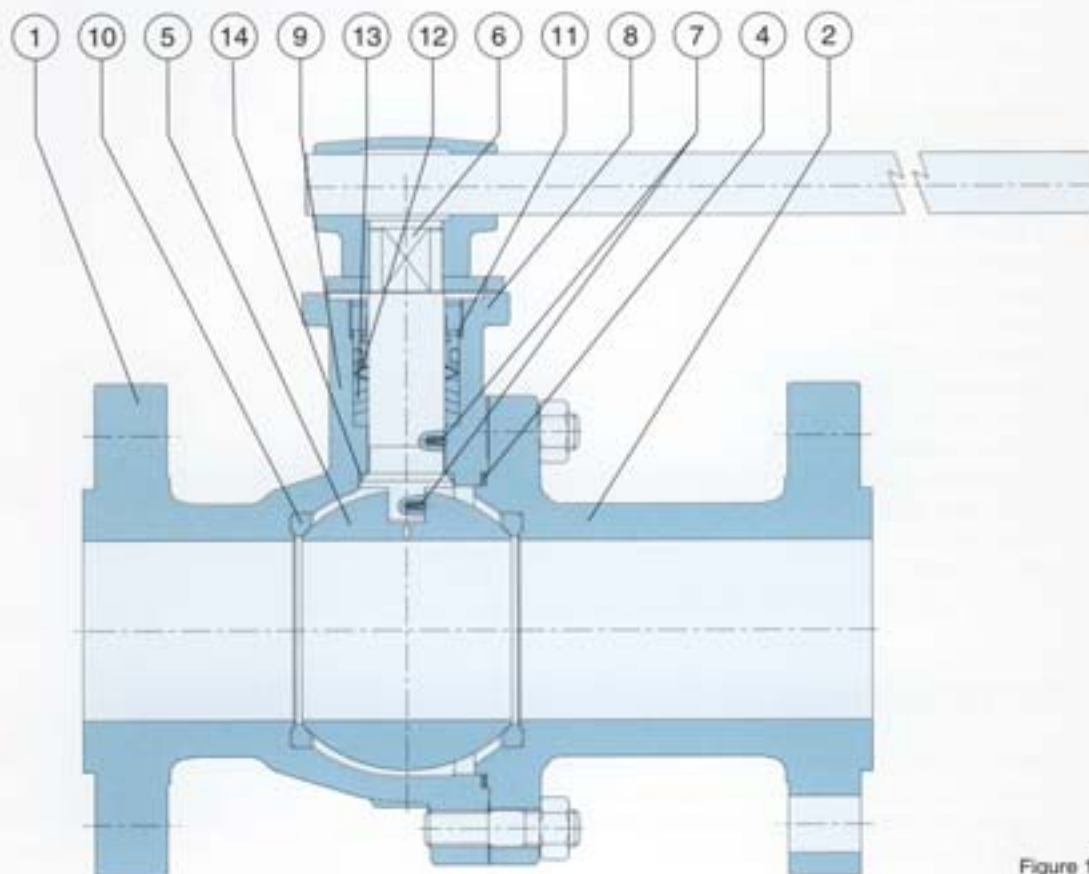


Figure 1

Standard Features:

All **KUKA** SPLIT BODY Full & Reduced Port ball valves are designed, constructed and tested strictly in accordance with the latest international standards of API, ASME, BS and DIN.

Figure 1

1. Body (1) & Cap (2) are casted and manufactured "in-house"; supplied in carbon steel and austenitic stainless steel. These materials are in compliance with NACE standard MR 0175. Special materials are available upon request.
3. Body construction with positive alignment and bolted design.
4. Spiral-wound Gasket - metal/Graphite filled.
5. Precision machined balls to 4 RMS finish provide superior quality with low torque and no leakage.
6. Blow-out Proof Stem - Parallel flat stem drive.
7. Anti-Static Design (BS5351).
8. Mounting Pad - "ISO" mounting pad with padlockable stop positions.
9. Stuffing Box Cavity - Extra deep, machine-finished stuffing box.
10. Cavity Relieving Seat - The seat design allows excessive cavity pressure to be relieved with no seat deflection.
11. Stem Seal Retainer - Double (internal/external) Viton O-Ring sealed.
12. Conical Disc Spring(s) - Optional "live-load" packing design.
13. Packing - Die-formed, flexible, graphite rings assure integrity of seal at elevated temperatures.
14. Thrust Bearing - Low torque design.

MOUNTING AND STEM SEAL DESIGN (Figure 2)**Actuator Mounting (ISO-5211)**

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

Live-Load Stem Seal

This option provides premier valve stem sealing characteristics for adverse conditions of extreme pressure/Temperature variations. 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 and conical disc spring(s). The disc spring(s) provide continuous compression of the packing assembly and compensate for wear, the static sealed retainer, with two(2) tertiary O-Ring seals, eliminates stem galling. This unique design lowers required valve stem torque and increases product performance under all operating conditions.

(U.S. PATENT PENDING SERIAL NO. 081967, 620)

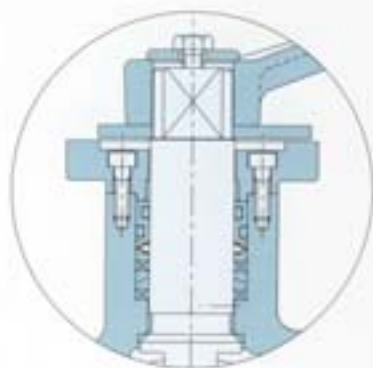


Figure 2

ANTI-STATIC DESIGN (BS5351)**Figure 3**

Ball valves present a particular problem with the build up of static electricity around the ball. All **KUKA** ball valves have anti-static design which provides contact between stem and ball, and stem and body to eliminate static electricity.

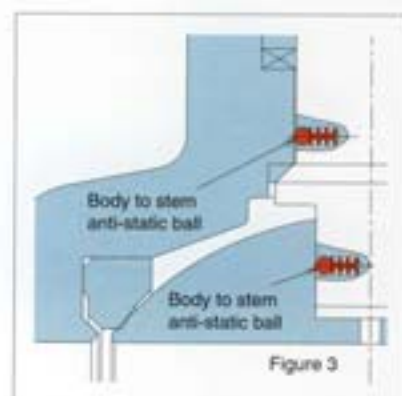


Figure 3

FIRE SAFE DESIGN (API 607)**Figure 4 & 5**

In the event of a fire, the valve is required to make a downstream seal. Even after the disintegration of the TEFLON seat **KUKA** ball valves provide an excellent metal to metal seal. Special attention has been paid to the mechanical strength and sealing efficiency of the central flanged joint of the valve body & cap. Heavy castings & graphite filled spiral wound gasket assure **zero** leakage between body and cap.

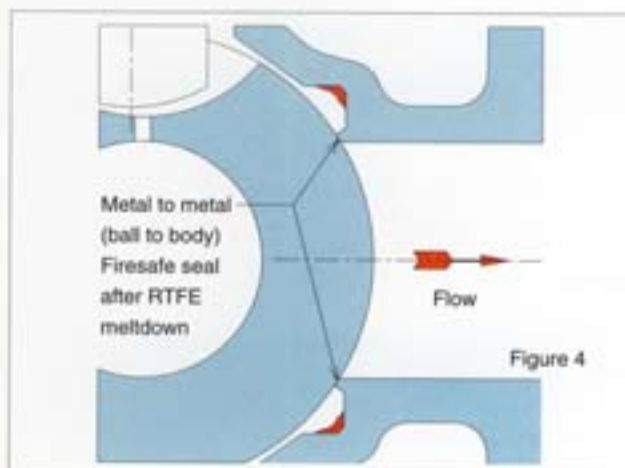


Figure 4

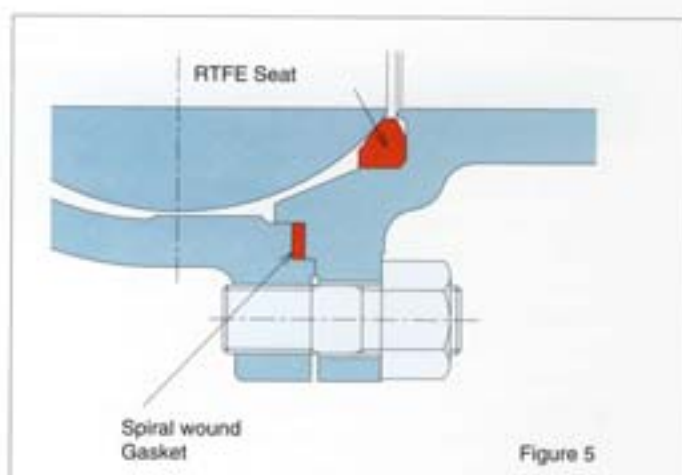


Figure 5

Full Port



Construction:

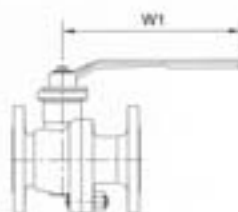
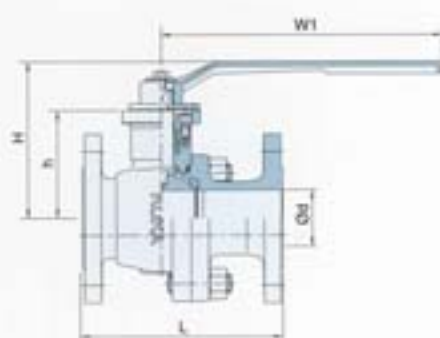
Split body, full port, free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed according to API-6D, ASME B 16.34, API 608 and BS 5351 specifications.

NOTE: Manufactured and conforms to NACE standard MR 0175

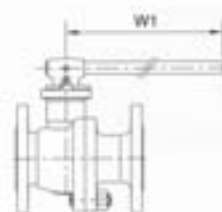
* API-607 "fire-safe" tested and certified, 1/2" thru 8" size.

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 & BS 5351



Size 1/2-4 inch



Size 6-8 inch



Size 3-10 inch

Class 150/300

Valve Size		1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
		15mm	20mm	25mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm
od	inch	0.59	0.79	0.98	1.50	1.97	2.56	2.99	3.94	5.98	7.99
	mm	15	20	25	38	50	65	76	100	152	203
L (RF)	150	inch	4.25	4.81	5.00	6.50	7.01	7.52	7.99	9.02	15.51
		mm	108	117	127	165	178	191	203	229	394
	300	inch	5.51	5.98	6.50	7.52	8.50	9.49	11.14	12.01	15.87
		mm	140	152	165	191	216	241	283	305	403
h	inch	2.05	2.19	2.64	3.35	3.86	4.61	5.71	6.34	9.13	10.75
	mm	52	55.5	67	85	98	117	145	161	232	273
H	inch	3.46	3.62	3.98	4.88	5.59	6.26	7.64	8.27	11.50	12.52
	mm	88	92	101	124	142	159	194	210	292	318
W1	inch	5.51	5.51	6.69	9.84	9.84	13.76	13.78	18.11	31.50	39.37
	mm	140	140	170	250	250	350	350	460	800	1000
W2	inch	N/A	N/A	N/A	N/A	N/A	N/A	11.81	11.81	15.75	19.69
	mm	N/A	N/A	N/A	N/A	N/A	N/A	300	300	400	500
Approx. Weight	150	Lb	5	6	9	17	23	39	53	82	185
		kg	2	2.8	4	7.5	10.5	17.5	24	37	84
	300	Lb	6	9	12	23	31	62	73	110	238
		kg	2.8	3.8	5.6	10.5	14	28	33	50	108

Gear operators are available for most sizes.

Full Port



Construction:

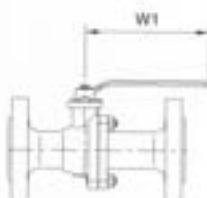
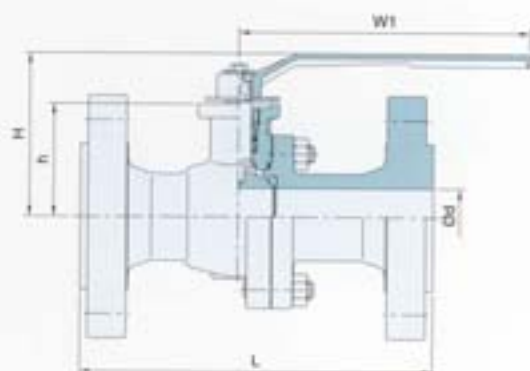
Split body, full port, free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, extended stuffing box, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed to API-6D, ASME B16.34 and BS5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175

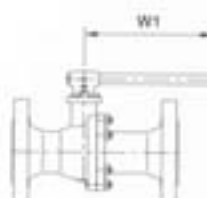
* API-607 "fire-safe" tested and certified, 1/2" thru 6" size.

Dimensions

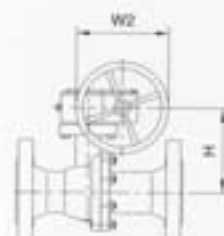
Face to Face	ASME B 16.10 & API 6D Long Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34 & BS 5351



Size 1/2-3 inch



Size 4-6 inch



Size 3-6 inch

Class 600

Valve Size		1/2" 15mm	3/4" 20mm	1" 25mm	1 1/2" 40mm	2" 50mm	3" 80mm	4" 100mm	6" 150mm
Od	inch	0.59	0.79	0.98	1.50	1.97	2.99	3.94	5.98
	mm	15	20	25	38	50	76	100	152
L	RF	inch	6.50	7.52	8.50	9.49	11.50	14.02	17.01
		mm	165	191	216	241	292	356	432
	RTJ	inch	6.50	7.52	8.50	9.49	11.61	14.13	17.13
		mm	165	191	216	241	295	359	435
h	inch	20.5	2.19	2.44	3.27	3.86	5.75	7.36	9.17
	mm	52	55.5	62	83	98	146	187	233
H	inch	3.46	3.62	4.17	5.00	5.59	7.68	9.76	11.61
	mm	88	92	106	127	142	195	248	295
W1	inch	5.51	6.69	6.69	9.84	9.84	13.78	31.50	31.50
	mm	140	170	170	250	250	350	800	800
W2	inch	N/A	N/A	N/A	N/A	N/A	11.81	15.75	19.69
	mm	N/A	N/A	N/A	N/A	N/A	300	400	500
Approx. Weight	600	Lb	8	11	15	29	59	117	205
		kg	3.7	5	7	13	27	53	93

Gear operators are available for most sizes.

Reduced Port



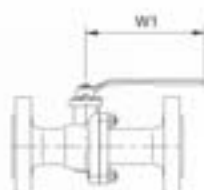
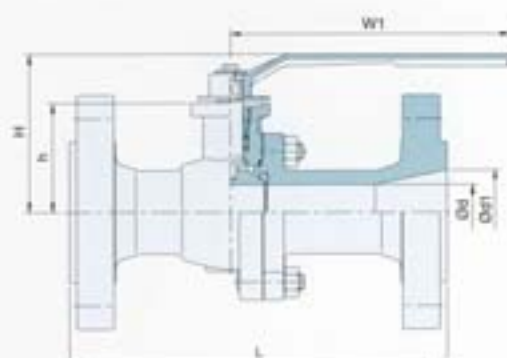
Construction:

Split body, reduced port, free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, extended stuffing box, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed to API-6D, ASME B16.34, API 608 and BS 5351 specifications.

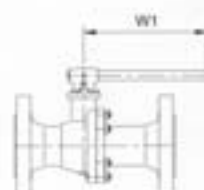
Note: Manufactured and conforms to NACE standard MR 0175
* API-607 "fire-safe" tested and certified, 3/4" thru 10" size.

Dimensions

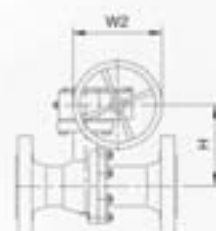
Face to Face	ASME B16.10 & API 6D Long Pattern
End Flange	ASME B16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B16.34 & BS 5351



Size 2-4 inch



Size 6-8 inch



Size 4-10 inch

Class 150/300

Valve Size		3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
		20mm	25mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm
od/od1	inch	0.59 / 0.79	0.79 / 0.98	0.98 / 1.50	1.50 / 1.97	1.97 / 2.56	2.56 / 2.99	2.99 / 3.94	3.94 / 5.98	5.98 / 7.99	7.99 / 10.00
	mm	15 / 20	20 / 25	25 / 38	38 / 50	50 / 65	65 / 76	76 / 100	100 / 152	152 / 203	203 / 254
L (RF)	150	inch	4.61	5.00	6.50	7.01	7.52	7.99	9.02	15.51	17.99
		mm	117	127	165	178	191	203	229	394	457
	300	inch	5.98	8.50	7.52	8.50	9.49	11.14	12.01	15.87	19.76
		mm	152	165	191	216	241	283	305	403	502
h	inch	2.05	2.19	2.64	3.35	3.86	4.61	5.71	6.34	9.13	10.75
	mm	52	55.5	67	85	98	117	145	161	232	273
H	inch	3.46	3.62	3.98	4.88	5.59	6.26	7.64	8.27	11.50	12.52
	mm	88	92	101	124	142	159	194	210	292	318
W1	inch	5.51	5.51	6.69	9.84	9.84	13.78	13.78	18.11	31.50	39.37
	mm	140	140	170	250	250	350	350	480	800	1000
W2	inch	N/A	N/A	N/A	N/A	N/A	N/A	11.81	11.81	15.75	19.69
	mm	N/A	N/A	N/A	N/A	N/A	N/A	300	300	400	500
Approx. Weight	150	Lb	4.4	7.7	11.0	19.8	28.7	46.3	66.2	110.3	220.5
		kg	2	3.5	5	9	13	21	30	50	100
	300	Lb	6.6	10.1	15.4	27.6	37.5	72.8	88.2	154.4	286.7
		kg	3	4.6	7	12.5	17	33	40	70	130

Gear operators are available for most sizes.

Reduced Port



Construction:

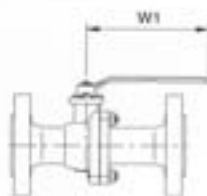
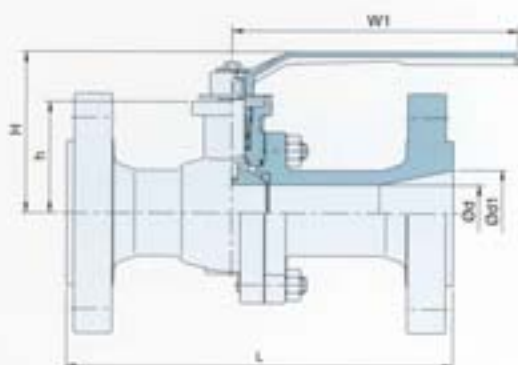
Split body, reduced port, free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, extended stuffing box, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed to API-6D, ASME B 16.34 and BS 5351 specifications.

Note: Manufactured and conforms to NACE standard MR 0175

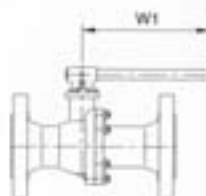
* API-607 "fire-safe" tested and certified, 2" thru 8" size.

Dimensions

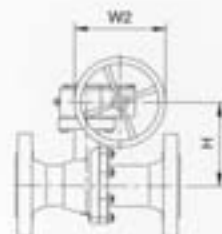
Face to Face	ASME B16.10 & API 6D Long Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34 & BS 5351



Size 2-4 inch



Size 6-8 inch



Size 4-8 inch

Class 600

Valve Size		2"	3"	4"	6"	8"
		50mm	80mm	100mm	150mm	200mm
od / od1	inch	1.50 / 2.00	2.00 / 3.00	3.00 / 4.00	4.00 / 6.00	6.00 / 8.00
	mm	38 / 50	50 / 76	76 / 100	100 / 152	152 / 203
L	RF	inch	11.50	14.02	17.01	22.01
		mm	292	356	432	559
	RTJ	inch	11.61	14.13	17.13	22.13
		mm	295	359	435	562
h	inch	3.27	3.86	5.75	7.36	9.17
	mm	83	98	146	187	233
H	inch	5.00	5.59	7.68	9.76	11.61
	mm	127	142	195	248	295
W1	inch	9.84	9.84	13.78	31.50	31.50
	mm	250	250	350	800	800
W2	inch	N/A	N/A	11.81	15.75	19.69
	mm	N/A	N/A	300	400	500
Approx. Weight	600	Lb	40	66	147	262
		kg	18	30	67	120

Gear operators are available for most sizes.

Full Port



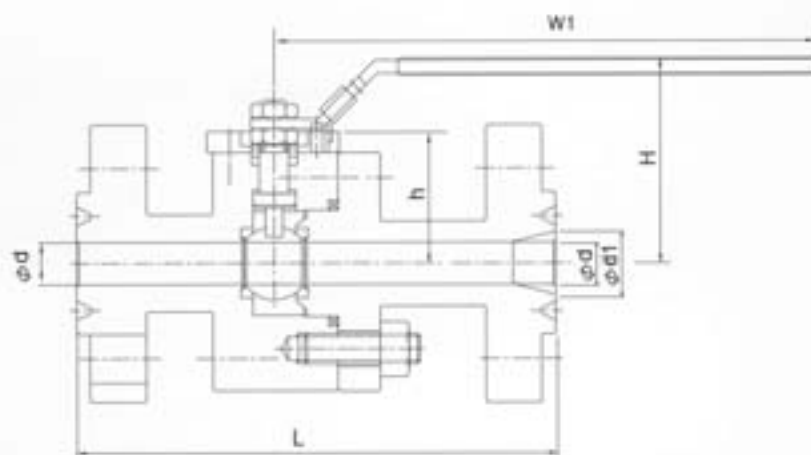
Construction:

Split body, full & Reduced port free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed according to API-6D, ASME B 16.34 and BS5351 specifications.

NOTE: Manufactured and conforms to NACE standard MR 0175
* API-607 "fire-safe" tested and certified, 3/4" thru 2" size.

Dimensions

Face to Face	ASME B 16.10 Long Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34 & BS 5351



Class 900/1500(#CB)

SIZE		3/4" 20mm	1" 25mm	1 1/2" 40mm
Ød	inch	0.75	1.00	1.50
	mm	19.1	25.4	38.1
L	inch	9.00	10.00	12.00
	mm	228.5	254	304.8
h	inch	2.42	2.59	3.48
	mm	61.5	65.8	88.4
H	inch	3.78	3.95	4.83
	mm	96.0	100.3	122.7
W1	inch	10.24	10.24	10.83
	mm	260	260	275
Approx. Weight	Lb	24	31	58
	Kg	11	14	26

Class 900/1500(#CC)

		1" 25mm	1 1/2" 40mm	2" 50mm
Ød	Ød	0.75/1.00	1.00/1.50	1.50/2.00
	Ød1	20 / 25	25 / 38	38 / 50
L	inch	10.00	12.00	14.50
	mm	254	304.8	368.3
h	inch	2.42	2.59	3.48
	mm	61.5	65.8	88.4
H	inch	3.78	3.95	4.83
	mm	96.0	100.3	122.7
W1	inch	10.24	10.24	10.83
	mm	260	260	275
Approx. Weight	Lb	21	40	80
	Kg	14	18	38

Full Port



Construction:

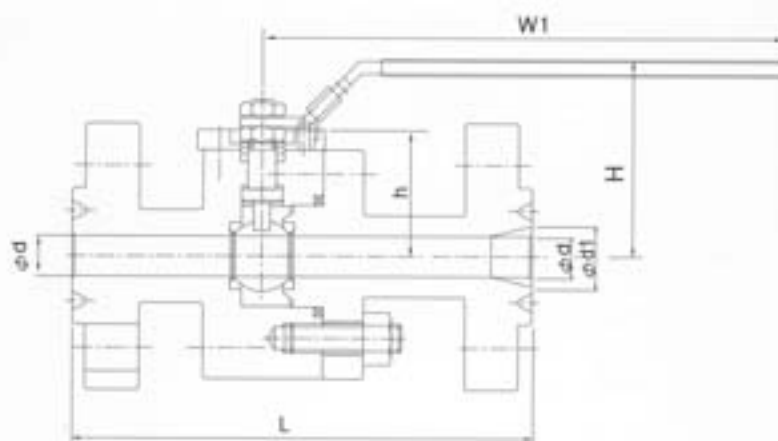
Split body, full & Reduced port free floating ball, "fire-safe" designed to API-607*, blow-out proof stem, cavity relieving seats, anti-static design, pressure balance hole in ball and locking device. Designed according to API-6D, ASME B 16.34 and BS 5351 specifications.

NOTE: Manufactured and conforms to NACE standard MR 0175

* API-607 "fire-safe" tested and certified, 1/2" thru 1 1/2" size.

Dimensions

Face to Face	ASME B 16.10 Long Pattern
End Flange	ASME B 16.5
Min. Port	API 6D
Min. Wall Thick.	ASME B 16.34 & BS 5351



Class 2500(#CB)

SIZE		1/2" 15mm	3/4" 20mm	1" 25mm
Ød	inch	0.50	0.75	1.00
	mm	15	20	25
L	inch	10.38	10.75	12.12
	mm	264	273.5	308
h	inch	2.30	2.42	2.75
	mm	58.4	61.5	69.9
H	inch	3.66	3.78	4.10
	mm	93.0	96.0	104.1
W1	inch	10.24	10.24	10.24
	mm	260	260	260
Approx. Weight	Lb	33	43	62
	Kg	15	19	28

Class 2500(#CC)

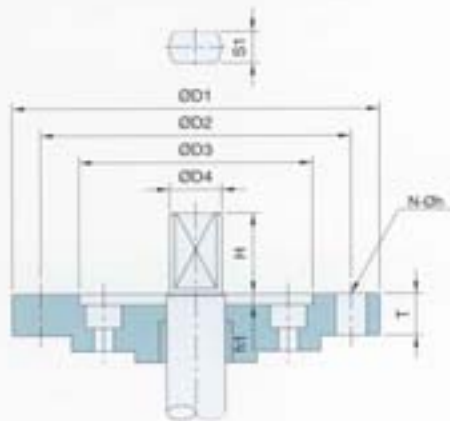
		3/4" 20mm		1" 25mm		1 1/2" 40mm	
		Ød	Ød1	Ød	Ød1	Ød	Ød1
		0.50 / 0.75 15 / 20		0.75 / 1.00 20 / 25		1.00 / 1.50 25 / 38	
L	inch	10.75		12.12		15.12	
	mm	273.5		308		387	
h	inch	2.3		2.42		2.75	
	mm	58.4		61.5		69.9	
H	inch	3.66		3.78		4.10	
	mm	93.0		96.0		104.1	
W1	inch	10.24		10.24		10.24	
	mm	260		260		260	
Approx. Weight	Lb	29		55		85	
	Kg	13		25		38	

STANDARD MATERIAL SPECIFICATIONS FOR MODEL #CBA/#CCA

(ACC. TO ASTM)

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	CLASS 150,300	RTFE				
	CLASS 600	S - NYLON	S - PE / PCTFE		S - NYLON	
PACKING		GRAPHITE				
GASKET		PTFE / GRAPHITE / SW(316+GRAPHITE)				
ISO PAD		A216 Gr. WCB	A352 Gr. LCC		A351 Gr. CF8	
STEM SEAL RETAINER		A276 TYPE 316				
O - RING		VITON				
STOPPER		A283 Gr. D				A240 TYPE 304
BEARING	CLASS 150,300	PTFE				
	CLASS 600	NYLON		S - PE		NYLON
BOLT		A193 Gr. B7	A193 Gr. B7M	A320 Gr. L7	A320 Gr. L7M	A193 Gr. B8
LEVER		DUCTILE CAST IRON				
GEAR OPERATOR		CAST IRON CASE, DUCTILE IRON GEAR, HIGH CARBON STEEL WORM				

ISO 5211 MOUNTING PAD FOR ACTUATOR SELECTION (UNIT : mm , N-m)



ISO 5211 MOUNTING	TORQUE	D1	D2	D3	N-m	CC	150	300	600
F04	63	56	42	30	4-5.5	3/4"	3/4"	3/4"	3/4"
F05	125	65	50	35	4-7	1 1/2"	1 1/2"	1 1/2"	1 1/2"
F07	250	90	70	55	4-9	2"	2"	2"	2"
F10	500	125	102	70	4-11	2 1/2"	2 1/2"	2 1/2"	2 1/2"
F12	1,000	150	125	85	4-13	3"	3"	3"	3"
F14	2,000	175	140	100	4-18	4"	4"	4"	4"

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

FLOW COEFFICIENT (C_v) FOR MODEL #CBA/#CCA

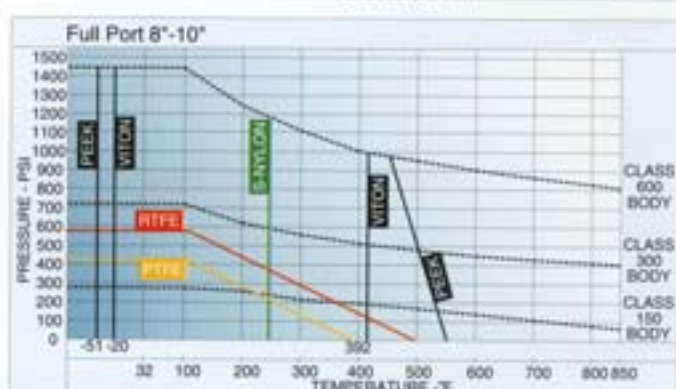
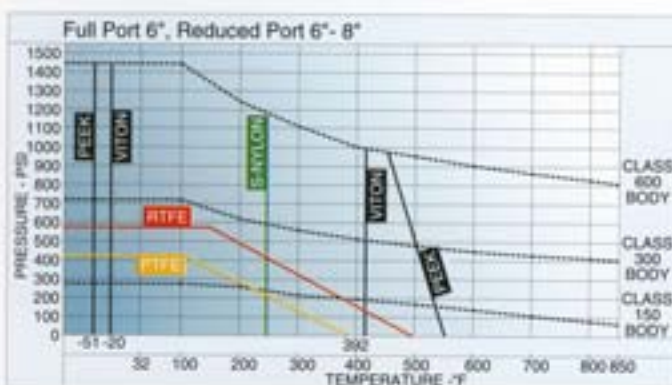
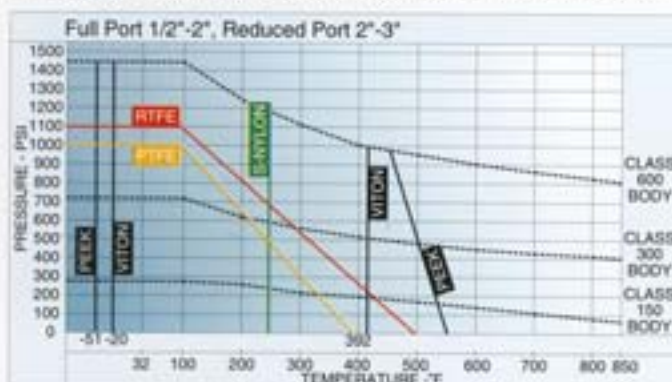
VALVE SIZE	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
CBA	25	50	95	260	480	760	1300	2300	5550	10080	16300
CCA	-	-	-	-	120	-	311	535	1112	1908	- 0

C_v = FLOW IN U'S' GALLONS/MINUTE OF 60°F WATER

API 6D TEST

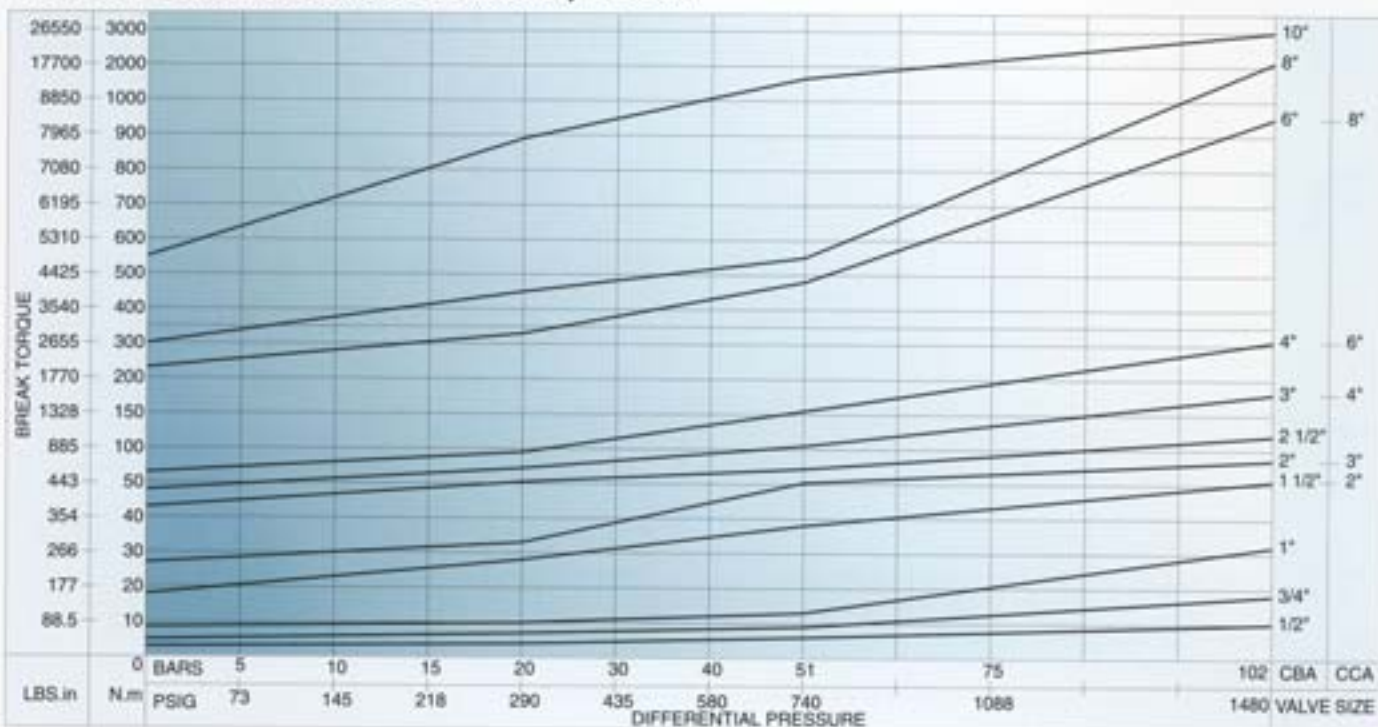
CLASS	150# Hydrostatic						300# Hydrostatic						600# Hydrostatic						900# Hydrostatic						1500# Hydrostatic						SEAT (API) Type I	TEST Duration(minutes)
	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99	W.P. D99	SHELL D99	SEAT D99		
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	102"	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				
LCB	265	400	28.1	300	21.1	895	1050	73.9	775	54.5	1390	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					

PRESSURE/TEMPERATURE RATINGS FOR MODEL #CBA/#CCA



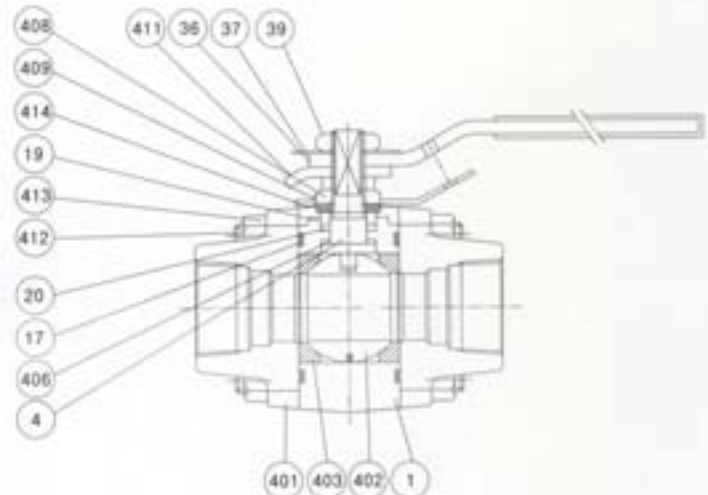
THE DOTTED LINES INDICATE WORKING PRESSURES FOR CAST STAINLESS STEEL BODIES. (ASTM A351-CF8M)
THE OPERATING TEMPERATURE OF THE VALVES IS LIMITED BY THE MATERIAL OF SEAT AND SEAL.

TORQUE DATA FOR MODEL #CBA/#CCA



SEAT MATERIAL : REINFORCED P.T.F.E

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



No.	Parts	Q'ty	Material (ASTM Specification)			
414	Conical Spring	2	304SS			
413	Cap Bolt Nut	4	A194-2H(M)	A194-7(M)	A194-8	
412	Cap Bolt	4	A193-B7(M)	A320-L7(M)	A193-B8	
411	Stopper	1	A167-304			
409	Tab washer	1	A167-304			
408	Stem Nut	1	A194-8			
406	Thrust Bearing	1	RTFE			
403	Seat	2	RTFE/PTFE			
402	Ball	1	A276-304(316)	A276-304(316)	A276-304(L)	A276-316(L)
401	Cap	2	A105	A352-LF2	A182-F304(L)	A182-F316(L)
39	Handle Nut	1	A194-8			
37	Nameplate	1	STAINLESS STEEL			
36	Handle	1	A108-1020+VINYL COATING			
20	Gland Packing	1	PTFE			
19	Gland	1	PTFE/RTFE			
17	Gasket	2	PTFE/RTFE			
4	Stem	1	A276-304(316)	A276-304(316)	A276-304(L)	A276-316(L)
1	Body	1	A105	A352-LF2	A182-F304(L)	A182-F316(L)

Gear operators are available for most sizes.



CONSTRUCTION:

Split Body, Reduced Bore Full Bore Floating Ball,
Anti-Blow out Stem

Option:

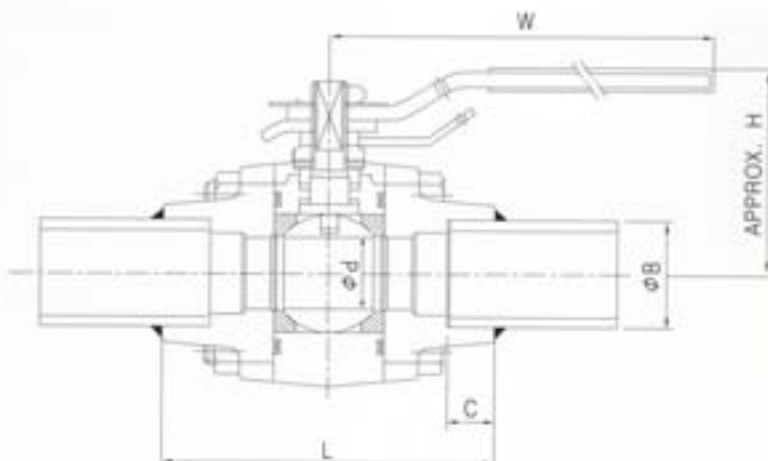
Fire safe Design, Cavity Relieving Seats, Anti-Static Device
Pressure Balance Hole in ball, Locking Device

Design : BS 5352 and ASME B 16.34, API 598

End to End : KUKA standard

End Type : Socket-welded(ANSI/JIS)

End Connection : ASME B 16.11



Class 600/800

Unit : mm

Port	Size(Inch)	H(APPROX.)	L	W	φd	φB	C
Reduced	1/2	60	66.5	130	11.2	21.70	10
	3/4	62	72.5	130	14.2	27.05	13
	1	74	95.0	160	20.5	33.08	13
	1 1/2	88	116.0	230	31.6	48.65	13
	2	93	128.0	230	38.1	61.10	16
Full	1/2	62	72.5	130	14.2	21.70	10
	3/4	74	95.0	160	20.5	27.05	13
	1	88	116.0	230	31.6	33.80	13
	1 1/2	93	128.0	230	38.1	48.65	13
	2	107	155.0	230	51.0	61.10	16

Class1500

Unit : mm

Port	Size(Inch)	H(APPROX.)	L	W	φd	φB	C
Reduced	1/2	65	76.0	130	11.2	21.30	10
	3/4	67	101.6	160	14.2	26.70	13
	1	72	120.0	230	20.5	33.08	13
	1 1/2	93	134.0	230	31.6	48.70	13
	2	105	155.0	230	38.1	60.30	16
Full	1/2	67	101.6	160	14.2	21.30	10
	3/4	72	120.0	230	20.5	26.70	13
	1	93	134.0	230	31.6	33.80	13
	1 1/2	105	155.0	230	38.1	48.70	13



CONSTRUCTION:

Split Body, Reduced & Full Port, Floating Ball, Anti-Blow out Stem

Option:

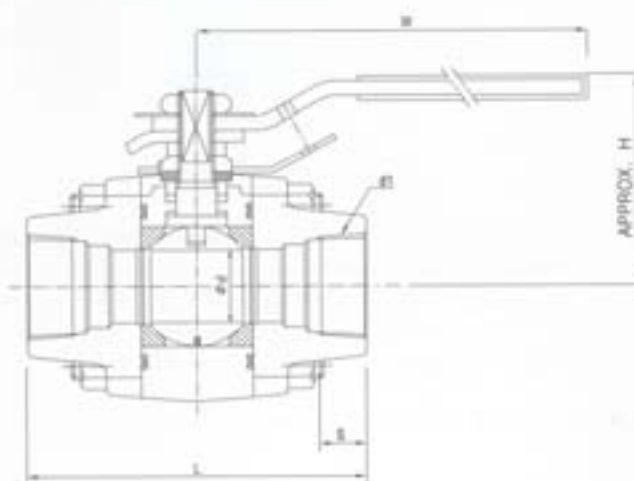
Fire safe Design, Cavity Relieving Seats, Anti-Static Device, Pressure Balance Hole in ball, Locking Device

Design : BS 5352 and ASME B16.34, API 608

End to End : KUKA standard

End Type : Screwed(NPT/PT)

End Connection : ASME B 1.20.1(FNPT)



Class 600/800

Unit : mm

Port	Size(Inch)	H(APPROX.)	L	W	φd	S
Reduced	1/2	60	66.5	130	11.2	13.5
	3/4	62	72.5	130	14.2	14.0
	1	74	95.0	160	20.5	17.5
	1 1/2	88	116.0	230	31.6	18.5
	2	93	128.0	230	38.1	19.0
Full	1/2	62	72.5	130	14.2	13.5
	3/4	74	95.0	160	20.5	14.0
	1	88	116.0	230	31.6	17.5
	1 1/2	93	128.0	230	38.1	18.6
	2	107	155.0	230	51.0	19.0

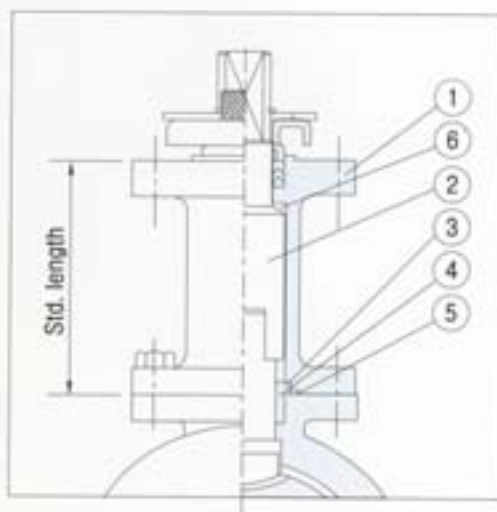
Class 1500

Unit : mm

Port	Size(Inch)	H(APPROX.)	L	W	φd	S
Reduced	1/2	65	76.0	130	11.2	13.5
	3/4	67	101.6	160	14.2	14.0
	1	72	120.0	230	20.5	17.5
	1 1/2	93	134.0	230	31.6	18.5
	2	105	155.0	230	38.1	19.0
Full	1/2	67	101.6	160	14.2	13.5
	3/4	72	120.0	230	20.5	14.0
	1	93	134.0	230	31.6	17.5
	1 1/2	105	155.0	230	38.1	18.6



- ◆ **Construction :** The valve for low temperature service provides an Extended Bonnet with a vapour space between valve body near the ambient temperature to permit a normal operation. The extended bonnet is a casted one piece body. The std. length, from -20°C to -80°C , is 150mm. The std. length, from -280°C to -196°C , is 300mm. Different lengths have an intermediate welded tube.
- ◆ **Rating, Connection and Face-to-face Dimensions :** These are the same as the std. types.



Materials

No. Part Name	CS Version	SS Version
1 Body	LCB, LCC, LC1	CF8M
2 Stem	316SS	316SS
3 Guide Ring	316SS	316SS
4 Stem Bearing	PTFE	PTFE
5 Bonnet Gasket	PTFE	PTFE
6 Thrust Washer	PTFE	PTFE

This policy supersedes 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.

- **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.

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



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Fax# 780-450-3848
Toll Free# 1-888-988-6009

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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.