

Two-piece design is ideally suitable for all kind of Process & Utility application with options of full bore & Regular bore, where maintenance of Valves are easy.

Size	Bore	Type	Class	Model No.
15-250 mm 1/2" to 10"	Regular	Standard	150	BL-2-R-F-A1
		Fire safe	150	BL-F-2-R-F-A1
	Full	Standard	150	BL-2-F-F-A1
		Fire safe	150	BL-F-2-F-F-A1
	Regular	Standard	300	BL-2-R-F-A2
		Fire safe	300	BL-F-2-R-F-A2
15-150 mm 1/2" to 6"	Full	Standard	300	BL-2-F-F-A2
		Fire safe	300	BL-F-2-F-F-A2
	Full	Standard	600	BL-2-F-F-A3
		Fire safe	600	BL-F-2-F-F-A3



DESIGN FEATURES

- High quality casting
- Fully interchangeable trim parts
- Firesafe to API 607 Std.
- Full or Reduce Bore
- Blowout proof Stem
- Renewable Seat & Seals
- Double Body seals (In Fire safe design only)
- Anti-Static Device
- Live-loaded design eliminates stem leakage while providing longer life cycle.
- Mounting Pad to DIN 3337 / ISO 5211
- Bi-direction design for back flow application.

OPTIONS

- Extended handle for pipe insulation & safety whilst operation
- Extended Stem to suit pipe insulation, gland seals deformation, in-line leakage monitoring.
- Pad lock capabilities provide maximum safety.
- Vented ball to reduce seat damage caused by trapped cavity pressure.
- Cavity free seals to reduce the possible entrapment of line media fluids in the void between the ball and the shell.

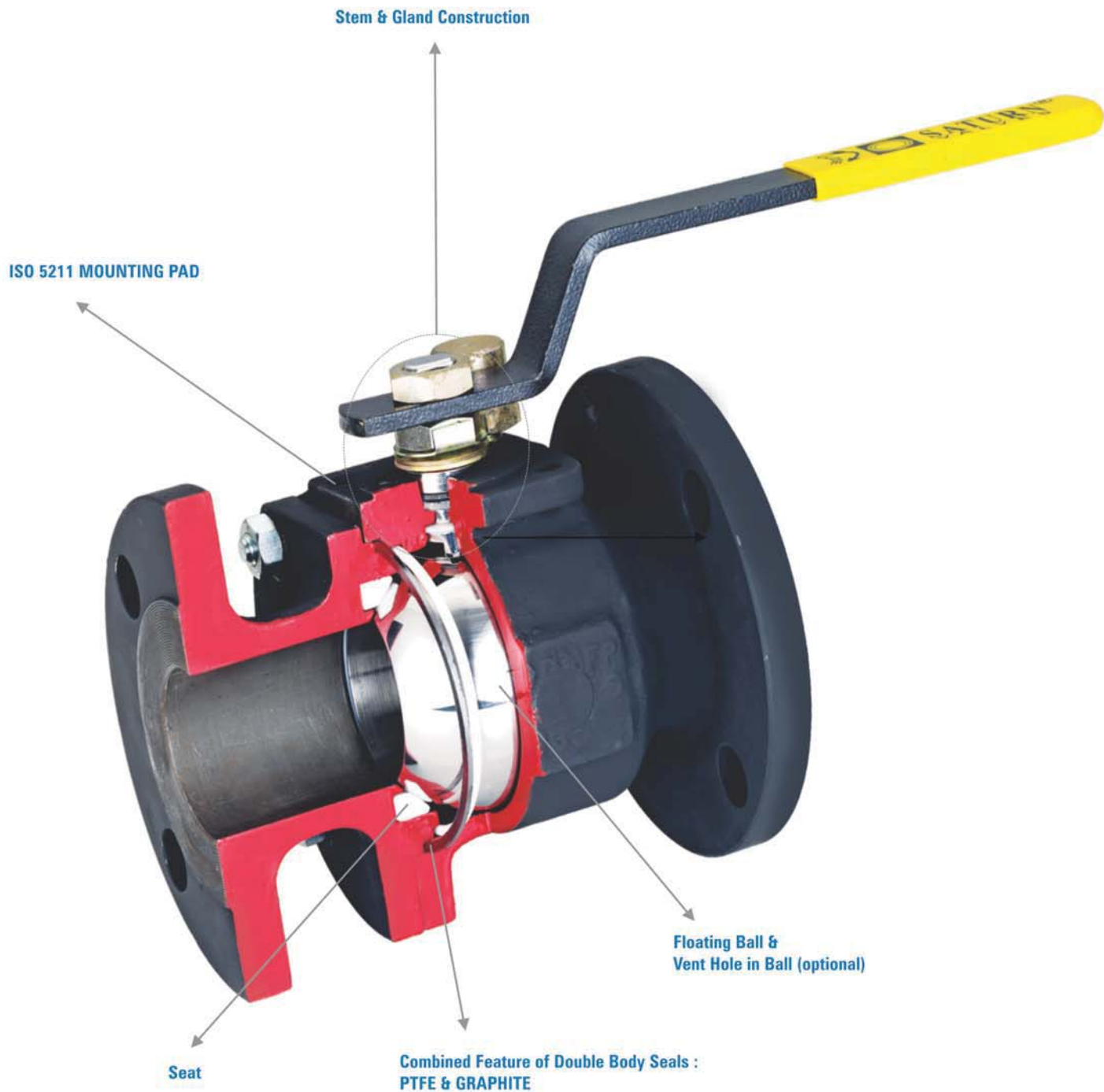
SERVICE APPLICATIONS

- Chemical
- Food Processing
- Oxygen
- Water/Oil/Gas
- Steam
- Thermal Fluids
- Vacuum

STANDARDS COMPLIANCE

- Design : ASME B 16.34, BS EN ISO 17292 & API 6D
- Pressure Test : API 598 / BS EN ISO 12266-1 / API 6D
- End to End : ASME B 16.10 / API 6D
- Flange Dimension : ANSI B 16.5
- Mounting Pad : DIN 3337/ ISO 5211
- Material Certification : DIN 50.049-3 1B
- NACE MR 01-75 compliant
- Quality Systems / Certifications : ISO 9001, API 6D





Please refer next page for explanation of above features

Gland Packing

The packing set is a combination of parallel and vertical layer sealing elements, which are made of elastomer and graphite rings having less stress relaxation and low creep. With this special structure it allows for a low-friction on rotary stem, providing the stabilized seal performance for long cycle life.

For medium and low temperature service, the standard V shape PTFE packing rings are installed for low emission control.

Auto Packing Compensation

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 gland spacer to help exert a continuous compressive force on the gland spacer and therefore reduce fugitive emissions from the stem packing.

For severe application, optional belleville washer can be added for a self-adjusting live load, providing a continuous compression seal and anti-vibration protection

Anti-Static Device

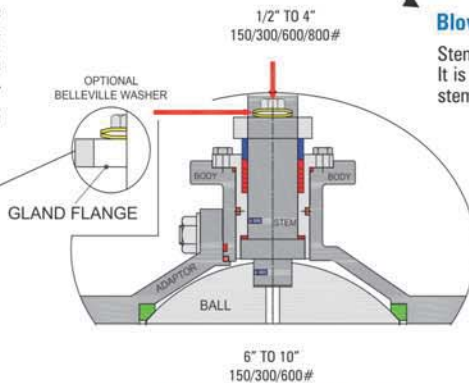
When static are generated due to high velocity of fluid and concentrated on the ball, the spring-loaded pins installed on stem are provided to ensure electrical continuity throughout the ball, stem & body.

In addition to this the inter components like graphite body seal & gland seal have good electric conductivity which discharges the static.

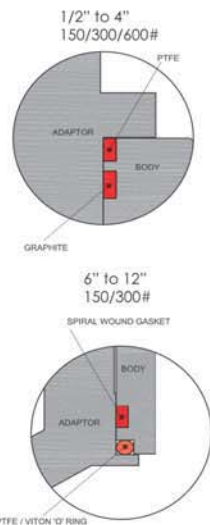
Note : For sizes up to 2" one antistatic device is provided

Blow-out Proof Stem

Stem lower end is integral T shaped designed to be blow-out proof. It is internally inserted and functions as the backseat for assured stem sealing at all pressures.



Stem & Gland Construction

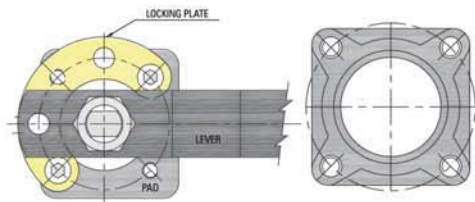


Double Body Seals

Double body sealing ensures positive body joint sealing against pipeline stresses. The inner body seal of elastomer prevents the contact of the fluid with the outer body seal of graphite having pure carbon.

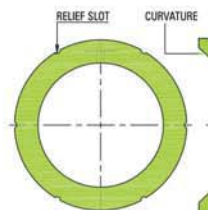
For 6" & above size is provided with 'O' ring as inner body seal against pipeline stresses & joint expansions.

Note: Dual body seal arrangement is provided only in Fire safe ball valves



ISO 5211 MOUNTING PAD

All our Ball valves are Equipped with an Integral mounting pad as per ISO 5211 that facilitates easy mounting of hardware viz. pneumatic Actuator, Gear box, Limit Switch, Locking arrangement, etc.

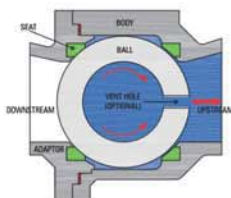


Seat

The special design seat feature relief slots or seat O.D. Clearance to relieve pressure past the upstream seat. This design reduces friction, minimize seat wear and lowering operating torque. The curvature design feature minimize contact between the ball & seat when the valve is in open position, thus it prevent cold flow, lowers torque and reduced wear.

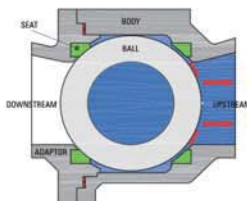
Vent Hole in Ball (optional)

When the pressure inside the valve body cavity exceeds the line pressure due to thermal expansion of the liquids entrapped in the valve body; to relieve this vapor pressure positively vent hole is provided towards upstream that helps preventing seat life, reduces operational torque and chances of accidents.



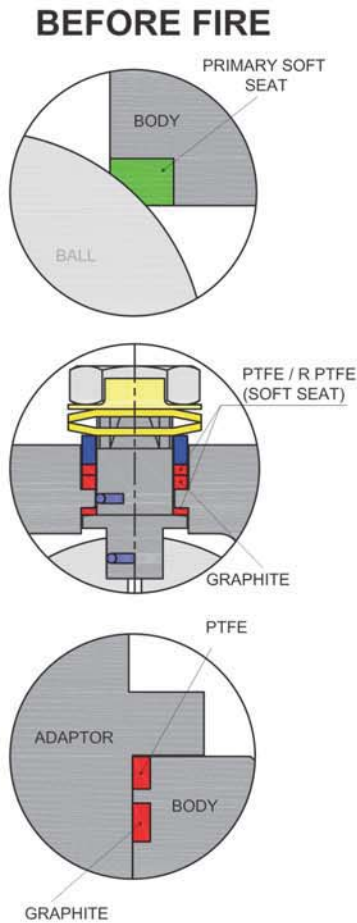
Floating Ball

A Floating Ball design offer efficient bi-directional downstream sealing. When line pressure is applied to the closed ball, it moves slightly (or floats) downstream to maintain contact with the downstream seat where primary sealing occurs. The downstream sealing also overcomes two most common difficulties in the use of conventional ball valves; seat damage & high operating torque.



The pressure relief slots design also features automatic pressure relief from upstream in continuous pressure. During closing of the valve, the maximum surge pressure occurs, during which the downstream seat can be forced to intrude into the ball port and valve can become inoperative. The pressure relief slots prevent this potential failure. When pressure causes the upstream seat to move against the ball and ball moves to the downstream seat to effect and maintain a seal, the pressure simply leaks into the ball port through the relief slots.

SATURN ball valves are engineered for firesafety and successfully FIRE TESTED according to API 607 Standard to minimize both external & internal fluid leakage after plant fires. They have post-fire metal to metal contact of all sealing areas such as;

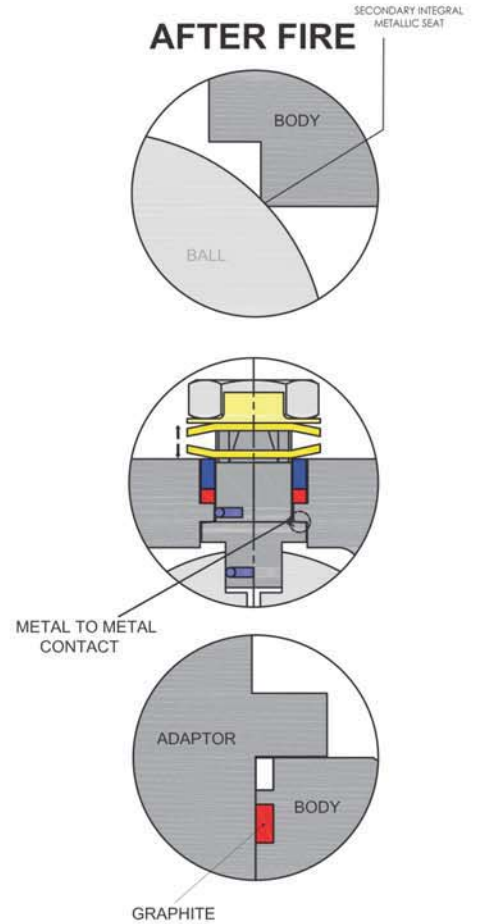


Fire safe design valve is provided with a secondary metal to metal seat that protects the leak in case of deformation of primary soft seat in fire.

When primary soft seat is totally burnt off, the floating ball moves towards the downstream secondary metal seat, forming a metal to metal contact that assures the leak tightness. Secondary seat is the integral part of the adapter/end connectors of valve that comes in close contact with surface finish of the ball.

Primary thrust washer diffuses and blowout proof stem comes in close contact with valve shell, further to protect gland leakage at low pressure Graphite seal is provided which are extremely heat resistant and not affected by fire.

Primary Inner seal of PTFE diffuses and secondary body seal of Graphite/ Spiral wound gasket protects joint leakage.



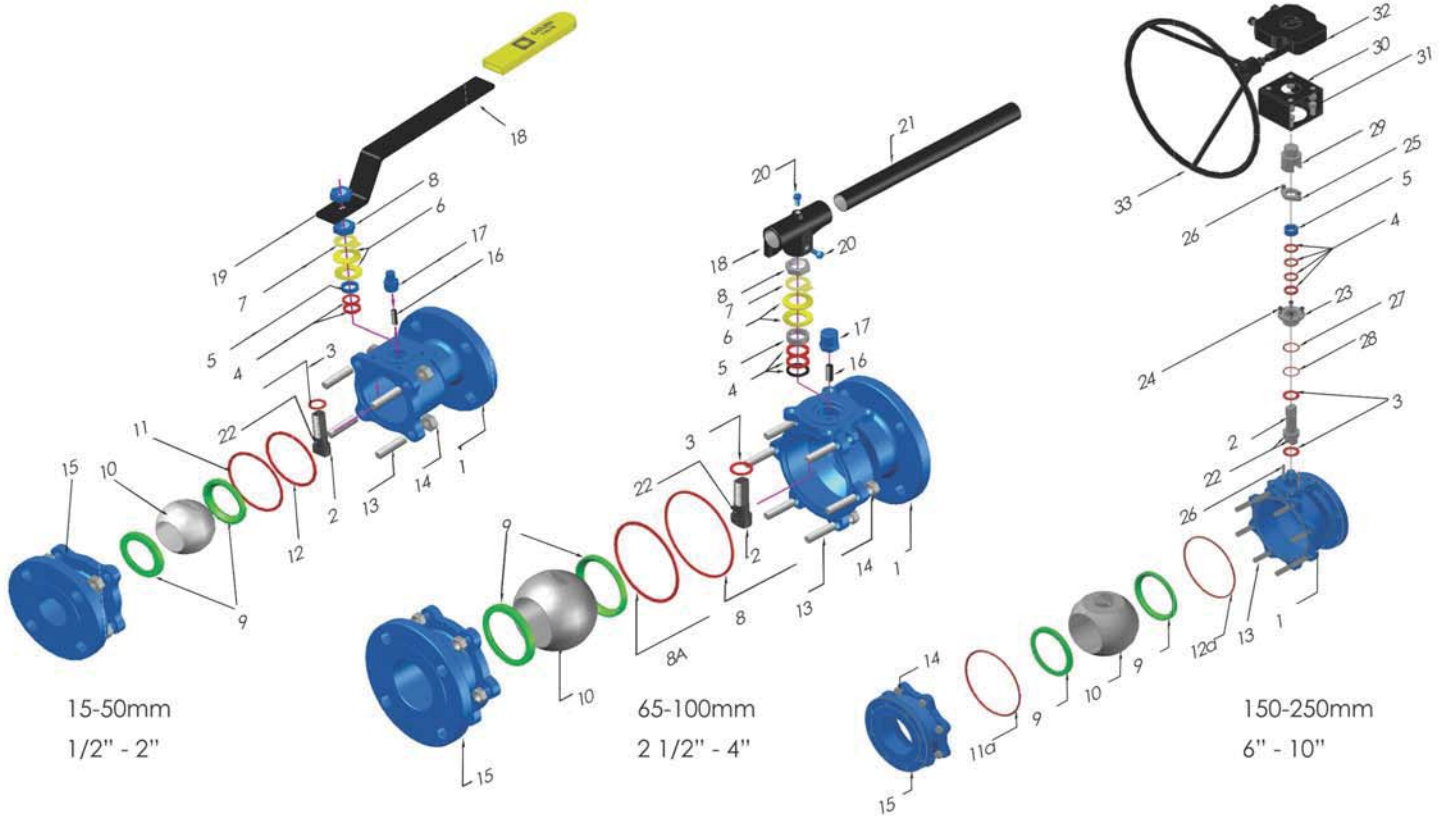
Fire Test Certificates



Fire Test Report Nr Fwv/1/ 001 & 002 from Bureau Veritas as per API 607 Standard



EXPLODED VIEW



Part No.	DESCRIPTION	SPECIFICATION									QTY.
		CARBON STEEL	LOW TEMP -50°F (-46°C)	STAINLESS STEEL				NICKEL BASED ALLOY			
1	BODY	A216WCB	A352LCB/ A352LCC	A351CF8	A351CF3	A351CF8M	A351CF3M	Alloy 20 A 351 CN7M	Monel A494 M35-1	Hastelloy C A494 CW-12MW	1
3	THRUST WASHER					PTFE /GFT /CFT					1
2	STEM	SS304/316		SS 304	SS304 L	SS316	SS316 L	Alloy 20	Monel	Hastelloy C	1
4	GLAND SEALS					PTFE /GFT /CFT /GRAPHITE					1 / 2 SET
5	GLAND SPACER			SS316			SS316 L	Alloy 20	Monel	Hastelloy C	1
6	BELLEVILLE WASHER		SPRING STEEL ZINC PLATED / STAINLESS STEEL						STAINLESS STEEL		2
7	LOCK WASHER		CARBON STEEL ZINC PLATED / STAINLESS STEEL						STAINLESS STEEL		1
8	GLAND NUT		SS 304	SS304 L	SS316				SS316 L		1
9	SEAT					PTFE /GFT /CFT /TFM 1600/PEEK					2
10	BALL	SS304/316		SS 304	SS304 L	SS316	SS316 L	Alloy 20	Monel	Hastelloy C	1
11	BODY SEAL (PRIMARY)					PTFE					1
11a	BODY 'O' SEAL (PRIMARY)					VITON					1
12	BODY SEAL (SECONDARY)					GRAPHITE /SPW SS GRAPHITE FILLED					1
12a	BODY SEAL (SECONDARY)					SPW SS GRAPHITE FILLED					1
13	BODY STUD	A193-B7	A193-B7M	A193-B7 / A193-B8 /A193-B8M					A193-B8M		4 / 6
14	BODY NUT	A194-2H	A194-2HM	A194-2H / A194-B8 / A194-B8M					A194-B8M		8/16
15	ADAPTOR	A216WCB	A352LCB/ A352LCC	A351CF8	A351CF3	A351CF8M	A351CF3M	Alloy 20 A 351 CN7M	Monel A494 M35-1	Hastelloy C A494 CW-12MW	1
16	GRUB SCREW					CARBON STEEL-HT					1
17	STOPPER		CARBON STEEL ZINC PLATED / STAINLESS STEEL						STAINLESS STEEL		1
18	LEVER		CARBON STEEL POWDER COATED / STAINLESS STEEL						STAINLESS STEEL		1
19	LEVER NUT		CARBON STEEL ZINC PLATED / STAINLESS STEEL						STAINLESS STEEL		1
20	LEVER BOLT		CARBON STEEL ZINC PLATED / STAINLESS STEEL						STAINLESS STEEL		2
21	DETACHABLE PIPE					CARBON STEEL POWDER COATED					1
22	ANTISTATIC DEVICE			SS316					SS316 L		1 / 2
23	STUFFING BOX	A216WCB	A352LCB/ A352LCC	A351CF8	A351CF3	A351CF8M	A351CF3M	Alloy 20	Monel	Hastelloy C	1
24	STUFFING BOX BOLT	A193-B7	A193-B7M	A193-B7 / A193-B8 /A193-B8M					A193-B8M		4
25	GLAND FLANGE	CARBON STEEL		A351CF8	A351CF3	A351CF8M	A351CF3M	Alloy 20	Monel	Hastelloy C	2
26	STUD-GLAND FLANGE	A193-B7	A193-B7M	A193-B7 / A193-B8 /A193-B8M					A193-B8M		2
27	STUFFING BOX 'O' SEAL					VITON					1
28	STUFFING BOX 'O' SEAL					PTFE /GFT /CFT					1
29	COUPLER					STAINLESS STEEL					1
30	BRACKET					CARBON STEEL POWDER COATED					1
31	BRACKET BOLT					CARBON STEEL ZINC PLATED					1
32	GEAR BOX					CARBON STEEL					1
33	HANDWHEEL					CARBON STEEL / CAST IRON					1

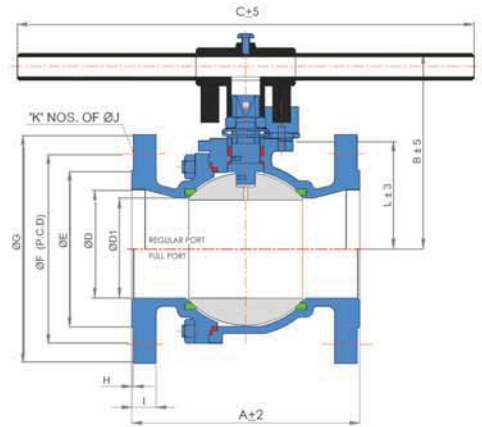
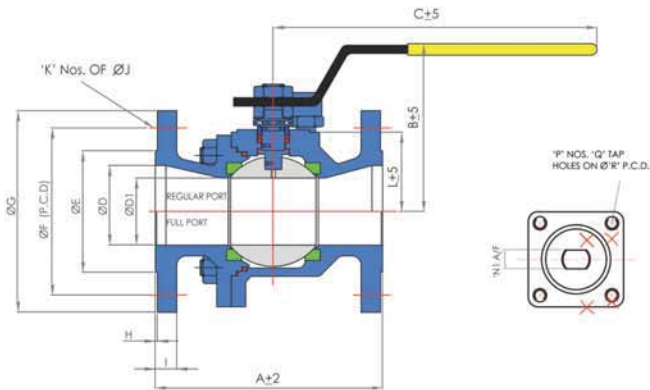
DIMENSIONS



Regular & Full Bore, 150 & 300 Class | Full Bore, 600 Class | 15 to 100MM

15 TO 50MM Full Bore 150# & 300#
20 TO 65MM Regular Bore 150 & 300 Class

65 TO 100MM Full Bore 150,300 & 600 Class
80 TO 150MM Regular Bore 150 & 300 Class



ALL DIMENSIONS ARE IN MM																							
VALVE SIZE	ISO PAD DETAILS											FLANGE DIMENSIONS										WEIGHT (KG)	
	A	B	C	Ø D	Ø D1	L	M	M1	Ø N	A/F N1	Ø O	P	Q	PCD ØR	ISO 5211	Ø E	PCD ØF	Ø G	H	I	Ø J		K
REGULAR BORE, 150 CLASS																							
15	108	80	156	12.7	12.7	29.5	15	10	11.1	6.3	25	4	M5	36	F03	35	60.5	90	2	10	15.9	4	1.4
20	118	80	156	19	12.7	29.5	15	10	11.1	6.3	25	4	M5	36	F03	42.8	69.9	100	2	10.9	15.9	4	1.8
25	127	84	156	25.4	19	33	17	10	11.1	6.3	30	4	M5	42	F04	50.8	49.4	110	2	11.6	15.9	4	2.3
40	165	103	180	38.1	31.7	44.5	22.5	12	12.7	7.9	35	4	M6	50	F05	73	98.4	125	2	14.7	15.9	4	4.7
50	178	114	225	50.8	38.1	46	32.7	14.5	14.3	9.52	35	4	M8	50	F05	92	120.7	150	2	16.3	19	4	7
65	190	125	245	63.5	50.8	60	34	15	17	11.1	55	4	M8	70	F07	105	139.7	180	2	17.9	19	4	10.2
80	203	135	270	75	63.5	75	32	15.5	17	11.1	55	4	M10	70	F07	127	152.4	190	2	19.5	19	4	13.6
100	229	161	335	98	75	88.5	40	20.6	23.8	15.87	70	4	M10	102	F10	157	190.5	230	2	24.3	19	8	22
FULL BORE, 150 CLASS																							
15	108	81	156	12.7	12.7	29.5	15	9.5	11.1	6.3	25	4	M5	36	F03	34.9	60.3	90	2	10	15.9	4	1.4
20	118	85	156	19	19	33	16.5	7.5	11.1	6.3	30	4	M5	42	F04	42.9	69.9	100	2	10.9	15.9	4	2
25	127	99	178	25.4	25.4	39.5	24.7	12	12.7	7.9	30	4	M5	42	F04	50.8	79.4	110	2	11.6	15.9	4	2.6
32	140	103	178	31.7	31.7	45	25.9	15.3	12.7	7.9	35	4	M6	50	F05	63.5	88.9	115	2	13.2	15.9	4	3.6
40	165	115	225	38.1	38.1	46	32.7	13.7	14.3	9.5	35	4	M6	50	F05	73	98.4	125	2	14.7	15.9	4	5
50	178	124	245	50.8	50.8	60	34	15	17	11.1	55	4	M8	70	F07	92.1	120.7	150	2	16.3	19	4	8
65	190	132	305	63.5	63.5	75	32	15.5	17	11.1	55	4	M8	70	F07	104.8	139.7	180	2	17.9	19	4	12
80	203	161	385	75	75	88.5	40	20.6	23.8	15.87	70	4	M10	102	F10	127	152.4	190	2	19.5	19	4	16
100	229	195	385	98	98	108	45.5	21.2	28.6	19	70	4	M10	102	F10	157.2	190.5	230	2	24.3	19	8	28

ALL DIMENSIONS ARE IN MM																							
VALVE SIZE	ISO PAD DETAILS											FLANGE DIMENSIONS										WEIGHT (KG)	
	A	B	C	Ø D	Ø D1	L	M	M1	Ø N	A/F N1	Ø O	P	Q	PCD ØR	ISO 5211	Ø E	PCD ØF	Ø G	H	I	Ø J		K
REGULAR BORE, 300 CLASS																							
15	140	81	156	12.7	12.7	29.5	15.5	9.5	11.1	6.3	25	4	M5	36	F03	35	66.7	95	2	14.7	15.9	4	2.2
20	152	81	156	19	12.7	29.5	15.5	9.5	11.1	6.3	25	4	M5	36	F03	42.8	82.5	115	2	16.3	19	4	3
25	165	85	156	25.4	19	33	16	9.5	11.1	6.3	30	4	M5	42	F04	50.8	89	125	2	17.9	19	4	4.1
40	190	103	178	31.7	31.7	45	25.9	15.3	12.7	7.9	35	4	M6	50	F05	73	114.5	155	2	21.1	22.2	4	8.5
40	216	116	225	38.1	38.1	46	32.7	14	14.3	9.52	35	4	M6	50	F05	92	127	165	2	22.7	19	4	9.9
65	241	116	225	50.8	50.8	60	34	15.5	17	11.1	55	4	M8	70	F07	105	149.5	190	2	25.9	22.2	8	18.5
80	282	132	269	63.5	63.5	75	32	15.5	17	11.1	55	4	M8	70	F07	127	168.5	210	2	29	22.2	8	21.8
100	305	161	335	75	75	88.5	40	20.6	23.8	15.87	70	4	M10	102	F10	157	200	255	2	32.2	22.2	8	37
FULL BORE, 300 CLASS																							
15	140	81	156	12.7	12.7	29.5	15.5	9.5	11.1	6.3	25	4	M5	36	F03	34.9	66.7	95	2	14.7	15.9	4	2.2
20	152	85	156	19	19	33	16	9.5	11.1	6.3	30	4	M5	42	F04	42.9	82.5	115	2	16.3	19	4	3.4
25	165	101	178	25.4	25.4	39.5	24.7	12	12.7	7.9	30	4	M5	42	F04	50.8	89	125	2	17.9	19	4	4.3
32	178	103	178	31.7	31.7	45	25.9	15.3	12.7	7.9	35	4	M6	50	F05	63.5	98.5	135	2	19.5	19	4	7
40	190	116	225	38.1	38.1	46	32.7	14	14.3	9.5	35	4	M6	50	F05	73	114.5	155	2	21.1	22.2	4	9.4
50	216	126	245	50.8	50.8	60	34	15.5	17	11.1	55	4	M8	70	F07	92.1	127	165	2	22.7	19	8	12.46
65	241	132	305	63.5	63.5	75	32	15.5	17	11.1	55	4	M8	70	F07	104	149.5	190	2	25.9	22.2	8	24.5
80	282	161	385	75	75	88.5	40	20.6	23.8	15.87	70	4	M10	102	F10	127	168.5	210	2	29	22.2	8	27
100	305	195	385	98	98	108	45.5	21.2	28.6	19	70	4	M10	102	F10	157.2	200	255	2	32.2	22.2	8	48

DIMENSIONS

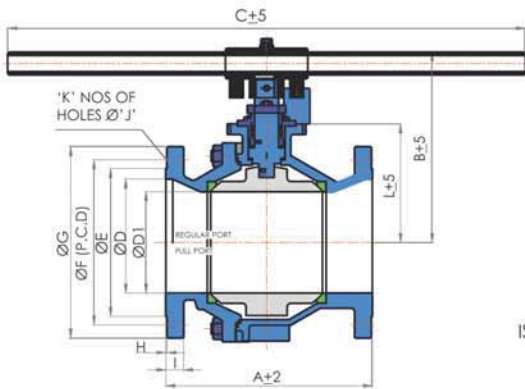
FULL BORE, 600 CLASS

ALL DIMENSIONS ARE IN MM		ISO PAD DETAILS												FLANGE DIMENSIONS								WEIGHT
VALVE SIZE	A	B	C	Ø D	L	M	M1	Ø N	A/F N1	Ø O	P	Q	PCD ØR	ISO 5211	Ø E	PCD Ø	Ø G	H	I	Ø J	K	KG
15	165	81	160	12.7	29.5	15.5	8.5	11.1	6.3	25	4	M5	36	F03	34.9	66.7	95	7	21.3	15	4	2.8
20	190	85	160	19	33	15	8.5	11.1	6.3	30	4	M5	42	F04	42.9	82.6	115	7	23	19	4	4.3
25	216	110	227	25.4	39.5	34.5	13.5	14.3	9.5	30	4	M5	40	F04	50.8	88.9	125	7	24.5	19	4	5.6
40	241	117	297	38.1	50	34.5	14.5	17	11.1	35	4	M6	50	F05	73	114.3	155	7	29.3	22.2	4	11.5
50	292	152	370	50.8	69	41.5	18.5	23.8	15.87	55	4	M8	70	F07	92.1	127	165	7	32.5	19	8	17.2
65	330	113	270	63.5	78	41.5	18.5	23.8	15.87	55	4	M8	70	F07	104.8	149.2	190	7	35.6	22.2	8	24
80	356	187	395	75	90	46.3	21.5	28.6	19	70	4	M10	102	F10	127	168.3	210	7	38.8	22.2	8	34
100	432	197	395	98	108	45.5	20.5	28.6	19	70	4	M10	102	F10	157.2	215.9	275	7	45.1	25.4	8	63

Regular & Full Bore, 150 & 300 Class | Full Bore, 600 Class | 150 to 250MM

150MM Full Bore 150, 300 & 600 Class
200MM Regular Bore 150 & 300 Class

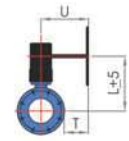
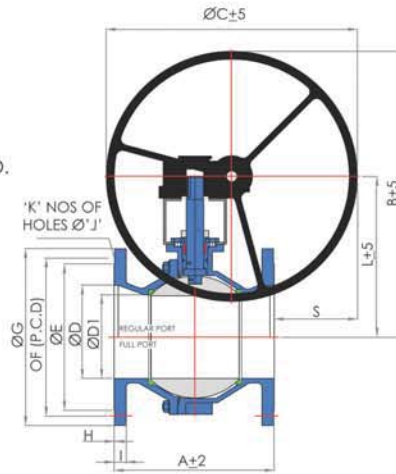
150 to 250MM Full Bore & Regular Bore 150 & 300 Class
150MM Full Bore 600 Class



'P' NOS. 'Q' TAP HOLES ON Ø'R' P.C.D.



ISO 5211 PAD DETAIL



'P' NOS. 'Q' TAP HOLES ON Ø'R' P.C.D.



ISO 5211 PAD DETAIL

ALL DIMENSIONS ARE IN MM		ISO PAD DETAILS												FLANGE DIMENSIONS								WEIGHT (KG)						
VALVE SIZE	A	B	C	Ø D	Ø D1	S	T	U	L	M	M1	Ø N	A/F N1	Ø O	P	Q	PCD ØR	ISO 5211	Ø E	PCD ØF	Ø G	H	I	Ø J	K	KG		
REGULAR BORE, 150 CLASS																												
150-LEVER	267	196	335	148	98	-	-	-	108	45.5	21.1	28.6	19.05	70	4	M10	102	F10	216	241.3	280	2	25.9	22.2	8	45		
150-GEAR	267	352	250	148	98	48	100	240	223	66.5	28	28.6	-	70	4	M10	102	F10	216	241.3	28	2	25.9	22.2	8	48.5		
200-LEVER	292	278	500	198	148	-	-	-	173	66.5	-	35	-	85	4	M12	125	F12	270	298.5	345	2	29	22.2	8	86		
200-GEAR	292	500	350	198	148	95.5	109	283	173	156	-	40	-	85	4	M12	125	F12	270	298.5	345	2	29	22.2	8	91		
250-GEAR	330	685	600	254	198	164	129	332	232	DIMENSIONS WILL BE FURNISHED ON REQUEST								326	362	405	2	30.6	25.4	12	178			
FULL BORE, 150 CLASS																												
150-LEVER	267	278	560	148	148	-	-	-	173	66.5	-	35	22.2	85	4	M12	125	F12	215.9	241.3	280	2	25.9	22.2	8	54		
150-GEAR	267	500	350	148	148	121.5	143	283	325	156	-	30	-	85	4	M12	125	F12	215.9	241.3	280	2	25.9	22.2	8	59		
200-GEAR	292	685	600	203	203	239	160	332	385	DIMENSIONS WILL BE FURNISHED ON REQUEST								269.9	298.5	345	2	29	22.2	8	120			
250-GEAR	533	690	500	254	254	102.5	152	355	450.5	DIMENSIONS WILL BE FURNISHED ON REQUEST								323.8	362	405	2	30.6	25.4	12	218			
REGULAR BORE, 300 CLASS																												
150-LEVER	403	196	335	98	98	-	-	-	108	45.5	21.2	28.57	19.05	70	4	M10	102	F10	216	270	320	2	36.5	22.2	12	73		
150-GEAR	403	352	250	148	98	-	81	240	223	120	45	28.5	-	70	4	M10	102	F10	216	270	320	2	36.5	22.2	12	76		
200-LEVER	419	278	500	148	148	-	-	-	173	66.4	28	35	22.2	70	4	M10	102	F10	270	330	380	2	41.7	25.4	12	152		
200-GEAR	419	500	350	203	148	32	93	283	385	156	50	30	-	85	4	M12	125	F12	270	330	380	2	41.7	25.4	12	157		
250-GEAR	457	685	600	254	198	-	159	332	450.5	163	55	40	DIMENSIONS WILL BE FURNISHED ON REQUEST								326	387.5	445	2	48.1	28.5	16	260
FULL BORE, 300 CLASS																												
150-LEVER	403	278	560	148	148	-	-	-	173	66.4	39.4	35	22.2	85	4	M12	125	F12	215.9	270	320	2	36.5	22.2	12	92		
150-GEAR	403	500	350	148	148	40	124	283	325	66.5	28	35	22.2	85	4	M12	125	F12	215.9	270	320	2	36.5	22.2	12	95		
200-GEAR	419	685	-	203	203	175	141	332	385	168.7	55	40	DIMENSIONS WILL BE FURNISHED ON REQUEST								269.9	330	380	2	41.7	25.4	12	190
250-GEAR	568	690	500	254	254	-	133	355	405.5	195	92	40	DIMENSIONS WILL BE FURNISHED ON REQUEST								323.8	387.5	445	2	48.1	28.6	16	325
FULL BORE, 600 CLASS																												
150-GEAR	559	525	350	148	-	-	103	280	173	DIMENSIONS WILL BE FURNISHED ON REQUEST								215.9	292.1	355	7	54.7	28.6	12	126			