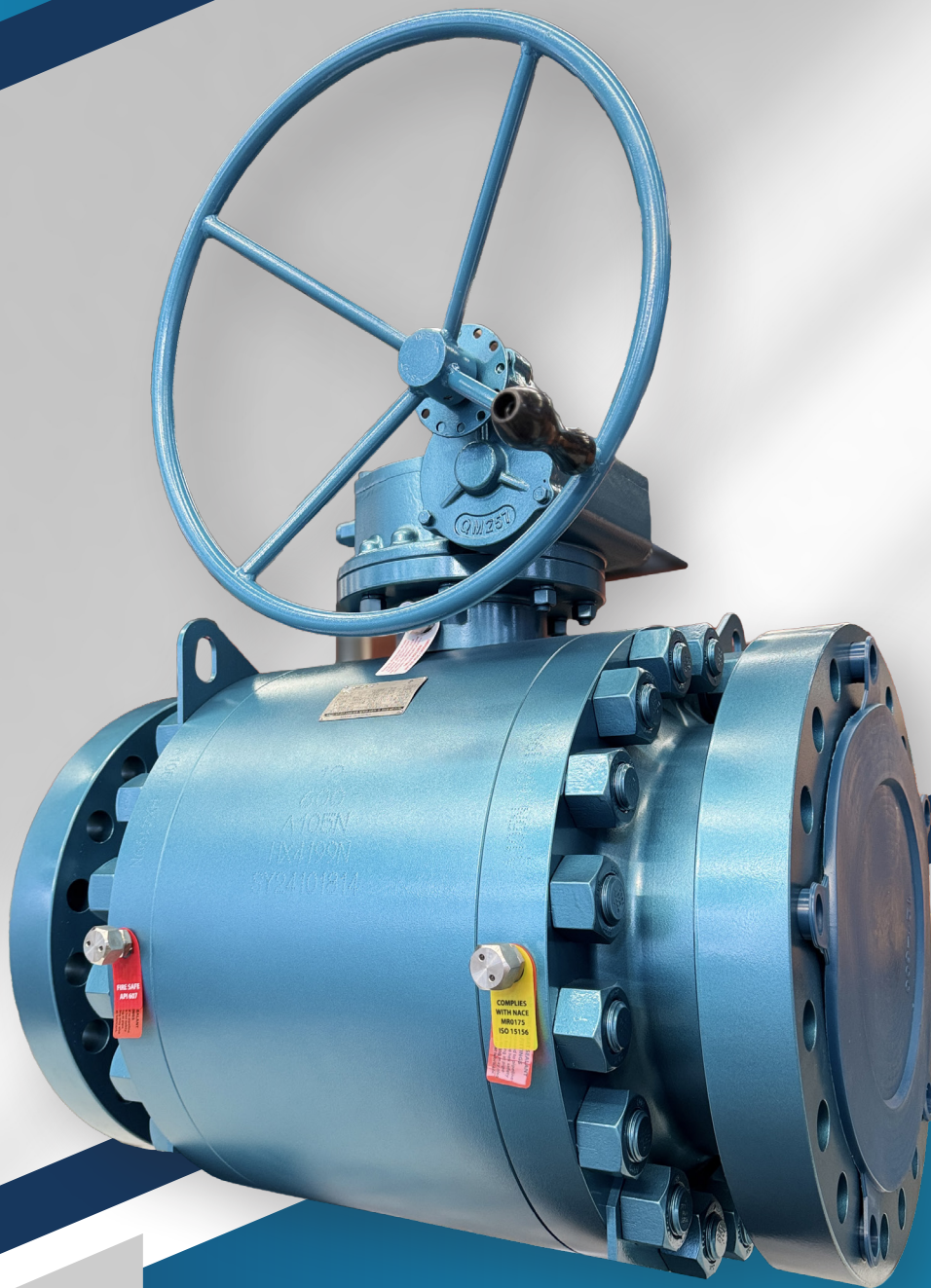


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OILFIELD | MARINE | INDUSTRIAL | AGRICULTURE

FORGED TRUNNION MOUNTED BALL VALVES

SIZE RANGE: 2" - 24"

PRESSURE CLASS: ASME 150# - 1500#

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- 3 GENERAL DESIGN
- 3 FEATURES SUMMARY
- 4 MAJOR PARTS BILL OF MATERIALS
- 5 BASIC DIMENSIONAL AND TORQUE DATA
- 6 HOW-TO-ORDER GUIDE



TECHNICAL INFORMATION

GENERAL DESIGN

- Basic design as per API 6D/ASME B16.34
- Face-to-face as per API 6D/ANSI B16.10
- End flange as per ASME B16.5/B16.25
- Actuator mounting pad on the valve as per ISO 5211
- Wall thickness as per API 6D/ASME B16.34
- Fire-safe design as per API 607
- Visual inspection as per API 6D/ASME BPVC Section VIII, Division 1, UF-45 & UF-46/MSS-SP-55
- Valves shall be marked as per API 6D/MSS-SP-25
- NACE MR.01.75 Compliance
- BS EN 10204 Metallic Products Inspection Documents
- Pressure Tests as per API 598/API 6D/ISO 5208



FEATURES SUMMARY

- Anti-static device
- Blowout-proof stem
- Fire-safe design approved
- Double block and bleed (Standard for all Trunnion Ball Valves)
- Double insulated and bleed on request (DIB-1 & DIB-2)
- Pressure self-relief for all DBB Trunnion Ball Valves
- Emergency seal recovery
- ISO 15848/API 641 Fugitive Emissions passable
- Lockable design

TECHNICAL INFORMATION

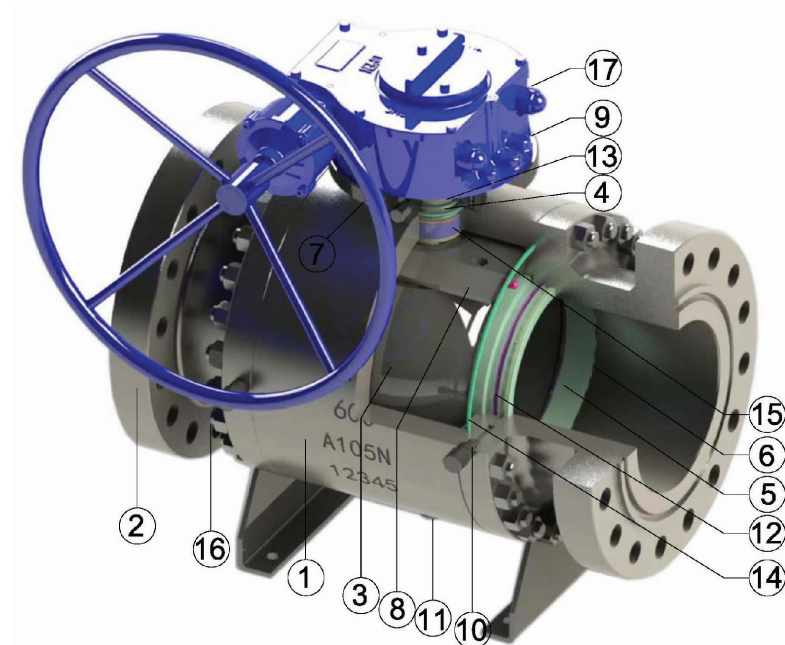
GENERAL INFORMATION & MAJOR PARTS BILL OF MATERIALS

SIZE RANGE: 2" - 24" · PRESSURE CLASS: ASME 150#-1500#

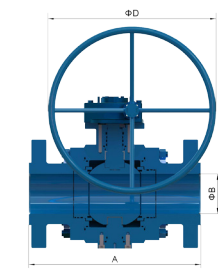
ITEM	PART	TYPICAL MATERIAL		
1	Body	A105N	A350 LF2	A182-F316
2	End Flange	A105N	A350 LF2	A182-F316
3	Ball	A105N+3MIL ENP	A350 LF2+3MIL ENP	A182-F316
4	Stem	AISI 4140+3MIL ENP	AISI 4140+3MIL ENP	A182-F51
5	Seat Assembly	A105N+3MIL ENP/DEVILON, RPTFE, PEEK	A350 LF2+3MIL ENP/DEVILON, RPTFE, PEEK	A182-F316/DEVILON, RPTFE, PEEK
6	Seat Spring	INCONEL X 750	INCONEL X 750	INCONEL X 750
7	Gland	A105N	A350 LF2	A182-F316
8	Trunnion/Support Plate	A105N	A350 LF2	A182-F316
9	Adaptor Flange	A105N	A350 LF2	A182-F316
10	Injection Fittings	A276 304	A276 304	A276 316
11	Vent Valve/Drain Plug	A276 304	A276 304	A276 316
12	O-ring Seal	HNBR/VITON	HNBR/VITON	HNBR/VITON
13	Stem Packing	Graphite	Graphite	Graphite
14	Gasket	316+Graphite	316+Graphite	316+Graphite
15	DU-Bearing	316+PTFE	316+PTFE	316+PTFE
16	Bolting	B7M/2HM	L7M/7M	B8M/8M
17	Handle/Gear Operators	Carbon Steel/Cast Iron	Carbon Steel/Cast Iron	Carbon Steel/Cast Iron

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST.

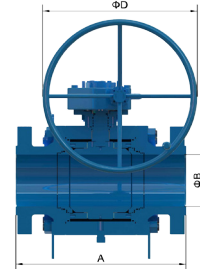
TYPICAL CONFIGURATION



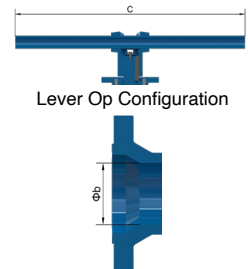
BASIC DIMENSIONAL DATA



2"-4" Full Port Configuration



6" & Above Full Port Configuration



Lever Op Configuration

Size (in/mm)		Pressure Class	A (in/mm) RF FLANGE		A (in/mm) RTJ FLANGE		Ful Port Bφ (in/mm)		Reduced Port bφ (in/mm)		C (Lever op) (in/mm)		Dφ (Handwheel) (in/mm)		APPROX.WEIGHT (LB/KG)	
2	50	150	7.00	178	7.50	191	1.93	49	1.50	38	14.06	357	6.30	160	62	28
		300	8.50	216	9.13	232	1.93	49	1.50	38	14.06	357	6.30	160	75	34
		600	11.50	292	11.63	295	1.93	49	1.50	38	23.50	597	11.02	280	104	47
		900	14.50	368	14.63	371	1.93	49	1.50	38	25.59	650	11.02	280	157	71
		1500	14.50	368	14.63	371	1.93	49	1.50	38	25.59	650	11.02	280	157	71
3	80	150	8.00	203	8.50	216	2.91	74	1.93	49	19.96	507	7.87	200	88	40
		300	11.13	283	11.75	298	2.91	74	1.93	49	19.96	507	7.87	200	123	56
		600	14.00	356	14.13	359	2.91	74	1.93	49	27.83	707	12.60	320	201	91
		900	15.00	381	15.13	384	2.91	74	1.93	49	29.53	750	12.60	320	251	114
		1500	18.50	470	18.86	473	2.91	74	1.93	49	-	-	14.17	360	331	150
4	100	150	9.00	229	9.50	241	3.94	100	2.91	74	23.90	607	7.87	200	148	67
		300	12.00	305	12.63	321	3.94	100	2.91	74	23.90	607	11.02	280	187	85
		600	17.00	432	17.13	435	3.94	100	2.91	74	33.74	1100	14.17	360	333	151
		900	18.00	457	18.13	460	3.94	100	2.91	74	-	-	14.17	360	392	178
		1500	21.50	546	21.63	549	3.94	100	2.91	74	-	-	18.11	460	511	232
6	150	150	15.50	394	16.00	406	5.91	150	3.94	100	-	-	12.60	320	353	160
		300	15.88	403	16.50	419	5.91	150	3.94	100	-	-	14.17	360	386	175
		600	22.00	559	22.13	562	5.91	150	3.94	100	-	-	18.11	460	606	275
		900	24.00	610	24.13	613	5.91	150	3.94	100	-	-	19.69	500	789	358
		1500	27.75	705	28.00	711	5.67	144	3.94	100	-	-	19.69	500	1334	605
8	200	150	18.00	457	18.50	470	7.91	201	5.91	150	-	-	14.17	360	593	269
		300	19.75	502	20.38	518	7.91	201	5.91	150	-	-	18.11	460	699	317
		600	26.00	660	26.13	664	7.91	201	5.91	150	-	-	23.62	600	1041	472
		900	29.00	737	29.13	740	7.91	201	5.91	150	-	-	23.62	600	1400	635
		1500	32.75	832	33.13	841	7.55	192	5.67	144	-	-	23.62	600	2330	1057
10	250	150	21.00	533	21.50	546	9.92	252	7.91	201	-	-	19.69	500	908	412
		300	22.38	568	23.00	584	9.92	252	7.91	201	-	-	19.69	500	1008	457
		600	31.00	787	31.13	791	9.92	252	7.91	201	-	-	19.69	500	1720	780
		900	33.00	838	33.13	841	9.92	252	7.91	201	-	-	23.62	600	2209	1002
		1500	39.00	991	39.38	1000	9.41	239	7.55	192	-	-	23.62	600	3942	1788
12	300	150	24.00	610	24.50	622	11.93	303	9.92	252	-	-	19.69	500	1314	596
		300	25.50	648	26.13	664	11.93	303	9.92	252	-	-	19.69	500	1523	691
		600	33.00	838	33.13	841	11.93	303	9.92	252	-	-	23.62	600	2368	1074
		900	38.00	965	38.13	968	11.93	303	9.92	252	-	-	23.62	600	3278	1487
		1500	44.50	1130	45.13	1146	11.30	287	9.41	239	-	-	23.62	600	5335	2420
14	350	150	27.00	686	27.50	699	13.15	334	9.92	252	-	-	23.62	600	1808	820
		300	30.00	762	30.63	778	13.15	334	9.92	252	-	-	19.69	500	2161	980
		600	35.00	889	35.13	892	13.15	334	9.92	252	-	-	19.69	500	2987	1355
		900	40.50	1092	40.88	1038	12.67	322	9.92	252	-	-	23.62	600	4217	1913
		1500	49.50	1257	50.25	1276	12.40	315	9.41	239	-	-	23.62	600	7275	3300
16	400	150	30.00	762	30.50	775	15.16	385	11.93	303	-	-	19.69	500	2381	1080
		300	33.00	838	33.63	854	15.16	385	11.93	303	-	-	23.62	600	2734	1240
		600	39.00	991	39.13	994	15.16	385	11.93	303	-	-	23.62	600	4114	1866
		900	44.50	1130	44.88	1140	14.69	373	11.93	303	-	-	23.62	600	6030	2735
		1500	54.50	1384	55.38	1407	14.17	360	11.30	287	-	-	27.56	700	10472	4750
18	450	150	34.00	864	34.50	876	17.16	436	13.15	334	-	-	23.62	600	3131	1420
		300	36.00	914	36.63	930	17.16	436	13.15	334	-	-	23.62	600	3825	1735
		600	43.00	1092	43.13	1095	17.16	436	13.15	334	-	-	23.62	600	5655	2565
		900	48.00	1219	48.50	1232	16.65	423	12.67	322	-	-	23.62	600	7275	3300
		1500	60.50	1537	61.38	1559	15.98	406	12.40	315	-	-	31.50	800	14032	6365
20	500	150	36.00	914	36.50	927	19.17	487	15.16	385	-	-	23.62	600	4343	1970
		300	39.00	991	39.75	1010	19.17	487	15.16	385	-	-	23.62	600	5203	2360
		600	47.00	1194	47.25	1200	19.17	487	15.16	385	-	-	23.62	600	7628	3460
		900	52.00	1321	52.50	1334	18.54	471	14.69	373	-	-	27.56	700	10263	4655
		1500	65.50	1664	66.38	1686	17.87	454	14.17	360	-	-	31.50	800	18078	8200
24	600	150	42.00	1067	42.50	1080	23.19	589	19.17	487	-	-	23.62	600	6742	3058
		300	45.00	1143	45.88	1165	23.19	589	19.17	487	-	-	23.62	600	8157	3700
		600	55.00	1397	55.38	1407	23.19	589	19.17	487	-	-	27.56	700	12555	5695
		900	61.00	1549	61.75	1568	22.44	570	18.54	471	-	-	31.50	800	17284	7840
		1500	-	-	77.63	1972.00	21.50	546	17.87	454	-	-	31.50	800	31548	14310

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST.

TORQUE DATA

Size (in/mm)		Pressure Class	Break Torque (No safety factor included)	
			(Nm)	(in-lb)
2	50	150	45	398
		300	60	531
		600	100	885
		900	150	1327
		1500	230	2035
3	80	150	80	708
		300	105	929
		600	240	2124
		900	427	3779
		1500	500	4425
4	100	150	150	1327
		300	210	1858
		600	460	4071
		900	750	6637
		1500	1000	8850
6	150	150	400	3540
		300	550	4867
		600	900	7965
		900	1400	12389
		1500	2800	24779
8	200	150	800	7080
		300	1100	9735
		600	1680	14867
		900	2200	19469
		1500	5000	44248
10	250	150	1100	9735
		300	1800	15929
		600	3170	28053
		900	4500	39823
		1500	10000	88496

Size (in/mm)		Pressure Class	Break Torque (No safety factor included)	
			(Nm)	(in-lb)
12	300	150	1700	15044
		300	2500	22124
		600	4000	35398
		900	5300	46903
		1500	13500	119469
14	350	150	1800	15929
		300	3200	28319
		600	5400	47788
		900	9300	82301
		1500	17000	150442
16	400	150	2400	21239
		300	3850	34071
		600	6000	53097
		900	12000	106195
		1500	25000	221239
18	450	150	4180	36991
		300	6600	58407
		600	10100	89381
		900	20000	176991
		1500	36000	318584
20	500	150	5050	44690
		300	8250	73009
		600	12700	112389
		900	24000	212389
		1500	45000	398230
24	600	150	7450	65929
		300	12260	108496
		600	20720	183363
		900	36000	318584
		1500	75000	663717

NOTE

- The above torque is the theoretical torque value of DEVLON seat material.
- Any other seat material will cause a difference in torque. Please contact the manufacturer for details.
- The above values are new valve torque values at maximum differential pressure.
- Actuator selection should be made on customer experience and appropriate safety factors.
- Additional information is available upon request.

HOW-TO-ORDER GUIDE

8

VALVE SIZE

2"	4"	10"	16"	24"	30"	36"	42"	48"
2-1/2"	6"	12"	18"	26"	32"	38"	44"	
3"	8"	14"	20"	28"	34"	40"	46"	

BT

VALVE TYPE

BF - Floating Ball Valve
BT - Trunnion Ball Valve

6

PRESSURE RATING

1 - Class 150	6 - Class 600	A - Class 1500	H - 2000 PSI	J - 5000 PSI
3 - Class 300	9 - Class 900	B - Class 2500	I - 3000 PSI	K - 6000 PSI

3

BODY STRUCTURE

1 - One Piece, Unibody	3 - Three Piece, Split Body	W - Fully Welded
2 - Two Piece, Split Body	4 - Top Entry	

F

BORE

F - Full bore
R - Reduced bore

R

END CONNECTION

R - Raised Face Flange	F - Flat-Face Flanged End	3 - Screwed Female
J - Ring-Type Joint Flange	T - Threaded	x Screwed Male
B - Butt-Welded Flange	1 - Screwed	X - Special
S - Socket-Welded	2 - Screwed x Socket Weld	

A

BODY MTL

W - WCB	D - LCC	G - CF8M	J - F304	M - F316L	P - F55
B - A105	E - LF2	H - CF3	K - F304L	N - F51	X - Special
C - LCB	F - CF8	I - CF3M	L - F316	O - F53	

1

TRIM

1 - A105/ENP	3 - F6A/13CR	5 - F316	7 - F316L	9 - 4140/ENP
2 - LF2/ENP	4 - F304	6 - F304L	8 - F51	X - Special

B

SEAT MTL

G - RTFE	E - DEVLON	J - DELRIN
B - NYLON	V - PEEK	X - Special

2

SEAL MTL

1 - HNBR	3 - VITON GLT	5 - AFLAS	7 - Graphite
2 - VITON	4 - EPDM	6 - PTFE LIP SEAL	X - Special

G

OPERATION

L - Lever	B - Bare Stem	P - Pneumatic Actuator
G - Gear + Handwheel	E - Electric Actuator	

N

SPECIAL REQUIREMENTS

S - Standard	N - NACE	E - Extended Bonnet
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