

INCOVAL SERIES 17

Two Piece Trunnion Ball Valves

ASME Class 150, 300, 600, 900, 1500



Leading the Industry with Innovation by Design

Series 17 Trunnion Ball Valves

Quality and performance you can count on!

Incoval Controls offers a wide range of Incoval Trunnion Ball Valves. Our designs are proven performers in the harshest of environments. The Incoval brand means Performance, Quality and Reliability you can count on.

All Incoval Ball Valves are manufactured and tested in conformance with API 6D specifications and are designed to meet our customers' demanding service conditions.

Most Incoval Ball Valves are designed to mount directly with Incoval Pneumatic and Electric Actuators. On some large sizes where direct mounting is not possible, pre-engineered mounting kits are available for close mounting. The valves are manufactured in a modern plant equipped with state-of-the-art facilities under a robust quality assurance program complying with ISO 9001-2000.

Incoval Valves and Incoval Pneumatic and Electric Actuators and accessories are marketed and sold worldwide by an experienced team of domestic and international representatives. Our sales offices work closely with the representatives to ensure that our customers' expectations are met and exceeded. A network of authorized distributors stock Incoval and Incoval products for immediate delivery to the oil, gas and industrial markets.

Our complete API 6D product offering includes flanged, butt weld, ring joint and threaded ends in floating ball and trunnion mounted ball designs. Sizes range from 2" to 12" in 150 to 1500 ASME classes. Contact Incoval Controls or Incoval Flow Controls to learn how one of the cost effective products can help provide solutions for your upstream wellheads and downstream production needs.



Design Features

Ball valves are straight-through flow valves which provide shutoff with minimal pressure drop and flow turbulence. The barrier to flow is a ball which is rotated 90 degrees to the direction of the flow.

In trunnion mounted valves, the ball is held in a fixed axial position by upper and lower stems (trunnions) and can move only in a rotational mode. The seats are contained in metal carriers which are spring loaded against the ball. Line pressure applied to a closed valve increases the spring load on the upstream seat to effect a tight seal. The primary seating is therefore on the upstream seat permitting trunnion mounted ball valves to be used for "block and bleed" services

As the stem motion from full open to full close is 90 degree rotation, ball valves are ideally suited for automatic operation.

All Incoval Trunnion Ball Valves have a self-relieving seat design. When the body cavity pressure exceeds the downstream seat springs preloaded force, the differential force in the cavity area pushes the downstream seat away from the ball, the body cavity pressure will be relieved automatically. The seat then returns to the ball under spring loaded action.

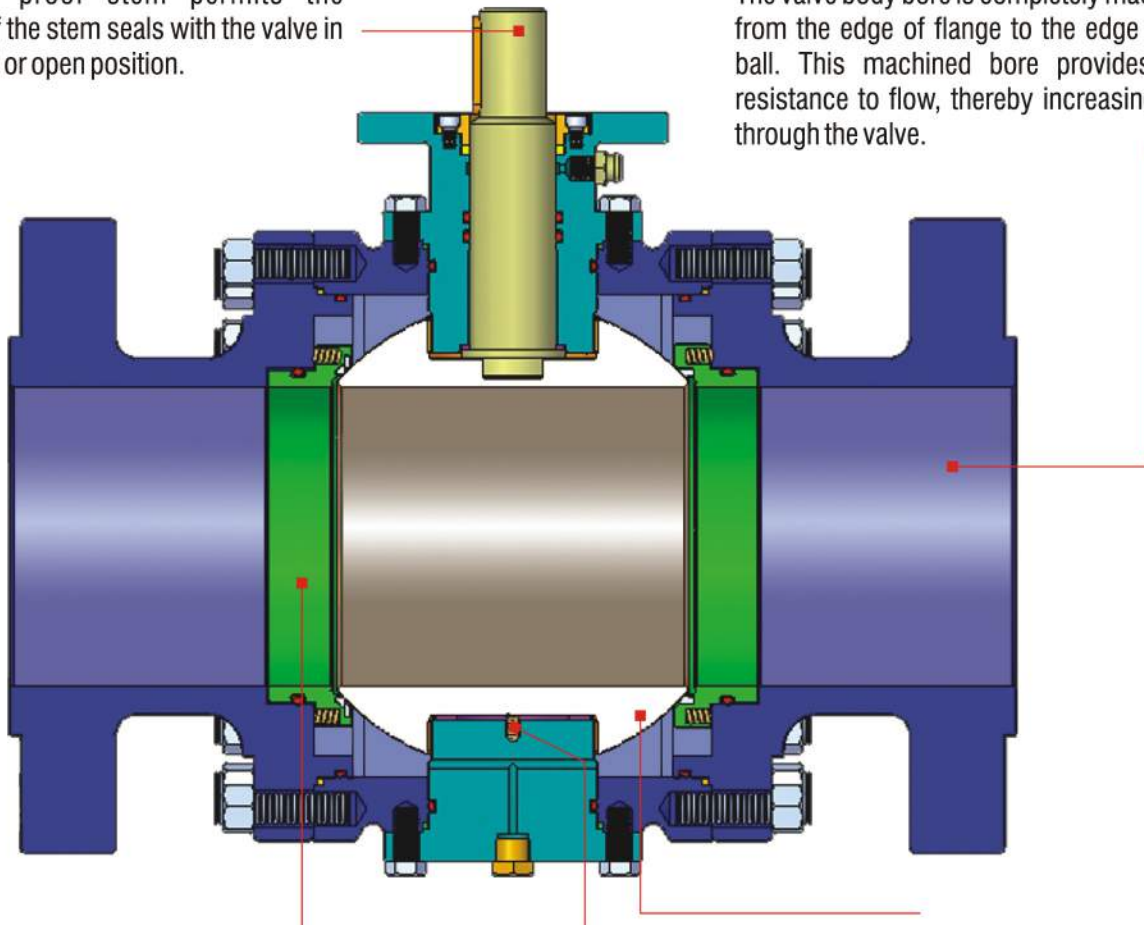
Incoval Trunnion Ball Valves comply with the design and testing requirements of ANSI B16.34 and API 6D. Installation dimensions comply with ANSI B16.10.

STEM

Anti-blowout proof stem permits the replacement of the stem seals with the valve in the fully closed or open position.

MACHINED VALVE BORE

The valve body bore is completely machined from the edge of flange to the edge of the ball. This machined bore provides less resistance to flow, thereby increasing flow through the valve.



FLOATING SEAT RING

Two independent floating seat rings assure the bi-directional tightness of the valve from zero differential pressure to the maximum rated pressure.

ANTI-STATIC DESIGN

All Incoval stems feature anti-static grounding device as standard. These devices ensure electrical continuity between valve ball, stem and body, thus eliminating the possibility of static electrical charges creating sparks within the valve.

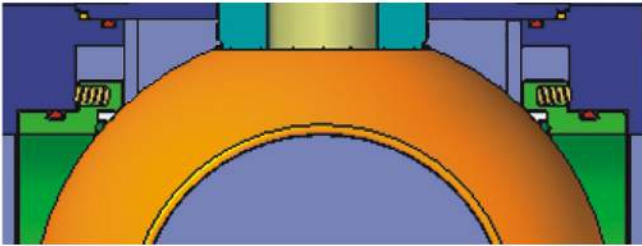
TRUNNION-MOUNTED BALL

The ball is supported and the seat rings are floating, free to move along the flow axis. As the pressure increases the fluid pressure pushes the seat rings against the ball.

SELF-RELIEVING SEAT DESIGN

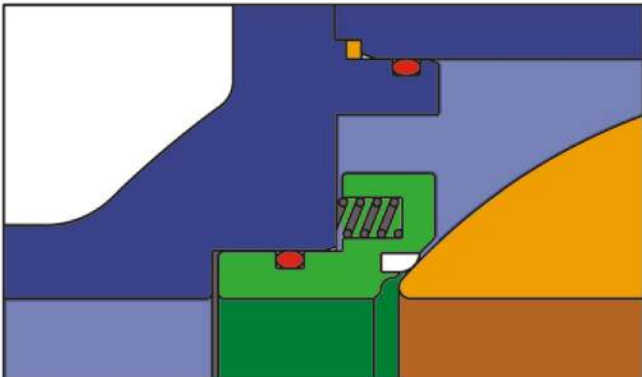
When the valve is in the closed position, media will be trapped in the body cavity. Unless this media is drained, it will be subjected to thermal expansion and contraction. As the temperature rises, the trapped media desires to expand and the pressure increases in the body cavity. In order to avoid excessive pressure build-up, the Incoval seats are designed to self-relieve, allowing the media in the body to escape in to the pipeline.

Design Features



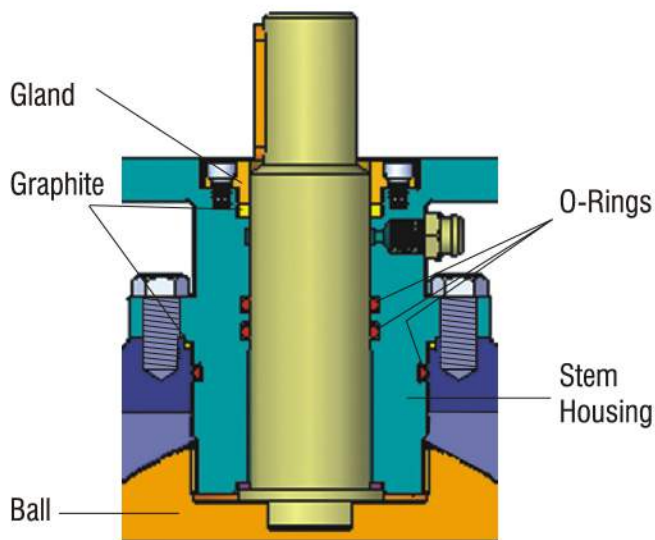
DOUBLE BLOCK AND BLEED

Spring loaded floating seats maintain contact with the ball and provide a tight shut off low pressure differential. Independent sealing of upstream and downstream sides facilitate draining of fluid from body cavity, and thus double block and bleed operation.



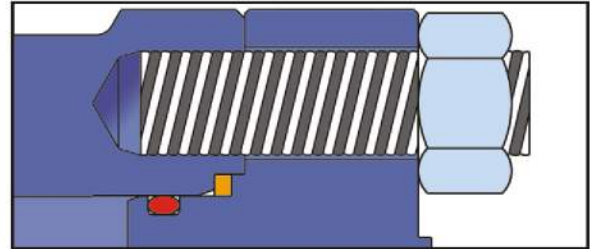
FIRE SAFE DESIGN

Incoval fire safe design consists of a primary soft sealing and a secondary metal seat. A resilient material is inserted into the metal seat holder to provide a soft action in addition to the metal sealing between the ball and the seat rings. In case of fire the soft seat insert burns and allows the spring loaded seat to insure metal to metal sealing against the ball.



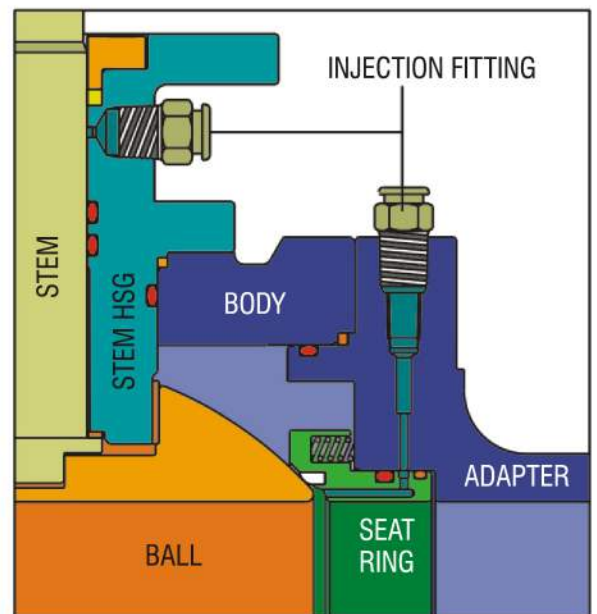
STEM SEALING

A triple stem sealing arrangement prevents leakage to the atmosphere. The unique arrangement consists of a double sealing arrangement with o-rings around the stem and stuffing gland. A graphite seal is also provided at the top of the stem housing.



BODY JOINTS

Double seal combination of o-ring and fire safe graphite ensures perfect body joint sealing. Incoval Trunnion Ball Valves meet or exceed the fugitive emission requirements across a wide range of pressure and temperature applications. Valves are suitable for both above and underground installations.



EMERGENCY SEAT AND STEM SEAL

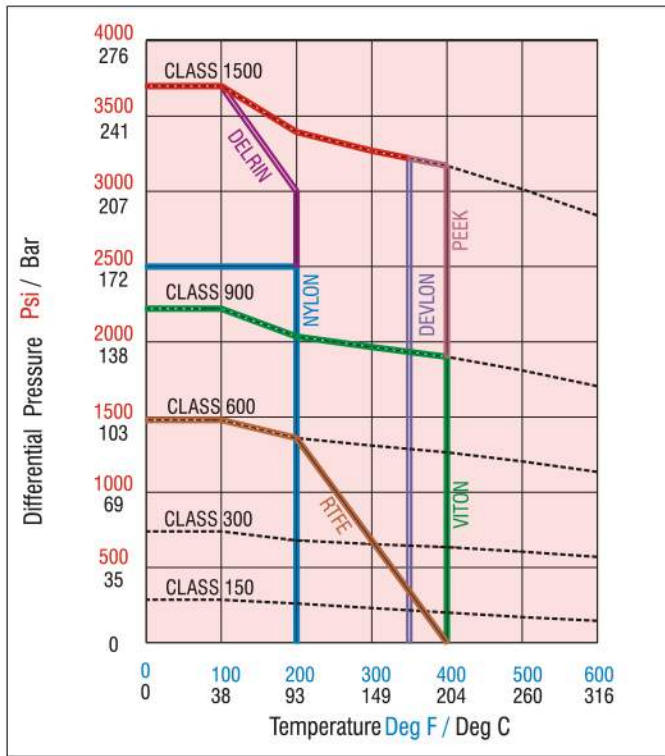
An emergency sealant injection system is available. Each Incoval Trunnion Ball Valve has a port for sealant injection feature.

Range

Size		Pressure Class				
Inch	DN	150	300	600	900	1500
2"	50	●	●	●	●	●
3"	80	●	●	●	●	●
4"	100	●	●	●	●	●
6"	150	●	●	●	●	●
8"	200	●	●	●	●	See Series 18
10"	250	●	●	●	●	
12"	300	●	●	●	●	

High Grade 2 mil (50 micron) ENP carbon steel stems and balls are standard.

Pressure Temperature Ratings & Torque Values



P.T. Ratings

Pressure - temperature seat ratings of valves are as given in the graph for body material ASTM A 216 - Gr. WCB. With the exception of body seat rings and primary soft seals, all valve components are capable of withstanding the pressure - temperature ratings as specified in ASME B 16.34, BS EN 12516 -1.

Temperature Limits :

		Lower limit		Upper limit	
		Deg.F	Deg.C	Deg.F	Deg.C
Body Matl.	WCB	-20	-29	1000	538
	LCB	-50	-46	650	343
	CF8	-425	-254	1500	816
	CF8M	-425	-254	1500	816
Seat	NYLON	-50	-46	200	93
	DEVLON	-50	-46	347	175
	VITON	-18	-23	400	204
	PEEK	-50	-46	400	204
	RTFE	-50	-46	400	204
	DELRIN	14	-10	200	93

Note : These ratings are a guide for general service.
Please consult Incoval for specific recommendations

Torque Values (Nm / In-lbs.)

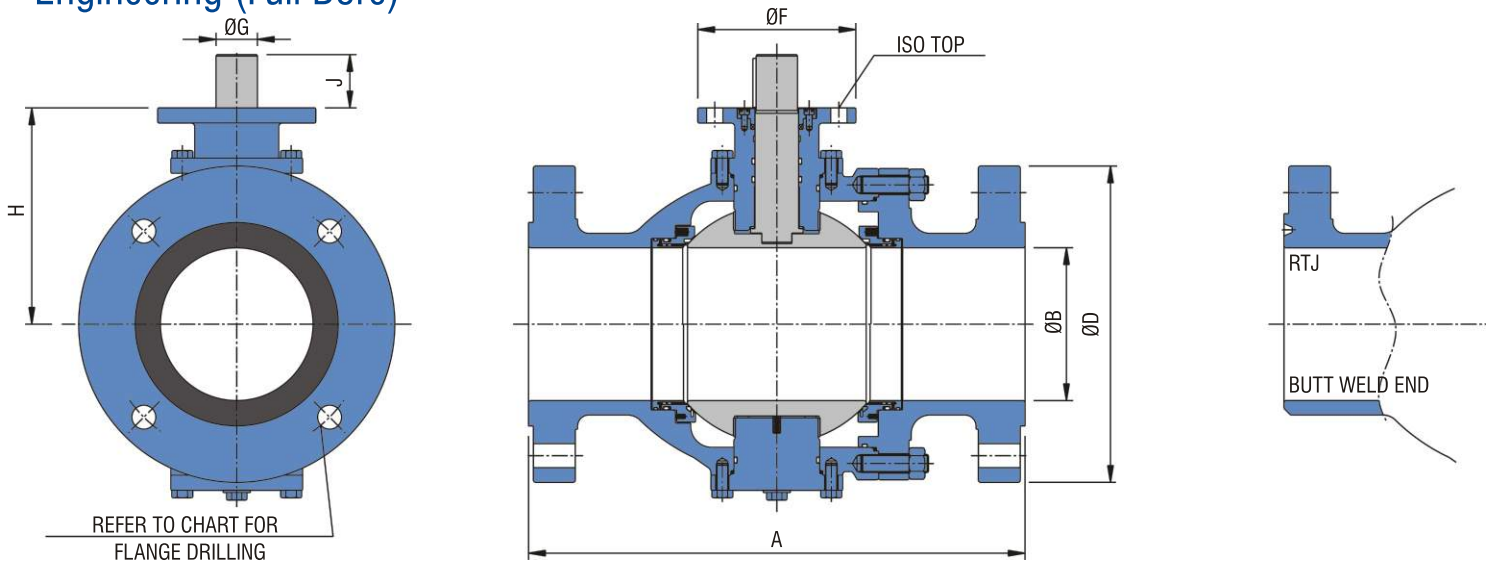
SIZE		TORQUE TYPE	PRESSURE CLASS									
			150		300		600		900		1500	
			Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs
2"	50	BTO	68	602	84	743	108	956	133	1177	281	2487
		ETC	54	478	67	593	87	770	106	938	225	1991
3"	80	BTO	168	1487	234	2071	316	2797	427	3779	593	5248
		ETC	135	1195	187	1655	253	2239	342	3027	474	4195
4"	100	BTO	272	2407	359	3177	460	4071	599	5302	922	8160
		ETC	218	1929	287	2540	368	3257	479	4239	737	6523
6"	150	BTO	468	4142	745	6594	1193	10559	1639	14506	2541	22490
		ETC	374	3310	596	5275	953	8435	1311	11603	2033	17994
8"	200	BTO	871	7709	1382	12232	2392	21170	3289	29110	See Series 18	
		ETC	698	6178	1105	9780	1914	16940	2632	23295		
10"	250	BTO	1177	10417	1823	16135	3105	27482	4234	37474		
		ETC	942	8337	1445	12789	2459	21764	3387	29977		
12"	300	BTO	1467	12984	2208	19542	3687	32633	5442	48166		
		ETC	1174	10391	1766	15630	2949	26101	4354	38536		

Note :-

Torque Break to open - When the valve is closed and under pressure, required torque to open the valve.

Torque End to close - When the valve is about to close, torque at that position.

Engineering (Full Bore)



SERIES 17A, FB CLASS 150

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	51	178	191	216	140	125	102	12	4	20	30	6x6	150	120.7	19	4	11
3"	80	76	203	216	282	190	150	125	14	4	30	45	8x7	190	152.4	19	4	25
4"	100	102	229	241	305	200	210	165	22	4	40	60	12x8	230	190.5	19	8	36
6"	150	152	394	406	457	232	210	165	22	4	45	65	14x9	280	241.3	22.2	8	130
8"	200	203	457	470	521	265	210	165	22	4	45	65	14x9	345	298.5	22.2	8	205
10"	250	254	533	546	559	330	300	254	18	8	45	65	14x9	405	362	25.4	12	285
12"	300	305	610	622	635	400	300	254	18	8	55	70	16x10	485	431.8	25.4	12	370

SERIES 17B, FB CLASS 300

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	51	216	232	216	140	125	102	12	4	25	40	8x7	165	127	19	8	14
3"	80	76	282	298	282	190	150	125	14	4	30	45	8x7	210	168.3	22.2	8	37
4"	100	102	305	321	305	200	210	165	22	4	40	60	12x8	255	200	22.2	8	52
6"	150	152	403	419	457	240	210	165	22	4	45	70	14x9	320	269.9	22.2	12	145
8"	200	203	502	518	521	290	210	165	22	4	45	70	14x9	380	330.2	25.4	12	240
10"	250	254	568	584	559	330	300	254	18	8	45	70	14x9	445	387.4	28.5	16	360
12"	300	305	648	664	635	365	300	254	18	8	55	70	16x10	520	450.8	31.8	16	440

Dimensions (mm)

SERIES 17C, FB CLASS 600

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	51	292	295	292	138	125	102	12	4	25	40	8x7	165	127	19	8	25
3"	80	76	356	359	356	190	150	125	14	4	40	60	12x8	210	168.3	22.2	8	65
4"	100	102	432	435	432	197	210	165	22	4	40	60	14x9	275	215.9	25.4	8	97
6"	150	152	559	562	559	238	210	165	22	4	45	70	14x9	355	292.1	28.5	12	210
8"	200	203	660	664	660	287	210	165	22	4	55	70	16x10	420	349.2	31.8	12	460
10"	250	254	787	791	787	360	300	254	18	8	63.5	102	15.88x15.88	510	431.8	35	16	785
12"	300	305	838	841	838	400	350	298	22	8	76.2	102	19.05x19.05	560	489	35	20	845

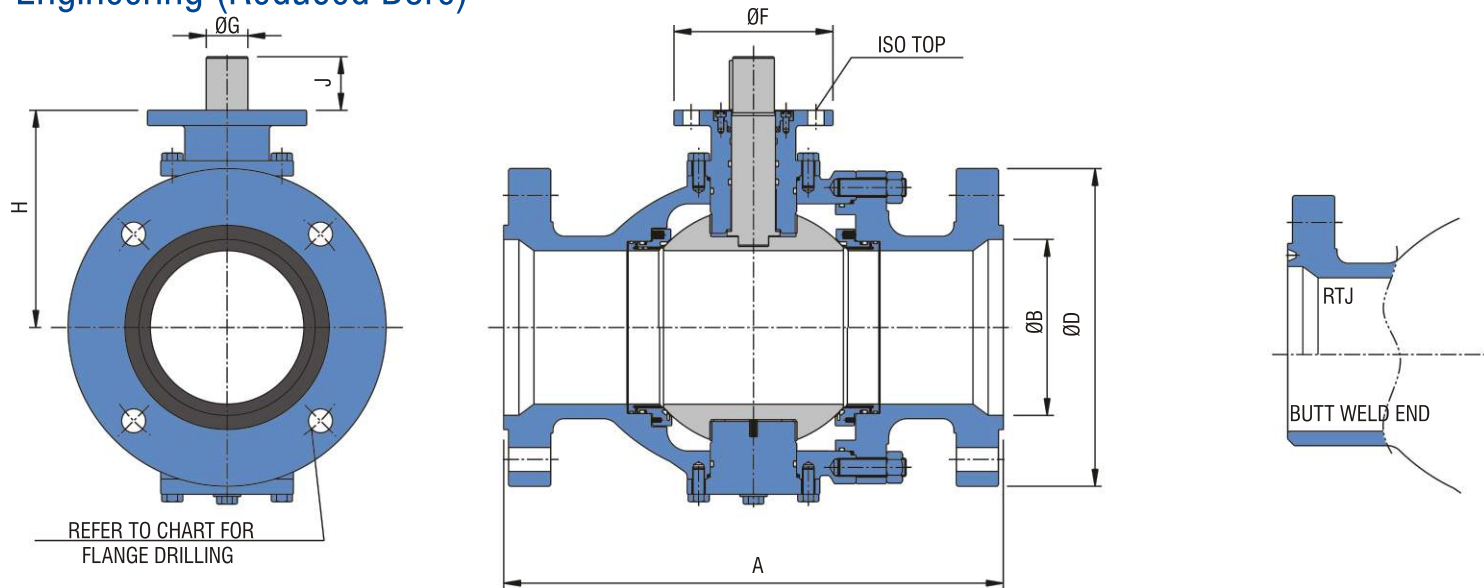
SERIES 17D, FB CLASS 900

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	51	368	371	368	150	125	102	12	4	30	45	8x7	215	165.1	25.4	8	55
3"	80	76	381	384	381	200	150	125	14	4	45	70	14x9	240	190.5	25.4	8	85
4"	100	102	457	460	457	215	210	165	22	4	45	70	14x9	290	235	31.8	8	127
6"	150	152	610	613	610	255	210	165	22	4	55	70	16x10	380	317.5	31.8	12	284
8"	200	203	737	740	737	300	300	254	18	8	55	70	16x10	470	393.7	38.1	12	400
10"	250	254	838	841	838	360	300	254	18	8	76.2	102	19.05x19.05	545	469.9	38.1	16	845
12"	300	305	965	968	965	400	350	298	22	8	76.2	102	19.05x19.05	610	533.4	38.1	20	1115

SERIES 17E, FB CLASS 1500

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	51	368	371	368	175	125	102	12	4	30	45	8x7	215	165.1	25.4	8	55
3"	80	76	470	473	470	225	150	125	14	4	45	70	14x9	265	203.2	31.8	8	110
4"	100	102	546	559	546	250	210	165	22	4	45	70	14x9	310	241.3	35	8	165
6"	150	152	705	711	705	280	210	165	22	4	55	70	16x10	395	317.5	38.1	12	565

Engineering (Reduced Bore)



SERIES 17A, RB CLASS 150

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
3"x2"	80x50	76	203	216	282	140	125	102	12	4	20	30	6x6	190	152.4	19	4	20
4"x3"	100x80	102	229	241	305	190	150	125	14	4	30	45	8x7	230	190.5	19	8	45
6"x4"	150x100	152	394	406	457	200	210	165	22	4	40	60	12x8	280	241.3	22.2	8	70
8"x6"	200x150	203	457	470	521	232	210	165	22	4	45	65	14x9	345	298.5	22.2	8	170
10"x8"	250x200	254	533	546	559	265	210	165	22	4	45	65	14x9	405	362	25.4	12	255
12"x10"	300x250	305	610	622	635	330	300	254	18	8	45	65	14x9	485	431.8	25.4	12	335

SERIES 17B, RB CLASS 300

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
3"x2"	80x50	76	282	298	282	140	125	102	12	4	25	40	8x7	210	168.3	22.2	8	22
4"x3"	100x80	102	305	321	305	190	150	125	14	4	30	45	8x7	255	200	22.2	8	55
6"x4"	150x100	152	403	419	457	200	210	165	22	4	40	60	12x8	320	269.9	22.2	12	100
8"x6"	200x150	203	502	518	521	240	210	165	22	4	45	70	14x9	380	330.2	25.4	12	185
10"x8"	250x200	254	568	584	559	290	210	165	22	4	45	70	14x9	445	387.4	28.5	16	295
12"x10"	300x250	305	648	664	635	330	300	254	18	8	45	70	14x9	520	450.8	31.8	16	440

SERIES 17C, RB CLASS 600

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	51	292	295	292	120	125	70/102	10/12	4	20	30	6x6	165	127	19	8	22
3"x2"	80x50	76	356	359	356	138	125	102	12	4	25	40	8x7	210	168.3	22.2	8	45
4"x3"	100x80	102	432	435	432	190	150	125	14	4	40	60	12x8	275	215.9	25.4	8	88
6"x4"	150x100	152	559	562	559	197	210	165	22	4	40	60	14x9	355	292.1	28.5	12	133
8"x6"	200x150	203	660	664	660	238	210	165	22	4	45	70	14x9	420	349.2	31.8	12	304
10"x8"	250x200	254	787	791	787	287	210	165	22	4	55	70	16x10	510	431.8	35	16	605
12"x10"	300x250	305	838	841	838	360	300	254	18	8	63.5	102	15.88x15.88	560	489	35	20	985

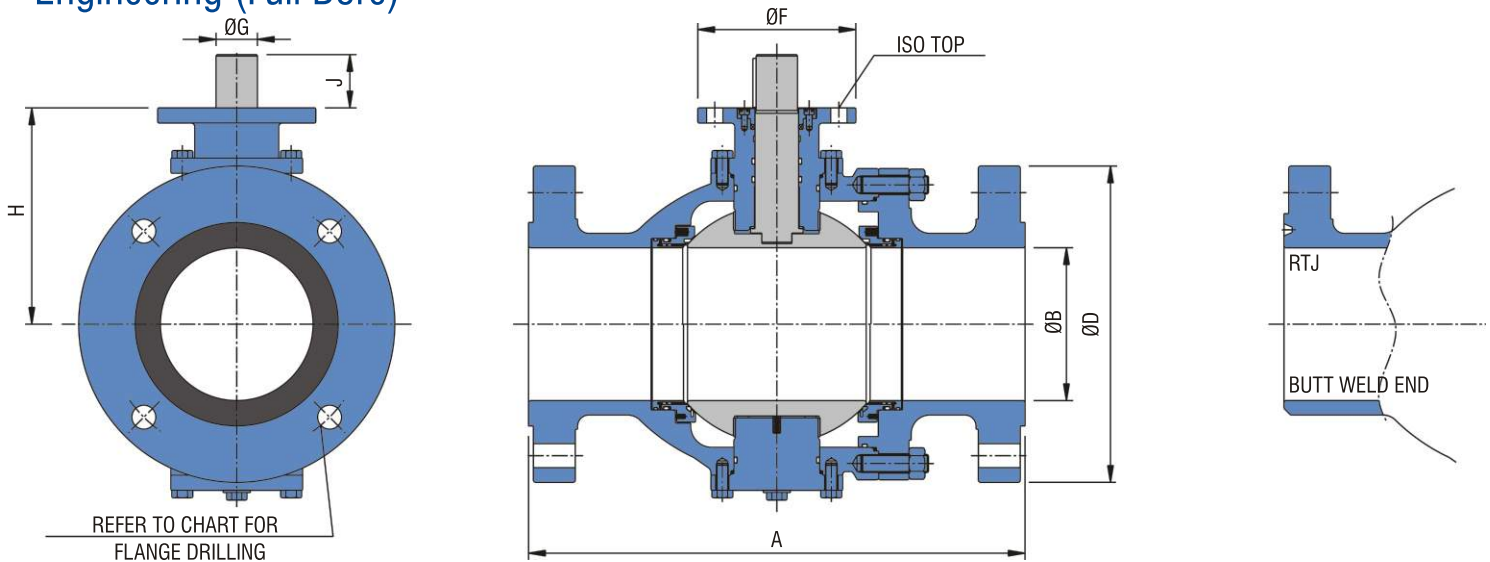
SERIES 17D, RB CLASS 900

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	51	368	371	368	145	125	102	12	4	25	40	6x6	215	165.1	25.4	8	36
3"x2"	80x50	76	381	384	381	150	125	102	12	4	30	45	8x7	240	190.5	25.4	8	65
4"x3"	100x80	102	457	460	457	200	150	125	14	4	45	70	14x9	290	235	31.8	8	115
6"x4"	150x100	152	610	613	610	215	210	165	22	4	45	70	14x9	380	317.5	31.8	12	170
8"x6"	200x150	203	737	740	737	255	210	165	22	4	55	70	16x10	470	393.7	38.1	12	348
10"x8"	250x200	254	838	841	838	300	300	254	18	8	55	70	16x10	545	469.9	38.1	16	785
12"x10"	300x250	305	965	968	965	360	300	254	18	8	76.2	102	19.05x19.05	610	533.4	38.1	20	990

SERIES 17E, RB CLASS 1500

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Kg)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	51	368	371	368	145	125	102	12	4	25	40	8x7	215	165.1	25.4	8	48
3"x2"	80x50	76	470	473	470	175	125	102	12	4	30	45	8x7	265	203.2	31.8	8	80
4"x3"	100x80	102	546	559	546	225	150	125	14	4	45	70	14x9	310	241.3	35	8	150
6"x4"	150x100	152	705	711	705	250	210	165	22	4	45	70	14x9	395	317.5	38.1	12	280

Engineering (Full Bore)



SERIES 17A, FB CLASS 150

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	2.00	7.00	7.50	8.50	5.51	4.92	4.01	0.47	4	0.787	1.18	0.23x0.23	6.00	4.75	0.75	4	25
3"	80	3.00	8.00	8.50	11.12	7.48	5.90	4.92	0.55	4	1.181	1.77	0.31x0.27	7.5	6.00	0.75	4	55
4"	100	4.00	9.00	9.50	12.00	7.87	8.27	6.50	0.87	4	1.574	2.36	0.47x0.31	9.00	7.50	0.75	8	80
6"	150	5.98	15.50	16.00	18.00	9.13	8.27	6.50	0.87	4	1.772	2.55	0.55x0.35	11.00	9.50	0.875	8	286
8"	200	7.99	18.00	18.50	20.50	10.43	8.27	6.50	0.87	4	1.772	2.55	0.55x0.35	13.50	11.75	0.875	8	451
10"	250	10.00	21.00	21.50	22.00	13.00	11.81	10.00	0.70	8	1.772	2.55	0.55x0.35	16.00	14.25	1.00	12	627
12"	300	12.00	24.00	24.50	25.00	15.75	11.81	10.00	0.70	8	2.165	2.76	0.63x0.39	19.00	17.00	1.00	12	814

SERIES 17B, FB CLASS 300

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	2.00	8.50	9.12	8.50	5.51	4.92	4.01	0.47	4	0.984	1.57	0.31x0.27	6.50	5.00	0.75	8	31
3"	80	3.00	11.12	11.74	11.12	7.48	5.90	4.92	0.55	4	1.181	1.77	0.31x0.27	8.25	6.62	0.875	8	82
4"	100	4.00	12.00	12.62	12.00	7.87	8.27	6.50	0.87	4	1.574	2.36	0.47x0.31	10.00	7.88	0.875	8	115
6"	150	5.98	15.88	16.50	18.00	9.44	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	12.50	10.62	0.875	12	319
8"	200	7.99	19.75	20.37	20.50	11.41	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	15.00	13.00	1.00	12	528
10"	250	10.00	22.38	23.00	22.00	13.00	11.81	10.00	0.70	8	1.772	2.76	0.55x0.35	17.50	15.25	1.125	16	792
12"	300	12.00	25.50	26.12	25.00	14.37	11.81	10.00	0.70	8	2.165	2.76	0.63x0.39	20.50	17.75	1.25	16	968

Dimensions (Inch)

SERIES 17C, FB CLASS 600

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	2.00	11.50	11.61	11.50	5.43	4.92	4.01	0.47	4	0.984	1.57	0.31x0.27	6.50	5.00	0.75	8	55
3"	80	3.00	14.00	14.13	14.00	7.48	5.90	4.92	0.55	4	1.574	2.36	0.47x0.31	8.25	6.62	0.875	8	143
4"	100	4.00	17.00	17.13	17.00	7.76	8.27	6.50	0.87	4	1.574	2.36	0.55x0.35	10.75	8.50	1.00	8	214
6"	150	5.98	22.00	22.13	22.00	9.37	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	14.00	11.50	1.12	12	462
8"	200	7.99	26.00	26.14	26.00	11.30	8.27	6.50	0.87	4	2.165	2.76	0.63x0.39	16.50	13.75	1.25	12	1012
10"	250	10.00	31.00	31.14	31.00	14.17	11.81	10.00	0.70	8	2.500	4.00	0.62x0.62	20.00	17.00	1.38	16	1727
12"	300	12.00	33.00	33.11	33.00	15.75	13.77	11.73	0.87	8	3.000	4.00	0.75x0.75	22.00	19.25	1.38	20	1859

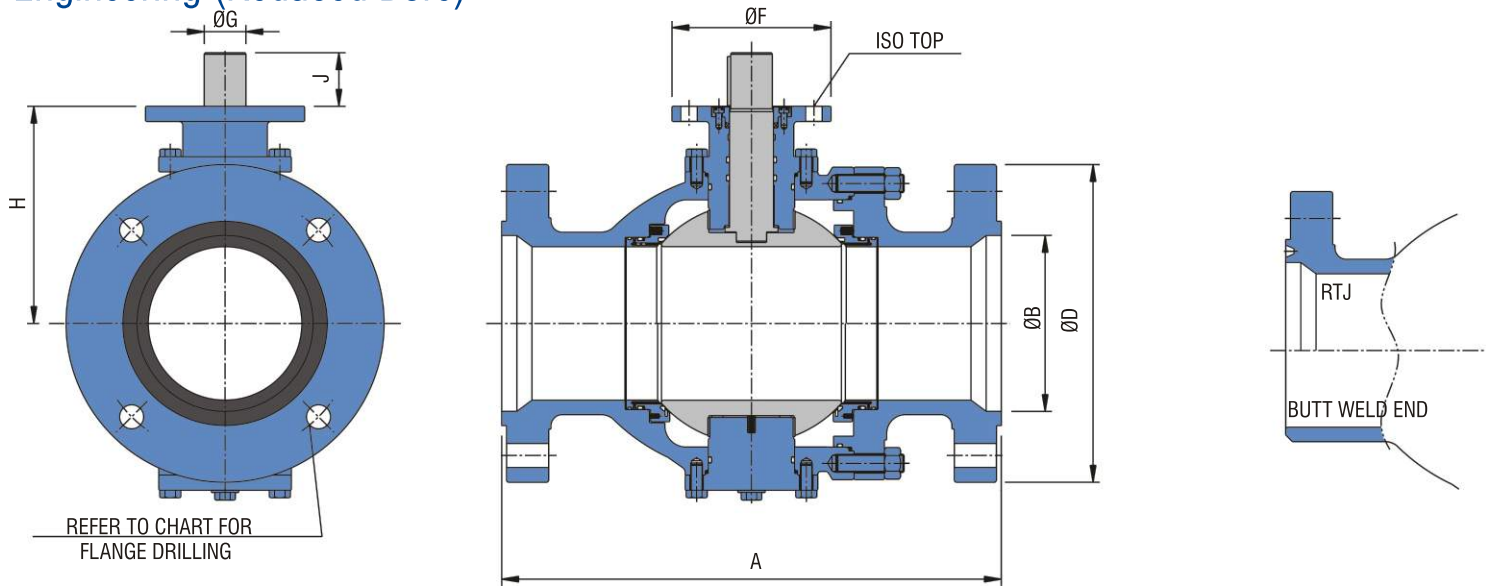
SERIES 17D, FB CLASS 900

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	2.00	14.50	14.61	14.50	5.90	4.92	4.01	0.47	4	1.181	1.77	0.31x0.27	8.50	6.50	1.00	8	121
3"	80	3.00	15.00	15.12	15.00	7.87	5.90	4.92	0.55	4	1.772	2.76	0.55x0.35	9.50	7.50	1.00	8	187
4"	100	4.00	18.00	18.11	18.00	8.46	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	11.50	9.25	1.25	8	280
6"	150	5.98	24.00	24.13	24.00	10.00	8.27	6.50	0.87	4	2.165	2.76	0.63x0.39	15.00	12.50	1.25	12	625
8"	200	7.99	29.00	29.13	29.00	11.81	11.81	10.00	0.70	8	2.165	2.76	0.63x0.39	18.50	15.50	1.50	12	880
10"	250	10.00	33.00	33.11	33.00	14.17	11.81	10.00	0.70	8	3.000	4.00	0.75x0.75	21.50	18.50	1.50	16	1859
12"	300	12.00	38.00	38.11	38.00	15.75	13.77	11.73	0.87	8	3.000	4.00	0.75x0.75	24.00	21.00	1.50	20	2453

SERIES 17E, FB CLASS 1500

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"	50	2.00	14.50	14.61	14.50	6.88	4.92	4.01	0.47	4	1.181	1.77	0.31x0.27	8.50	6.50	1.00	8	121
3"	80	3.00	18.50	18.62	18.50	8.85	5.90	4.92	0.55	4	1.772	2.76	0.55x0.35	10.50	8.00	1.25	8	242
4"	100	4.00	21.50	21.61	21.50	9.84	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	12.25	9.50	1.375	8	363
6"	150	5.98	27.75	27.99	27.75	11.02	8.27	6.50	0.87	4	2.165	2.76	0.63x0.39	15.50	12.50	1.50	12	1243

Engineering (Reduced Bore)



SERIES 17A, RB CLASS 150

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
3"x2"	80x50	3.00	8.00	8.50	11.12	5.51	4.92	4.01	0.47	4	0.787	1.18	0.23x0.23	7.5	6.00	0.75	4	44
4"x3"	100x80	4.00	9.00	9.50	12.00	7.48	5.90	4.92	0.55	4	1.181	1.77	0.31x0.27	9.00	7.50	0.75	8	99
6"x4"	150x100	5.98	15.50	16.00	18.00	7.87	8.27	6.50	0.87	4	1.574	2.36	0.47x0.31	11.00	9.50	0.875	8	154
8"x6"	200x150	7.99	18.00	18.50	20.50	9.13	8.27	6.50	0.87	4	1.772	2.55	0.55x0.35	13.50	11.75	0.875	8	374
10"x8"	250x200	10.00	21.00	21.50	22.00	10.43	8.27	6.50	0.87	4	1.772	2.55	0.55x0.35	16.00	14.25	1.00	12	561
12"x10"	300x250	12.00	24.00	24.50	25.00	13.00	11.81	10.00	0.70	8	1.772	2.55	0.55x0.35	19.00	17.00	1.00	12	737

SERIES 17B, RB CLASS 300

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
3"x2"	80x50	3.00	11.12	11.74	11.12	5.51	4.92	4.01	0.47	4	0.984	1.57	0.31x0.27	6.50	6.62	0.875	8	49
4"x3"	100x80	4.00	12.00	12.62	12.00	7.48	5.90	4.92	0.55	4	1.181	1.77	0.31x0.27	8.25	7.88	0.875	8	121
6"x4"	150x100	5.98	15.88	16.50	18.00	7.87	8.27	6.50	0.87	4	1.574	2.36	0.47x0.31	10.00	10.62	0.875	12	220
8"x6"	200x150	7.99	19.75	20.37	20.50	9.44	8.27	6.50	0.87	4	1.772	2.75	0.55x0.35	12.50	13.00	1.00	12	407
10"x8"	250x200	10.00	22.38	23.00	22.00	11.41	8.27	6.50	0.87	4	1.772	2.75	0.55x0.35	15.00	15.25	1.125	16	649
12"x10"	300x250	12.00	25.50	26.12	25.00	13.00	11.81	10.00	0.70	8	1.772	2.75	0.55x0.35	17.50	17.75	1.25	16	968

Dimensions (Inch)

SERIES 17C, RB CLASS 600

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	2.00	11.50	11.61	11.50	4.72	4.92	2.75/4.01	0.40/0.47	4	0.787	1.18	0.23x0.23	6.50	5.00	0.75	8	48
3"x2"	80x50	3.00	14.00	14.13	14.00	5.43	4.92	4.01	0.47	4	0.984	1.57	0.31x0.27	8.25	6.62	0.875	8	99
4"x3"	100x80	4.00	17.00	17.12	17.00	7.48	5.90	4.92	0.55	4	1.574	2.36	0.47x0.31	10.75	8.50	1.00	8	194
6"x4"	150x100	5.98	22.00	22.12	22.00	7.76	8.27	6.50	0.87	4	1.574	2.36	0.55x0.35	14.00	11.50	1.12	12	293
8"x6"	200x150	7.99	26.00	26.10	26.00	9.37	8.27	6.50	0.87	4	1.772	2.75	0.55x0.35	16.50	13.75	1.25	12	669
10"x8"	250x200	10.00	31.00	31.10	31.00	11.30	8.27	6.50	0.87	4	2.165	2.75	0.63x0.39	20.00	17.00	1.38	16	1331
12"x10"	300x250	12.00	33.00	33.11	33.00	14.17	11.81	10.00	0.70	8	2.500	4.00	0.62x0.62	22.00	19.25	1.38	20	2167

SERIES 17D, RB CLASS 900

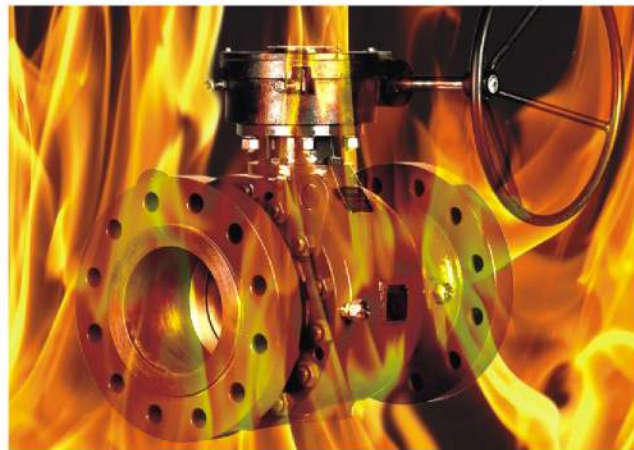
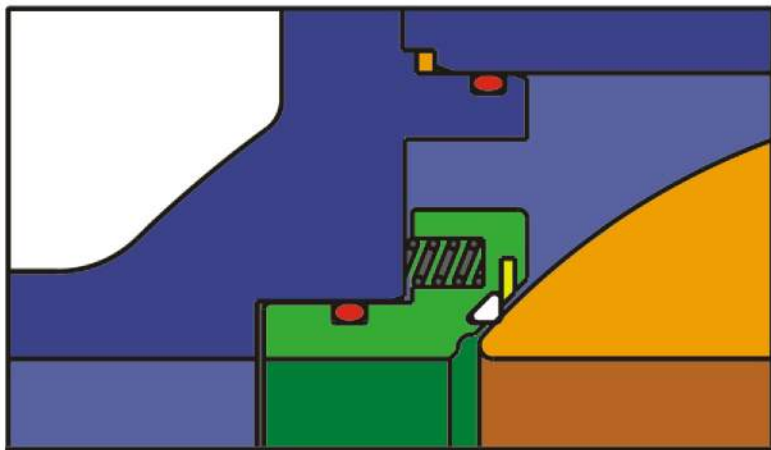
Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	2.00	14.48	14.60	14.48	4.72	4.92	2.75/4.01	0.40/0.47	4	0.787	1.18	0.23x0.23	8.50	6.50	1.00	8	80
3"x2"	80x50	3.00	15.00	15.11	15.00	5.90	4.92	4.01	0.47	4	1.181	1.77	0.31x0.27	9.50	7.50	1.00	8	143
4"x3"	100x80	4.00	18.00	18.11	18.00	7.87	5.90	4.92	0.55	4	1.772	2.76	0.55x0.35	11.50	9.25	1.25	8	253
6"x4"	150x100	5.98	24.00	24.13	24.00	8.46	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	15.00	12.50	1.25	12	374
8"x6"	200x150	7.99	29.00	29.13	29.00	10.00	8.27	6.50	0.87	4	2.165	2.76	0.63x0.39	18.50	15.50	1.50	12	765
10"x8"	250x200	10.00	33.00	33.11	33.00	11.81	11.81	10.00	0.70	8	2.165	2.76	0.63x0.39	21.50	18.50	1.50	16	1727
12"x10"	300x250	12.00	38.00	38.11	38.00	14.17	11.81	10.00	0.70	8	3.000	4.00	0.75x0.75	24.00	21.00	1.50	20	2178

SERIES 17E, RB CLASS 1500

Valve Size		$\varnothing B$	A			H	$\varnothing F$	ISO TOP			$\varnothing G$	J	KEY SIZE	$\varnothing D$	FLANGE DRILLING			Wt. (Lbs)
INCH	DN		RF	RTJ	BWE			PCD	HOLE $\varnothing$	NOS					BC	HOLE $\varnothing$	NOS	
2"x1-1/2"	50x40	2.00	14.50	14.61	14.50	5.71	4.92	4.01	0.47	4	0.984	1.57	0.31x0.27	8.50	6.50	1.00	8	106
3"x2"	80x50	3.00	18.50	18.62	18.50	6.88	4.92	4.01	0.47	4	1.181	1.77	0.31x0.27	10.50	8.00	1.25	8	176
4"x3"	100x80	4.00	21.50	21.61	21.50	8.85	5.90	4.92	0.55	4	1.772	2.76	0.55x0.35	12.25	9.50	1.375	8	330
6"x4"	150x100	5.98	27.75	28.00	27.75	9.84	8.27	6.50	0.87	4	1.772	2.76	0.55x0.35	15.50	12.50	1.50	12	616

Standards

- ❖ **Design Standards** :- API 6D / ASME 16.34 / EN ISO 17292 (BS 5351)
- ❖ **Inspection & Testing** :- API 6D / API 598 / BS EN 12266-1 (BS6755 -I)
- ❖ **Flange Dimensions** :- ASME B 16.5 / MSS-SP - 44 / ASME B 16.1
- ❖ **Fire Safe Test** :- API 607 - ISO 10497 - 5 / API 6FA / BS EN 12266-2
- ❖ **Butt Weld Valve Ends** :- ASME B 16.25 / 31.3 / 31.4 / 31.5
- ❖ **Drain / Vent / Bypass** :- MSS SP 45 / API 6D
- ❖ **Face to Face** :- API 6D / ASME 16.10 / ISO 5752
- ❖ **Pressure Temperature** :- ASME B 16.34 / BS EN 12516 - I



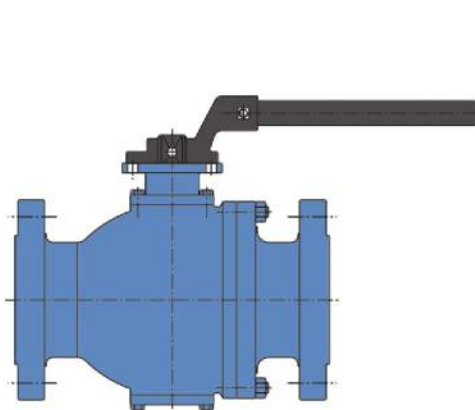
Fire Safe, Primary Metal Secondary Soft Seat

Primary metal secondary soft seat has a soft Viton (secondary seal) seat which gets compressed fully due to line pressure and the metal seat does the primary sealing. The secondary soft seal give a bubble tight seat sealing, which is not possible in metal seating. These valves are mostly for gas applications.

Fire Test

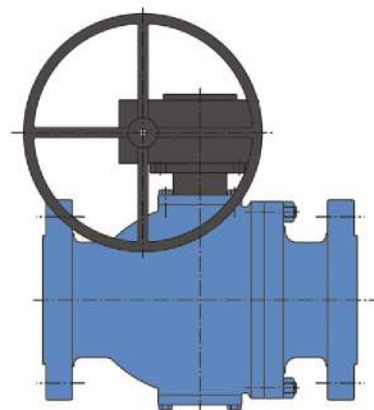
Ball valves have been designed to meet the requirements of API 607 - ISO 104975 / API 6 FA / BS EN 12266 - 2 . Fire safe tests have been witnessed and certified by DNV.

Operator



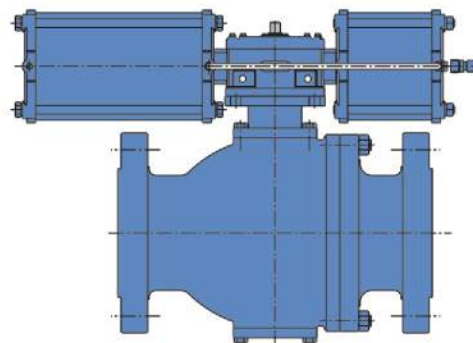
Lever Operated

For sizes 2" to 4"
Class 150/300/600
Standard scope of supply



Gear Operated

For sizes 6" to 12"
Standard scope of supply
Optional for sizes 3" & 4" Class 600



Actuator Operated

Incoval Trunnion Ball Valves sizes 2"-12" are designed to mount directly with Incoval Actuators.

On sizes where direct mounting is not feasible, pre-engineered brackets and coupling are available.

Material of Construction / Exploded View

❖ BODY / END CONNECTOR :-

A351 CF8M / A 351 CF3M / A 351 CF3 / A 351 CF8 / ASTM A216 WCB
A 352 LCB / A 352 LCC / A 217 CA15 / DUPLEX SS

❖ BALL :-

A 216 WCB / A351 CF8 / A 351 CF8M / A 351 CF3M
A 182 A105 / A 217 CA15 / DUPLEX SS

❖ STEM :-

A322 4140 / A479 SS304 / A 479 SS316 / A 479 SS316 /
A 479 SS410 / A 182 F51 / A 182 F316 / A 182 F304 / A 182 F316L

❖ SEAT :-

A182 A105 + ENP / A 182 F316 / A 182 F6A / DUPLEX SS

❖ SEAT INSERT :-

DEVLON / NYLON (PA12) / DELRIN / RPTFE / PEEK / PCTFE / CGFT / VITON

❖ STUD / BOLT :-

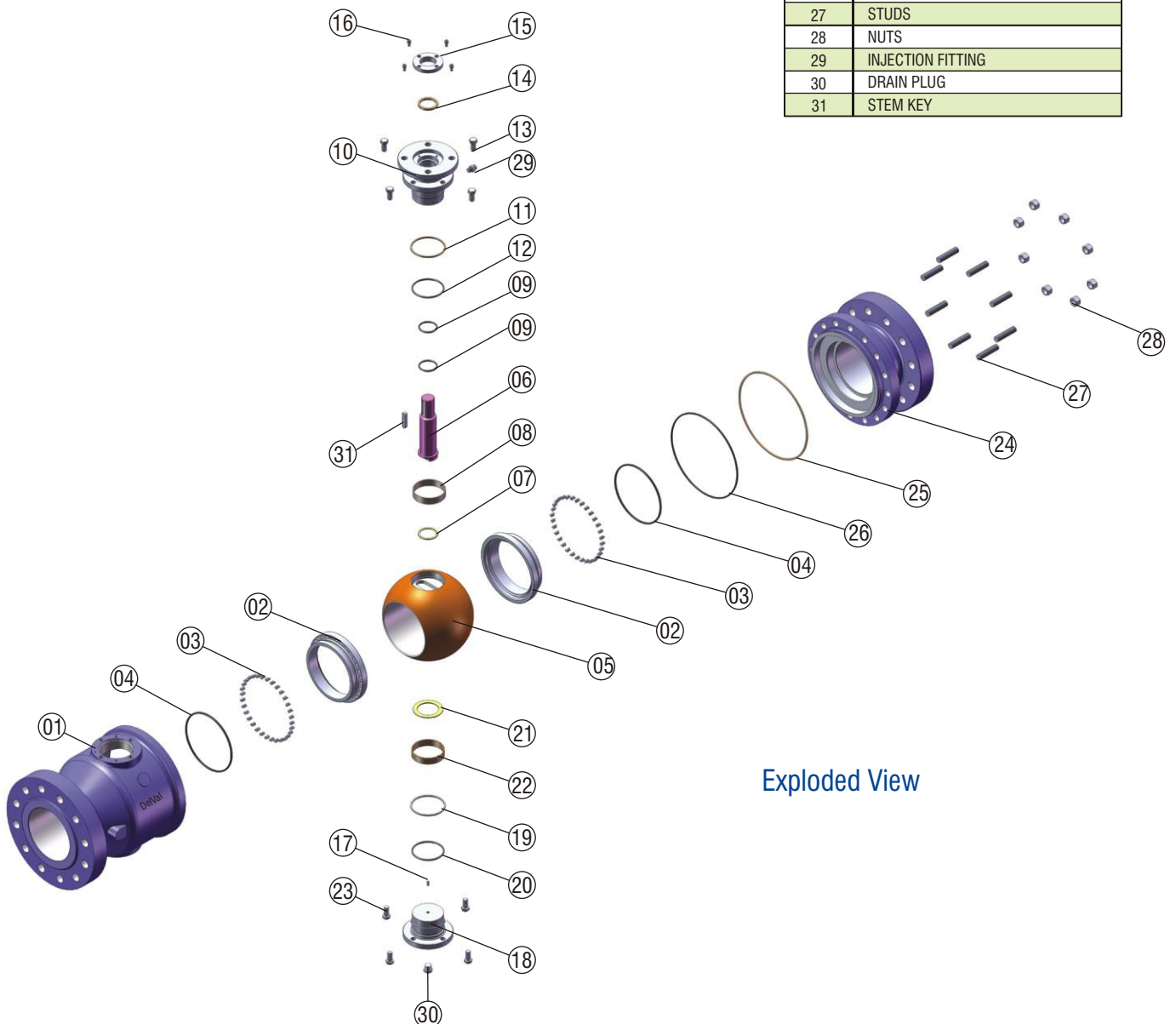
ASTM - A 193 B7 / A 193 B7M / A 193 B8M / B8 / ASTM A 320 L7, L7M

❖ NUT :-

A 194 2H / A 194 2HM / A 194 7M / A 194 8M

Part List

SR.NO	DESCRIPTION
01	BODY
02	SEAT + INSERT
03	SPRING (SEAT)
04	SEAT O-RING
05	BALL
06	STEM
07	THRUST WASHER (STEM)
08	STEM BEARING
09	STEM O-RING
10	STEM HOUSING
11	STEM HOUSING GASKET
12	STEM HOUSING O-RING
13	HEX BOLTS (STEM HOUSING)
14	STEM GASKET
15	GLAND
16	CAP SCREW (GLAND)
17	ANTISTATIC SPRING
18	TRUNNION
19	TRUNNION GASKET
20	TRUNNION O-RING
21	THRUST WASHER (TRUNNION)
22	TRUNNION BEARING
23	HEX BOLTS (TRUNNION)
24	END CONNECTOR
25	BODY GASKET (GRAPHITE)
26	END CONNECTOR O-RING
27	STUDS
28	NUTS
29	INJECTION FITTING
30	DRAIN PLUG
31	STEM KEY



Exploded View

How to Order Incoval Series 17 Ball Valves

TRIM / OTHER VARIABLES / SPECIAL

X	X	X	X	X	X	X	X	X	X	X
Series	Size	Bore Type	Body/Adaptor	Ball / Stem	Seat Ring	Seat	Seal	End Connections	Actuations	Options
17 A = Class 150 17 B = Class 300 17 C = Class 600 17 D = Class 900 17 E = Class 1500	02 = 50/2" 03 = 80/3" 04 = 100/4" 06 = 150/6" 08 = 200/8" 10 = 250/10" 12 = 300/12"	F = Full Bore R = Reduced Bore	01 = CS NACE 02 = 316 SS NACE 03 = Low Temp CS NACE	1 = CS NACE 2 = 316 SS NACE 3 = Low Temp CS NACE	1 = CS NACE 2 = 316 SS NACE	1 = RTFE 2 = Devlon 3 = Nylon PA12 4 = Delrin 5 = PEEK 6 = Viton	1 = Buna N (NBR) 2 = Viton (FKM) 3 = LT Buna N 4 = EPDM 5 = Aflas (400 F) 6 = PC Buna N 7 = Nitrile 8 = James Walker 9 = HNBR	6 = Flanged RF 7 = Flanged RTJ 8 = Butt Weld	A = Actuator B = Bare Stem E = Electric G = Gear Operator H = Handle	0 = None S = Special requirement as specified by customer

For Example : To order 150 / 6" Full Bore, Class 150, Body - WCB, Ball / Stem - SS316 (CF8M), Seat Ring - SS316, Buna Seals, Seat Devlon, Flanged Race Face, Gear Operated with no special requirements.

17 A 0 6 F 0 1 2 2 2 1 6 G 0

All statements, technical information and recommendations in the bulletin are for general use only. Incoval is not responsible for suitability or compatibility of these products in relation to system requirements. Consult Incoval distributors or factory for the specific requirements and material selection for your intended application. Incoval reserves the right to change or modify product design or product without prior notice. Incoval - Registered trademark of Incoval Controls.

Distributor