PROVIDING COMPLETE CONTROL
SOLUTIONS FOR
INDUSTRIAL PIPELINES

2 PC FLOATING BALL VALVE

API 6D, ASME CLASS 150 - 600#

FZV-Ref-2017. 03

FZV is a specialized supplier of API 6D, API 600, API 6A and API 16C valves and flow control components, including industrial valves and wellhead equipment.

FZV is approved by major oil and gas companies including: Shell, Vopak, CNPC, Sinopec, CNOOC, ENI, PDO, Petronas, KNPC, Sasol and Santos. Our approvals also include numerous EPC's in the oil & gas, power and mining sectors, such as Worley Parsons, Technip, Fluor, Samsung, Hyundai, JGC, and Chiyoda. We continue to work with our partners to expand our customer base due to unwavering commitment to our client needs. We strive to meet or exceed expectations. "Quality, excellence, unmatched service" is always the basis of our mission.

FZV is certified by ISO 9001, ISO 14001, OHSAS 18001, API Q1, API 6D, API 600, API 6A, ATEX, CE/PED, API 6A-PR2 and API 607.

Established in 1983, with manufacturing locations in Shanghai and Wenzhou, China, we continue to grow and have become a global leader in manufacturing high quality valves and wellhead equipment. We offer excellent customer service and excel at meeting our customers' expectations.

Growth is important to FZV, we have therefore established our own laboratory for research and development aimed at product design, innovation and validation. We have complete in house inspection facilities and test equipment to ensure that all products are of the highest quality. FZV in-house test capability includes mechanical: tensile, impact and hardness testing; NDE: PT, MT, UT; chemical: PMI; fugitive emissions; and shell type acceptance test (TAT). We simulate various tests in critical and crucial working conditions to verify product performance.

FLOATING VALVE CATALOG INDEX

The FZV series of 2 piece floating ball valves have been engineered to meet both general service and heavy duty applications including petroleum, petro-chemical, and industrial. Valves are designed in accordance with API 6D and CSA Z245.15, they are available in a variety of configurations and materials to meet your specific operational needs. Combined with our 24/36 month extended warranty, FZV valves not only meet but exceed industry standards.

FEATURES

- Unique Seat Design

  Wide flexible seat provides positive seal in both low and high pressure conditions.

  Self-relieving seat is standard and is designed and tested to provide automatic internal cavity relief.

  Standard seat is RPTFE in Class 150 and 300. Devlon V API in Class 600. (Other materials are available on request).

- Firesafe Designed and Tested

  In the event of a fire, the ball will be forced to the downstream machined metal lip and create a metal-to-metal seat seal. The graphite body seal and graphite stem seal provide a positive seal even after a fire.

- Blowout Proof Stem

  The stem is inserted during assembly from the inside of the bore and a shoulder on the stem ensures positive stem retention.

  The shoulder of the stem slides against a RPTFE thrust washer to provide low operating torque.

- Adjustable Stem Packing

  Graphite stem packing is adjustable in the field. Packing is self-lubricating and is replaceable.

- Locking Devices

  Both lever operated and gear operated valves are provided with locking devices and travel stops that are independent of the stem packing adjustment bolts.

- O-Ring Free Design

  The seal design allows the valve to be O-Ring free which can extend the valve upper and lower temperature range.

  O-Ring free design reduces media compatibility concerns by one component.

- Double Anti-static Stem

  Valve design includes anti-static devices from both the ball-to-stem and the stem-to-body to ensure electrical continuity through the valve.

- NACE Compatible

  Valves stocked meet NACE MR 0175 and ISO 15156 as a standard.

PRODUCT RANGE API 6D FP AND RP

(Available in full and regular port.)

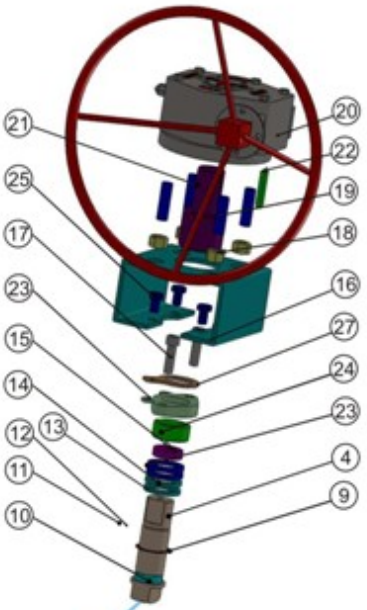
Size	ANSI 150	ANSI 300	ANSI 600
1/2"	●	●	●
3/4"	●	●	●
1"	●	●	●
1 1/2"	●	●	●
2"	●	●	●
4"	●	●	●
6"	●	●	
8"	●	●	
10"	●		

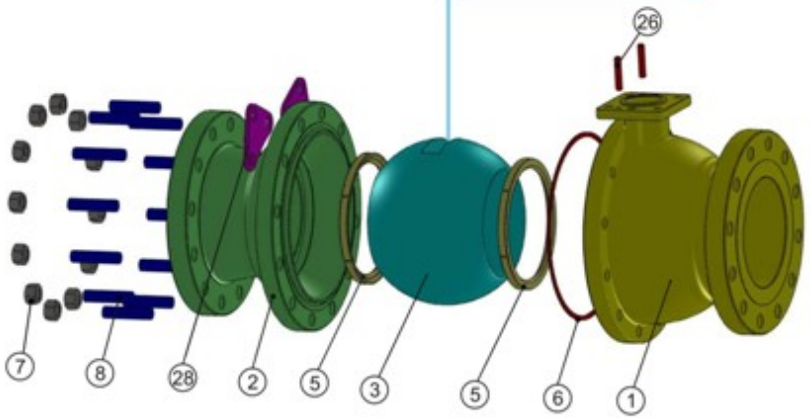
DESIGN AND TEST STANDARDS

DESIGN	API 6D, CSA Z245.15, API 608, ISO 17292, CSA B51
PRESSURE/TEMPERATURE	ASME B16.34
FACE TO FACE	ASME B16.10
END FLANGES	ASME B16.5
FIRESAFE	API 607
SOUR SERVICE	NACE MR0175/ISO 15156
TOP FLANGE	ISO 5211
INSPECTION	API 598
TESTING	API 6D, CSA Z245.15 (Includes High and Low Pressure Air Seat Test)
MARKING	MSS SP-25, API 6D, CSA Z245.15
QUALITY	MSS SP-55
DOCUMENTATION	BS EN 1020403.1
REGISTRATION	CRN IN PLACE FOR CANADA

CROSS SECTIONAL DRAWING & BOM

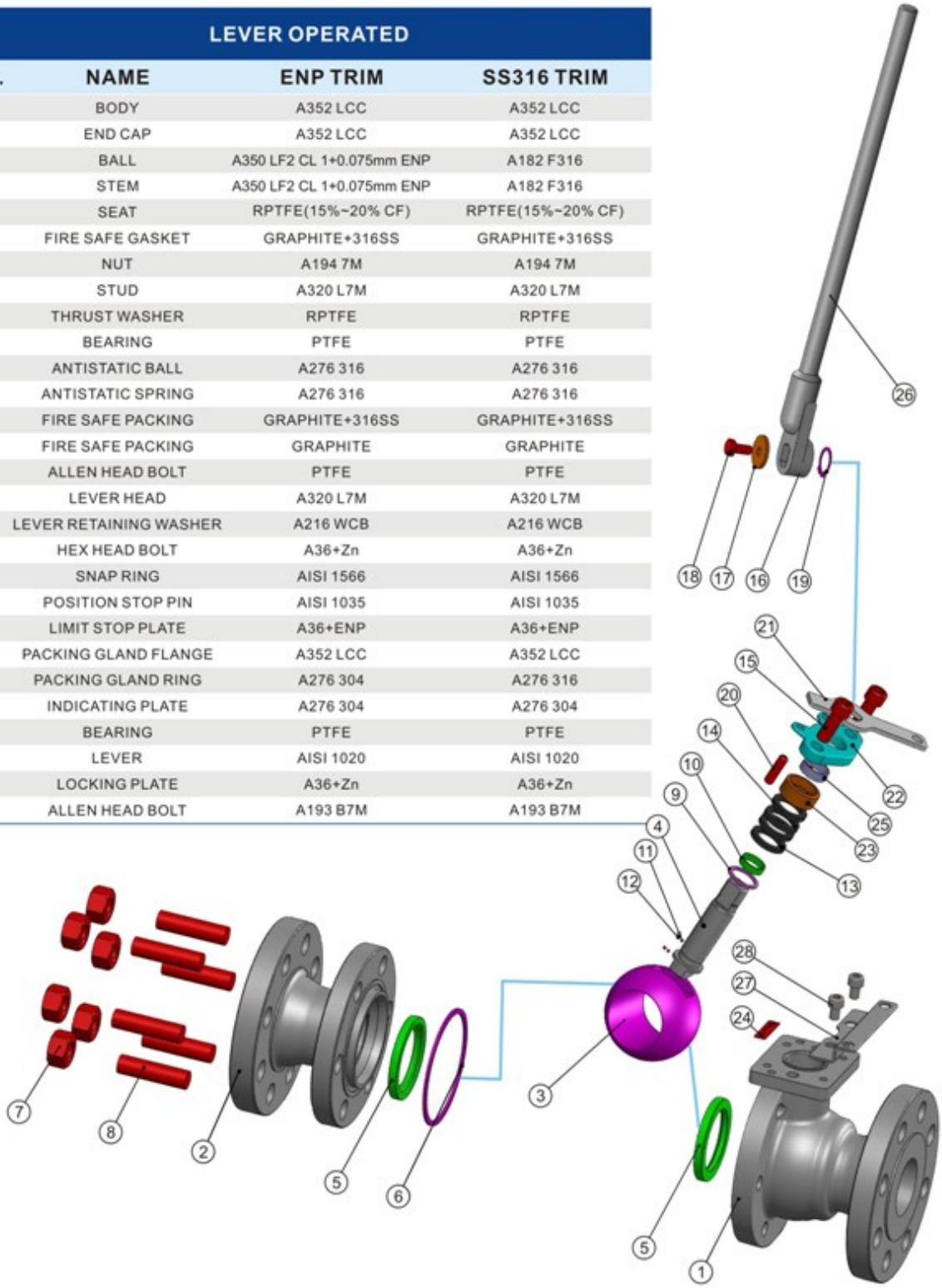
GEAR OPERATED			
NO.	NAME	ENP TRIM	SS316 TRIM
1	BODY	A352 LCC	A352 LCC
2	END CAP	A352 LCC	A352 LCC
3	BALL	A350 LF2 CL 1+0.075mm ENP	A182 F316
4	STEM	A350 LF2 CL 1+0.075mm ENP	A182 F316
5	SEAT	RPTFE(15%~20% CF)	RPTFE(15%~20% CF)
6	FIRE SAFE GASKET	GRAPHITE+316SS	GRAPHITE+316SS
7	NUT	A194 7M	A194 7M
8	STUD	A320 L7M	A320 L7M
9	THRUST WASHER	RPTFE	RPTFE
10	BEARING	PTFE	PTFE
11	ANTISTATIC BALL	A276 316	A276 316
12	ANTISTATIC SPRING	A276 316	A276 316
13	FIRE SAFE PACKING	GRAPHITE+316SS	GRAPHITE+316SS
14	FIRE SAFE PACKING	GRAPHITE	GRAPHITE
15	BEARING	PTFE	PTFE
16	MOUNTING BRACKET	A36	A36
17	ALLEN HEAD BOLT	A320 L7M	A320 L7M
18	NUT	A194 7M	A194 7M
19	STUD	A320 L7M	A320 L7M
20	GEAR OPERATOR	ASSEMBLY	ASSEMBLY
21	GEAR OPERATOR DRIVE COUPLING	A29 4135+ENP	A29 4135+ENP
22	KEY	AISI 1045	AISI 1045
23	PACKING GLAND FLANGE	A320 LCC	A320 LCC
24	PACKING GLAND RING	A276 304	A276 304
25	HEX HEAD BOLT	A320 L7M	A320 L7M
26	POSITION STOP PIN	AISI 1035	AISI 1035
27	LIMIT STOP PLATE	A36+ENP	A36+ENP
28	LIFTING LUGS	A36	A36





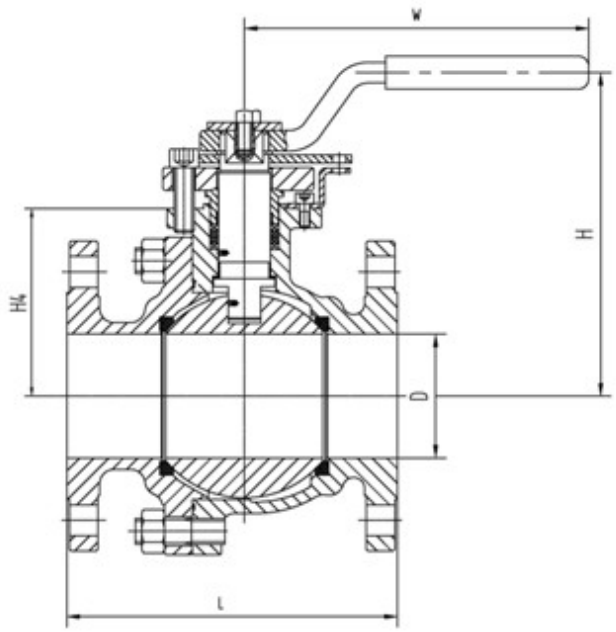
LEVER OPERATED

NO.	NAME	ENP TRIM	SS316 TRIM
1	BODY	A352 LCC	A352 LCC
2	END CAP	A352 LCC	A352 LCC
3	BALL	A350 LF2 CL 1+0.075mm ENP	A182 F316
4	STEM	A350 LF2 CL 1+0.075mm ENP	A182 F316
5	SEAT	RPTFE(15%~20% CF)	RPTFE(15%~20% CF)
6	FIRE SAFE GASKET	GRAPHITE+316SS	GRAPHITE+316SS
7	NUT	A194 7M	A194 7M
8	STUD	A320 L7M	A320 L7M
9	THRUST WASHER	RPTFE	RPTFE
10	BEARING	PTFE	PTFE
11	ANTISTATIC BALL	A276 316	A276 316
12	ANTISTATIC SPRING	A276 316	A276 316
13	FIRE SAFE PACKING	GRAPHITE+316SS	GRAPHITE+316SS
14	FIRE SAFE PACKING	GRAPHITE	GRAPHITE
15	ALLEN HEAD BOLT	PTFE	PTFE
16	LEVER HEAD	A320 L7M	A320 L7M
17	LEVER RETAINING WASHER	A216 WCB	A216 WCB
18	HEX HEAD BOLT	A36+Zn	A36+Zn
19	SNAP RING	AISI 1566	AISI 1566
20	POSITION STOP PIN	AISI 1035	AISI 1035
21	LIMIT STOP PLATE	A36+ENP	A36+ENP
22	PACKING GLAND FLANGE	A352 LCC	A352 LCC
23	PACKING GLAND RING	A276 304	A276 316
24	INDICATING PLATE	A276 304	A276 304
25	BEARING	PTFE	PTFE
26	LEVER	AISI 1020	AISI 1020
27	LOCKING PLATE	A36+Zn	A36+Zn
28	ALLEN HEAD BOLT	A193 B7M	A193 B7M



SIZES, DIMENSIONS & WEIGHTS

1/2" TO 1 1/2" FULL PORT, LEVER OPERATED						
		ASME CLASS 150				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
1/2	15	108	82	40	150	3
3/4	19	117	90	39	150	3
1	25	127	100	46	150	6
1 1/2	38	165	116	65	300	7
		ASME CLASS 300				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
1/2	15	140	87	39	150	3
3/4	19	152	90	39	150	4
1	25	165	100	46	150	6
1 1/2	38	190	116	65	300	11
		ASME CLASS 600				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
1/2	15	165	87	38	150	3
3/4	19	190	90	39	150	5
1	25	216	100	46	150	7
1 1/2	38	241	117	66	400	14

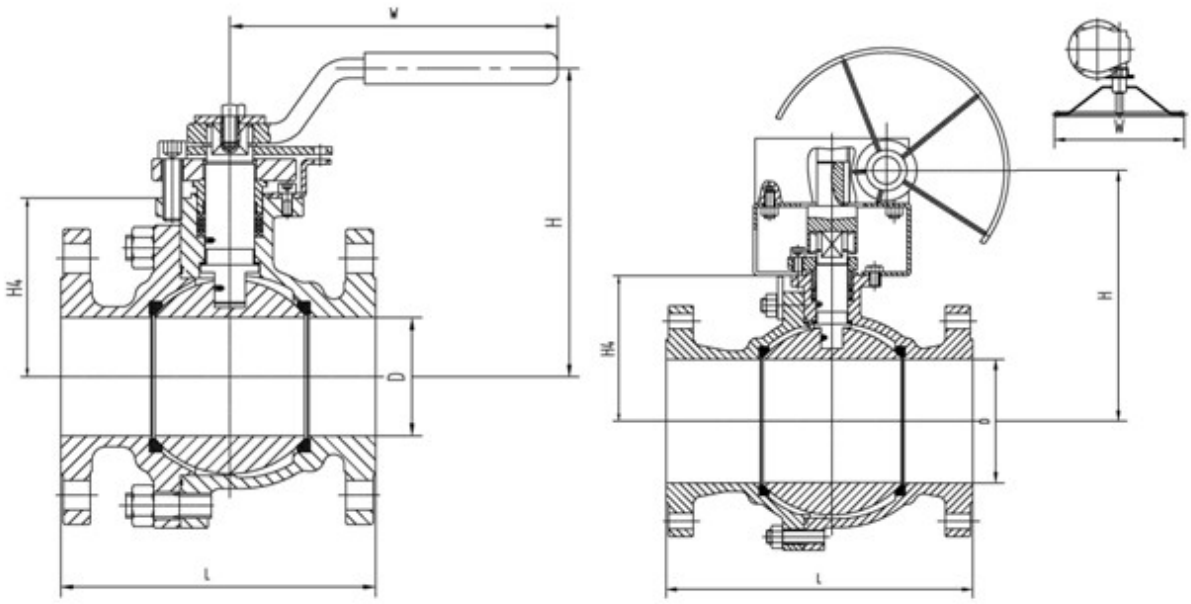


2" TO 10" FULL PORT, LEVER OR GEAR OPERATED

		ASME CLASS 150				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
2	50	178	135	84	300	10
3	75	203	176	115	400	20
4	100.1	229	196	135	460	35
6	151	394	353	192	460	96
8	202	457	411	240	600	165
10	252	533	465	290	600	250

		ASME CLASS 300				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
2	50	216	135	89	300	16
3	75	282	176	115	550	36
4	100.1	305	196	135	600	60
6	151	403	353	191	465	118
8	202	502	411	240	600	236

		ASME CLASS 600				SIZE IN INCHES DIMENSIONS IN MM
SIZE	D-FULL PORT	L	H	H4	W	WEIGHT(kg)
2	50	292	135	86	550	22
3	75	356	183	122	700	40
4	100.1	432	280	154	850	80

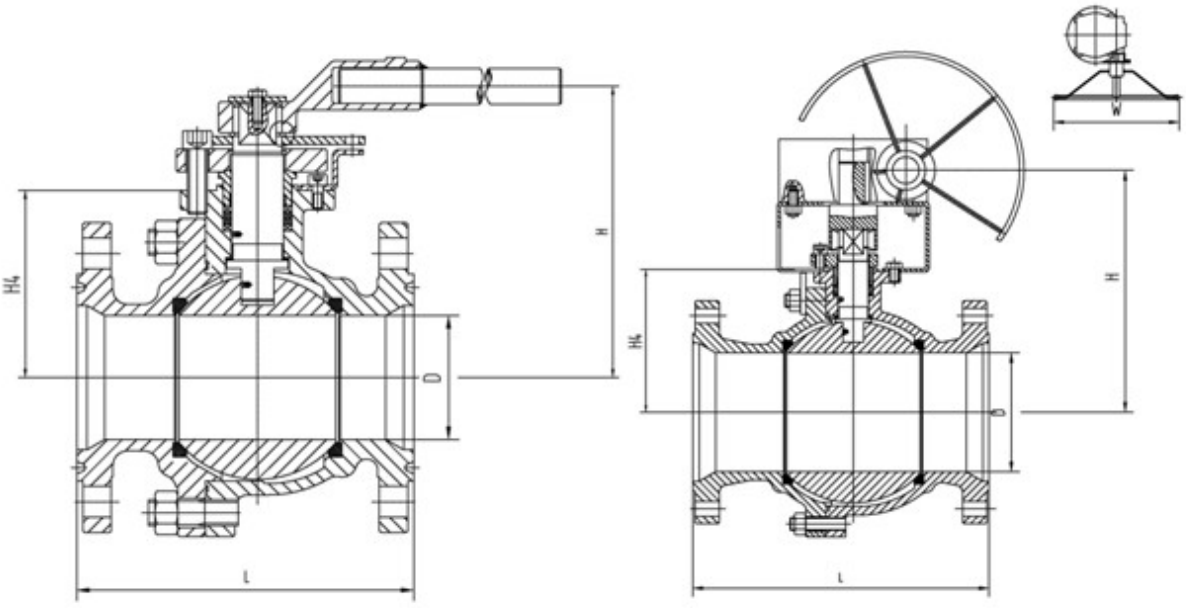


2" TO 10" REDUCED PORT, LEVER OR GEAR OPERATED

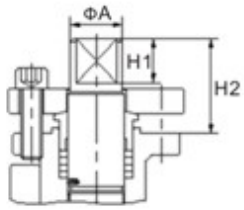
		ASME CLASS 150			SIZE IN INCHES DIMENSIONS IN MM	
SIZE	D-REDUCED PORT	L	H	H4	W	WEIGHT(kg)
2X1 1/2"	38	178	116	65	300	10
3X2"	50	203	135	84	300	18
4X3"	75	229	176	115	400	35
6X4"	100.1	394	196	135	460	60
8X6"	151	457	356	192	460	120
10X8"	202	533	411	240	600	145

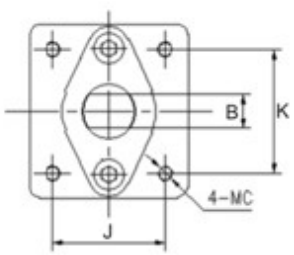
		ASME CLASS 300			SIZE IN INCHES DIMENSIONS IN MM	
SIZE	D-REDUCED PORT	L	H	H4	W	WEIGHT(kg)
2X1 1/2"	38	216	116	65	300	15
3X2"	50	282	135	89	400	31
4X3"	75	305	176	115	550	57
6X4"	100.1	403	196	135	600	83
8X6"	151	502	353	191	465	191

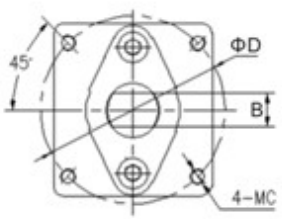
		ASME CLASS 600			SIZE IN INCHES DIMENSIONS IN MM	
SIZE	D-REDUCED PORT	L	H	H4	W	WEIGHT(kg)
2X1 1/2"	38	292	117	66	400	18
3X2"	50	356	135	86	550	35
4X3"	75	432	183	122	700	55
6X4"	100.1	559	280	154	850	106



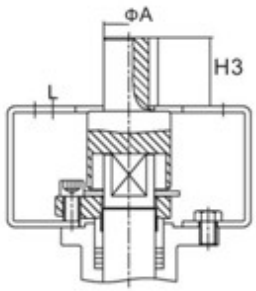
TOP WORK DIMENSIONS

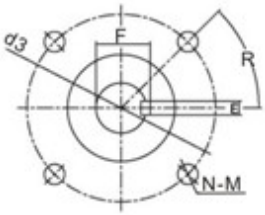


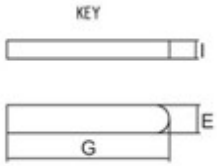




NPS 1/2" - 1" CLASS 150-600 NPS 1 1/2" - 4" CLASS 150-600







NPS 6" - 10" CLASS 150, 6" - 8" CLASS 300

ASME CLASS 150														SIZE IN INCHES DIMENSIONS IN MM				
NPS	A	B	C	D	E	F	G	H1	H2	H3	I	J	K	ISO	d3	N-M	L	R
1/2"	12	8	4-M6					7.5	18			31	31					
3/4"	12	8	4-M6					8.5	20.5			25	47					
1"	12	8	4-M6					9	22.5			29	53					
1 1/2"	20	14	4-M8	70				20	40					F07				45°
2X1 1/2"	20	14	4-M8	70				20	40					F07				45°
2"	20	14	4-M8	70				22	40					F07				45°
3X2"	20	14	4-M8	70				22	40					F07				45°
3"	30	20	4-M10	102				24	53					F10				45°
4X3"	30	20	4-M10	102				24	53					F10				45°
4"	30	20	4-M10	102				24	53					F10				45°
6X4"	30	20	4-M10	102				24	53					F10				45°
6"	40				12	43	55			58	8			F12	125	4-Φ14	6	45°
8X6"	40				12	43	55			58	8			F12	125	4-Φ14	6	45°
8"	50				14	53.5	70			71.5	9			F14	140	4-Φ18	8	45°
10X8"	50				14	53.5	70			71.5	9			F14	140	4-Φ18	8	45°
10"	50				14	53.5	70			66	9			F14	140	4-Φ18	8	45°

ASME CLASS 300

SIZE IN INCHES DIMENSIONS IN MM

NPS	A	B	C	D	E	F	G	H1	H2	H3	I	J	K	ISO	d3	N-M	L	R
1/2"	12	8	4-M6					8.5	20.5			25	47					
3/4"	12	8	4-M6					8.5	20.5			25	47					
1"	12	8	4-M6					9	22.5			29	53					
1 1/2"	20	14	4-M8	70				20	40					F07				45°
2X1 1/2"	20	14	4-M8	70				20	40					F07				45°
2"	20	14	4-M8	70				21	39					F07				45°
3X2"	20	14	4-M8	70				21	39					F07				45°
3"	30	20	4-M10	102				24	53					F10				45°
4X3"	30	20	4-M10	102				24	53					F10				45°
4"	30	20	4-M10	102				24	53					F10				45°
6X4"	30	20	4-M10	102				24	53					F10				45°
6"	40				12	43	55			58	8			F12	125	4-Φ14	6	45°
8X6"	40				12	43	55			58	8			F12	125	4-Φ14	6	45°
8"	50				14	53.5	70			71.5	9			F14	140	4-Φ18	8	45°

ASME CLASS 600

SIZE IN INCHES DIMENSIONS IN MM

NPS	A	B	C	D	E	F	G	H1	H2	H3	I	J	K	ISO	d3	N-M	L	R
1/2"	12	8	4-M6					8.5	19.5			25	47					
3/4"	12	8	4-M6					8.5	19.5			25	47					
1"	12	8	4-M6					8.5	22.5			29	53					
1 1/2"	20	14	4-M8	70				20.5	39					F07				45°
2X1 1/2"	20	14	4-M8	70				20.5	39					F07				45°
2"	20	14	4-M8	70				22	39.5					F07				45°
3X2"	20	14	4-M8	70				22	39.5					F07				45°
3"	30	20	4-M10	102				25	51.5					F10				45°
4X3"	30	20	4-M10	102				25	51.5					F10				45°
4"	40	30	4-M12	125				37.5	75					F12				45°
6X4"	40	30	4-M12	125				37.5	75					F12				45°

TORQUE VALUES

OPEN TORQUE AT MAX. PRESSURE			UNIT:N.M
	RPTFE SEAT		NYLON/DEVLON SEAT
SIZE	CLASS 150	CLASS 300	CLASS 600
1/2"	7	11	14
3/4"	11	14	20
1"	14	18	27
1 1/2"	34	49	73
2"	45	80	108
3"	90	128	268
4"	145	234	428
6"	540	855	
8"	945	1800	
10"	1800		

Remarks:Refer to reduced bore floating ball valve, we confirm that the torques shown are based on valve bore size.

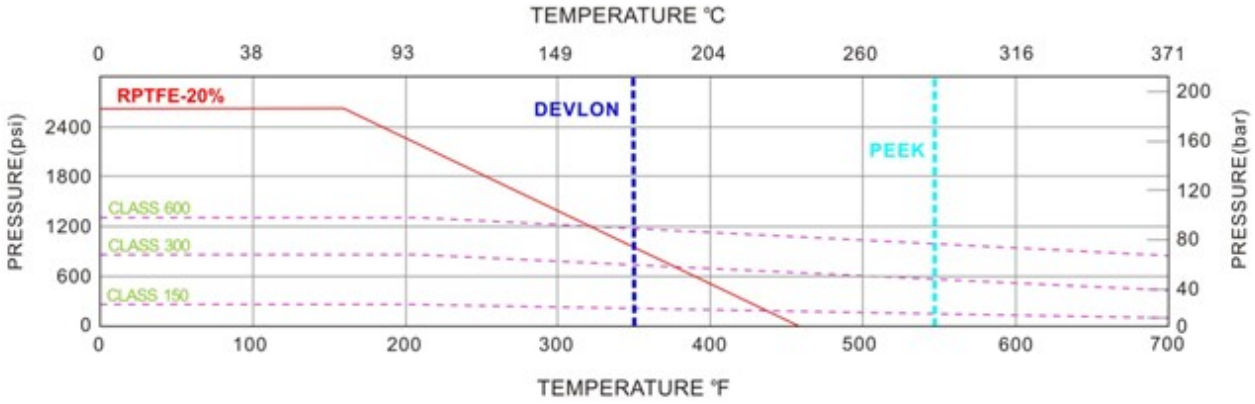
REMARK:

1. Torque values above are for new valves in clean water service.
2. Torque values are in Newton meters, and excluding safety factor.
3. Required safety factor is 1.35.
4. For unclean service, additional safety factor 30% is required.
5. For dry gas service, additional safety factor 50% is required.
6. Torques reflect valve bore, for RP select appropriate bore size.
7. Torques above are based upon standard seat insert offerings. Class 150 & 300: PTFE; class 600: DEVLON. Consult factory for torques for differing seat materials.

CV VALUES

FULL BORE				REDUCED BORE			
Size(in)	150#	300#	600#	Size(in)	150#	300#	600#
1/2	46	46	46	2*1 1/2	306	306	306
3/4	97	97	97	3*2	377	377	377
1	168	168	168	4*3	1043	1043	1043
1 1/2	389	389	389	6*4	1587	1587	1587
2	647	647	647	8*6	4364	4364	
3	2086	2086	2086	10*8	7495		
4	2694	2694	2694				
6	6062	6062					
8	10885	10885					
10	17109						

PRESSURE & TEMPERATURE CHART FOR TYPICAL SEAT & SEAL MATERIALS



Consult ASME 16.34 for specific material pressure/temperature ratings.

PART NUMBER CONFIGURATION

F	B2	F	20	R	03	N	L	1	1	1	A	G
1	2	3	4	5	6	7	8	9	10	11	12	13

1-Valve Type

T=Trunnion DBB
T1=Trunnion DIB-1
T2=Trunnion DIB-2
F=Floating

2-Body Construction

B2=Bolted 2 piece
B3=Bolted 3 piece
TE=Top Entry
WB=Welded Body

3-Port Type

F=Full Bore
R=Reduced Bore

4-Nominal Size

050=1/2"
075=3/4"
10=1"
15=1 1/2"
20=2"
25=2 1/2"
30=3"
40=4"
60=6"
80=8"
100=10"
120=12"
140=14"
160=16"
180=18"
200=20"
240=24"
260=26"
280=28"
300=30"
320=32"
360=36"
420=42"
480=48"

5-Connection

R-RF
B-BW
J-RTJ

6-Pressure

01=150
03=300
06=600
09=900
15=1500
25=2500

7-Service

L=Low Temp. NACE
N=Regular Temp. NACE
A=Corrosive NACE
R=Regular Temp.
O=Oxygen
C=Cryogenic
H=High Temp.

8-Top Works

G=Gear
L=Lever
B-Bare Stem
A-Actuator

9-Body Material

1=A216 WCB
2=A105N
3=LCC
4=LF2
5=CF8M
6=F316
7=Duplex
8=Super Duplex
X=Special

10-Ball Material

1=A105N+ENP
2=LF2+ENP
3=4140+ENP
4=F316
5=F6A
6=F51
7=F53
8=F55
X=Special

11-Stem Material

1=A105N+ENP
2=LF2+ENP
3=4140+ENP
4=F316
5=F6A
6=F51
7=F53
8=F55
X=Special

12-Seat Material

A=RPTFE
B=Devlon V
C=PEEK
D=Nylon
E=Delrin
F=Metal
X=Special

13-Seal Material

A=Viton GLT
V=Viton
H=HNBR
L=HNBR-LT
E=PTFE+Elgiloy Spring
G=Graphite
T=Teflon
X=Special

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